

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ATTENDS HEALTHCARE PRODUCTS, INC.,
Petitioner,

v.

PAUL HARTMANN AG,
Patent Owner.

IPR2020-01479
Patent 8,771,249 B2

Before PATRICK R. SCANLON, HYUN J. JUNG, and
NEIL T. POWELL, *Administrative Patent Judges*.

POWELL, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

A. BACKGROUND

Attends Healthcare Products, Inc. (“Petitioner”) filed a Petition for *inter partes* review of claims 1–54 of U.S. Patent No. 8,771,249 B2 (Ex. 1001, “the ’249 patent”). Paper 12 (“Pet.”).¹ Paul Hartmann AG (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). Pursuant to 35 U.S.C. § 314, we instituted an *inter partes* review of claims 1–54 of the ’249 patent on all presented challenges. Paper 13 (“Inst. Dec.”), 2, 29, 30.

After institution, Patent Owner filed a Response (Paper 18, “PO Resp.”), to which Petitioner filed a Reply (Paper 22, “Pet. Reply”), and Patent Owner thereafter filed a Sur-reply (Paper 26, “PO Sur-reply”). An oral hearing in this proceeding was held on December 2, 2021; a transcript of the hearing is included in the record. Paper 29.

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons below, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–54 of the ’249 patent are unpatentable.

¹ With our authorization (Paper 8), Petitioner filed a Motion to File Corrected Petition (Paper 9), and Patent Owner filed an Opposition to Petitioner’s Motion to File Corrected Petition (Paper 10). We granted Petitioner’s Motion (Paper 11), and a Corrected Petition was filed (Paper 12). Our citations to the Petition below are to the Corrected Petition.

B. REAL PARTIES IN INTEREST

Petitioner identifies Attends Healthcare Products, Inc. and Domtar Corporation as the real parties in interest for the Petition. Pet. 1. Patent Owner identifies Paul Hartmann AG as the real party in interest. Paper 4, 1 (Patent Owner's Mandatory Notices).

C. RELATED PROCEEDINGS

Petitioner identifies as related matters IPR2013-00173, IPR2020-01477, IPR2020-01478, and IPR2020-01480. Pet. 1.

D. THE '249 PATENT

The '249 patent relates to incontinence diapers. Ex. 1001, 1:13. Figure 1 of the '249 patent is reproduced below.

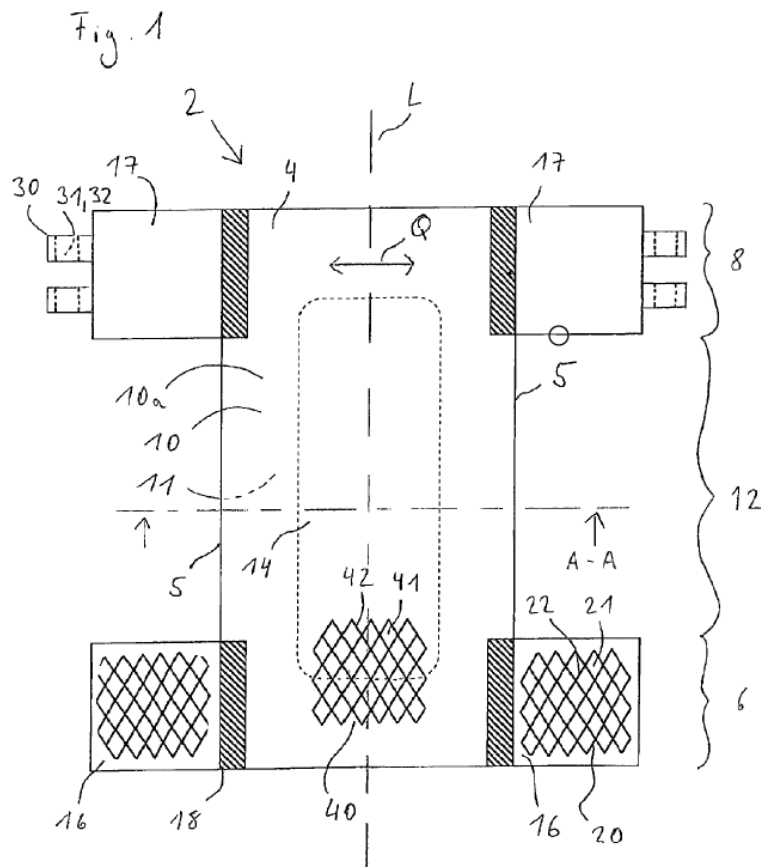


Figure 1 shows a top view of an outer face of an incontinence diaper.

Ex. 1001, 11:62–63, 12:17–18. Incontinence diaper 2 has main part 4 that consists of front area 6, crotch area 12, and rear area 8. *Id.* at 12:19–22.

Absorbent body 14 is between liquid-permeable topsheet 11 and liquid-impermeable backsheet 10. *Id.* at 12:22–26.

Incontinence diaper 2 also includes front side parts 16 and rear side parts 17 attached to main part 4. Ex. 1001, 12:31–32. Side parts 16, 17 can connect to each other by closure means 32 with mechanical closure aides 31 when incontinence diaper 2 is worn. *Id.* at 12:41–47. “The over-abdomen retaining forces between the closure means 32 and the outer face of the side parts 16 . . . are higher than the over-abdomen retaining forces between the closure means 32 and the outer face of the backsheet nonwoven material component.” *Id.* at 13:43–46.

E. ILLUSTRATIVE CLAIM

Of the challenged claims, claims 1 and 34 are independent. Claims 2–33 and 35–54 depend directly or indirectly from claim 1 or claim 34.

Claim 1 is illustrative and is reproduced below with certain reformatting:²

1. [1[p]] An absorbent incontinence diaper for an adult user, comprising:
 - [1[a][1]] a chassis having an inner face which, when in use, is directed toward a user body and an outer face which, when in use, is directed away from the user body,
 - [1[a][2]] said chassis having an absorbent body and a backsheet on a side of said absorbent body which, when in use, is directed away from the user body,

² We have added carriage returns and numbered the claim limitations with the same numbers used by the Petition to identify claim 1’s limitations.

[1[a][3]] said absorbent body having a smaller width than said backsheet,

[1[a][4]] said chassis also having a rear area, a front area, and a crotch area lying between said rear area and said front area,

[1[a][5]] said chassis further defining first and second side edges;

[1[b]] a first ear attached as a separate component to said first side edge in said front area;

a second ear attached as a separate component to said second edge in said front area;

a third ear attached as a separate component to said first side edge in said rear area;

a fourth ear attached as a separate component to said second side edge in said rear area;

[1[c][1]] said third and fourth ears having a closure component including mechanical closure aids;

[1[c][2]] which, when in use, hold the diaper on the user body when said closure component is selectively fastened to either said outer face of said chassis or to said outer face of said first and second ears;

[1[d]] wherein retaining forces between said closure component and said outerface of said chassis are lower than retaining forces between said closure component and said outer face of said first and second ears.

Ex. 1001, 15:61–16:22.

F. ASSERTED GROUNDS OF UNPATENTABILITY

Petitioner challenges the patentability of claims 1–54 of the '249 patent on the following grounds (Pet. 4):

Claim(s) Challenged	35 U.S.C. §	Reference(s)
1–5, 7, 8, 11–27, 29–41, 43–54	103(a) ³	Karami '772 ⁴ , Benning ⁵
1–5, 7, 8, 11–17, 19–27, 29–41, 43–54	103(a)	Benning, Karami '626 ⁶
1–5, 7, 12–18, 19–22, 24–27, 31, 32, 34–41, 43–46, 48, 50–54	103(a)	Benning, Karami '626, Stupperich ⁷
6, 42	103(a)	Karami '772, Benning, Miyamoto '499 ⁸
6, 42	103(a)	Benning, Karami '626, Miyamoto '499
6	103(a)	Benning, Karami '626, Stupperich, Miyamoto '499
9	103(a)	Karami '772, Benning, Jacobs ⁹
9	103(a)	Benning, Karami '626, Jacobs

³ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. § 103. Because the '249 patent has an effective filing date prior to the effective date of the applicable AIA amendments, we refer to the pre-AIA versions of § 103.

⁴ Karami, U.S. Pub. No. 2006/0058772 A1, published Mar. 16, 2006 (Ex. 1003, “Karami '772”).

⁵ Benning et al., U.S. Pub. No. 2005/0256496 A1, published Nov. 17, 2005 (Ex. 1002, “Benning”).

⁶ Karami, U.S. Pub. No. 2003/0220626 A1, published Nov. 27, 2003 (Ex. 1004, “Karami '626”).

⁷ Stupperich et al., DE 10 2004 053 469 A1, published May 04, 2006 (Ex. 1009, “Stupperich”).

⁸ Miyamoto et al., U.S. Pub. No. 2004/0016499 A1, published Jan. 29, 2004 (Ex. 1005, “Miyamoto '499”).

⁹ Jacobs, U.S. 5,814,178, issued Sept. 29, 1998 (Ex. 1007, “Jacobs”).

Claim(s) Challenged	35 U.S.C. §	Reference(s)
10, 18	103(a)	Karami '772, Benning, Anderson ¹⁰
10, 18	103(a)	Benning, Karami '626, Anderson
28	103(a)	Karami '772, Benning, Fernfors ¹¹
28	103(a)	Benning, Karami '626, Fernfors
28	103(a)	Benning, Karami '626, Stupperich, Fernfors

Petitioner provides a Declaration of Arrigo D. Jezzi. Ex. 1012. Patent Owner provides a Declaration of G.A.M. (Tony) Butterworth. Ex. 2004. Deposition transcripts for both Mr. Jezzi and Mr. Butterworth were filed. Ex. 1054; Ex. 2003.

II. ANALYSIS

A. LEGAL STANDARDS

In an *inter partes* review, Petitioner bears the burden of proving unpatentability of the challenged claims, and the burden of persuasion never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). To prevail in its challenges, Petitioner must prove unpatentability by a preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d).

The U.S. Supreme Court set forth the framework for applying the statutory language of 35 U.S.C. § 103 in *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966):

¹⁰ Anderson et al., U.S. 6,605,172 B1, issued Aug. 12, 2003 (Ex. 1008, “Anderson”).

¹¹ Fernfors, U.S. Pub. No. 2002/0193776 A1, published Dec. 19, 2002 (Ex. 1045, “Fernfors”).

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.

As explained by the Supreme Court in *KSR International Co. v. Teleflex Inc.*:

Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit.

550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”)).

“Whether an ordinarily skilled artisan would have been motivated to modify the teachings of a reference is a question of fact.” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1327 (Fed. Cir. 2016). “[W]here a party argues a skilled artisan would have been motivated to combine references, it must show the artisan ‘would have had a reasonable expectation of success from doing so.’” *Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 876 F.3d 1350, 1360–61 (Fed. Cir. 2017) (quoting *In re Cyclobenzaprine*

Hydrochloride Extended-Release Capsule Patent Litig., 676 F.3d 1063, 1068–69 (Fed. Cir. 2012)).

As described below, the parties’ disputes are related to the scope and content of the asserted prior art and the differences between claims 1 and 34 and the asserted prior art.

After reviewing the complete record, we conclude that Petitioner has shown by a preponderance of the evidence that the proposed combinations including Benning and Karami ’626 teach or suggest the limitations of claims 1–54 and that a person of ordinary skill in the art would have had a reason to combine Benning, Karami ’626, and one of Miyamoto ’499, Jacobs, Anderson, or Fernfors with a reasonable expectation of success.

B. LEVEL OF ORDINARY SKILL

Petitioner asserts that one of ordinary skill in the art “would have had a bachelor’s degree in chemistry, physics, mechanical, chemical, or process engineering, or a related degree and 2-3 years of experience designing diapers” and “was familiar with different diaper wing configurations (e.g., integral- and separate-wing), nonwoven materials, cloth-like backsheets, and hook-and-loop fastening systems.” Pet. 15 (citing Ex. 1012 ¶ 18).

In our Decision granting institution, we preliminarily adopted Petitioner’s unopposed proposal. Inst. Dec. 8–9. Patent Owner does not challenge Petitioner’s proposed level of ordinary skill and does not propose a level of ordinary skill. *See generally* PO Resp.; PO Sur-reply.

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active

workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation and internal quotation marks omitted).

Based on the full record before us, we see no reason to disturb our preliminary finding regarding the level of ordinary skill in the art. Accordingly, we maintain and reaffirm that one of ordinary skill in the art “would have had a bachelor’s degree in chemistry, physics, mechanical, chemical, or process engineering, or a related degree and 2-3 years of experience designing diapers” and “was familiar with different diaper wing configurations (e.g., integral- and separate-wing), nonwoven materials, cloth-like backsheets, and hook-and-loop fastening systems.” Pet. 15; Inst. Dec. 8–9; Ex. 1012 ¶ 18. This level of skill in the art is consistent with the disclosure of the ’249 patent and the prior art of record.

C. CLAIM INTERPRETATION

In an *inter partes* review based on a petition filed on or after November 13, 2018, the claims are construed

using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.

37 C.F.R. § 42.100(b) (2020); *see Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). Additionally, only terms that are in controversy need to be construed, and these need be construed only to the extent necessary to resolve the controversy. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (construing explicitly only those claim terms in controversy and only to the extent necessary to resolve the controversy); *Nidec Motor Corp. v. Zhongshan Broad Ocean*

Motor Co., 868 F.3d 1013, 1017 (Fed. Cir. 2017) (applying *Vivid Techs.* in the context of an *inter partes* review).

Petitioner proposes interpretations for “closure component including mechanical closure aids,” “foil,” “reinforcing material,” and “over-abdomen retaining forces” with citations to the ’249 patent and declarant testimony. Pet. 18–20. Petitioner contends that formal interpretations of “closure component including mechanical closure aids,” “reinforcing material,” and “over-abdomen retaining forces” are not required. *Id.*

Patent Owner does not challenge Petitioner’s proposed interpretations and does not provide expressly any proposed interpretation. *See generally* PO Resp.; PO Sur-reply. Patent Owner, however, argues that claim 1’s recitations “a closure component including mechanical closure aids which, when in use, hold the diaper on the user body when said closure component is selectively fastened to either said outer face of said chassis or to said outer face of said first and second ears” and “wherein retaining forces between said closure component and said outer face of said chassis are lower than retaining forces between said closure component and said outer face of said first and second ears” “require[] that the retaining forces between the chassis and the closure be lower than the retaining forces between the ears and the closure and that those retaining forces be sufficient to hold the diaper on the user.” PO Resp. 9. Patent Owner argues that claim 34 has similar requirements. *Id.*

In our analysis of claims 1 and 34, we consider the parties’ dispute in view of Patent Owner’s reading of the claims and determine that Petitioner still shows that its proposed combination teaches or would have rendered obvious the above-quoted limitations. Thus, we determine that an express

interpretation of these limitations is not necessary to resolve the parties’ dispute. *Vivid Techs.*, 200 F.3d at 803 (holding that “only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy”); *Nidec Motor Corp.*, 868 F.3d at 1017 (citing *Vivid Techs.* in the context of an *inter partes* review). We also determine that no other claim term requires express interpretation. *See id.*

D. SCOPE AND CONTENT OF THE ASSERTED PRIOR ART

1. *Benning (Ex. 1002)*

Benning “relates to an absorbent incontinence article.” Ex. 1002 ¶ 2.

Figure 4 of Benning is reproduced below.

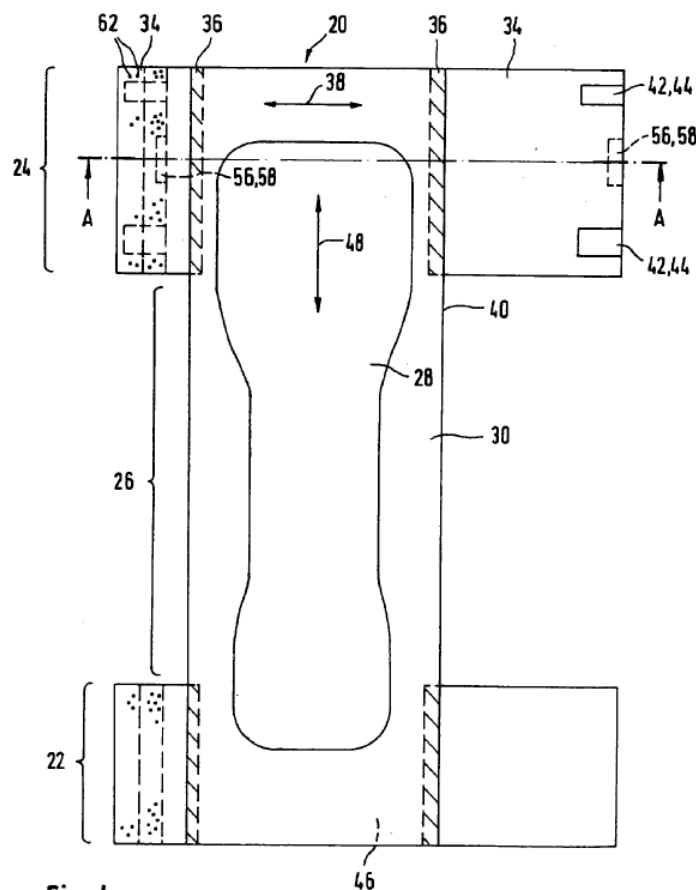


Fig. 4

Figure 4 “shows a plan view of a hygienic article . . . in a schematic representation.” Ex. 1002 ¶ 13. Main body portion 20 includes back

region 24, crotch region 26, front region 22, and absorbent core 28. *Id.* ¶ 53. Around absorbent core 28 are underlayer 30 that can form an outer side of the article and topsheet 32. *Id.* Material sections 34 that form side flaps or lateral sections are attached to an edge of main body portion 20. *Id.* ¶ 54. Material sections 34 on the right of the figure are unfolded. *Id.* ¶ 55. Material section 34 can have two closures 42 in the form of closing tapes 44 that can “interact in a releasably adherent manner with an outside 46 of the front region 22.” *Id.*

2. *Karami '626 (Ex. 1004)*

Karami '626 relates to “an absorbent article having a fastener element which does not require a special loop providing landing zone.” Ex. 1004

¶ 2. Figure 1 of Karami '626 is reproduced below.

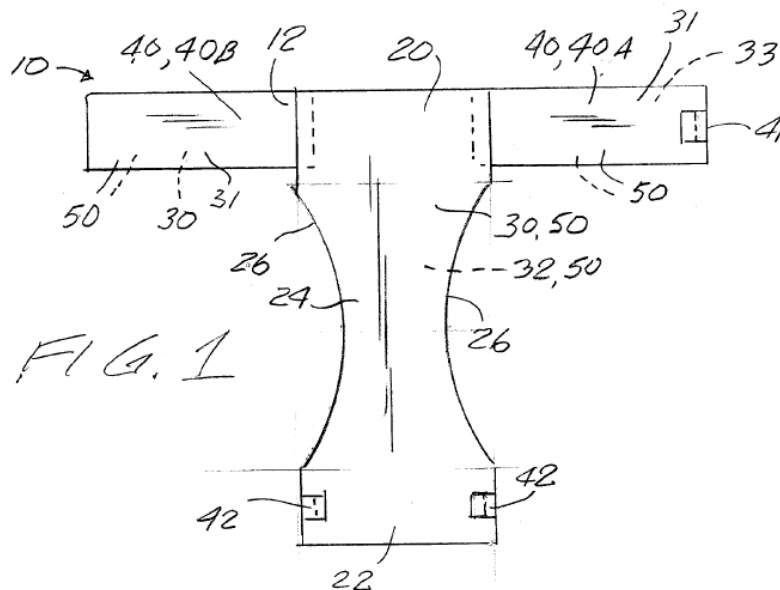


Figure 1 shows a top plan view of a disposable absorbent article. Ex. 1004 ¶ 24. Absorbent article 10 has back portion 20, crotch portion 24, front portion 22, frontsheet 30, backsheet 32, and an absorbent core between frontsheet 30 and backsheet 32. *Id.* ¶¶ 35, 36. Wings 40 extend laterally

from back portion 20, and one wing 40 has at least one hook-type fastener element 41. *Id.* ¶ 37. Frontsheet 30 has fastener elements 42. *Id.*

“[F]astener elements 41, 42 do not require landing zones and may engage directly with any portion of the nonwoven surface constituting the frontsheet 30, backsheet 32 or wings 40.” Ex. 1004 ¶ 40. One wing 40 can contact both fasteners 42 on frontsheet 30; both wings 40 can be secured to each other to form a belt; or each wing 40 can be secured to a respective fastener element 42. *Id.* ¶¶ 39, 40.

E. OBVIOUSNESS BASED ON BENNING AND KARAMI '626

The Petition argues that claims 1–5, 7, 8, 11–17, 19–27, 29–41, and 43–54 would have been obvious in view of Benning and Karami '626. Pet. 50–75. In support of this argument, Petitioner asserts that certain modifications of Benning's diaper would have been obvious in view of Karami '626. *Id.* 50–57. The Petition then maps the references' teachings and the limitations of the challenged claims. *Id.* at 58–75.

Patent Owner responds that Petitioner fails to show that one of ordinary skill in the art would have modified Benning with the teachings of Karami '626 in the manner asserted by Petitioner. PO Resp. 40–49. Patent Owner also responds that the proposed modification lacks “retaining forces between said closure component and said outer face of said chassis are lower than retaining forces between said closure component and said outer face of said first and second ears” and that the retaining forces would not be sufficient to hold the diaper. *Id.* at 49–55.

For the reasons below, a preponderance of the evidence persuades us that Petitioner's proposed combinations including Benning and Karami '626 teach or suggest the limitations of claims 1–5, 7, 8, 11–17, 19–27, 29–41,

and 43–54 and that one of ordinary skill in the art would have combined these references in the manner asserted by Petitioner with a reasonable expectation of success.

1. *Analysis of Claim 1*

a) *Preamble (1[p])*

The preamble of claim 1 recites “[a]n absorbent incontinence diaper for an adult user.” Ex. 1001, 15:59–60. Petitioner argues, and Patent Owner does not dispute, that Benning teaches “an absorbent incontinence diaper for adults.” Pet. 58 (citing Ex. 1002 ¶ 2, Fig. 4; Ex. 1012 ¶¶ 62–63); PO Resp. 40–61 (disputing other limitations for proposed combinations including Benning and Karami ’626 and the asserted modifications to Benning).

We find that the relied-upon portion of Benning teaches an “incontinence article,” as illustrated in Benning’s Figure 4. Ex. 1002 ¶ 2. We also credit Petitioner’s declarant testimony regarding the preamble because the cited portions of Benning support it. Ex. 1012 ¶¶ 62–63 (citing Ex. 1002 ¶¶ 2, 29, 30, 53–55, Figs. 4, 5).

Based on the full record, because Benning describes an incontinence article with absorbent core 28, Petitioner persuades us that Benning teaches the preamble of claim 1.

b) *Claim Limitation 1[a][1]*

Limitation 1[a][1] recites “a chassis having an inner face which, when in use, is directed toward a user body and an outer face which, when in use, is directed away from the user body.” Ex. 1001, 15:61–63. Petitioner argues, and Patent Owner does not dispute, that Benning’s chassis 20 teaches this limitation. Pet. 58 (citing Ex. 1002 ¶ 53, Figs. 5, 6; Ex. 1012 ¶¶ 62–63); PO Resp. 40–61 (disputing other limitations for proposed

combinations including Benning and Karami '626 and the asserted modifications to Benning).

We find that the relied-upon portion of Benning teaches chassis 20 with crotch region 26 that is “positioned between the legs of a wearer when the hygienic article is applied to a wearer” and fluid-impermeable underlayer 30 that can “form the outer visible side of the incontinence article.” Ex. 1002 ¶ 53, Fig. 4. We also credit Petitioner’s declarant testimony regarding the chassis because the cited portions of Benning support it. Ex. 1012 ¶¶ 62–63 (citing Ex. 1002 ¶¶ 2, 3, 29, 30, 33, 53–55, Figs. 4, 5).

Based on the full record, because Benning’s incontinence article has chassis 20 with crotch portion 26 applied to a wearer and fluid-impermeable underlayer 30 forming an outer visible side, Petitioner persuades us that Benning teaches “a chassis having an inner face which, when in use, is directed toward a user body and an outer face which, when in use, is directed away from the user body.”

c) Claim Limitation 1[a][2]

Limitation 1[a][2] recites “said chassis having an absorbent body and a backsheet on a side of said absorbent body which, when in use, is directed away from the user body.” Ex. 1001, 15:63–66. Petitioner argues, and Patent Owner, does not dispute, that Benning’s chassis 20 includes absorbent core 20 and underlayer 30 on the side of absorbent core 28 away from a user, thereby teaching this limitation. Pet. 58 (citing Ex. 1002 ¶ 53, Figs. 4–6; Ex. 1012 ¶ 63); PO Resp. 40–61 (disputing other limitations for proposed combinations including Benning and Karami '626 and the asserted modifications to Benning).

We find that the relied-upon portion of Benning teaches chassis 20 with absorbent core 28 having fluid-impermeable underlayer 30 that can “form the outer visible side of the incontinence article.” Ex. 1002 ¶ 53, Fig. 4. We also credit Petitioner’s declarant testimony because the cited portions of Benning support it. Ex. 1012 ¶ 63 (citing Ex. 1002 ¶¶ 3, 33, 53, Figs. 4, 5).

Based on the full record, because Benning’s incontinence article includes chassis 20 having absorbent core 28 with fluid-impermeable underlayer 30 forming an outer visible side, Petitioner persuades us that Benning teaches “said chassis having an absorbent body and a backsheet on a side of said absorbent body which, when in use, is directed away from the user body.”

d) Claim Limitation 1[a][3]

Limitation 1[a][3] recites “said absorbent body having a smaller width than said backsheet.” Ex. 1001, 15:66–67. Petitioner argues, and Patent Owner does not dispute, that Benning shows that absorbent core 28 has a smaller width than underlayer 30 and thus teaches this limitation. Pet. 58 (citing Ex. 1002, Figs. 4–6; Ex. 1012 ¶ 63); PO Resp. 40–61 (disputing other limitations for proposed combinations including Benning and Karami ’626 and the asserted modifications to Benning).

We find that Benning shows that absorbent core 28 has a smaller width than underlayer 30. Ex. 1002, Figs. 4–6. We also credit Petitioner’s declarant testimony because the cited portions of Benning support it. Ex. 1012 ¶ 63 (citing Ex. 1002 ¶¶ 3, 33, 53, Figs. 4, 5).

Based on the full record, because Benning’s incontinence article has absorbent core 28 with a smaller width than underlayer 30, Petitioner

persuades us that Benning teaches “said absorbent body having a smaller width than said backsheet.”

e) Claim Limitation 1[a][4]

Limitation 1[a][4] recites “said chassis also having a rear area, a front area, and a crotch area lying between said rear area and said front area.” Ex. 1001, 15:67–16:2. Petitioner argues, and Patent Owner does not dispute, that Benning’s chassis 20 has front region 22, back region 24, and crotch region 26 in between, thereby teaching the above-quoted limitation. Pet. 59 (citing Ex. 1002 ¶ 53, Fig. 4; Ex. 1012 ¶ 62); PO Resp. 40–61 (disputing other limitations for proposed combinations including Benning and Karami ’626 and the asserted modifications to Benning).

We find that the relied-upon portions of Benning teach and show that “main body portion 20 comprises a front region 22, a back region 24 and a crotch region 26.” Ex. 1002 ¶ 53, Fig. 4. We also credit Petitioner’s declarant testimony because the cited portions of Benning support it. Ex. 1012 ¶ 62 (citing Ex. 1002 ¶¶ 2, 29, 30, 53–55, Figs. 4, 5).

Based on the full record, because Benning’s incontinence article includes main body portion 20 having back region 24, front region 22, and crotch region 26 in between, Petitioner persuades us that Benning teaches “said chassis also having a rear area, a front area, and a crotch area lying between said rear area and said front area.”

f) Claim Limitation 1[a][5]

Limitation 1[a][5] recites “said chassis further defining first and second side edges.” Ex. 1001, 16:2–3. Petitioner argues, and Patent Owner does not dispute, that Benning’s chassis 20 defines lengthwise edge 40 on its sides, thereby teaching the above-quoted limitation. Pet. 59 (citing Ex. 1002

¶ 55, Fig. 4; Ex. 1012 ¶ 62); PO Resp. 40–61 (disputing other limitations for proposed combinations including Benning and Karami '626 and the asserted modifications to Benning).

We find that the relied-upon portion of Benning teaches and shows “matching lengthwise edge 40 of the main body portion 20.” Ex. 1002 ¶ 55, Fig. 4. We also credit Petitioner’s declarant testimony because the cited portions of Benning support it. Ex. 1012 ¶ 62 (citing Ex. 1002 ¶¶ 2, 29, 30, 53–55, Figs. 4, 5).

Based on the full record, because Benning’s incontinence article includes main body portion 20 having lengthwise edges 40, Petitioner persuades us that Benning teaches “said chassis further defining first and second side edges.”

g) Claim Limitation 1[b]

Limitation 1[b] recites:

a first ear attached as a separate component to said first side edge in said front area;

a second ear attached as a separate component to said second edge in said front area;

a third ear attached as a separate component to said first side edge in said rear area;

a fourth ear attached as a separate component to said second side edge in said rear area.

Ex. 1001, 16:4–11. Petitioner argues, and Patent Owner does not dispute, that Benning’s material sections or wings 34 teach the above-quoted limitation. Pet. 59 (citing Ex. 1002 ¶¶ 29, 54–56, Figs. 4–6; Ex. 1012 ¶ 62); PO Resp. 40–61 (disputing other limitations for proposed combinations including Benning and Karami '626 and the asserted modifications to Benning). Petitioner elaborates that “[a]t the Benning diaper’s back region

24, a wing 34 is attached to each of chassis 20's lengthwise edges 40" and "[t]he same is true at the Benning diaper's front region 22." Pet. 59 (citing Ex. 1002 ¶¶ 29, 54–56, Figs. 4–6; Ex. 1012 ¶ 62).

We find that the relied-upon portions of Benning teach that "[i]n the back region 24 on both sides of the main body portion 20, a material section 34 forming side flaps or lateral sections is attached to a lengthwise edge section 36 of the main body portion 20." Ex. 1002 ¶ 54; *see also id.* ¶¶ 3 (stating that "the material section forming the side parts on the incontinence article, often described as 'wings,' can breathe"), 29 (describing "[t]he extension of a material section attached to the main body portion"), 55 (describing that material section 34 is shown "folded over itself" in Figs. 4, 5), 56 (describing how material section 34 are folded to be grasped and unfolded). We also find that the relied-upon portions of Benning, including Figure 4, teach first and second ears attached as separate components to side edges 40 of chassis 20 in its front region 22. We also credit Petitioner's declarant testimony because the cited portions of Benning support it. Ex. 1012 ¶ 62 (citing Ex. 1002 ¶¶ 2, 29, 30, 53–55, Figs. 4, 5).

Based on the full record, Petitioner persuades us that Benning teaches limitation 1[b].

h) Claim Limitation 1[c][1]

Limitation 1[c][1] recites "said third and fourth ears having a closure component including mechanical closure aids." Ex. 1001, 16:12–13. Petitioner argues, and Patent Owner does not dispute, that Benning's closures 42 teach the above-quoted limitation. Pet. 59 (citing Ex. 1002 ¶¶ 30, 54–55; Ex. 1012 ¶ 62); PO Resp. 40–61 (disputing other limitations

for proposed combinations including Benning and Karami '626 and the asserted modifications to Benning).

We find that a relied-upon portion of Benning teaches that “material section 34 has two closures 42 in the form of closing tapes 44” and that “tapes 44 interact in a releasably adherent manner with an outside 46 of the front region 22 of the main body portion 20.” Ex. 1002 ¶ 55. We also find that Benning teaches that “[t]o close the incontinence article when it is worn by a user, the material sections have closures which can be designed to grip mechanically.” *Id.* ¶ 30. We further find that material sections 34 “form[] side flaps or lateral sections” that can be folded and extended. *Id.* ¶¶ 29, 54–56, Figs. 4, 5.

As discussed in more detail below, Petitioner argues that one of ordinary skill in the art would have been motivated to use Karami '626's hook-type fasteners for Benning's fasteners 42, 44. Pet. 56 (citing Ex. 1002 ¶ 32; Ex. 1012 ¶¶ 114–116); *see also id.* at 54–54 (asserting what Karami '626 teaches regarding its hook-type fasteners) (citing Ex. 1004 ¶¶ 3, 4, 6–11, 37–41, 55, Figs. 9, 10; Ex. 1012 ¶¶ 104–107, 114–116). Regarding what Karami '626 teaches about its hook-type fasteners, we find that the relied-upon portions teach “a disposable absorbent article which, in one preferred embodiment, incorporates a fastener assembly consisting exclusively of a minihook fastener element without any miniloop fastener element beyond a conventional non-woven material” and that “the fastener assembly provides size adjustability.” Ex. 1004 ¶¶ 7, 10. We credit Petitioner's declarant testimony that minihooks can releasably engage with conventional nonwovens because Karami '626 supports it. Ex. 1012 ¶ 112 (citing Ex. 1004 ¶¶ 57–60, 70).

Because Benning’s incontinence article includes closures 42 that can “interact in a releasably adherent manner with an outside 46 of the front region 22 of the main body portion 20” and Benning’s closures “can be designed to grip mechanically,” we find that Benning’s closures 42 include mechanical closure aids. Ex. 1002 ¶¶ 30,55. Also, because Karami ’626’s “disposable absorbent article . . . incorporates a fastener assembly consisting exclusively of a minihook fastener element,” we find that Karami ’626’s fastener assembly includes mechanical closure aids. Ex. 1004 ¶ 7. We address below whether one of ordinary skill in the art would have made Petitioner’s proposed modification.

Based on the full record, Petitioner persuades us that Benning and Karami ’626 teach “said third and fourth ears having a closure component including mechanical closure aids.”

i) Claim Limitations 1[c][2], 1[d]

Claim limitation 1[c][2] requires that limitation 1[c][1]’s “closure component including mechanical closure aids” “when in use, hold the diaper on the user body when said closure component is selectively fastened to either said outer face of said chassis or to said outer face of said first and second ears.” Ex. 1001, 16:12–17. Claim limitation 1[d] recites “wherein retaining forces between said closure component and said outer face of said chassis are lower than retaining forces between said closure component and said outer face of said first and second ears.” *Id.* 16:18–20.

Addressing limitation 1[c][2], Petitioner argues that Benning’s closures 42 interact with outside 46 of front region 22. Pet. 60 (citing Ex. 1002 ¶ 55). Petitioner also argues that Karami ’626 teaches fasteners

designed to fasten detachably to conventional nonwovens. *Id.* (citing Ex. 1004 ¶¶ 7, 62–64, 70, 78; Ex. 1012 ¶¶ 113, 115).

Addressing Limitation 1[d], Petitioner argues that Benning teaches wings made of a nonwoven having a basis weight of 25–50 gsm and Karami '626 teaches wings made of a nonwoven having 20–40 gsm, “optimally 34 gsm.” Pet. 60–61 (citing Ex. 1002 ¶ 32; Ex. 1004 ¶ 65). Petitioner also argues that Karami '626's backsheet or underlayer is a nonwoven having “15–30 gsm (optimally 20 gsm).” *Id.* at 61 (quoting Ex. 1004 ¶ 65).

Petitioner further refers to its proposed modification of the Benning diaper in view of Karami '626 so that the backsheet would have a lower basis weight nonwoven than the wings. Pet. 61. Petitioner contends that the higher basis weight nonwoven would have a greater retaining force because more loops would be available to engage hook fasteners. *Id.* (citing Ex. 1012 ¶ 120; Ex. 1040, 2:35–39; Ex. 1044, 5:3–7). Petitioner notes that the '249 patent describes the same correlation. *Id.* (citing Ex. 1001, 7:25–32, 13:42–49).

As discussed below in more detail, Petitioner contends that it would have been obvious to use Karami '626's fastener in Benning and to use Karami '626's film nonwoven backsheet for Benning's underlayer 30. Pet. 60. According to Petitioner, the modified Benning diaper would have fasteners that interact with an outer face of the backsheet and an outer face of front wings 34 with the claimed differing retaining forces.

The parties dispute whether Petitioner's proposed modification would have sufficient retaining forces to fasten and hold the modified diaper on a wearer and the recited difference in retaining forces. Because Petitioner contends that its proposed combination of Benning and Karami '626 has the

claimed retaining forces, we analyze these limitations below together with Petitioner's proposed modifications to Benning in view of Karami '626.

j) Proposed Modifications

(1) Film-Nonwoven Backsheet

Petitioner argues that “Karami '626's diaper has a film-nonwoven backsheet” and such a backsheet prevented leakage because of the film and was known to “promote wearer comfort and visual appeal” because of its “cloth-like outer surface.” Pet. 53 (citing Ex. 1004 ¶¶ 62–64; Ex. 1008, 1:51–67; Ex. 1012 ¶¶ 30, 31, 108, 112, 113; Ex. 1019, 1:55–2:32; Ex. 1023, 8:3–28; Ex. 1037 ¶ 60). According to Petitioner, one of ordinary skill in the art would have understood Karami '626's film-nonwoven laminate to be “particularly suited to these benefits given its nonwoven's lower (e.g., ‘optimally 20 gsm’) basis weight, which was known to promote ‘a generally cloth-like texture.’” *Id.* (citing Ex. 1012 ¶ 113; Ex. 1023, 8:18–24; Ex. 1037 ¶ 60).

Petitioner, thus, argues that the ordinarily skilled artisan “would have been motivated to use a film-nonwoven laminate like Karami '626's for Benning's underlayer 30” because the film-nonwoven laminate would “a) provide a more comfortable and visually appealing cloth-like outer surface for Benning's diaper; and b) improve adjustability by enabling fasteners like Karami '626's to ‘[e]ngage directly with any portion of [a diaper's] nonwoven surface[s]’ to secure the diaper on a wearer.” Pet. 53–54 (alterations in original) (citing Ex. 1004 ¶ 40; Ex. 1012 ¶ 112).

(2) Fasteners

According to Petitioner, Karami '626 explains that the fasteners used in Benning were disadvantageous because they required landing zones that

limited where they could be secured and, thus, limited size adjustability. Pet. 54 (citing Ex. 1004 ¶¶ 3, 4, 6; Ex. 1012 ¶ 114). Petitioner contends that Karami '626's hook-type fasteners can engage directly with a conventional nonwoven that can be used for a diaper's backsheet and wings and, thus, accommodate small- and large-waisted wearers. *Id.* (citing Ex. 1004 ¶¶ 6–11, 39–41, 55; Ex. 1012 ¶¶ 104, 107, 114, 115).

Petitioner specifically points to Karami '626's T-shaped diaper to explain how Karami '626's hook-type fasteners can be used for small- and large-waisted users. Pet. 54–55 (citing Ex. 1004 ¶¶ 37, 38, Figs. 1, 7; Ex. 1012 ¶¶ 105–107, 116). Petitioner also argues that Karami '626 explains that similar or analogous improvements in fit can be achieved for Karami '626's integral-chassis diaper 14 with rear wings that would have been understood to be able to engage with front wings for a larger-waisted wearer or a central portion of the front for a smaller-waisted wearer. *Id.* at 55–56 (citing Ex. 1004 ¶¶ 37–40, 55, Figs. 9, 10; Ex. 1012 ¶¶ 106, 107, 116). Petitioner, thus, argues that one of ordinary skill in the art would have been motivated to use Karami '626's hook-type fasteners for Benning's fasteners 42, 44 “at least to improve size-adjustability by directly engag[ing] with a backsheet nonwoven . . . or its nonwoven wings 34.” Pet. 56 (citing Ex. 1002 ¶ 32; Ex. 1012 ¶¶ 114–116). Petitioner also argues that Benning's wings 34 are “preferably spunbond material” with a surface weight of 25–50 gsm, which is like Karami '626's film-nonwoven backsheet, so that Karami '626's hook-type fasteners can engage Benning's preferred wing material. *Id.* (citing Ex. 1004 ¶¶ 39, 40; Ex. 1012 ¶ 115). Petitioner further argues that “implementing Karami '626's teachings would have involved attaching hook-type fasteners in place of Benning's closures 42 such that the hooks

would engage either of the front wings 34 for larger-waisted users, or backsheet for smaller-waisted users (like Karami '626's T-shaped and integral diapers, *supra*).” *Id.* (citing Ex. 1012 ¶¶ 115, 116).

(3) *Lower Basis Weight Nonwoven for a Backsheet*

Petitioner argues that modifying the Benning diaper to include a film-nonwoven backsheet like Karami '626's would have resulted in the backsheet being “optimally 20 gsm” and wings 34 being 25–50 gsm. Pet. 57 (citing Ex. 1002 ¶ 32; Ex. 1004 ¶ 65; Ex. 1012 ¶ 112, 113, 117, 118).

Petitioner also argues that Karami '626 teaches the use of different basis weight nonwovens for its wings and backsheet, specifically noting that Karami '626's T-shaped diaper has “20–40 gsm (optimally 34 gsm)” preferred for its wings and “15–30 gsm (optimally 20 gsm)” preferred for its backsheet. *Id.* (citing Ex. 1004 ¶ 65; Ex. 1012 ¶ 118). Petitioner, thus, argues that one of ordinary skill in the art would have understood that a higher basis weight nonwoven for the wings of Benning's diaper is preferred, “given that, like Karami '626's T-shaped diaper, its wings were separate from the backsheet, would encircle a wearer's waist when worn, and would be engaged by fasteners.” *Id.* (citing Ex. 1012 ¶ 118).

Petitioner further argues that one of ordinary skill in the art would have “recognized that higher-basis-weight (e.g., 18–60 gsm, such as 30 gsm) wings would have desirably promoted diaper-strength while lower-basis-weight nonwovens (e.g., 10–30 gsm, such as 20 gsm) for backsheets would have desirably promoted wearer-comfort.” Pet. 57 (citing Ex. 1012 ¶ 118).

(4) *Patent Owner's Response*

Patent Owner responds that Petitioner fails to show that Benning discloses limitations 1[c][2] and 1[d] because the relied-upon fasteners

would not have the claimed differing forces. PO Resp. 40–41, 49–50. Patent Owner also responds that one of ordinary skill in the art would not have modified Benning in view of Karami '626 in the manner Petitioner asserts. *Id.* at 42–43 (citing Pet. 53–54, 57; Ex. 2004 ¶¶ 158–170).

According to Patent Owner, Petitioner proposes engaging the side flaps of Benning with the front of Karami '626's T-shaped diaper, but those portions were not designed to engage fasteners. PO Resp. 40–41 (citing Ex. 2004 ¶¶ 158–162). Patent Owner argues that Benning teaches making its side flaps more flexible, so they would not be heavier and more rigid than its underlayer. *Id.* at 41.

In Patent Owner's view, Benning's diaper and Karami '626's T-shaped diaper "are designed differently and operate fundamentally differently," and one of ordinary skill in the art would not have replaced Benning's underlayer which engages fasteners with Karami '626's backsheet which does not engage fasteners. PO Resp. 42 (citing Ex. 2004 ¶¶ 97, 158–170). Patent Owner provides its understanding of how Karami '626's T-shaped diaper has fasteners that engage wings or a belt. *Id.* at 42–43 (citing Ex. 1004 ¶¶ 37, 35, Fig. 1; Ex. 2003, 163:18–164:18; Ex. 2004 ¶¶ 81, 82, 160–162, 165, 167). Patent Owner also explains how it understands the fasteners of Benning's diaper engage the front, not side flaps. *Id.* at 43 (citing Ex. 1002 ¶¶ 28, 54, 55; Ex. 2004 ¶¶ 76, 165). Patent Owner, thus, argues that one of ordinary skill in the art would not have made Petitioner's proposed modification because "modifying the underlayer does not turn Benning's diaper into a T-shaped diaper or alter the function of the side flaps, which were not designed to engage fasteners." *Id.* (citing Ex. 2004 ¶¶ 165–167).

Patent Owner also contends that Petitioner's declarant did not understand how Karami '626's T-shaped diaper worked and erroneously thought its fasteners engaged the backsheet. PO Resp. 43–44 (citing Ex. 2003, 143:7–149:3, 151:1–158:13). According to Patent Owner, Petitioner's declarant agreed with Patent Owner's understanding of how Karami '626's T-shaped diaper worked. *Id.* at 44 (citing Ex. 2003, 163:18–21, 164:13–19).

Patent Owner also responds that one of ordinary skill in the art would have understood that Karami '626 does not teach fasteners engaging the front of its T-shaped diaper, does not care if a nonwoven is used for the front, and “is only concerned about the wings because that is the only surface that engages fasteners.” PO Resp. 44 (citing Ex. 1004 ¶ 16; Ex. 2003, 163:18–21, 164:13–19; Ex. 2004 ¶¶ 81–86, 159, 160, 165–167). Patent Owner, thus, argues that one of ordinary skill in the art would not have used Karami '626's front portion which does not engage fasteners as Benning's underlayer which does engage fasteners. *Id.* (citing Ex. 2004 ¶ 167).

Regarding size adjustability as a reason for modifying, Patent Owner responds that one of ordinary skill in the art would not have made the proposed modification because Karami '626 does not teach fasteners that can engage anywhere on a diaper and “expressly ties size adjustability to the T-shaped diaper and use of the wings.” PO Resp. 45–46 (citing Pet. 54–56; Ex. 1004 ¶¶ 40, 41, 50, 51; Ex. 1012 ¶¶ 107, 115, 116; Ex. 2003, 161:21–163:11, 163:18–21, 164:13–19; Ex. 2004 ¶¶ 83–86, 168–170). According to Patent Owner, one of ordinary skill in the art would have understood Karami '626 to be teaching that “fasteners can engage any

portion of the nonwoven surface constituting the frontsheet 30, backsheet 32 of wings 40.” *Id.* at 46 (citing Ex. 1004 ¶¶ 40, 47, 49, 74; Ex. 2003, 203:4–19; Ex. 2004 ¶¶ 85–86). Patent Owner, thus, argues that one of ordinary skill in the art would not have considered size adjustability as a reason for modifying Benning because Karami ’626 teaches size adjustability based on fasteners engaging different parts of wings, not an underlayer. *Id.* (citing Ex. 2004 ¶ 169).

Patent Owner also argues that size adjustability would not have been a reason to use nonwovens with different basis weights because one of ordinary skill in the art would have understood that size adjustability is provided by fasteners engaging the same nonwoven, not nonwovens of different basis weights. PO Resp. 46–47 (citing Ex. 2004 ¶ 143).

Regarding the use of higher basis weight nonwovens for the side flaps, Patent Owner responds that one of ordinary skill in the art would not have used a higher basis weight because “Benning expressly teaches that the *side flaps* should be designed for comfort” which “would lead to a lower basis weight nonwoven at the sides, not a higher one.” PO Resp. 47 (citing Pet. 57; Ex. 1002 ¶ 33; Ex. 1012 ¶ 118; Ex. 2004 ¶¶ 182–183). Patent Owner also argues that Benning teaches that the sides should be less rigid than the backsheet, and, thus, one of ordinary skill in the art would not have made the sides heavier and more rigid than the underlayer. *Id.* at 47–48 (citing Ex. 1002 ¶ 33; Ex. 2004 ¶¶ 182, 183). Patent Owner further argues that Benning teaches that the side flaps are wider than a belt in a T-shaped diaper, which would make the side flaps even heavier in Petitioner’s modified Benning diaper, and that higher basis weight nonwovens would have been more expensive. *Id.* at 48 (citing Ex. 1002 ¶ 28; Ex. 1012 ¶ 118;

Ex. 2004 ¶ 183). Patent Owner contends that Petitioner does not address these teachings. *Id.*

Patent Owner also responds that Petitioner's citation to Karami '626 relates to T-shaped diapers with fasteners that do not engage the front of the diaper. PO Resp. 48–49 (citing Pet. 57; Ex. 1004 ¶ 65; Ex. 2003, 163:18–21, 164:13–19; Ex. 2004 ¶¶ 89–91). Patent Owner asserts that one of ordinary skill in the art would have understood Karami '626's preference for different basis weight nonwovens applied to T-shaped diapers, not diapers like Benning's. *Id.* (citing Ex. 2004 ¶ 184).

In Patent Owner's view, one of ordinary skill in the art seeking to modify Benning's underlayer in view of Karami '626 would have used higher basis weight nonwoven for Benning's underlayer because Karami '626's fasteners engage a higher basis weight nonwoven wing or belt. PO Resp. 49 (citing Ex. 2004 ¶ 184). Patent Owner argues that Petitioner has not established that Karami '626's backsheet "could engage fasteners to hold the modified diaper on the user body" because the front of the T-shaped diaper does not engage fasteners. *Id.* at 50 (citing Ex. 2003, 163:18–164:18; Ex. 2004 ¶¶ 82–86, 159–162, 171–173). Patent Owner also argues that "Karami '626's mention of using a 20 gsm nonwoven at the front of that diaper is not evidence that the nonwoven could engage fasteners or engage them sufficiently to hold the diaper." *Id.*

According to Patent Owner, Petitioner does not allege that "in the modified diaper, the 'closure component is selectively fastened to' 'said outer face of said chassis' or explain why the fastener would necessarily be able to do that" because the proposed combination has "a nonwoven from Karami '626 that does not engage fasteners a[t] the outer face." PO Resp.

50 (citing Pet. 60). Patent Owner also argues that Petitioner merely contends that the fasteners can detachably fasten to conventional nonwovens, not the nonwoven from Karami '626. *Id.* (citing Pet. 60). Patent Owner further argues that Petitioner only contends that the fasteners would engage the outer face of underlayer 30, not detachably fasten to the outer face, as claimed. *Id.* (citing Pet. 60). Patent Owner additionally argues that Karami '626's nonwoven includes interstices or holes that would make it hard for a hook fastener to engage the nonwoven. *Id.* (citing Ex. 1004 ¶ 63; Ex. 2004 ¶ 92).

Patent Owner also argues that, because fasteners do not engage Karami '626's 20 gsm backsheet, one of ordinary skill in the art would not have expected fasteners to engage such a nonwoven sufficiently to fasten and hold a diaper. PO Resp. 51 (citing Ex. 2004 ¶ 173). Patent Owner turns to Karami '772 to argue that Karami '772 did not even test an untreated 20 gsm nonwoven with fastener Binder 25445 and that one of ordinary skill in the art would have understood from Karami '772 that a 20 gsm backsheet would need to be treated to engage a fastener to fasten and hold a diaper. *Id.* at 51–52 (citing Ex. 1003 ¶ 41, Table 1; Ex. 1004 ¶¶ 5, 13, 78; Ex. 2004 ¶ 173). Patent Owner, thus, argues that one of ordinary skill in the art would have understood that Petitioner's modified Benning diaper with an untreated 20 gsm nonwoven would not have sufficient retaining forces to fasten and hold the diaper. *Id.* at 52 (citing Ex. 2004 ¶ 173).

Regarding "Petitioner's arguments about how the modified diaper would meet the limitations requiring that the closure component be 'selectively fastened' to the 'outer face of said first and second ear' to 'hold the diaper on the user body,'" Patent Owner responds that Benning's "side

flaps were not designed to fasten and hold the diaper” and that “Benning’s diaper is designed to have closures engage the front of the diaper,” not any other location. PO Resp. 52 (citing Pet. 54, 60, 63; Ex. 1002 ¶¶ 3, 30, 55; Ex. 1012 ¶ 117; Ex. 2004 ¶¶ 76, 174, 175). In Patent Owner’s view, “[t]he side flaps in Benning were designed for comfort, not for engaging fasteners or holding the diaper on the wearer.” *Id.* at 52–53 (citing Ex. 1002 ¶ 30). Patent Owner argues that “Petitioner has not shown that the side flaps necessarily would have been able to engage closures/fasteners to hold the diaper.” *Id.* at 53.

Regarding Petitioner’s modified diaper having fasteners able to engage front wings 34 or backsheet with different retaining forces, Patent Owner responds that “Petitioner has not shown that [the] claimed features of being selectively fastened, differing retaining forces, and hold[ing] the diaper on the user are *necessarily present* in the modified Benning diaper or the *natural result* of the Benning-’626 combination, as required for inherency.” PO Resp. 53 (citing Pet. 60–61). Patent Owner also argues that, even if different basis weight nonwovens provided different retaining forces, “that does not mean the forces would be sufficient to secure the diaper on the wearer.” *Id.*

Patent Owner further argues that other factors affect how well a nonwoven engages a fastener, and that Petitioner does not address those other factors. PO Resp. 53–54 (citing Ex. 2004 ¶¶ 95–118, 176–181). Patent Owner contends that (1) Petitioner’s declarant acknowledged, (2) Karami ’626 teaches, and (3) Karami ’772 shows that other variables can affect how well a fastener engages a nonwoven. *Id.* at 54–55 (citing Ex. 1003, Table 1; Ex. 1004 ¶ 69; Ex. 1012 ¶ 133; Ex. 2003, 170:10–172:8).

Patent Owner also contends that the challenged patent does not provide evidence that “differing retaining forces would have been inherent in the modified diaper,” and the challenged patent is being misread if it is relied on for that teaching. *Id.* at 54–55 (citing Pet. 59–60; Ex. 1001, 12:62–13:49, 14:47–15:52; Ex. 2004 ¶¶ 111–118). Patent Owner, thus, argues that Petitioner fails to show “the claimed retaining forces are inherent or the requirement that the retaining forces secure the diaper on the wearer are the natural result of the modified Benning diaper.” *Id.* at 55.

(5) *Petitioner’s Reply*

Petitioner replies that Patent Owner relies on a “necessarily broad” “Diaper-Holding Requirement.” Pet. Reply 1. Petitioner asserts that Patent Owner has no hope of asserting “that the Benning-Karami ’626 diaper, which is founded on size-adjustability . . . , might have fallen short.” *Id.*

Regarding Patent Owner’s argument that the Benning and Karami ’626 diapers are designed and operate differently, Petitioner replies that the argument relies on an incorrect premise that fasteners cannot engage Karami ’626’s backsheet and relies on testimony directed to Karami ’626’s specific illustration. Pet. Reply 15–16 (citing PO Resp. 42–44; Ex. 1004 ¶ 42; Ex. 2003, 147:16–148:11, 157:11–158:13, 163:18–21, 197:15–198:2). Petitioner argues that Patent Owner’s references to Karami ’626’s “belt backsheet” does not defeat Karami ’626’s other teaching that separately addresses wings 40 and backsheet 32. *Id.* at 16 (citing PO Resp. 45–47; Ex. 1004 ¶¶ 36, 47, 49, 74).

Petitioner also argues that Karami ’626 teaches a fastener of minihook elements and a nonwoven that provides size adjustability and that teaching extends beyond Karami ’626’s T-shaped diaper. Pet. Reply 16 (citing

Ex. 1004 ¶¶ 8, 10, 11, 55, Figs. 9, 10; Ex. 1012 ¶¶ 104–107, 115, 116). Petitioner further argues that “[t]he prior art recognizes Karami ’626’s fastening system is not limited to wing-only attachment” and, as explained by Petitioner’s declarant, one of ordinary skill in the art would have modified Benning in view of Karami ’626 for size adjustability. *Id.* at 16–17 (citing Pet. 52–55; PO Resp. 45–47; Ex. 1012 ¶¶ 113–116; Ex. 1028 ¶¶ 6, 7).

Petitioner also replies that Patent Owner does not contest that an ordinarily skilled artisan would have wanted and could have achieved the proposed modification of Benning in view of Karami ’626 for size adjustability. Pet. Reply 17 (citing PO Resp. 42–47; Ex. 1054, 130:24–131:9, 141:18–24; Ex. 2004 ¶ 96). Petitioner argues that fasteners engaging the front, but not side flaps, “underscores the desirability of adding wing-fastener engagement to achieve size adjustability as Karami ’626 indisputably teaches.” *Id.* at 17 (citing PO Resp. 43–47; Ex. 1012 ¶¶ 114–116).

Petitioner further replies that Patent Owner’s argument that size adjustability is best achieved through same basis weight wing and backsheet nonwovens relies on conclusory declarant testimony and does not dispute that different basis weight wing and backsheet nonwovens can also achieve size adjustability. Pet. Reply 17 (citing PO Resp. 46–47). Petitioner additionally argues that “Petitioner’s argument is that the Benning-Karami ’626 diaper would have obviously—not inherently—included such fastener-engaging nonwovens for size adjustability” and Patent Owner does not dispute the ordinarily skilled artisan’s ability or motivation to modify

Benning in view of Karami '626. *Id.* at 17–18 (citing Pet. 54–56; PO Resp. 50–55).

Regarding the claimed diaper holding requirement, Petitioner replies that Patent Owner's arguments are not credible in view of the Benning-Karami '626 diaper's size adjustability. Pet. Reply 18–19 (citing PO Resp. 51–53). Petitioner contends that fasteners can engage Karami '626's backsheet. *Id.* at 18 (citing PO Resp. 50–51; Ex. 1004, Figs. 9, 10). Petitioner also contends that the modified underlayer would be Karami '626's backsheet which is a conventional nonwoven. *Id.* (citing Pet. 60; PO Resp. 50–51). Petitioner further contends that Karami '626's nonwovens are for engaging hook-type fasteners, and so their interstice size must be sufficient for hooks to engage fibers. *Id.* at 19 (citing PO Resp. 50–51; Ex. 1004, Abstract, ¶¶ 13–15, 63, 67; Ex. 1054, 43:3–44:21, 48:3–50:7, 51:14–16).

Regarding Patent Owner's argument that Karami '626's nonwoven would need to be treated to engage fasteners, Petitioner replies that Patent Owner makes a comparison of load values with different units and Patent Owner's declarant testifies that one of ordinary skill in the art would not rely on those values. Pet. Reply 19–20 (citing PO Resp. 52; Ex. 1004 ¶¶ 5, 13, 78; Ex. 2004 ¶¶ 68–72). Petitioner also argues that Karami '626 teaches an untreated nonwoven that can securely engage fasteners when used in a diaper's wings. *Id.* at 20 (citing PO Resp. 43; Ex. 1004 ¶ 65; Ex. 1054, 57:13–21).

Regarding higher-basis-weight wings, Petitioner replies that Patent Owner's declarant agreed that one of ordinary skill in the art would have used a heavier-basis-weight nonwoven for the wings of a diaper to prevent

tearing. Pet. Reply 20–21 (citing Pet. 57; Ex. 1012 ¶¶ 92–94, 118; Ex. 1054, 97:15–24, 125:15–127:15, 141:25–143:19). Petitioner also replies that Benning teaches that nonwovens up to 150 g/m² and specifically 25–50 g/m² can be skin friendly and less rigid, that those teachings are consistent with Petitioner’s proposed modification of the side flaps of Benning’s diaper, and that stronger wings would have led to using heavier nonwoven in the side flaps because additional softness would be pointless. *Id.* at 21 (citing Pet. 57, 60–61; PO Resp. 48; Ex. 1002 ¶ 32; Ex. 1012 ¶¶ 92–94, 118; Ex. 1054, 97:15–24, 106:12–107:1, 125:15–127:15, 141:25–143:19, 171:6–172:7).

Petitioner further replies that Patent Owner’s argument that Karami ’626 teaches heavier wings and lighter backsheet only for T-shaped diapers is based on conclusory declarant testimony. Pet. Reply 21–22 (citing PO Resp. 48–49; Ex. 1004 ¶ 65; Ex. 2004 ¶ 184). Petitioner argues that Patent Owner does not address analogous features in the modified Benning diaper that would have made T-shaped diaper teachings applicable. *Id.* (citing Ex. 1012 ¶¶ 117–118).

Petitioner finally replies that, in its proposed combination, both the wings and backsheet can engage with fasteners and the wing nonwoven has no film, thus needing a heavier weight for strength. Pet. Reply 22 (citing Pet. 53–54, 56; PO Resp. 49; Ex. 1054, 126:13–127:2). Petitioner argues that Patent Owner’s declarant indicated that the wings would need a heavier and stronger nonwoven. *Id.* (citing Ex. 1012 ¶¶ 19–21, 58; Ex. 1054, 97:15–24).

Regarding other factors that may affect basis weight and retaining forces, Petitioner replies that Patent Owner “lacks even an allegation that a

[person of ordinary skill in the art] 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." Pet. Reply 22–23 (citing PO Resp. 53–55, 58–61; Ex. 2004 ¶¶ 99–110). Petitioner also argues that it has provided the only evidence that the claimed retaining forces would have naturally resulted from its proposed modification of Benning's diaper with Karami '626. *Id.* at 23. Petitioner points to the '249 patent's description of only basis weight, and not any other parameter, for ensuring the required retaining forces. *Id.* at 23–24 (citing Ex. 1001, 4:37–39, 6:24–37, 7:65–8:4, 14:12–18). Petitioner also argues that the '249 patent indicates that the claimed retaining forces are a necessarily present property, not an additional requirement. *Id.* at 24 (citing Ex. 1054, 44:25–45:7).

Regarding hindsight, Petitioner replies that Karami '626 teaches the materials and basis weights for Petitioner's proposed modification of the Benning diaper. Pet. Reply 24–25 (citing PO Resp. 61; Ex. 1002 ¶ 32; Ex. 1003 ¶¶ 28, 31; Ex. 1004 ¶¶ 58, 60, 62–65).

(6) *Patent Owner's Sur-Reply*

Patent Owner replies that the asserted references do not teach the claimed differing retaining forces sufficient to hold a diaper on a wearer, and that Petitioner must rely on inherency for such differing retaining forces. PO Sur-reply 2 (citing Pet. 35–39, 54–58; Prelim. Resp. 28–42, 47–53; PO Resp. 24–34, 49–55). Patent Owner contends that size adjustability does not demonstrate the claimed differing retaining forces and would not have led one of ordinary skill in the art to the claimed differing forces. *Id.* at 2–3

(citing Pet. Reply 1, 4, 16–18). Patent Owner also contends that “Karami ’626’s reference to size adjustability is not a teaching of differing retaining forces, let alone differing retaining forces that are sufficient to secure the diaper.” *Id.* at 3. Patent Owner further contends that the relied-upon portion of Karami ’626 says nothing about differing retaining forces and nothing about such forces for size adjustability. *Id.* at 3 (citing Pet. Reply 6, 16; Ex. 1004 ¶ 40).

Patent Owner further replies that size adjustability does not provide a reason and would not have led one of ordinary skill in the art to make the proposed combination. PO Sur-reply 2–3 (citing Pet. Reply 1, 4, 16–18). Patent Owner argues that the fasteners of Karami ’626’s T-shaped diaper only engage the wings, as acknowledged by Petitioner’s declarant. *Id.* at 4 (citing Ex. 1004 ¶¶ 37, 38; Ex. 2003, 163:18–21, 164:13–19). In Patent Owner’s view, Karami ’626’s reference to size adjustability was for the T-shaped diaper, and Petitioner does not explain how fasteners could engage the backsheet at the front of a T-shaped diaper. *Id.* (citing Pet. Reply 6; Ex. 1004 ¶¶ 40, 41, 50, 51). Patent Owner argues that size adjustability is not mentioned in connection with Karami ’626’s Figures 9 and 10 and, thus, “would not provide a reason to use differing retaining forces to achieve size adjustability.” *Id.* at 4–5 (citing Pet. Reply 6–8; Ex. 1004 ¶ 55). Patent Owner also argues that “seeking size adjustability would not have led one of ordinary skill to use nonwovens having different basis weights to generate different retaining forces sufficient to secure a diaper.” *Id.* at 5.

Patent Owner additionally replies that “Petitioner has not identified any prior art that teaches using different basis weight nonwovens to achieve size adjustability” and “Patent Owner demonstrated that the prior art *only*

teaches size adjustability by using the same basis weight nonwoven.” PO Sur-reply 5 (citing PO Resp. 23–24, 46–47; Pet. Reply 18). Patent Owner argues that, for using the same nonwoven for size adjustability, Patent Owner’s declarant “testified based on his experience as to what one of ordinary skill would have understood and explained that was also what the references showed.” *Id.* at 6 (citing Ex. 2004 ¶¶ 85, 86, 131, 143, 168, 169). Patent Owner also argues that “merely arguing [that size adjustability using different basis weight nonwovens for the wings and backsheet] is achievable is not sufficient for obviousness.” *Id.* (citing Pet. Reply 18). According to Patent Owner, the challenged patent shows how to achieve size adjustability with different basis weight nonwovens, but “Petitioner has not shown that prior art teaches such an arrangement or that it would have been obvious.” *Id.*

Also, Patent Owner replies that the asserted references do not teach using a higher basis weight nonwoven on the sides of a traditional diaper nor do they teach that using different basis weight nonwovens would provide differing retaining forces that can secure the diaper to the wearer. PO Sur-reply 6–7. Patent Owner argues that, even though Petitioner relies on Karami ’626’s preference for a “slightly higher” basis weight nonwoven for the wings of a T-shaped diaper, Karami ’626 “never says why that is preferred,” and, in the T-shaped diaper, “the fasteners only engage the wings.” *Id.* at 7 (citing Pet. 57; PO Resp. 29–31, 49–52; Ex. 1004 ¶ 65).

Regarding Figures 9 and 10 of Karami ’626, Patent Owner replies that Petitioner appears to have dropped its reliance on the T-shaped diaper, Karami ’626 “never suggests making it from nonwovens having different basis weights,” and “Petitioner’s reasons for using a higher basis weight

nonwoven on the sides of a diaper are based on hindsight.” PO Sur-reply 7 (citing Ex. 1004 ¶ 55). Patent Owner also argues that its declarant “merely explained that this side piece needed to be heavy enough not to be pulled off” and “how a heavier nonwoven could have lower retaining forces than a lighter nonwoven.” *Id.* at 8 (citing Ex. 1001, 14:19–40; Ex. 1054, 125:9–126:12, 127:25–129:3). Patent Owner further argues that its declarant “did not reference the front side-parts, which are the relevant parts for having the claimed retaining forces for engaging fasteners” and “did not suggest that the main body did not need to be as strong or that one of ordinary skill would have sought higher retaining forces on the sides.” *Id.*

Patent Owner also replies that Petitioner relies on inherency for the claimed differing retaining forces because Petitioner’s arguments are not based on what the references teach. PO Sur-reply 8 (citing Prelim. Resp. 28–42, 47–51; PO Resp. 28–34, 50–55). Patent Owner argues that Petitioner did not acknowledge that its challenges are premised on inherency, only addresses inherency to disavow it, and fails to carry its burden if the Board agrees that inherency is required. *Id.* at 8–9 (citing Pet. Reply 5, 17–18).

Regarding the proposed combination of Benning and Karami ’626 and inherency, Patent Owner replies that Petitioner disavows inherency but characterizes the factual issue as inherent obviousness. PO Sur-reply 10 (citing Pet. Reply 23). Patent Owner contends that Petitioner must provide substantial evidence, not merely allege obviousness, and, thus, fails to establish that the claimed differing retaining forces are necessarily present in its proposed combination. *Id.* at 10–11.

Regarding Petitioner’s proposed combination of Benning and Karami ’626 in particular, Patent Owner replies that “Petitioner has not shown that the combination necessarily would have resulted in the claimed retaining forces” and relies on the challenged patent. PO Sur-reply 19–20 (citing Pet. Reply 22–25). Patent Owner argues that Petitioner has the burden to show obviousness based on prior art, not the challenged and related patents. *Id.* at 20. Patent Owner also argues that the challenged and related patents “do not state that a higher basis weight nonwoven necessarily and always has higher retaining forces than a lower basis weight nonwoven” nor “suggest this was some universal principal that applied based solely on basis weight, regardless [of other factors].” *Id.* (citing Ex. 1001, 12:62–13:49). Patent Owner contends that the challenged and related patents “teach factors that impact retention and how to engineer a nonwoven to engage fasteners.” *Id.* (citing Ex. 1001, 5:22–9:44; Ex. 2004 ¶ 36).

Patent Owner additionally replies that Petitioner “improperly modifies Benning-Karami ’626” because “Petitioner asserted that one of ordinary skill would have used the 20 gsm backsheet from Karami ’626’s T-shaped diaper for Benning’s backsheet because it was identified as optimal.” PO Sur-reply 21. According to Patent Owner, Petitioner shifted its position when it “contends that it could instead use a 20 gsm nonwoven from the wings of the T-shaped diaper even though Karami ’626 describes that nonwoven as optimally 34 gsm,” thus, “show[ing] that it has no meaningful reason for selecting nonwovens and basis weights other than the roadmap the claims provide.” *Id.* (citing Pet. Reply 21; Ex. 1004 ¶ 65).

Regarding Petitioner’s declarant testimony, Patent Owner replies that Petitioner’s declarant has admitted that he cannot tell if retaining forces

would be sufficient based on Karami '626 or Karami '772, and that he did not understand how Karami '626's T-shaped diaper worked. PO Sur-reply 21–23 (citing Pet. Reply 9; Ex. 1012 ¶¶ 68–70; Ex. 2003, 117:6–15, 119:8–9, 143:7–149:3, 151:1–158:13, 175:11–20, 185:9–10, 195:12–17). Patent Owner argues that Petitioner's declarant "agreed that all fasteners engage the belt and do not engage the backsheet of the main part" in Karami '626 and his testimony is not "unequivocal." *Id.* at 22–23 (citing Ex. 2003, 184:4–185:2, 185:11–186:1), 24 (citing Ex. 2003, 163:18–21, 164:13–19).

(7) Petitioner Shows that One of Ordinary Skill in the Art Would Have Been Motivated to use a Film-Nonwoven Laminate like Karami '626's for Benning's Underlayer 30

Based on the full record, we find that a relied-upon portion of Karami '626 states that "fastener elements 41, 42 do not require landing zones and may engage directly with any portion of the nonwoven surface constituting the frontsheet 30, backsheet 32 or wings 40 of the brief." Ex. 1004 ¶ 40. We also find that other relied-upon portions state that "nonwoven 50, which defines an exposed outer surface of at least one of the frontsheet 30, backsheet 32, and wing 40, contains a plurality of bonded fibers" and "[i]t will be appreciated that the backsheet may be formed of the above-identified nonwoven with a polypropylene or polyethylene film backing or as a laminate or like composite of a plurality of nonwovens." *Id.* ¶¶ 62, 64. Karami '626, thus, expressly teaches fastener elements that can engage directly with any portion of a nonwoven surface that may be formed with a film or laminate and that such a nonwoven can form a backsheet.

We further find that Karami '626 states that:

While the nonwoven is preferably a spunbond having a basis weight of 13–50 grams per square meter (gsm), slightly higher

basis weights of 20–40 gsm (optimally 34 gsm) are preferred for use on the wings of a T-shaped brief, while relatively lower basis weights of 15–30 gsm (optimally 20 gsm) are preferred for the backsheet of the front and back portions.

Ex. 1004 ¶ 65. Karami '626, thus, expressly teaches a preference for “relatively lower basis weights of 15-30 gsm (optimally 20 gsm)” for a backsheet.

Taking these express teachings together, we determine that Karami '626 provides factual support for Petitioner's asserted motivation to use a film-nonwoven laminate like Karami '626's for Benning's underlayer 30 because the film-nonwoven laminate would “improve adjustability by enabling fasteners like Karami '626's to '[e]ngage directly with any portion of [a diaper's] nonwoven surface[s]' to secure the diaper on a wearer.” Pet. 53–54 (alterations in original) (citing Ex. 1004 ¶ 40; Ex. 1012 ¶¶ 112–113).

Petitioner also contends that one of ordinary skill in the art would have been motivated to use Karami '626's film-nonwoven laminate for Benning's underlayer 30 because Karami '626's film-nonwoven laminate would “provide a more comfortable and visually appealing cloth-like outer surface for Benning's diaper.” Pet. 53 (citing Ex. 1004 ¶ 40; Ex. 1012 ¶¶ 112–113). Record evidence also supports Petitioner's additional asserted motivation. Ex. 1012 ¶ 113; Ex. 1019, 1:55–2:32; Ex. 1023, 8:3–28; Ex. 1037 ¶ 60.

Regarding whether these teachings are limited to Karami '626's T-shaped diaper, Karami '626 expressly states that “absorbent article 10 is in the form of a T-shaped brief 12, although it may alternatively be in the form of a diaper 14 (as illustrated in FIGS. 9 and 10) or a pull-up 16 (as illustrated

in FIG. 8)” and that “[t]he disposable article may be a diaper, a T-shaped brief, or a pull-up.” Ex. 1004 ¶¶ 35, 78. Karami ’626 also states that:

Referring now to FIGS. 9 and 10, it will be appreciated by those skilled in the art that the same or analogous improvements in the fit, appearance and economy of diapers 14 according to the present invention, with tape tab or patch fastener elements 76 (adjacent opposed lateral edges of the back portion 20), may be realized.

Id. ¶ 55. Karami ’626 further states that “an object of the present invention to provide a disposable absorbent article which, in one preferred embodiment, incorporates a fastener assembly consisting exclusively of a minihook fastener element without any miniloop fastener element beyond a conventional nonwoven material.” *Id.* ¶ 7.

Karami ’626, thus, indicates that “the same or analogous improvements” mentioned in paragraph 55 include, at least, “a fastener assembly consisting exclusively of a minihook fastener element without any miniloop fastener element beyond a conventional nonwoven material” of paragraph 7. We, therefore, find that Karami ’626 does not limit application of its fastener assembly of minihook fastener elements and conventional nonwoven material to its T-shaped brief. Ex. 1012 ¶ 107. Moreover, Karami ’626 states that “[p]referably the nonwoven is the article backsheet or, in the case of a T-shaped brief, the article wings.” Ex. 1004 ¶ 16. Karami ’626, thus, indicates that its nonwoven, in articles other than T-shaped briefs, would be preferably the backsheet.

In view of our findings above, we determine that Karami ’626 provides factual support for Petitioner’s asserted motivation “to use a film-nonwoven laminate like Karami ’626’s for Benning’s underlayer 30.” Pet. 53–54; Ex. 1004 ¶¶ 40, 62, 64. Furthermore, because Benning and

Karami '626 indicate that Petitioner's proposed modification amounts to using one known material for another, Petitioner persuades us that one of ordinary skill in the art would have modified Benning's underlayer 30 to use a film-nonwoven laminate like Karami '626's with a reasonable expectation of success. Ex. 1012 ¶ 122.

*(8) Petitioner Shows that One of Ordinary Skill
in the Art Would Have Been Motivated to use
Karami '626's Hook-Type Fasteners in Benning*

Based on the full record and as discussed above for the recited “mechanical closure aids,” we find that Benning teaches that “right material section 34 has two closures 42 in the form of closing tapes 44” and that “tapes 44 interact in a releasably adherent manner with an outside 46 of the front region 22 of the main body portion 20.” Ex. 1002 ¶ 55. Benning also describes that “[t]o close the incontinence article when it is worn by a user, the material sections have closures which can be designed to grip mechanically or adhesively” and “[i]t proves expedient if the material sections in the back region have closures of a type which can act in concert in a *releasably gripping or adhering fashion with a landing zone* on the main part of the diaper.” *Id.* ¶ 30 (emphasis added). A relied-upon portion of Benning further describes that “[t]he material sections attached to the main body portion are preferably of a non-woven material, specifically and preferably spunbond materials.” *Id.* ¶ 32.

Turning to Karami '626, we find that relied-upon portions of Karami '626 state that “VELCRO fastener assemblies” have a “primary limitation on their widespread use” because they “need for each minihook fastener element to have a corresponding miniloop fastener element to engage with” or “a loop-type ‘landing zone’ for the minihook fastener element.” Ex. 1004

¶ 3. Karami '626 explains that “it has been necessary for the two articles or article portions to be designed such that, during use, the minihook and miniloop fastener elements will be appropriately positioned opposite one another for engagement with one another” and that “[t]he need to provide a miniloop fastener element—whether as a landing zone, as a strip, or as an entire surface—has stifled the development of uses for the minihook fastener element in various situation where it might prove advantageous.” *Id.* ¶¶ 4, 6.

We also find that other relied-upon portions of Karami '626 describe “a fastener assembly consisting exclusively of a minihook fastener element without any miniloop fastener element beyond a conventional nonwoven material,” “minihook fastener element and a nonwoven (preferably a spunbond nonwoven and optimally an elastic composite thereof),” “the fastener assembly provides size adjustability or other features at the cost of only additional minihook fastener elements,” and “fastener elements 41, 42 do not require landing zones and may engage directly with any portion of the nonwoven surface constituting the frontsheet 30, backsheet 32 or wings 40 of the brief” to accommodate small, large, and extra-large waisted wearer. Ex. 1004 ¶¶ 7, 8, 10, 40, 41, 55; *see also id.* ¶ 2 (stating that Karami '626 relates “more particularly to an absorbent article having a fastener element which does not require a special loop-providing landing zone”). Moreover, as already indicated elsewhere, Karami '626 expressly states that its “improvements are made possible by the ability of the fastener element to make an engagement without the presence of a landing zone.” *Id.* ¶ 42.

We further find that Karami '626 expressly teaches that its “fastener assembly provides size adjustability or other features at the cost of only additional minihook fastener elements.” Ex. 1004 ¶ 10. Karami '626 later

similarly states that its “fastener assembly . . . provides size adjustability and/or other features at the cost of only additional minihook fastener elements.” *Id.* ¶ 78.

Based on our findings above, we determine that Karami ’626 provides factual support for Petitioner’s assertion that one of ordinary skill in the art would have been motivated to use Karami ’626’s hook-type fasteners for Benning’s fasteners 42, 44 “at least to improve size-adjustability by directly engag[ing] with a backsheet nonwoven . . . or its nonwoven wings 34.” Pet. 56 (citing Ex. 1002 ¶ 32; Ex. 1012 ¶¶ 114–116); Ex. 1002 ¶ 32; Ex. 1012 ¶ 115. Karami ’626 specifically teaches that its fastener assembly “consisting exclusively of a minihook fastener element, without any miniloop fastener element beyond a conventional nonwoven material” “provides size adjustability.” Ex. 1004 ¶¶ 7, 10, 78.

Karami ’626 also teaches that its hook-type fasteners engage Benning’s preferred material sections made of a “non-woven material, specifically and preferably spunbond materials.” Ex. 1002 ¶ 32 (“The material sections attached to the main body portion are preferably of a non-woven material, specifically and preferably spunbond materials.”); Ex. 1004 ¶ 8 (“[I]n one preferred embodiment, the fastener assembly is composed exclusively of a minihook fastener element and a nonwoven (preferably a spunbond nonwoven and optimally an elastic composite thereof).”), ¶ 70 (“When the preferred fastener element is used with a conventional nonwoven, especially the preferred nonwoven spunbond described hereinafter, the fastener assembly according to the present invention has a shear strength substantially higher (and frequently several times higher) than

that obtained by a conventional VELCRO-like hook-type fastener element with a comparable conventional nonwoven.”); Ex. 1012 ¶ 115.

Petitioner’s proposed modification of Benning with Karami ’626’s hook-type fasteners, thus, would improve size adjustability by allowing the fasteners to engage a nonwoven (preferably spunbond) backsheet and Benning’s nonwoven (preferably spunbond) material sections 34. Ex. 1002 ¶ 32; Ex. 1004 ¶ 8. By allowing hook-type fasteners to engage the front portion of the backsheet or the material sections 34 extending from the front portion, the modified Benning diaper would be able to accommodate smaller- and larger-waisted users. Ex. 1012 ¶¶ 115, 116; *see also* Ex. 1004 ¶ 41 (stating that “[f]or the extra-large waisted wearer, the wings 40 . . . are secured by the wearer to opposite lateral edges of the front portion 22 by fastener elements 42 so that the wings 40 form a belt 44 including both the front and back portions 22, 20”).

Also, as discussed above, we determine that Karami ’626’s “fastener assembly consisting exclusively of a minihook fastener element without any miniloop fastener element beyond a conventional nonwoven material” can be applied to a T-shaped brief, diaper, or pull-up. Ex. 1004 ¶¶ 7, 11, 55. Moreover, because Karami ’626 expressly teaches the use of its hook-type fastener to engage with its backsheet material to provide the described advantages and improvement, Karami ’626 additionally evidences that one of ordinary skill in the art would have considered both Karami ’626’s hook-type fastener and backsheet material when modifying Benning’s diaper.

Furthermore, because Benning and Karami ’626 indicate that Petitioner’s proposed modification amounts to using one known fastener

assembly for another, Petitioner persuades us that one of ordinary skill in the art would modify Benning's fasteners 42, 44 to use Karami '626's hook-type fasteners with a reasonable expectation of success. Ex. 1012 ¶ 115.

(9) Petitioner Shows that One of Ordinary Skill in the Art Would Have Been Motivated to use a Lower Basis Weight Nonwoven for a Backsheet

As discussed above, we find that a relied-upon portion of Karami '626 teaches "slightly higher basis weights of 20-40 gsm (optimally 34 gsm) are preferred for use on the wings of a T-shaped brief, while relatively lower basis weights of 15-30 gsm (optimally 20 gsm) are preferred for the backsheet of the front and back portions." Ex. 1004 ¶ 65. Based on the full record, we also find that a relied-upon portion of Benning teaches that "material sections attached to the main body portion are preferably of a non-woven material" and "advantageously have a surface weight of 10 to 150 g/m², in particular 20–100 g/m², and specifically of 25–50 g/m²." Ex. 1002 ¶ 32.

Thus, if, as Petitioner argues, one of ordinary skill in the art modifies Benning to use Karami '626's film-nonwoven laminate for Benning's underlayer 30, then the modified diaper would have material sections "of a non-woven material" with "a surface weight of 10 to 150 g/m², in particular 20–100 g/m², and specifically of 25–50 g/m²" and a backsheet with "relatively lower basis weights of 15–30 gsm (optimally 20 gsm)." Pet. 57; Ex. 1002 ¶ 32; Ex. 1004 ¶ 65. Based on these express teachings, we determine that one of ordinary skill in the art would have modified Benning's diaper to have material sections made of nonwoven material of "25–50 g/m²" and an underlayer or backsheet of "optimally 20 gsm." Ex. 1002 ¶ 32; Ex. 1004 ¶ 65. In other words, one of ordinary skill in the art

following the express preferences of Benning and Karami '626 would have modified Benning's diaper to have a lower basis weight nonwoven for the underlayer or backsheet ("20 gsm") with the already relatively heavier basis weight nonwoven for the material sections or wings ("25–50 g/m²"). Ex. 1002 ¶ 32; Ex. 1004 ¶ 65.

Turning to whether the stated preferences in paragraph 65 of Karami '626 relate only to Karami '626's T-shaped diaper, we find that Karami '626 in other paragraphs repeatedly describes its improved and preferred minihook fastener element together with a preferred nonwoven having a "basis weight of 13–50 gsm." Ex. 1004 ¶¶ 14, 15, 63; *see also id.* at claims 16, 17, 20, 54. Karami '626, thus, teaches that its preferred minihook fastener element would engage an "optimally 20 gsm" backsheet, regardless of whether it was used in its T-shaped brief 12 or diaper 14, because it would still be a preferred nonwoven having a "basis weight of 13–50 gsm." *See* Ex. 1004 ¶¶ 14, 15, 63. Karami '626 also does not further limit its preferred nonwoven to those that have a film backing or laminate. *See id.* ¶ 64 ("It will be appreciated that the backsheet *may* be formed of the above-identified nonwoven with a polypropylene or polyethylene film backing or as a laminate or like composite of a plurality of nonwovens.") (emphasis added); *see also id.* ¶¶ 15, 63 (describing a preferred nonwoven with particular fibers and interstice size but not specifying any film or laminate).

Having determined above that the full record supports Petitioner's asserted motivations of "provid[ing] a more comfortable and visually appealing cloth-like outer surface for Benning's diaper" and "improv[ing] adjustability by enabling fasteners like Karami '626's" for using Karami '626's film-nonwoven laminate, we determine that Petitioner shows that one

of ordinary skill in the art would have been motivated to use a lower basis weight nonwoven, such as a “20 gsm” nonwoven, because (1) such a nonwoven is described as “optimal[],” (2) would be in a lower part of the “13–50 gsm” range for the preferred nonwoven to use with Karami ’626’s preferred minihook fastener element, and (3) would “provide a more comfortable and visually appealing cloth-like outer surface for Benning’s diaper.” Ex. 1004 ¶ 65; Ex. 1019, 1:55–2:32; Ex. 1023, 8:3–28; Ex. 1037 ¶ 60; *see also* Ex. 1004 ¶¶ 14, 15, 63.

In view of the full record, Patent Owner’s responsive argument that the Benning and Karami ’626 diapers are designed and operate differently (PO Resp. 42–44, 48–51) does not show a deficiency in Petitioner’s proposed combination because, for the reasons above, we find that Karami ’626 teaches applying its hook-type fastener and nonwoven to both diaper’s like Benning and a T-shaped diaper. Patent Owner’s responsive argument that one of ordinary skill in the art would not have used a higher basis weight nonwoven for the material sections or wings (PO Resp. 47–51) also does not show a deficiency in Petitioner’s challenge because, as discussed above, the proposed combination does not require modifying the relatively heavier nonwoven material that Benning already uses for its material sections or wings.

Accordingly, after considering the full record in view of each party’s arguments and evidence, we determine that Petitioner persuades us that Karami ’626 teaches the use of different basis weight nonwovens for its wings and backsheet, and, thus, the proposed modification of Benning in view of Karami ’626 would have a nonwoven for its underlayer or backsheet that is of relatively lower basis weight than the nonwoven for its material

sections or wings. Pet. 57, 60–61; Ex. 1002 ¶ 32; Ex. 1004 ¶ 65; Ex. 1012 ¶ 118.

(10) The Proposed Combination of Benning and Karami '626 would have Retaining Forces Sufficient to Fasten and Hold the Modified Diaper

Karami '626 repeatedly specifies the same peel strength of, at least, 60 grams per square inch and shear strength of, at least, 1300 grams per square inch. *See* Ex. 1004 ¶¶ 5, 13, 57, 61, claims 1, 36, 55. For example, Karami '626 states that previous “[d]isposable absorbent articles . . . have different requirements as to the peel strength and shear strength of the various engagements depending, for example, on whether the engagement is about a waist or elsewhere, whether its fastening power is to be supplemented.” Ex. 1004 ¶ 5. Karami '626 also states that “[g]enerally a peel strength of at least 60 grams per square inch and a shear strength of at least 1300 grams per square inch is preferred.” *Id.*

Karami '626 further states that “[t]hose skilled in the art will appreciate that not all of the fastener assemblies according to the present invention will require a peel strength of 60 grams per square inch and a shear strength of 1300 grams per square inch.” Ex. 1004 ¶ 61. “For example, in FIG. 2, the auxiliary fastener element 51 . . . may have lower peel and shear strengths” because it and other fasteners like it “are not relied upon for maintenance of the T-shaped brief 12 in its basic essential orientation on the wearer.” *Id.*

These statements indicate that a peel strength of 60 grams per square inch and a shear strength of 1300 grams per square inch would keep “the T-shaped brief 12 in its basic essential orientation on the wearer” or keep brief 12 on the wearer. *See* Ex. 1004 ¶ 61. Thus, we find that engaging Karami

'626's minihook fastener element with its preferred nonwoven, as they would be in Petitioner's proposed modifications of Benning, provides retaining forces sufficient to keep the modified diaper "in its basic essential orientation on the wearer," and thus, have retaining forces sufficient to, at least, fasten and hold the modified diaper on the user.

Based on the full record, we determine that Benning's diaper modified with Karami '626's hook-type fastener would have functioned to "when in use, hold the diaper on the user body when . . . selectively fastened to either said outer face of said chassis or to said outer face of said first and second ears," as recited in limitation 1[c][2]. Ex. 1001, 16:13–17; Ex. 1002 ¶ 55; Ex. 1004 ¶¶ 7, 8, 10, 40, 41, 55; Ex. 1012 ¶¶ 115, 122.

*(11) Petitioner Shows that the Proposed
Combination of Benning and Karami '626 has the
Recited Differing Retaining Forces*

Karami '626 states that "[t]he number of fibers and the extent to which they are bonded together in the nonwoven provide the nonwoven with the strength necessary to provide a high level of shear strength." Ex. 1004 ¶ 68. Karami '626 also states that "[t]he pore size in the nonwoven (that is, the size of the interstices formed by the fibers) typically affects the peel strength, a higher pore size providing greater peel strength for the fastener elements according to the present invention." *Id.* ¶ 69. Karami '626 further states that "[t]he size of the spacing between adjacent surfaces of the pins of the fastener element at the exposed outer surface thereof is a factor of major significance providing the high level of shear strength." *Id.* ¶ 68. Karami '626 does not describe any other parameter that would affect shear strength or peel strength.

As discussed above, based on the full record, Petitioner persuades us that the proposed modification of Benning in view of Karami '626 would have a nonwoven for its underlayer or backsheet that is of relatively lower basis weight than the nonwoven for its material sections or wings. Pet. 57; Ex. 1002 ¶ 32; Ex. 1004 ¶ 65. Thus, in Petitioner's proposed combination with Karami '626's fastener engaging with its described nonwoven material for the backsheet but a relatively heavier basis weight nonwoven for the material sections of Benning's diaper, the one difference between the nonwoven materials of the backsheet and material sections would be number of fibers. If the extent to which the fibers are bonded together and pore size is the same between the two nonwoven materials, then the relatively lower basis weight nonwoven of the backsheet must have a lesser number of fibers than the relatively heavier basis weight nonwoven of the wings because of the relatively lighter basis weight, and because the relatively lower basis weight nonwoven of the backsheet has a smaller number of fibers, according to Karami '626, an engagement of its fastener element with the backsheet would have a smaller shear strength than engagement with the relatively heavier basis weight material sections of Benning. *See* Ex. 1012 ¶ 120 ("Because higher basis weight nonwovens have more fibers per unit area with which a mechanical fastener can interact, the retaining forces (e.g., peel and/or shear strength) between the fastener and such a nonwoven are higher than those between the fastener and a lower basis weight but otherwise similar nonwoven."). Petitioner's proposed combination of Benning and Karami '626 would thereby meet limitation 1[d]'s recitation "wherein retaining forces between said closure component and said outer face of said

chassis are lower than retaining forces between said closure component and said outer face of said first and second ears.”

Moreover, to the extent that the proposed combination of fastener and different basis weight nonwovens do not necessarily provide the recited difference in retaining forces, we determine that such a difference is, at least, suggested because Karami '626 shows that, for its fastener assembly, there was a known relationship between shear strength and number of fibers. Ex. 1004 ¶¶ 68, 69. One of ordinary skill in the art modifying Benning in the manner asserted by Petitioner would have known from Karami '626 alone that engaging Karami '626's fastener with Benning's relatively higher basis weight spunbond nonwoven would exhibit greater shear strength for two nonwovens that otherwise have the same extent of bonding and pore size. *See id.*

2. *Analysis of Claims 3, 4, 14–16, 25, 31, and 32*

Each of claims 3, 4, 14–16, 25, 31, and 32 depends, directly or indirectly, from independent claim 1. Ex. 1001, 16:22–30, 17:9–20, 17:56–57, 18:19–20, 18:23–24. Each of claims 3 and 16 recites “wherein said retaining forces, determined as over-abdomen retaining forces between said closure component and said outer face of said chassis, are 57-20 N/25 mm.” *Id.* at 16:26–28, 17:20–22. Each of claims 4 and 25 recites “wherein said retaining forces, determined as over-abdomen retaining forces between said closure component and said outer face of said first and second ears, are 90-58 N/25 mm.” *Id.* at 16:31–34, 17:57–60. Each of claims 14 and 31 recites “wherein said retaining forces, determined as over-abdomen retaining forces between said closure component and said outer face of said chassis, are 50-25 N/25 mm.” *Id.* at 17:10–12, 18:20–22. Each of claims 15 and 32

recites “wherein said retaining forces, determined as over-abdomen retaining forces between said closure component and said outer face of said first and second ears, are 80-60 N/25 mm.” *Id.* at 17:14–17, 18:24–27. The parties argue claims 3, 4, 14–16, 25, 31, and 32 together. *See* Pet. 64–69; PO Resp. 58–61; Pet. Reply 10–11; PO Sur-reply 24.

Petitioner argues that, by using Karami ’626’s preferred fastener with its preferred dimensions and optimal 20 gsm spunbond nonwoven for the backsheet, the modified Benning diaper would have yielded the same retaining forces as the claimed diaper, because the challenged patent describes a test with the same fastener and nonwoven that recorded a retaining force of 48.6 N/25 mm and 65.3 N/25 mm, meeting the ranges recited in claims 3, 4, 14–16, 25, 31, and 32. Pet. 64–69 (citing Ex. 1001, 7:25–32, 13:42–49, 14:47–15:57; Ex. 1002 ¶ 32; Ex. 1003 ¶¶ 28, 31, 41; Ex. 1004 ¶¶ 38, 58, 60, 62–65; Ex. 1009 ¶¶ 38, 46; Ex. 1012 ¶¶ 123–130).

Patent Owner responds that “Petitioner fails to address the actual claim language that retaining forces are determined as over-abdomen retaining forces.” PO Resp. 58; *see also id.* at 35 (arguing that “[t]he claims require that retaining forces be determined as over-abdomen retaining forces, yet Petitioner does not address that requirement when evaluating claims 3-4, 14-16, 25, 31-32, 36-37, 39-40, 44, 50, and 53-54”). Patent Owner argues that Petitioner relies only on the basis weight, not on the other “detailed information about the examples” in the challenged patent, and ignores many other identified properties that impact the retaining force discussed in Karami ’626. *Id.* at 59–60 (citing Pet. 64–68; Ex. 1001, 14:50–15:31; Ex. 1004 ¶ 63; Ex. 2004 ¶¶ 92, 98–110). According to Patent Owner, “[b]ecause Petitioner did not establish that the Karami ’626

nonwoven and Benning side flaps included all characteristics of [the nonwoven materials], it cannot establish that they necessarily would have the claimed retaining force values.” *Id.* at 60.

Patent Owner also responds that the challenged and related patents “never state that retaining forces are determined solely by basis weight” and “provide detailed information on how to engineer nonwovens to make them receptive to fasteners.” PO Resp. 60 (citing Pet. 65; Ex. 2004 ¶¶ 111–118). Patent Owner argues that Petitioner’s analysis is hindsight driven because the arguments are conclusory and Petitioner’s declarant testimony merely states that it would have been obvious to use the disclosed fasteners and materials. *Id.* (citing Pet. 64–69; Ex. 1012 ¶¶ 123–131; Ex. 2004 ¶¶ 185–187).

Petitioner replies that the ’249 patent claims “do not actually require measuring retaining forces.” Pet. Reply 10. Petitioner also replies that Patent Owner fails to argue that one of ordinary skill in the art in making Petitioner’s proposed modifications would have selected any of the asserted parameters so that the retaining forces of the higher basis weight nonwoven would have been lower than those in the lower basis weight nonwoven. *Id.* at 22–23 (citing PO Resp. 53–55, 58–61; Ex. 2004 ¶¶ 99–110). Petitioner contends that its evidence remains the only evidence regarding whether the claimed retaining forces would have naturally resulted from the proposed modifications. *Id.* at 23 (citing Pet. 60–61; Ex. 1001, 7:25–32, 13:42–49; Ex. 1012 ¶¶ 120–121; Ex. 1040, 2:35–39; Ex. 1044, 5:3–7). Petitioner also points to the Specification of the ’249 patent. *Id.* at 24 (citing Ex. 1001, 4:29–31, 6:17–30, 7:59–65, 14:4–10). Petitioner finally replies that Patent Owner’s hindsight argument fails in view of the description in the references

of “preferred,” “optimal,” or “advantageous” fasteners and materials. *Id.* at 24–25 (citing Ex. 1002 ¶ 32; Ex. 1003 ¶¶ 62–64; Ex. 1004 ¶¶ 58, 60, 62–65).

Patent Owner replies that Petitioner fails to argue that the cited references teach the claimed retaining force ranges or that those forces would have been necessarily present in the proposed combinations. PO Sur-reply 24 (citing Pet. Reply 10–11, 23). Patent Owner argues that Petitioner does not meet its burden of showing obviousness because the argument that the claimed ranges are naturally resulting “workable” ranges is not enough for obviousness. *Id.*

As discussed above for claim 1, we determine that one of ordinary skill in the art would have modified the Benning diaper to use Karami ’626’s film nonwoven laminate for its backsheet and minihook fastener to engage the backsheet and Benning’s spunbond nonwoven wings. Based on the full record, we additionally find that Karami ’626 teaches that its preferred fastener has a preferred size and teaches a spunbond 20 gsm nonwoven with a preferred fiber size and embossing area. Ex. 1004 ¶¶ 58, 60, 62–65; Ex. 1012 ¶¶ 124–126. We also find that Benning teaches a preferred or 30 gsm basis weight nonwoven for its wings. Ex. 1002 ¶ 32; Ex. 1012 ¶ 125. We further credit Petitioner’s declarant testimony that the proposed combination would provide retaining forces within the claimed ranges. Ex. 1012 ¶¶ 123, 127–130.

Petitioner persuades us that, in the proposed modifications of the Benning, one of ordinary skill in the art would have combined a known fastener with known nonwovens in a known way that would have been the same as what the ’249 patent describes. *See* Pet. 64–67. As discussed above for claim 1, Karami ’626 indicates that, if other parameters are unchanged, a

higher basis weight nonwoven would provide a higher shear strength. Ex. 1004 ¶¶ 68, 69. Petitioner, thus, persuades us that the “commercially-available fastener known for use in diaper closures, engaging commercially-available nonwovens known for use in diaper backsheets and wings” would have had retaining forces within the claimed ranges. See Pet. 63–69.

Patent Owner does not dispute that the fastener and nonwovens were known, that Karami '626's fastener can engage the nonwovens, that the fasteners and nonwovens used in the references match those described in the Specification, or that the challenged claims somehow exclude from their scope these fasteners and nonwovens. See PO Resp. 58–61; PO Sur-reply 24. Patent Owner, instead, contends that the undisputed same fastener and nonwovens may not have the same range of retaining forces, and that Petitioner fails to show that they must necessarily be present. See PO Resp. 59–61; PO Sur-reply 24. Petitioner, however, adequately shows that its proposed combination would have a retaining forces within the claimed ranges.

For the reasons above, based on the full record, Petitioner shows that Benning modified in view of Karami '626 has retaining forces within the claimed ranges.

3. *Analysis of Claims 2, 5–13, 17–24, 26–30, and 33*

Each of claims 2, 5–13, 17–24, 26–30, and 33 depends, directly or indirectly, from independent claim 1, adding various limitations to those recited by independent claim 1. Ex. 1001, 16:23–25, 16:35–17:8, 17:23–17:55, 17:61–18:18, 18:28–30. Petitioner explains in detail why it believes these claims would have been obvious over Benning and Karami

'626, citing documentary and testimonial evidence. Pet. 50–57, 61–63, 69–75. Aside from the alleged faults in Petitioner's challenge of claim 1, Patent Owner does not dispute Petitioner's arguments regarding claims 2, 5–13, 17–24, 26–30, and 33. Based on the full record, we determine Petitioner has shown that Benning and Karami '626 teach the limitations of 2, 5–13, 17–24, 26–30, and 33, and that one of ordinary skill in the art would have combined these references in the manner asserted with a reasonable expectation of success.

4. *Analysis of Claims 34–41 and 43–54*

Petitioner explains in detail why it believes claims 34–41 and 43–54 would have been obvious over Benning and Karami '626, citing documentary and testimonial evidence. Pet. 50–61, 63–69, 73–75. Regarding these assertions, the parties' arguments raise substantially the same issues as discussed above in Sections II.E.1–3 with respect to Petitioner's challenge of claims 1–5, 7, 8, 11–27, and 29–33 as allegedly obvious over Benning and Karami '626. *See* Pet. 50–61, 63–69, 73–75; PO Resp. 40–61; Pet. Reply 15–25; PO Sur-reply 19–24. Based on the full record, we determine Petitioner has shown that Benning and Karami '626 teach the limitations of claims 34–41 and 43–54, and that one of ordinary skill in the art would have combined these references with a reasonable expectation of success.

F. OBVIOUSNESS BASED ON BENNING, KARAMI '626, AND MIYAMOTO '499

Petitioner explains in detail why it believes claims 6 and 42 would have been obvious over Benning, Karami '626, and Miyamoto '499, citing documentary and testimonial evidence. Pet. 50–69, 73, 84–87. Aside from the alleged faults in Petitioner's challenge of claims 1, 3, and 34 as obvious

over Benning and Karami '626, Patent Owner does not dispute Petitioner's arguments regarding obviousness of claims 6 and 42 over Benning, Karami '626, and Miyamoto '499. Based on the full record, we determine Petitioner has shown that Benning, Karami '626, and Miyamoto '499 teach the limitations of claims 6 and 42, and that one of ordinary skill in the art would have combined these references with a reasonable expectation of success.

G. OBVIOUSNESS BASED ON BENNING, KARAMI '626, AND JACOBS

Petitioner explains in detail why it believes claim 9 would have been obvious over Benning, Karami '626, and Jacobs, citing documentary and testimonial evidence. Pet. 50–62, 64–70, 87–90. Aside from the alleged faults in Petitioner's challenge of claims 1 and 3 as obvious over Benning and Karami '626, Patent Owner does not dispute Petitioner's arguments regarding obviousness of claim 9 over Benning, Karami '626, and Jacobs. Based on the full record, we determine Petitioner has shown that Benning, Karami '626, and Jacobs teach the limitations of claim 9, and that one of ordinary skill in the art would have combined these references with a reasonable expectation of success.

H. OBVIOUSNESS BASED ON BENNING, KARAMI '626, AND ANDERSON

Petitioner explains in detail why it believes claims 10 and 18 would have been obvious over Benning, Karami '626, and Anderson. Pet. 50–62, 64–72, 90–94. Aside from the alleged faults in Petitioner's challenge of claims 1, 3, and 16 as obvious over Benning and Karami '626, Patent Owner does not dispute Petitioner's arguments regarding obviousness of claims 10 and 18 over Benning, Karami '626, and Anderson. Based on the full record, we determine Petitioner has shown that Benning, Karami '626, and Anderson teach the limitations of claims 10 and 18, and that one of ordinary

skill in the art would have combined these references with a reasonable expectation of success.

I. OBVIOUSNESS BASED ON BENNING, KARAMI '626, AND FERNFORS

Petitioner explains in detail why it believes claim 28 would have been obvious over Benning, Karami '626, and Fernfors. Pet. 50–61, 94–98. Aside from the alleged faults in Petitioner's challenge of claim 1 as obvious over Benning and Karami '626, Patent Owner does not dispute Petitioner's arguments regarding obviousness of claim 28 over Benning, Karami '626, and Fernfors. Based on the full record, we determine Petitioner has shown that Benning, Karami '626, and Fernfors teach the limitations of claim 28, and that one of ordinary skill in the art would have combined these references with a reasonable expectation of success.

J. OBJECTIVE INDICIA OF NONOBVIOUSNESS

The parties do not rely on any objective indicia of nonobviousness for any of claims 1–54. *See generally* Pet.; PO Resp.; PO Sur-reply.

K. WEIGHING THE GRAHAM FACTORS

“Once all relevant facts are found, the ultimate legal determination [of obviousness] involves weighing of the fact findings to conclude whether the claimed combination would have been obvious to an ordinary artisan.” *Arctic Cat*, 876 F.3d at 1361. Above, based on full record before us, we provide our factual findings regarding (1) the level of ordinary skill in the art, (2) the scope and content of the prior art, (3) any differences between the claimed subject matter and the prior art, and (4) objective evidence of nonobviousness.

In particular, we find that (1) Petitioner's proposed level of ordinary skill in the art is consistent with the prior art of record, (2) Benning, Karami

'626, Miyamoto '499, Jacobs, Anderson, and Fernfors teach or suggest all the limitations of claims 1–54, (3) one of ordinary skill in the art would have combined Benning, Karami '626, and at least one of Miyamoto '499, Jacobs, Anderson, and Fernfors with a reasonable expectation of success, and (4) no objective evidence of nonobviousness has been presented in relation to claims 1–54. Weighing these underlying factual determinations, a preponderance of the evidence persuades us that claims 1–54 of the '249 patent are unpatentable over Benning and Karami '626, and the same combination further modified by Miyamoto '499, Jacobs, Anderson, or Fernfors. *Arctic Cat*, 876 F.3d at 1361.

L. REMAINING CHALLENGES

Petitioner also challenges claims 1–5, 7, 12–18, 19–22, 24–27, 31, 32, 34–41, 43–46, 48, and 50–54 as unpatentable over Benning, Karami '626, and Stupperich, and claims 6 and 28 as unpatentable over Benning, Karami '626, Stupperich, and at least one of Miyamoto '499 and Fernfors.

Pet. 75–87, 94–98. Petitioner further challenges claims 1–5, 7, 8, 11–27, 29–41, and 43–54 as unpatentable over Karami '772 and Benning, and claims 6, 9, 10, 18, 28, and 42 as unpatentable over Karami '772, Benning, and at least one of Miyamoto '499, Jacobs, Anderson, and Fernfors. *Id.* at 20–50, 84–98.

Because we determine that the same claims are unpatentable over proposed combinations including Benning and Karami '626, we do not reach these additional challenges to these claims. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”).

III. CONCLUSION¹²

In summary:

Claim(s)	35 U.S.C. §	References/Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1–5, 7, 8, 11–27, 29–41, 43–54	103(a)	Karami '772, Benning ¹³		
1–5, 7, 8, 11–17, 19–27, 29–41, 43–54	103(a)	Benning, Karami '626	1–5, 7, 8, 11–17, 19–27, 29–41, 43–54	
1–5, 7, 12–18, 19–22, 24–27, 31, 32, 34–41, 43–46, 48, 50–54	103(a)	Benning, Karami '626, Stupperich ¹⁴		
6, 42	103(a)	Karami '772, Benning, Miyamoto '499 ¹⁵		

¹² Should Patent Owner wish to pursue amendment of the challenged claim in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

¹³ As explained above in Section II.L, we do not reach this challenge.

¹⁴ As explained above in Section II.L, we do not reach this challenge.

¹⁵ As explained above in Section II.L, we do not reach this challenge.

6, 42	103(a)	Benning, Karami '626, Miyamoto '499	6, 42	
6	103(a)	Benning, Karami '626, Stupperich, Miyamoto '499 ¹⁶		
9	103(a)	Karami '772, Benning, Jacobs ¹⁷		
9	103(a)	Benning, Karami '626, Jacobs	9	
10, 18	103(a)	Karami '772, Benning, Anderson ¹⁸		
10, 18	103(a)	Benning, Karami '626, Anderson	10, 18	
28	103(a)	Karami '772, Benning, Fernfors ¹⁹		
28	103(a)	Benning, Karami '626, Fernfors	28	
28	103(a)	Benning, Karami '626, Stupperich, Fernfors ²⁰		
Overall Outcome			1–54	

¹⁶ As explained above in Section II.L, we do not reach this challenge.

¹⁷ As explained above in Section II.L, we do not reach this challenge.

¹⁸ As explained above in Section II.L, we do not reach this challenge.

¹⁹ As explained above in Section II.L, we do not reach this challenge.

²⁰ As explained above in Section II.L, we do not reach this challenge.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–54 of U.S. Patent No. 8,771,249 B2 have been shown, by a preponderance of the evidence, to be unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, the parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2020-01479
Patent 8,771,249 B2

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