

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FIRST QUALITY RETAIL SERVICES, LLC,
FIRST QUALITY CONSUMER PRODUCTS, LLC,
FIRST QUALITY PRODUCTS, LLC,
FIRST QUALITY ENTERPRISES, LLC,

Petitioners,

v.

ESSITY HYGIENE AND HEALTH AB,

Patent Owner.

Case No. IPR2024-01487

Patent No. 9,308,138

PETITIONERS' DEMONSTRATIVE EXHIBITS



First Quality v. Essity Hygiene

Case No. IPR2024-01487; U.S. Patent No. 9,308,138

Oral Hearing

February 18, 2026



1

Bergstrom-'059 Discloses the Claim Limitations

- Bergstrom-'059 discloses a “perforated polymeric layer”
- Bergstrom-'059 discloses a “fluid flow control structure”

2

Nakazawa-'190 in Combination with **Glaug-'753** or **Ponomarenko-'236** renders the challenged claims obvious

- A POSA would have been motivated to combine Nakazawa with Glaug or Ponomarenko;
- Nakazawa does not teach away from the combination
- Nakazawa teaches an opening extending throughout the entire crotch portion

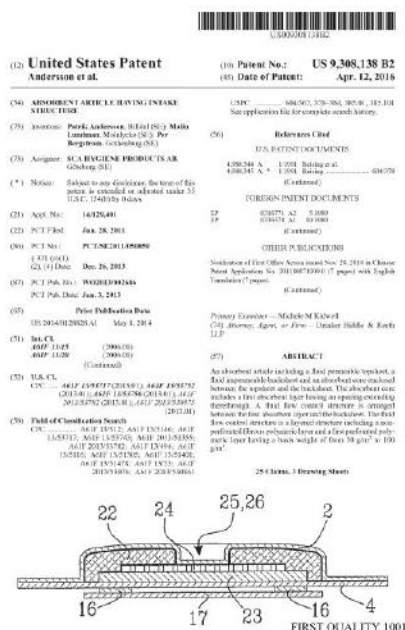
3

Nakazawa-'190 Anticipates the Claims

Claim 1 of the '138 Patent



'138 Patent



The invention claimed is:

1. An absorbent article having a longitudinal direction and a transverse direction, side edges extending in the longitudinal direction and end edges extending in the transverse direction and comprising:

a fluid permeable topsheet,

a fluid impermeable backsheet, and

an absorbent core enclosed between said topsheet and said

backsheet, said absorbent core comprising,

a first absorbent layer having an opening that passes through the first absorbent layer from one major surface to an opposing major surface and therebetween the opening is surrounded by a closed periphery of first absorbent layer,

a fluid flow control structure, and

a second absorbent layer arranged between the fluid flow control structure and the fluid impermeable backsheet,

wherein the fluid flow control structure is arranged between said first absorbent layer and said backsheet, said fluid flow control structure being a layered structure comprising a non-perforated fibrous polymeric layer and a first perforated polymeric layer, and

wherein the opening extends along a longitudinal center line of the absorbent article, the longitudinal center line being in parallel with the longitudinal direction of the absorbent article, and the fluid permeable top sheet is in direct contact with the fluid flow control structure via the opening.



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Ground 1, Limitations 1[e] and 1[h]



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1. An absorbent article having a longitudinal direction and a transverse direction, side edges extending in the longitudinal direction and end edges extending in the transverse direction and comprising:

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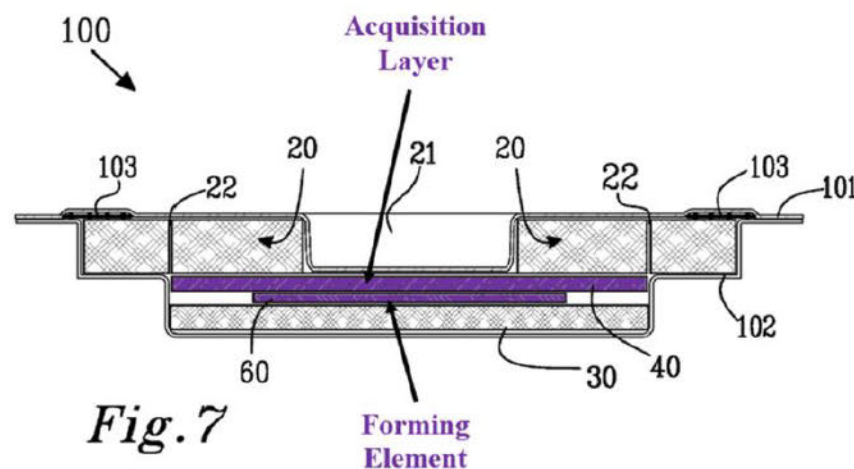
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wherein the fluid flow control structure is arranged between said first absorbent layer and said backsheet, said fluid flow control structure being a layered structure comprising a non-perforated fibrous polymeric layer and a first perforated polymeric layer, and

wherein the opening extends along a longitudinal center line of the absorbent article, the longitudinal center line being in parallel with the longitudinal direction of the absorbent article, and the fluid permeable top sheet is in direct contact with the fluid flow control structure via the opening.



EX1004-Bergstrom-'059, FIG. 7 (annotated); Petition, 36 (annotated figure); EX1002-Pourdeyhimi-Decl., ¶ 107 (annotated figure).

EX1001-'138 Patent, claim 1.

Ground 1, Limitations 1[e] and 1[h]



The invention claimed is:

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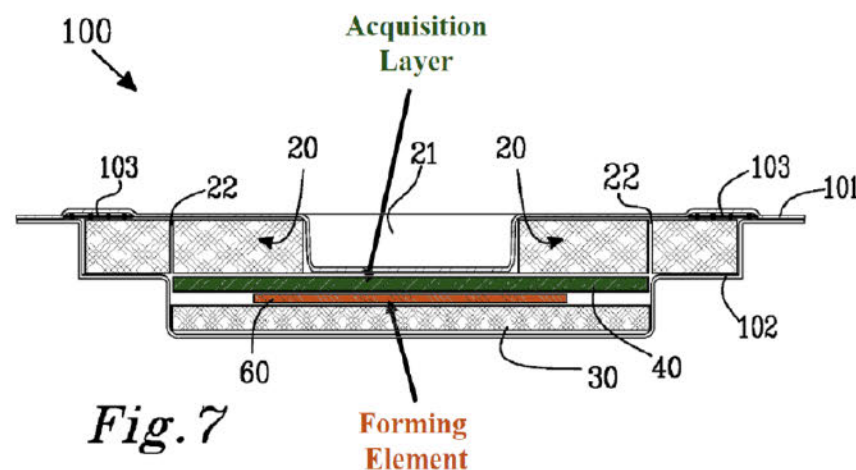
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EX1004-Bergstrom-'059, FIG. 7 (annotated); Petition, 40 (annotated figure); EX1002-Pourdeyhimi-Decl., ¶ 117 (annotated figure).

EX1001-'138 Patent, claim 1.



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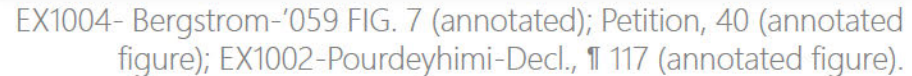
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Nakazawa-'190 Anticipates the Claims

WO 2009/067059 A1



EX1004-Bergstrom-'059, 10:1–3; see also Petition, 19–20, 39, 44; Reply, 3–4; EX1002-Pourdeyhimi-Decl., ¶¶ 64, 116, 127; EX1021-Pourdeyhimi-Suppl-Decl., ¶¶ 22–24; EX1022-SheldonDepo., 185:20–187:1.

Limitation 1[h] – Forming Element 60 Can Be a Perforated Plastic Film



Donald Sheldon

PO's Expert

- Q. Now, one of the materials – you agree that Bergstrom does say that forming element at the top of ... Page 10 it's talking about materials for forming element 60; right?
- A. **Yes, but I think it's important to look at the bottom of Page 9 where it says, "Forming element 60 is suitably made from nonabsorbent material so that its physical and mechanical properties are not – are substantially unaffected by liquid."**

It provides me some examples that I looked at. Forming elements can be plastic films, perforated films, reinforced tissue, reinforced nonwovens.

EX1022-SheldonDepo., 185:20–187:1; *see also* Reply, 3–4; EX1021-Pourdeyhimi-Suppl-Decl., ¶ 22.

No Evidence That Bergstrom Uses “Perforated” Differently Than 138 Patent



Bergstrom '059

should also have the required stiffness properties. Therefore, suitable materials for the forming element 60 are plastic films, **perforated** plastic films and reinforced tissue or reinforced nonwoven materials. Combinations of such materials in laminate form are also

EX1004-Bergstrom-'059, 10:1–3; *see also* Reply, 3–7;
EX1021-Pourdeyhimi-Suppl-Decl., ¶¶ 22–34.

'138 Patent

The first **perforated** polymeric layer may be a three-dimensionally formed layer having penetrating apertures, the apertures extending from a first surface of the layer towards a second surface of the layer, forming protrusions on the second surface and, in particular embodiments, the apertures are funnel-shaped. With a funnel-shaped aperture as used herein

The apertures in the first **perforated** polymeric layer may have an average size of 0.5–5 mm, measured at the smallest diameter of the apertures.

EX1001-'138 Patent, 3:29–34, 3:45–47 *see also* Reply, 3–7;
EX1021-Pourdeyhimi-Suppl-Decl., ¶¶ 22–34.

A “Perforated” Film Includes Holes by Definition



perforated *adj* (1578) 1 : having a hole or perforations; *esp* : having a specified number of perforations in 20 millimeters <the stamps are ~ 10> 2 : characterized by perforation <a ~ ulcer>

EX1025-Merriam-Webster's.

per•fo•rate (pûr'fə-rāt') ► *v.* **-rat•ed, -rat•ing** 1. To pierce, punch, or bore a hole or holes in. 2. To pierce or stamp with rows of holes to allow easy separation. [Lat. *perforāre*.] —**per'fo•ra'tion** *n.*

EX1026-American-Heritage.

per•fo•rat•ed (pûr'fə rā'tid) also **perforate**, *adj.* 1. pierced with a hole or holes. 2. (of a stamp) having closely spaced perforations along its edges. 3. marked by perforation: *a perforated ulcer*.

EX1027-Random-House.

See also EX1021-Pourdeyhim-Suppl-Decl., ¶ 23; Reply, 3–4.

A “Perforated” Film Includes Holes by Definition



Gupta-2002

Abstract Technology
A. C. Chatterjee and R. S. Gupta, editors
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CHAPTER X

NONWOVENS IN ABSORBENT MATERIALS

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D. K. SMITH
Smith, Johnson & Associates, 2709 Edgewood, Irvine, CA 92614, USA

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FIRST QUALITY 1011

bonded with a light weight web of polypropylene fiber [113,114]. Another type of facing introduced by a leading manufacturer is a **perforated film structure**, produced by a thermal forming/perforating process. This gave the film a **controlled size apertures** and a three-dimensional structure [115]. Although the facing was non-fibrous, the 3-dimensional thermal

EX1011-Gupta-2002, 380–381; see also EX1021-Pourdeyhimi-Suppl-Decl., ¶ 32; Reply, 6–7.

Unsupported Expert Testimony Should Not Be Credited



Xerox Corp. v. Bytemark, Inc.

“Thus, the cited declaration testimony is conclusory and unsupported, adds little to the conclusory assertion for which it is supported, and is entitled to little weight.”

Xerox Corp. v. Bytemark, Inc., IPR-2022-00624 Paper 9, 15 (P.T.A.B. Aug. 24, 2022) (precedential).

Honeywell Int’l Inc. v. 3G Licensing, S.A.

“[W]e are not required to uncritically accept expert testimony that is flatly contradicted by the record... our cases have consistently held that conclusory expert testimony does not qualify as substantial evidence.”

Honeywell Int’l Inc. v. 3G Licensing, S.A., 124 F.4th 1345, 1354 n.6 (Fed. Cir. 2025) (citations omitted).

See also Reply, 7, n.5.

"Typically" Means In Most Cases, Not Always



Bergstorm '059

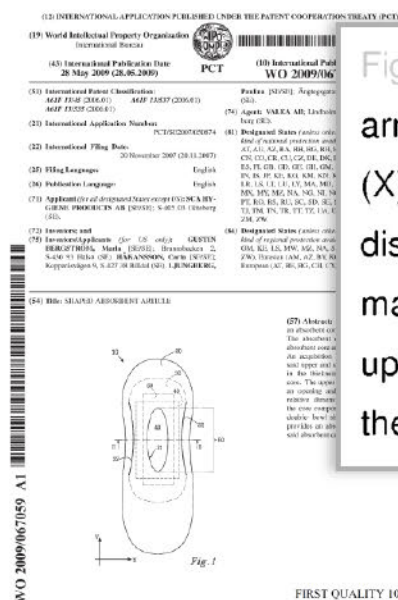


Figure 2). As the forming element 60 is typically liquid-impermeable, such an arrangement makes liquid flow around the edges of the forming element 60 in the width (X) direction, which makes best use of the upper and lower absorbent cores 20, 30 by distributing liquid at least in the width (X) direction. In addition, the forming element 60 may have an extension in the length (Y) direction which is less than the extensions of the upper and lower absorbent cores 20, 30 in this direction. Liquid flow towards the ends of the core 10 is thus promoted. The extension of the forming element 60 in the width (X)

EX1004-Bergstrom-'059, 9:24-30;
see also Reply, 5-6; EX1022-SheldonDepo., 183:8-21;
EX1021-Pourdeyhi-Suppl-Decl., ¶¶ 25-26.

Patent Owner's Sur-Reply Argument Is Wrong



Sur-Reply

Patent Owner Sur-Reply
Case No. IPR2024-01487

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U.S. PATENT NO. 9,308,138

PATENT OWNER'S SUR-REPLY OPPOSING PETITION
INTER PARTES REVIEW OF CLAIMS 1-5, 7-8, 20-22
24-25 OF U.S. PATENT NO. 9,308,138

- First*, Petitioners ignore that EX1004-Bergstrom uniformly uses the word “typically” to define materials of a particular type, not to propose optionality:
- “The absorbent article *typically* comprises a liquid-permeable topsheet and a liquid-impermeable backsheet.” EX1004-Bergstrom, 3:13-14.

Sur-Reply, 6.



CRFD Rsch., Inc. v. Matal

"A reference must be considered for everything that it teaches, not simply the described invention or a preferred embodiment."

CRFD Rsch., Inc. v. Matal, 876 F.3d 1330, 1349 (Fed. Cir. 2017)
(quoting *In re Applied Materials, Inc.*, 692 F.3d 1289, 1298 (Fed. Cir. 2012)).

See also POR, 58; Reply, 4; EX1021-Pourdeyhimi-Suppl-Decl., ¶ 24.

“Typically” Means In Most Cases, Not Always



Behnam Pourdeyhimi
First Quality Expert

*Professor at North Carolina
State University
Director of
Non-Wovens Institute*

25. Mr. Sheldon then opines that Bergstrom-’059’s forming element 60 is always liquid-impermeable. EX2001-SheldonDecl., ¶¶110-113, 115, 117; EX2004-SheldonSupplDecl., ¶44. Mr. Sheldon’s opinion is that because Bergstrom-’059 discloses that “forming element 60 is typically liquid-impermeable” such that it “makes liquid flow around the edges of the forming element 60...” forming element 60 must **always** be liquid-impermeable. EX2001-SheldonDecl., ¶110. In fact, Mr. Sheldon opines that the “forming element 60 is invariably described as a barrier to fluid flow.” *Id.*, ¶113. But that is incorrect—Bergstrom is simply describing a preferred embodiment.

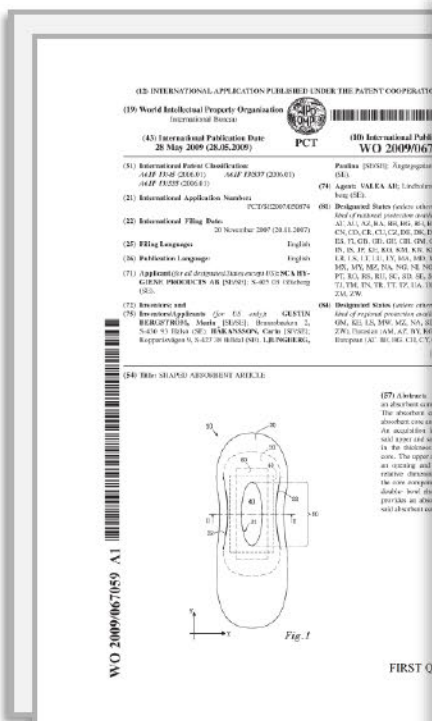
26. Interpreting forming element 60 as always liquid-impermeable contradicts what would have been the understanding of a person of ordinary skill in the art and plain English. Bergstrom-’059 states that forming element 60 is “**typically** liquid-impermeable.” EX1004-Bergstrom-’059, 9:24. This would have signaled to a person of ordinary skill in the art that forming element 60 may or may not be liquid-impermeable. Otherwise “typically” has no meaning at all.

EX1021-Pourdeyhimi-Suppl-Decl., ¶¶ 25–26;
see also EX1004-Bergstrom-’059, 9:24–30; Reply, 5–6; EX1022-SheldonDepo., 183:8–21.

Bergstrom Describes Backsheets Differently



Bergstorm '059



The backsheet 102 of the article 100 is the layer which lies furthest from the wearer's body when the article is in use. To protect the wearer's garments from soiling, it should be liquid-impermeable, but is desirably gas-permeable to allow air and vapour to pass in and out of the article so that the warm, damp conditions which can arise in a diaper are reduced. Typically, the backsheet 102 is of a liquid impervious material, such as a thin plastic film, e.g. a polyethylene or polypropylene film, a nonwoven material coated with a liquid impervious material, a hydrophobic nonwoven material, which resists liquid penetration or a laminate comprising plastic films and nonwoven materials. Examples of breathable backsheet materials are porous polymeric films, nonwoven laminates from spunbond and meltblown layers, laminates from porous polymeric films and nonwoven materials. The backsheet 102 may be different in different parts of the absorbent article 100. An improved appearance of the absorbent article may be achieved by using a textile backsheet.

EX1004-Bergstrom-'059, 11:8-20; see also Reply, 5-6;
EX1021-Pourdeyhimi-Suppl-Decl., ¶¶ 32-34.

Distinction Between Apertured Film and Perforated Film Not Relevant



Behnam Pourdeyhimi

First Quality Expert

*Professor at North Carolina
State University
Director of
Non-Wovens Institute*

and “perforated plastic film.” A person of ordinary skill in the art would have understood that the difference between “perforated” and “apertured” relates to how the materials are manufactured, not whether penetrating holes are present in the materials. All evidence submitted in this proceeding indicates that a perforated material must have penetrating holes in it that allow fluid flow. EX1025-Merriam-Webster’s, 3; EX1026-AmericanHeritage, 3; EX1027-RandomHouse, 3; EX1001-USP138, 3:29-34; EX1005-Kim, 5:15-19 (differentiating a printed pattern and perforations); EX1011-Gupta-2002, 380-381; EX1019-EP0701805, [0002]-[0003], [0005]. Because of the stiffness requirements of forming element 60, it likely would

EX1021-Pourdeyhimi-Suppl-Decl., ¶ 32; see also Reply, 7.

A Forming Element's Stiffness-Related Functions Do Not Exclude Its Fluid-Flow Functions



Behnam Pourdeyhimi

First Quality Expert

*Professor at North Carolina
State University*

*Director of
Non-Wovens Institute*

27. I disagree with Mr. Sheldon's opinion that because Bergstrom-'059 discloses that forming element 60 provides stiffness to the absorbent article that it cannot provide fluid flow control. EX2001-SheldonDecl., ¶111. A person of ordinary skill in the art would have understood that components of absorbent articles could be multifunctional. In fact, the '138 patent itself notes that its fluid flow control structure preferably has a "high bending stiffness." EX1001-USP138, 2:64-66. The use of perforated materials having a high basis weight, which is characterized by a higher stiffness, in absorbent articles was well-known at the time of the alleged invention. *See, e.g.*, EX1007-Ponomarenko-'236, 10:4-17, 10:31-41.

28. Mr. Sheldon also opines that "[f]orming element 60 from Bergstrom is visually and conceptually very different from the perforated plastic polymeric layer disclosed by the '138 Patent." EX2001-SheldonDecl., ¶112. He provides no explanation for this statement as both are shown to be rectangular layers, and Bergstrom-'059 describes its layer can be perforated.

EX1021-Pourdeyhimi-Suppl-Decl., ¶¶ 27-28; *see also* EX1001-'138 Patent, 2:63-66; Reply, 6-7; Sur-Reply, 8.

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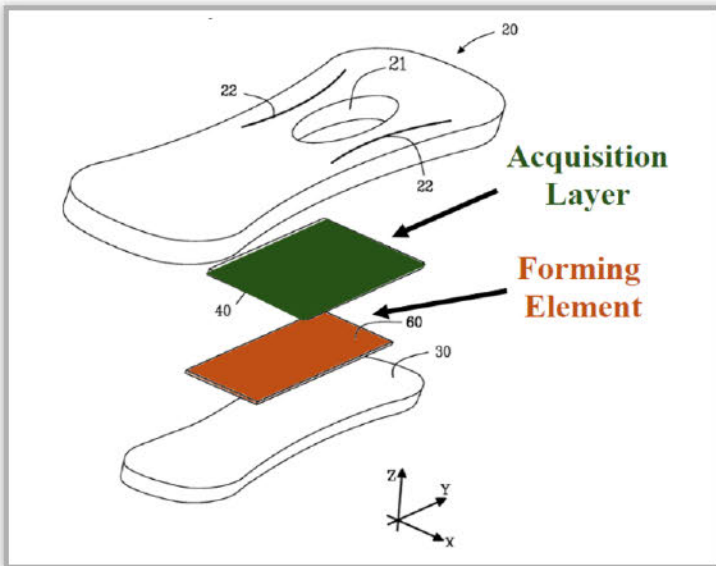
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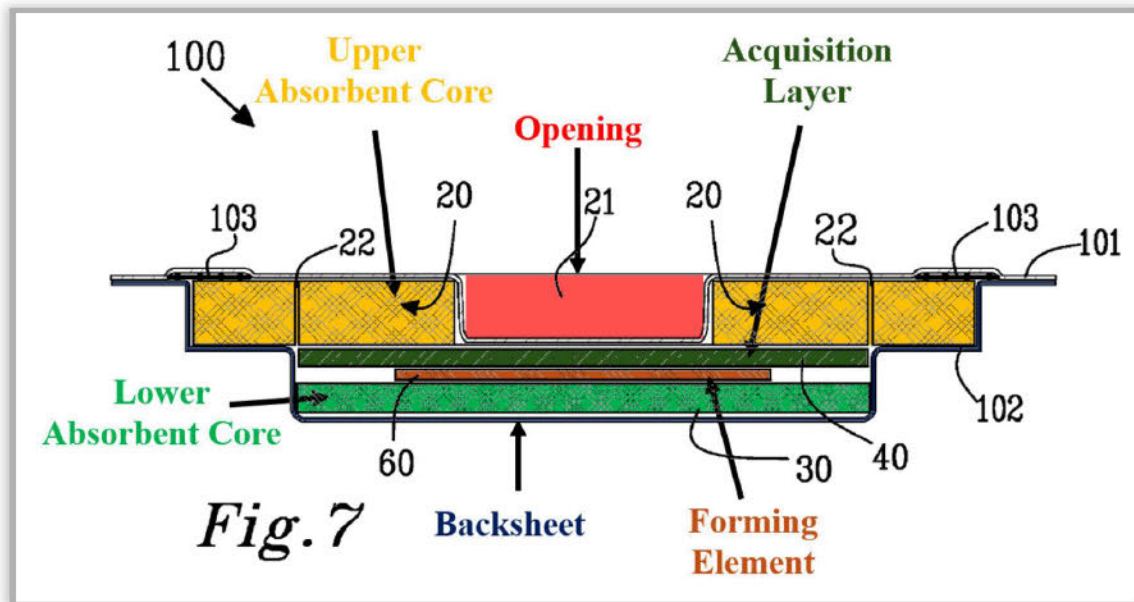
3

Nakazawa-'190 Anticipates the Claims

The Forming Element 60 and the Acquisition Layer 40 Work Together to Control Fluid Flow



Petition, 41 (annotated figure); EX1004-Bergstrom-'059, FIG. 4 (annotated); EX1002-Pourdeyhimi-Decl., ¶ 117 (annotated figure).



Petition, 20 (annotated figure); EX1004-Bergstrom-'059, FIG. 7 (annotated); EX1002-Pourdeyhimi-Decl., ¶ 65 (annotated figure).

See also EX1004-Bergstrom-'059, 6:16–21, 9:24–27, 8:32–35; Petition, 36–37, 41; Reply, 8–9; EX1002-Pourdeyhimi-Decl., ¶¶ 103–107; EX1021-Pourdeyhimi-Suppl-Decl., ¶¶ 36–44.

Patent Owner Improperly Imports Limitations Into the Claim



Patent Owner Response

Patent Owner Preliminary Response
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PATENT OWNER RESPONSE OPPOSING PETITION FOR *INTER*
PARTES REVIEW OF CLAIMS 1-5, 7-8, 20-22, AND 24-25
OF U.S. PATENT NO. 9,308,138

The Petition entirely glosses over key teachings from the '138 Patent showing the fluid flow control structure described and claimed in the '138 Patent and forming element 60 described in EX1004-Bergstrom are entirely different. For example, the '138 Patent describes that “the edges of the fluid flow control structure may act as barriers to fluid distribution transversely to the side edges of the absorbent article, *reducing* the risk of side failure.” EX1001-USP138, 2:42-45 (emphasis added). Forming element 60, in contrast, promotes fluid distribution transversely to the side edges of the absorbent article while inhibiting fluid flow into the absorbent core below, *increasing* the risk of side failure. See EX1002-Decl, ¶105; EX1004-Bergstrom, 9:27-30. Forming element 60 in EX1004-

POR, 65–66; see also Reply, 9.

Patent Owner Improperly Imports Limitations Into the Claim



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PATENT OWNER RESPONSE OPPOSING PETITION FOR
PARTIAL REVIEW OF CLAIMS 1-5, 7-8, 20-22, AND 23
OF U.S. PATENT NO. 9,308,138

851 F.3d at 1374. And forming element 60, by forcing fluid to the edges of the absorbent core first and the middle second only by capillary action, operates differently from the claimed fluid flow control structure, which evenly distributes the fluid over the middle of the absorbent core first and the edges second to solve the side-edge leakage problem. *See* EX2004-SheldonSupp, ¶44.

POR, 68; *see also* Reply, 9.

Importing Limitations Into the Claims Is Legal Error

Homeland Housewares, LLC v. Whirlpool Corp.

The Board “must disregard” that which is “based on an incorrect understanding of the claim[s],” such as when one “incorrectly imports a limitation into the claims.”

See Homeland Housewares, LLC v. Whirlpool Corp., 865 F.3d 1372, 1378 (Fed. Cir. 2017) (citing *Cordis Corp. v. Boston Sci. Corp.*, 658 F.3d 1347, 1357 (Fed. Cir. 2011)).

See also Reply, 9.



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a fluid impermeable backsheet, and

an absorbent core enclosed between said topsheet and said backsheet, said absorbent core comprising,

a first absorbent layer having an opening that passes through the first absorbent layer from one major surface to an opposing major surface and therebetween the opening is surrounded by a closed periphery of first absorbent layer,

a fluid flow control structure, and

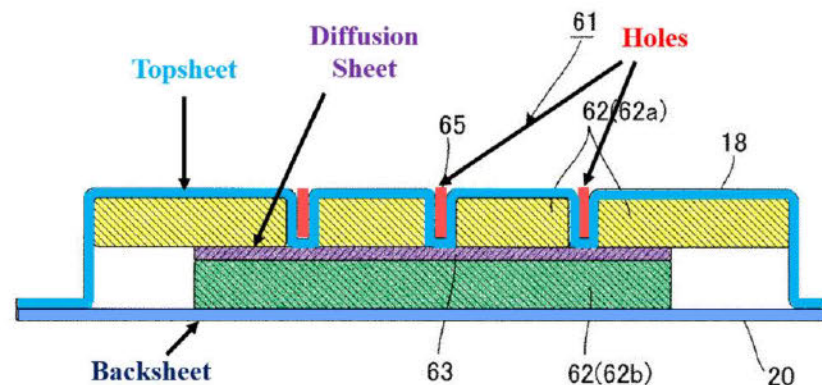
a second absorbent layer arranged between the fluid flow control structure and the fluid impermeable backsheet,

wherein the fluid flow control structure is arranged between said first absorbent layer and said backsheet, said fluid flow control structure being a layered structure comprising a non-perforated fibrous polymeric layer and a first perforated polymeric layer, and

wherein the opening extends along a longitudinal center line of the absorbent article, the longitudinal center line being in parallel with the longitudinal direction of the absorbent article, and the fluid permeable top sheet is in direct contact with the fluid flow control structure via the opening.

EX1001-'138 Patent, claim 1.

[Fig. 14A]



Petition, 21 (annotated figure); EX1008-Nakazawa-'190, FIG. 14A (annotated); EX1002-Pourdeyhimi-Decl., ¶ 66 (annotated figure).

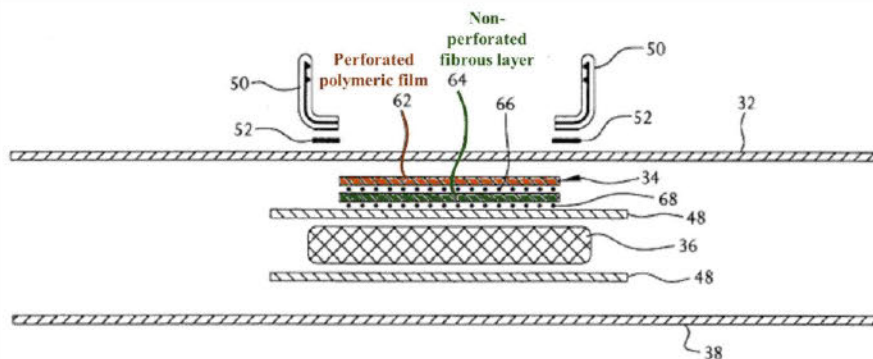


FIG. 2

Petition, 61 (annotated figure); EX1006-Glaug-'753, FIG. 2 (annotated); EX1002-Pourdeyhimi-Decl., ¶ 183 (annotated figure).

There Is No Dispute That Glaug Teaches a Two-Layer Fluid Acquisition System



Donald Sheldon

PO's Expert

Q. Okay. So Glaug has a fluid acquisition system; correct?

A. It's two layers of materials, yes.

EX1022-SheldonDepo., 95:14–16; *see also* Reply, 11; EX1021-Pourdeyhimi-Suppl-Dec'l., ¶ 47.

There Is No Dispute That Glaug Teaches a Perforated Polymeric Layer and a Nonperforated Fibrous Layer



Donald Sheldon

PO's Expert

Q. Okay. Now, Glaug has in its fluid acquisition system a perforated polymeric layer; correct?

A. Yes.

Q. And it has a nonperforated fibrous polymeric layer; correct?

A. Correct.

EX1022-SheldonDepo., 296:20–297:4; *see also* Reply, 11; EX1021-Pourdeyhimi-Decl., ¶ 47.

Glaug Teaches Numerous Benefits of Having a Two-Layer Fluid Acquisition System



- The top perforated layer 62 provides “faster and higher fluid volume intake into” the disclosed absorbent article (a diaper).

EX1006-Glaug-’753, 9:24–34.

- The lower non-perforated layer provides “lateral distribution both transversely and longitudinally” of fluid “due to the fiber orientation of that layer.”

Id., 9:34–39.

- Together, these two layers “optimize[] the fluid penetration rate and volume into the absorbent core 36 below it, while also minimizing the fluid from exiting the diaper 20 when it is saturated and under high stress.”

Id., 9:43–46; see also *Id.*, 6:11–18; Petition, 63–64; EX1002-Pourdeyhimi-Decl., ¶ 189; EX1021-Pourdeyhimi-Suppl-Decl., ¶ 47.



1

Bergstrom-'059 Discloses the Claim Limitations

- Bergstrom-'059 discloses a "perforated polymeric layer"
- Bergstrom-'059 discloses a "fluid flow control structure"

2

Nakazawa-'190 in Combination with **Glaug-'753** or **Ponomarenko-'236** renders the challenged claims obvious

- A POSA would have been motivated to combine Nakazawa with Glaug or Ponomarenko;
- Nakazawa does not teach away from the combination
- Nakazawa teaches an opening extending throughout the entire crotch portion

3

Nakazawa-'190 Anticipates the Claims

Nakazawa Does Not Require the Diffusion Sheet to Promote Fluid Flow in Both Z-Directions



Nakazawa '190

(19) Japan Patent Office (JPO) (12) Gazette of Unexamined Patent Applications (A)

(43) Publication Date

(51) Int.Cl. F1 A41B 13/02 B G

A62F 13/03 (2006.01) A41B 13/02

A62F 13/15 (2006.01)

Examination Request: Not Yet Received No. of

(21) Application No. 2007-132504 (71) Applicant Oy Nippon

(22) Filing Date May 18, 2007 (72) Inventor Sachiko F Oy Nippon

(73) Assignee (74) Agent 11 Attorney

(75) Agent 12 Attorney

(76) Agent 13 Attorney

(77) Agent 14 Attorney

(78) Agent 15 Attorney

(79) Agent 16 Attorney

(80) Agent 17 Attorney

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(82) Agent 19 Attorney

(83) Agent 20 Attorney

(84) Agent 21 Attorney

(85) Agent 22 Attorney

(86) Agent 23 Attorney

(87) Agent 24 Attorney

(88) Agent 25 Attorney

(89) Agent 26 Attorney

(90) Agent 27 Attorney

(91) Agent 28 Attorney

(92) Agent 29 Attorney

(93) Agent 30 Attorney

(94) Agent 31 Attorney

(95) Agent 32 Attorney

(96) Agent 33 Attorney

(97) Agent 34 Attorney

(98) Agent 35 Attorney

(99) Agent 36 Attorney

(100) Agent 37 Attorney

[0035]

In the absorbent article, a sheet with higher liquid permeability than the absorbent material disposed on the top surface side of the diffusion sheet is used as the diffusion sheet. The following method can be used to compare the liquid permeability of diffusion sheets with that of absorbent materials.

[0036]

First, two types of absorbent materials are prepared, namely, an absorbent material used in the absorbent article ("absorbent material A" below) and an absorbent material similar to absorbent material A with a diffusion sheet disposed on the top ("absorbent material B" below). Each absorbent material (absorbent materials A, B) is inserted between a top sheet and a back sheet, and the same amount of saline solution is absorbed as excretory fluid, and the time required for all of the saline solutions to be absorbed by the absorbent material (absorption time) is measured.

[0037]

If absorbent material B has a shorter absorption time, it means that the liquid permeability of the diffusion sheet is higher than that of the absorbent material. Conversely, if absorbent material A has a shorter absorption time, it means that the liquid permeability of the diffusion sheet is lower than that of the absorbent material.

EX1008-Nakazawa-'190, [0035]–[0037]; see also Reply, 12; EX1021-Pourdeyehimi-Suppl-Decl., ¶¶ 51–52.

Nakazawa Discloses Using the Same Perforated Material as Used in Glaug



Donald Sheldon

PO's Expert

Q. Okay. So is your – your opinion as to why Nakazawa and Glaug do not work is because a 3D film would not allow fluid to flow to the backside of the upper absorbent core; is that correct?

A. That's correct.

EX1022-SheldonDepo., 71:17–21.

Nakazawa Discloses Using the Same Perforated Material as Used in Glaug



Nakazawa '190

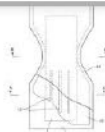
JP 2008-264190 A 2008.11.27			
(19) Japan Patent Office (JP)	(12) Gazette of Unexamined Patent Applications (A)	(11) Publication Number: 2008-264190 (P2008-264190A)	
		(43) Publication Date: November 27, 2008 (2008.11.27)	
(51) Int. Cl.	FI	Theme Codes (Ref.)	
A61F 13/09 (2006.01)	A41B 13/02	B	3B200
A61F 13/53 (2006.01)	A41B 13/02	D	
A61F 13/15 (2006.01)			
Examination Request: Not Yet Received No. of Claims: 11 Cl. (Total of 43 Pages)			
(21) Application No. 2007-122584 (P2007-122584)		(71) Applicant: 200836790 OI Nippon Co., Ltd. 8-12-8, Giza, Chuo-ku, Tokyo	
(22) Filing Date: May 18, 2007 (2007.5.18)		(73) Applicant: 008122296 OI Paper Co., Ltd. 4-7-5, Giza, Chuo-ku, Tokyo	
		(75) Patent Attorney: 008122280	

[0177]

(Diffusion sheet b)

Diffusion sheet b was a porous film ("AquiDry") from Tredegar, Inc. This porous film was 1000 μm thick and had a basis weight of 36.3 g/m².

[Solution] The absorbent article 1 of the present invention comprises an absorbent material 22, a top sheet 10 made at least partially of a liquid-permeable material and disposed so as to cover the top surface of the absorbent material 22, and a back sheet 20 made of a liquid-impermeable material and disposed on the back surface of the absorbent material 22. In the absorbent article 1, the absorbent material 22 has hole portions 19 that penetrate from the top surface to the back surface of the absorbent material 22. The top sheet 10 is disposed on the top surface of the absorbent material 22, and a diffusion sheet 23 with higher liquid permeability than the absorbent material 22 is disposed on the back surface of the absorbent material 22 so as to cover the region including the openings in the hole portions 19. [Selected Drawing] Fig. 1



FIRST QUALITY 1008

EX1008-Nakazawa-'190, [0177].

Glaug '753

United States Patent Glaug et al.			
(12) United States Patent		US 6,455,753 B1	
		Date of Patent: Sep. 24, 2002	

As mentioned earlier, the fluid-acquisition system basically comprises at least two layers disposed over each other. In particular, the uppermost of the layers making up the fluid acquisition system 34 comprises an apertured polymeric film 62, which is preferably three dimensional in nature, e.g., is embossed and/or debossed, like that used heretofore and described above for cover sheets of diapers. One particularly suitable material is available from Tredegar Film Products of Terra Haute, Ind. under the trade designation C120 and basically comprises a polyethylene film apertured like that shown in U.S. Design Pat. No. D362,120 (Suskind et al.), whose disclosure is incorporated by reference herein. Other

FIRST QUALITY 1006

EX1006-Glaug-'753, 8:1-12.

See also Reply, 12; EX1021-Pourdeyehimi-Suppl-Decl., ¶¶ 53-55.

Nakazawa Discloses Using the Same Perforated Material as Used in Glaug



Donald Sheldon

PO's Expert

Q. And [Glaug] says a lot about how the polymeric layer has three dimensionally-shaped apertures which we've been talking about as the Tredegar AQUIDRY film; correct?

A. Yes, it's three-dimensional.

Q. And it's the material that's being talked about in Glaug as forming layer 32 – or no – layer 62?

A. Okay.

Q. Sorry. Did we—we discussed that, too, correct, that the layer 62 is made of that Tredegar AQUIDRY?

A. I don't know that we discussed it, but my understanding is it is made of Tredegar AQUIDRY.

EX1022-SheldonDepo., 103:7–21; *see also* Reply, 12; EX1021-Pourdeyhimi-Suppl-Decl., ¶ 53.

Nakazawa Discloses Using the Same Perforated Material as Used in Glaug



Donald Sheldon

PO's Expert

Q. But Nakazawa says [a porous plastic film] is a material that could be used as a diffusion sheet; correct?

A. They list it as a material. I don't see Nakazawa saying that you can use this – I don't see it as a preferred embodiment.

In fact, I would see it as an embodiment that wouldn't work.

Q. Does Nakazawa say the porous plastic film does not work?

A. No.

EX1022-SheldonDepo., 93:18–94:5; *see also* Reply, 13; EX1021-Pourdeyhimi-Suppl-Decl., ¶ 54.

Nakazawa Discloses Using the Same Perforated Material as Used in Glaug



Donald Sheldon

PO's Expert

Q. But Nakazawa does say the 3D porous plastic film is an option for its diffusion sheet; correct?

A. There – I'm not reading it. It's not a preferred option. It's just one of the things they threw out there and tested.

EX1022-SheldonDepo., 90:15–20; *see also* Reply, 13.

Nakazawa Discloses Using the Same Perforated Material as Used in Glaug



Cascades Canada ULC et al v. Aktiebolag et al

"[T]he fact that an embodiment is disclosed in a single sentence is not a license to ignore that disclosure."

Cascades Canada ULC et al v. Aktiebolag et al,
IPR2017-01902, Paper 51, 22 (P.T.A.B. Feb. 1, 2019)
(quoting *Advanced Fiber Techs. Trust v. J & L Fiber Services, Inc.*, 674 F.3d 1365, 1375 (Fed. Cir. 2012)).

See also Reply, 13.

Glaug Doesn't Just Stand for Unidirectional Flow— It Will Flow in the Direction Where the Absorbent Core Is



Behnam Pourdeyhimi

First Quality Expert

*Professor at North Carolina
State University
Director of
Non-Wovens Institute*

and safe.” EX2005-PourdeyhimiDepo., 49:14-50:13. The reason no fluid flow is disclosed in the +Z-direction in Glaug-’753 is simple: there is no absorbent layer above the fluid acquisition system. A person of ordinary skill in the art would have understood that there should not be fluid flow in both Z-directions through the fluid acquisition system of Glaug-’753 because fluid flowing in the +Z-direction would have moved outside of the absorbent article. Moreover, a person of ordinary skill in the art would have understood that both gravity and the absorbency of the single absorbent core below the fluid acquisition system in Glaug-’753 would facilitate fluid flow in the -Z-direction. This is different from the arrangement in

EX1021-Pourdeyhimi-Suppl-Decl., ¶ 57; see also Reply, 14.

PO's Additional Arguments Against Motivation to Combine Are Contrary to the Law



- Glaug teaches benefits of adding a non-perforated fibrous layer because it helps with lateral distribution.
- Using Glaug's two-layer fluid acquisition system or lower non-perforated layer in Nakazawa:
 - Is the simple substitution of one known element for another to obtain predictable results.
 - Involves use of a known technique to improve a similar device in the same way.

Essity Expert Statements Are Not Supported



Donald Sheldon

PO's Expert

Q. Did you specifically calculate the impact that the proposed combination of Nakazawa and Glaug would have on manufacturing?

A. No, I didn't do any calculations.

EX1022-SheldonDepo., 138:9–12; see also EX2001-SheldonDecl., ¶¶ 149–150; Reply, 17–18.



The invention claimed is:

1. An absorbent article having a longitudinal direction and a transverse direction, side edges extending in the longitudinal direction and end edges extending in the transverse direction and comprising:

a fluid permeable topsheet,

a fluid impermeable backsheet, and

an absorbent core enclosed between said topsheet and said backsheet, said absorbent core comprising,

a first absorbent layer having an opening that passes through the first absorbent layer from one major surface to an opposing major surface and therebetween the opening is surrounded by a closed periphery of first absorbent layer,

a fluid flow control structure, and

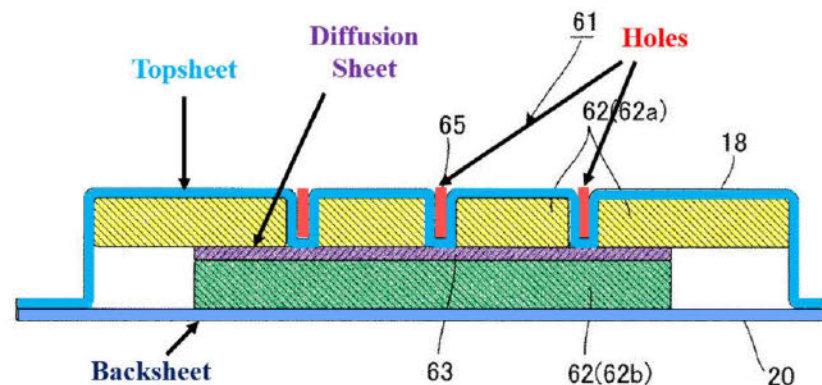
a second absorbent layer arranged between the fluid flow control structure and the fluid impermeable backsheet,

wherein the fluid flow control structure is arranged between said first absorbent layer and said backsheet, said fluid flow control structure being a layered structure comprising a non-perforated fibrous polymeric layer and a first perforated polymeric layer, and

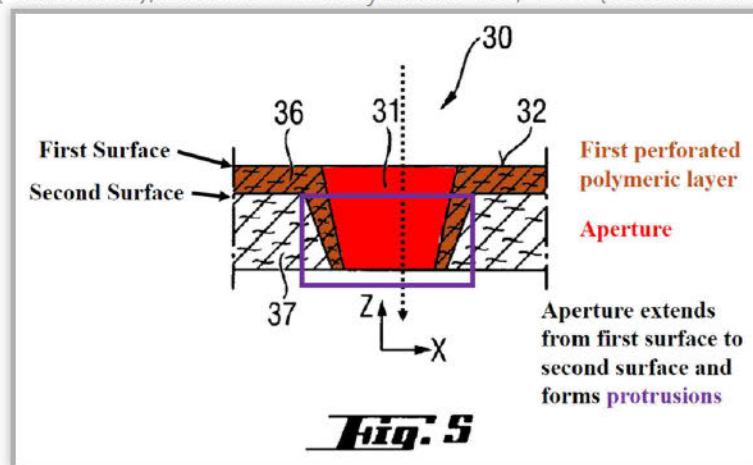
wherein the opening extends along a longitudinal center line of the absorbent article, the longitudinal center line being in parallel with the longitudinal direction of the absorbent article, and the fluid permeable top sheet is in direct contact with the fluid flow control structure via the opening.

EX1001-'138 Patent, claim 1.

[Fig. 14A]



Petition, 21 (annotated figure); EX1008-Nakazawa-'190, FIG. 14A (annotated); EX1002-Pourdeyhimi-Decl., ¶ 66 (annotated figure).



Petition, 25, 88 (annotated figure); EX1007-Ponomarenko-'236, FIG. 5 (annotated); EX1002-Pourdeyhimi-Decl., ¶ 260 (annotated figure).

44

It Is Undisputed That the Ponomarenko Sublayer Controls Fluid Flow



Donald Sheldon

PO's Expert

Q. When using a diaper on small children, you need them to deal with both feces and urine; correct?

A. Diapers are designed to do that.

Q. Okay. So, here Ponomarenko is mentioning how that sublayer will handle fluid flow; correct?

A. It's pretty much every single product out in the marketplace handles it in the same way is what Ponomarenko discusses.

Q. Okay.

A. I don't see this as an improvement.

EX1022-SheldonDepo., 164:6–9, 167:13–20; see also Reply, 22.

It Is Legal Error to Ignore Ponomarenko's Fluid Control Function



CRFD Rsch., Inc. v. Matal

"A reference must be considered for everything that it teaches, not simply the described invention or a preferred embodiment."

CRFD Rsch., Inc. v. Matal, 876 F.3d 1330, 1349 (Fed. Cir. 2017)
(quoting *In re Applied Materials, Inc.*, 692 F.3d 1289, 1298 (Fed. Cir. 2012)).

See also Reply, 22.

Focusing Only on the Preferred Embodiment Is Legal Error



Syntex (U.S.A.) LLC v. Apotex, Inc.

"[A] statement that a particular combination is not a preferred embodiment does not teach away absent clear discouragement of that combination."

Syntex (U.S.A.) LLC v. Apotex, Inc., 407 F.3d 1371, 1380 (Fed. Cir. 2005) (citations omitted).

See also Reply, 17.

It Is Undisputed That the Ponomarenko Sublayer Controls Fluid Flow



Donald Sheldon
PO's Expert

In general, the sublayer (30) herein is (serves as) an acquisition layer and optionally also (as) a distribution layer, capable to acquire liquid (urine) and temporarily hold the liquid and allow it to pass, or transport it to the absorbent core underneath (in Z-direction), and optionally also distribute it in the X and Y direction of the sublayer (30). It typically does

Q. When using a diaper on small children, you need them to deal with both feces and urine; correct?

A. Diapers are designed to do that.

Q. Okay. So, here Ponomarenko is mentioning how that sublayer will handle fluid flow; correct?

A. It's pretty much every single product out in the marketplace handles it in the same way is what Ponomarenko discusses.

Q. Okay.

A. I don't see this as an improvement

EX1007-Ponomarenko-'236, 7:8-13; *see also* Reply, 22.

EX1022-SheldonDepo., 164:6-9, 167:13-20; *see also* Reply, 22.

Ponomarenko | Diapers Must Already Be Equipped to Manage Both Feces and Fluid



Behnam Pourdeyhimi

First Quality Expert

*Professor at North Carolina
State University*

*Director of
Non-Wovens Institute*

85. I disagree with Mr. Sheldon's opinion that a person of ordinary skill in the art would not have been motivated to place Ponomarenko-'236's sublayer 30 between the absorbent cores of Nakazawa-'190 because, in that location, it would not be exposed to feces and that the top surface of the absorbent core would interact with feces and cause discomfort. EX2001-SheldonDecl., ¶175. The sublayer would still provide its fluid management benefits when positioned between the two absorbent layers. Also, Nakazawa-'190 must already be able to deal with feces because, as Mr. Sheldon admits, Nakazawa-'190 discloses it can be a diaper and diapers must manage both feces and fluids. EX1022-SheldonDepo, 164:6-11, 165:18-166:5.

EX1021-Pourdeyhimi-Suppl-Decl., ¶ 85; see also Reply, 22; EX1022-SheldonDepo., 164:6-11.

Ponomarenko's Sublayer Is Pressure Resistant



Ponomarenko '236

(12) United States Patent
Ponomarenko et al.

(19) Patent No.: US 7,956,236 B2
(45) Date of Patent: 11/11/2006

(54) ABSORBENT ARTICLE WITH SUBLAYER

(75) Inventors: Ekaterina Anatolievna Ponomarenko,
Eric Schuch (US); Natalia Ingard,
Ekaterina, Schuch (US); Half
Gothic, (US)

(73) Assignee: The Procter & Gamble Company,
Cincinnati, OH (US)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 114 days.

(21) Appl. No. 11/525,686

(22) Filed: Sep. 22, 2006

(36) Prior Publication Data

US 2007/0072254 A1

Mar. 26, 2007

(30) Foreign Application Priority Data

Sep. 23, 2005 (EP) 02108763

(51) Int. Cl.

A61F 13/02 (2006.01)

(52) U.S. Cl.

606/778; 606/781; 606/582; 606/583;
606/585; 606/586

(53) Field of Classification Search

606/778; 606/781; 606/582; 606/583;
606/585; 606/586

See application file for complete search history.

(56) References Cited

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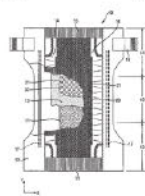
4,276,732 A 9/1984 Lohman et al.

4,510,678 A 9/1984 Williams et al.

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4,940,465 A 7/1994 Van Gorp et al.



FIRST QUALITY 1007

The sublayer (30) that is present in the overlap zone (40) is preferably **compression resistant even after wetting**, such that its average caliper (34) loss after wetting (wet resilience) is less than 20% or even more preferably less than 15%, or even more preferably less than 12%, or preferably even less than 10%. Average caliper (34) loss after wetting (wet resilience) is determined by the method set out herein below.

EX1007-Ponomarenko-'236, 8:63-9:2; see also Reply, 22-23;
EX1021-Pourdeyhi-Suppl-Decl., ¶ 86.



1

Bergstrom-'059 Discloses the Claim Limitations

- Bergstrom-'059 discloses a "perforated polymeric layer"
- Bergstrom-'059 discloses a "fluid flow control structure"

2

Nakazawa-'190 in Combination with **Glaug-'753** or **Ponomarenko-'236** renders the challenged claims obvious

- A POSA would have been motivated to combine Nakazawa with Glaug or Ponomarenko;
- Nakazawa does not teach away from the combination
- Nakazawa teaches an opening extending throughout the entire crotch portion

3

Nakazawa-'190 Anticipates the Claims

Nakazawa Teaches Wrapping the Second Absorbent Material With a Hydrophilic Sheet



Nakazawa '190

JP 2009-264190 A 2008.11.27

(19) Japan Patent Office (JP)		(12) Gazette of Unexamined Patent Applications (A)	(11) Publication Number
		(43) Publication Date	November 27,
(51) Int. Cl.	PT		3B21
A61F 13/49 (2006.01)	A61F 13/02	B	
A61F 13/53 (2006.01)	A41D 13/02	C	
A61F 13/15 (2006.01)			
Examiner Request: Not yet received No. of Claims 11 Cl.			
(21) Application No. 2007-122584 (P2007-132584)		(71) Applicant 200926790 Oji Neple Co., Ltd. 9-1-2-8, 6th Fl., Chuo-ku, N. 1-1-1, Chuo-ku, N. 1-1-1, Chuo-ku, N.	
(22) Filing Date May 19, 2007 (2007.5.18)		(72) Inventor Oji Neple Co., Ltd. 9-1-2-8, 6th Fl., Chuo-ku, N. 1-1-1, Chuo-ku, N. 1-1-1, Chuo-ku, N.	
		(74) Agent 120000016 Attorney Ippei WATANABE	
		(74) Agent 120000017 Attorney Koji KIKUKAWA	
		(72) Inventor Sachiko NAKAZAWA Oji Neple Co., Ltd., Neple Plant 1, Oji-cho, Kaseguchi-cho, N. 1-1-1, Chuo-ku, N. 1-1-1, Chuo-ku, N.	
		(74) Agent 120000016 Attorney Ippei WATANABE	
		(74) Agent 120000017 Attorney Koji KIKUKAWA	

production line. The absorbent article of the present invention may have the first absorbent material or second absorbent material wrapped in such a hydrophilic sheet. The absorbent material **may be entirely wrapped in a hydrophilic sheet**, or a portion of the absorbent material may be wrapped in a hydrophilic sheet.

EX1008-Nakazawa-'190, [0082].

(54) Title of the Invention
Absorbent Article
(57) Abstract
[Problem] To provide an absorbent article with excellent excretory fluid absorbency and a good fit on the wearer.
[Solution] The absorbent article 1 of the present invention comprises an absorbent material 22, a top sheet 18 made of a liquid-impermeable material and disposed so as to cover the top surface of the absorbent material 22, and a back sheet 20 made of a liquid-impermeable material and disposed on the back surface of the absorbent material 22. In the absorbent article 1, the absorbent material 22 has hole portions 15 that penetrate from the top surface to the back surface of the absorbent material 22, the top sheet 18 is disposed on the top surface of the absorbent material 22, and a diffusion sheet 23 with higher liquid permeability than the absorbent material 22 is disposed on the back surface of the absorbent material 22 so as to cover the region including the openings in the hole portions 15. [Selected Drawing] Fig. 1



FIRST C

In the absorbent articles shown in Fig. 14A and Fig. 14B, the top sheet 18 covers the top surface of the first absorbent material 62a, the inner surfaces of the hole portions 65 in the first absorbent material 62a, and the diffusion sheet 63 is exposed in the hole portions 65, and the top sheet 18 and the diffusion sheet 63 are joined together at the openings in the hole portions 65 on the back surface of first absorbent material 62a. The top sheet and diffusion sheet may be bonded directly **or via the hydrophilic sheet in which the absorbent material is wrapped**.

EX1008-Nakazawa-'190, [0084].

See also Petition, 21–22, 93; Reply, 16–17, 26 n.6; EX1002-Pourdeyehimi-Decl., ¶¶ 70, 280–281; EX1021-Pourdeyehimi-Suppl-Decl., ¶ 80.

Nakazawa Teaches Wrapping the Second Absorbent Material With a Hydrophilic Sheet



Donald Sheldon

PO's Expert

Q. Okay. But in Paragraph 82, Nakazawa says the absorbent material can be wrapped entirely in the hydrophilic sheet; correct?

A. It's — it could, but that's not the preferred embodiment.

Q. Okay. My question there is your first opinion is that Nakazawa does not disclose wrapping the absorbent material entirely in the hydrophilic sheet; correct?

A. Their preferred embodiment was to not wrap it and use it more as a cradle.

Q. Okay. But you agree that there is disclosure in Nakazawa of wrapping the absorbent material entirely in the hydrophilic sheet; correct?

A. There's one reference that says it may be wrapped.

EX1022-SheldonDepo., 248:18–22, 255:18–256:7; see also Reply, 16; EX1021-Pourdeyhimi-Suppl-Decl. ¶¶ 48–50, 101.

Focusing Only on the Preferred Embodiment Is Legal Error



Syntex (U.S.A.) LLC v. Apotex, Inc.

"[A] statement that a particular combination is not a preferred embodiment does not teach away absent clear discouragement of that combination."

Syntex (U.S.A.) LLC v. Apotex, Inc., 407 F.3d 1371, 1380 (Fed. Cir. 2005) (citations omitted).

See also Reply, 17.

First Quality Expert Statements Are Supported



Behnam Pourdeyhimi

First Quality Expert

*Professor at North Carolina
State University*

*Director of
Non-Wovens Institute*

SheldonDepo, 155:2-11. A person of ordinary skill in the art would have understood that replacing the diffusion sheet of Nakazawa-'190—a component added as a layer between two absorbent cores—with another composite layer in the production line would have been a trivial replacement. This is because during the manufacture of absorbent articles, components are built as layers. The bottom absorbent core fused to the backsheet would be constructed and fed into a machine to add the fluid acquisition system of Glaug-'753. From there, the upper absorbent core and topsheet would be fused to complete the absorbent article. This manufacturing process was well-known in the art and would have required no more than substituting Glaug-'753's fluid acquisition system for Nakazawa's diffusion sheet. EX1009-White2003, Fig. 3 (showing a production machine for incontinence products with multiple unwinds to be formed into an absorbent article). Thus, the addition of the fluid acquisition system of Glaug-'753 would have been straightforward and would not have increased costs that much.

EX1021-Pourdeyhimi-Suppl-Decl., ¶ 69; see also Reply, 17–18.



1

Bergstrom-'059 Discloses the Claim Limitations

- Bergstrom-'059 discloses a "perforated polymeric layer"
- Bergstrom-'059 discloses a "fluid flow control structure"

2

Nakazawa-'190 in Combination with **Glaug-'753** or **Ponomarenko-'236** renders the challenged claims obvious

- A POSA would have been motivated to combine Nakazawa with Glaug or Ponomarenko;
- Nakazawa does not teach away from the combination
- Nakazawa teaches an opening extending throughout the entire crotch portion

3

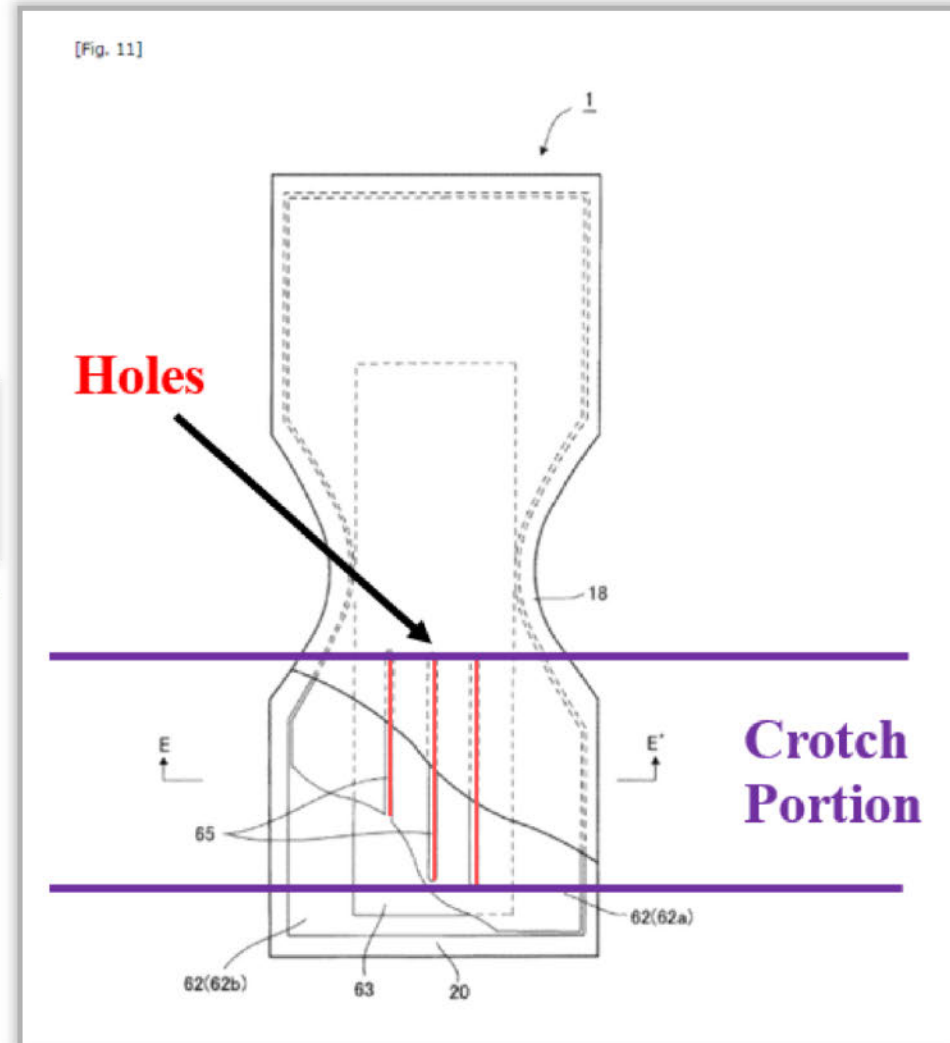
Nakazawa-'190 Anticipates the Claims

Claim 21 –Opening Extends Through the Entire Crotch Portion



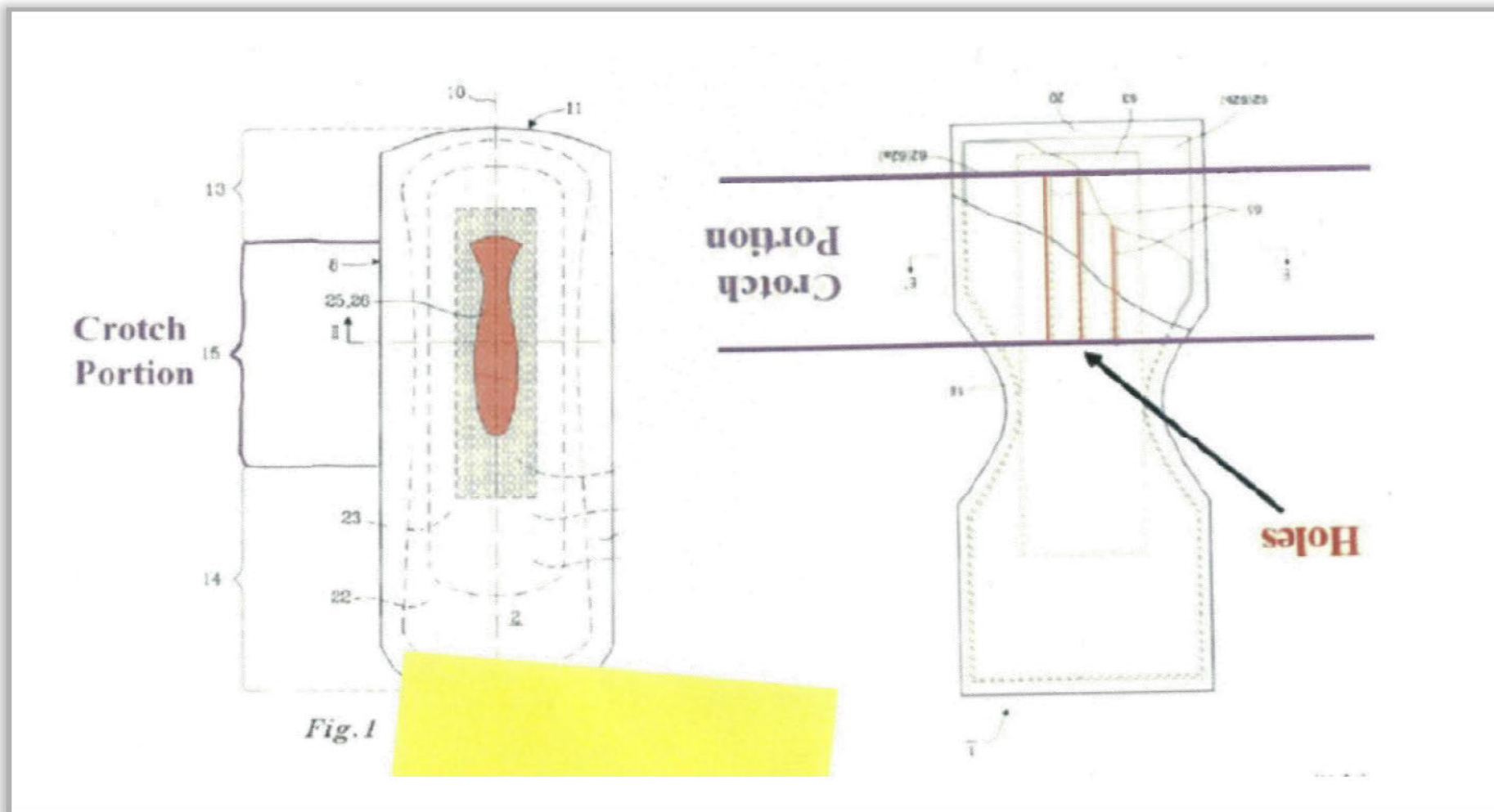
21. The absorbent article according to claim 1, wherein the opening extends through an entire crotch portion of the absorbent article.

EX1001-'138 Patent, claim 21.



Petition, 74 (annotated figure); see also EX1008-Nakazawa-'190, FIG. 11 (annotated); EX1002-Pourdeyhimi-Decl., ¶ 215 (annotated figure).

The Figure in Nakazawa Is Annotated Correctly in the Petition



Reply, 20; EX1024-SheldonDepo-ExB; EX1021-Pourdeyhimi-Suppl-Decl., ¶¶ 75–76.

Sheldon's Testimony Is Contradicted by the Record



Nakazawa '190

(19) Japan Patent Office (JP) (12) Gazette of Line Patent Application (43) Public

(51) Int. Cl.	F3	
A61F 13/49 (2006.01)	A41B 13/02	B
A61F 13/15 (2006.01)	A41B 13/02	G
A61F 13/15 (2006.01)		

Examination Request Not Yet Received

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(P2007-132584)
(22) Filing Date May 16, 2007
(2007-5-18)

(71)
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(74)
(74)
(72)

09 Nippon Co., Ltd., Nagoya Plant
1, Ojicho, Kasugai-shi, Aichi-ken

(54) [Title of the Invention]
Absorbent Article
(57) [Abstract]
[Problem] To provide an absorbent article with excellent excretory fluid absorbency and a good fit on the wearer.
[Solution] The absorbent article 1 of the present invention comprises an absorbent material 22, a top sheet 10 made at least partially of a liquid-permeable material and disposed so as to cover the top surface of the absorbent material 22, and a back sheet 20 made of a liquid-impermeable material and disposed on the back surface of the absorbent material 22. In the absorbent article 1, the absorbent material 22 has hole portions 15 that penetrate from the top surface to the back surface of the absorbent material 22, the top sheet 10 is disposed on the top surface of the absorbent material 22, and a diffusion sheet 23 with higher liquid permeability than the absorbent material 22 is disposed on the back surface of the absorbent material 22 so as to cover the region including the openings in the hole portions 15.
[Selected Drawing] Fig. 1

There are no particular restrictions on the shape of the hole portions in the absorbent material, as long as they are shaped in such a way that some of the excretory fluid that permeates the top sheet and reaches the absorbent material flows in and excretory fluid that passes through these hole portions permeates into the diffusion sheet. However, the hole portions in the absorbent material are preferably elongated, with the openings in the hole portions extending in the longitudinal direction of the absorbent material.

In addition, as mentioned above, by forming hole portions in the longitudinal direction, the absorbent article can be easily bent in the longitudinal direction along the hole portions, making it more likely to conform to the urination site, and improving the fit around the legs. This further improves the leakage prevention effect. In addition, flow of excretory fluid in the width direction of the absorbent material, which is the shortest distance from the urination site to the outside of the absorbent article, can be stopped and excretory fluid can be guided in the longitudinal direction to prevent leakage from the crotch portion.

FIRST QUALITY 1008

EX1008-Nakazawa-'190, [0047], [0049]; see also
EX1021-Pourdeyehimi-Suppl-Decl., ¶ 77; Reply, 20.

Sheldon's Testimony Is Contradicted by the Record



Behnam Pourdeyhimi

First Quality Expert

*Professor at North Carolina
State University
Director of
Non-Wovens Institute*

77. I disagree with Mr. Sheldon's opinion that Nakazawa-'190 provides disclosure that "necessarily means that the holes do not extend throughout an entire crotch portion" and that doing having such holes "would make the article less effective in preventing leakage." EX2001-SheldonDecl., ¶156. Nakazawa-'190 directly contradicts both assertions. First, Nakazawa-'190 discloses that the absorbent component covers "at least the crotch portion" of an article, and that the placement of hole portions in the absorbent material is unrestricted. EX1008-Nakazawa-'190, [0053], [0169]. Nakazawa-'190 further discloses absorbent articles where the hole extends along the length of the entire article, undoubtedly including the entire crotch portion. EX1008-Nakazawa-'190, [0055], Fig. 9B. Second, Nakazawa-'190 teaches that the use of these holes "*improves* the leakage prevention effect." *Id.*, [0049].

EX1021-Pourdeyhimi-Suppl-Decl., ¶ 77; see also Reply, 20.

No Absorbent Material Would Need to Be Removed



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¶183. A person of ordinary skill in the art would have understood that layers could be added or substituted for another in absorbent articles in a straightforward manner. Diaper machines utilize unwinds to add different components and materials to the absorbent article. EX1009-White2003, Fig. 3 (showing unwinds require little space and can be driven by a motor elsewhere on the assembly line, making the addition of further unwinds to a production line straightforward). Mr. Sheldon acknowledges that diaper machines have “a lot of unwinds.” EX1022-SheldonDepo, 231:21. Further, Mr. Sheldon testified that the ’138 patent provides sufficient disclosure for an engineering company to build a machine to manufacture the claimed absorbent article even though the ’138 patent does not describe any manufacturing specifications or processes. EX1022-SheldonDepo, 134:19-135:1. Thus, the addition of the layers would not have deterred a person of ordinary skill in the art from substituting the layers of Ponomarenko-’236’s sublayer 30 for Nakazawa-’190’s diffusion sheet and a person of ordinary skill in the art would have understood that no absorbent material would need to be removed.

EX1021-Pourdeyhimi-Suppl-Decl., ¶ 91; *see also* Reply, 24.

Ponomarenko's Perforated Layer Is More Fluid-Permeable



Behnam Pourdeyhimi

First Quality Expert

*Professor at North Carolina
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Director of
Non-Wovens Institute*

190. I disagree. A person of ordinary skill in the art would have understood that a perforated layer of the high-basis weight cellulose fibres disclosed by Ponomarenko-'236 are more fluid permeable than its (or Nakazawa-'190's) absorbent cores. *See* EX1007-Ponomarenko-'236, 7:8-16 (sublayer 30 "facilitates the absorption of the fluid by the absorbent core below"). This is because Ponomarenko-'236's perforations in sublayer 30 assist in causing fluid to flow. *Id.* Providing quicker absorption times is precisely what Nakazawa-'190 describes as having "higher liquid permeability." EX1008-Nakazawa-'190, [0035]-[0037]. Thus, a person of ordinary skill in the art would not have been discouraged from combining Nakazawa-'190 and Ponomarenko-'236 because Ponomarenko-'236 does not explicitly describe the fluid permeability of its high basis weight materials.

EX1021-Pourdeyhimi-Suppl-Decl., ¶ 97; *see also* Reply, 24-25.



1

Bergstrom-'059 Discloses the Claim Limitations

- Bergstrom-'059 discloses a "perforated polymeric layer"
- Bergstrom-'059 discloses a "fluid flow control structure"

2

Nakazawa-'190 in Combination with **Glaug-'753** or **Ponomarenko-'236** renders the challenged claims obvious

- A POSA would have been motivated to combine Nakazawa with Glaug or Ponomarenko;
- Nakazawa does not teach away from the combination
- Nakazawa teaches an opening extending throughout the entire crotch portion

3

Nakazawa-'190 Anticipates the Claims

Ground 1, Limitations 1[e] and 1[h]



The invention claimed is:

1. An absorbent article having a longitudinal direction and a transverse direction, side edges extending in the longitudinal direction and end edges extending in the transverse direction and comprising:

a fluid permeable topsheet,

a fluid impermeable backsheet, and

an absorbent core enclosed between said topsheet and said backsheet, said absorbent core comprising,

a first absorbent layer having an opening that passes through the first absorbent layer from one major surface to an opposing major surface and therebetween the opening is surrounded by a closed periphery of first absorbent layer,

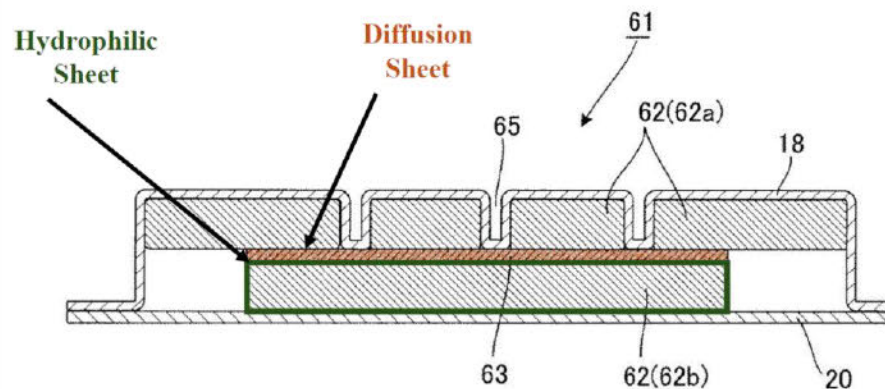
a fluid flow control structure, and

a second absorbent layer arranged between the fluid flow control structure and the fluid impermeable backsheet,

wherein the fluid flow control structure is arranged between said first absorbent layer and said backsheet, said fluid flow control structure being a layered structure comprising a non-perforated fibrous polymeric layer and a first perforated polymeric layer, and

wherein the opening extends along a longitudinal center line of the absorbent article, the longitudinal center line being in parallel with the longitudinal direction of the absorbent article, and the fluid permeable top sheet is in direct contact with the fluid flow control structure via the opening.

[Fig. 14A]



Petition, 94 (annotated figure);
see also EX1008-Nakazawa-'190, FIG. 14A (annotated);
EX1002-Pourdeyhimi-Decl., ¶ 281 (annotated figure).

Nakazawa Teaches a Hydrophilic Sheet Bonded to the Diffusion Sheet in the Hole Portion



Nakazawa '190

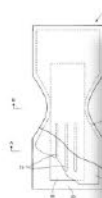
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Examination Request Not Yet Received No. of Claims 11: 01	
(21) Application No. 2007-132584 (P2007-132584)	(71) Applicant 390036799 Oji Nippon Co., Ltd. 5-12-8, Ginza, Chuo-ku, T
(22) Filing Date May 16, 2007 (2007.5.16)	(72) Inventor Sachiko NAKAZAWA Oji Nippon Co., Ltd., Nagoya 1, Ojicho, Kasugai-shi, AIC F Terms (Reference) 30200 AA CAI DA DB

[0082]

While not shown in the figures, the absorbent material is generally wrapped on the back surface and side surfaces with a hydrophilic sheet serving as a carrier to prevent leakage of superabsorbent polymer and to prevent deformation of the absorbent material on the production line. The absorbent article of the present invention may have the first absorbent material or second absorbent material wrapped in such a hydrophilic sheet. The absorbent material may be entirely wrapped in a hydrophilic sheet, or a portion of the absorbent material may be wrapped in a hydrophilic sheet.

EX1008-Nakazawa-'190, [0082].

(54) [Title of the Invention]
Absorbent Article
(57) [Abstract]
[Problem] To provide an absorbent article with excellent excretory fluid absorbency and a good fit on the wearer.
[Solution] The absorbent article 1 of the present invention comprises an absorbent material 22, a top sheet 18 made at least partially of a liquid-permeable material and disposed so as to cover the top surface of the absorbent material 22, and a back sheet 20 made of a liquid-impermeable material and disposed on the back surface of the absorbent material 22. In the absorbent article 1, the absorbent material 22 has hole portions 15 that penetrate from the top surface to the back surface of the absorbent material 22, the top sheet 18 is disposed on the top surface of the absorbent material 22, and a diffusion sheet 23 with higher liquid permeability than the absorbent material 22 is disposed on the back surface of the absorbent material 22 so as to cover the region including the openings in the hole portions 15.
[Selected Drawing] Fig. 1



FIRST C

[0084]

In the absorbent articles shown in Fig. 14A and Fig. 14B, the top sheet 18 covers the top surface of the first absorbent material 62a, the inner surfaces of the hole portions 65 in the first absorbent material 62a, and the diffusion sheet 63 is exposed in the hole portions 65, and the top sheet 18 and the diffusion sheet 63 are joined together at the openings in the hole portions 65 on the back surface of first absorbent material 62a. The top sheet and diffusion sheet may be bonded directly or via the hydrophilic sheet in which the absorbent material is wrapped.

EX1008-Nakazawa-'190, [0084].

See also Petition, 21-22, 93; Reply, 26 n.6, EX1002-Pourdeyhimi-Decl., ¶¶ 67, 280; EX1021-Pourdeyhimi-Suppl-Decl., ¶ 48.

It Is Undisputed That the Hydrophilic Sheet Is a Fibrous and Polymeric Material



Donald Sheldon

PO's Expert

Q. What about the hydrophilic-treated nonwoven fabric?

A. Nonwoven fabrics are considered fibrous. They're extruded filaments of plastic, and naturally plastic is not absorbent. And even if you treat it with a hydrophilic treatment, which is soap, put some soap on it, it allows fluid to pass through but it still doesn't absorb anything.

Q. Okay. So is the hydrophilic-treated nonwoven fabric fibrous and polymeric?

A. It is – it is a fiber that's made from plastic.

EX1022-SheldonDepo., 254:6–17; see also Reply 25–26; EX1021-Pourdeyehimi-Suppl-Decl., ¶ 100.

It Is Undisputed That the Hydrophilic Sheet Is a Core Wrap



Donald Sheldon

PO's Expert

Q. And, actually, if we look two paragraphs above, in Paragraph 41, it says, "The absorbent material is preferably wrapped entirely in a hydrophilic sheet. Such a configuration has the advantage of preventing SAP leakage from the absorbent material and providing shape stability to the absorbent material."
Do you see that?

A. Yes. It was common in the industry to wrap those absorbent cores in a thin tissue.

Q. And that's the core wrap we were talking about earlier?

A. Yes.

EX1022-SheldonDepo., 252:17-253:7.

Ground 1, Limitations 1[e] and 1[h]



The invention claimed is:

1. An absorbent article having a longitudinal direction and a transverse direction, side edges extending in the longitudinal direction and end edges extending in the transverse direction and comprising:

a fluid permeable topsheet,

a fluid impermeable backsheet, and

an absorbent core enclosed between said topsheet and said backsheet, said absorbent core comprising,

a first absorbent layer having an opening that passes through the first absorbent layer from one major surface to an opposing major surface and therebetween the opening is surrounded by a closed periphery of first absorbent layer,

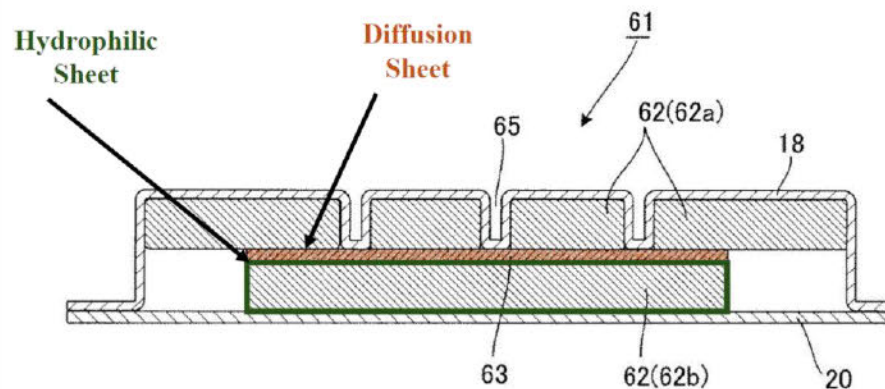
a fluid flow control structure, and

a second absorbent layer arranged between the fluid flow control structure and the fluid impermeable backsheet,

wherein the fluid flow control structure is arranged between said first absorbent layer and said backsheet, said fluid flow control structure being a layered structure comprising a non-perforated fibrous polymeric layer and a first perforated polymeric layer, and

wherein the opening extends along a longitudinal center line of the absorbent article, the longitudinal center line being in parallel with the longitudinal direction of the absorbent article, and the fluid permeable top sheet is in direct contact with the fluid flow control structure via the opening.

[Fig. 14A]



Petition, 94 (annotated figure);
see also EX1008-Nakazawa-'190, FIG. 14A (annotated);
EX1002-Pourdeyhimi-Decl., ¶ 281 (annotated figure).

Patent Owner Argues that Core Wrap Cannot Be a Fluid Control Structure



Donald Sheldon

PO's Expert

Q. Whether the hydrophilic sheet in Nakazawa was tissue, or hydrophilic nonwoven material, it would still be your opinion that Nakazawa does not disclose a fluid-flow control structure; correct?

A. **I – I – in – as defined in the '138 patent, Nakazawa does not disclose a fluid-flow control structure.**

Q. Okay. And that's because the hydrophilic sheet in Nakazawa that wraps the lower core is not part of a fluid-flow control structure; correct?

A. **I – I don't see a fluid-flow control structure in Nakazawa.**

Q. Because the core wrap that we've been talking about in Nakazawa is not part of the fluid-flow control structure, in your opinion; correct?

A. **As we agreed in '138, the core wrap is not part of the fluid-flow control structure.**

EX1022-SheldonDepo. 265:9-266:12;
see also EX1021-Pourdeyhimi-Suppl-Decl., ¶¶ 98-102; Reply, 26 n.7.

Patent Owner Argues that Core Wrap Cannot Be a Fluid Control Structure



Donald Sheldon

PO's Expert

Q. I'm not trying to get you to say anything. I'm trying to understand why. Why is the core wrap in Nakazawa not part of a fluid-flow control structure in the – as claimed in the '138 patent?

A. It – in the industry, we don't talk about core wraps being a fluid-management system. It wraps a product to prevent the superabsorbent from falling out.

Q. Okay.

A. It's not there to control anything, manage anything.

Q. Okay.

A. Just the fluid, not – just to keeping the superabsorbent particles from falling out.

EX1022-Sheldon Depo., 268:5–21; EX1021-Pourdeyhimi-Suppl-Decl., ¶ 102; Reply, 26 n.7.

Dr. Pourdeyhimí Is a POSA



Behnam Pourdeyhimí

First Quality Expert

*Professor at North Carolina
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Director of
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- “For over 40 years, I have trained individuals employed in the hygienic articles industry on absorbent article design.”
- “[M]y role in industry collaborations has involved design improvements to several different absorbent articles with these components.”
- “To optimize and improve an existing design, intricate knowledge of the function of all elements of the absorbent article is required.”
- “I train approximately 300 people per year... on materials, design of products, and teaching principles of manufacturing the designed products.”
- “I have worked on hundreds of industry collaborations designing and improving absorbent articles.”
- “I actually developed the software to be able to measure how these materials distribute fluid in various directions...”
- “I have published 397 papers since 1984 on the subject matter, including... nonwoven[s]..., pore morphology, permeability, and pore orientation. ”

EX1021-Pourdeyhimí-Suppl-Decl., ¶¶ 4–7; see also Reply, 28.

Mr. Sheldon Is Not an Impartial Witness



Donald Sheldon

PO's Expert

- **Most of Mr. Sheldon's opinions rest solely on his say-so**, with no supporting documents, testing, or contemporaneous industry evidence. Patent Owner submitted only two additional exhibits (EX2006, EX2007), leaving numerous opinions unsupported.
- **Key technical and economic opinions lack any evidentiary foundation**, including assertions regarding material substitution costs, POSA understanding of "perforated," alleged manufacturing infeasibility, and speculative cost estimates reaching "hundreds of thousands or even millions of dollars."
EX2001, ¶¶63–64, 68–70, 71, 115, 150, 182; EX1022, 185:20–187:1.
- **Mr. Sheldon is not a disinterested witness**: he was terminated following First Quality's acquisition of his division and has since testified against First Quality multiple times.
EX1022, 11:15–12:2; 17:8–18:6; 29:2–31:2; 33:18–34:21.

Reply, 27–28; *see also* EX2001-SheldonDecl. ¶¶ 71, 115, 63–64, 68–70, 150, 182.

A Majority of Sheldon's Opinions Are Not Supported by Evidence Other Than His Say-So



Donald Sheldon

PO's Expert

Much of the POR is supported by no evidence except Mr. Sheldon's uncorroborated testimony. Mr. Sheldon does not include independent documents or evidence demonstrating why his conclusions are correct.

PO only submitted two additional exhibits with its Response (EX2006, EX2007), and there are numerous opinions Mr. Sheldon offers that have no support apart from his say-so:

- ¶ 71 (costs of material substitution or machine redesign),
- ¶ 115 (a POSA would have understood "perforated" in Bergstrom-'059 to be inconsistent with its plain meaning),
- ¶¶ 63-64, 68-70 (allegedly necessary changes to machinery or manufacturing when modifying absorbent articles),
- ¶¶ 150, 182 (proposed combination would "easily cost hundreds of thousands or even millions of dollars").

Reply, 27-28; see also EX2001-SheldonDecl. ¶¶ 71, 115, 63-64, 68-70, 150, 182.

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), I hereby certify that on this 12th day of February, 2026, I caused to be served a true and correct copy of the following to be served via email on the attorneys identified in Patent Owner's Mandatory Notices, (Paper 4), who consented to electronic service:

- **PETITIONERS' DEMONSTRATIVE EXHIBITS**

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Dated: February 12, 2026

Respectfully Submitted,

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