Paper 28

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ATTENDS HEALTHCARE PRODUCTS, INC.,

Petitioner,

v.

PAUL HARTMANN AG,

Patent Owner.

Case IPR2020-01479
Patent 8,771,249 B2

PETITIONER'S DEMONSTRATIVES

Attends Healthcare Products, Inc.

v.

Paul Hartmann AG

IPR2020-01477 (Patent 8,152,788 B2)
IPR2020-01478 (Patent 8,784,398 B2)
IPR2020-01479 (Patent 8,771,249 B2)
IPR2020-01480 (Patent 8,708,990 B2)

Petitioner's Demonstratives

The Diaper-Holding Requirement

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’788 Patent: No Diaper-Holding Requirement

’788 Patent Claim 1

mechanical closure means having mechanical closure aids, said closure means cooperating with said side parts at said rear area, said closure means being structured and dimensioned for detachable fastening to said outer face of said main part and to said outer face of said side parts in said front area, wherein retaining forces between said mechanical closure means and said outer face of said main part are lower than retaining forces between said mechanical closure means and said outer face of said side parts in said front area.

Mr. Butterworth

Q. And I'm asking, where does that appear in the claims of the 788 patent?

A. It -- it appears in the general narrative of the patent.

EX1054, 7:4-7 (cited in 1477 Reply 1)

1477 POR 10:

“The requirement that the closure means is fastened to the main part and side parts necessarily means that the retaining forces between the closure means and the main part and between the closure means and the side parts be **sufficient to hold the diaper on the wearer**.”

1477 Reply 1:

“The relied-on ‘detachable fastening’ is of the closure means to the diaper parts, not of the diaper to a wearer.”

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’788 Patent: No Diaper-Holding Requirement

1477 Reply 1-2:

“Whether the retaining forces are sufficient to hold the diaper on a wearer “would require knowledge of, *inter alia*, the size, type, and number of closure means … , who the wearer was, and what activities the wearer was engaged in … , none of which the ’788 Patent recites.”

Q. And so, to answer that question, you don't need to know the fastener width for it?

A. Yes, you do need to know the fastener width.

Q. And would retaining forces sufficient to secure a diaper on the wearer depend on the wearer's size?

A. To some extent. But when you put the diaper on

Q. Oh, so you said 20 newtons; was that correct?

A. Yes.

Q. Would a patient that was exercising place more force on a diaper's fastener non-woven interface than a patient who was bedridden?

A. It depends on the exercise. Because the change

EX1054, 11:9-14:7 (cited in 1477 Reply 1-2)

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The Diaper-Holding Requirement is Broad

Mr. Butterworth

Q. So if there was a diaper that had retaining forces that were sufficient to hold the diaper on a slim wearer who was bedridden, would you say that those retaining forces were sufficient to secure the diaper on the wearer?

A. Yes.

Q. Okay. Even if that patient then got up and walked around and then the diaper popped off, or would that change your opinion?

A. It wouldn't change my opinion.

EX1054, 14:25-15:9 (cited in 1477 Reply 2; 1478 Reply 1; 1479 Reply 1; 1480 Reply 1)

Attends®

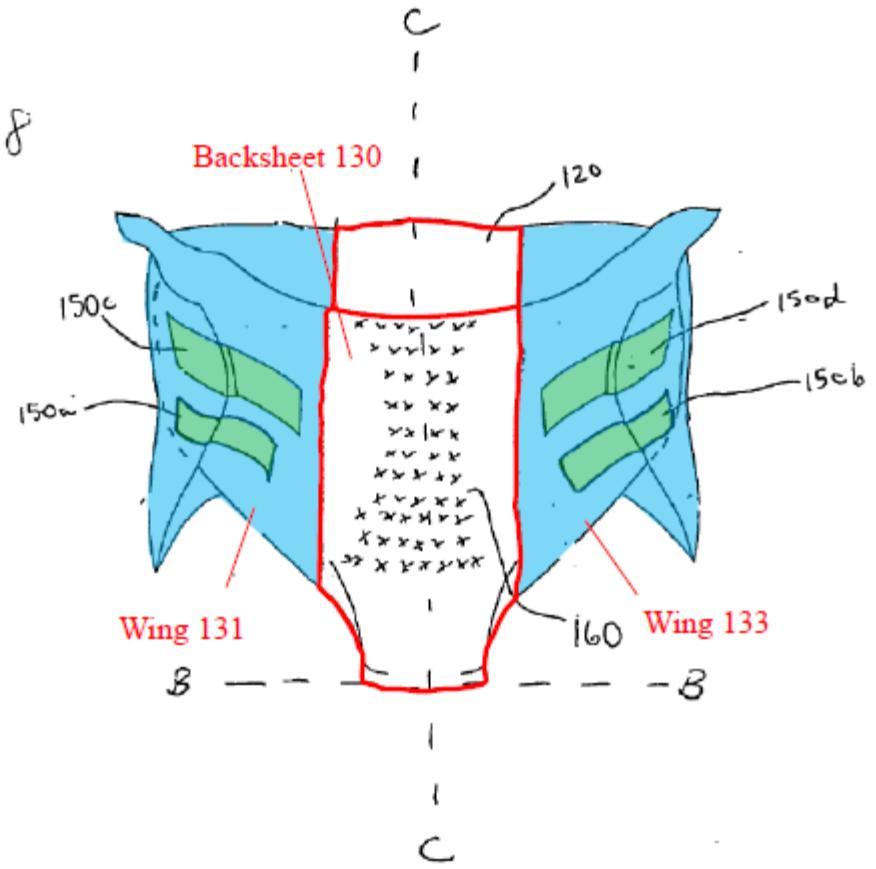
Karami ’772-Benning Meets the Diaper-Holding Requirement

Stay-Away Zone | Has "Affinity to Hook-Type Fasteners"

[0037] . . .

The water jet treatment and/or aperturing, in effect, provides a softer, bulkier and more flexible nonwoven resulting in increased shear and peel strength.

[0053] In another exemplary embodiment, as shown in **FIG. 8**, the diaper **100** can be provided with at least one stay-away zone **160** at the front waist portion. The stay-away zone **160** can be formed by, for example, an inner backing film or backing film laminated to a spunbond/melt blown/spunbond nonwoven exposed through an opening in the backsheet **130**. Alternatively, the entire front waist portion can be water jet treated (with or without three-dimensional relief structures) and/or apertured except for a portion of the front waist portion that forms the stay-away zone **160**. Thus, the stay away zone without water jet treatment and/or aperturing will have diminished affinity to hook-type fasteners in relation to the remainder of the front waist portion.



Annotated Version of Karami '772's FIG. 8 ("Annotated9")

EX1003, ¶¶[0037], [0053], FIG. 8; EX1012 ¶76 (cited in 1477 Pet. 24-25; 1478 Pet. 22-23; 1479 Pet. 22-23; 1480 Pet. 25-26)

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Stay-Away Zone | Karami ’626 Shows Adequate Engagement

1477 Pet. 36-37

“Karami ’772’s backsheet—like Karami ’626’s—is a film-nonwoven laminate, with a **5-45 gsm nonwoven** … (10-30 gsm (e.g., 20 gsm) [being] obvious)” and “Karami ’772 [] uses (or at least shows was an obvious option) the **same fastener** as Karami ’626: the Binder 25445.”

Karami ’772

[0031] Backsheet **32** is made of a liquid and/or vapor-impervious material which may be selected from the same group of materials from which the top sheet was selected and preferably having a weight of between 5-45 grams per square meter.

Binder 25445 (TAPE52) Hook Samples

FQN 33.9 gsm Spunbond Nonwoven	FQN 33.9 gsm Spunbond Nonwoven-about 16 pins/sq in	FQN 33.9 gsm Spunbond Nonwoven-about 32 pins/sq in	FQN 20 gsm Spunbond/ Water Jet Treated Nonwoven	FQN 20 gsm Spunbond/ Water Jet Treated Nonwoven-about 16 pins/sq in

Karami ’626

[0060] A preferred fastener element is available from Binder Macroplast LP of Germany under the trade designation #42-288-HX-200-PP3.

[0065] 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.

EX1003, ¶¶[0031], [0041]; EX1004 ¶¶[0060], [0065] (cited in 1477 Pet. 36-37; 1478 Pet. 32-33; 1479 Pet. 31-32; 1480 Pet. 40)

Attends®

Stay-Away Zone | Karami ’626 Shows Adequate Engagement

1477 Pet. 36-37

“For **these materials**, Karami ’626 explains that ‘the fastener elements’ … **secure the diaper on**[] ‘both small and large-waisted persons,’” which “is also true using two fastener elements, let alone Karami ’772’s four.”

[0040] On the other hand, when the T-shaped brief **12** is made according to the present invention so that the 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, the accommodation of both small and large-waisted persons by a single brief **12** with elastic wings **40** is substantially simplified.

EX1004 ¶ [0040] (cited in 1477 Pet., 36-37; 1478 Pet., 32-33; 1479 Pet., 31-32; 1480 Pet., 40)

Attends®

Stay-Away Zone | Treatment Not Required for Diaper Holding

1477 POR 19-22

"Karami '772 discloses that the nonwoven **must** be treated … for the fasteners to securely engage the nonwoven."

1477 Reply 4-5

"'[A]n object of [Karami '772's] invention is to provide … a fastener assembly including a hook-type fastening element that does not require a corresponding loop-type fastening element,' the functionality of which Karami '772 **does not condition** on water jetting and/or aperturing."

[0006] Thus, the need remains for a fastening system for an absorbent article that does not require a loop fastening element to mate with a hook-type fastening element.

. . .

[0008] Another object is to provide a fastener assembly for an absorbent article which, in at least one embodiment, affords enhanced shear and peel strength.

EX1003 ¶¶[0006] , [0008] (cited in 1477 Reply 4-5; 1478 Reply 3; 1479 Reply 3; 1480 Reply 3)

Q. So in paragraph -- paragraph 8 where he's talking about enhanced sheer and peel strength, he says at least one embodiment has enhanced sheer and peel strength, right?

A. Yes.

Q. So that means that there are embodiments encompassed by Karami 722 that don't have enhanced sheer and peel strength, right?

A. That could be.

EX1054, 83:7-15 (cited in 1477 Reply 4-5; 1478 Reply 3; 1479 Reply 3; 1480 Reply 3)

Attends®

Stay-Away Zone | Treatment Not Required for Diaper Holding

1477 Reply 4-5

"Karami '772's **disclosed** Binder 25445 fastener … is 'for use only with'—and thus adequately mates with—'**conventional nonwovens**' like those Karami '772 uses."

Karami '626

[0070] Contrary to expectations, the preferred fastener element of the present invention is preferred for use only with conventional nonwovens and has not been found to be particularly suitable for use with either the conventional VELCRO mini-loop fastener elements or the conventional loop-providing materials intended for use with conventional hook-type VELCRO fastener elements. 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.

Mr. Butterworth

Q. And so, what he says here is his preferred fastener element is preferred for use only with conventional non-wovens, correct?

A. That's right. And by conventional, he is talking about spunbonded non-wovens.

Karami '772

For example, as shown for the Binder **25445** hook sample, a spunbond nonwoven having perforations formed using a pin roller with 16 pins/sq. in. has a significantly higher peel strength and shear strength compared to the same spunbond nonwoven without any modifications.

EX1003, ¶[0041]; EX1004, ¶[0070]; EX1054, 58:12-16 (cited in 1477 Reply 4-5; 1478 Reply 3; 1479 Reply 3; 1480 Reply 3)

Attends®

Stay-Away Zone | Treatment Not Required for Diaper Holding

1477 Reply 5

"[T]he fastener's usability with 'conventional nonwovens' generally undermines the importance PO attributes to Karami '772's treatments."

Q. Okay. And Damaghi's backsheet non-woven has a 5 to 45 GSM basis weight, right?

A. Here again, 5 to 45 range is -- is, with all due respect, very broad, and it's telling me several things. We know for a fact that, by itself, a non-woven -- excuse me -- weighing 5 GSM is no better than gossamer. It's not going to work. So what I think is being said there is that the weight really isn't important, and you could pick any weight within that range if you wanted to.

EX1054, 78:9-18 (cited in 1477 Reply 5; 1478 Reply 4; 1479 Reply 4; 1480 Reply 4)

Attends®

Stay-Away Zone | PO's TABLE 1 Argument Fails

1477 POR 29

"Table 1 reports a force of 993.601 **g/2 in.** for a **20 gsm**, water-jet-treated nonwoven and Binder 25445, which is less than the 1300 **g/in²** sought."

1477 Reply 10

PO improperly "compar[es] values of **different units** … which not even PO's expert would sponsor."

Mr. Butterworth

68. As I noted, Karami '772 describes treating a nonwoven with water jet treatment and/or aperturing as the "inventive concept." Ex. 1003 (Karami '772) [0040], [0044], [0052]. To show the advantages of treating a nonwoven, Karami '772 states that it performed tests and reported the results of those tests in Table 1. Ex. 1003 (Karami '772) [0040], [0041], Table 1. The tests, however, were so poorly conducted and so poorly described that one of ordinary skill in the art cannot draw conclusions from or make generalizations based on the values in Table 1.

EX2004, ¶68 (cited in 1477 Reply 10; 1478 Reply 9; 1479 Reply 9; 1480 Reply 9)

Mr. Jezzi

Q. Can you make any determinations on reported shear and peel strengths when you don't know what the test was?

A. Not really, I cannot.

Q. Will you --

A. Let me put it this way: Within the data that's exhibited in that particular table, I think it is valid to compare one against the other, kind of. It was a very difficult table to navigate for a variety of reasons.

EX2003, 117:1-10 (cited in 1477 POR 27; 1478 POR 26; 1479 POR 26; 1480 POR 26)

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Stay-Away Zone | Diaper Holding With Relied-On Nonwovens

1477 POR 30

"Petitioner [] cannot establish that the stay-away-zone necessarily would have sufficient forces **across the disclosed range** of nonwovens to fasten and hold the diaper" because forces "would not be very high" for "a 5 gsm nonwoven."

1477 Reply 6-7

"PO's argument is a **strawman** because these grounds are based on Karami '772's disclosed **10-30-gsm-nonwoven backsheet** … and specifically including its 20-gsm-nonwoven backsheet."

> Even in stay-away zone 160, retaining forces between fasteners 150a-150d and backsheet 130 were sufficient to hold the diaper on a wearer. EX1012, ¶¶68-70, 75. Karami '772's backsheet—like Karami '626's—is a film-nonwoven laminate, with a 5-45 gsm nonwoven. EX1003, ¶¶[0031], [0046]; EX1004, ¶¶[0063]-[0065] (film-nonwoven laminate backsheet, with nonwoven "basis weight of 13-50 [gsm]"); EX1012, ¶70; *see also* §VIII.A.3 (10-30 gsm (e.g., 20 gsm) obvious for backsheet nonwoven).

1477 Pet. 36

> 70. This understanding is confirmed by Karami '626 which teaches a nonwoven specifically designed for engaging with hooks of a hook-type fastener when "use[d] by both large- and small-waisted persons." Karami '626 at ¶¶ [0007]-[0009] and [0039]. Karami '626's described nonwoven is preferably a spunbond having a basis weight of 13-50 grams per square meter (gsm), which is within the range contemplated by Karami '772's untreated nonwoven. *See* Karami '772 at

EX1012, ¶70 (cited in 1477 Pet. 36; 1478 Pet. 32-33; 1479 Pet. 31-32; 1480 Pet. 40)

Stay-Away Zone | Alternatives Show Nonwoven Affinity

1477 POR 23-24

"One of ordinary skill would understand that [] fasteners would not be able to attach to [the] film" of Karami '772's or Damaghi's stay-away zone.

1477 Reply 5-6

- The relied-on stay-away zone is an untreated nonwoven that "explicitly has fastener affinity."
- "[T]he no-affinity stay-away zones each destroy a portion of their respective backsheet-nonwoven's ability to engage a fastener … which **only makes sense** if those backsheet-nonwoven portions could **otherwise sufficiently engage** the fastener to hold a mis-sized diaper on a wearer."

[0049] A problem recognized with the loopless fastener, however, is that the flexibility they provide encourage the use of inappropriately sized diapers, for example a large diaper on a medium sized person, with the fasteners merely being secured to a more remote portion of the nonwoven outer surface of the diaper. This type of misuse is wasteful and could not occur in diapers requiring a landing zone as the landing zones limit the areas on the diaper to which a fastener can be applied.

[0050] To ameliorate this type of misuse, a stay away zone **100** could be provided on a portion of the outer surface of the diaper. The stay away zone could be limited to the most remote areas, thereby permitting a wide range of fastener placement while preventing improper sizing of the diaper.

[0051] Stay away zone **100** can be created by spraying a solution or attaching a film over a portion of nonwoven backsheet **30** to which the fastener could not attach. Alternately, a stay away zone could be defined by selectively modifying areas of nonwoven backsheet **30**, such as by heat or compression, to destroy its ability to adhere to the hooks of a loopless fastener. For example, a patch having dimensions of 7 inches×11 inches and made from stay away zone material may be attached to the outer surface of the front of the diaper to prevent misuse.

EX1028, ¶¶[0049]-[0051] (cited in 1477 Reply 6; 1478 Reply 4-5; 1479 Reply 4-5; 1480 Reply 5)

Attends®

Stay-Away Zone | PO Fails to Discount Karami ’626

1477 POR 30-31

“Petitioner [] overstates Karami ’626’s teaching about size adjustability” because “fasteners only engage the wings, not the backsheet.”

1477 Reply 7

“While Karami ’626 provides a specific illustration with wing-fastener engagements … that example does not defeat Karami ’626’s **broader teaching of backsheet-fastener** engagement.”

An absorbent core (not shown) is disposed intermediate the frontsheet **30** and backsheet **32** and is typically formed of wood fluff or other absorbent material (and optionally contains gel-forming super-absorbent polymeric particles).

. . .

[**0040**] On the other hand, when the T-shaped brief **12** is made according to the present invention so that the 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, the accommodation of both small and large-waisted persons by a single brief **12** with elastic wings **40** is substantially simplified.

EX1004, ¶¶[0036], [0040] (cited in 1477 Reply 7; 1478 Reply 6; 1479 Reply 6; 1480 Reply 6-7)

Attends®

Stay-Away Zone | PO Fails to Discount Karami ’626

1477 Reply 10

“Karami ’626 also directly undermines PO’s position in that Karami ’626 uses the same fastener … that indisputably can securely engage with, for example, **an untreated ‘20[] gsm’ wing nonwoven**.”

> [**0065**] 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.

EX1004, ¶[0065] (cited in 1477 Reply 10; 1478 Reply 9; 1479 Reply 9; 1480 Reply 9)

Attends®

Stay-Away Zone | PO Fails to Discount Karami ’626

1477 POR 31-32

“[T]he diaper in Figures 9 and 10 is shown only as a broad illustration and little description is provided.”

1477 Reply 8

The “FIGs. 9-10 diaper ‘incorporates a fastener assembly consisting exclusively of a minihook fastener … [and] a conventional nonwoven material’ … that ‘is in the article backsheet’” to achieve “‘the same or analogous improvements in the fit’ … via the minihook fastener’s ability to engage **any portion** of the nonwoven.”

[0008] Another object to provide such an absorbent article wherein, in 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).

[0011] It is another object to provide such a disposable article wherein, in one preferred embodiment, the article is one of a diaper, a T-shaped brief, and a pull-up.

[0016] Preferably the nonwoven is the article backsheet or, in the case of a T-shaped brief, the article wings.

[0055] 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.

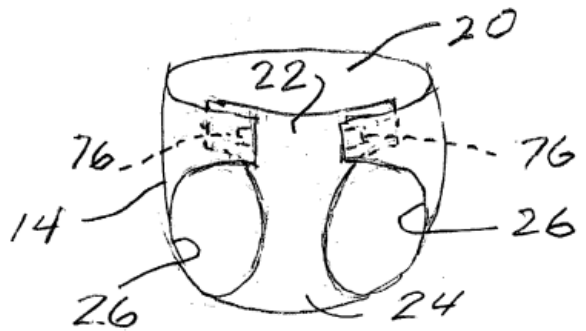


FIG. 10

EX1004, ¶¶[0008], [0011], [0016], [0055], FIG. 10 (cited in 1477 Reply 8; 1478 Reply 7; 1479 Reply 7; 1480 Reply 7)

Stay-Away Zone | PO Fails to Discount Karami ’626

1477 Reply 8-9

“[T]he premises underlying Mr. Butterworth’s opinion are inconsistent with Karami ’626: he asserts FIGs. 9-10 diaper may have an ‘**extra [loop] closure**’ to which the hook fastener must attach … despite **Karami ’626 disparaging the same**.”

A. True. But in looking at figures 9 and 10, unfortunately all we have to go on is that there is a fastener, apparently, holding onto the front -- excuse me -- to the front of the wings of the diaper. And yes, you can move the closure down the wings or across the front. It's not clear where -- where the extra closure would go or how it would be used to adjust the size.

Q. So Karami 626, in this paragraph 6, is disparaging the use of a dedicated mini-loop fastener like you just described, right?

A. Yes.

EX1054, 20:14-20, 22:17-20 (cited in 1477 Reply 8-9; 1478 Reply 7-8; 1479 Reply 7-8; 1480 Reply 7-8)

Attends®

Stay-Away Zone | PO Fails to Discount Karami ’626

1477 Reply 9-10

“The suggestion that a POSITA would struggle to envision how to arrange fasteners on various chassis shapes strains credulity.”

Q. But Karami 626's invention is the use of a conventional non-woven as the loop material in a hook and loop closure system, correct?

A. Karami 626 is teaching the use of non-wovens that have the ability to engage with a closure made up of hooks.

Q. And so, wouldn't you expect that sort of closure system to be present in his figure 9 and 10 diaper?

A. It could be. Yes.

Q. But going back to figures 9 and 10, if the backsheet of this figure 9 and 10 diaper included the non-woven that Karami 626 describes as engageable as a hook-type fastener, then the fasteners could engage with the main part of the diaper, right?

A. If the -- if the drawing in figures 9 and 10 showed a mini-loop fastener covering the backsheet, then, yes, the hooks would engage, but that's not what's shown or described.

Q. Well -- and if it were possible and you moved fastener 76 away from one another in figure 10, that diaper would then fit on a larger-waisted wearer, right?

A. That would be the normal process to use for any disposable diaper. That of and by itself isn't shown here, but on other diapers, yes, that can be done.

EX1054, 23:12-21, 26:19-27:2, 30:19-24 (cited in 1477 Reply 9-10; 1478 Reply 8-9; 1479 Reply 8-9; 1480 Reply 8-9)

Attends®

Stay-Away Zone | PO Fails to Discount Mr. Jezzi's Testimony

Now -- so I'm sure that I was referring to the fact that, looking at table 1, I was not able to make that determination. But that does not mean that they would not work.

Q. But it also doesn't mean that they would work.

A. It's speculative either way. Just with the '772 patent.

Q. So you can't say that in every situation it would -- the stay-away zone would be sufficient to retain the diaper on the wearer.

A. Yeah. I mean, I think if you look at '772 and you put it in context with, you know, the patents that we've discussed, whether it -- you know, Karami '626, and we have Stupperich and Benning and our discussion of obviousness, I think it all -- you know, certainly -- you know, today I would probably say they have sufficient retentive forces to hold a diaper next to the body based on these other patents and new evidence that we brought forward.

EX2003, 185:3-186:21(cited in 1477 Reply 10-11; 1478 Reply 9-10; 1479 Reply 9-10; 1480 Reply 9-10)

The question is, are the retentive forces in the stay-away zone sufficient? And we don't know that for sure on '772 alone. But with the other discussions that we've had, you know, the '626 and as well as Stupperich and as well as Benning design, you would basically have to say that, yes, they are sufficient.

1477 POR 32-33

"Mr. Jezzi … said it would be 'speculative either way' to say whether or not the retaining forces at the stay-away zone would be sufficient."

1477 Reply

Mr. Jezzi's statement was regarding "TABLE 1 **alone**" and "PO ignores that Mr. Jezzi's opinions are also **supported by other evidence**, including Karami '626, that answer any questions left by that discrete table."

Treated Portion of Backsheet | Indisputably Holds Diaper

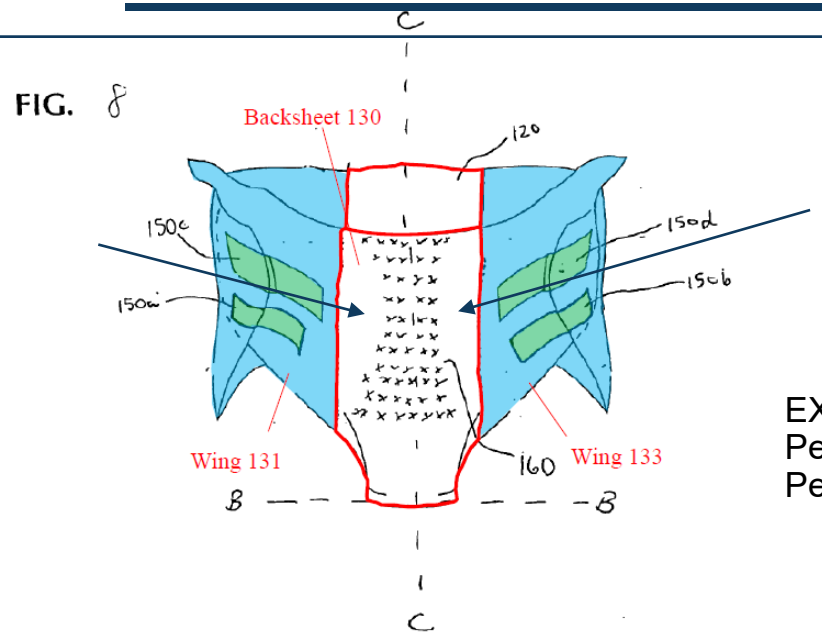
1477 Pet. 37

"It also would have been obvious to use a higher-basis-weight nonwoven in Karami '772's wings than in its containment assembly … which would have rendered fastener retaining forces lower in the containment assembly … including in its **treated** and stay-away zones."

1477 Reply 3

"PO does not disagree that fastener engagement with the treated, obviously lower-basis-weight portions of Karami '772 containment assembly meets the Diaper-Holding Requirement."

76. Further, Karami '772 contemplates that portions of backsheet 130's nonwoven underlying containment assembly 120 may be subjected to his water jet and/or aperturing treatments to increase the affinity thereof for hook-type fasteners. Karami '772 at ¶¶ [0036] and [0053]. A POSITA would have recognized that fasteners 150a-150d, when attached in this portion of the backsheet, also would have yielded sufficient retaining forces to secure the diaper around a wearer while in use.



EX1012, ¶76 (cited in 1477 Pet., 37; 1478 Pet., 22; 1479 Pet., 33; 1480 Pet., 40-41)

Attends®

Treated Portion of Backsheet | Indisputably Holds Diaper

1477 Sur-Reply 13

"Petitioner raises a new argument that essentially creates a new combination."

But see, e.g.,

1477 Pet. 37

1479 Inst. Dec. 20

> Nonetheless, we have some further observations regarding this dispute. We do not necessarily agree with Patent Owner that Petitioner ties its unpatentability assertions exclusively and inseparably to the contention that hook-type fasteners would have some affinity to stay-away zone 160. As noted above, the Petition asserts that (1) the fasteners can attach to containment assembly 120 "in both *its treated zones* and its untreated stay-away zone 160" (Pet. 31), and (2) "[i]t also was obvious to use a higher-basis-weight nonwoven in Karami '772's wings than in its containment assembly (§VIII.A.4), which would have rendered fastener retaining forces lower in the containment assembly, including in its treated and stay-away zones" (*id.* at 33). If proven, these assertions appear to provide a basis for showing that the combination of the references' teachings would meet 1[c][1], 1[c][2], and 1[d] by virtue of the fasteners attaching to the treated portions of containment assembly 120 with a lower force than they attach to the wings.

1479 Inst. Dec. 20

Attends®

Treated Portion of Backsheet | Has Lower Retaining Forces

1477 Pet. 37

"It also would have been obvious to use a **higher-basis-weight nonwoven in Karami '772's wings** than in its containment assembly 120 … which would have rendered fastener **retaining forces lower in the [treated zone of] the containment assembly**." (*see* Benning-Karami '626 arguments)

> The over-abdomen retaining forces between the closure means **32** and the outer face of the side parts **16** are preferably at least 58 N/25 mm and are higher than the over-abdomen retaining forces between the closure means **32** and the outer face of the backsheet nonwoven material component, which are preferably at least 20 N/25 mm. This is essentially ensured by the higher mass per unit area of the nonwoven component of the side parts.

'788 Patent, 13:34-41 (cited in 1477 Pet. 37; 1478 Pet. 33; 1479 Pet. 33; 1480 Pet. 40-41)

Attends®

Treated Portion of Backsheet | Has Lower Retaining Forces

1477 POR 34

There are “many factors that go into how well a particular nonwoven surface will engage fasteners” and “a 20 gsm nonwoven that had been water jet treated and apertured had higher retaining forces … than a 33.9 gsm untreated nonwoven.”

1477 Reply 3

- “PO cannot now walk back [the Hartmann patents’] concession” and independently “PO offers no evidence or explanation to suggest that the Karami ’772-Benning combination encompasses a reasonable configuration that would have yielded a different result.”
- “PO’s failure is illustrated by its inapposite example of a lower-basis-weight **treated** nonwoven yielding higher retaining forces than a higher-basis-weight **untreated** nonwoven … in Petitioner’s combination, **both** … are **treated**.”

Attends®

Claimed Workable Retaining Forces Obvious for Karami ’772-Benning

Retaining Forces | Illustrative Claims

2. The absorbent incontinence diaper of claim **1**, wherein said retaining forces, determined as over-abdomen retaining forces between said closure means having said mechanical closure aids and said outer face of said main part, are 57-20 N/25 mm or 50-25 N/25 mm.

3. The absorbent incontinence diaper of claim **1**, wherein said retaining forces, determined as over-abdomen retaining forces between said closure means having said mechanical closure aids and said outer face of said side parts in said front area, are 90-58 N/25 mm or 80-60 N/25 mm.

'788 Patent

3. The absorbent incontinence diaper for an adult user of claim **2**, 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.

4. The absorbent incontinence diaper for an adult user of claim **3**, 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.

15. The absorbent incontinence diaper for an adult user of claim **2**, 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.

'249 Patent

3. The absorbent incontinence diaper of claim **1**, wherein said retaining force, determined as over-abdomen retaining force between said first closure aid and said outer face of said chassis, is between 57N/25 mm and 20 N/25 mm.

4. The absorbent incontinence diaper of claim **3**, wherein said retaining force, determined as over-abdomen retaining force between said first closure aid and said outer face of said chassis is between 50N/25 and 25N/25 mm.

'990 Patent

2. The absorbent incontinence diaper of claim **1**, wherein said retaining forces, determined as over-abdomen retaining forces between said closure means and said outer face of said chassis, are 57-20 N/25 mm.

3. The absorbent incontinence diaper of claim **2**, wherein said retaining forces, determined as over-abdomen retaining forces between said closure means and said outer face of said side parts in said front area, are 90-58 N/25 mm.

4. The absorbent incontinence diaper of claim **3**, wherein said retaining forces, determined as over-abdomen retaining forces between said closure means and said outer face of said chassis in said front area, are 80-60 N/25 mm.

16. The absorbent incontinence diaper of claim **2**, wherein said retaining forces, determined as over-abdomen retaining forces between said closure means and said outer face of said chassis, are 50-25 N/25 mm.

'398 Patent

Attends®

Retaining Forces | Workable Ranges

1477 Pet. 44-45

- "POSITA would have recognized that the diminished affinity in Karami '772's stay-away zone struck a **balance** between permitting **diaper-adjustability** and encouraging **proper diaper-sizing**."
- "This is the **same result and the same means** to achieve it that forms the basis of the [Hartmann] Patent's purported invention" and the claims "merely recite **broad, workable ranges** for such fastener retaining forces … to which no independent purpose or significance is attributed."

> Instead, a POSITA would have recognized that the ranges simply encompass retaining forces through which Karami '772's and the Diaper Patents' shared size-adjustability-and-proper-size-encouragement objective could be carried out, with (independently or taken together) retaining forces within the lower ranges (20-57 N/25 mm and 25-50 N/25 mm) being logical options at the "diminished affinity" stay-away zone 160 and retaining forces within the higher ranges (58-90 N/25 mm and 60-80 N/25 mm) being logical options at the "enhance[d] peel and shear strength" wings.

EX1012 ¶98 (cited in 1477 Pet. 44-45; 1478 Pet. 41-42; 1479 Pet. 36-37; 1480 Pet. 46-47)

Attends®

Retaining Forces | Workable Ranges

[0034] Protection is further claimed for a hygiene article in which the loop-forming nonwoven material interacts with a hook-forming component of a mechanical closure element for closing the hygiene article in such a way that an adhesive force as a shearing force of at least 5 N/25 mm and at most 80 N/25 mm is achieved. Preferred ranges result from the claims.

More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.

EX1009, ¶[0034]; EX1012 ¶98; *In re Aller*, 220 F.2d 454, 456 (C.C.P.A. 1955) (cited in 1477 Pet. 44-45; 1478 Pet. 41-42; 1479 Pet. 36-37; 1480 Pet. 46-47)

Stupperich, for example, illustrates a POSITA's understanding of over-abdomen retaining forces (shear forces) between nonwovens and fastener comprising hooks that are suitable for holding a diaper around a wearer: it targets "a shearing force of at least 5 N/25 mm and at most 80 N/25 mm,"[2] confirming that through the routine design process of the Karami '772-Benning diaper a POSITA would have arrived at retaining forces within the Diaper Patents' broad lower ranges (20-57 N/25 mm and 25-50 N/25 mm) in lower-affinity stay-away zone 160 and retaining forces within the Diaper Patents broad upper ranges (58-90 N/25 mm and 60-80 N/25 mm) in higher-affinity wings 131 and 133.

Attends®

Retaining Forces | Petitioner Addressed as Over-Abdomen

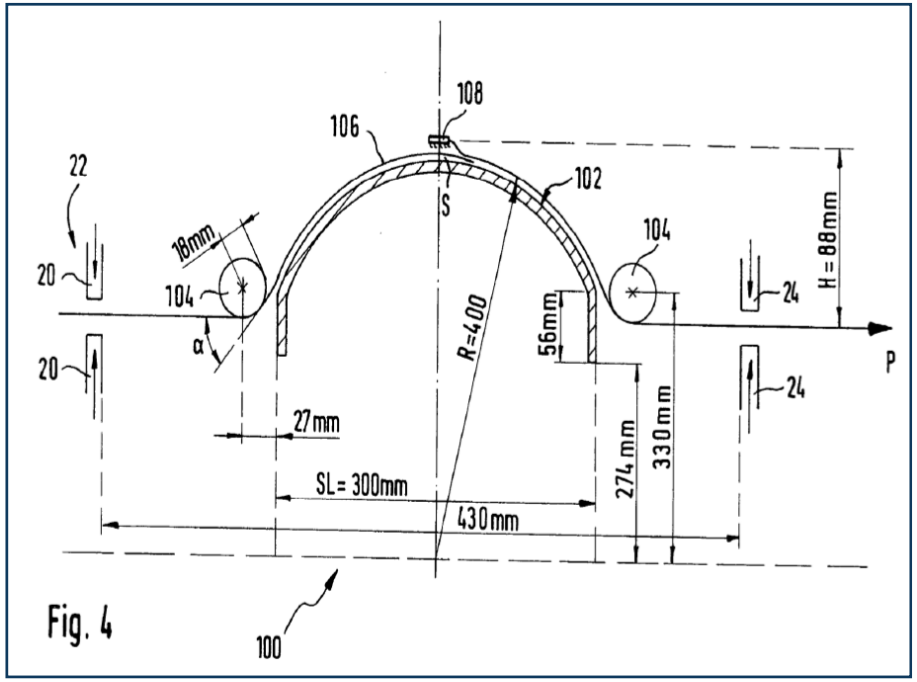
1477 POR 35-36

"The claims require that retaining forces be determined as over-abdomen retaining forces, yet Petitioner does not address that requirement."

1477 Reply 11

See Pet. 22 ("over-abdomen retaining forces … are simply [] shear forces"), 44-48.

[2] A POSITA would have understood the shear strengths Stupperich describes are those measured using the same test method as used in the Diaper Patents. *Compare* Stupperich at ¶¶ [0036]-[0045] and FIGs. 4 and 5A-5B *with* '788 Patent at 2:34-4:28 and FIGs. 8 and 9A-9B.



EX1012, fn to ¶98 (citing EX1009, FIG. 4) (cited in 1477 Reply 11; 1478 Reply 10; 1479 Reply 10; 1480 Reply 10)

Attends®

Retaining Forces | Shared Objective Shows They Are Routine

1477 POR 38

"Petitioner also argues that 'Karami '772's stay-away zone struck a balance between permitting diaper-adjustability and encouraging proper diaper-sizing, each of which was known to be advantageous,' and tries to equate that to the Beckert patents. Pet, 44. It is not clear how this argument supports obviousness of the claimed retaining force ranges."

1477 Reply 11-12

"PO's apparent confusion … was addressed by the Petition showing that, with 'the general conditions of [the retaining-force claims being] disclosed in the art' … the recited 'optimum or workable ranges' are 'not inventive.'"

Separate-Wings-And-Chassis Configuration Obvious for Karami ’772

Separate-Wings-And-Chassis | Cost and Manufacturability

1477 Pet. 29-30

"POSITA would have done so to reduce cost and improve manufacturability."

While the prior art disposable absorbent diapers and briefs may be generally suitable for their intended purposes, they still leave much to be desired from the standpoints simplicity of construction and of ease and economy of manufacture. For example, some of the aforementioned patents require cutting away portions of the article to form the leg cut-outs or openings. This can be a somewhat complex undertaking and is also wasteful of materials and resources, e.g., the cut away material is scrap which must be removed and discarded (all of which likely result in higher production costs).

. . .

Further still and quite significantly, as will be appreciated from the description to follow since the absorbent articles of this invention are formed of respective individual sections which are secured together during the manufacturing/assembly process, the panels making up the various sections can be readily die cut and brought into engagement on an efficient and economical basis.

80. As the Diaper Patents acknowledge, such a configuration was well-known. '788 Patent at 1:9-22. A POSITA would have understood that constructing diaper 100 in this manner would be beneficial. Additionally, the width of the unitary backsheet in unitary hourglass constructions required production machines to be at least as wide as the unfolded diaper, which was disadvantageous for manufacturing. *See* Glaug at 4:28-37 (alluding to the complexity of such a manufacturing technique). Manufacturers used constructions with separate wings attached to a chassis to address these shortcomings and more economical production. *See, e.g.*, Glaug at 19:27-33 ("since the absorbent articles of this invention are formed of respective individual sections which are secured together during the manufacturing/assembly process, the panels making up the various sections can be readily die cut and brought into engagement on an efficient and economical basis").

81. Additionally, with separate diaper components, manufacturing equipment could be readily adapted to alter individual components, yielding manufacturing flexibility. *See, e.g.*, Glaug at 20:4-39. And "[f]urther economies c[ould] be achieved." Glaug at 20:40-51.

EX1012 ¶¶80-81 (cited in 1477 Pet. 29-30; 1478 Pet. 27-28; 1479 Pet. 27-28; 1480 Pet. 30-31)

Attends®

Separate-Wings-And-Chassis | Cost and Manufacturability

1477 POR 40

"[A] separate-chassis-and-wings design would have increased the cost of production and difficulty of manufacture" because of the need for "additional equipment, manufacturing space, [] employees …[,] separate storage space, tracking, and planning."

1477 Reply 12-14

Mr. Butterworth agrees with Petitioner.

Q. But the wings in Karami 772's diaper are continuous with the backsheet that overlies the containment assembly, right?

A. No, because wings can be just added. They don't have to be continuous. And secondly, Karami in 772 points out that the wings alone are subjected to a water jet treatment. And so, they are distinctly different from the chassis.

. . .

Q. But what if you wanted to have a non-woven backing, as well?

A. Well, there again, you've got a problem with waste. Because you'd be chopping out a good amount of the waste material. And that, like other parts that we deal with, becomes expensive. So you -- the person of skill in the art would not be inclined to do that. They'd be inclined to put those wings on separately for separate wings.

EX1054, 96:12-97:6, 99:16-24 (cited in 1477 Reply 12-13; 1478 Reply 11-12; 1479 Reply 11-12; 1480 Reply 11-13)

Separate-Wings-And-Chassis | Cost and Manufacturability

1477 Reply 12-13

PO's reference to "equipment, manufacturing and storage space, employees, tracking, and planning as cost-contributing factors" fails:

- "**investments are acceptable to** achieve cost savings"
- "**scrap-handling** for unitary-hourglass designs **also required** machinery, storage, employees, and 'precautions'"

Q. So if a diaper manufacturer can reduce the cost of the diapers they manufactured by some amount, but it would require an investment in manufacturing equipment, is that something that they would have done?

. . .

So there would be several factors going into that, but yes, that could be considered.

So did handling the scraps require personnel?

A. It could. It depends on the sophistication of the equipment.

Q. BY MR. ALBRIGHT: Would a diaper manufacturer store that waste?

A. Initially, yes, but they need to get rid of it. And it -- they will send it to a recycling facility hoping they can get some value out of it and put it into something else.

Q. And would there have been downtime if scraps were not removed fast enough?

A. Yes, that would be a problem. If you're talking about problems, scraps can get caught up in the process. So you have to take precautions, obviously.

Q. Was there any machinery required to handle the scraps?

MS. DALEY: Objection. Scope.

THE WITNESS: You probably -- what you would do is where the scrap was generated off the cutter, you would have a vacuum tube that would suck that particular piece of waste away. It would be collected on a drum. The air would go back and be recirculated, and the drum would carry all these materials which would be dropped into a hopper and then put into bags.

EX1054, 100:12-102:22, 142:15-145:3 (cited in 1477 Reply 12-13; 1478 Reply 11-12; 1479 Reply 11-12; 1480 Reply 11-13)

Attends®

Separate-Wings-And-Chassis | Cost and Manufacturability

1477 Reply 13-14

Purported "increased … difficulty of manufacture" risking downtime from a failure "to deliver the wings" or from "wing separation from improper bonding" is unsupported:

- "wing production could occur **in-line**"
- Mr. Butterworth "was **unaware of** improper-wing-bonding-based downtime"
- "**scrap** from the unitary-hourglass design **was problematic**"

Q. Okay. But the wings could be made in line with the chassis, right?

A. There are steps that you can take to make a wing by doing it in line, but here again, the question becomes one of waste.

Q. Well, whether you made, for example, Benning's wing in line or in a separate area of the mill, there wouldn't be -- have to be any waste, right?

A. There would -- no, there would not.

Q. Are you aware of any manufacturing downtown associated with the separate wing diapers brought about by weak bonding of the wings to the chassis?

A. Not as I sit here, no.

Q. Are you aware of any manufacturing downtime associated with the separate wings diapers that we were discussing brought about due to the wings tearing?

A. Not as I sit here.

Q. And would there have been downtime if scraps were not removed fast enough?

A. Yes, that would be a problem. If you're talking about problems, scraps can get caught up in the process. So you have to take precautions, obviously.

Q. And when you say scraps can get caught up in the process, what do you mean?

A. You're dealing with a high-speed machine, and some of the patents we've talked about have described how you accordion-pleat the -- the lateral side parts, which are the closures, so that they don't become entangled in the machinery.

EX1054, 102:3-14, 105:2-10, 146:2-9 (cited in 1477 Reply 13-14; 1478 Reply 13; 1479 Reply 13; 1480 Reply 13)

Attends®

Separate-Wings-And-Chassis | Cost and Manufacturability

1477 Reply 13

"PO **does not address**, much less counter, the advantageous **manufacturing flexibility** the separate-wings-and-chassis construction allows."

Separate-Wings-And-Chassis | Different Materials

1477 Pet. 30-31

"POSITA would have done so to permit the use of **different materials** for wings 131-134 and chassis 120" such as:

- "**higher-basis-weight** nonwoven **wings** for strength and **lower-basis-weight backsheet** nonwoven for user comfort"
- "**more-breathable wings** for user comfort" by "not including [the backsheet's impermeable] film"

Separate-Wings-And-Chassis | Different Materials

1477 POR 39-40

"Using a higher basis weight nonwoven on the wings" would "eliminate [Karami '772's inventive concept" and "**unnecessarily** increase[] cost and decrease[] comfort."

1477 Reply 14-15

Mr. Butterworth agrees with Petitioner.

Q. Okay. So Karami 772 could be describing a configuration in which the wings were separate and then attached to the chassis?

A. Yes, it could.

Q. Okay. And that would be advantageous, for example, when you wanted to perform a treatment just on the wings or just on the chassis, right?

A. Yes.

Q. Would it also facilitate the selection of different materials for the wings and for the backsheet of the chassis?

A. Yes, it would.

Q. Okay. Why would somebody of ordinary skill in the art want to use a different material for a wing non-woven than for a chassis non-woven?

A. Various reasons. The chassis needs to be stable to support the absorbant core and to maximize absorbancy. The wings, on the other hand, may wish to be elastic, they may wish to be stiff, they may be thicker than the backing film on the chassis because the wings are subjected to more pulling and tension then the backsheet directly.

EX1054, 97:3-24 (cited in 1477 Reply 14-15; 1478 Reply 13-14; 1479 Reply 13-14; 1480 Reply 14)

Attends®

Separate-Wings-And-Chassis | Different Materials

1477 Reply 14-15

Mr. Butterworth confirms that "a POSITA would have desired 'a **higher basis weight** nonwoven' for the wings to allow them 'to **withstand larger forces** than backsheet 130,'" **even if** that involved cost and comfort **tradeoffs**.

A. Well, I perhaps need to explain that in terms of why we end up with a heavier basis weight at the side parts, and that is pure and simple. Because the non-woven that is the side piece, or side flap, needs to have strength and tear resistance to enable it to support the closures when the diaper is placed on a person.

You try to wring out as much money in the cost column as you possibly can, but certain things you have no choice over. You don't want these side tabs to tear off, so that gives you certain properties that you must have. You don't want the product to absorb less than a certain amount of urine, and that means that the weight of the absorbant core has to be clearly denoted. Because the pulp, which is the principle absorbant, and super absorbants only absorb a certain amount of material, and you have to meet that target if you want to avoid leakage. So there are certain relationships that are very fixed and few that you can afford to spend less money on.

EX1054, 125:18-24, 143:7-19 (cited in 1477 Reply 14-15; 1478 Reply 13-14; 1479 Reply 13-14; 1480 Reply 14)

Attends®

Separate-Wings-And-Chassis | Different Materials

1477 Reply 15

- Higher-basis-weight wings do not "eliminate Karami '772's inventive concept."
- **Unaddressed**: more-breathable wings without backsheet film.

Q. So would a POSITA understand it could be consistent with Karami 772's teaching to use a treated 33.9 GSM non-woven for the wings in Karami 772's diaper?

A. From everything that Karami says in the narrative, yes, that would be a teaching of the patent. The patent teaches that the wings, when water jet treated, will engage fasteners.

Q. And using a 33.9 GSM wing that's treated fits that teaching?

A. Yes.

EX1054, 159:23-160:7 (cited in 1477 Reply 15; 1478 Reply 14; 1479 Reply 14; 1480 Reply 14)

Attends®

Allowing Fastening to the Backsheet and Wing Nonwovens in Benning-Karami ’626 Was Obvious

Attends®

Backsheet & Wing Engagement | Size Adjustability

1477 Pet. 52, 54-55

"POSITA would have been motivated to use a **film-nonwoven laminate** like Karami '626's for Benning's underlayer 30" and "**fasteners like Karami 626's**" to "**improve size-adjustability**" by allowing the fasteners to "directly engage with a backsheet nonwoven … or its nonwoven wings."

114. Benning's diaper includes "a landing zone" on its chassis to which its closures 42 can "grip mechanically" to maintain the diaper in the closed configuration. Benning at ¶¶ [0030] and [0055] and FIG. 4. As Karami '626 describes, such a fastener-landing zone configuration has limitations on size adaptability because the fastener is not "capable of engaging anywhere along a facing surface of another article or article portion" but instead can only be positioned within the landing zone. Karami '626 at ¶¶ [0003]-[0004] and [0006].

115. It thus would have been obvious to use Karami '626's fastening system for Benning's diaper to provide size adjustability and overcome the disadvantages associated with landing-zone type fasteners. *See* Karami '626 at ¶¶ [0007]-[0010] and [0039]-[0040] ("It is [] an object of the present invention to provide [] an absorbent article" in which "the fastener assembly provides size adjustability … at the cost of only additional minihook fastener elements").

EX1012, ¶¶114-115 (cited in 1477 Pet. 54; 1478 Pet. 54; 1479 Pet. 56; 1480 Pet. 56)

Attends®

Backsheet & Wing Engagement | Karami ’626’s Backsheet

1477 POR 43-44

A POSITA would not have “replace[d] Benning’s underlayer, which engages fasteners” with Karami ’626’s T-shaped diaper’s backsheet that purportedly “does not engage fasteners.”

1477 Reply 16

- Wrong for the same reasons addressing Karami ’772’s stay-away zone.
- T-shaped diaper without backsheet engagement is “Karami ’626’s **specific illustration**.”

Q. And I think we discussed, in the T-shaped diaper, all of the fasteners engage the wings, correct?

A. It appears in their executions they do.

. . .

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

A. They're basically, based on this paragraph -- it says, The T-shaped brief 12 is made according to the present invention so that the fastener elements 41 and 42 do not require landing zones and may be engaged directly with any portion of the non-woven surface constituting the frontsheet 30, the backsheet 32, or the wings of the brief.

EX1054, 163:18-21, 197:15-198:2 (cited in 1477 Reply 16; 1478 Reply 15-16; 1479 Reply 15-16; 1480 Reply 15-16)

Attends®

Backsheet & Wing Engagement | Karami ’626’s Backsheet

Reply 16

“PO’s reference to a later-described ‘belt backsheet’ … does not defeat the broader paragraph [0040] teaching that **enumerates ‘wings 40’ separate from** the previously-described chassis **‘backsheet 32.’**”

An absorbent core (not shown) is disposed intermediate the frontsheet **30** and backsheet **32** and is typically formed of wood fluff or other absorbent material (and optionally contains gel-forming super-absorbent polymeric particles).

. . .

[**0040**] On the other hand, when the T-shaped brief **12** is made according to the present invention so that the 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, the accommodation of both small and large-waisted persons by a single brief **12** with elastic wings **40** is substantially simplified.

EX1004, ¶¶[0036], [0040] (cited in 1477 Reply 16; 1478 Reply 15-16; 1479 Reply 15-16; 1480 Reply 15-16)

Attends®

Backsheet & Wing Engagement | PO's Myopic View

1477 Reply 16-17

"Karami '626 teaches a '**fastener assembly** [] composed exclusively of a minihook element and a nonwoven' that 'provides size adjustability,' the **use of which extends beyond T-shaped diapers**, including the FIGs. 9-10 diaper that includes backsheet-fastener engagement."

[0006] It is also known to make a diaper having Velcro-like hooks as one component of a fastening system and a nonwoven outer surface which serves as the other component. In such a diaper, the hook does not require a special landing zone having special loops. Instead, the entire outer surface of the diaper or brief can function as a landing zone for the hooks. This is known as a "loopless" fastening system, and provides an increased degree of flexibility in the fitting of a diaper to a person. Such a loopless fastener system is described in U.S. patent application Publication No. US 2003/0220626 A1 filed on May 7, 2003 and is hereby incorporated by reference.

[0011] It is another object to provide such a disposable article wherein, in one preferred embodiment, the article is one of a diaper, a T-shaped brief, and a pull-up.

116. In this manner, Benning's diaper would attain Karami '626's size adjustability, with closures 42 being able to (1) engage the nonwoven of chassis 20's underlayer 30 to accommodate small-waisted wearers and (2) engage the nonwoven of front side panels 34 to accommodate large-waisted wearers. *See* Karami '626 at

EX1004, ¶[0011]; EX1028, ¶[0006]; EX1012, ¶116 (cited in 1477 Reply 16-17; 1478 Reply 16-17; 1479 Reply 16-17; 1480 Reply 16-17)

Attends®

Backsheet & Wing Engagement | POSITA's Ability

1477 Reply 17

"PO does not contest either a **POSITA's ability** to arrive at the Benning-Karami '626 Diaper or the **desirability of the size-adjustability** it provides."

> Q. And they could tailor the density in conjunction with other non-woven parameters such as type, fiber size, and embossing pattern to achieve the retaining forces that they desire?
>
> A. Yes, they could do that.

> 96. It is also important that a diaper permit a caretaker to inspect the diaper, such as by being able to detach and refasten the diaper while still preventing leaking from the diaper. Likewise, it is preferred that a diaper has some adjustability to it so can be secured on wearers with differing body types. Similarly, the topsheet of the diaper should be positioned to contact the user's body so that liquid is wicked away from the skin (preventing leakage and irritation) and passed directly to the absorbent core; to achieve this, the diaper must be fastened and adjusted correctly, and releasable fasteners are important.

EX1054, EX1012, ¶116 (cited in 1477 Reply 16-17; 1478 Reply 16-17; 1479 Reply 16-17; 1480 Reply 16-17)

Attends®

Benning-Karami ’626 Meets the Diaper-Holding Requirement

Attends®

Diaper-Holding Requirement | Obviously Met

1477 Pet. 55

In the Benning-Karami ’626 combination, “the hooks **would engage** either of the **front wings** 34 for larger-waisted users**, or backsheet** for smaller-waisted users.”

1477 POR 50-54

“The combination **does not have detachable fastening** of closure meanings to the front and side parts.”

1477 Reply 18-19

PO’s argument is “**non-responsive**” because “the Benning-Karami ’626 diaper would have **obviously**—not inherently—included such fastener-engaging nonwovens for size adjustability.”

Attends®

Diaper-Holding Requirement | Karami ’626’s Backsheet

1477 POR 50-51

- “Petitioner has not established that [Karami ’626’s] backsheet could engage fasteners to fasten and hold the modified diaper.”
- “Petitioner merely argues that the fasteners are designed to ‘detachably fasten to conventional nonwovens,’ not the nonwovens it argued for the combination.”

1477 Reply 19

- *See* Karami ’772-Benning Arguments (fastener engagement with Karami ’626’s T-shaped diaper and FIGs. 9-10 diaper backsheets).
- Petition at 58: use “a film-nonwoven backsheet **like Karami ’626’s**.”

Diaper-Holding Requirement | Interstice Size

1477 POR 50-51

"Karami '626 describes its preferred nonwoven as having interstices … significantly larger than the fibers themselves" so "it would be hard for a hook to engage fibers in that nonwoven."

1477 Reply 19-20

"Karami '626's nonwovens are indisputably **for** engaging hook-type fasteners."

[0015] In a third preferred embodiment, the article comprises a nonwoven defining an exposed outer surface of at least one of a frontsheet and a backsheet, the nonwoven containing a plurality of bonded fibers and a plurality of interstices defined thereby. The nonwoven is a 13-50 gsm spunbond, the fibers have an average size of about 1.3-3.0 denier, and the average size of the interstices is at least 644 micron^2. The article further comprises a minihook fastener element forming a plurality of pins defining an exposed outer surface thereof, each pin having an average diameter at the base thereof of at least 300 (preferably 390) microns and at the free end thereof of at least 375 (preferably 427) microns. The pins of the fastener element enter into the interstices of the nonwoven when the exposed outer surfaces of the fastener elements and the nonwoven are mutually engaged. Preferably the fibers are differentially bonded, optimally differentially point bonded.

EX1004, ¶[0015] (cited in 1477 Reply 19-20; 1478 Reply 19; 1479 Reply 19; 1480 Reply 19)

Attends®

Diaper-Holding Requirement | Shear Strength

1477 POR 52

Comparing Karami ’626’s preferred shear strength of “1300 grams per square inch” to Karami ’772’s test showing “‘Load at Max Load (g/2 in)’ of 993.601,” a “20 gsm nonwoven **would have to be treated** in order to engage fasteners.”

1477 Reply 20-21 (see Karami ’772-Benning Arguments)

- PO is comparing **different units**.
- Karami ’626 “discloses an **untreated ’20[] gsm**’ nonwoven that **indisputably can securely engage** fasteners when used in a diaper’s wings” (citing EX1005, ¶[0065]).

Higher-Basis-Weight Wings Obvious in Benning-Karami ’626

Higher-Basis-Weight Wings

FOR THE SAME REASONS AS IN KARAMI ’772-BENNING

Higher-Basis-Weight Wings | Consistent With Benning

1477 POR 48-49

"A higher basis weight nonwoven would [] have been … **directly against** [Benning's] teachings" because the sides should be "less rigid than the main body portion."

1477 Reply 21-22

- "Benning itself teaches that its skin-friendly and less-rigid side flaps can have a basis weight **up 'to 150 g/m²**.'"
- "[T]he admitted need for **stronger wings** would have **justified** the heavier nonwoven because additional softness would be pointless with side flaps susceptible to tearing."

> The material sections advantageously have a surface weight of 10 to 150 g/m², in particular 20-100 g/m², and specifically of 25-50 g/m².

EX1002, ¶[0032] (cited in 1477 Reply 21; 1478 Reply 21; 1479 Reply 21; 1480 Reply 21)

> As explained in Section VIII.B.1(c), the modified Benning diaper had or it would have been obvious to use a higher-basis-weight nonwoven for wings 34 than for the modified underlayer, *e.g.*:
>
> - for wings: from "25-50 [gsm]" (EX1002, ¶[0032]), from "20-40 gsm (optimally 34 gsm)" (EX1004, ¶[0065]), or from 18-60 gsm (e.g., 30 gsm) (§VIII.B.1(c)); and
> - for backsheet/underlayer: "from 15-30 gsm (optimally 20 gsm)" (EX1004, ¶[0065]), or from 10-30 (e.g., 20 gsm) (§VIII.B.1(c)).

1477 Pet. 59

Attends®

Higher-Basis-Weight Wings | Consistent With Benning

Q. Okay. And then moving back to paragraph 33, Benning is explaining as one option that the material sections are less rigid than a laminate of the main part consisting of the backsheet and top sheet, right?

A. The backsheet and the top sheet would have other materials inside, such as the absorbant core, maybe a distribution layer in addiction to the top sheet and backsheet.

Q. Would those be the chassis forming materials that Benning is talking about?

A. Yes.

Q. And so, would those materials be more rigid than a section of non-woven material?

A. Yes.

Q. Even a non-woven material with 150 GSM basis weight?

A. Yes.

EX1054, 171:6-172:7 (cited in 1477 Reply 21; 1478 Reply 21; 1479 Reply 21; 1480 Reply 21)

Attends®

Higher-Basis-Weight Wings | Karami ’626’s Teaching Applies

1477 POR 49-50

“[S]ince the preference was limited to the T-shaped diaper … differing basis weights was *not* preferred for other types of diapers.”

1477 Reply 22

“[T]he **analogous features** of the Benning-Karami ’626 diaper … render the T-shaped-diaper teachings applicable thereto.”

A POSITA would have understood these advantages as described for Karami ’626’s T-shaped diaper would also benefit the modified Benning diaper given that its wings were also separate from the backsheet, would encircle a wearer’s waist when worn, and would be engaged by fasteners. *See* Benning at ¶¶ [0053]-[0055].

. . .

As I explained in paragraphs 92-94, a POSITA would have understood that higher basis weights (e.g., around 30 gsm or higher) tended to promote strength—and thus were warranted for wings that often were subject to higher forces—while lower basis weights (e.g., around 20 gsm) tended to promote comfort and cost-savings and thus were warranted for backsheets that may not need to be as strong as the wings and, covering a large portion of the diaper that receives exudates, have a large impact on wearer comfort.

EX1012, ¶¶117-118 (cited in 1477 Reply 22; 1478 Reply 21-22; 1479 Reply 21-22; 1480 Reply 22)

Attends®

Higher-Basis-Weight Wings | Strength

1477 POR 49

"[I]f anything, Karami '626 teaches using a higher basis weight nonwoven on the underlayer since Benning seeks to have closures engage the underlayer."

1477 Reply 22

"[I]n the Benning-Karami '626 combination **both** the wing and backsheet are engageable with the fasteners."

Q. So why would a side piece tear off of a disposable diaper?

A. Because you are pulling at an angle and the sharp 90-degree intersect of the side piece with the fasteners attached can tear off very easily unless that is reinforced and unless the side piece is made of a heavier weight non-woven. The closure is only good -- as good as the attachment of the mini loop fabric to the plastic film on the one hand and the non-woven which carries the closures attached to the side of the diaper on the other hand. So you find that the non-woven there has to be heavier. There's no film to reinforce that non-woven, so you have to go heavier weight to get the strength you need, and that happens, you'll find more fibers.

EX1054, 126:13-127:2 (cited in 1477 Reply 22-23; 1478 Reply 22; 1479 Reply 22; 1480 Reply 22)

Attends®

Higher Basis Weight = Higher Retaining Forces

Attends®

Higher Basis Weight = Higher Retaining Forces | Petitioner's Evidence

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. *See,*

Jezzi at ¶ 120

the sheet of fibers preferably has a higher basis weight in the range of 75 to 150 grams per square meter measured along the front surface of the backing so that more loops are available for engagement by the hook portion of the fastener, and the individual fibers could

Gorman at 2:35-39

Another advantage of the invention is that because of the higher density of loops per unit area, more hooks and loops are engaged then in the prior art, and hence the fastener using the subject loop component has a high peel and sheer strength, as well as a high tension and latched strength. It is

Gehring at 5:3-7

1477 Petition at 59

Attends®

Higher Basis Weight = Higher Retaining Forces | Petitioner's Evidence

> The over-abdomen retaining forces between the closure means **32** and the outer face of the side parts **16** are preferably at least 58 N/25 mm and are higher than the over-abdomen retaining forces between the closure means **32** and the outer face of the backsheet nonwoven material component, which are preferably at least 20 N/25 mm. This is essentially ensured by the higher mass per unit area of the nonwoven component of the side parts.

'788 Patent at 13:34-41

> The mass per unit area of the nonwoven component for the side parts in the front area and preferably also in the rear area is preferably greater than the mass per unit area of the non-woven component for the outer face of the main part. Due to the higher mass per unit area of the nonwoven component for the side parts, a higher closure retaining force is possible because the mechanical closure aids can engage with more fiber material. The higher mass per unit area of the nonwoven

'788 Patent at 7:19-26

1477 Petition at 59

Attends®

Higher Basis Weight = Higher Retaining Forces | PO's Evidence

1477 POR at 54

"[B]asis weight is not the only factor that determines how well a nonwoven surface can engage fasteners," there are also:

- the conditions by which the fabric was made;
- the type, size, shape, and density of the fibers;
- embossing pattern;
- pore size; and
- the finishing processes or treatments used.

1477 Reply at 23

"PO's argument … lacks even an allegation that a POSITA implementing Karami '626's teachings in Benning's diaper would have selected any one of these parameters in a way that brought a higher-basis-weight wing-nonwoven's fastener-retaining forces below a lower-basis-weight backsheet nonwoven's fastener-retaining forces."

Attends®

Higher Basis Weight = Higher Retaining Forces | PO's Evidence

PO's Factors

- **the conditions by which the fabric was made**
- the type, size, shape, and density of the fibers
- embossing pattern
- pore size
- the finishing processes or treatments used

1477 Petition at 54

Benning's "wings 34 already are 'preferably spunbond materials …' (EX1004 at ¶¶[0062], [0063], [0065]), which—like the modified film-nonwoven backsheet—is engageable with Karami '626's fasteners to secure a diaper on a wearer (EX1004, ¶¶[0039]-[0040]). *See* EX1012, ¶115."

As Front Side Parts **16**:
Material X: comprising 30-g/mm^2 polypropylene spunbond nonwoven, fiber thickness 2 dtex, hot calander emboss-

'788 Patent at 14:42-44

As Backsheet **10**:
Material Y: A nonwoven-foil laminate was used that preferably forms the complete outer face of main part **4** of the incontinence diaper **2**. The nonwoven material component comprises a 20-g/m^2 polypropylene spunbond nonwoven,

'788 Patent at 14:51-55

Attends®

Higher Basis Weight = Higher Retaining Forces | PO's Evidence

PO's Factors

- the conditions by which the fabric was made
- **the type, size, shape, and density of the fibers**
- embossing pattern
- pore size
- the finishing processes or treatments used

finishing (mechanical, thermal, chemical) employed are very significant. Fiber material (typically a polyolefin such as polypropylene and polyester), fiber cross-sectional shape and crimping, diameter and finish all impact fiber, and hence, fabric behavior. If the fibers are too fine, they will inhibit penetration of the mechanical "hooks" and those that do snag fibers will find they do not have adequate load bearing capability. If the fibers are too coarse, then then they will not engage properly with the parts of the mechanical closure. Further, at the

EX2004 at ¶ 103

1477 Petition at 52-55

"POSITA would have been motivated to use fasteners like Karami '626's for Benning's fasteners 42, 44, at least to improve size-adjustability by directing engag[ing] with a backsheet nonwoven (§VIII.B.1(a)) or its nonwoven wings 34 (EX1002, ¶[0032]). EX1012, ¶¶114-116."

Attends®

Higher Basis Weight = Higher Retaining Forces | PO's Evidence

PO's Factors

- the conditions by which the fabric was made
- the type, size, shape, and density of the fibers
- **embossing pattern**
- pore size
- the finishing processes or treatments used.

[0062] The 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. The fibers may be bonded by a variety of different means well-known in the art including thermal bonding, chemical bonding (e.g., by latex) hydroentanglement, and the like. Similarly, the fibers may be point bonded or area bonded, the area bonding typically indicating either a very large point or a plurality of very close points. Preferably the fibers are point bonded by a thermal technique such as calendering to produce a fuzzy nonwoven having a percentage bonding area of about 15-30%.

Karami '626 at ¶ [0062]

As Backsheet **10**:

Material Y: A nonwoven-foil laminate was used that preferably forms the complete outer face of main part **4** of the incontinence diaper **2**. The nonwoven material component comprises a 20-g/m^2 polypropylene spunbond nonwoven, fiber thickness 2 dtex, with a hot calander embossing pattern like that of the front side parts **16**, that is, a hot calander embossing pattern according to FIG. **4**, wherein the joining points **63** have a uniform length of 4.5 mm for a width of the joining points of 0.4 mm and an embossing depth of 0.65 mm and an embossing area of 21.13%, available from Corovin GmbH Wohtorfer Str. 124, D-31201 Peine, Germany. The foil

'788 Patent at 14:42-50

As Front Side Parts **16**:

Material X: comprising 30-g/mm^2 polypropylene spunbond nonwoven, fiber thickness 2 dtex, hot calander embossing pattern on the outer face of the side part material according to FIG. **4**, wherein the joining points **63** have a uniform length of 4.5 mm for a width of the joining points of 0.4 mm and for an embossing depth of 0.65 mm and an embossing area of 21.13%. The material can be obtained from Corovin GmbH Wohtorfer Str. 124, D-31201 Peine, Germany.

'788 Patent at 14:51-62

1477 Reply at 25

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Higher Basis Weight = Higher Retaining Forces | PO's Evidence

PO's Factors

- the conditions by which the fabric was made
- the type, size, shape, and density of the fibers
- embossing pattern
- **pore size**
- the finishing processes or treatments used

1477 POR at 55

"Karami '626 teaches that factors, such as 'pore size' impact[] retaining forces."

> [0067] Within the limits and ranges described herein-above, the fastener element and nonwoven are selected so that the pins of the fastener element enter into the interstices of the nonwoven when the exposed outer surfaces of the fastener element and the nonwoven are mutually engaged.

Karami '626 at ¶ [0067]

1477 Reply at 19-20

Attends®

Higher Basis Weight = Higher Retaining Forces | PO's Evidence

PO's Factors

- the conditions by which the fabric was made
- the type, size, shape, and density of the fibers
- embossing pattern
- pore size
- **the finishing processes or treatments used**

106. Fabric finishing treatments, such as lamination, further impact a nonwoven fabric's properties and ability to engage with various closure systems. When a nonwoven is laminated, its properties can be dramatically impacted based on the laminate's properties. For example, a laminate may be elastic or nonelastic, applied using a variety of processes, or subjected to post-lamination treatments to create a breathable fabric. Every design consideration impacts the end fabric's properties and performance, and the resulting end properties can be unpredictably impacted.

EX2004 at ¶ 106

Because many of the lamination methods for producing the nonwoven-foil laminates impair the plushness of the nonwoven component and therefore clearly reduce the over-abdomen retaining forces, it has proven advantageous to temperature-treat the nonwoven-foil laminate after lamination.

'788 Patent at 8:8-12

1477 Reply at 23

Attends®

Higher Basis Weight = Higher Retaining Forces | ’788 Patent

PO’s Factors

- **the conditions by which the fabric was made**
- **the type, size, shape, and density of the fibers**
- embossing pattern
- pore size
- the finishing processes or treatments used

1477 Reply at 24

“[J]ust like the ’788 Patent’s explicit teachings, the breadth of the ’788 Patent’s disclosure ‘instructs that [the claimed retaining forces are] not an additional requirement imposed by the claims …, but rather a property necessarily present’ in Petitioner’s combination. *In re Kao*, 639 F.3d 1057, 1070 (Fed. Cir. 2011).”

’788 Patent at 6:17-30:

> Numerous types of nonwovens can be used for the nonwoven components of the outer face of the main part and for the nonwoven component of the side parts in the front area, and preferably also in the rear area. In particular, all nonwovens are suitable that contain at least one initial component based on a thermoplastic polymer. The nonwovens can be fibers made of PE, PP, PET, Rayon, cellulose, PA, and mixtures of these fibers. Also bi- or multi-component fibers are conceivable and advantageous. In particular, carded nonwovens, spunbonded nonwovens, water-jet needle-punched nonwovens, SM nonwovens, SMS nonwovens, SMMS nonwovens or also laminates of one or more of these types of nonwovens are advantageous, where each S stands for a spunbond layer and each M for a meltblown nonwoven layer.

1477 Reply at 24

Attends®

Higher Basis Weight = Higher Retaining Forces | ’788 Patent

PO’s Factors

- the conditions by which the fabric was made
- the type, size, shape, and density of the fibers
- **embossing pattern**
- pore size
- the finishing processes or treatments used

is preferably 0.2 to 1.0 mm, in particular, 0.4 to 0.8 mm. The embossing area, that is, the sum of the area of all joining regions **62** with reference to the total area of the region covered by the embossing pattern **60** is preferably 15 to 50%, in particular, 17 to 40%, further, in particular, 19 to 25%. In the

’788 Patent at 14:4-10

1477 Reply at 24

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Higher Basis Weight = Higher Retaining Forces | ’788 Patent

PO’s Factors

- the conditions by which the fabric was made
- the type, size, shape, and density of the fibers
- embossing pattern
- pore size
- **the finishing processes or treatments used**

The lamination of the nonwoven component of the backsheet with the foil component of the backsheet can be performed by a known method by any joining methods, in particular, by gluing, embossing, ultrasonic welding, or thermocalandering. A preferred thermolamination method is disclosed in DE102004042405A1 and is hereby incorporated by reference.

’788 Patent at 7:59-65

1477 Reply at 24

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Obvious Material Selections

1477 Petition at 63-68/1477 Reply at 25

- Material Z is Karami '626's "preferred" fastener in its "preferred" size (EX1004 at ¶¶ [0060], [0058]);

Karami '626

[0060] A preferred fastener element is available from Binder Macroplast LP of Germany under the trade designation #42-288-HX-200-PP3.

[0058] In order to achieve useful peel and tear strengths, the pin-bearing surface area of the fastener element (measured at the surface supporting the bases of the pins) should be at least 0.5 inch^2 Where the fastener element is of a rectangular design, preferably it is at least one inch in width by a half inch in length, optimally at least two inches by one inch. While the fastener elements according to the present invention have been illustrated as rectangular in outline, they may also be of other polygonal designs or even circular.

'788 Patent

Material Z: section of hooks of a hook-and-loop fastener with dimensions 20×25 mm. Type Microplast® 42-288-HX200-PP3, item number 25445, available from G. Binder GmbH & Co KG Textil-und Kunststofftechnik, Holzgerlingen, Federal Republic of Germany. The representation of the

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Obvious Material Selections

1477 Petition at 63-68/1477 Reply at 25

- Material Y is a spunbond 20-gsm nonwoven like Karami '626's "optimal" backsheet nonwoven (*id.* at ¶¶ [0063]-[0065]), with polypropylene fibers that were known to work in a fastener-engaging nonwoven like Karami '626's (EX1003 at ¶¶ [0028], [0031]),[6] having Karami '626's "preferred" fiber size and embossing area (EX1004 at ¶¶ [0062]-[0064]); and

Karami '626

[0062] The 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. The fibers may be bonded by a variety of different means well-known in the art including thermal bonding, chemical bonding (e.g., by latex) hydroentanglement, and the like. Similarly, the fibers may be point bonded or area bonded, the area bonding typically indicating either a very large point or a plurality of very close points. Preferably the fibers are point bonded by a thermal technique such as calendering to produce a fuzzy nonwoven having a percentage bonding area of about 15-30%.

[0063] The bonded fibers define therebetween a plurality of interstices (also called pores, apertures, openings, etc.). A preferred nonwoven is a 13-50 gsm spunbond wherein the fibers have an average size of 1.3 to 3.0 denier and the average size of the interstices is at least 644 microns. While the bonding pattern may be uniform in both the machine direction (MD) and the cross direction (CD) of the non-woven web, preferably the pattern differs for the MD and the CD. See, for example, U.S. Pat. No. 6,537,644 which discloses an orthogonally differentially bonded nonwoven.

[0064] It will be appreciated that the backsheet may be formed of the above-identified nonwoven with a polypro-pylene or polyethylene film backing or as a laminate or like composite of a plurality of nonwovens.

[0065] 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.

Attends®

Obvious Material Selections

1477 Petition at 63-68/1477 Reply at 25

- Material Y is a spunbond 20-gsm nonwoven like Karami '626's "optimal" backsheet nonwoven (*id.* at ¶¶ [0063]-[0065]), with polypropylene fibers that were known to work in a fastener-engaging nonwoven like Karami '626's (EX1003 at ¶¶ [0028], [0031]),[6] having Karami '626's "preferred" fiber size and embossing area (EX1004 at ¶¶ [0062]-[0064]); and

'788 Patent

As Backsheet **10**:

Material Y: A nonwoven-foil laminate was used that preferably forms the complete outer face of main part **4** of the incontinence diaper **2**. The nonwoven material component comprises a 20-g/m^2 polypropylene spunbond nonwoven, fiber thickness 2 dtex, with a hot calander embossing pattern like that of the front side parts **16**, that is, a hot calander embossing pattern according to FIG. **4**, wherein the joining points **63** have a uniform length of 4.5 mm for a width of the joining points of 0.4 mm and an embossing depth of 0.65 mm and an embossing area of 21.13%, available from Corovin GmbH Wohtorfer Str. 124, D-31201 Peine, Germany. The foil

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Obvious Material Selections

1477 Petition at 63-68/1477 Reply at 25

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

Petition at 68

Karami '626 also explains that wings can comprise the same type of nonwoven as—just with a higher basis weight than—its backsheet (EX1004, ¶¶[0062]-[0065]), rendering Nonwoven X's material, dtex, and embossing area, which are identical to Nonwoven Y's addressed above, at least obvious choices when implementing Karami '626's teachings in Benning's diaper (§§VIII.B.1(a)-(b)). EX1012, ¶¶125-126.

'788 Patent

As Front Side Parts **16**:

Material X: comprising 30-g/mm^2 polypropylene spun-bond nonwoven, fiber thickness 2 dtex, hot calander embossing pattern on the outer face of the side part material according to FIG. **4**, wherein the joining points **63** have a uniform length of 4.5 mm for a width of the joining points of 0.4 mm and for an embossing depth of 0.65 mm and an embossing area of 21.13%. The material can be obtained from Corovin GmbH Wohtorfer Str. 124, D-31201 Peine, Germany.

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Benning-Karami ’626-Stupperich

Benning-Karami ’626-Stupperich

1477 POR at 56-57:

“Because it uses a **belt-diaper**, Stupperich teaches that fasteners engage the belt formed by the wings to fasten and hold the diaper and do not engage the front of the diaper.”

Stupperich at Abstract:

(57) Abstract: The invention relates to a loop-forming nonwoven material (28) as mechanical closure element, in particular for disposable hygiene articles (2) such as diapers, belt diapers, incontinence articles and pads, wherein a first upper side (40) of the nonwoven material (30) comprises first larger nonbonded areas (42) which are spaced apart from each other and disposed like islands; the nonwoven material is improved in that the first larger nonbonded areas (42) are delimited by bonded contours (44) and are surrounded outside the limitation by second smaller nonbonded areas (48) and are spaced apart from each other by said second smaller nonbonded areas (48).

1477 Reply at 25-26

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Benning-Karami ’626-Stupperich

1477 POR at 58:

“Petitioner never acknowledges that Stupperich describes the example nonwovens as different embodiments or discusses whether, how, or why they would have been combined.”

1477 Petition at 88-89:

- “Stupperich’s nonwoven’s are **what Karami ’626 calls** for: nonwovens that are engageable with hook-type fasteners to secure a diaper on a wearer.”
- “[A] POSITA would have sought the **advantageous balance between closing reliability and durability** that Stupperich’s nonwovens provide.”
- “[I]t would have been obvious to use the Higher-Basis-Weight Nonwoven for the modified Benning diaper’s wings 34 [**for enhanced strength and diaper-retention**] and the Lower-Basis-Weight Nonwoven for its underlayer 30’s nonwoven [**for wearer-comfort and cost**].”
- “[T]his modification would have **maintained Karami ’626’s simplicity** of using otherwise similar nonwovens that have different basis weights for the wings and backsheet.”

Dated: November 30, 2021

Respectfully submitted,

/Eagle H. Robinson/
Eagle H. Robinson

Lead Counsel for Petitioner

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), the undersigned certifies that on November 30, 2021, a copy of Petitioner's Demonstratives was served on Lead and Backup Counsel for Patent Owner via email (by consent) to:

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