

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ATTENDS HEALTHCARE PRODUCTS, INC.,

Petitioner,

v.

PAUL HARTMANN AG,

Patent Owner.

Case IPR2020-01479
Patent 8,771,249 B2

PETITIONER'S REPLY

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Petitioner's Exhibit List

Ex.	Shorthand	Description
1001	'249 Patent	U.S. Patent No. 8,771,249
1002	Benning	U.S. Patent App. Pub. No. 2005/0256496
1003	Karami '772	U.S. Patent App. Pub. No. 2006/0058772
1004	Karami '626	U.S. Patent App. Pub. No. 2003/0220626
1005	Miyamoto '499	U.S. Patent App. Pub. No. 2004/0016499
1006	Kleinschmidt	U.S. Patent No. 6,547,773
1007	Jacobs	U.S. Patent No. 5,814,178
1008	Anderson	U.S. Patent No. 6,605,172
1009	Stupperich	Certified Translation of German Patent Application DE 10 2004 053 469 A1, Certificate of Translation, and Original German-Language Document
1010	Mandzsu	WO Patent Pub. No. 2006/099000
1011	Cree	U.S. Patent No. 6,255,236
1012	Jezzi	Declaration of Arrigo "Rick" Jezzi
1013	EDANA	Davis Dyer, <i>Seven Decades of Disposable Diapers: A Record of Continuous Innovation and Expanding Benefit</i> (EDANA, Aug. 2005)
1014	Huggies	USA Volume 2 Huggies
1015	Glaug	U.S. Patent No. 6,514,233
1016	Rohrl	U.S. Patent App. Pub. No. 2006/0282053
1017	Karami '341	U.S. Patent App. Pub. No. 2001/0023341
1018	Fries	U.S. Patent No. 5,549,592
1019	McCormack	U.S. Patent No. 5,695,868
1020	Horn	U.S. Patent App. Pub. No. 2004/0158957
1021	INDA Glossary	INDA Nonwovens Glossary (INDA 2002)
1022	Young	U.S. Patent No. 5,626,571
1023	Sun	U.S. Patent No. 6,852,904
1024	Zoia	U.S. Patent No. 5,053,028

Ex.	Shorthand	Description
1025	Braverman	WO Patent Pub. No. 2006/071211
1026	Neugebauer	U.S. Patent App. Pub. No. 2007/0134489
1027	Igaue	U.S. Patent App. Pub. No. 2004/0236303
1028	Damaghi	U.S. Patent App. Pub. No. 2005/0261650
1029	O'Connell	U.S. Patent No. 6,235,011
1030	Karami '584	U.S. Patent App. Pub. No. 2001/0042584
1031	Miller	U.S. Patent No. 5,845,375
1032		Omitted
1033		Omitted
1034	ASTM D5169	ASTM D5169-98 (1998)
1035	ASTM D5170	ASTM D5170-98 (1998)
1036	Miyamoto '930	U.S. Patent 6,840,930
1037	Couillard	U.S. Patent App. Pub. No. 2002/0174931
1038		Omitted
1039	Brady	U.S. Patent No. 6,843,949
1040	Gorman	U.S. Patent No. 5,256,231
1041	Tao	U.S. Patent No. 6,569,136
1042	Roe	U.S. Patent App. Pub. No. 2004/0224132
1043	FileHistory	File History Excerpts - '249 Patent
1044	Gehring	U.S. Patent No. 6,854,297
1045	Fernfors	U.S. Patent App. Pub. No. 2002/0193776
1046	Huang	EP0734243B1
1047	Hari	<i>Types and properties of fibres and yarns used in weaving</i> , P.K. Hari, Chapter 1 of K.L. Gandhi, <i>Woven Textiles Principles, Technologies and Applications</i> (Series in Textiles, 2012, pg. 3-34)
1048	Chhabra	U.S. Patent App. Pub. No. 2004/0137200
1049	Kauschke	U.S. Patent No. 6,537,644
1050		Redlined Corrected Petition
1051	Robinson	Declaration of Eagle H. Robinson

Ex.	Shorthand	Description
1052		December 2, 2020 Correspondence Between the Parties
1053		Redlined Version of the Corrected Petition
1054		Transcript of Tony Butterworth's August 25-26, 2021 Deposition

I. PO'S DIAPER-HOLDING REQUIREMENT IS BROAD

PO contends that claims 1 and 34 require a closure component that can “hold the diaper on the user body when said closure component is selectively fastened to either’ the outer face of the chassis or the outer face of the ears” (the “Diaper-Holding Requirement”). POR at 9. But the Diaper-Holding Requirement is necessarily broad. *See* EX1054 at 13:19:14:1, 14:25-16:12 (including when the diaper “popped off”). PO cannot hope to argue that the Benning-Karami ’626 diaper, which is founded on size-adjustability (*infra* Section III.A), might have fallen short. Nor can PO fault the Karami ’772-Benning diaper given a POSITA’s knowledge that the untreated nonwoven in Karami ’772’s stay-away zone was more than capable of sufficiently engaging a fastener (*infra* Section II.A).

II. KARAMI ’772-BENNING

A. Karami ’772’s Backsheet Nonwoven Sufficiently Engaged Fasteners

PO incorrectly contends that Karami ’772’s fastener-backsheet engagement does not meet the Diaper-Holding Requirement. POR at 18-34.

1. Unaddressed: The Treated Portions of Karami ’772’s Containment Assembly

PO does not disagree that fastener engagement with the treated, obviously lower-basis-weight portions of Karami ’772’s containment assembly meets the Diaper-Holding Requirement (Petition at 31-33). *See* POR at 18-34.

PO contends, however, that Petitioner's reasoned explanation that the retaining forces would have been lower at those lower-basis-weight treated portions "ignores the many factors" that affect retaining forces. POR at 33; Petition at 33. But the '249 Patent concedes that higher-basis-weight nonwovens "essentially ensure[]" higher retaining forces, which it confirms through its breadth or silence on PO's "many factors." *Infra* Section IV. And while PO cannot now walk back that concession, its attempt to do so independently fails because PO offers no evidence or explanation to suggest that the Karami '772-Benning combination encompasses a reasonable configuration that would have yielded a different result. POR at 33; *infra* Section IV.

PO's failure is illustrated by its inapposite example of a lower-basis-weight treated nonwoven yielding higher retaining forces than a higher-basis-weight untreated nonwoven (POR at 33): in Petitioner's combination, both the higher-basis-weight wings and lower-basis-weight containment assembly portions are treated (Petition at 32-33).

2. *Karami '772's Secure Wing-Fastener Engagement Does Not Indicate the Absence of Backsheet-Fastener Engagement*

PO incorrectly contends that Karami '772's "nonwoven must be treated by water jetting and/or aperturing" for the fasteners "to securely engage [it]." POR at 19-21 (emphasis added).

“[A]n object of [Karami ’772’s] invention is to provide ... a fastener assembly including a hook-type fastening element that does not require a corresponding loop-type fastening element,” the functionality of which Karami ’772 does not condition on water jetting and/or aperturing. *See* EX1003 at ¶¶ [0005]-[0007]. The “enhanced shear and peel strength” that Karami ’772’s water jetting and/or aperturing achieve is merely “[a]nother object ... in at least one embodiment,” reflecting that the treatments are not required. *See* EX1003 at ¶¶ [0008], [0040]; EX1054 at 83:7-15 (there “could be” embodiments “that don’t have enhanced she[a]r and peel strength”); EX1012 at ¶¶ 68-70. That treatment being unnecessary is confirmed by Karami ’626 achieving secure engagement with an untreated, “conventional nonwoven.” EX1004 at ¶¶ [0006]-[0007]; EX1054 at 59:10-15; EX1012 at ¶¶ 68-70.

Notably, Karami ’772’s disclosed Binder 25445 fastener (EX1003 at ¶ [0041]) is “for use only with”—and thus adequately mates with—“conventional nonwovens” like those Karami ’772 uses (*id.* at ¶ [0041]; EX1004 at ¶¶ [0060], [0070]; EX1012 at ¶¶ 69-70; EX1054 at 58:12-16). *See also* EX1028 at ¶¶ [0047]-[0048]. Thus, while Karami ’772’s treated nonwovens have “significantly higher peel strength and shear strength in comparison to the conventional spunbond nonwoven,” that fastener’s engagement with the latter in the stay-away zone meets the Diaper-Holding Requirement. *See* EX1003 at ¶¶ [0041], [0053] (emphasis

added); EX1012 at ¶¶68-70. Indeed, the fastener's usability with "conventional nonwovens" generally (EX1004 at ¶¶ [0060], [0070]) undermines the importance PO attributes to Karami '772's treatments (POR at 19-21). Mr. Butterworth's confirmed as much with his explanation that low importance should be assigned to broad specifications. *See* EX1054 at 78:9-18.

3. The Other Stay-Away Zones Support Petitioner's Position

PO also points to Karami '772's alternative, film-based stay-away zone and Damaghi's stay-away zone, each having no affinity for fasteners (EX1003 at ¶ [0053]; EX1054 at 151:10-14; EX1028 at ¶ [0051]), and contends they show that Karami '772's untreated "diminished affinity" (EX1003 at ¶ [0053]) stay-away zone "cannot engage fasteners." POR at 22-24. PO's stay-away zone comparisons are unavailing because the untreated stay-away zone explicitly has fastener affinity, is structurally distinct from the no-affinity stay-away zones (EX1003 at ¶ [0053]; EX1054 at 151:10-14; EX1028 at ¶ [0051]), and "stay-away zone" was not a term of art (EX1054 at 149:23-150:17).

These no-affinity stay-away zones actually show Karami '772's diminished-affinity stay-away zone do sufficiently engage fasteners. As Mr. Butterworth agreed, the no-affinity stay-away zones each destroy a portion of their respective backsheet-nonwoven's ability to engage a fastener to prevent wasteful diaper mis-sizing (*see* EX1003 at ¶ [0053]; EX1054 at 150:18-151:14, 152:22-153:5, 155:16-

156:13 (Karami '772); EX1028 at ¶¶ [0049]-[0051]; EX1054 at 66:3-14, 68:20-72:8, 77:22-78:8 (Damaghi)), which only makes sense if those backsheet-nonwoven portions could otherwise sufficiently engage the fastener to hold a mis-sized diaper on a wearer. In Karami '772, this backsheet-nonwoven portion is the untreated nonwoven in the stay-away zone. See EX1003 at ¶¶ [0028], [0031], [0052], [0053], FIG. 8; EX1012 at ¶91. And Damaghi's backsheet-nonwoven portion is the same as Karami '772's. EX1028 at ¶ [0036], [0043], [0051].

4. *Karami '626's Backsheet Nonwoven—and Thus Karami '772's Untreated Stay-Away-Zone Nonwoven—Sufficiently Engaged Fasteners*

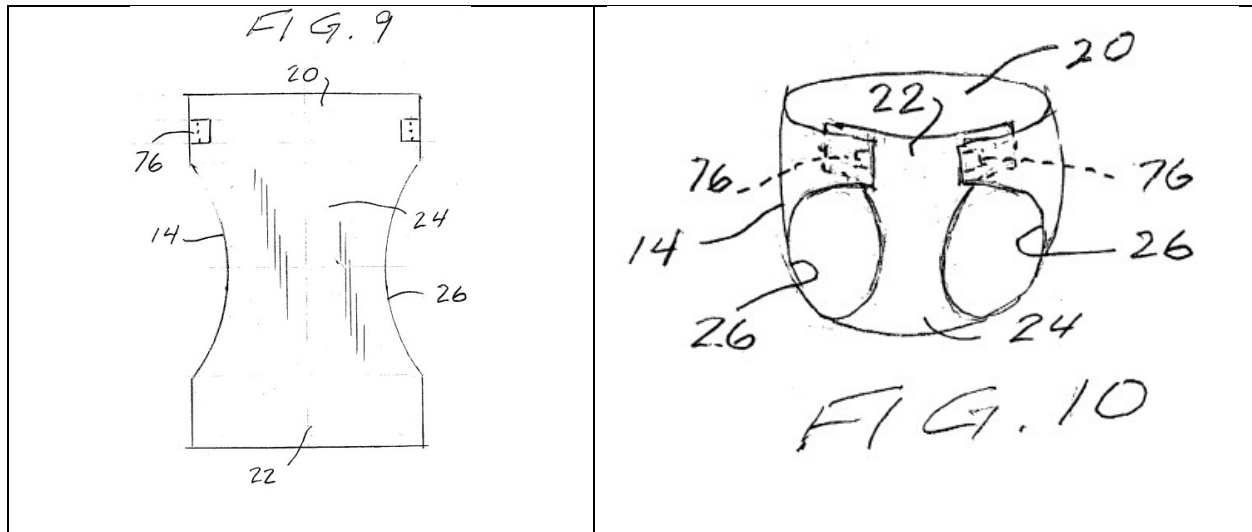
PO also unsuccessfully attempts to discount Karami '626's teachings showing that Karami '772's fasteners can securely engage with its backsheet's untreated nonwoven. POR at 28-31.

PO first notes that Karami '772's backsheet nonwoven basis weight range (5-45 gsm (EX1003 at ¶ [0031])) overlaps but extends below Karami '626's (13-50 gsm (EX1004 at ¶ [0065])). POR at 29. And PO contends it wins under alleged strictures of inherency because Karami '772's range includes a 5-gsm-nonwoven backsheet that might not meet the Diaper-Holding Requirement. *Id.* But PO's argument is a strawman because these grounds are based on Karami '772's disclosed 10-30-gsm-nonwoven backsheet—not the 5-gsm-nonwoven backsheet—and specifically including its 20 gsm-nonwoven backsheet (Petition at 31-32), which PO

takes no issue with (*see* POR at 29). *See Atlas Powder Co. v. Ireco, Inc.*, 190 F.3d 1342, 1349 (Fed. Cir. 1999).

PO next argues that “Petitioner [] overstates Karami ’626’s teaching about size adjustability” because Karami ’626’s T-shaped diaper does not have backsheet-fastener engagement. POR at 29-30. But PO’s position is inconsistent with Karami ’626’s explanation that the T-shaped diaper’s “fastener elements ... may engage directly with any portion of the nonwoven surface constituting the frontsheet 30, backsheet 32 or wings 40.” EX1004 at ¶ [0040] (emphasis added). While Karami ’626 provides a specific illustration with wing-fastener engagements (POR at 29-30), that example does not defeat Karami ’626’s broader teaching of backsheet-fastener engagement, as confirmed by Karami ’626’s explanation that the fasteners can be positioned differently than as illustrated (EX1004 at ¶ [0042]). Nor does it render the broader teaching a typo as PO suggests (*see* EX2004 at ¶86 (substituting “or wings” with “of wings”)), particularly because Karami ’626 enumerates “wings 40” as separate from “backsheet 32” (EX1004 at ¶ [0040]), which it also describes as part of the assembly enclosing “[a]n absorbent core,” not part of wings 40 (*id.* at ¶ [0036]).

Regardless, Karami ’626 also discloses the allegedly missing backsheet-fastener engagement for its FIGs. 9-10 diaper:



As one of Karami '626's absorbent articles (EX1004 at ¶¶ [0011], [0029]-[0030], [0055]), that FIGs. 9-10 diaper "incorporates a fastener assembly consisting exclusively of a minihook fastener ... [and] a conventional nonwoven material" (*id.* at ¶ [0008]) that "is in the article backsheet" (*id.* at ¶ [0016]), which provides "size adjustability"—and thus "the same or analogous improvements in the fit" of the T-shaped diaper—via the minihook fastener's ability to engage any portion of the nonwoven (*id.* at ¶ [0010]-[0011], [0055]), including "in the wings or central portion" of the backsheet (EX1012 at ¶¶104-107).

PO and Mr. Butterworth respond that Karami '626 provides "little description" of the FIGs. 9-10 diaper, contending a POSITA is "left to imagine how to implement" the "analogous improvements in fit." POR at 30-31; EX2004 at ¶¶87, 134; EX1054 at 17:1-18:4, 19:8-21:16. But the premises underlying Mr. Butterworth's opinion are inconsistent with Karami '626: he asserts that the FIGs. 9-10 diaper may have an "extra [loop] closure" to which the hook fastener must

attach (EX1054 at 19:25-22:10) despite Karami '626 disparaging the same (*id.* at 22:11-20). *Compare with* EX1004 at ¶¶ [0002], [0006]-[0008], [0010]-[0011], [0039], [0055]. And he implies the FIGs. 9-10 diaper may thus lack analogous waist-size adjustability (EX1054 at 17:19-18:4) despite Karami '626's contrary teaching (EX1004 at ¶ [0055]), underscoring that such is not a possibility that would have obscured a POSITA's understanding.

The suggestion that a POSITA would struggle to envision how to arrange fasteners on various chassis shapes strains credulity in view of PO's espoused level of ordinary skill and the prior art itself. Mr. Butterworth acknowledges that the FIGs. 9-10 diaper's backsheet "could" comprise "a non-woven that was the loop material" as Karami '626 teaches to be its "invention" (EX1054 at 23:12-21, 24:9-14; EX1004 at ¶¶ [0002], [0006]-[0007], [0010]-[0011]) such that the "hook-type fasteners ... could then attach ... to the main part of the diaper" (EX1054 at 26:19-27:20), thereby allowing the "normal process" for adjusting a diaper for "smaller-waisted" or "larger-waisted" individuals (*id.* at 30:10-24). This is consistent with Mr. Jezzi's explanation of (1) how a POSITA would have understood analogous size adjustability in T-shaped and conventional diapers, and (2) the functionality of Karami '626's FIGs. 9-10 diaper. *See* EX1012 at ¶¶ 74, 104-107; EX1028 at ¶¶ [0006]-[0007] ("the entire outer surface of [Karami '626's] diaper or brief can

function as a landing zone” (emphasis added)). The Board should thus not credit PO’s and Mr. Butterworth’s attempt to discount Karami ’626’s FIGs. 9-10 diaper.

PO turns to Karami ’772’s TABLE 1 as suggesting that the Binder 25445 fastener would not meet the Diaper-Holding requirement with untreated nonwovens, “or even [with] a water-jet-treated 20 gsm nonwoven.” POR at 31, 27-28. But that contention fails because PO arrives at it by comparing values of different units (*id.* at 27-28), which not even PO’s expert would sponsor (*see* EX2004 at ¶¶127-129), and after arguing that Karami ’772’s test “makes no sense” and is “so unreliable” (POR at 26-27; EX2004 at ¶¶68-72). Karami ’626 also directly undermines PO’s position in that Karami ’626 uses the same fastener (EX1004 at ¶ [0060]; EX1012 at ¶70) that indisputably can securely engage with, for example, an untreated “20[] gsm” wing nonwoven (EX1004 at ¶ [0065]; POR at 43; EX1054 at 57:13-21).

PO also mischaracterizes Mr. Jezzi’s deposition testimony, attempting to extend his statement that Karami ’772’s TABLE 1 alone renders it “speculative” whether fastener engagement in Karami ’772’s stay-away zone meets the Diaper-Holding Requirement. POR at 31-32. But in doing so, PO ignores that Mr. Jezzi’s opinions are also supported by other evidence, including Karami ’626, that answer any questions left by that discrete table. *See* EX2003 at 184:4-186:21. And PO attempts to discount those supported opinions with Mr. Jezzi’s use of “probably,”

but PO neglects the entirety of Mr. Jezzi's unequivocal opinion: "yes, [the retentive forces] are sufficient." *See* POR at 32; EX2003 at 185:11-186:21.

B. Claimed, Workable Retaining-Forces Were Obvious

While the '249 Patent's apparatus claims do not actually require measuring retaining forces, PO attacks Petitioner's workable-retaining-force argument as purportedly failing to address the retaining forces being measured as "over-abdomen retaining forces" (POR at 34-36), which is incorrect. *See* Petition at 20 ("over-abdomen retaining forces ... are simply [] shear forces"), 35-39; EX1012 at ¶98, incl. n.3 (cited in Petition at 36-37) (explaining that the relied-on 5-80 N/25 mm Stupperich shear retaining forces are measured in the same way as the '249 Patent's over-abdomen retaining forces).

PO next admits that the '249 Patent links the broad, claimed retaining force ranges with the "the surprising result of leading users to fasten the diaper correctly while still securing the diaper when it is not fastened in the preferred manner." POR at 36. And as the Petition explains, this is what a POSITA would have understood Karami '772's higher-affinity treated portions and lower-affinity untreated portion achieved, knowing: (1) that the untreated portion would have met the Diaper-Holding Requirement; (2) of the stay-away zone's proper-sizing objective; and (3) that users were psychologically-prone to fasten diapers at higher-affinity portions. Petition at 35-37. PO's apparent confusion about this objective-overlap's

importance (*see* POR at 37-38) was addressed by the Petition showing that, with “the general conditions of [the] claim[s] [being] disclosed in the art” (*see, e.g.,* EX1009 at ¶ [0034]; EX1012 at ¶98, incl. n.3), the recited “optimum or workable ranges” are “not inventive.” *In re Aller*, 220 F.2d 454, 456 (C.C.P.A. 1955) (cited in Petition at 36-37).

C. The Separate-Wings-and-Chassis Configuration and Heavier-Basis-Weight-Wings Were Obvious

PO contends that a POSITA would not have constructed Karami '772's diaper using the separate-wings-and-chassis configuration, alleging that (1) it “does not reduce costs or improve manufacturing,” and (2) a POSITA would not have done so “to permit the use of a higher-basis-weight nonwoven for the wings” because that “would have unnecessarily increased cost and decreased comfort.” POR at 38-40. Per PO's own expert, PO's arguments fail.

First, Mr. Butterworth agrees that Karami '772 contemplates the separate-wings-and-chassis configuration for its diaper (Petition at 26). EX1054 at 96:12-97:6 (“Q. But the wings in Karami '772's diaper are continuous with the backsheet ... ? A. No, because wings can be just added. They don't have to be continuous.”); EX1012 at ¶78.

Mr. Butterworth also confirms the separate-wings-and-chassis configuration reduces manufacturing costs (Petition at 9, 27-28): with the unitary-hourglass design, “you'd be chopping out a good amount of the waste material” to make the

“cut out for the leg,” which “becomes expensive,” so “[a POSITA]’d be inclined to put those wings on separately” to save “quite a bit of non-woven material.” EX1054 at 99:9-100:11, 103:1-15; EX1012 at ¶¶26, 80-81; *see also* EX1015 at 4:28-37 (“leg cut-out[] ... scrap ... result[s] in higher production costs”)¹. PO mentions equipment, manufacturing and storage space, employees, tracking, and planning as cost-contributing factors (POR at 39), but Mr. Butterworth acknowledges investments are acceptable to achieve cost savings (EX1054 at 142:15-145:3) and that scrap handling for unitary-hourglass designs also required machinery, storage, employees, and “precautions” (*id.* at 100:12-102:22).

PO also contends the shift from the unitary-hourglass design to the separate-wings-and-chassis design “would have increased the ... difficulty of manufacture”

¹ Mr. Butterworth’s statement that “the manufacture of [Glaug’s and Karami ’772’s Figure 6 diaper] would not be the same” (EX2004 at ¶151) is inapposite because the Karami ’772-Benning combination employs Benning’s separate-wings-and-chassis construction having front and rear wings with complementary rear and front, respectively, edges (Petition at 26-27; EX1012 at ¶¶78-79) that avoids costly leg-cut-out scrap (EX1054 at 103:1-15; EX1012 at ¶¶26, 80) as EX1015’s separate-wings-and-chassis manufacturing process does (EX1015 at 4:28-37, 16:65-17:5, 19:27-33, 20:40-48, FIGs. 4, 6).

(POR at 39). As support, PO cites Mr. Butterworth’s declaration positing “opportunities for line stoppages and missed product defects” from an employee’s failure to “to deliver the wings” or wing separation from improper bonding (EX2004 at ¶¶149-150). But Mr. Butterworth acknowledges wing production could occur in-line (EX1054 at 105:2-10; *see, e.g.*, EX1015 at 5:55-6:14, FIGs. 4, 6)—rendering transport unnecessary—and was unaware of improper-wing-bonding-based downtime (EX1054 at 146:2-12). Notably, Mr. Butterworth testified that scrap from the unitary-hourglass design was problematic because “scraps can get caught up in the [machinery]” and would cause “downtime if ... not removed fast enough” (EX1054 at 102:3-22), confirming that shifting to the scrap-free separate-wings-and-chassis configuration would have facilitated manufacturing. *See* EX1012 at ¶80; EX1015 at 4:28-37, 19:27-33 (“cutting away portions of the article to form the leg cut-outs ... can be a somewhat complex undertaking”). And PO does not address, much less counter, the advantageous manufacturing flexibility the separate-wings-and-chassis construction allows (Petition at 28; EX1012 at ¶81). POR at 38-40.

Mr. Butterworth also agrees that the separate-wings-and-chassis configuration was “advantageous” to “facilitate the selection of different materials for the wings and for the backsheet of the chassis.” EX1054 at 97:3-98:16; Petition at 28; EX1012 at ¶¶83-85. Mr. Butterworth notes that, beyond facilitating Karami ’772’s wing treatments (EX1054 at 97:7-10, 97:25-98:16), “[t]he wings ... may be thicker than

the backing film on the chassis because the wings are subjected to more pulling and tension th[a]n the backsheet directly,” i.e., “the non-woven [of the wings] has to be heavier” because it “needs to have strength and tear resistance” (*id.* at 97:15-24, 125:15-127:15). This confirms a POSITA would have desired “a higher basis weight nonwoven” for the wings to allow them “to withstand larger forces than backsheet 130” (EX1012 at ¶¶91-95; Petition at 28, Section VIII.A.4) and undermines PO’s contention that such “would have unnecessarily increased cost and decreased comfort” (POR at 33-34, 39-40). *See also* EX1054 at 141:25-143:19 (with cost-performance tradeoffs, “certain things you have no choice over[, y]ou don’t want these side tabs to tear off”). Indeed, Mr. Butterworth acknowledges that “using a 33.9 GSM wing that’s treated”—which is a heavier basis weight a POSITA would have used (EX1012 at ¶94; Petition at 28, 42-44)—“fits [Karami ’772’s inventive concept]” (EX1054 at 159:1-160:7) rendering PO’s contention that such would “eliminate [Karami ’772’s] inventive concept” (POR at 33-34, 39-40) baseless. Finally, PO does not address the separate-wings-and-chassis configuration facilitating the omission of the liquid-impermeable film from the wings to promote user comfort (Petition at 28; POR at 38-40).

III. BENNING-KARAMI '626

A. A POSITA Would Have Made the Benning-Karami '626 Combination for Size Adjustability

PO attacks the Benning-Karami '626 combination by arguing that Benning's diaper and Karami '626's T-shaped diaper "are designed differently and operate fundamentally differently" because "Benning's diaper fasteners engage the front part" while "Karami '626's T-shaped diaper[] fasteners engage the wings." POR at 42-44. PO's position is untenable.

PO first alleges a POSITA would not have "replace[d] Benning's underlayer, which engages fasteners" with Karami '626's T-shaped diaper's backsheet that purportedly "does not engage fasteners." POR at 42-44. But that premise is wrong for the reasons discussed above in Section II.A.4. PO further asserts that "Mr. Jezzi agreed that all fasteners [of Karami '626's T-shaped diaper] engage the belt and do not engage the backsheet of the main part." POR at 44. But PO's assertion relies on testimony directed to Karami '626's specific illustration (*see, e.g.*, EX2003 at 157:11-158:13, 163:18-21; *compare with* EX2003 at 147:16-148:11; Karami '626 at ¶ [0042]) and is ultimately incorrect:

Q. So where all are fastener elements 41 and 42 attachable?

A. ... [F]astener elements 41 and 42 ... may be engaged directly with any portion of the non-woven surface constituting the frontsheet 30, the backsheet 32, or the wings of the brief.

EX2003 at 197:15-198:2. And PO's reference to a later-described "belt backsheet" (POR at 45-46; EX1004 at ¶¶ [0047], [0049], [0074]) does not defeat the broader paragraph [0040] teaching that enumerates "wings 40" separate from the previously-described chassis "backsheet 32" (EX1004 at ¶ [0036]).

Regardless, PO's myopic focus on Karami '626's T-shaped diaper is misplaced. Karami '626 teaches a "fastener assembly [] composed exclusively of a minihook element and a nonwoven" that "provides size adjustability," the use of which extends beyond T-shaped diapers, including the FIGs. 9-10 diaper that includes backsheet-fastener engagement (Section II.A.4). EX1004 at ¶¶ [0006]-[0008], [0010]-[0011], [0055]; EX1012 at ¶¶ 104-107, 115-116. The prior art recognizes Karami '626's fastening system is not limited to wing-only attachment as PO implies (POR at 45-47): "the entire outer surface of [Karami '626's] diaper ... can function as a landing zone" and thus provides "unlimited landing area" to "increase ... flexibility in the fitting of a diaper." EX1028 at ¶¶ [0006]-[0007] (emphasis added). And Mr. Jezzi explains that a POSITA would have desired such size-adjustability for Benning's diaper and would have envisioned how to achieve it in Petitioner's combination (Petition at 54-56): "[u]sing a film-nonwoven laminate like Karami '626's for Benning's underlayer 30," a conventional nonwoven for Benning's side flaps 34 as Karami '626 describes, and "minihooks that can releasably engage well with 'conventional nonwovens' as Karami '626 calls for"

such that the hooks would engage either of the front wings 34 for larger-waisted users, or backsheet for smaller-waisted users (EX1012 at ¶¶113-116).

PO does not contest either a POSITA's ability to arrive at the Benning-Karami '626 diaper or the desirability of the size-adjustability it provides. *See* POR at 42-47; *see also* EX1054 at 130:24-131:9, 135:5-9, 141:18-24 (POSITAs were capable of achieving fastener-engaging nonwovens); EX2004 at ¶96 ("it is preferred that a diaper has some size adjustability"). PO's assertion that Benning's "fasteners engage the front, not side flaps" only underscores the desirability of adding wing-fastener engagement to achieve size adjustability as Karami '626 indisputably teaches. *See* POR at 43-47; EX1012 at ¶¶114-116.

PO's final argument here is that size-adjustability was best achievable using same-basis-weight wing and backsheet nonwovens. POR at 46-47. But this argument is supported wholly by conclusory expert testimony, and should therefore be disregarded. And PO does not dispute that size-adjustability was achievable with different-basis-weight wing and backsheet nonwovens, which is sufficient for obviousness. *In re Fulton*, 391 F.3d 1195, 1200-01 (Fed. Cir. 2004).

PO similarly errs in its contention that the Benning-Karami '626 diaper's wing and backsheet nonwovens "would not necessarily be able to engage" fasteners. POR at 50-55. This contention first fails as non-responsive. Petitioner's argument is that the Benning-Karami '626 diaper would have obviously—not inherently—included

such fastener-engaging nonwovens for size adjustability: “implementing Karami ’626’s teachings would have [been] ... such that the hooks would engage either of the front wings 34 for larger-waisted users, or backsheet for smaller-waisted users.” Petition at 54-56 (including evidence cited therein). And PO does not contest a POSITA’s ability or motivation to do so (*supra*).

Any contention that the obvious Benning-Karami ’626 diaper might not have met the Diaper-Holding Requirement along its wings and backsheet, which was literally how it met its size-adjustability goal (Petition at 54-56), is not credible. *See* POR at 50-53.

PO specifically attacks Karami ’626’s 20-gsm nonwoven because “[t]he front of [its] T-shaped diaper does not engage fasteners.” POR at 50-51. But as explained above in this section and in Section II.A.4, this contention is incorrect and fails to address Karami ’626’s broader teachings and those regarding its FIGs. 9-10 diaper. PO next argues the Petition failed to connect the Benning-Karami ’626 diaper’s modified underlayer with the conventional nonwovens that Karami ’626’s fasteners can engage. POR at 50-51. This argument ignores both that the modified underlayer is “a film-nonwoven backsheet like Karami ’626’s” and the second half of the Petition sentence PO references, which explains that such “conventional nonwovens ... includ[e that] of the modified underlayer.” Petition at 60.

PO then argues that the optional interstice size of Karami '626's nonwoven is so large "it would be hard for a hook to engage fibers in that nonwoven." POR at 50-51. But PO's interstice-size interpretation cannot be correct, as Karami '626's nonwovens are indisputably for engaging hook-type fasteners. *See, e.g.*, EX1004 at Abstract, ¶¶ [0013]-[0015], [0067]; *see also* EX1054 at 44:3-21 (recognizing the same: "I don't think having all those large holes would help [Karami '626]"). PO's interpretation is also unsupported. Mr. Butterworth admitted that interstice size was not "a typical parameter to specify for a nonwoven" (EX1054 at 51:14-16), he did not know how Karami '626 measured it or what about the interstices it actually described (*id.* at 43:3-44:21, 48:3-9), and when pointed to Karami '626's use of "micron²" (squared) instead of "micron" to describe the same interstice size (EX1004 at ¶¶ [0015], [0063]), he was unable to say if it changed his opinion (EX1054 at 48:10-50:7).²

Finally, PO compares a load value of 993.601 "g/2 in" for a 20-gsm treated nonwoven in Karami '772's Table 1 with Karami '626's preferred "shear strength of at least 1300 grams per square inch" (EX1004 at ¶¶ [0005], [0013], [0078]) to conclude that "a 20 gsm nonwoven would have to be treated in order to engage

² Micron² is a measurement of area rather than diameter, such that the same numerical value of area would indicate a *much* smaller opening.

fasteners.” POR at 51-52. But these values have different units, and PO’s comparison contravenes its own expert’s testimony that Karami ’772’s “tests ... were so poorly conducted and so poorly described” that he “d[oes] not understand” them, they “do not make sense,” a POSITA “cannot evaluate ... the[ir] results,” and “[a] POSITA would not ... be able to draw any conclusions from the data presented in Karami ’772 and would not rely on the data.” *See* EX2004 at ¶¶68-72.³ Regardless, Karami ’626 itself refutes PO’s conclusion: it discloses an untreated “20[] gsm” nonwoven that indisputably can securely engage fasteners when used in a diaper’s wings. EX1004 at ¶ [0065]; *see, e.g.*, POR at 43; EX1054 at 57:13-21 (Karami ’626’s wing nonwoven is untreated).

B. Higher-Basis-Weight Wings Were Obvious

PO’s assertion that a POSITA would not have used a heavier-basis-weight nonwoven for the Benning-Karami ’626 diaper’s wings fails for the reasons discussed above in Section II.C, including Mr. Butterworth’s agreement that a

³ Mr. Jezzi’s internal-to-TABLE 1 opinions that TABLE 1 “illustrates improved hook affinity resulting from its treatments” and “retaining forces between the hooks and untreated nonwovens” (EX1012 at ¶68) do not justify PO’s comparison of TABLE 1’s values to external values of different units, which neither expert was willing to do. *See* EX2004 at ¶¶68-72; EX2003 at 175:11-177:19.

POSITA would have desired heavier-basis-weight wings to prevent tearing. EX1054 at 97:15-24, 125:15-127:15, 141:25-143:19; EX1012 at ¶¶92-94, 118; Petition at 57.

PO contends that Benning's desire for side flaps that are "skin-friendly" and "less rigid than the main body portion or the chassis-forming materials" (EX1002 at ¶ [0033]) would have led a POSITA away from wings having a higher basis weight than the backsheet nonwoven. POR at 47-48. But Benning itself teaches that its skin-friendly and less-rigid side flaps can have a basis weight up "to 150 g/m²," and "specifically [] 25-50 g/m²." EX1002 at ¶ [0032]. Those explicit disclosures render the 25-50 gsm, 20-40 gsm (optimally 34 gsm), or 18-60 gsm (e.g., 30 gsm) nonwoven side flaps of the Benning-Karami '626 combination (Petition at 57, 60-61) fully consistent with—not "directly against" (POR at 48)—Benning's teachings. EX1054 at 106:12-107:1, 171:6-172:7. And, even taking PO's argument at face value, the admitted need for stronger wings would have justified the heavier nonwoven because additional softness would be pointless with side flaps susceptible to tearing. EX1054 at 97:15-24, 125:15-127:15, 141:25-143:19; EX1012 at ¶¶92-94, 118.

PO's contention that Karami '626's heavier-wing and lighter-backsheet teaching (EX1004 at ¶ [0065]) is only applicable to T-shaped diapers and "was *not* preferred for other types of diapers" (POR at 48-49) also fails. That contention is

based on conclusory expert testimony (EX2004 at ¶184) that should not be credited, and does not address the analogous features of the Benning-Karami '626 diaper that, as Mr. Jezzi explains, render the T-shaped-diaper teachings applicable thereto (EX1012 at ¶¶117-118).

PO finally asserts that “if anything, Karami '626 teaches using a higher basis weight nonwoven on the underlayer since Benning seeks to have closures engage the underlayer.” POR at 49. But in the Benning-Karami '626 combination both the wings and backsheet are engageable with the fasteners (Petition at 56), and the wing nonwoven—unlike the nonwoven of the “film nonwoven laminate ... [used] for Benning’s underlayer” (*id.* at 53-54)—has “no film to reinforce that non-woven, so you have to go heavier weight to get the strength you need.” EX1054 at 126:13-127:2. Further, Mr. Butterworth confirmed that “the wings are subjected to more pulling and tension th[a]n the backsheet directly,” thus rendering heavier—and therefore stronger—wings desirable. *Id.* at 97:15-24; *see also* EX1002 at ¶¶ [0019]-[0021], [0058] (wing pulling).

IV. PO’S RETAINING-FORCES ARGUMENTS ARE INCOMPLETE AND NEGLECT THE COMBINATION

Seeking to walk back the '249 Patent’s admissions that retaining forces are “essentially ensured” by basis weight (EX1001 at 13:42-49, 7:25-32), PO argues that there are a litany of other parameters that could impact a nonwoven’s retaining forces with a fastener. POR at 53-55, 58-61; *see also* EX2004 at ¶¶ 99-110. But PO’s

argument falls short because it lacks even an allegation that a POSITA implementing Karami '626's teachings in Benning's diaper would have selected any one of these parameters in a way that brought a higher-basis-weight wing-nonwoven's fastener-retaining forces below a lower-basis-weight backsheet-nonwoven's fastener-retaining forces.⁴ See POR at 53-55, 58-61; *see also* EX2004 at ¶¶ 99-110. Fatal to PO's position, Petitioner's evidence thus remains the sole evidence (*see, e.g.*, EX1012 at ¶¶120-121, EX1040 at 2:35-39, EX1044 at 5:3-7, EX1001 at 13:42-49, 7:25-32, each cited in Petition at 60-61)—along with PO's telling silence—on the cogent factual issue: whether the claimed retaining forces would have naturally resulted from the Benning-Karami '626 diaper. *See Par Pharm., Inc. v. TWI Pharm., Inc.*, 773 F.3d 1186, 1195 (Fed. Cir. 2014).

The '249 Patent itself also forecloses PO's argument. Not only does the '249 Patent explain that basis weight “essentially ensures” retaining forces, it fails to discuss or leaves open every parameter that PO contends impacts retaining forces. *See, e.g.*, EX1001 at 6:24-37 (“all nonwovens are suitable that contain at least one initial component based on a thermoplastic polymer”), 7:65-8:4 (“The lamination of

⁴ This might have been too-tall of an order, considering the backsheet-nonwoven was laminated to a film, which “clearly reduce[d its] over-abdomen retaining forces.” EX1001 at 8:15-19; EX2004 at ¶112.

the nonwoven component ... with the foil ... can be performed by ... any joining methods.”), 14:12-18 (“the sum of the area of all joining regions ... is preferably 15 to 50%”), 4:37-39 (a “hook-and-loop fastener ... known in the prior art could be used”). And just like the ’249 Patent’s explicit teachings, the breadth of the ’249 Patent’s disclosure “instructs that [the claimed retaining forces are] not an additional requirement imposed by the claims ..., but rather a property necessarily present” in Petitioner’s combination. *In re Kao*, 639 F.3d 1057, 1070 (Fed. Cir. 2011) (cleaned-up); *see also* EX1054 at 44:25-45:7 (a parameter’s breadth “indicates ... to a person of skill in the art that the [parameter] isn’t that important”).

PO’s final contention is that Petitioner’s position that it was at least obvious to use materials similar enough to Materials X, Y, and Z (EX1001 at 14:50-15:52) in the Benning-Karami ’626 diaper for the diaper’s fastener-retaining forces to fall within the broad ranges recited in the claims (Petition at 64-69) is based on hindsight. POR at 61. This contention fails given the Petition’s showings that, *inter alia*:

- Material Z is Karami ’626’s “preferred” fastener in its “preferred” size (EX1004 at ¶¶ [0060], [0058]);
- Material Y is a spunbond 20-gsm nonwoven like Karami ’626’s “optimal” backsheet nonwoven (*id.* at ¶¶ [0063]-[0065]), with polypropylene fibers that were known to work in a fastener-engaging

nonwoven like Karami '626's (EX1003 at ¶¶ [0028], [0031]),⁵ having Karami '626's "preferred" fiber size and embossing area (EX1004 at ¶¶ [0062]-[0064]); and

- Material X is, like Karami '626's wing-and-backsheet nonwovens (*id.* at ¶¶ [0062]-[0065]), the same as Material Y but with a higher-basis-weight, specifically, Karami '626's—and Benning's—"preferred" or "advantageous" 30 gsm basis weight (EX1004 at ¶ [0065]; EX1002 at ¶ [0032]).

V. PO'S STUPPERICH ARGUMENTS NEGLECT THE COMBINATION

PO first contends that Stupperich's depicted belt diaper is different enough from Benning's diaper that "[a POSITA] would not have sought to modify Benning based on Stupperich." POR at 55-56. But that overly-narrow view of Stupperich is defeated by Stupperich itself, whose "loop-forming nonwoven material[s]" are more-broadly "for disposable hygiene articles [] such as diapers, belt diapers, [and] incontinence articles and pads." EX1009 at Abstract; *see also* EX1009 at ¶¶ [0001], [0028], [0030]. Even setting that aside, PO does not contest the desirability of the "balance between closing reliability and durability that Stupperich's [fastener-engaging] nonwovens provide" (POR at 55-56 (quoting Petition at 76-77)), which is

⁵ *See also* EX2004 at ¶¶ 103, 104 (polypropylene was one of two "typical" choices).

more than enough reason for a POSITA to have looked to Stupperich for the Benning-Karami '626 diaper that included fastener-engaging nonwovens (Petition at 54-56, 76-78).

PO next argues that “Stupperich does not teach using different retaining forces ... or [different] nonwovens on the same diaper” (POR at 57-58), but this is another strawman because Petitioner never alleged that Stupperich did. Rather, Petitioner established that Stupperich discloses fastener-engaging higher-basis-weight and lower-basis-weight nonwovens, and it would have been obvious to use both in the Benning-Karami '626 diaper, with the higher-basis-weight nonwoven positioned in the wings for increased strength and fastener-retaining forces, and the lower-basis-weight nonwoven positioned in the backsheet for wearer-comfort and cost-savings. Petition at 76-78. As to Petitioner’s actual arguments and evidence (*id.*), rather than present contrary evidence, PO simply contends that they do not exist. POR at 58.

Dated: September 22, 2021

Respectfully submitted,

/Eagle H. Robinson/

Eagle H. Robinson

CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that Petitioner's Reply—exclusive of the table of contents, exhibit list, certificate of service, and this certificate of word count—includes 5,480 words.

/Eagle H. Robinson/

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), the undersigned certifies that on September 22, 2021, copies of Petitioner's Reply and EX1054 were served on Lead and Backup Counsel for Patent Owner via email (by consent) to:

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