

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: IPR2024-01487

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

**PATENT OWNER PRELIMINARY 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**

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Exhibit	Description
2001	Declaration of Donald Sheldon Regarding Claims 1-5, 7-8, 20-22, and 24-25 of U.S. Patent No. 9,308,138
2002	<i>Curriculum Vitae</i> of Donald Sheldon
2003	Scheduling Order, <i>Essity Hygiene & Health AB v. First Quality Products, Inc.</i> , No. 24-374-GBW, ECF No. 16 (D. Del. Sept. 30, 2024)

I. INTRODUCTION

The *inter partes* review (IPR) Petition filed by First Quality Retail Services, LLC, First Quality Consumer Products, LLC, First Quality Products, LLC, and First Quality Enterprises, LLC (“Petitioners”) raises five grounds that each independently fail to establish a reasonable likelihood that claims 1-5, 7-8, 20-22 and 24-25 (“challenged claims”) of U.S. Patent No. 9,308,138 (the “’138 patent,” or “EX1001-USP138”) are anticipated or obvious.

Although Petitioners bear the burden to establish unpatentability, their deficient—and very often conclusory—arguments fail for key claim limitations and cannot be remedied. *In re Magnum Oil Tools Int’l Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016) (“[T]he Board must base its decision on arguments that were advanced by a party”); *see id.* at 1380 (explaining that “petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness”). Considering the significant deficiencies in the Petition, Petitioners have not established a reasonable likelihood of success on the merits. Thus, a denial of institution is warranted.

Petitioners’ expert, Dr. Pourdeyhimi, offers conclusory explanations for how a person of ordinary skill in the art (“POSA”) would have understood each of the references, as explained below. A proper examination of the art through the lens of a POSA demonstrates that Petitioners and their expert drew erroneous

conclusions about the prior art’s disclosures and teachings, as explained herein and by Donald Sheldon, an expert in the field of designing and manufacturing absorbent hygiene products. *See* Expert Declaration of Donald Sheldon (“EX2001-SheldonDec”).

Patent Owner Essity Hygiene and Health AB (“PO”) submits this Preliminary Response to the Petition. PO’s research and development efforts led to the ’138 Patent, which claims an inventive solution to what was a significant problem in the art—the “side leakage problem.” *See* EX2001-SheldonDec, ¶¶74-79. The field of absorbent products is crowded, but the patentability of inventions in this space—like the inventions developed by the inventors of the ’138 Patent—lies in the innovative design of numerous product features to solve a problem. Petitioners’ arguments, however, rest on a broken foundation, misinterpreting the prior art and indiscriminately mixing and matching elements from the prior art using nothing but hindsight. Reviewing Petitioners’ grounds from the perspective of a POSA reveals that any allegedly buried disclosures and teachings (Petition at 1) are nothing like what is claimed.

Claim 1 expressly requires that a “fluid flow control structure” as claimed in the ’138 Patent must comprise “a layered structure comprising a non-perforated fibrous polymeric layer and a first perforated polymeric layer.” *See* EX1001-USP138, claim 1. The Petition, however, glosses over the specifics; characterizing

the “fluid control structure [*sic*]” as “an acquisition layer or a diffusion sheet” (Petition at 1) without addressing the expressly recited structural elements of claim 1. Petitioners’ failure to address these, and other, critical recitations of claim 1 lies at the root of the Petition’s failure to establish unpatentability.

Ground I fails to establish that WO2009/067059 (“EX1004-Bergstrom”) anticipates any challenged claim. Petitioners fail to meet their burden to identify where EX1004-Bergstrom discloses claim 1’s “fluid flow control structure,” including the “first perforated polymeric layer” as required by claim 1. This failure is unsurprising, because EX1004-Bergstrom does not disclose these elements. *See* EX2001-SheldonDec ¶¶107-134.

Grounds II-III fail to make a *prima facie* case showing that Japanese patent JP2008-284190 (“EX1008-Nakazawa”), in view of U.S. Patent No. 6,455,753 (“EX1006-Glaug”) or in further view of U.S. Patent Application 2005/0267429 (“EX1016-Cohen”) renders obvious any challenged claim. Petitioners point to no motivation to combine the disparate teachings in these references to arrive at the claimed invention, and no reasonable expectation of success in doing so. EX1008-Nakazawa expressly teaches away from the combinations and modifications suggested by Petitioners. Further, the elements Petitioners attempt to modify and combine—EX1006-Glaug’s fluid *acquisition* system and EX1008-Nakazawa’s fluid *diffusion* sheet—are not interchangeable or compatible. *See* EX2001-

SheldonDec ¶¶135-158.

Ground IV fails to make a *prima facie* case showing that EX1008-Nakazawa in view of U.S. Patent No. 7,956,236 (“EX1007-Ponomarenko”) renders obvious any challenged claim. In particular, Petitioners point to no motivation to combine the disparate teachings in these references to arrive at the claimed invention, and no reasonable expectation of success in doing so. EX1008-Nakazawa expressly teaches away from the combinations and modifications suggested by Petitioners. Further, the elements Petitioners attempt to modify and combine from these references—EX1007-Ponomarenko’s feces immobilization layer and EX1008-Nakazawa’s fluid diffusion sheet—are not interchangeable or compatible. See EX2001-SheldonDec ¶¶159-192.

Ground V fails to establish that EX1008-Nakazawa anticipates any challenged claim. Petitioners fail to meet their burden to identify where EX1008-Nakazawa discloses a non-perforated fibrous polymeric layer or a fluid flow control structure as required by claim 1. In fact, EX1008-Nakazawa does not disclose these elements. See EX2001-SheldonDec ¶¶193-203.

Petitioners fail to make out a *prima facie* case of obviousness under any ground; therefore, PO need not set forth extensive objective indicia of non-obviousness. See *Intercontinental Great Brands LLC v. Kellogg N. Am. Co.*, 869 F.3d 1336, 1343-44 (Fed. Cir. 2017). For the avoidance of doubt, First Quality has

copied the inventions described and claimed in the '138 Patent as set forth in PO's Complaint in the co-pending district court litigation, *Essity Hygiene & Health AB v. First Quality Prods., Inc.*, No. 1:24-cv-00374, ECF No. 1 (D. Del. Mar. 22, 2024). In addition, many others, including the inventors of the prior art cited by Petitioners, failed to arrive at the inventions claimed in the '138 Patent.

II. THE LEVEL OF ORDINARY SKILL IN THE ART

Petitioners set forth the following definition of a POSA:

A person of ordinary skill in the art ("POSITA") at the relevant times, would have had (1) a degree or certificate in chemical engineering, chemistry, paper engineering, materials science, biology or a related field; and (2) two to four years of work experience in product design and testing of disposable absorbent articles, such as diapers, sanitary napkins and incontinence pads. Less work experience may be compensated by a higher level of education, and vice versa.

Petition at 17-18 (citing EX1002-Decl, ¶¶26-28). A POSA's "work experience" must also include a fundamental understanding of components and materials in an absorbent article as well as of material properties, equipment, and how these materials are handled in practice. See EX2001-SheldonDec, ¶¶19-21. PO applies Petitioners' POSA for purposes of its preliminary response only.

Dr. Pourdeyhimi, Petitioners' expert, has no experience with designing absorbent articles for incontinence, nor an understanding of the requirements for successfully designing and manufacturing these articles for actual use by

consumers. He has patents directed to nonwoven fabrics for use in drug delivery, filters, antennas, capacitive fabrics, and photoluminescent fiber products, but he has listed no patents directed to absorbent articles in his CV. Dr. Pourdeyhimi's lack of expertise with designing and manufacturing absorbent articles renders the Petition's scientific conclusions incomplete, inconclusive, and often incorrect. See EX2001-SheldonDec, ¶¶39-40.

Further, because Dr. Pourdeyhimi has no “work experience in product design and testing of disposable absorbent articles, such as diapers, sanitary napkins and incontinence pads,” let alone two to four years of such experience, he has never met Petitioners' definition of a POSA. As a result, the Board should disregard his opinions; “to be qualified to offer expert testimony on issues from the vantage point of an ordinarily skilled artisan in a patent case, an expert must at minimum possess ordinary skill in the art.” See *Kyocera Senco Indus. Tools Inc. v. Int'l Trade Comm'n*, 22 F.4th 1369, 1376-77 (Fed. Cir. 2022). This alone is grounds for denying institution, as Petitioners have no admissible expert testimony to support their conclusory allegations.

III. SCIENTIFIC CONCEPTS RELEVANT TO THE '138 PATENT

The Petition and the Pourdeyhimi Declaration (“EX1002-Decl”) set forth a few high-level scientific concepts but fail to address those concepts adequately. For example, the Petition does not substantively address issues relating to the

novelty of the fluid flow control structure claimed in the '138 patent, the differences between acquisition and distribution layers within an absorbent article, challenges and difficulties involved in modifying layers within an absorbent article, and difficulties in manufacturing introduced when adding even one layer to an absorbent article. The Petition also overlooks the material and manufacturing costs of adding layers to an absorbent article. The challenges are significant and Petitioners' failure to address them reflects the superficial nature of Petitioners' arguments.

A. Specific Responses to Petitioners' Technology Overview

In 2011, a POSA would have understood that absorbent articles are made using highly engineered fabrics, with each fabric layer having a particular purpose in each absorbent article, and there is no room for indiscriminate design, waste, and surplusage. *See* EX2001-SheldonDec, ¶40; *see also In re Schweickert*, 676 F. App'x 988, 995 (Fed. Cir. 2017) (vacating and remanding Board's finding of obviousness in part because the proposed combination "would do little more than add unwanted cost and complexity to the system"). Thus, while Petitioners are correct that different absorbent articles existed before 2011, these articles contained a variety of materials fit for their particular purposes. A POSA could not take the design of a tampon or light incontinence product and convert it to, for example, a baby diaper. These products are different and perform different

functions. Functions of fluid movement in each article are different: products designed for rapid fluid penetration are different from products designed for maximum absorbent capacity. EX2001-SheldonDec, ¶43-44.

Petitioners' expert cites EX1011-Ajmeri2010 for the proposition that "one of the key aims in designing hygiene materials is to reduce the size or weight without compromising the fluid holding capacity." See EX1002-Decl, ¶30 (citing EX1011-Ajmeri2010, 86). This reference aligns with the general state of the art as of the filing of the '138 Patent. The art as a whole taught away from using additional layers, holes, openings, or non-absorbent materials within an absorbent hygiene product. Adding layers increases size, weight, and/or complexity, leading to a less efficient, more expensive product. As such, a POSA would understand that the weight and bulk added by an additional layer would need to be subtracted from somewhere else in the product—usually the absorbent layer. Further, a POSA would know that introducing a hole or void in the product would both increase the size of the product and reduce its total absorbent capacity, further reducing efficiency and leading to leaking and wearer discomfort. See EX2001-SheldonDec, ¶45.

The absorbent article need not "absorb fluid at the *speed it is delivered*" as Petitioners suggest. See Petition at 9. This type of rapid absorption could result from poor design. That is, in a poorly engineered article, if you have a rapid insult

of fluid in the center of the absorbent article, the absorbent material in the center will be saturated immediately and the product will be forced to rely on capillary action to move fluid throughout the article. This is a slow and inefficient process which would be further inhibited by using super-absorbent polymers (“SAPs”) such as sodium polyacrylate which can lead to gel blocking and further inhibition of the distribution of fluid flow in all directions within the article. Thus, an absorbent article must absorb fluid both quickly *and efficiently* throughout the article to maximize exposure to absorbent materials while preventing leaks or overflow of fluid due to inefficient fluid flow. *See* EX2001-SheldonDec, ¶46.

In addition, the Petition generally oversimplifies the elements of an absorbent article. A multitude of product designs existed before the inventions of the ’138 patent, but none disclosed the fluid flow control structure claimed in the ’138 patent. And if an absorbent article were merely the combination of a topsheet, backsheet, absorbent layers, and fluid acquisition layers, there would be no possibility for advancement or innovation in the field of absorbent articles. *Cf. In re Hummer*, 241 F.2d 742, 744 (C.C.P.A. 1957) (“Progress is as important, however, in crowded arts as well as those which are in the pioneer stage.”). Importantly, and fatally to Petitioners, the Petition does not point to any teaching in any cited reference of using an opening in the absorbent layer along with a multi-layer fluid flow control structure to attain any stated goal, nor any motivation to

create one. EX2001-SheldonDec, ¶¶47-48.

The Petition incorrectly states that “[b]efore the ’138 patent, it was also known that absorbent articles may also have openings or channels within one or more absorbent core layers to enhance the absorbent article’s fluid management capabilities.” Petition at 11. At the time the ’138 patent was filed, the art as a whole taught that using an opening or channel in an absorbent layer in an incontinence product would detract from the absorbent article’s fluid management capabilities. In fact, EX1005-Kim, cited by Petitioners, teaches away from designing an absorbent article with a hole in the absorbent layer. EX1005-Kim teaches that, when there is void space or an opening under the top sheet, “the bodily fluid temporarily retained in the secondary absorbent member 58 [fails] to be immediately absorbed...As a result, the wearer may feel wet.” EX1005-Kim 1:37-50. In other words, Kim describes a prior art absorbent article with an opening in the first absorbent layer that is undesirable because it causes the wearer discomfort and may cause leaks. This describes the general state of the art at the time the ’138 Patent was filed. See EX2001-SheldonDec, ¶51.

Petitioners also cite EX1004-Bergstrom for the premise that openings can “enhance the absorbent article’s overall fluid management capabilities,” but this citation is misguided. See Petition at 11. The section of EX1004-Bergstrom cited by Petitioners for this proposition relates only to the *manufacturing* of an opening,

and the sections surrounding what Petitioners cite relate only to improving fit via folding lines around the opening. *See, e.g.*, Petition at 11 (citing EX1004-Bergstrom, 6:33-7:7). Petitioners cite nothing but their own say so that the opening in EX1004-Bergstrom relates to fluid management, and there is nothing in EX1004-Bergstrom teaching that the opening improves fluid management capabilities.

Such a teaching would make no sense. A hole with no absorbent material is, by definition, not absorbent, and so does not contribute to the total absorbent capacity of the absorbent article. And a hole or cavity in an absorbent article would be detrimental to the overall product design because without significant engineering, fluid over a hole or in a cavity would stay on the surface, as there is no material underneath to wick the fluid away via capillary action. *See, e.g.*, EX1005-Kim 1:37-50. Prior art absorbent articles with holes or openings sacrificed absorbent capacity to improve folding or shaping, but did not improve the fluid management capabilities of the layers of the absorbent article. *See* EX2001-SheldonDec, ¶¶53-54.

Similarly, Petitioners cite EX1008-Nakazawa at [0007] for the same faulty proposition that holes or openings improve fluid management. Petition at 11. But the portion of EX1008-Nakazawa cited by Petitioners relates to prior art products, disclosing only that *grooves*, not openings, in the absorbent material can help to

diffuse excretory fluid in the longitudinal direction. *See* EX1008-Nakazawa, [0007]. Elsewhere when discussing “hole portions,” EX1008-Nakazawa points to the “elongated shape” of the hole portions that “allow the absorbent material to bend and conform more closely to the wearer’s urination site, improving wearer fit.” *See, e.g.*, EX1008-Nakazawa, [0034]; EX2001-SheldonDec, ¶52. Petitioners point to no teaching in EX1008-Nakazawa that holes or openings enhance fluid management. Thus, EX1008-Nakazawa does not overcome the general teaching in the art that using holes or openings in the absorbent material is detrimental to fluid management in an absorbent article. *See In re Dow Chem. Co.*, 837 F.2d 469, 473 (Fed. Cir. 1988) (noting that a POSA has “knowledge of the entire body of technological literature, including that which might lead away from the claimed invention”).

The art cited by Petitioners regarding “Fluid Acquisition Layers” (Petition at 12-13) generally all place such layers between the topsheet and absorbent core. *See* EX2001-SheldonDec, ¶55. This is the traditional and logical placement of an Acquisition/Distribution Layer, or “ADL,” because it facilitates the quick and efficient movement of fluid through the topsheet into the absorbent core, improving wearer dryness and comfort. The ADL also keeps fluid away from the wearer and increases comfort and dryness. In this way, it is preferable to have the ADL above the absorbent material rather than below it or sandwiched between

absorbent layers where it will be less efficient. EX2001-SheldonDec, ¶¶55-56.

When the prior art teaches an ADL between absorbent layers, such an ADL must be a single, thin layer. For example, EX1004-Bergstrom discloses a single acquisition layer between absorbent cores and EX1008-Nakazawa discloses a single diffusion sheet. A POSA would have understood in 2011 that introducing multiple acquisition or distribution layers between two absorbent cores would increase void space and product size, would lead to inefficient movement of fluid between layers, and would significantly increase cost and manufacturing difficulty. A POSA would not use two layers when one layer is sufficient, as it is in EX1004-Bergstrom and EX1008-Nakazawa. See EX2001-SheldonDec, ¶¶55-56.

Because an ADL must be fluid permeable, allowing fluid to pass through and maximize exposure to the absorbent material, a material that is liquid impermeable is not an ADL or a perforated layer. This is because a liquid-impermeable layer does not allow for the flow of fluid in the Z-direction (into the article away from the body). In other words, a layer constructed of an impermeable material would not allow for either acquisition or distribution of fluid into the absorbent core; rather, it would prevent the absorbent underneath the barrier from directly absorbing fluid, reducing the overall effective absorbent capacity of the article, increasing absorption time, and leading to leaking and/or wearer discomfort. EX2001-SheldonDec, ¶¶57-58.

B. Additional Scientific Topics on Absorbent Article Technology

1. Practical Considerations in Product Design and Manufacture

The design and manufacture of absorbent products is guided by the end-process requirements of consumers. That is, a product made for handling fecal matter or BM is designed and manufactured differently from a product made solely for handling urinary incontinence or menstrual fluid. And a product made for rapid acquisition of urine is designed and manufactured differently from a product made for maximum diffusion and absorption of urine. The materials designed to be integrated into these different products are also quite different. A POSA would understand that the materials and layers used in a product made for handling BM would not necessarily be suitable for light urinary incontinence and vice versa. EX2001-SheldonDec, ¶62. Manufacturing production lines are also designed specifically for each product and cannot be interchanged. Adding additional layers of materials can require a significant amount of re-engineering and the costs can be significant. EX2001-SheldonDec, ¶¶63-64.

EX1009-White discloses a relatively simple light, flat machine for producing an airlaid absorbent product. *See* EX1009-White, 247:

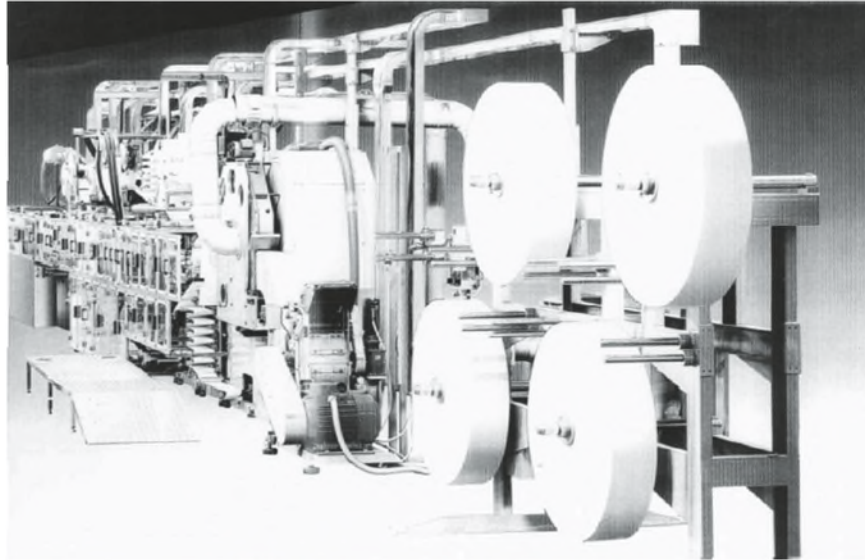


Fig. 3 Production machine for light incontinence products

This machine contains forming sections but no packaging unit. A modern absorbent hygienic production line would be much more complex, with stamping and packaging sections. These machines can be hundreds of feet long and can produce over a thousand products per minute. EX2001-SheldonDec, ¶66.

Given the complexities involved in material selection, manufacturing, and material interfaces and compatibility, the components of various products are not easily interchangeable by “simple substitution” as Petitioners argue. See Petition at 64, 83; Ex1009-White, 246-47; see also *Qiagen N. Am. Holdings, Inc. v. HandyLab, Inc.*, No. 2020-2249, 2021 WL 5024387, at *5 (Fed. Cir. Oct. 29, 2021) (finding no reasonable expectation of success when Petitioner presents only conclusory arguments regarding reasonable expectation of success and PO explains a “host of specific technical difficulties” with Petitioner’s proposed modifications and combinations); EX2001-SheldonDec, ¶67.

Additional technical difficulties include incompatible tensile properties of materials, incompatible stretching properties of materials, and additional downtime for making changes to a production line. EX2001-SheldonDec, ¶¶67-70. Small changes to a production line can cost over \$250,000, while a major material substitution can cost well over \$1,000,000. EX2001-SheldonDec, ¶71. Adult incontinence products are consumable, disposable products with low profit margins; the material substitutions and requisite manufacturing changes proposed by Petitioners could easily turn a marginally profitable product into an unprofitable one. In reality, given the state of the art at the time the '138 Patent was filed, a POSA would not have been motivated to add layers or complexity to an absorbent article that was already fit for its intended purpose. EX2001-SheldonDec, ¶72; *Anderson Corp. v. Pella Corp.*, 300 F. App'x 893, 898 (Fed. Cir. 2008) (noting that a “significant difference in cost” could discourage motivation to combine a much more expensive option with a less expensive one).

2. Overview of the '138 Patent

Petitioners overlook the novelty and essential elements of the claimed inventions of the '138 Patent. See Petition at 13-15; EX2001-SheldonDec, ¶¶73-81. Petitioners' annotated diagrams are also somewhat misleading as explained below.

The '138 Patent discloses that one problem in the prior art was “the side

leakage problem”—*i.e.*, that because of the “limited space available in the crotch portion of the underwear, the articles are by necessity designed with relatively small width. For this reason, a particular problem with such articles is that they may leak at the side edges, before the full absorption capacity of the article has been utilized.” EX1001-USP138, 1:21-29.

The solution as stated and claimed in the ’138 Patent is “an absorbent article having improved intake capacity, fluid distribution properties, and leakage security.” EX1001-USP138, 2:3-5.

The inventions claimed in the ’138 Patent require that the fluid flow control structure is a layered structure comprising a non-perforated fibrous polymeric layer and a first perforated polymeric layer. *See* EX1001-USP138, cl. 1.

The inventions claimed in the ’138 Patent further require that the first absorbent layer has “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.” *See* EX1001-USP138, cl. 1.

The inventors of the ’138 patent solved the stated problem of side leakage by inventing an absorbent article with a fluid permeable topsheet, an impermeable backsheet, an absorbent core with an opening, and a multi-layer fluid flow control structure disposed between the first absorbent core with an opening and a second

absorbent core, as set forth in the claims of the '138 Patent. *See* EX1001-USP138, cl. 1.

A POSA at the time the '138 Patent was filed would have believed that the “side leakage problem” would be made worse, not better, by using an opening in the absorbent layer and the use of a multi-layer fluid flow control structure as claimed in the '138 Patent, leading to wearer discomfort. *See* EX1005-Kim 1:37-50 (opening under the topsheet would lead to wearer wetness and discomfort); EX2001-SheldonDec, ¶79; *Crocs, Inc. v. Int’l Trade Comm’n*, 598 F.3d 1294, 1308 (Fed. Cir. 2010) (reversing obviousness determination; finding that prior art taught away from claimed invention based on statements in the prior art that the claimed combination of elements would cause “discomfort for a wearer”).

Further, the Petition annotates only Figure 2 to show the claimed fluid flow control structure. Petition at 15. Petitioners are trying to make the claimed fluid flow control structure look like a single layer, which it is not. It is a layered structure comprising a first perforated polymeric layer and a non-perforated fibrous polymeric layer. *See, e.g.*, EX1001-USP138 Figs. 3-4; *see also* EX2001-SheldonDec, ¶¶80-82:

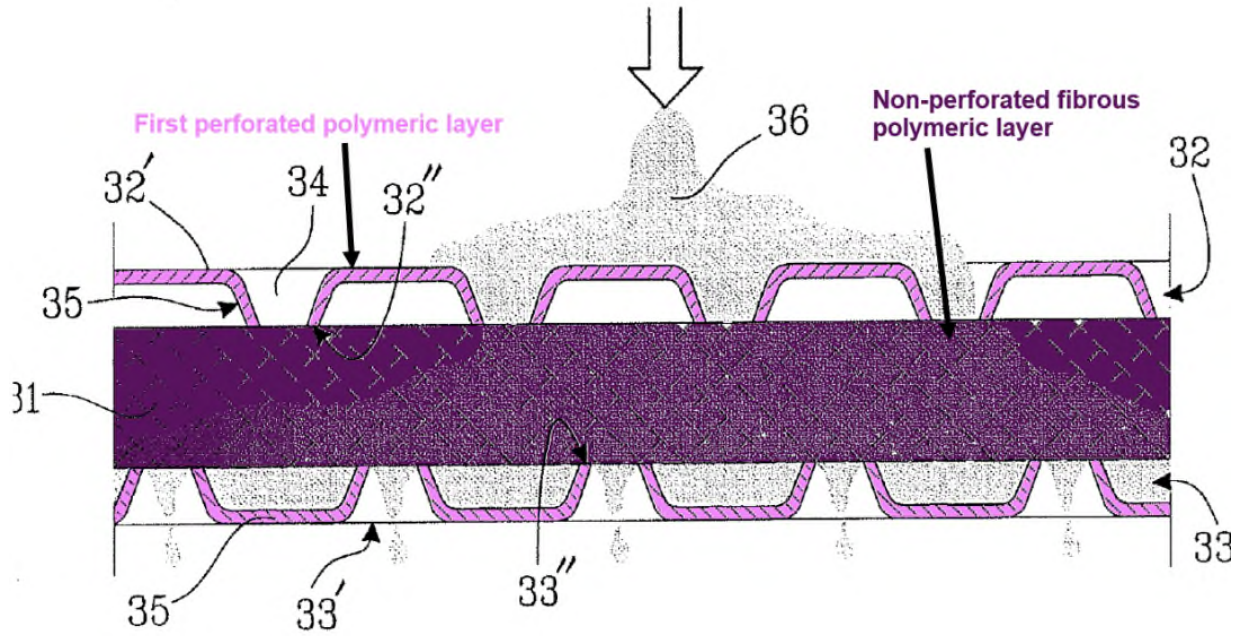


Fig.3

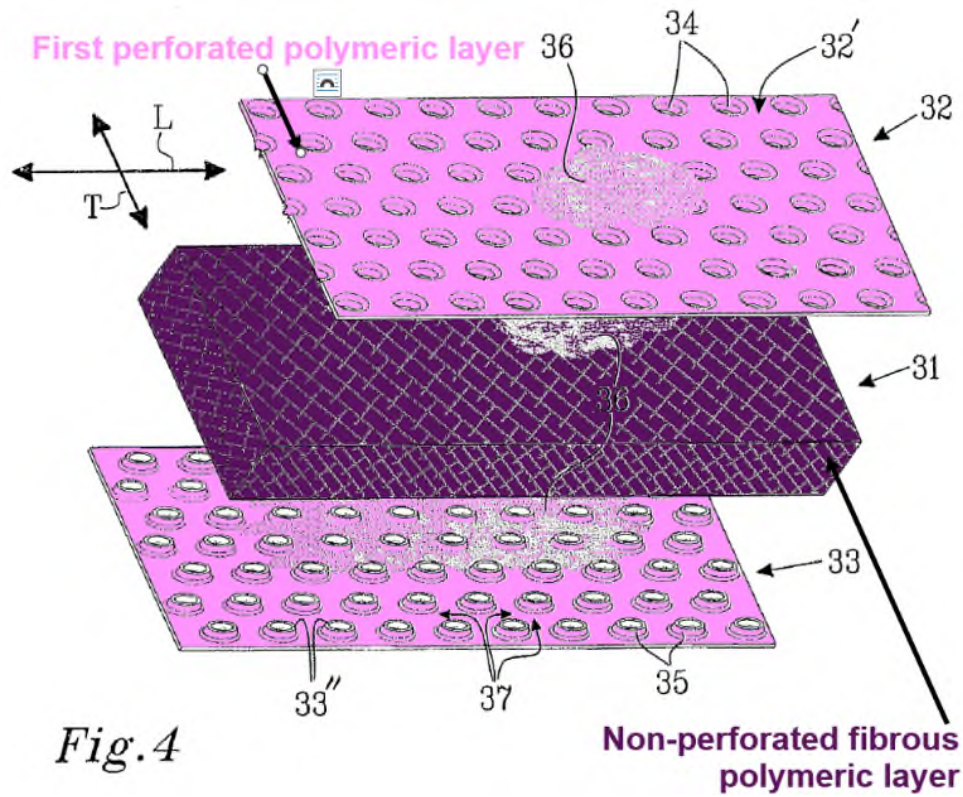


Fig.4

3. Prosecution History of the '138 Patent

Petitioners point to an amendment to claim 1 of the '138 Patent made by PO to traverse a rejection under 35 U.S.C. § 103. Petition at 15-17. Any implication of an admission about the teachings of any reference are not grounded in fact or law. Petitioners point to no legal authority that declining to address a particular argument by the Examiner constitutes agreement with or acquiescence to the substance of that argument. Indeed, “[a]n applicant’s silence in response to an examiner’s characterization of a claim does not reflect the applicant’s clear and unmistakable acquiescence to that characterization if the claim is eventually allowed on grounds unrelated to the examiner’s unrebutted characterization.” *See, e.g., 3M Innovative Properties Co. v. Avery Dennison Corp.*, 350 F.3d 1365, 1373-74 (Fed. Cir. 2003). And in its Reasons for Allowance, the Examiner noted that the closest prior art of record “fail[ed] to teach or fairly suggest a layered fluid control structure comprising a non-perforated and perforated polymeric layer in combination with the opening extending along a longitudinal center line of the absorbent article.” EX1003, 1363. That PO chose to traverse the Examiner’s rejection one way, and not another, cannot be held against PO in this proceeding.

IV. CLAIM CONSTRUCTION

PO agrees with Petitioner that no claim construction is needed. PO notes, however, that Petitioners and their expert often use words very loosely, cherry

picking a word like “layer” or “perforated” from the prior art and assuming that such a word has the same meaning universally without further support. See EX2001-SheldonDec, ¶¶84-87. But reading the claims in view of the disclosures of the ’138 Patent means that terms in the ’138 patent may have a different ordinary meaning from those in the prior art. In other words, the terms in the claims must be anchored to their ordinary and customary meaning in view of the ’138 Patent.

PO also notes that EX1008-Nakazawa is a July 2024 translation of a 2007 Japanese patent application, and the words as translated may not be exactly as intended when they were written 17 years ago, making the exact wording less persuasive than a U.S. Patent or contemporary translation. See EX2001-SheldonDec, ¶86; see also *Robert Bosch Tool Corp. v. SD3, LLC*, IPR2016-01755, Paper 15 at 10-12 (PTAB Mar. 31, 2017) (noting that the word “pivoting” in the translation at issue “is inconsistent with the remainder of the invention description and drawings” and does not prove anticipation absent further explanation).

V. THE ASSERTED PRIOR ART DOES NOT MEET THE LIMITATIONS OF THE CLAIMS OF THE ’138 PATENT

A. EX1004-Bergstrom’s Forming Element 60 Is Not a First Perforated Polymeric Layer

EX1004-Bergstrom describes absorbent articles that “adopt a particular shape in use, said shape being able to receive, distribute and store large amounts of

bodily waste rapidly and effectively.” EX1004-Bergstrom, 2:3-5. In other words, EX1004-Bergstrom solves the problem of “handling large amounts of bodily waste, or rapid insults of bodily waste” by creating a particular “double-bowl” shape to “receive, distribute and store large amounts of bodily waste rapidly and effectively.” EX1004-Bergstrom, 2:25-29; EX2001-SheldonDec, ¶88.

EX1004-Bergstrom also discloses an acquisition layer 40. EX1004-Bergstrom discloses that acquisition layer 40 “acts to receive liquid rapidly, to temporarily hold it and to distribute it evenly to the upper and lower absorbent cores 20, 30.” EX1004-Bergstrom, 6:16-20; EX2001-SheldonDec, ¶89.

The invention disclosed by EX1004-Bergstrom further includes a separate forming element 60. Forming element 60 is not described as receiving liquid, temporarily holding it, or distributing it to the upper and lower absorbent cores. Rather, forming element 60 is an optional shaping element included in the article in some embodiments “[t]o help prevent collapse of the three-dimensional structure of the absorbent core 10 under pressure in the width [X] direction.” EX1004-Bergstrom, 8:29-30; EX2001-SheldonDec, ¶90.

In order to prevent collapse of the three-dimensional structure of the absorbent core in EX1004-Bergstrom, forming element 60 is a “stiff” element described as “typically liquid-impermeable,” such that it “makes liquid flow around the edges of the forming element 60” in the width (X) and length (Y)

directions so “[l]iquid flow towards the ends of the core 10 is thus promoted.”

EX1004-Bergstrom, 9:21-32; EX2001-SheldonDec, ¶91.

Further, forming element 60 “is suitably made of a non-absorbent material, so that its physical and mechanical properties are substantially unaffected by liquid.” EX1004-Bergstrom, 9:34-35; EX2001-SheldonDec, ¶92.

Forming element 60 “should also have the required stiffness properties”; as a result, “suitable materials for the forming element 60 are plastic films, perforated plastic films and reinforced tissue or reinforced nonwoven materials.” EX1004-Bergstrom, 9:35-10:4; EX2001-SheldonDec, ¶93.

The use of the phrase “perforated plastic films,” however, does not mean that the forming element 60 itself is a perforated plastic or polymeric layer. Rather, forming element 60 must meet the required stiffness properties while still meeting the other requirements for the forming element 60 (*i.e.*, that it is liquid-impermeable, that it makes liquid flow around the edges of forming element 60, and that liquid flows towards the ends of the core, not through forming element 60 in the Z-direction). Forming element 60 preferably acts as a “relatively planar impact surface” (EX1004-Bergstrom, 9:4-5) or a “wider and flatter impact surface” (EX1004-Bergstrom, 14:24-29) for fluid. In other words, forming element 60 is a barrier element. EX2001-SheldonDec, ¶94.

Further, forming element 60 is optional, and only one disclosed way to help

with achieving the “double-bowl” shape described by EX1004-Bergstrom.

EX1004-Bergstrom discloses several other ways to achieve the double-bowl shape, including the use of elastics, fold indications, and the curvature and shape of the absorbent cores. EX1004-Bergstrom, 2:21-29, 3:6-9, 6:6-15, 12:31-13:6. Forming element 60 is not described anywhere as being part of any fluid flow control structure. EX2001-SheldonDec, ¶¶95-96.

B. EX1008-Nakazawa’s Diffusion Sheet 63 Is Not a Fluid Flow Control Structure

EX1008-Nakazawa discloses a single diffusion sheet 63 designed to promote fluid flow in the X- and Y-directions in order to allow fluid to absorb into both the upper and lower absorbent cores efficiently. EX1008-Nakazawa, [0012]; EX2001-SheldonDec, ¶¶98-99. Diffusion sheet 63 is not a fluid flow control structure.

EX1008-Nakazawa discloses a hydrophilic sheet that can wrap the back and sides of the absorbent core, which can be made of “tissue, absorbent paper, or hydrophilic treated nonwoven fabric.” EX1008-Nakazawa, [0043], [0082], [0085], Fig. 15; EX2001-SheldonDec, ¶100. EX1008-Nakazawa teaches that this hydrophilic sheet would impede, not promote, fluid flow if interposed between Nakazawa’s absorbent cores at the hole portions of the upper absorbent core. *See* EX1008-Nakazawa, [0085]; EX2001-SheldonDec, ¶¶140-141.

C. EX1006-Glaug’s Fluid Acquisition System 34 Is Not a Fluid Flow Control Structure

EX1006-Glaug describes an absorbent article with a single absorbent core and an improved fluid acquisition system 34. This fluid acquisition system 34 is disposed between the topsheet 32 and the fluid absorbent core 36. EX2001-SheldonDec, ¶101.

EX1006-Glaug’s fluid acquisition system 34 “is located on top of the core and under the top-sheet to facilitate the passage of liquid waste into the core for absorption thereby.” EX1006-Glaug, 4:58-60, 9:41-45; EX2001-SheldonDec, ¶¶102-103. EX1006-Glaug only discloses a single absorbent core with fluid acquisition system 34 between the topsheet and absorbent core, and thus does not teach a structure “arranged between said first absorbent layer and said backsheet” as required by claim 1 of the ’138 Patent.

D. EX1007-Ponomarenko’s Sublayer 30 Is Not a Fluid Flow Control Structure

EX1007-Ponomarenko is concerned with BM management and feces immobilization, not fluid flow control. See EX1007-Ponomarenko, 1:42-52; EX2001-SheldonDec, ¶104.

The holes (31) of the sublayer (30) in EX1007-Ponomarenko “are capable to store and immobilize feces.” EX1007-Ponomarenko, 7:27-28. There is no teaching in EX1007-Ponomarenko that the holes (31) of the sublayer (30) assist in

any way with fluid flow or fluid management. The sublayer holes in EX1007-Ponomarenko are in fact designed for the opposite purpose: to prevent the flow or movement of feces. *See, e.g.*, EX1007-Ponomarenko, 11:21-29; EX2001-SheldonDec, ¶105. EX1007-Ponomarenko only discloses a single absorbent core with sublayer 30 between the topsheet and absorbent core and thus does not teach a structure “arranged between said first absorbent layer and said backsheet” as required by claim 1 of the ’138 Patent.

E. EX1016-Cohen Does Not Add Any Relevant Detail

The Petition only references EX1016-Cohen to further describe properties of the Tredegar Aquidry material used in EX1006-Glaug. *See* EX2001-SheldonDec, ¶106.

VI. RESPONSES TO SPECIFIC GROUNDS FOR ALLEGED UNPATENTABILITY

A. Ground I: Claims 1, 3, 21-22, and 24-25 Are Not Anticipated by EX1004-Bergstrom

EX1004-Bergstrom does not anticipate claims 1, 3, 21-22, or 24-25 of the ’138 Patent. Anticipation requires that a single prior-art reference “not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements arranged as in the claim.” *See NetMoneyIn, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2018). “The requirement that the prior art elements themselves be arranged as in the claim means that the claims cannot be treated . . . as mere catalogs of separate parts, in disregard of the part-to-

part relationships set forth in the claims and that gives the claims their meaning.”

Therasense, Inc. v. Becton, Dickinson & Co., 593 F.3d 1325, 1332 (Fed. Cir. 2010).

Anticipation further “requires that a single reference describe the claimed invention *with sufficient precision and detail* to establish that the subject matter existed in the prior art. For this reason, it has long been understood that ambiguous references do not, as a matter of law, anticipate a claim.” *See Wasica Finance GmbH v. Continental Auto. Systems, Inc.*, 853 F.3d 1272, 1284 (Fed. Cir. 2017) (affirming PTAB determination of no anticipation).

Petitioners fail to demonstrate that EX1004-Bergstrom anticipates any claim of the ’138 Patent at least because they fail to demonstrate that EX1004-Bergstrom discloses a “first perforated polymeric layer” or a “fluid flow control structure” as claimed in the ’138 Patent.

1. Claim Element 1[h]: “said fluid flow control structure being a layered structure comprising a non-perforated fibrous polymeric layer and a first perforated polymeric layer”

Forming element 60 is not a “first perforated polymeric layer” as required by claim 1 of the ’138 Patent. Petitioners merely latch onto a single phrase in EX1004-Bergstrom—“perforated plastic films”—with no further explanation of how forming element 60 meets the “first perforated polymeric layer” limitation of claim 1. This ambiguity alone defeats Petitioners’ anticipation argument. *See*

Wasica Finance, 853 F.3d at 1284.

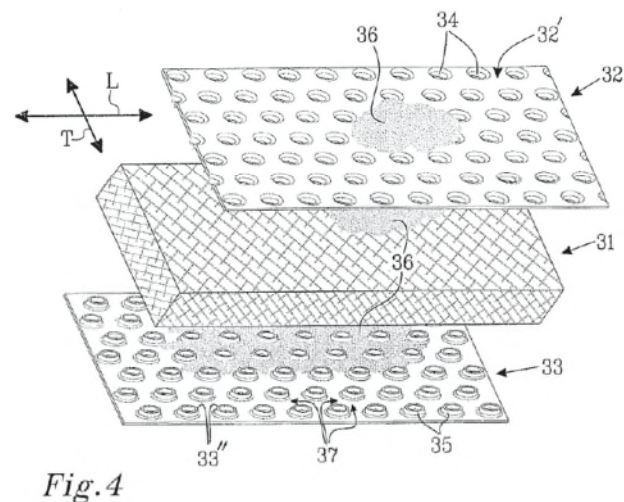
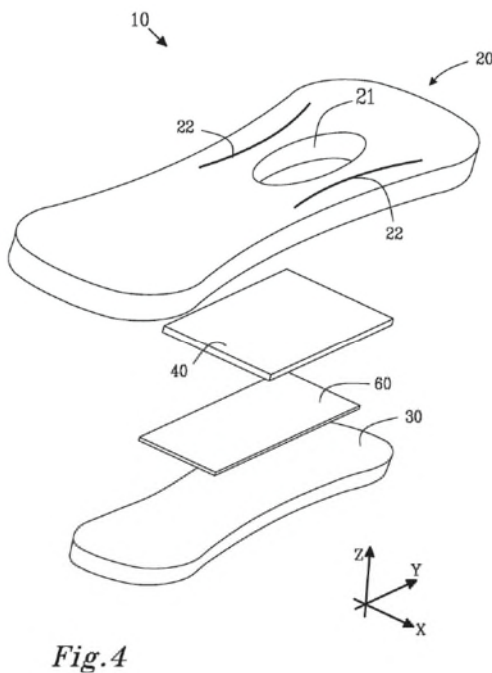
Worse, Petitioners fatally conflate the potential use of a perforated *film* in forming element 60 with the requirement that the perforated polymeric *layer* itself must be perforated to meet this limitation of claim 1. See Petition at 39. But Petitioners may not just take a property of a potential material and extrapolate that to be a property of an entire layer or product without some other express teaching, which is absent in EX1004-Bergstrom. See, e.g., *Guangdong Alison Hi-Tech Co. v. Int’l Trade Comm.*, 936 F.3d 1353, 1364 (Fed. Cir. 2019) (crediting testimony “that the recited properties of bulk and resilience in [reference] reflected that of the *composite*, not its *fibers*, and one cannot necessarily attribute the bulk and resilience of the composite to the fibers contained therein.”). Therefore, forming element 60 does not meet the “first perforated polymeric layer” limitation. See EX2001-SheldonDec, ¶109.

Petitioners devote a single conclusory sentence of their Petition to arguing that forming element 60 is a first perforated polymeric layer as required by claim 1. See Petition at 39. But Petitioners make no attempt to reconcile the disclosure of EX1004-Bergstrom that “forming element 60 is typically liquid-impermeable” such that it “makes liquid flow around the edges of the forming element 60 Liquid flow towards the ends of the core 10 is thus promoted.” EX1004-Bergstrom, 9:24-30. EX1004-Bergstrom does not disclose any fluid flow in the Z-

direction (through the pad, away from the wearer) with respect to forming element 60. EX1004-Bergstrom, 9:21-33; EX2001-SheldonDec, ¶¶109-110.

EX1004-Bergstrom teaches that any use of “perforated plastic films and reinforced tissue or reinforced nonwoven materials” is for the purpose of achieving the “required stiffness properties,” not for fluid flow. EX1004-Bergstrom, 9:34-10:4. There is no disclosure in EX1004-Bergstrom that the use of perforated plastic films and reinforced tissue or reinforced nonwoven materials promotes fluid flow as required by the first perforated polymeric layer limitation described and claimed in the ’138 Patent. EX2001-SheldonDec, ¶111.

Forming element 60 from EX1004-Bergstrom is visually and conceptually very different from the perforated polymeric layer disclosed by the ’138 Patent. Compare EX1004-Bergstrom, Fig. 4 (left) with EX1001-USP138, Fig. 4 (right):



These layers look and function nothing alike and Petitioners do not even attempt to argue that they do. The requirements for the first perforated polymeric layer disclosed by and claimed in the '138 Patent are not met by forming element 60 in EX1004-Bergstrom. For example, the specification of the '138 Patent requires that the claimed perforated polymeric layer has “penetrating apertures,” an aperture size of 0.5-5 mm, and an “open area” of 5-30% or 10-25%. EX1001-USP138, 3:30-49. A POSA reading the '138 Patent would understand that the perforated polymeric layer must have sufficient perforations or apertures through the layer such that fluid can flow in the Z-direction through the perforated polymeric layer, otherwise it would not be a perforated polymeric layer as claimed and as disclosed by the specification. In contrast, EX1004-Bergstrom does not describe forming element 60 as having any apertures, penetrating or otherwise, or open area, and in fact describes forming element 60 as “typically liquid-impermeable,” with fluid flow “around the edges of forming element 60” in only the X- and Y-directions. EX1004-Bergstrom, 9:24-30. As noted above, EX1004-Bergstrom does not disclose **any** fluid flow through forming element 60 in the Z-direction.

This is telling. Based on the disclosures of EX1004-Bergstrom, a POSA would understand that forming element 60 is not a perforated polymeric layer as claimed in the '138 Patent, because fluid flow follows the path of least resistance, and any perforations in forming element 60 would not result in fluid flow in the Z-

direction. In other words, forming element 60 is invariably described as a barrier to fluid flow. A POSA would understand that this is not a perforated polymeric layer as described and claimed in the '138 Patent. EX2001-SheldonDec, ¶¶112-113.

Further, there is no description of forming element 60 in EX1004-Bergstrom to indicate that it is a three-dimensionally formed apertured layer the way a first perforated polymeric layer is described and claimed in the '138 Patent. See EX2001-SheldonDec, ¶114; *see also* EX1001-USP138, 12:32-46, 3:29-40. The first perforated polymeric layer in the '138 Patent invariably requires apertures passing from a first surface to a second surface. There is no such disclosure in EX1004-Bergstrom. EX1004-Bergstrom uses the term perforated exactly once: in describing a film material that might be used in forming element 60. Ex. 1004-Bergstrom 10:1-4. First and foremost, however, the forming element should be “liquid-impermeable.” Ex. 1004-Bergstrom 9:24. Material selection must comport with this liquid-impermeability requirement, with a secondary objective to “also have the required stiffness properties.” Ex. 1004-Bergstrom, 10:1. A POSA would understand that mechanical perforation to affect stiffness, softness or physical properties is different from perforation to promote fluid flow, particularly with the stated requirement of liquid impermeability. EX2001-SheldonDec, ¶115.

Importantly, EX1004-Bergstrom differentiates “apertured” films (*i.e.*, films with holes passing from a first surface to a second surface) from “perforated” films (*i.e.*, films without holes passing from a first surface to a second surface). For example, EX1004-Bergstrom uses the term “apertured plastic film” rather than “perforated plastic film” to describe a material where “bodily fluid should be able to pass through it without hindrance,” for example topsheet 101 of EX1004-Bergstrom. *See* EX1004-Bergstrom, 10:31-11:6. In this way, EX1004-Bergstrom differentiates between a perforated but liquid-impermeable film and an apertured, liquid-permeable film. *See* EX2001-SheldonDec, ¶116.

In short, Petitioners simply rely on the word “perforated” without further explanation of how forming element 60, which is an impermeable barrier, is a first perforated polymeric layer as described and claimed in the ’138 Patent. This ignores the teachings of the ’138 Patent, the express disclosures of EX1004-Bergstrom, and the role and structure of forming element 60 in concluding that forming element 60 meets the limitation of a perforated polymeric layer. EX2001-SheldonDec, ¶¶117-118; *Wasica Finance*, 853 F.3d at 1284 (“[A]mbiguous references do not, as a matter of law, anticipate a claim.”); *In re Turlay*, 304 F.2d 893, 899 (C.C.P.A. 1962); *Robert Bosch*, IPR2016-01755, Paper 15 at 11-12 (determining “single use” of a word absent “corroborating disclosure in the reference” is insufficient for anticipation).

Petitioners have failed to meet their burden that the invention of the '138 Patent was disclosed in full in EX1004-Bergstrom. And because forming element 60 would have to be significantly modified from being an impermeable barrier to being a perforated, permeable layer in a fluid flow control structure to meet the limitations of claim 1, EX1004-Bergstrom cannot anticipate any claim of the '138 Patent. *See Enplas Display Device Corp. v. Seoul Semiconductor Co., Ltd.*, 909 F.3d 398, 405 (Fed. Cir. 2018) (“Prior art that must be modified to meet the disputed claim limitation does not anticipate the claim.”); *In re Chudik*, 851 F.3d 1365, 1374 (Fed. Cir. 2017) (“Prior art that must be distorted from its obvious design does not anticipate a new invention”). As a result, Petitioners have not met their burden that EX1004-Bergstrom meets the “first perforated polymeric layer” limitation of claim 1.

2. Claim Element 1[e]: “said absorbent core comprising . . . a fluid flow control structure”

In addition, EX1004-Bergstrom does not meet the “fluid flow control structure” limitation of claim 1. As an initial matter, the claimed fluid flow control structure must comprise a “first perforated polymeric layer” and as set forth above, EX1004-Bergstrom does not meet this limitation. *See* EX2001-SheldonDec, ¶119. In addition, Petitioners have read the word “structure” out of this claim limitation, which is improper and precludes anticipation.

“Anticipation requires that a single prior art reference disclose *each and*

every limitation of the claimed invention, either expressly or inherently.” *SRI Int’l, Inc. v. Cisco Sys., Inc.*, 930 F.3d 1295, 1306 (Fed. Cir. 2019) (emphasis added). “[C]laims are interpreted with an eye toward giving effect to all terms in the claim.” *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006); see also *Pause Tech., LLC v. TiVo, Inc.*, 419 F.3d 1326, 1331 (Fed. Cir. 2005) (rejecting interpretation that ignored “other language appearing later in the claim.”). The “fundamental problem” with Petitioners’ argument for the fluid flow control structure element “is that it simply does not address” how acquisition layer 40 and forming element 60 together form a structure. *St. Jude Med., LLC v. Snyders Heart Valve LLC*, 977 F.3d 1232, 1239 (Fed. Cir. 2020). The failure of Ground I to account for the entirety of Element 1[e] “precludes anticipation by [EX1004-Bergstrom] on the record of” the Petition. *Id.* at 1241.

Petitioners cleverly annotate acquisition layer 40 and forming element 60 in the same color for purposes of this claim element. See Petition at 35. But coloring things the same way does not make them a structure. Petitioners’ expert does correctly opine that to be a fluid flow control structure, the layers must “provide the same functionality.” EX1002-Decl, ¶105. This comports with the ordinary and customary meaning of “structure” as a POSA would have understood it in view of the disclosures in the ’138 Patent, which is a cohesive arrangement of elements to accomplish a particular function. EX2001-SheldonDec, ¶¶120-121.

The fluid flow control structure as described and claimed in the '138 Patent must be porous to allow the flow of fluid through the structure and into the absorbent layers of the absorbent article in the Z-direction away from the body. *See, e.g.*, EX1001-USP138, 7:45-47 (“The fluid flow control structure has a highly porous internal structure with less resistance to fluid flow than conventional absorption materials.”). Because forming element 60 is liquid impermeable, it is necessarily not porous and cannot comprise a layer of the fluid flow control structure as described and claimed in the '138 Patent as explained above. EX2001-SheldonDec, ¶122.

The Petition entirely glosses over key teachings from the '138 Patent that 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, **increasing** the risk of side failure. *See* EX1002-Decl, ¶105; EX1004-Bergstrom, 9:27-30. Forming element 60 in EX1004-Bergstrom essentially functions as a splash pad; as the fluid passes through acquisition layer 40, forming element 60 preferably acts as a “relatively

planar impact surface” (EX1004-Bergstrom, 9:4-5) or a “wider and flatter impact surface” (EX1004-Bergstrom, 14:24-29) for fluid. A POSA would understand that an impact surface beneath an acquisition layer is not a fluid flow control structure as described and claimed in the ’138 Patent. EX2001-SheldonDec, ¶123.

Indeed, even within the absorbent article described in EX1004-Bergstrom, acquisition layer 40 has a different and opposite role from forming element 60. Acquisition layer 40 and forming element 60 are never discussed together as a *structure* to accomplish any particular function, and Petitioners do not argue that they do. EX2001-SheldonDec, ¶124. *Wasica Finance*, 853 F.3d at 1284.

To the contrary, as described in EX1004-Bergstrom, acquisition layer 40 and forming element 60 cannot comprise a fluid flow control structure as claimed in the ’138 patent. Acquisition layer 40 “acts to receive liquid rapidly, to temporarily hold it and to distribute it evenly to the upper and lower absorbent cores 20, 30.” EX1004-Bergstrom, 6:16-21. In other words, acquisition layer 40 is an ADL in the context of EX1004-Bergstrom—it is a thin, flexible nonwoven made of “fibrous materials, such as e.g. synthetic fibres” that necessarily promotes the flow of fluid in the positive and negative Z-directions to the upper and lower absorbent cores. EX1004-Bergstrom, 6:20-21. Forming element 60, in contrast, is an optional element “[t]o help prevent collapse of the three-dimensional structure of the absorbent core 10 under pressure in the width [X] direction.” EX1004-Bergstrom,

8:29-30. In other words, forming element 60 is a thick, stiff element for shaping the article. Acquisition layer 40 and forming element 60 do not work together in any way in EX1004-Bergstrom's absorbent article, and a POSA would not indiscriminately consider them to be a "structure." They are disparate in every way. EX2001-SheldonDec, ¶125.

The arrangement of acquisition layer 40 and forming element 60 near one another in the absorbent article is not described as being for fluid flow control anywhere in EX1004-Bergstrom. Rather, the placement of forming element 60 between the acquisition layer 40 and lower absorbent core 30 is only to "be less noticeable to the wearer and [to] provide a better forming effect than if it were located elsewhere." EX1004-Bergstrom, 8:32-35. This further supports PO's position that forming element 60 is not a perforated polymeric layer as part of a fluid flow control structure as described and claimed in the '138 Patent. *See* EX2001-SheldonDec, ¶¶126-127. Neither Petitioners nor their expert point to any teaching in EX1004-Bergstrom that acquisition layer 40 and forming element 60 have the same functionality or work together in any cohesive way to promote the flow of fluid as required by the claimed fluid flow control structure.

Indeed, as discussed above, EX1004-Bergstrom teaches that forming element 60 is liquid impermeable. As a result, any absorbent material located directly below forming element 60 will not be exposed to fluid and will not be

wetted except perhaps by ancillary wicking and capillary action from the edges of the absorbent article to the center. This acts against the function of acquisition layer 40, which as noted above distributes fluid evenly in the Z-direction. Forming element 60 acts as a barrier to fluid flow in the Z-direction and actively inhibits fluid flow through the acquisition layer 40 to the second absorbent layer. In this way, acquisition layer 40 and forming element 60 cannot form a fluid flow control structure because they are performing very different functions. See EX2001-SheldonDec, ¶¶127-130; *Enplas Display*, 909 F.3d at 405; *In re Chudik*, 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 in a different way from the claimed fluid flow control structure, which evenly distributes the fluid over the middle of the absorbent core first and the edges second.

Because EX1004-Bergstrom does not meet the “first perforated polymeric layer” or “fluid flow control structure” limitations of claim 1 of the ’138 Patent, EX1004-Bergstrom does not anticipate claim 1 of the ’138 Patent.

3. Claims 3, 21-22, and 24-25

Because EX1004-Bergstrom does not anticipate claim 1 of the ’138 Patent, and because claims 3, 21-22, and 24-25 all depend from claim 1, EX1004-Bergstrom does not anticipate claims 3, 21-22, or 24-25 of the ’138 Patent. EX2001-SheldonDec, ¶¶132-134.

B. Ground II: Claims 1, 3-5, 20-22, and 24-25 Are Not Obvious Over EX1008-Nakazawa in View of EX1006-Glaug

Petitioners have failed to meet their burden that the combination of EX1008-Nakazawa in view of EX1006-Glaug renders obvious any of claims 1, 3-5, 20-22, and 24-25. “[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). The Petition fails to explain “how or why” the POSA would have modified EX1008-Nakazawa with the fluid acquisition system from EX1006-Glaug to arrive at the claimed fluid flow control structure, indicating “hindsight reconstruction of these references” to reach the challenged claims. *TriVascular, Inc. v. Samuels*, 812 F.3d 1056, 1066 (Fed. Cir. 2016).

The Petition loosely refers to diffusion sheet 63 in EX1008-Nakazawa as a “fluid flow control structure.” *See, e.g.*, Petition at 56-58. This is misleading and incorrect in the context of the ’138 Patent. Claim 1 of the ’138 Patent recites that a 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.” *See* EX1001-USP138, cl. 1. Diffusion sheet 63 in EX1008-Nakazawa cannot be a fluid flow control structure as claimed in the ’138 Patent because it is a single layer and not a layered *structure*, which as claimed and by its very nature must be made of

layers, not a single *layer*. See EX2001-SheldonDec, ¶136. This misunderstanding pervades the Petition.

Second, EX1008-Nakazawa teaches away from using additional layers for fluid management, and teaches that any additional layers would impede, rather than promote, fluid flow. See EX2001-SheldonDec, ¶137. “A reference teaches away when it suggests that the line of development flowing from the reference’s disclosure is unlikely to be productive of the result sought by the applicant.” *Santarus, Inc. v. Par Pharm., Inc.*, 694 F.3d 1344, 1354 (Fed. Cir. 2012); see also *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994); *AstraZeneca AB v. Mylan Pharms., Inc.*, 19 F.4th 125, 1337-38 (Fed. Cir. 2021) (affirming finding of non-obviousness; noting that even “implicit disparagement” can suffice for teaching away).

Third, EX1006-Glaug’s fluid acquisition system 34 is not a “fluid flow control structure.” As noted above, claim 1 of the ’138 Patent requires that a fluid flow control structure be arranged between the first absorbent layer and the backsheet.” See EX1001-USP138, cl. 1. It is undisputed that the fluid acquisition system 34 in EX1006-Glaug “is located on top of the core and under the top-sheet.” See EX1006-Glaug, 4:58-59; see also EX2001-SheldonDec, ¶138:

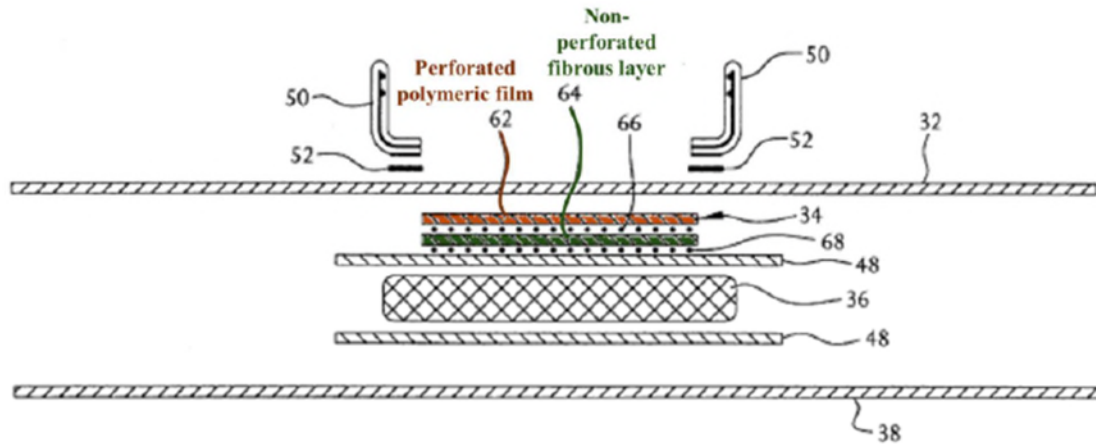


FIG. 2

As such, the fluid acquisition system 34 from EX1006-Glaug does not meet the limitations of claim 1's fluid flow control structure, as it resides between the topsheet and absorbent core, not the absorbent core and the backsheet. Petitioners fail to identify specifically how or why a POSA would modify the fluid acquisition system in EX1006-Glaug to meet the fluid flow control structure limitation of claim 1. Without this explanation, Ground II "stymies a proper obviousness analysis." *Teradata Corp.*, No. IPR2020-00942, Paper 10 at 14-15 (PTAB Nov. 24, 2020); EX2001-SheldonDec, ¶138.

The Petition fails to address how or why a POSA would modify either diffusion sheet 63 from EX1008-Nakazawa or fluid acquisition system 34 from EX1006-Glaug to arrive at the claimed invention. Petitioners merely conclude that a POSA could have simply swapped fluid acquisition system 34 into EX1008-Nakazawa in place of (or in combination with) diffusion sheet 63 and would have had a reasonable expectation of success in doing so, arguing that various layers in

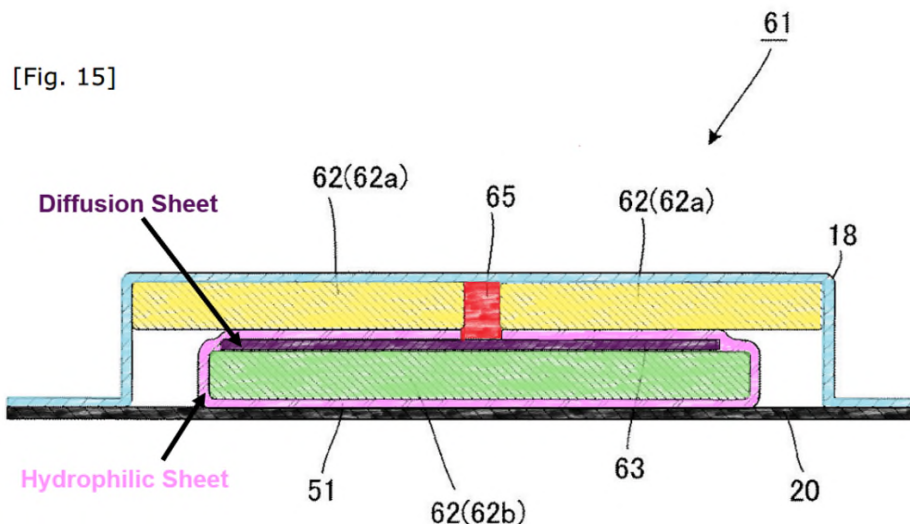
absorbent articles are invariably interchangeable. But “[o]bviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention.” *See Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015). “Without any explanation as to how or why the references would be combined to arrive at the claimed invention, we are left with only hindsight bias that *KSR* warns against.” *Metalcraft of Mayville, Inc. v. The Toro Co.*, 848 F.3d 1358, 1367 (Fed. Cir. 2017). The type of arbitrary substitution suggested by Petitioners fails to meet their burden of showing a motivation to modify/combine and reasonable expectation of success. *See* EX2001-SheldonDec, ¶139. As such, Ground II fails to show obviousness of any claim.

1. EX1008-Nakazawa Teaches Away from Petitioners’ Proposed Modifications and Combination with EX1006-Glaug

EX1008-Nakazawa teaches away from using the lower nonperforated fibrous layer 64 from EX1006-Glaug, or EX1006-Glaug’s fluid acquisition system 34, as part of a fluid flow control structure. EX1008-Nakazawa discloses that the hydrophilic sheet that can wrap the absorbent core can be made of “tissue, absorbent paper, or hydrophilic treated nonwoven fabric.” EX1008-Nakazawa, [0043]. EX1008-Nakazawa discloses an embodiment where the second absorbent material is wrapped in the hydrophilic sheet “except for the region corresponding

to the openings in the hole portions 65 formed in the first absorbent material 62a.

This configuration has the advantage of keeping SAP from leaking from the second absorbent material ***without impeding permeation*** of excretory fluid from the hole portions to the diffusion sheet and providing shape stability to the second absorbent material.” EX1008-Nakazawa, [0085]; *see also id.*, Fig. 15:



EX2001-SheldonDec, ¶140. According to Petitioners, the “hydrophilic treated nonwoven fabric” in EX1008-Nakazawa is analogous to the lower nonperforated fibrous layer 64 in EX1006-Glaug. *See* Petition at 93-94. As a result, EX1008-Nakazawa teaches that the fluid acquisition system from EX1006-Glaug would impede permeation of fluid rather than promote it, defeating any purported motivation to combine proposed by Petitioners. *Santarus*, 694 F.3d at 1354; *In re Gurley*, 27 F.3d at 553; *AstraZeneca AB*, 19 F.4th at 1337-38; EX2001-SheldonDec, ¶141.

2. The Petition Does Not Provide a Reason for Why a POSA Would Have Been Motivated to Modify EX1008-Nakazawa or EX1006-Glaug to Arrive at Claim Elements 1[e] and 1[h] with a Reasonable Expectation of Success

The Petition provides scant evidence for the interchangeability of EX1006-Glaug's fluid acquisition system and EX1008-Nakazawa's diffusion sheet.

Petitioners argue (1) EX1008-Nakazawa and EX1006-Glaug both recognize the need for an acquisition layer and (2) EX1006-Glaug teaches that a second layer will improve fluid flow. *See* Petition at 61-64. But this is unsatisfactory, conclusory, and wrong given the teachings of EX1008-Nakazawa and EX1006-Glaug. There is no sufficient motivation to combine and no reasonable expectation of success here.

- a) *A POSA would understand that EX1006-Glaug's fluid acquisition system and EX1008-Nakazawa's diffusion sheet are not interchangeable.*

Combining EX1008-Nakazawa and EX1006-Glaug would change the basic principles for which they were each designed to operate, leading away from obviousness. “[C]ombinations that change the basic principles under which the prior art was designed to operate, or that render the prior art inoperable for its intended purpose, may fail to support a conclusion of obviousness.” *Plas-Pak Indus., Inc. v. Sulzer Mixpac AG*, 600 F. App'x 755, 758 (Fed. Cir. 2015) (citing *In re Ratti*, 270 F.2d 810, 813 (C.C.P.A. 1959); *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984)); *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1052 (Fed.

Cir. 1988) (reversing obviousness determination “[i]n view of the antithetical principles of operation and absence of any teaching or suggestion to combine these prior art devices”).

The purposes of diffusion sheet 63 in EX1008-Nakazawa and fluid acquisition system 34 in EX1006-Glaug are different and a POSA would understand that they are not interchangeable. The diffusion sheet in EX1008-Nakazawa “covers the lower layer of absorbent material, including the areas where there are openings in the hole portions formed in the upper layer of absorbent material.” EX1008-Nakazawa, [0061]. This placement is for diffusion of fluid, as the name of the element suggests. The diffusion layer therefore distributes fluid to the first and second absorbent cores more efficiently—*i.e.*, the diffusion sheet must promote fluid flow in both the +Z (toward the body) and -Z (away from the body) directions to maximize the absorbency of both absorbent cores in the article. EX2001-SheldonDec, ¶143.

EX1006-Glaug’s fluid acquisition system 34 has a different stated purpose. EX1006-Glaug’s fluid acquisition system 34 or transfer layers are not designed to diffuse fluids, but rather to rapidly acquire fluid and move it from the body efficiently into the absorbent core. These layers provide superior surface dryness and prevent wetting back. Fluid acquisition system 34 “optimizes 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.” EX1006-Glaug, 9:41-45. The fluid acquisition system in EX1006-Glaug is focused **solely** on promoting fluid flow in the negative Z-direction away from the body in order to promote wearer comfort and dryness. Fluid acquisition system 34 is a bridge between the topsheet and the absorbent core “for facilitating the transference of fluid into the core.” EX1006-Glaug, 3:38; EX2001-SheldonDec, ¶¶144-145.

Further, the fluid acquisition system described in EX1006-Glaug is designed for use with a singular absorbent core. A POSA would not be motivated to add layers from EX1006-Glaug into EX1008-Nakazawa because such a modification would disrupt diffusion of fluid into the upper absorbent core as required by the diffusion sheet in EX1008-Nakazawa. This requirement is never contemplated by EX1006-Glaug. And additional interfaces within an absorbent article—such as those introduced by the addition of layers as suggested by Petitioners—may have negative consequences to fluid distribution. Indeed, adding layers can cause unexpected problems given that “very little is known about the flow through the interfaces that exist between the different components” in an absorbent article. See EX1009-White at 246-47; EX2001-SheldonDec, ¶¶146-147.

The Petition fails to address any of the above issues. Rather, Petitioners simply conclude that “[t]he only difference between EX1008-Nakazawa-’190’s

single layer perforated diffusion sheet and EX1006-Glaug-'753's two-layer fluid acquisition system is that EX1006-Glaug-'753 teaches having a fibrous, non-perforated layer in addition to the perforated film.” Petition at 63. In other words, Petitioners incorrectly argue that a layer is a layer, and two layers for rapid fluid acquisition are interchangeable for one layer for fluid diffusion. As described herein, the difference between a single-layer diffusion sheet in a dual-core absorbent article and a multi-layer fluid acquisition system in a single-core absorbent article is significant and these layers would not be considered interchangeable by a POSA. EX2001-SheldonDec, ¶148.

- b) *A POSA would not be motivated to add additional layers to an absorbent article due to cost and manufacturing complexity.*

Further, as explained in Section III.B.1, adding layers to an absorbent article adds unnecessary manufacturing complexity and cost. Adding materials and layers can increase downtime and costs and can make a marginally profitable product unprofitable. See EX2001-SheldonDec, ¶149.

These substitutions can easily cost hundreds of thousands or even millions of dollars. A POSA would not be motivated to add to or modify layers in an article known to work for its intended purpose because of these costs, and further because such additions or modifications would make the article less effective. See *In re Schweickert*, 676 F. App'x at 995 (“unwanted cost and complexity” can discourage

motivation); *Anderson*, 300 F. App'x at 898 (“significant difference in cost” can discourage motivation).

- c) *A POSA would not have a reasonable expectation of success in modifying EX1008-Nakazawa to incorporate the fluid acquisition system from EX1006-Glaug.*

Combining the diffusion sheet from EX1008-Nakazawa with the fluid acquisition system from EX1006-Glaug would not merely “involve the simple substitution of one known element...for another.” Petition at 64. There would be significant issues with this combination as described herein. Replacing one layer in EX1008-Nakazawa with two separate layers from EX1006-Glaug would be a difficult and time-consuming process using very expensive and temperamental equipment and would be unlikely to be successful. EX2001-SheldonDec, ¶151; *Qiagen N. Am.*, 2021 WL 5024387, at *5; EX1009-White at 246-47.

Petitioners argue that because acquisition/distribution layers were “well-known and well-understood before the '138 Patent and were predictable components for multi-layered absorbent articles,” that a POSA would have a reasonable expectation of success in modifying, swapping, or combining them. Petition at 65. This is incorrect and insufficient. Just because a particular type of layer is well-known in the industry does not mean that all such layers are interchangeable or that a POSA would have success in interchanging them. “It does not suffice to simply be known. A reason for combining must exist.” See

Virtek Vision Int'l ULC v. Assembly Guidance Sys., Inc., 97 F.4th 882, 888 (Fed. Cir. 2024); *Juniper Networks, Inc. v. Correct Transmission, LLC*, No. 2023-1046, 2024 WL 3517862, at *5 (Fed. Cir. July 24, 2024) (finding insufficient and conclusory an argument that reasonable expectation of success is satisfied where only feature missing from primary reference was “very well known”); EX2001-SheldonDec, ¶152.

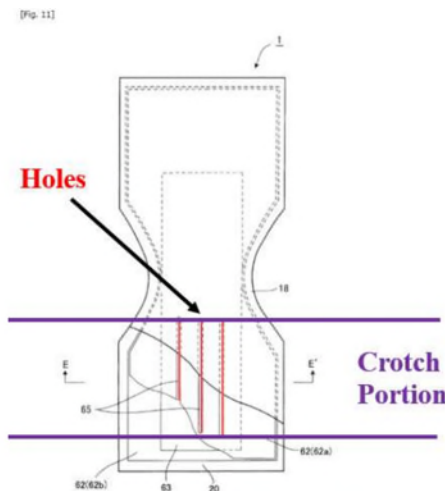
As discussed above, an acquisition system with layers for rapidly moving fluid down into an absorbent article is very different from a diffusion sheet for moving fluid both up into an upper absorbent core and down into a lower absorbent core via capillary action. A POSA would not expect these layers to work interchangeably and would not have a reasonable expectation of success in modifying them the way the Petition suggests. EX2001-SheldonDec, ¶152.

Petitioners’ proposed combinations and modifications are driven entirely by hindsight rather than any motivation or reasonable expectation of success present in the art at the time of the ’138 Patent. *See TriVascular*, 812 F.3d at 1066 (noting the Board must “be careful not to allow hindsight reconstruction of references . . . without any explanation as to *how* or *why* the references would be combined to produce the claimed invention.”). As a result, the combination of EX1008-Nakazawa and EX1006-Glaug fails to render obvious claim 1 of the ’138 Patent.

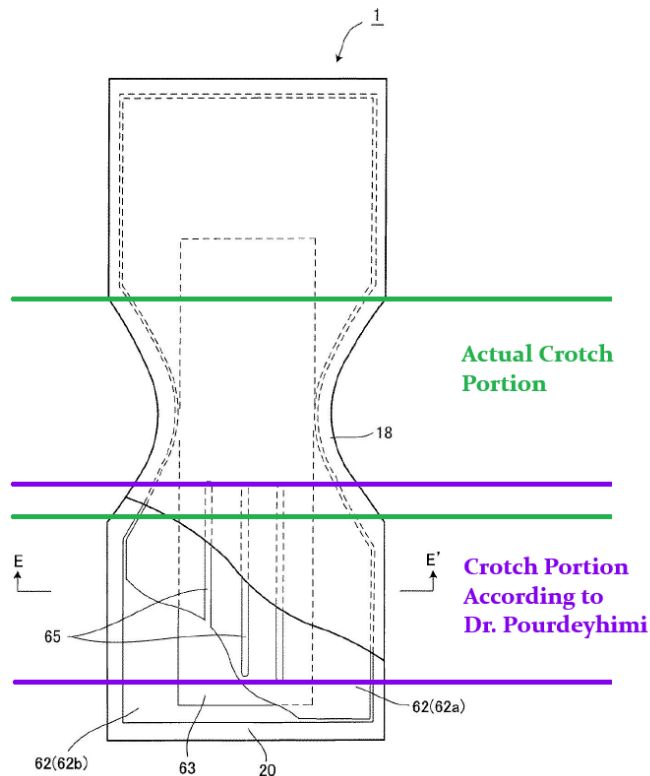
3. Claim 21 – “wherein the opening extends through the entire crotch portion of the absorbent article”

Petitioners argue that opening 65 of EX1008-Nakazawa extends through the entire crotch portion of the absorbent article. Petition at 73. This is incorrect, and Petitioners’ annotated diagrams are incorrect, misleading, and conclusory.

Petitioners annotate Figure 11 of EX1008-Nakazawa and merely places the crotch portion where the hole portion 65 is, rather than where the actual crotch portion of the article is. *See* Petition at 74:



There is very little if any overlap of the hole portion 65 in EX1008-Nakazawa with the actual crotch portion as defined in the '138 Patent, which is distinguished from “end portions” and which “is the portion of the article that is designed to be placed in the crotch of a wearer and to be in contact with the pudendal area of the wearer.” *See* EX1001-USP138 at 5:55-64. It is clear when applying the proper annotations to Figure 11 from EX1008-Nakazawa that it does not meet the limitation of claim 21:



See EX2001-SheldonDec, ¶¶154-155.

Opening 65 of EX1008-Nakazawa is actually substantially within the end portion of the product, in line with EX1008-Nakazawa’s other teachings—*i.e.*, using openings to “improv[e] the fit around the legs.” See, *e.g.*, EX1008-Nakazawa, [0049]. Putting opening 65 in the crotch portion of the article described in EX1008-Nakazawa would lead to side edge leakage—a problem the inventions of the ’138 Patent are intended to solve. EX2001-SheldonDec, ¶156.

As a result, EX1008-Nakazawa does not disclose the limitations of claim 21.

4. Claims 3-5, 20-22, and 24-25

Because the combination of EX1008-Nakazawa and EX1006-Glaug does not render claim 1 of the ’138 Patent obvious, and because claims 3-5, 20-22, and

24-25 all depend from claim 1, the combination of EX1008-Nakazawa and EX1006-Glaug does not render claims 3-5, 20-22, and 24-25 of the '138 Patent obvious. EX2001-SheldonDec, ¶¶157-158.

C. Ground III: Claim 7 Is Not Obvious Over EX1008-Nakazawa in view of EX1006-Glaug and EX1016-Cohen

The addition of EX1016-Cohen to the arguments set forth by Petitioners in Ground II does not remedy Ground II's deficiencies. Claim 7 is not obvious for all the reasons set forth in PO's response regarding claim 1, from which claim 7 depends, for Ground II above. EX1016-Cohen does not provide the motivation or reasonable expectation of success lacking from Ground II, as Petitioners' proposed combination is simply arbitrary and done with hindsight. *See TriVascular*, 812 F.3d at 1066; EX2001-SheldonDec, ¶160. For these reasons and the reasons described above for Ground II, the combination of EX1008-Nakazawa with EX1006-Glaug and EX1016-Cohen does not render claim 7 obvious.

D. Ground IV: Claims 1-5, 20-22, and 24-25 Are Not Obvious Over EX1008-Nakazawa in view of EX1007-Ponomarenko

The combination of EX1008-Nakazawa in view of EX1007-Ponomarenko does not render obvious any of claims 1-5, 20-22, and 24-25. *KSR*, 550 U.S. at 418; *TriVascular*, 812 F.3d at 1066.

As discussed above, EX1008-Nakazawa's diffusion sheet 63 is not a "fluid flow control structure." This phrasing is misleading in the context of the '138

Patent and lays bare the Petition's flaws. *See supra* Section VI.B; EX2001-SheldonDec, ¶162.

In addition, EX1008-Nakazawa teaches away from using additional layers for fluid management, and teaches that any additional layers would impede, rather than promote, fluid flow. EX2001-SheldonDec, ¶¶163, 166-167; *Santarus*, 694 F.3d at 1354; *In re Gurley*, 27 F.3d at 553; *AstraZeneca*, 19 F.4th at 1337-38.

Petitioners inappropriately refer to EX1007-Ponomarenko's sublayer 30 as being a "fluid flow control structure." *See, e.g.*, Petition at 82. EX1007-Ponomarenko's sublayer is disposed between the topsheet and the absorbent core, not between the first absorbent core and the backsheet as required by claim 1 of the '138 Patent. EX2001-SheldonDec, ¶164.

Beyond conclusory statements, the Petition fails to address how or why a POSA would modify either diffusion sheet 63 from EX1008-Nakazawa or sublayer 30 from EX1007-Ponomarenko to arrive at the claimed invention. *Teradata*, IPR2020-00942, Paper 10 at 14-15. Petitioners merely argue that a POSA would be motivated to swap sublayer 30 from EX1007-Ponomarenko into EX1008-Nakazawa in place of diffusion sheet 63 and would have a reasonable expectation of success in doing so. In essence, Petitioners argue that layers in absorbent articles are invariably interchangeable. This is insufficient and incorrect as set forth herein. *Belden*, 805 F.3d at 1073; *Metalcraft*, 848 F.3d at 1367.

1. EX1008-Nakazawa Teaches Away from Petitioners’ Proposed Modifications and Combination with EX1007-Ponomarenko

EX1008-Nakazawa teaches away from using the multi-layer sublayer 30 of EX1007-Ponomarenko as a fluid flow control structure for the same reasons set forth in Section VI.B.1. *See* EX2001-SheldonDec, ¶¶166-167.

2. The Petition Does Not Provide a Reason for Why a POSA Would Have Been Motivated to Modify EX1008-Nakazawa or EX1007-Ponomarenko to Arrive at Claim Elements 1[e] and 1[h] with a Reasonable Expectation of Success

Petitioners argue that a POSA would be motivated to insert EX1007-Ponomarenko’s sublayer 30 into EX1008-Nakazawa because “fluid flow control structures were already commonly used” and because the only difference between EX1008-Nakazawa’s diffusion sheet and EX1007-Ponomarenko’s sublayer is that EX1007-Ponomarenko “teaches having additional layers, including non-perforated fibrous layers in addition to the perforated polymeric film.” Petition at 82. This is legally insufficient. Petitioners do not provide an adequate motivation to modify or combine EX1008-Nakazawa and EX1007-Ponomarenko to arrive at the claimed fluid flow control structure. A POSA would not be motivated to add or exchange layers to or in EX1008-Nakazawa’s absorbent article, nor would a POSA have had a reasonable expectation of success in doing so, because of the marked differences between the structure and function of EX1008-Nakazawa’s diffusion sheet and EX1007-Ponomarenko’s sublayer. EX2001-SheldonDec, ¶168; *Plas-Pak*, 600 F.

App'x at 758; *Belden*, 805 F.3d at 1073.

- a) *A POSA would understand that EX1007-Ponomarenko's sublayer and EX1008-Nakazawa's diffusion sheet are not interchangeable.*

The purposes of diffusion sheet 63 in EX1008-Nakazawa and sublayer 30 in EX1007-Ponomarenko are different and a POSA would understand that they are not interchangeable. As described above, EX1008-Nakazawa's diffusion sheet promotes fluid flow in the -Z and +Z directions to the upper and lower absorbent cores in the article. *See supra* Section VI.B.2.a; EX2001-SheldonDec, ¶169.

In contrast, EX1007-Ponomarenko never refers to sublayer 30 as having any impact on fluid flow. The entirety of EX1007-Ponomarenko is focused on improvements to feces management. *See, e.g.*, EX1007-Ponomarenko, Abstract, 1:23-26 (“The problem with feces isolation or in diapers is that the feces can vary hugely in consistency and viscosity.”), 1:28-32, 1:42-52. A POSA reading EX1007-Ponomarenko would understand that EX1007-Ponomarenko's invention is an improvement over the prior art for feces management, not urine or fluid flow. EX2001-SheldonDec, ¶¶170-171.

Petitioners' conclusion that EX1008-Nakazawa and EX1007-Ponomarenko “are in the same field as the '138 patent because they all relate to the structure and design of absorbent articles” (Petition at 82) is just that—a conclusion with no evidentiary support. A POSA would not see an invention designed for feces

management and immobilization, like EX1007-Ponomarenko, and be motivated to simply transfer the feces immobilization elements from that reference to an invention like EX1008-Nakazawa, which is designed for fluid diffusion. EX2001-SheldonDec, ¶¶172-173.

In addition, the Petition makes no attempt to explain why a POSA would be motivated to move the feces immobilization sublayer from just below the topsheet of EX1007-Ponomarenko to the position of the diffusion sheet in EX1008-Nakazawa, between two absorbent cores. A POSA reading these references would believe that this design is illogical and would not work for a number of reasons. *Plas-Pak*, 600 F. App'x at 758; *Uniroyal*, 837 F.2d at 1052.

First, if the feces immobilization sublayer were disposed below the absorbent core, it would never be exposed to feces, as the top surface of the absorbent core, rather than the sublayer, would interface with the feces and would lead to smearing of feces and wearer discomfort. EX2001-SheldonDec, ¶175.

Second, as with EX1006-Glaug, placing EX1007-Ponomarenko's sublayer below the absorbent core would create additional pressure on the sublayer both during manufacture and during use. This is because sandwiching a 3D sublayer with holes designed for feces management exerts compressive forces on the sublayer not contemplated by either EX1008-Nakazawa or EX1007-Ponomarenko. Indeed, EX1007-Ponomarenko is concerned with the pressure resistance of the

sublayer (*see* EX1007-Ponomarenko, 1:65-2:3) such that a POSA would not be motivated to insert that sublayer into the center of a product where it would be subject to greater forces and pressure—during both manufacture and use—based on the teachings of EX1007-Ponomarenko. EX2001-SheldonDec, ¶176.

Third, incontinence products designed for feces management, like EX1007-Ponomarenko, are intended to handle only one BM, as a consumer would change the product quickly after the first BM due to discomfort and odor. Conversely, a product like EX1008-Nakazawa is intended to handle multiple insults of fluid and is not intended to be used for BM management. *See* EX1008-Nakazawa, [0029]. This context provides further rationale for why a POSA would not be motivated to combine EX1008-Nakazawa and EX1007-Ponomarenko. EX2001-SheldonDec, ¶¶177-178.

Thus, contrary to Petitioners’ conclusory arguments, a POSA would not be motivated to replace the diffusion sheet in EX1008-Nakazawa with the feces immobilization sublayer from EX1007-Ponomarenko. Such a modification would disrupt the flow of fluid required by the diffusion sheet in EX1008-Nakazawa. Indeed, additional interfaces within an absorbent article may have negative consequences to fluid distribution and can cause unexpected problems as described above with respect to Ground II and given that “very little is known about the flow through the interfaces that exist between the different components” in an absorbent

article. See EX1009-White at 246-47; EX2001-SheldonDec, ¶179.

Ignoring these issues, the Petition simply concludes that “[t]he difference between EX1008-Nakazawa-’190’s diffusion sheet and EX1007-Ponomarenko-’236’s sublayer is that EX1007-Ponomarenko-’236 teaches having additional layers, including non-perforated fibrous layers in addition to the perforated polymeric film.” Petition at 82. Once again, Petitioners argue that a layer is a layer, and two layers for fecal management are interchangeable for one layer for urine management. This is incorrect. As described above, the difference between a single-layer diffusion sheet and a multi-layer feces immobilization sublayer is significant and the materials and layers are not interchangeable. As a result, a POSA would not be motivated to combine EX1008-Nakazawa with sublayer 30 from EX1007-Ponomarenko to arrive at the claimed fluid flow control structure. EX2001-SheldonDec, ¶180.

- b) *A POSA would not be motivated to add additional layers to an absorbent article due to cost and manufacturing complexity.*

Further, as explained in Sections III.B.1 and VI.B.2.b, adding layers to an absorbent article increases manufacturing complexity, cost, and machine downtime, and can make a marginally profitable product unprofitable. EX2001-SheldonDec, ¶181; *In re Schweickert*, 676 F. App’x at 995; *Anderson*, 300 F. App’x at 898.

EX1007-Ponomarenko's design includes an expensive, cumbersome, and complex topsheet and sublayer acquisition layer system. Due to the improved performance of this feces management and immobilization system, the product would necessarily have less absorbent material to function as designed; the added bulk and cost of EX1007-Ponomarenko's feces management and immobilization system would require removal of absorbent material to compensate. As a result, a POSA would not be motivated to combine EX1008-Nakazawa with EX1007-Ponomarenko because the resulting design would be less efficient in rapidly diffusing large insults of fluid, which is the main purpose behind EX1008-Nakazawa. EX2001-SheldonDec, ¶¶183-184. *Plas-Pak*, 600 F. App'x at 758; *Uniroyal*, 837 F.2d at 1052.

- c) *A POSA would not have a reasonable expectation of success in modifying EX1008-Nakazawa to incorporate the sublayer from EX1007-Ponomarenko.*

Combining the diffusion sheet from EX1008-Nakazawa with the sublayer from EX1007-Ponomarenko would not merely “involve[] the simple substitution of one known element...for another” as Petitioners conclude. Petition at 83. There would be significant issues with this combination as described herein. Replacing one layer in EX1008-Nakazawa with two separate layers from EX1007-Ponomarenko would be a difficult and time-consuming process using very expensive and temperamental equipment and would be unlikely to be successful.

EX2001-SheldonDec, ¶185; *Qiagen N. Am.*, 2021 WL 5024387, at *5; Ex1009-White at 246-47.

Petitioners argue that that because acquisition/distribution layers were known prior to the '138 Patent, that a POSA would have a reasonable expectation of success in modifying, swapping, or combining them. Petition at 84. This is incorrect and legally insufficient. Just because a particular type of layer is well-known in the industry does not mean that all such layers are interchangeable. *See Virtek Vision*, 97 F.4th at 888; *Juniper Networks*, 2024 WL 3517862, at *5; EX2001-SheldonDec, ¶186.

As discussed above, a sublayer with layers for storing and immobilizing feces is very different from a diffusion sheet for moving fluid both up into an upper absorbent core and down into a lower absorbent core. A POSA would not expect these layers to work interchangeably and would not have a reasonable expectation of success in modifying them the way the Petition suggests. Petitioners' proposed combinations and modifications are driven entirely by hindsight rather than any motivation present in the art at the time of the '138 Patent. *See TriVascular*, 812 F.3d at 1066 (noting the Board must not "allow hindsight reconstruction of references" without a proper explanation of "how or why" the references would be combined). As a result, the combination of EX1008-Nakazawa and EX1007-Ponomarenko fails to render obvious claim 1 of the '138 Patent.

3. Claim 2 – “wherein the first perforated polymeric layer has a basis weight of from 60 g/m² to 100 g/m²”

In addition, the combination of EX1008-Nakazawa and EX1007-Ponomarenko does not meet the additional limitation of claim 2, “wherein the first perforated polymeric layer has a basis weight of from 60 g/m² to 100 g/m²” because a POSA would not be motivated to modify diffusion sheet 63 of EX1008-Nakazawa by replacing it with sublayer 30 of EX1007-Ponomarenko.

The diffusion sheet disclosed in EX1008-Nakazawa has either a basis weight of 19.5 g/m² (bulky air-porous nonwoven fabric) or 36.3 g/m² (porous film). *See* EX1008-Nakazawa, [0176]-[0177]. EX1008-Nakazawa also discloses a test to determine whether a diffusion sheet should be considered. *See* EX1008-Nakazawa, [0180]-[0186]. The key consideration for the selection of a diffusion sheet in EX1008-Nakazawa is whether the diffusion sheet is more liquid permeable than the absorbent material. *See* EX1008-Nakazawa, [0180]-[0186]; EX2001-SheldonDec, ¶188.

EX1007-Ponomarenko states that “[i]t may also be preferred that the sublayer (30) comprises, in addition to the fibrous acquisition layer above, one or more layers of nonwoven acquisition layers....” EX1007-Ponomarenko, 10:4-6. For this additional layer of sublayer 30, EX1007-Ponomarenko states “[i]t is preferred that such materials have a high basis weight, i.e. of 40 gsm or more, preferably even 60 gsm.” EX1007-Ponomarenko, 10:14-16. In describing

sublayer 30, EX1007-Ponomarenko states that “is typically compression resistant after wetting.... This ensures an excellent feces storage and isolation....”

EX1007-Ponomarenko, 6:43-47. Further, EX1007-Ponomarenko states that “[t]he holes (31) of the sublayer (30) herein are capable to store and immobilize feces and they include blind holes (31).” EX1007-Ponomarenko, 7:27-28. Blind holes are holes that do not penetrate through a layer. EX2001-SheldonDec, ¶189.

EX1007-Ponomarenko provides no explanation why a high basis weight should be chosen for this additional layer of sublayer 30. When EX1008-Nakazawa uses a nonwoven fabric material as its diffusion sheet, it selects a lower basis weight than when it uses a porous film. And EX1007-Ponomarenko focuses on feces immobilization; EX1008-Nakazawa does not. Additionally, EX1007-Ponomarenko does not compare the liquid permeability of any of the materials in sublayer 30 to the absorbent material. And as discussed for Grounds II-IV, EX1008-Nakazawa teaches away from a multi-layer structure like EX1007-Ponomarenko’s. Thus, Petitioners have failed to meet their burden to show why a POSA would be motivated to substitute the high basis weight, dual-layer, feces-isolating sublayer from EX1007-Ponomarenko in place of the low basis weight, single-layer, fluid-diffusing sheet in EX1008-Nakazawa. EX2001-SheldonDec, ¶190.

4. Claims 2-5, 20-22, and 24-25

Because the combination of EX1008-Nakazawa and EX1007-Ponomarenko does not render claim 1 of the '138 Patent obvious, and because claims 2-5, 20-22, and 24-25 all depend from claim 1, the combination of EX1008-Nakazawa and EX1007-Ponomarenko does not render claims 2-5, 20-22, and 24-25 of the '138 Patent obvious. See EX2001-SheldonDec, ¶¶191-192.

E. Ground V: Claims 1, 3-5, 21-22, and 24-25 Are Not Anticipated by EX1008-Nakazawa

1. Claim Element 1[h]: “said fluid flow control structure being a layered structure comprising a non-perforated fibrous polymeric layer and a first perforated polymeric layer”

EX1008-Nakazawa does not anticipate claims 1, 3-5, 21-22, and 24-25 of the '138 Patent. Anticipation requires that a single prior-art reference discloses all elements of the claim “arranged as in the claim.” See *NetMoneyIn*, 545 F.3d at 1369; see also *Therasense*, 593 F.3d at 1332; *Wasica Finance*, 853 F.3d at 1284 (single reference must described claimed invention “with sufficient precision and detail” to establish anticipation).

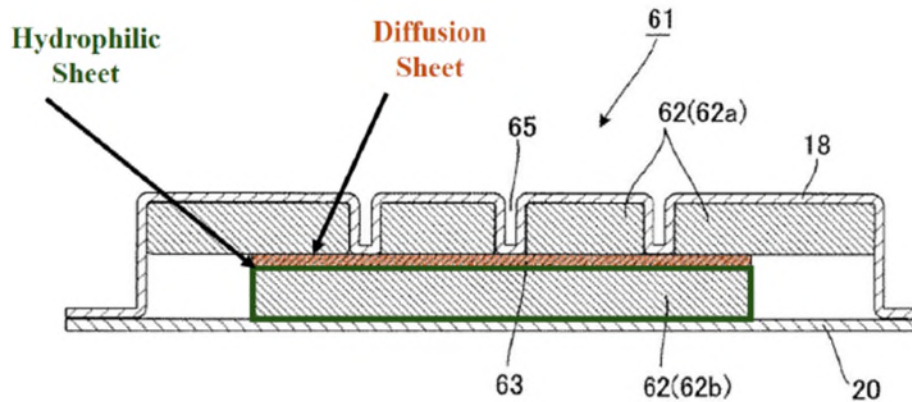
EX1008-Nakazawa does not anticipate any claim of the '138 Patent at least because it does not disclose a “non-perforated fibrous polymeric layer” or a “fluid flow control structure” as claimed in claim 1 of the '138 Patent. Diffusion sheet 63 is not itself a fluid flow control structure. See Section VI.B. Further, the unlabeled “hydrophilic sheet” in EX1008-Nakazawa is not itself a non-perforated fibrous

polymeric layer, nor does it form a fluid flow control structure with diffusion sheet 63.

Petitioners point to a disclosure in EX1008-Nakazawa that “the absorbent material is generally wrapped on the back surface and side surfaces with a hydrophilic sheet.” Petition at 93 (citing EX1008-Nakazawa, [0082]). In other words, the only disclosure Petitioners point to for this limitation explicitly states that the hydrophilic sheet is **not** on the top surface of the absorbent material in contact with diffusion sheet 63. See EX1008-Nakazawa, [0082], [0084]. See EX2001-SheldonDec, ¶194. Petitioners make no attempt to explain how this ambiguous reference in EX1008-Nakazawa to a hydrophilic sheet expressly discloses the non-perforated fibrous polymeric layer claimed in the ’138 Patent. This ambiguity alone defeats Petitioners’ anticipation argument. See *Wasica Finance*, 853 F.3d at 1284.

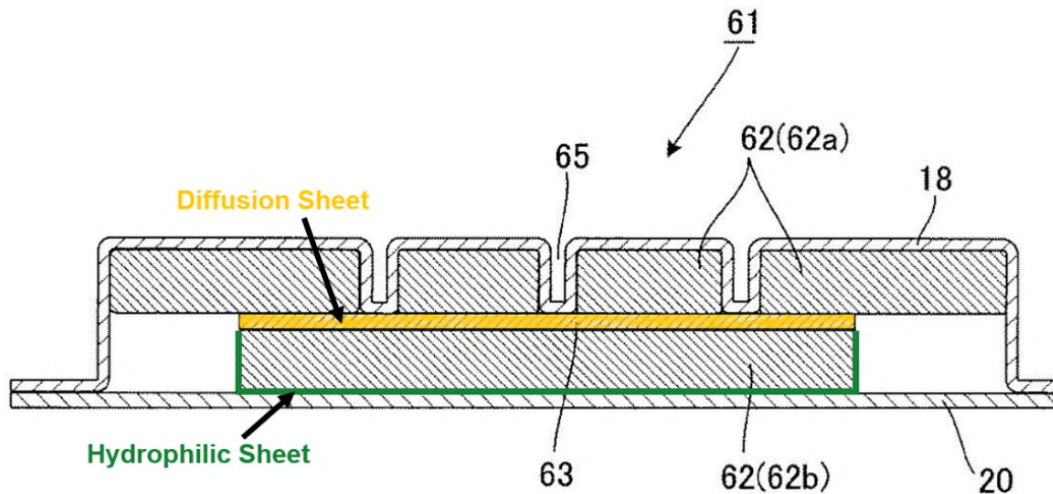
Worse, Petitioners and their expert try to mislead the Board by doctoring Figure 14A. Petitioners, however, annotate their drawing with the hydrophilic sheet wrapping the absorbent material on the back, sides, **and top** with a hydrophilic sheet, and Petitioners’ expert countenances this subterfuge. See Petition at 94 (citing EX1002-Decl, ¶¶281-282):

[Fig. 14A]



As accurately drawn, the diagram should at most only have the back and side surfaces wrapped with a hydrophilic sheet as described by EX1008-Nakazawa and as shown below:

[Fig. 14A]



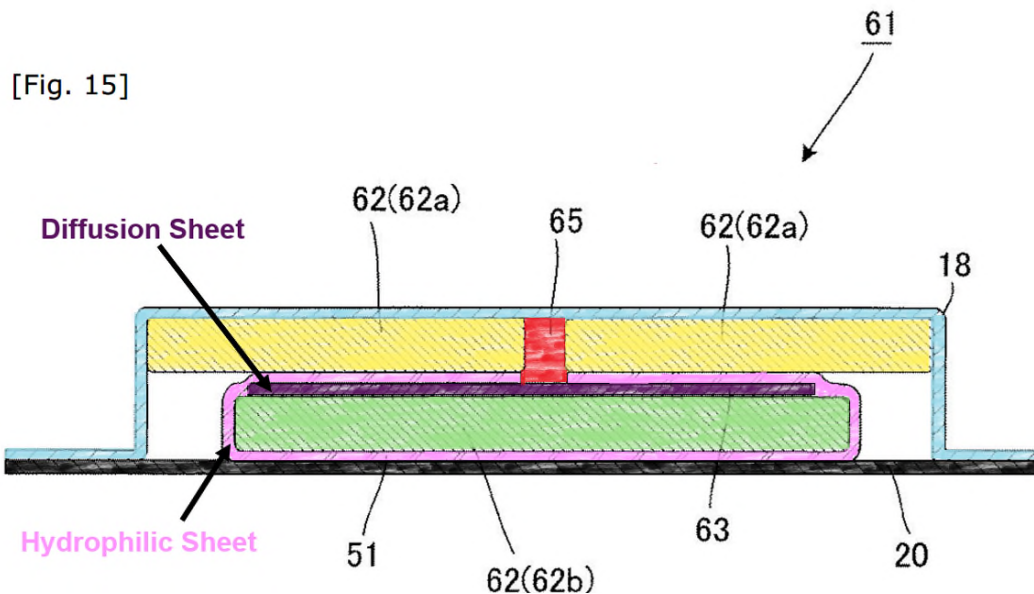
See EX2001-SheldonDec, ¶195. The design explicitly described by EX1008-Nakazawa contains no interface between the diffusion sheet and the hydrophilic sheet, such that they, by definition, cannot form a “layered structure” as required by claim 1 of the ’138 Patent. The “fundamental problem” with Petitioners’

argument with respect to this limitation “is that it simply does not address” how the diffusion sheet and hydrophilic sheet together form a layered structure as required by the claims. *St. Jude Med.*, 977 F.3d at 1239.

Further, even if the absorbent core were wrapped with the hydrophilic sheet as Petitioners suggest, this does not convert the diffusion sheet and hydrophilic sheet into a fluid flow control structure as described and claimed in the ’138 Patent. The purpose of the hydrophilic sheet is “to prevent leakage of superabsorbent polymer and to prevent deformation of the absorbent material on the production line.” EX1008-Nakazawa, [0082]. As noted above, and as agreed by Petitioners’ expert, the layers of the fluid flow control structure must “provide the same functionality” as one another. EX1002, ¶105. There is no disclosure in the portions of EX1008-Nakazawa cited by Petitioners or their expert that the hydrophilic sheet participates in fluid flow control, either alone or in conjunction with the diffusion sheet. EX2001-SheldonDec, ¶196.

In addition, other portions of EX1008-Nakazawa accord with the teaching that the absorbent core is only wrapped on the sides and back with the hydrophilic sheet and does not form a layered structure with the diffusion sheet. For example, in the very next paragraph after what Petitioners cite, EX1008-Nakazawa discloses an embodiment where the second absorbent material is wrapped in the hydrophilic sheet “except for the region corresponding to the openings in the hole portions 65

formed in the first absorbent material 62a. This configuration has the advantage of keeping SAP from leaking from the second absorbent material ***without impeding permeation*** of excretory fluid from the hole portions to the diffusion sheet and providing shape stability to the second absorbent material.” EX2001-SheldonDec, ¶196; EX1008-Nakazawa, [0085]; *see also* EX1008-Nakazawa, Fig. 15:



These disclosures make clear that diffusion sheet 63 is intentionally never in contact with any other layer between it and the absorbent article at opening 65. *See* EX2001-SheldonDec, ¶¶198-200; *Enplas*, 909 F.3d at 405 (“Prior art that must be modified to meet the disputed claim limitation does not anticipate the claim.”); *In re Chudik*, 851 F.3d at 1374 (Fed. Cir. 2017) (“Prior art that must be distorted from its obvious design does not anticipate a new invention”). As a result, Petitioners have not met their burden that EX1008-Nakazawa meets the “fluid flow control structure” limitation of claim 1.

2. Claims 3-5, 21-22, and 24-25

Nakazawa does not anticipate Claim 21 for the reasons stated above in Section VI.B.3. And because EX1008-Nakazawa does not anticipate claim 1 of the '138 Patent, and because claims 3-5, 21-22, and 24-25 all depend from claim 1, EX1008-Nakazawa does not anticipate claims 3-5, 20-22, and 24-25 of the '138 Patent. EX2001-SheldonDec, ¶¶202-203.

VII. BOARD DISCRETION UNDER 35 U.S.C. § 314(a)

The Board has sufficient reason to exercise its discretion to deny institution here. *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential). The parties are identical, and no party has moved for a stay in the co-pending district court action. Indeed, Petitioners agreed to scheduling the case through trial without referencing the possibility of seeking a stay in view of this IPR. The parties have significantly invested in the district court, exchanging infringement contentions and invalidity contentions, and the validity issues and arguments raised here substantially overlap with those in the district court. Trial is scheduled for November 2, 2026, a few months after a final written decision would be expected if the Board institutes. EX2003. The merits of the Petition are particularly weak and are not compelling, favoring discretionary denial.

VIII. CONCLUSION

The Board should deny institution of the Petition.

Date: February 21, 2025

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WORD COUNT CERTIFICATION

The undersigned certifies that this brief complies with the type-volume limitations of 37 C.F.R. §§ 42.24(a)(1)(i) and (b)(1). This brief, excluding a table of contents, a table of authorities, and a certificate of service or word count, or appendix of exhibits or claim listing contains 13,954 words as calculated by the “Word Count” feature of Microsoft Word 365, the word processing program used to create it.

The undersigned further certifies that this brief complies with the typeface requirements of 37 C.F.R. § 42.6(a)(2)(ii) and typestyle requirements of 37 C.F.R. § 42.6(a)(2)(iii). This brief has been prepared in a proportionally spaced typeface using Microsoft Word in Times New Roman, 14-point font.

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the Patent Owner Preliminary Response was served on counsel of record on February 21, 2025, by filing this document through the Patent Trial and Appeal Case Tracking System (P-TACTS) as well as delivering a copy via electronic mail to the counsel of record for the Petitioners at the following addresses:

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