

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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FREDMAN BROS. FURNITURE COMPANY, INC.,  
Petitioner,

v.

BEDGEAR, LLC,  
Patent Owner.

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Case IPR2017-00524  
Patent 9,155,408 B2

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Before HYUN J. JUNG, BART A. GERSTENBLITH, and  
AMANDA F. WIEKER, *Administrative Patent Judges*.

JUNG, *Administrative Patent Judge*.

FINAL WRITTEN DECISION  
*35 U.S.C. § 318(a) and 37 C.F.R. § 42.73*

## I. INTRODUCTION

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claim 12, the only challenged claim of U.S. Patent No. 9,155,408 B2, is unpatentable.

### A. Procedural History

Fredman Bros. Furniture Company, Inc. (“Petitioner”) filed a Petition, requesting institution of an *inter partes* review of only claim 12 of U.S. Patent No. 9,155,408 B2 (Ex. 1001, “the ’408 patent”) on a single ground of unpatentability. Paper 1 (“Pet.”). Bedgear, LLC (“Patent Owner”) timely filed a Preliminary Response. Paper 6. Pursuant to 35 U.S.C. § 314(a), we instituted *inter partes* review of claim 12 of the ’408 patent. Paper 7 (“Dec. on Inst.”).

After institution, Patent Owner filed a Response (Paper 12, “PO Resp.”), to which Petitioner filed a Reply (Paper 19, “Pet. Reply”). Petitioner proffered a Declaration of Jennifer Frank Rhodes (Ex. 1012, “Rhodes Declaration” or “Rhodes Decl.”) with its Petition, and a Reply Declaration of Jennifer Frank Rhodes (Ex. 1030, “Rhodes Reply Decl.”) with its Reply. Patent Owner proffered a Declaration of Dr. Radhakrishnaiah Parachuru in support of its Preliminary Response (Ex. 2001) and in support of its Response (Ex. 2014, “Parachuru Declaration” or “Parachuru Decl.”). Deposition transcripts for Dr. Parachuru (Ex. 1028) and Ms. Rhodes (Exs. 2011, 2016) were filed.

Patent Owner also filed Observations on Cross-Examination of Petitioner’s Reply Witness Jennifer Frank Rhodes (Paper 25), to which

Petitioner filed a response (Paper 28). As authorized in our Order (Paper 27), Patent Owner further filed a List of Improper Reply Arguments (Paper 29), to which Petitioner also filed a response (Paper 30).

An oral hearing in this proceeding and Cases IPR2017-00350, IPR2017-00351, and IPR2017-00352 was held on March 20, 2018; a transcript of the hearing is included in the record (Paper 34, “Tr.”).

*B. Sole Ground of Unpatentability at Issue*

We instituted *inter partes* review on the only presented ground that claim 12, under 35 U.S.C. § 103(a), is unpatentable over Fry<sup>1</sup> and Shelby<sup>2</sup>. Dec. on Inst. 2, 17.

*C. Related Proceedings*

The parties indicate that the ’408 patent has been asserted in *Bedgear, LLC v. Fredman Bros. Furniture Co.*, Case No. 1:15-cv-6759 (E.D.N.Y.). See Pet. 76 (citing Ex. 1015); Paper 3, 2; Ex. 1015. Petitioner also indicates that it filed a lawsuit seeking declaratory judgment of non-infringement, which was dismissed without prejudice. See Pet. 76; Exs. 1017, 1018.

*D. The ’408 Patent (Ex. 1001)*

The ’408 patent issued October 13, 2015, from an application filed January 10, 2014, and claims priority to a provisional application filed January 10, 2013. Ex. 1001, [22], [45], [60], 1:5–7.

The ’408 patent relates to “pillow protectors configured to prevent contamination of pillows disposed within the pillow protectors and to provide proper air flow around the pillows.” *Id.* at 1:11–14. Figures 1 and 2 of the ’408 patent are reproduced below.

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<sup>1</sup> US 2009/0083908 A1, published Apr. 2, 2009 (Ex. 1005).

<sup>2</sup> US 2007/0283498 A1, published Dec. 13, 2007 (Ex. 1011).

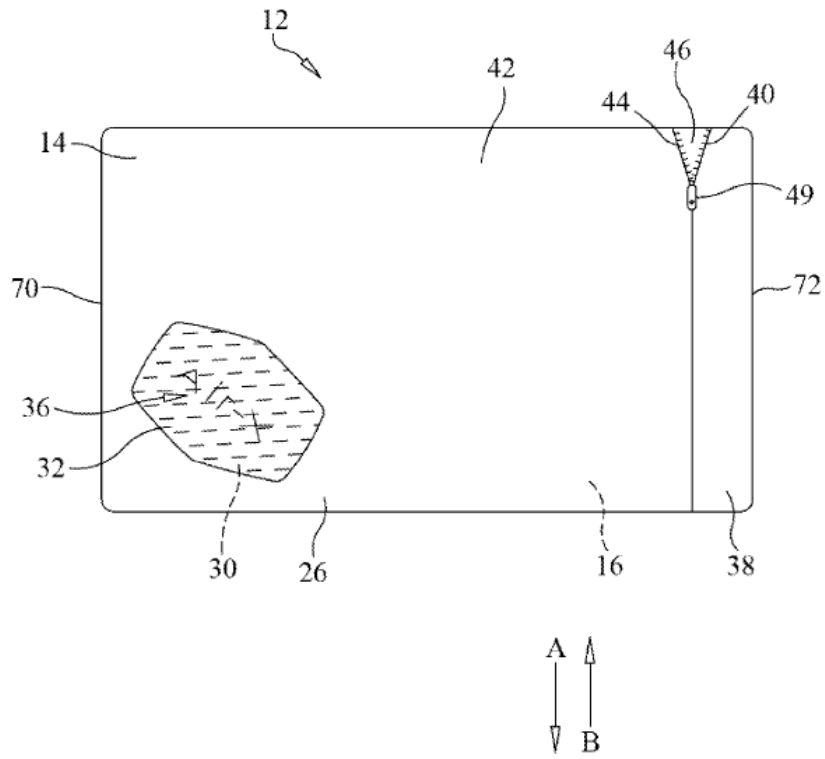


FIG. 1

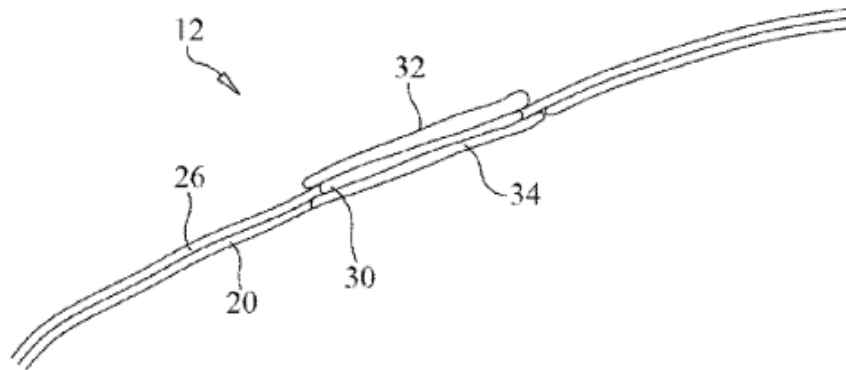


FIG. 2

Figure 1 shows a top view of a pillow cover or protector, and Figure 2 is a side, cross-sectional view of the pillow cover or protector shown in Figure 1. *Id.* at 2:19–21, 2:22–23. “The system 10 including pillow cover 12 comprising a first panel 14 and a second panel 16 perimetrically joined with first panel 14 such that inner surfaces 18, 20 of first and second panels 14, 16 define a cavity 22 having a void volume configured for disposal of a pillow, such as, for example, pillow 24 of system 10.” *Id.* at 3:4–9; *see also id.* at 1:41–2:12 (describing embodiments of a pillow protector or pillow cover with “first and second panels [that] define a cavity having a void volume” and a “pillow disposed in the cavity”).

Opening 30 extends through first panel 14 and provides a pathway for air to the cavity. *Id.* at 4:12–14. Patch 32 engages surface 26 of first panel 14 to cover opening 30. *Id.* at 4:29–30. Pillow cover 12 can also include filter 34 that engages an inner surface so that opening 30 is between patch 32 and filter 34. *Id.* at 4:55–57.

“By disposing pillow 24 in pillow cover 12, pillow cover 12 acts as a barrier to prevent staining of pillow 24 by perspiration, oil, etc.,” “allow[s] air surrounding pillow 24 to escape through opening 30,” “allows heat that may build up in cavity 22 to escape cavity 22 through opening 30,” and “cool[s] pillow 24 to provide a more comfortable sleep surface, as would be apparent to one of ordinary skill in the art.” *Id.* at 5:65–6:7. “Pillow 24 may be removed from pillow cover 12 by moving panel 14 from the second configuration to the first configuration and withdrawing pillow through opening 46.” *Id.* at 6:7–10.

“In some embodiments, pillow 24 includes a cover 54 having a first panel 56.” *Id.* at 5:49–50. In another embodiment, instead of a pillow,

“pillow cover 12 is disposed in cavity 68” defined by an inner surface of pillowcase 48. *Id.* at 6:13–15. “[P]illow cover 12 is disposed in cavity 68 such that surfaces 26, 28 engage surface 66.” *Id.* at 6:14–16.

*E. Claim 12*

Of the 17 claims in the ’408 patent, the only claim at issue, claim 12, is reproduced below:

12. A bedding system, comprising:
  - a pillow cover comprising:
    - a first panel, and
    - a second panel perimetrically joined with the first panel such that inner surfaces of the first and second panels define a cavity having a void volume, the first and second panels each being made from a first material, wherein an opening extends through the inner surface of the first panel and an outer surface of the first panel, the opening having a size, shape and arrangement, the pillow cover comprising a patch covering the opening, the patch being made from a second material that is different than the first material, the second material being more porous than the first material;
    - a pillow disposed in the cavity,
    - wherein the second panel is free of any openings having the size, shape and arrangement of the opening in the first panel;
    - and
    - wherein the pillow cover comprises a filter that engages an inner surface of the first panel such that the opening is positioned between the patch and the filter, the filter comprises a third material that is different than the first material, the third material being more porous than the first material.

Ex. 1001, 9:1–25.

## II. CLAIM INTERPRETATION

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard).

### A. “pillow cover”

Petitioner did not propose an interpretation for “pillow cover.” *See* Pet. 24–26. For the Decision on Institution, we interpreted claim 12 to require a “pillow” that is “disposed in the cavity” of a “pillow cover.” Dec. on Inst. 9. Patent Owner agrees that “the claimed ‘pillow cover’ is separate and distinct from the claimed ‘pillow’ disposed therein.” PO Resp. 16. According to Patent Owner, Petitioner’s implicit interpretation is “that the fabric cover or covering of these pillows is the ‘pillow cover,’ and that the fill material or filler inside these pillows is the ‘pillow’ required by claim 12.” *Id.*

In view of the record before us, we interpret “pillow cover” to be separate and distinct from “pillow” (discussed further below), and we determine that no further express interpretation of “pillow cover” is necessary to resolve the parties’ disputes. *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (determining that only those terms in controversy need to be construed, and only to the extent necessary to resolve the controversy).

### B. “pillow”

Petitioner did not propose an interpretation for “pillow.” *See* Pet. 24–26. For the Decision on Institution, we disagreed with Patent Owner

that the term “pillow” requires a fill material inside a fabric cover. Dec. on Inst. 9 (citing Ex. 1001, 5:49–50).

Patent Owner responds that one of ordinary skill in the art “would have understood the ordinary and customary meaning of a pillow to be a cover containing one or more fill materials.” PO Resp. 18 (citing Ex. 2011, 17:11–20:23, 22:13–23:1); *see also id.* at 25 (arguing “the term ‘pillow’ should be given its ordinary and customary meaning”) (citing Parachuru Decl. ¶ 92); Tr. 46:8–9.

Patent Owner contends that, based on Petitioner’s arguments, “Petitioner’s implicit construction is that fill material, by itself, satisfies the claimed ‘pillow,’” which is at odds with the plain and ordinary meaning of pillow, the ’408 patent, Petitioner’s asserted references, and its declarant’s testimony. PO Resp. 16–17. Patent Owner also argues that Petitioner’s arguments rely on “pillow” as being “virtually anything that a person can comfortably rest his or her head upon, including a rolled up T-shirt.” *Id.* at 27 (citing Ex. 2011, 36:5–38:20). According to Patent Owner, there is no support for “such a strained and overly broad interpretation,” other than a “bald statement from [Petitioner’s] expert that [one of ordinary skill in the art] would understand fill material (e.g., foams) to be a pillow” with no underlying objective support. *Id.* (citing Rhodes Decl. ¶¶ 77–78; Ex. 2011, 25:20–26:15, 31:24–35:19).

Petitioner replies that Patent Owner’s interpretation of “pillow” would require two covers. Pet. Reply 3 (citing Dec. on Inst. 9; PO Resp. 12, 17–18; Ex. 1028, 27:1–5). Petitioner contends that our Decision on Institution rejected that position and no further evidence justifies changing



that conclusion. *Id.* at 4 (citing Dec. on Inst. 9; PO Resp. 38–39; Ex. 1001, 5:49–50; Parachuru Decl. ¶ 80).

Having the benefit of a fully developed record before us, we review anew the record and evidence to interpret “pillow.” We agree with Patent Owner that “the parties’ dispute is centered around the proper meaning of the claimed ‘pillow.’” PO Resp. 16; *see also* Tr. 46:4–5 (Patent Owner’s counsel arguing “the main dispute is over the two terms ‘pillow cover’ and ‘pillow’ in claim 12”).

### *1. Language of Claim 12*

Turning first to the language of the claim, claim 12 requires “a pillow cover comprising: a first panel, and a second panel perimetrically joined with the first panel such that inner surfaces of the first and second panels define a cavity having a void volume . . . [and] a pillow disposed in the cavity.” Ex. 1001, 9:2–15. Claim 12, thus, expressly and plainly requires a pillow cover that defines a cavity and a pillow disposed in that cavity. *See* PO Resp. 16. However, the language of claim 12 does not by itself indicate the scope of the term “pillow,” specifically whether the “pillow” requires its own cover surrounding fill material. *See also* Tr. 46:17–18 (Patent Owner’s counsel arguing “express claim language requires a pillow that’s disposed in the cavity of a pillow cover”), 57:22 (Petitioner’s counsel arguing “claim language does not require a conventional pillow”).

“Pillow” is also used in other claims of the ’408 patent. For example, claim 14, which depends from claim 12, recites “layers being configured to engage one another when a pillow is not positioned in the cavity.” Ex. 1001, 9:31–36. Similarly, claim 6, which depends from claim 1, recites “layers being configured to engage one another when a pillow is not positioned in

the cavity.” *Id.* at 8:43–47. Independent claim 16 recites a bedding system comprising a pillow cover having first and second panels that “define a cavity having a void volume” and “a pillow disposed in the cavity.” *Id.* at 10:4–26. Although these claims support “pillow cover” being separate and distinct from a “pillow” disposed therein, these claims also do not indicate the scope of the term “pillow.”

## 2. Specification

Patent Owner argues that the ’408 patent uses “pillow” in a manner consistent with its plain and ordinary meaning. PO Resp. 25. According to Patent Owner, the Specification of the ’408 patent “confirms that the claimed ‘pillow’ includes its own cover that holds the fill material.” PO Resp. 25–26 (citing Ex. 1001, 1:1–14, 1:31–37, 5:45–6:10, Figs. 1, 3; Parachuru Decl. ¶¶ 63, 73–79, 86, 93–96). Patent Owner also argues that the ’408 patent’s description that “[i]n some embodiments, pillow 24 includes a cover 54 . . .” (Ex. 1001, 5:49–50) does not support a determination that “‘pillow’ is broad enough to encompass fill material without a fabric cover.” *Id.* at 28–29 (quoting Dec. on Inst. 9). Patent Owner contends that the context surrounding that description indicates that “the panel making up the pillow’s cover may be configured in various manners using material with particular properties.” *Id.* at 29 (citing Ex. 1001, 5:49–51, 5:56–64; Parachuru Decl. ¶¶ 87–90); *see also* Tr. 49:6–15, 50:2–12.

Patent Owner further contends that the ’408 patent (1) does not suggest or discuss pillows without some form of cover, (2) does not equate any form of fill material with a pillow, and (3) does not use the terms fill material and pillow interchangeably. PO Resp. 30 (citing Parachuru Decl. ¶¶ 91, 94–96). Patent Owner argues that the ’408 patent provides examples

of fill material that would not be considered a pillow and consistently uses the terms pillow and fill material “to refer to the pillow as a whole and the material contained inside the pillow.” *Id.* at 30 (citing Ex. 1001, 5:51–64). Patent Owner, thus, asserts that interpreting “pillow” to include fill material without a cover would be inconsistent with the Specification as a whole and contrary to the intrinsic and extrinsic evidence. *Id.* at 30–31; *see also* Tr. 48:3–19.

Petitioner replies that, according to the ’408 patent, “cover 54 having first panel 56 is only present in some embodiments—thus, it is not required.” Pet. Reply 7 (citing Dec. on Inst. 9; PO Resp. 29; Ex. 1001, 3:4–9, 5:49–50; Ex. 1028, 8:16–18, 11:5–16; Rhodes Decl. ¶¶ 13–14); *see also* Tr. 24:4–6, 58:10–11, 59:11–15 (Petitioner’s counsel arguing that pillow 24 is exemplary).

We find that the ’408 patent describes pillow 24 as an example. *See, e.g.*, Ex. 1001, 3:4–9 (“The system 10 including pillow cover 12 . . . having a void volume configured for disposal of a pillow, such as, for example, pillow 24 of system 10.”). Further, the ’408 patent states that “this disclosure is not limited to the specific devices, conditions or parameters described and/or shown herein, and that the terminology used herein is for the purpose of describing particular embodiments by way of example only and is not intended to be limiting of the claimed disclosure” and that the “description should not be construed as limiting, but merely as exemplification of the various embodiments.” *Id.* at 2:40–44, 8:4–6.

In the “Summary,” the ’408 patent describes embodiments of a pillow protector or pillow cover with “first and second panels [that] define a cavity having a void volume.” *Id.* at 1:41–2:12. Some embodiments comprise a

“pillow disposed in the cavity.” *Id.* at 1:64, 2:10. We also find that the ’408 patent describes other embodiments with at least one of the claimed features. *See, e.g., id.* at 4:55–57 (“In some embodiments, pillow cover 12 includes a filter 34 that engages inner surface 18 such that opening 30 is positioned between patch 32 and filter 34.”), 5:49–50 (“In some embodiments, pillow 24 includes a cover 54 having a first panel 56.”), 6:11–13 (“In one embodiment, system 10 includes a pillowcase 48 having a first panel 62 and a second panel 64 perimetrically bounding, and joining second first panel 62.”). In another embodiment, instead of a pillow, “pillow cover 12 is disposed in cavity 68” defined by an inner surface of pillowcase 48. *Id.* at 6:14–16 (“In one embodiment, pillow cover 12 is disposed in cavity 68 such that surfaces 26, 28 engage surface 66.”). By describing various features of the many embodiments, the ’408 patent indicates that these features need not be present in all embodiments. *See id.* at 8:1–4 (“It will be understood that various modifications may be made to the embodiments disclosed herein. For example, features of any one embodiment can be combined with features of any other embodiment.”).

The ’408 patent explains that “[b]y disposing pillow 24 in pillow cover 12, pillow cover 12 acts as a barrier to prevent staining of pillow 24” (*id.* at 5:65–66), “[b]ecause pillow 24 is disposed in cavity 22, cooling cavity 22 will also cool pillow 24” (*id.* at 6:4–6), and “[p]illow 24 may be removed from pillow cover 12” (*id.* at 6:7–8). We find that the ’408 patent indicates that the features of the various embodiments need not be present as long as pillow cover 12 acts as a barrier to prevent staining, cools pillow 24, and allows pillow 24 to be removed. *See id.* at 5:65–66, 6:4–8, 8:1–4. We do not find, and the record does not provide, any reason why a pillow

consisting only of fill material that is not loose, e.g., a foam block, cannot be pillow 24 and still allow pillow cover 12 to provide the described benefits of stain prevention, cooling, and removal of pillow 24.

Patent Owner states that “[i]t is undisputed that the term ‘pillow’ is not expressly defined in the specification or prosecution history” and that there is no disavowal of claim scope with respect to “pillow.” PO Resp. 25. Petitioner states that, “the ’408 patent does not ‘disavow or disclaim any claim scope related to the term ‘pillow.’” Pet. Reply 8 (quoting Parachuru Decl. ¶ 92); *see also* Tr. 59:14–15 (Petitioner’s counsel arguing “the term ‘pillow’ itself unless disclaimed is broad to encompass something that doesn’t require its own cover”). We agree with the parties that “the term ‘pillow’ is not expressly defined in the specification” and that “the specification . . . does not set forth any disavowal of claim scope with respect to the claimed ‘pillow.’”

For the reasons above, our findings regarding the Specification of the ’408 patent do not provide a persuasive reason to interpret “pillow” so that it must always have a cover to hold fill material, as argued by Patent Owner.

### *3. Prosecution History*

Patent Owner states that “[i]t is undisputed that the term ‘pillow’ is not expressly defined in . . . [the] prosecution history” and that the “prosecution history does not set forth any disavowal of claim scope with respect to the claimed ‘pillow.’” PO Resp. 25. Petitioner does not rely on the prosecution history of the ’408 patent to argue for a meaning of “pillow.” Pet. Reply 3–9.

We agree with Patent Owner that the prosecution history of the ’408 patent (Ex. 1002) does not address the meaning of “pillow” and does

not indicate that “pillow” was given a meaning other than its ordinary and customary meaning. *See, e.g.*, Ex. 1002, 16, 25–37, 22, 106–129, 153–174 (Applicant’s responses to Office Actions and interview summaries).

We note that the Specification originally read that “[i]n some embodiments, pillow 24 includes a cover 54 having a first panel 56 and a second panel 58 perimetrically bounding, and joining first and second panels 56, 58” but was amended to read that “[i]n some embodiments, pillow 24 includes a cover 54 having a first panel 56.” *See id.* at 154 (Applicant’s amendments to the Specification include: “In some embodiments, pillow 24 includes a cover 54 having a first panel 56 ~~and a second panel 58 perimetrically bounding, and joining first and second panels 56, 58.~~”), 222 (amending the corresponding sentence in ¶ 26 of the originally filed Specification that states “cover 54 having a first panel 56 and a second panel 58”). Although this particular amendment does not broaden pillow 24 to be only fill material, it makes clear that Applicant intended to broaden cover 54 to include only a single panel and thus, broaden “pillow” from having a cover with two panels 56, 58 to one panel 56 for embodiments including cover 54.

#### 4. *Extrinsic Evidence*

The parties’ dispute acknowledges that the intrinsic record fails to provide enough guidance for us to rely on it exclusively for the proper interpretation of “pillow.” Both parties provide extrinsic evidence to argue the meaning of “pillow.” *See* PO Resp. 17–24, 27–28; Pet. Reply 3–4, 6, 8. We, therefore, turn to the extrinsic evidence of record to assist us in resolving between the parties’ conflicting positions concerning the ordinary

and customary meaning of “pillow,” as it would have been understood by one of ordinary skill in the art in the context of the entire disclosure.

*a. Dictionary Definitions*

Patent Owner provides dictionary definitions of pillow that Patent Owner contends define pillow as “a fabric cover or case that is stuffed with a soft material, such as feathers or foam.” PO Resp. 21 (citing Ex. 2003, 4; Ex. 2004, 3–4; Parachuru Decl. ¶ 84); *see also* Tr. 47:3–17 (Patent Owner’s counsel arguing that dictionary definitions require pillow to have a fabric cover). Petitioner does not address directly Patent Owner’s dictionary definitions. *See* Pet. Reply 3–9.

Regarding Exhibit 2003, we find that the most relevant definitions for “pillow” in the context of the ’408 patent are “a usu. oblong support for the head, esp. in bed, with a cloth cover stuffed with feathers, down, foam rubber, etc.” and “any pillow-shaped block or support.” Ex. 2003, 4. Regarding Exhibit 2004, we find that the most relevant definition is “[a] cloth case stuffed with something soft, such as down, feathers, or foam rubber, used to cushion the head, especially during sleep.” Ex. 2004, 3–4. We note that the only definition in the record that relates to fill material that is not loose is Exhibit 2003’s “any pillow-shaped block or support,” which is also consistent with Petitioner’s interpretation.

We, therefore, determine that Patent Owner’s dictionary definitions include both parties’ interpretation of “pillow,” in that the provided dictionary definitions indicate that “pillow” can mean “any pillow-shaped block or support,” “support for the head . . . with a cloth cover stuffed with feathers, down, foam rubber, etc.,” or “cloth case stuffed with something soft, such as down, feathers, or foam rubber, used to cushion the head.”

*b. Other Patents and Asserted References*

Patent Owner cites other contemporaneous patents by the same inventor that use “pillow” to refer to fill material and a cover containing the fill material. PO Resp. 24 (quoting, in part, Ex. 2005, claims 1, 11, 17, and 22; Ex. 2006, claims 8, 19, 20, 31; Ex. 2007, claim 8) (referring to Parachuru Decl. ¶¶ 82–83). Patent Owner further argues that Petitioner’s asserted references, Fry and Shelby, contradict Petitioner’s implicit interpretation. *Id.* at 21–23 (quoting Ex. 1005 ¶¶ 3, 17, 18; Ex. 1011 ¶ 53; Parachuru Decl. ¶¶ 80, 81, 83, 85, 93–96). Petitioner replies that Patent Owner’s references do not show that “pillow” requires its own cover. Pet. Reply 6 (citing PO Resp. 24; Ex. 1005 ¶ 3; Ex. 1028, 16:7–21:22; Ex. 2005, 1:17–18).

The portions of Exhibits 2005–2007 cited by Patent Owner indicate that the “pillow” claimed in those exhibits requires fill material and a cover containing the fill material. Those same exhibits, however, also state in their description of the background that the “use of a pillow made typically of a fabric cover stuffed with a compliant soft material is known in the prior art.” Ex. 2005, 1:17–18; Ex. 2006, 1:21–22; Ex. 2007, 1:24–25. As indicated by the word “typically,” these are non-limiting examples of pillows. Thus, these descriptions do not limit the ordinary and customary meaning of “pillow,” and “pillow” can be used more broadly than Patent Owner’s asserted interpretation.

*c. Declarant Testimony*

Relying on its declarant’s testimony, Patent Owner argues that “pillows are made up of fill material.” PO Resp. 17 (citing Parachuru Decl. ¶¶ 80–86; Ex. 2011, 36:5–38:20); *see also id.* at 20–21 (arguing “to be a pillow there must at least be some form of fabric covering that holds the fill



material together”) (citing Parachuru Decl. ¶¶ 93–96). Patent Owner asserts that one of ordinary skill in the art “would have also understood that such fill materials, by themselves, do not constitute a pillow.” *Id.* (citing Parachuru Decl. ¶¶ 80–86, 93–96). Patent Owner argues that similar fill material is described in the ’408 patent and the asserted references. *Id.* at 20 (citing Ex. 1001, 5:52–56; Ex. 1005 ¶¶ 3, 17, 18; Ex. 1011 ¶ 53; Parachuru Decl. ¶¶ 80, 81, 83, 85).

Petitioner replies that Patent Owner’s interpretation “reads out other forms of pillows, including solid memory foam pillows, which do not require a cover to hold fill material” (Pet. Reply 3–4 (citing Rhodes Reply Decl. ¶¶ 5–15)) and is inconsistent with the understanding of one of ordinary skill in the art (*id.* at 5 (citing Rhodes Reply Decl. ¶¶ 5–15)). Petitioner also contends that Patent Owner’s declarant did not consider solid foam pillows and uses “pillow” inconsistently. *Id.* at 5 (citing PO Resp. 17; Ex. 1028, 11:21–24, 12:15–13:3, 27:6–16; Ex. 1029, 21:9–13; Rhodes Decl. ¶ 11; Parachuru Decl. ¶¶ 80, 93). Petitioner contends that solid fill materials were known and not required to be loose. *Id.* at 8 (citing Ex. 1028, 8:16–18, 11:10–16, 24:5–7; Rhodes Reply Decl. ¶ 15). Petitioner further asserts that “pillow” was understood by persons of ordinary skill in the art to not require its own cover. *Id.* at 8.

Turning to deposition testimony, Patent Owner contends that Petitioner’s declarant admitted that “fill materials without any covering would not be considered a pillow.” PO Resp. 18–20 (quoting Ex. 2011, 27:8–28:5). Patent Owner points to statements in the deposition that it asserts undermines the basis of this opinion of Petitioner’s declarant. *Id.* at 27–28 (citing Ex. 2011, 17:11–20, 18:22–20:23, 22:13–23:1, 29:20–30:7);

*see also* Paper 25, 1–9 (observations on cross-examination of Ms. Rhodes) (citing Ex. 2016); Tr. 51:15–24 (Patent Owner’s counsel discussing Petitioner’s declarant testimony). Petitioner clarifies that its declarant agreed that loose fill material would require a cover to create a pillow but not that all pillows required a cover. Pet. Reply 8 (citing PO Resp. 26; Ex. 2011, 25:22–26:9, 26:19–29:4); *see also* Paper 28 (Petitioner’s response to Patent Owner’s observations) (discussing Ex. 2016).

Both parties’ declarants agree that pillows include at least fill material. Rhodes Decl. ¶¶ 39–42, 48–51, 68, 69; Rhodes Reply Decl. ¶¶ 7–11; Ex. 2011, 25:22–26:9, 26:19–29:4; Parachuru Decl. ¶¶ 73–75, 80–85. The parties also agree that a cover is required to hold loose fill material, such as feathers and pieces of foam material. PO Resp. 20–21; Pet. Reply 3–5, 8.

However, the record does not provide a persuasive reason for why fill material that is not loose cannot be a pillow by itself. For example, according to Patent Owner’s declarant, solid memory foam, which is fill material that is not loose, is not a pillow because it can absorb moisture and other substances. *See* Ex. 1028, 11:19–12:6 (Patent Owner’s declarant explained that “I do not consider a memory foam pillow without a cover as a pillow” because “a porous memory foam can absorb a lot of moisture, a lot of stuff that comes out of the skin . . .”), 14:1–9 (Patent Owner’s declarant, in response to “if I then removed the cover, does it then cease to be a pillow?,” answered: “Yes . . . [b]ecause . . . the memory foam is liable to -- liable to go through deficiencies . . .”). The record, however, does not indicate why solid memory foam, even if it can absorb undesirable substances, fails to benefit from the described advantages of cover 12 of the ’408 patent (Ex. 1001, 5:65–66, 6:4–8) or be a “block or support” (Ex. 2003,

4). Thus, the declarants' testimony in the record does not provide a reason for excluding a pillow that is merely fill material that is not loose.

*5. Determination as to "Pillow"*

In view of the intrinsic and extrinsic evidence in the record developed during trial, we determine that the ordinary and customary meaning of "pillow" includes "at least fill material that is not loose and with or without a cover to hold the fill material." *See also Google LLC v. Network-1 Techs., Inc.*, 726 F.App'x 779, 785 (Fed. Cir. 2018) ("In other words, under the broadest reasonable construction standard, where two claim constructions are reasonable, the broader construction governs.").

*C. Other Terms*

Petitioner proposes interpreting "third material" versus "second material." Pet. 24–26. Petitioner, however, notes that "construction [of "third material" versus "second material"] is ultimately immaterial to the patentability of claim 12." *Id.* at 26 n.3. For the Decision on Institution, we determined that express interpretations of these terms were not necessary. Dec. on Inst. 6.

Patent Owner responds that deciding whether the second and third materials encompass being the same material "does not appear to be relevant to Petitioner's sole asserted ground or any disputes between the parties." PO Resp. 15. "Patent Owner submits that no specific construction is needed for these claim terms." *Id.* Petitioner replies that it "agrees that construction of ['second material' and 'third material'] is not necessary to resolve its challenge to Claim 12." Pet. Reply 2–3.

Based on the full record, we agree with the parties that interpreting "second material" and "third material" is not necessary for deciding whether

Petitioner has demonstrated the unpatentability of claim 12 by a preponderance of the evidence. *Vivid Techs.*, 200 F.3d at 803. We also determine that interpreting any other term is not necessary for deciding the parties' disputes. *Id.*

### III. CHALLENGE OF CLAIM 12

Petitioner contends that claim 12 would have been obvious over Fry and Shelby with citations to these references and the Rhodes Declaration (Ex. 1012). Pet. 23, 27–75. Patent Owner disputes the alleged unpatentability of claim 12, supported by citations to the asserted references and the declarations of Dr. Parachuru (Exs. 2001, 2014). *See* PO Resp. 37–53.

To prevail in its challenge, under 35 U.S.C. § 103(a), of claim 12 as unpatentable over Fry and Shelby, Petitioner must prove unpatentability by a preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). A claim is unpatentable under 35 U.S.C. § 103(a) “if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1996).

As discussed below, the parties' disputes are related to the scope and content of the prior art, differences between claim 12 and the prior art, Petitioner's rationale for combining Fry and Shelby, and the level of ordinary skill in the art. The parties do not dispute and do not direct us to any objective evidence of nonobviousness.

After reviewing the complete record, we conclude that Petitioner has shown by a preponderance of the evidence that Fry and Shelby teach or suggest each limitation of claim 12, that a person of ordinary skill in the art would have had a reason to combine the teachings of Fry and Shelby, and that a person of ordinary skill in the art would have had a reasonable expectation of success in combining the teachings of Fry and Shelby.

*A. Level of Ordinary Skill in the Art*

Petitioner asserts that a person of ordinary skill in the art would have at least a bachelor's degree in textile design, textile science, textile engineering or a similar field and at least one year of experience in the design of pillows and other sleep-related textile products; or, alternatively, a person having at least three to five years of experience in the design of pillows and other sleep-related textile products.

Pet. 24 (citing Rhodes Decl. ¶¶ 53–56). Patent Owner responds that a person of ordinary skill in the art would have

at least a bachelor's degree in textile science, textile engineering or a similar field along with several years of industry experience in applying the moisture and heat transfer properties of materials which typically come into close direct or indirect contact with human skin. Additional graduate education in textile or material sciences might substitute for experience.

PO Resp. 6 (citing Parachuru Decl. ¶¶ 18–24). Patent Owner also argues that Petitioner's proposed level of skill in the art does not reflect adequately

relevant technical experience and knowledge. *Id.* (citing Parachuru Decl. ¶ 25).

Petitioner replies that the '408 patent relates to pillows and pillow covers, not their thermodynamic details, and that Patent Owner's asserted level of skill "fails to include any experience in designing pillows or, at the very least, sleep products." Pet. Reply 9 (citing PO Resp. 9; Rhodes Decl. ¶¶ 2–3). Petitioner also argues that Patent Owner's declarant "lacks any actual pillow design experience." *Id.* at 10 (citing Ex. 1029, 21:9–13).

Factual indicators of the level of ordinary skill in the art include "the various prior art approaches employed, the types of problems encountered in the art, the rapidity with which innovations are made, the sophistication of the technology involved, and the educational background of those actively working in the field." *Jacobson Bros., Inc. v. U.S.*, 512 F.2d 1065, 1071 (Ct. Cl. 1975); *see also Orthopedic Equip. Co. v. U.S.*, 702 F.2d 1005, 1011 (Fed. Cir. 1983) (quoting with approval *Jacobson Bros.*). We find, based on our review of the record before us, that Petitioner's stated level of ordinary skill in the art is reasonable because it is consistent with the record's indication of "the various prior art approaches employed, the types of problems encountered in the art, the rapidity with which innovations are made, the sophistication of the technology involved, and the educational background of those actively working in the field." *See, e.g.*, Pet. 15–23; PO Resp. 3–4; Ex. 1005 ¶¶ 1–11; Ex. 1011 ¶¶ 2–5; Ex. 2001 ¶¶ 36–54.

We resolve any differences in favor of including "several years of industry experience in applying the moisture and heat transfer properties of materials" as part of "at least one year of experience in the design of pillows and other sleep-related textile products" of a person holding a "bachelor's

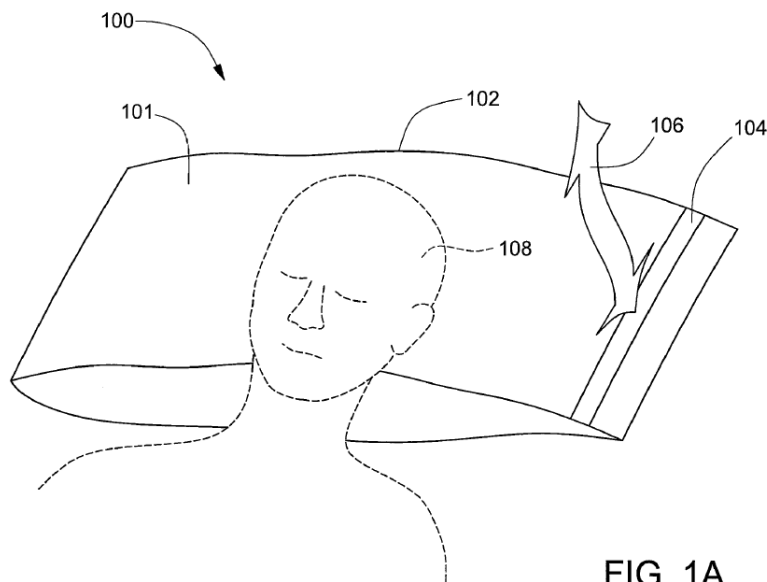
degree in textile science, textile engineering or a similar field.” *See* Rhodes Decl. ¶ 5 (“I am also an adjunct professor . . . teaching . . . an entry level course for textile and fashion majors.”), ¶ 6 (“I received a Bachelor of Science degree in Textile Design.”), ¶ 56 (“I met at least these minimum qualifications to be a person having ordinary skill in the art at the time of the claimed invention.”); Rhodes Reply Decl. ¶ 4 (“I teach concepts relating to moisture and heat transfer in my textile curriculum in my academic role as a professor”).

Therefore, we apply Petitioner’s definition, quoted above, in our analysis of claim 12. Pet. 24.

*B. Scope and Content of the Prior Art*

*1. Fry (Ex. 1005)*

Fry relates to “bed pillows and methods for covering and protecting pillows from organic contamination.” Ex. 1005 ¶ 1. Figures 1A and 1B of Fry are reproduced below.



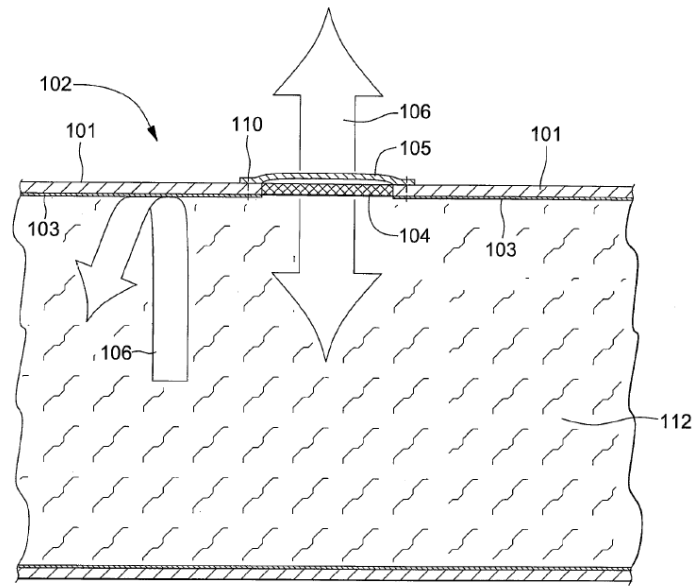


FIG. 1B

Figure 1A shows a hypoallergenic pillow, and Figure 1B shows “a partial cross-section drawing of a hypoallergenic pillow.” *Id.* ¶¶ 12, 13. “[P]illow 100 is constructed by sewing two pieces of fabric together around the circumference of the fabric, allowing an opening for filling the resulting cover with a filling material, filling the cover with filling material, and closing the cover by sewing all of the remaining open edges together.” *Id.* ¶ 18. The “filling material can include . . . latex foam, viscoelastic foam, or any other material known in the art suitable for filling a pillow.” *Id.* ¶ 19.

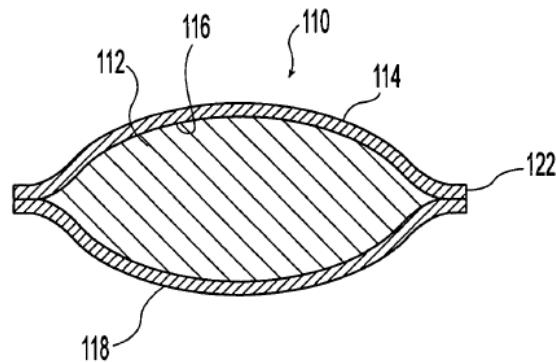
Covering 102 is made of fabric 101, and “fabric 101 is coated with a monolithic or microporous material 103.” *Id.* ¶¶ 20, 23. The “pillow includes a filter 104 sewn into the covering 102.” *Id.* ¶ 22. “[F]ilter 104 is a portion of the covering 102 that does not include the monolithic material 103,” and “filter 104 can be positioned anywhere in the pillow covering 102 . . . so long as the filter 104 allows the ingress and egress of air 106 in and out of the pillow.” *Id.* ¶¶ 26, 27. Filter 104 is made of fabric 105 that “may be the same type as fabric 101” or “[a]lternatively, the



filter 104 can be of a different material.” *Id.* ¶ 26. According to Fry, “filter 104 is constructed of a material that has a high degree of filtration pathogens.” *Id.* ¶ 22. “[F]ilter 104 includes fabric 105,” and “fabric 105 may be the same type as fabric 101” or “filter 104 can be of a different material.” *Id.* ¶ 26.

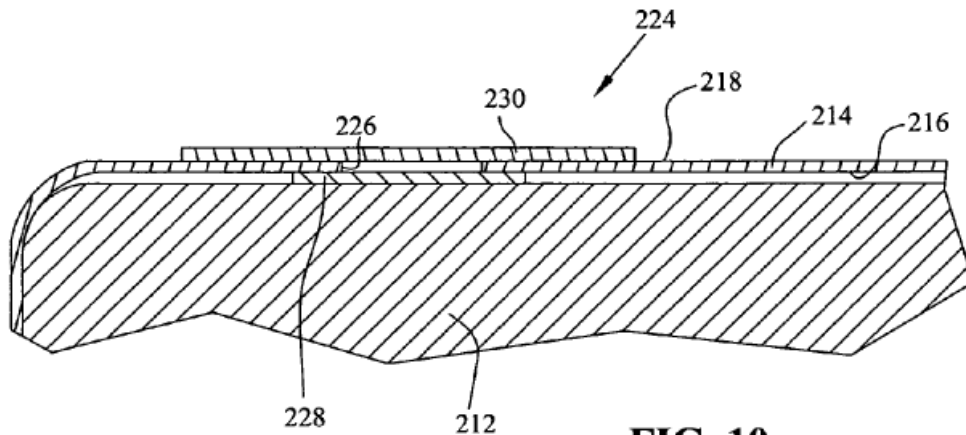
## 2. *Shelby (Ex. 1011)*

*Shelby* relates to “mattresses that resist and detect tampering, tearing and alteration” and to “mattresses including vents which provide ventilation.” *Ex. 1011* ¶¶ 2, 5. *Shelby* states that its “concepts . . . are not limited in application to just mattresses” and “may be adapted to form a pillow, such as pillow 110.” *Id.* ¶ 53. Figure 7 of *Shelby* is reproduced below.



*Fig. 7*

Figure 7 shows a sectional view of a pillow. *Id.* ¶ 20. Pillow 110 includes core 112 and covering 114 that surrounds core 112. *Id.* ¶ 53. Pillow 110 can include vents (shown in Figure 10) to provide ventilation through covering 114. *Id.* ¶ 55. Figure 10 of *Shelby* is reproduced below.



**FIG. 10**

Figure 10 shows a sectional view of a mattress. *Id.* ¶ 23. In connection with the mattress shown in its Figures 8–10, Shelby states that “vent 224 includes at least one hole 226 through covering 214, and a microporous membrane 228” that is positioned over hole 226. *Id.* ¶¶ 22, 58, Fig. 10. “Microporous membrane 228 may be fastened to inner surface 216 (FIG. 10) using any suitable means” and “[m]icroporous membrane 228 may be comprised of any suitable filter as described herein.” *Id.* ¶ 58, Fig. 10.

*C. Differences Between Claim 12 and the Prior Art*

1. “a pillow cover comprising: a first panel, and a second panel perimetrically joined with the first panel such that inner surfaces of the first and second panels define a cavity having a void volume”

Petitioner contends that Fry teaches or suggests a “bedding system” with “a pillow cover” that includes “a first panel, and a second panel perimetrically joined with the first panel such that inner surfaces of the first and second panels define a cavity having a void volume,” as required by

claim 12. Pet. 37–40 (citing Ex. 1005 ¶¶ 1, 17–19, 23, Figs. 1A, 1B; Rhodes Decl. ¶ 68); *see also id.* at 28–30 (arguing asserted teachings of Fry).

We find Petitioner’s citations to Fry teach that “pillow 100 is constructed by sewing two pieces of fabric together around the circumference of the fabric, allowing an opening for filling the resulting cover with a filling material, filling the cover with filling material, and closing the cover by sewing all of the remaining open edges together.” Ex. 1005 ¶ 18.

Patent Owner responds that Petitioner’s asserted combination of Fry and Shelby fails to teach the recited “pillow cover.” PO Resp. 37–45. In particular, Patent Owner argues that “both Fry and Shelby are solely directed to a pillow” and “expressly teach incorporating their vent structures into the pillow itself.” *Id.* at 38.

Patent Owner also responds that “‘pillow’ must have its own cover, which is different from the claimed outer pillow cover.” PO Resp. 38–39 (citing Dec. on Inst. 9; Ex. 1001, 6:7–10, Fig. 3). Patent Owner asserts that one of ordinary skill in the art “would not consider taking loose fill material (e.g., feathers) from within a pillow cover to be the removal of a ‘pillow.’” *Id.* at 39 (citing Ex. 2001 ¶¶ 77–78; Ex. 2011, 27:8–29:4). Patent Owner also asserts that “claim 12 is directed to a vented and versatile, outer pillow cover,” a critical aspect of the ’408 patent, and “not merely a cover for holding the fill material.” *Id.* at 39–40 (citing Ex. 1001, 5:65–6:7; Ex. 2001 ¶¶ 57–59, 80–84).

Patent Owner further responds that Petitioner “does not cite to anything in either Fry or Shelby that teaches or suggests a pillow cover that is separate from a pillow” and that “both references, at most, teach a

traditional pillow.” *Id.* at 40–42 (citing Ex. 1001, Fig. 3; Ex. 1005, Fig. 1B; Ex. 1011, Fig. 7; Ex. 2001 ¶¶ 72–84, 107–109; Parachuru Decl. ¶¶ 116–121). According to Patent Owner, Petitioner conflates “pillow cover” with “pillow,” thus failing to account for either one. *Id.* at 42 (citing Pet. 55–57). Patent Owner also contends that Petitioner’s position is at odds with Fry and Shelby, inconsistent with the understanding of one of ordinary skill in the art, and divorced from the claim language and Specification. *Id.* at 42–44 (citing Ex. 1005 ¶¶ 3, 17, 18; Ex. 1011 ¶ 53; Ex. 2001 ¶¶ 75–78, 111–114; Ex. 2011, 27:8–29:4).

For the reasons discussed above in Section II., we interpret “pillow cover” to be separate and distinct from “pillow,” and we determine that the ordinary and customary meaning of “pillow” includes “at least fill material that is not loose and with or without a cover to hold the fill material.” Thus, Petitioner persuades us that Fry teaches or suggests the claimed pillow cover having panels perimetrically joined such that the inner surfaces of the panels define a cavity having a void volume.

Patent Owner also responds that Petitioner fails to show Fry and Shelby teach a pillow disposed in a “cavity having a void volume,” as required by the claim. PO Resp. 46–47. Patent Owner contends that Petitioner fails to show that either Fry or Shelby disposes a pillow “leaving room for some volume of air to fill the space between the pillow and the pillow cover,” as shown in the ’408 patent, and “Petitioner concedes that ‘void volume [is] filled with pillow filler material.’” *Id.* (citing Pet. 39; Parachuru Decl. ¶¶ 58–60, 64, 65, 72, 77, 78, 128–133). Patent Owner, thus, argues that Fry’s or Shelby’s “fill material precludes any ‘void volume’ from

existing in the cavity . . . failing to meet the express language required by the claim.” *Id.* at 47.

Claim 12 recites “a second panel perimetrically joined with the first panel such that inner surfaces of the first and second panels define a cavity having a void volume.” Ex. 1001, 9:4–6. The record does not indicate that the “cavity having a void volume” requires a pillow that is subsequently disposed therein to “leav[e] room for some volume of air to fill the space between the pillow and the pillow cover,” as argued by Patent Owner. *See* PO Resp. 47. In other words, claim 12 requires “a pillow disposed in the cavity,” not a pillow disposed in the cavity such that there is still void volume for air to fill the space between the pillow and the inner surfaces of the first and second panels.

For the reasons above, we determine that Petitioner has shown that Fry teaches “a pillow cover comprising: a first panel, and a second panel perimetrically joined with the first panel such that inner surfaces of the first and second panels define a cavity having a void volume.”

2. *“the first and second panels each being made from a first material”*

Petitioner contends that Fry teaches “the first and second panels each being made from a first material,” as required by claim 12. Pet. 42–43 (citing Ex. 1005 ¶¶ 17, 18, 20, Figs. 1A, 1B; Rhodes Decl. ¶ 71); *see also id.* at 28–30 (arguing asserted teachings of Fry). Patent Owner does not specifically address this limitation. *See* PO Resp. 32–53.

We find that a cited portion of Fry teaches that “pillow 100 is constructed by sewing two pieces of fabric together around the circumference of the fabric” to form a cover. Ex. 1005 ¶ 18. We also find

Fry teaches that cover 102 includes or is constructed of fabric 101. *Id.* ¶¶ 17, 20. Further, Figure 1B shows that cover 102, which can be two pieces of fabric, includes fabric 101.

Thus, we determine that Petitioner has shown that Fry teaches “the first and second panels each being made from a first material.”

3. *“wherein an opening extends through the inner surface of the first panel and an outer surface of the first panel, the opening having a size, shape and arrangement”*

Petitioner contends that Fry teaches “wherein an opening extends through the inner surface of the first panel and an outer surface of the first panel, the opening having a size, shape and arrangement,” as required by claim 12. Pet. 45–46 (citing Ex. 1005 ¶¶ 22–27, Figs. 1A–1B); *see also id.* at 28–30 (arguing asserted teachings of Fry). Patent Owner does not specifically address this limitation. *See* PO Resp. 32–53.

We find Petitioner’s citations to Fry teach and depict that Fry’s “pillow includes a filter 104 sewn into the covering 102,” “fabric 101 is coated with a monolithic or microporous material 103,” “filter 104 is a portion of the covering 102 that does not include the monolithic material 103,” and “filter 104 can be positioned anywhere in the pillow covering 102.” Ex. 1005 ¶¶ 22, 23, 26, 27. Figure 1B of Fry shows covering 102 has an opening that extends from its outer surface to its inner surface and the opening has a size, shape, and arrangement that includes filter 104.

Therefore, we determine that Petitioner has shown that Fry teaches “wherein an opening extends through the inner surface of the first panel and an outer surface of the first panel, the opening having a size, shape and arrangement.”

4. *“the pillow cover comprising a patch covering the opening, the patch being made from a second material that is different than the first material, the second material being more porous than the first material”*

Petitioner contends that Fry teaches “the pillow cover comprising a patch covering the opening, the patch being made from a second material that is different than the first material, the second material being more porous than the first material,” as required by claim 12. Pet. 50–52 (citing Ex. 1005 ¶ 26, Fig. 1B; Rhodes Decl. ¶ 74); *see also id.* at 28–30 (arguing asserted teachings of Fry). Patent Owner does not specifically address this limitation. *See* PO Resp. 32–53.

We find Petitioner’s citations to Fry teach and depict fabric 105 covering an opening that includes filter 104, “filter 104 includes a fabric 105,” and “[f]abric 105 may be a different fabric . . . from fabric 101” of cover 102. Ex. 1005 ¶ 26, Fig. 1B. We also credit the testimony of Petitioner’s declarant that one of ordinary skill in the art would understand that “fabric 105 to be more porous than the material used for the rest of the cover.” Rhodes Decl. ¶ 74 (addressing Ex. 1005 ¶ 26, Fig. 1B).

For the reasons above, we determine that Petitioner has shown that Fry teaches a “pillow cover comprising a patch covering the opening, the patch being made from a second material that is different than the first material, the second material being more porous than the first material.”

5. *“a pillow disposed in the cavity”*

Petitioner argues that Fry teaches or suggests “a pillow disposed in the cavity,” as required by claim 12. Pet. 55–56 (citing Ex. 1005 ¶¶ 18, 19, 23,

Figs. 1A, 1B; Rhodes Decl. ¶ 77); *see also id.* at 28–30 (arguing asserted teachings of Fry).

We find that Fry teaches “pillow 100 is constructed by sewing two pieces of fabric together around the circumference of the fabric, allowing an opening for filling the resulting cover with a filling material” and “filling material can include . . . latex foam, viscoelastic foam, or any other material known in the art suitable for filling a pillow.” Ex. 1005 ¶¶ 18, 19. We also credit the testimony of Petitioner’s declarant that one of ordinary skill in the art would have understood Fry teaches a pillow disposed in a cavity formed by its panels. Rhodes Decl. ¶ 77 (“A person of ordinary skill would understand these latex foam or viscoelastic foam fillers to form a pillow that deforms when a person lays their head on it.”).

Patent Owner responds that Petitioner’s combination of Fry and Shelby fails to teach a pillow disposed in a cavity, as required by the claim. PO Resp. 45–46. In particular, Patent Owner argues that Petitioner points to filler material 112 of Fry as teaching the pillow of claim 12, but one of ordinary skill in the art “would have understood fill material to be a component of a pillow—not a pillow by itself.” *Id.* at 45 (citing Ex. 1005 ¶¶ 13, 18; Ex. 2011, 27:8–29:4; Parachuru Decl. ¶ 111); Tr. 52:14–24 (Patent Owner’s counsel arguing that Fry’s fill material is not a pillow). Patent Owner also argues that Petitioner thus “fails to account for the claimed ‘pillow’ disposed within the cavity defined by the claimed pillow cover.” PO Resp. 46 (citing Pet. 37–40). Patent Owner further argues that Petitioner’s position requires the asserted “pillow” of Fry to be filled with itself. *Id.* at 45 (citing Pet. 55–56). Patent Owner provides similar



arguments for core 112 of Shelby, which Petitioner contends is a pillow. *Id.* (citing Pet. 40–41, 56–57; Ex. 1011 ¶ 53; Parachuru Decl. ¶¶ 122–127).

For the reasons discussed above in Section II.B., we determine that the ordinary and customary meaning of “pillow” includes “at least fill material that is not loose and with or without a cover to hold the fill material.” We credit the testimony of Petitioner’s declarant that a person of ordinary skill would have understood “latex foam or viscoelastic foam fillers to form a pillow that deforms when a person lays their head on it.” Rhodes Decl. ¶ 77. Although both parties’ declarants agree that loose filler material without a cover would not be a pillow, in view of our interpretation of “pillow,” Petitioner persuades us by a preponderance of the evidence that filler material that is not loose, such as a block of latex or viscoelastic foam, would have been understood by one of ordinary skill in the art to be a pillow. Rhodes Decl. ¶ 77; Ex. 2011, 17:11–20, 18:22–20:23, 22:13–23:1, 29:20–30:7; Parachuru Decl. ¶¶ 80–86, 93–96.

For the reasons above, we determine that Petitioner has shown that Fry teaches “a pillow disposed in the cavity.”

6. *“wherein the second panel is free of any openings having the size, shape and arrangement of the opening in the first panel”*

Petitioner contends that Fry teaches “wherein the second panel is free of any openings having the size, shape and arrangement of the opening in the first panel,” as recited by claim 12. Pet. 58–60 (citing Ex. 1005, Figs. 1A, 1B; Rhodes Decl. ¶ 79); *see also id.* at 28–30 (arguing asserted teachings of Fry).

Patent Owner responds that Petitioner fails to show Fry and Shelby teach a “second panel [that] is free of any openings having the size, shape

and arrangement of the opening in the first panel.” PO Resp. 47–51. Specifically, for Fry, Patent Owner argues that “Petitioner points to a partial schematic in Fry, which does not even fully depict both panels,” and thus, is “unclear as to whether there may be other openings located elsewhere.” *Id.* at 48 (citing Pet. 60). Patent Owner also argues that “Petitioner does not cite to any portion of Fry’s specification” or “any description in which Fry differentiates between the panels,” and “does not explain the significance, purpose or effect of having only one opening in Fry’s panel.” *Id.*

Petitioner, however, relies on the testimony of its declarant. Pet. 59 (citing Rhodes Decl. ¶ 79). Petitioner’s declarant states that a “person of ordinary skill in the art would understand that Fry teaches [the limitation]” and “would appreciate this from reading Fry’s written description, as well as from a simple inspection of Fry’s figures, which depict no second opening/vent having the same size, shape, and arrangement of the first.” Rhodes Decl. ¶ 79 (discussing Ex. 1005, Figs. 1A, 1B).

The record supports Petitioner’s declarant testimony. Figure 1B is a “partial cross-section drawing of a hypoallergenic pillow.” Ex. 1005 ¶ 13. We find that it teaches or suggests a “second panel” that “is free of any openings having the size, shape and arrangement of the opening in the first panel,” as required by claim 12. In its description of Figures 1A and 1B, Fry describes explicitly only filter 104. *See* Ex. 1005 ¶¶ 17–27. We find that Fry explicitly teaches or suggests at least one filter 104 in a first panel and thus, a second panel free of any openings having the size, shape and arrangement of the opening in the first panel. Therefore, we find that Fry supports the testimony of Petitioner’s declarant, and we credit that testimony.

Moreover, in setting forth its arguments, Patent Owner does not contest that the one explicitly described filter of Fry is sufficient. *See* PO Resp. 52–53 (arguing that “Petitioner does not assert that Fry’s filter (or filter position) is inadequate” and “Petitioner does not dispute that Fry’s pillow works for its intended purpose”). Thus, for this additional reason, the record persuades us that Fry teaches or suggests at least one filter 104 in a first panel and a second panel free of any openings, and we do not agree that Fry is “unclear as to whether there may be other openings located elsewhere” (*see id.* at 48).

As for Shelby, Patent Owner argues that Petitioner only relies on Figure 12 of Shelby, but the “embodiment described with respect to figure 12 only has a single sheet and not a second panel.” PO Resp. 49–50 (citing Pet. 60; Ex. 1011 ¶¶ 63–70). According to Patent Owner, “Petitioner does not account for the differences between a mattress and a pillow when applying these teachings to a pillow generally” and “fails to account for the differences . . . when applying these particular teaching[s] of Shelby[’s] mattress to a pillow which requires two distinct (i.e., first and second) panels.” *Id.* at 50. Patent Owner also contends that Petitioner cites a portion of Shelby that teaches “minimizing the waste of filter material as to a specific vent,” not “whether additional vents (and corresponding filter material) would be wasteful,” as argued by Petitioner in support of its reason for the combination of Fry and Shelby. *Id.* at 50–51 (citing Pet. 61; Ex. 2011, 47:5–47:16; Parachuru Decl. ¶¶ 134–137).

For the reasons stated above, the record persuades us that Petitioner shows by a preponderance of the evidence that Fry, not Shelby, teaches the limitation.

7. *“wherein the pillow cover comprises a filter that engages an inner surface of the first panel such that the opening is positioned between the patch and the filter”*

Petitioner argues that Fry teaches that “the pillow cover comprises a filter,” as required by claim 12. Pet. 63–64 (citing Ex. 1005 ¶¶ 8–11, 22, 26, 27, Fig. 1B); *see also id.* at 28–30 (arguing asserted teachings of Fry). We find that the cited portions of Fry teach “filter 104 sewn into the covering 102.” Ex. 1005 ¶ 22.

Petitioner states that “Fry, however, does not appear to precisely describe that the filter 104 specifically engages the inner surface of the first panel.” Pet. 65. Petitioner contends that “Shelby . . . expressly teaches a filter (membrane/filter 228 . . . ) that engages an inner surface of the first panel.” *Id.*; *see also id.* at 31–35 (arguing asserted teachings of Shelby), 66–67 (citing Ex. 1011 ¶¶ 5, 45, 55, 57, 58, 60, Figs. 7, 10).

We find that the cited portions of Shelby teach “[m]icroporous membrane 228 may be fastened to inner surface 216 (FIG. 10) using any suitable means” and “[m]icroporous membrane 228 may be comprised of any suitable filter as described herein.” Ex. 1011 ¶ 58. We also find that Shelby teaches that the “concepts of the present invention may be adapted to form a pillow, such as pillow 110” that “includes core 112 and covering 114, which surrounds core 112,” “may also include vents (not shown), which provide ventilation through covering 114,” and “[c]overing 114 includes inner surface 116.” *Id.* ¶¶ 53–55.

Petitioner asserts that it would have been obvious to use Shelby’s vent structure in Fry because “Shelby provides an express motivation that [its] concepts . . . can be applied to a pillow cover, including a vented pillow cover,” “it would be beneficial to place an opening in a pillow covering for

the purpose of providing such a vent,” and “it was beneficial . . . to provide ventilation and cooling and to prevent an uncomfortable ‘ballooning’ effect.” Pet. 35–36 (citing Rhodes Decl. ¶¶ 39–41, 67); *see also id.* at 49–50 (citing Ex. 1005 ¶ 27; Rhodes Decl. ¶ 67), 57, 67–69 (citing Ex. 1005 ¶ 27; Rhodes Decl. ¶¶ 65, 84, 85) (presenting similar arguments). Petitioner also asserts that one of ordinary skill in the art routinely used design concepts interchangeably between mattress covers and pillow covers, would have had a reasonable expectation of success, and would have appreciated that combining Shelby and Fry would not have had a deleterious effect on Fry’s purpose of filtering contaminants while allowing airflow. *Id.* at 36 (citing Rhodes Decl. ¶ 67), 50 (citing Rhodes Decl. ¶ 67), 68–69 (citing Rhodes Decl. ¶ 85).

Patent Owner responds that Petitioner does not explain adequately how one of ordinary skill in the art would combine Fry with Shelby. PO Resp. 51–53. According to Patent Owner, Petitioner asserts “‘many credible reasons to combine Shelby and Fry’” but “‘fails to point to any such ‘credible reasons.’” *Id.* at 51 (discussing Pet. 35–36).

Patent Owner also argues that Petitioner does not sufficiently explain why one of ordinary skill in the art would modify Fry so as to move its filter to the position shown in Shelby because Fry’s pillow is already vented, as acknowledged by Petitioner and its declarant. *Id.* at 52 (citing Pet. 45, 68; Ex. 1005 ¶ 22). Patent Owner contends that Petitioner does not explain why “Fry’s filter (or filter position) is inadequate,” “does not dispute that Fry’s pillow works for its intended purpose,” “does not provide any reason as to why a [person of ordinary skill in the art] would have modified a reference that teaches a filter than can be used in a vented pillow with another one that

has similar teachings,” and thus, engages in impermissible hindsight. *Id.* at 52–53 (addressing Pet. 35). Patent Owner also contends that Shelby “explicitly specifies how its teachings result in a vented pillow” and depicts “how vents can be placed directly in the pillow,” thus one of ordinary skill in the art “could have followed Shelby’s own teachings in order to create a vented pillow.” *Id.* (citing Ex. 1011 ¶¶ 53, 55, Fig. 7).

Weighing Petitioner’s arguments and evidence (Ex. 1005 ¶ 27; Rhodes Decl. ¶¶ 39–41, 67, 84, 85) against Patent Owner’s arguments and evidence (Ex. 1005 ¶ 22; Ex. 1011 ¶¶ 53, 55, Fig. 7), we determine that a preponderance of the evidence shows that one of ordinary skill in the art would have modified Fry with the teachings of Shelby in the manner asserted by Petitioner with a reasonable expectation of success. We find that Fry states “filter 104 can be positioned anywhere in the pillow covering 102 . . . so long as the filter 104 allows the ingress and egress of air 106 in and out of the pillow.” Ex. 1005 ¶ 27; *see also id.* ¶ 22 (“the pillow includes a filter 104 sewn into the covering 102.”). As discussed above, we find that Shelby teaches that the its concepts “may be adapted to form a pillow, such as pillow 110” that “includes core 112 and covering 114, which surrounds core 112” and “may also include vents (not shown), which provide ventilation through covering 114.” Ex. 1011 ¶¶ 53–55. Petitioner’s proposed modification of Fry with the teachings of Shelby would result in filter 104 of Fry being moved from its position in the opening of Fry’s cover 102 to the position shown in Shelby, specifically the inner surface of Fry’s cover 102. The proposed modification would still allow ingress and egress of air.

Further, we credit the testimony of Petitioner’s declarant that repositioning the filter of Fry to the position shown in Shelby is a “matter of routine design choice” and one of “a finite number of options of how to attach the filter relative to the pillow covering and the patch.” Rhodes Decl. ¶ 85. We also credit the testimony of Petitioner’s declarant that one of ordinary skill in the art would have had a “reasonable expectation of success in combining Shelby’s vent structure with Fry’s vent, as it would have required minimal modifications of Fry’s vent structure.” *Id.* ¶ 67.

For the reasons stated above, the record persuades us that Petitioner shows by a preponderance of the evidence that the proposed combination of Fry and Shelby teaches “wherein the pillow cover comprises a filter that engages an inner surface of the first panel such that the opening is positioned between the patch and the filter.”

8. *“the filter comprises a third material that is different than the first material, the third material being more porous than the first material”*

Petitioner also argues that Fry teaches that “the filter comprises a third material that is different than the first material, the third material being more porous than the first material.” Pet. 69–71 (citing Ex. 1005 ¶¶ 20, 22, 23, 25, 26, Fig. 1B; Rhodes Decl. ¶ 86); *see also id.* at 28–30 (arguing asserted teachings of Fry). Petitioner further contends that, if required by claim interpretation, Shelby teaches or suggests a second material being different from a third material. *Id.* at 71. Patent Owner does not address specifically this limitation of claim 12. *See* PO Resp. 32–53.

We find that the cited portions of Fry teach “cover 102 is constructed of the fabric 101” (Ex. 1005 ¶ 20), “filter 104 is constructed of a material that has a high degree of filtration pathogens” (*id.* ¶ 22), “filter 104 is a

portion of the covering 102 that does not include the monolithic material 103,” (*id.* ¶ 26) “filter 104 includes fabric 105” (*id.*), and “fabric 105 may be the same type as fabric 101” or “filter 104 can be of a different material” (*id.*). We also find that Fry teaches that a “monolithic coating the fabric of an entire pillow results in a pillow that traps air.” *Id.* ¶ 10. Thus, we determine that Fry teaches filter 104 that comprises fabric 105, that fabric 105 is different than fabric 101 of cover 102, and that filter 104 is more porous than monolithic material 103 of cover 102.

Accordingly, for the reasons above, Petitioner has shown that Fry teaches “the filter comprises a third material that is different than the first material, the third material being more porous than the first material.”

*D. Conclusion as to the Challenge of Claim 12*

Weighing Petitioner’s and Patent Owner’s arguments and evidence, we determine that Petitioner has shown by a preponderance of the evidence that, under 35 U.S.C. § 103(a), claim 12 would have been obvious over Fry and Shelby to one of ordinary skill in the art at the time of the invention.

#### IV. PETITIONER’S REPLY ARGUMENTS

Patent Owner filed a List of Improper Reply Arguments (Paper 29), to which Petitioner filed a response (Paper 30). Patent Owner asserts that, in its Reply, Petitioner relies on a different embodiment in Fry for the first time and Patent Owner is precluded any opportunity to reply. Paper 29, 1 (citing Pet. Reply 14); *see also* Tr. 52:4–11 (Patent Owner’s counsel arguing that Petitioner points to new figure and embodiment in its reply). Petitioner responds that it “provided additional proper responsive argument” and could



not have foreseen that the interpretation of “pillow” would be an issue.  
Paper 30, 1.

We agree with Patent Owner that Petitioner did not assert Fry’s Figure 3 embodiment in the Petition. *See* Pet. 27–30, 35–40, 42–43, 45–46, 49–52, 55–56, 58–60, 62–65, 67–71, 74 (discussing embodiments of Fry associated with its Figures 1A and 1B); Paper 29, 1 (“Petitioner relied, for the first time, on a different embodiment disclosed in Fig. 3 and ¶¶ 31–32 of Fry.”). Also, arguments in the Petition implicitly interpret “pillow” as mere fill material, and Petitioner’s declarant explicitly equates filler material 112 of Fry or core 112 of Shelby to the recited “pillow.” Pet. 55–57; Rhodes Decl. ¶¶ 68, 69. We are not persuaded that the meaning of “pillow” was not a foreseeable issue because the asserted references describe “pillow 100 comprises a filling material . . . and a covering 102” (Ex. 1005 ¶ 17) and state that “[p]illow 110 generally includes core 112 and covering 114” (Ex. 1011 ¶ 53). Thus, we do not consider arguments in Petitioner’s Reply related to the embodiment shown in Fry’s Figure 3 in determining whether Petitioner shows the unpatentability of claim 12 by a preponderance of the evidence. *See* Pet. Reply 14–17.

Moreover, even if we were to consider substantively Petitioner’s arguments regarding Fry’s Figure 3 embodiment, those arguments do not identify a reason for modifying Fry’s Figure 3 embodiment with the teachings of Shelby. *See* Pet. Reply 17; *see also* Paper 29, 1 n.1 (“Petitioner provided no explanation or rationale for combining this newly cited embodiment in Fry with the cited portions of Shelby.”). Petitioner’s arguments, instead, appear to rely on its previous reason for modifying Fry in view of Shelby. *See* Pet. Reply 17. Petitioner’s previous reason does not

address sufficiently why one of ordinary skill in the art would have applied Shelby's teachings regarding a filter for a cover surrounding fill material to a cover encasing a pillow, such as the one shown in Fry's Figure 3. *See* Pet. Reply 15–17; Rhodes Reply Decl. ¶ 19; *see also* 37 C.F.R. § 42.6(a)(3) (“Arguments must not be incorporated by reference from one document into another document.”). Thus, Petitioner's additional arguments, even if made properly, would not demonstrate persuasively that claim 12 is unpatentable over Fry's Figure 3.

Patent Owner also asserts that Petitioner, in its Reply, asserts that a person of ordinary skill in the art “would have understood fill material taught by Fry . . . to also be teaching solid fill material, such as solid foam, in addition to loose fill material.” Paper 29, 2 (citing Pet. 55–56; Pet. Reply 14; Exs. 1031–1034). We do not rely on such arguments in our analysis above, and thus, Patent Owner's position is moot on this point.

The parties also jointly filed unresolved objections to the demonstratives, in which Patent Owner objects to one of Petitioner's slides because Petitioner relies on a different embodiment in Fry for the first time. *See* Paper 32. Although we do not rely on the demonstratives, we sustain Patent Owner's objection to the slide containing arguments regarding the embodiment of Fry shown in its Figure 3.

## V. CONCLUSION

For the foregoing reasons, based on the full record before us, we determine Petitioner has demonstrated, by a preponderance of the evidence, that claim 12 of the '408 patent is unpatentable.

VI. ORDER

Accordingly, it is:

ORDERED that claim 12 of U.S. Patent No. 9,155,408 B2 has been shown, by a preponderance of the evidence, to be unpatentable; and

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

IPR2017-00524  
Patent 9,155,408 B2

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