

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TEMPUR SEALY INTERNATIONAL, INC.,
SEALY TECHNOLOGY LLC, and
SEALY MATTRESS MANUFACTURING CO., LLC,

Petitioners,

v.

PURPLE INNOVATION, LLC,

Patent Owner.

Case IPR Unassigned

U.S. Patent No. 11,317,733

**PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT NO. 11,317,733**

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PETITIONERS' EXHIBIT LIST

Exhibit No.	Description
1001	U.S. Patent No. 11,317,733 to Pearce, <i>et al.</i>
1002	Prosecution History of U.S. Patent No. 11,317,733
1003	U.S. Patent No. 8,434,748 (“Pearce”)
1004	U.S. Patent Application Publication No. 2017/0251838 (“Whatcott”)
1005	USPTO Assignments of U.S. Patent No. 8,434,748
1006	Klancnik Declaration of Alvin Roy Klancnik
1007	Storey Declaration of Robson F. Storey, Ph.D.
1008	ECF 22, <i>Purple Innovation v. Tempur Sealy Int’l</i> , Am. Compl., ¶ 52, July 17, 2023
1009	ECF 1, <i>Purple Innovation v. Diamond Mattress Co.</i> , Compl., ¶ 37, Nov. 17, 2022.
1010	U.S. Patent No. 7,640,611 (“Kluft”)
1011	ECF 24, <i>Purple Innovation v. Tempur Sealy Int’l</i> , Purple’s Answer to Counterclaims (Excerpt)
1012	ECF 23, <i>Purple Innovation v. Tempur Sealy Int’l</i> , Counterclaims
1013	<i>Lars Hamilton</i> (2024) LinkedIn profile. (last visited Aug. 29, 2023)
1014	<i>Tanner Wheadon</i> (2024) LinkedIn profile. (last visited Aug. 29, 2023)
1015	<i>ComfortCore</i> , Leggett & Platt Bedding Group, (Oct. 22, 2017), https://beddingcomponents.com/comfortcore [https://web.archive.org/web/20171022185929/https://beddingcomponents.com/comfortcore] (last accessed Jan. 25Feb. 1, 2024)
1016	<i>Definition of Innerspring</i> , Merriam-Webster.com Dictionary, (Jan. 2, 2017), https://www.merriam-webster.com/dictionary/innerspring [https://web.archive.org/web/20170102194529/https://www.merriam-webster.com/dictionary/innerspring] (last accessed Jan. 25, 2024)

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Exhibit No.	Description
1017	<i>Why is Your Coil Fabric Polypropylene Instead of Natural Cotton?</i> European Sleep Design (June 8, 2016), https://www.sleepdesign.com/Why-Is-Your-Coil-Fabric-Polypropylene-Instead-Of-Natural-Cotton (last visited Jan. 25, 2024)
1018	U.S. Patent No. 5,749,111 (the “111 Patent”)
1019	U.S. Patent No. 6,026,527 (the “527 Patent”)
1020	U.S. District Court – Judicial Caseload Profile (Excerpt)
1021	Kushner Declaration of Leslie J. Kushner (Attorney Declaration)

TABLE OF ABBREVIATIONS

Abbreviation	Term
'111 Patent	U.S. Patent No. 5,749,111 (Ex. 1018)
'527 Patent	U.S. Patent No. 6,026,527 (Ex. 1019)
'733 Patent	U.S. Patent No. 11,317,733 (Ex. 1001)
AIA	America Invents Act
Applicant	Purple Innovation, LLC
Application	U.S. Patent Application No. 15/816,983 (Ex. 1002)
Challenged Claims	Claims 1-20 of U.S. Patent No. 11,317,733
Ex	Exhibit
Fig(s).	Figure(s)
Gilhooly	U.S. Patent No. 4,313,214
Gladney	U.S. Patent No. 10,357,113
IPR	<i>inter partes</i> review
Kluft	U.S. Patent No. 7,640,611 (Ex. 1010)
McCann	U.S. Patent Application Publication No. 20050223667
Patent Owner	Purple Innovation, LLC
Pearce	U.S. Patent No. 8,434,748 (Ex. 1003)
Petitioners	Tempur Sealy International, Inc., Sealy Technology LLC, and Sealy Mattress Manufacturing Co., LLC
POSA[s]	Person[s] of ordinary skill in the art
Purple	Purple Innovation, LLC
Rancourt	U.S. Patent No. 9,032,571
Whatcott	U.S. Patent Application Publication No. 2017/0251838 (Ex 1004)

Pursuant to 35 U.S.C. § 311, Tempur Sealy International, Inc., Sealy Technology LLC, and Sealy Mattress Manufacturing Co., LLC (“Petitioners”) hereby petition for *inter partes* review (“IPR”) and cancellation of all claims of U.S. Patent No. 11,317,733 B2 (“’733 Patent”) (Ex. 1001) as obvious under 35 U.S.C. § 103.

I. INTRODUCTION

All of the claims of the ’733 Patent are obvious because the only professed and possible novel feature of those claims—that there is seepage of gel through a fabric to create a reduced or non-slip surface—is disclosed in Purple’s own non-disclosed and non-considered prior art.

Claims 1-20 of the ’733 Patent (the “Challenged Claims”) claim a mattress assembly comprising coils, foam, an elastomeric cushion, a stabilization layer attached to the cushion, and a cover. The Challenged Claims also have an additional limitation covering “seepage” of elastomeric material through the stabilization layer to create a reduced-slip or non-slip surface (the “Seepage Limitation”). (Ex. 1001, 14:33-39 (claim 1), 15:16-22 (claim 10), 16:12-15 (claim 16) .)

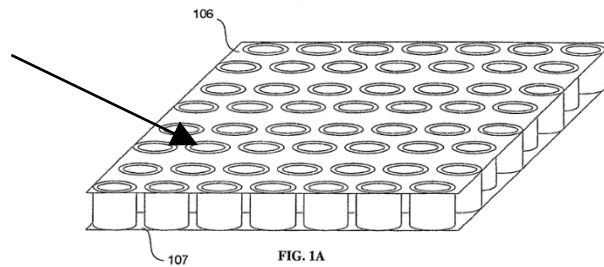
The Examiner and Purple Innovation, LLC (“Purple” or “the Applicant”) both accepted that the claimed mattress layers in the ’733 Patent were unpatentable over the prior art, but the Examiner ultimately allowed the Challenged Claims on the basis that the Seepage Limitation was not disclosed in the prior art. Specifically, based on

Purple’s arguments, the Examiner found that “the prior art does not teach the elastomeric material seeping ...[through] the stabilization layer” to create “a reduced slip or a non slip surface,” nor does it teach that “the elastomeric material defines a reduced slip or non slip surface on the bottom of the stabilization layer positioned against another layer of the mattress.” (Ex. 1002, 85.)

But Purple’s own prior art—Pearce and Whatcott—disclosed the technology claimed in the Seepage Limitation and were surprisingly not disclosed by Applicant or considered by the Examiner.¹ The disclosures of Pearce and Whatcott, in conjunction with prior art identified during prosecution, render the Challenged Claims invalid as obvious. Those two references, and two litigations involving the ’733 Patent, are briefly described below.

Pearce: U.S. Patent No. 8,434,748 (“Pearce”) (filed in 2008 and granted in 2013) repeatedly disclosed the Seepage Limitation that Purple later claimed in the ’733 Patent. For example, Pearce disclosed connecting layers by heat-pressing the elastomeric cushion into and through the fabric layer and providing a specific example: “Fig 1A shows the gel melted through a fabric and visible from a top of the fabric.” (Ex. 1003, 6:35-40.)

¹ (See Exs. 1003, 6:35-40; 1004, ¶ 0032; 1005.)



(Ex. 1003, 6:35-40, Fig. 1A (arrow added to highlight gel seeping through the attached fabric).)

Pearce further disclosed that the gel that seeped through the fabric creates a non-slip or reduced-slip surface by explicitly describing the non-slip properties of the surface (Ex. 1003, 13:14-31; Ex. 1006, ¶¶ 43, 87-88) and by the nature of the properties of the disclosed gel (Ex. 1003, 1:55-67), which are identical to the later-claimed gel used in the '733 Patent (Ex. 1007, ¶¶ 17-18).

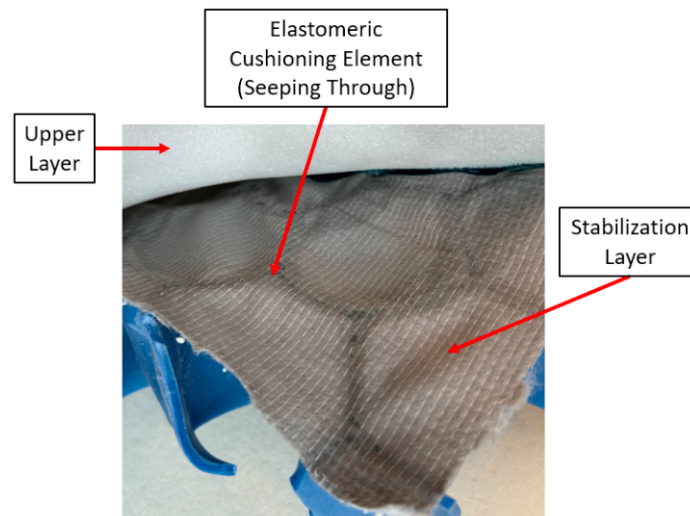
Whatcott: U.S. Patent Application Publication No. 2017/0251838 ("Whatcott") also discloses the Seepage Limitation, including an almost word-for-word disclosure of the description in the '733 Patent specification. (*See infra* Section III.C.) Thus, it appears that Purple essentially cut and pasted the disclosure of the Seepage Limitation from Whatcott into the '733 Patent specification. (*See id.*)

Purple never disclosed Whatcott and never argued that Whatcott was not prior art during prosecution of the '733 Patent. In an effort to avoid the invalidating effects of this verbatim disclosure in the Related Litigation, Purple took the position that Whatcott is not prior art and that the '733 Patent inventors disclosed the Seepage

Limitation to the Whatcott inventor. (*See id.*) But those are interested, unsupported, and suspect positions.

Related Litigations: To the extent Purple argues that the Seepage Limitation is somehow distinguishable from the disclosures in Pearce and Whatcott, or has additional attributes not present in those references, it runs headlong into common sense and Purple's own litigation positions.

Tempur Lawsuit: In the Related Litigation, Purple alleged infringement of the '733 Patent by alleging seepage through the stabilization layer and the creation of a reduced or non-slip surface. Purple stated: "[t]he elastomeric cushioning element seeps through (e.g., is 'melt-fused into, bleed[s] through, push[es] through, leak[s] through, pass[es] through, etc.') the stabilization layer . . . , as shown below:"



(Ex. 1008, ¶ 52 (notations in original image).) These allegations are no different than the disclosure in Pearce.

Diamond Lawsuit: Similarly, in its settled lawsuit against Diamond Mattress Co., Purple alleged that the type of disclosures in the prior art meets the Seepage Limitation. Purple alleged the following image supported an infringement claim:



(Ex. 1009, ¶¶ 37-40.)

It alleged that “the white fabric shown in the above image . . . corresponds to the stabilization layer of claim 1,” and that “the Gel Grid material that pushes through the fabric creates a reduced slip surface or a non-slip surface on a lower surface of the fabric that is positioned against the layer in the Infringing Product that is disposed over the layer of individually wrapped coils.” (*Id.*) Again, there is no difference between the seepage disclosures in Pearce and Purple’s infringement allegations.

II. THE '733 PATENT

A. Description

The purported invention of the '733 Patent relates to a mattress assembly and method of forming a mattress assembly comprised of common elements found in the prior art: a base layer, a pocketed coil layer, an upper layer, and an elastomeric cushioning layer, each of varying thicknesses, encased in an outer covering, as shown in Fig. 2 below, with the addition of the Seepage Limitation.

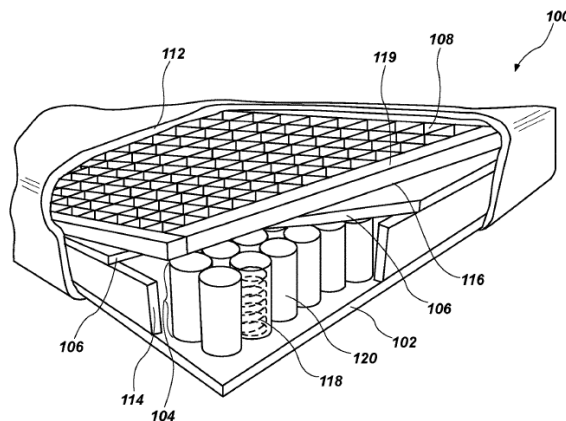


FIG. 2

(Ex. 1001, Fig. 2)

With respect to the layers in Figure 2, it shows the mattress assembly **100** that has “a base layer **102**, a coil layer **104**, an upper layer **106**, an elastomeric cushioning element **108**, an edge portion **119**, one or more side panels **114**, and the outer covering **112**.” (*Id.*, 4:15-18.) Each coil **118** in the coil layer **104** of the mattress assembly may be within multiple casings **120**. (*Id.*, 1:60-63, 3:65-4:3, 5:48-52.)

The Seepage Limitation, which is at the heart of this Petition, reads:

an elastomeric material of the elastomeric cushioning element seeping through the stabilization layer to secure an upper surface of the stabilization layer to the elastomeric cushioning element, the elastomeric material exposed and defining a reduced slip surface or a non-slip surface on a lower surface of the stabilization layer, the reduced slip surface or the non-slip surface positioned against an upper surface of the upper layer

(Ex. 1001, 14:33-41 (claim 1).)

Further, the specification explains that this seepage of the elastomeric material through the scrim may occur by “melt-fuse[], bleed through, push through, leak through, pass through, etc.,” such that the “portions of the elastomeric cushioning element **108** that extend through the scrim fabric on the stabilization material **116** may create a non-slip surface or a reduced slip surface” (*Id.*, 4:49-52, 4:56-58.)

B. Priority Date

The '733 Patent issued May 3, 2022, from U.S. Patent Application No. 15/816,983 (“Application”) filed November 17, 2017, with no claim to an earlier priority. (*Id.*, 1.) For the purposes of this Petition only, Petitioners do not dispute the Challenged Claims are entitled to a November 17, 2017 effective filing date.

C. Prosecution History

The prosecution history of the '733 Patent revolves around whether the prior art discloses the Seepage Limitation. Throughout prosecution, Purple and Examiner jockeyed over whether the prior art disclosed the Seepage Limitation, with Purple continually adding to the limitation to overcome the prior art. A history of that discussion is described below.

First Rejection: In the first Office Action, prior to Purple adding elements of the Seepage Limitation to the claims, the Examiner rejected all claims as obvious. (Ex. 1002, 556-564.) The Examiner found U.S. Patent No. 7,640,611 (Ex. 1010, “Kluft”) with either U.S. Patent No. 4,313,214 (“Gilhooly”) or U.S. Patent Application Publication No. 20050223667 (“McCann”) rendered all of the claimed layers obvious. (Ex. 1002, 556-564.)

First Response: In response, Purple amended the claims, in part by adding a version of the Seepage Limitation that did not require a reduced or non-slip surface and including an outer covering. (Ex. 1002, 543-547.)

Final Rejection: The Examiner then issued a final rejection of all claims, citing additional prior art, including U.S. Patent No. 9,032,571 (“Rancourt”). (*Id.*, 449-459.) The Examiner found that Rancourt teaches a stabilization layer in contact with the upper layer, with the stabilization layer secured to an elastomeric cushioning element by seepage of elastomeric material through the stabilization

layer. (*Id.*, 451, 453, 455-456.) Rancourt also taught an outer covering. (*Id.*, 451, 452, 456.)

Response to Final Rejection: In response to the Examiner’s final rejection, Purple amended the independent claims to include that the seeping of the elastomeric cushioning element through the stabilization layer is “to secure an upper surface of the stabilization layer to the elastomeric cushioning element.” (*Id.*, 425, 426, 428.) Purple also included in claims 1 and 10 that the stabilization layer comprises a scrim fabric (*id.*, 425, 426), and in claims 10 and 16 that elastomeric material on the lower surface of the stabilization layer provides a non-slip or reduced slip surface (*id.*, 425, 428).

Purple argued that neither Kluft nor Rancourt, alone or in combination, teaches a scrim fabric stabilization layer through which elastomeric material seeps to secure it to the elastomeric cushioning layer above and to provide a non- or reduced-slip lower surface. (*Id.*, 420, 422.)

Request for Continued Examination: Purple requested Continued Examination. (*Id.*, 408-409.)

Second Final Rejection: The Examiner rejected Applicant’s arguments, explaining that Rancourt teaches the use of silicone that migrates through a layer, has antifriction properties, and stabilizes the mattress assembly. (*Id.*, 284-285, 286.)

Response to Second Final Rejection: In response, Purple amended independent claims 1, 10, and 16 to include a limitation that the elastomeric material that seeps through the stabilization layer, forms a “reduced slip or [] non-slip surface positioned against an upper surface of the upper layer.” (*Id.*, 259-262.) Purple argued that the prior art does not teach that seepage of the elastomeric material through a stabilization layer creates a reduced- or non-slip surface that is positioned against the upper surface of the upper layer of the mattress assembly. (*Id.*, 264-265, 266, 269.)

Third Final Rejection: The Examiner again rejected Applicant’s arguments regarding the Seepage Limitation. (*Id.*, 227-228.) The Examiner further found that U.S. Patent No. 10,357,113 (“Gladney”) teaches a mattress assembly comprising a base, coil, upper, stabilization and cushion layer. (*Id.*, 229, 233, 237.)

Response to Third Final Rejection: In response, Purple did not contest that Gladney taught a mattress assembly with the relevant layers. (*Id.*, 205-11.) Purple instead argued that none of the prior art disclosed “an elastomeric material that seeps through a stabilization layer to define a reduced-slip surface or a non-slip surface on a lower surface of the stabilization layer” that is “positioned against an upper surface of an upper layer over a coil layer.” (*Id.*, 206-08, 211.)

Purple specifically distinguished Rancourt by arguing that the reference did not disclose that the elastomeric material creates a surface on the bottom of the

stabilization layer, nor did it disclose the creation of a non-slip surface. Purple argued Rancourt did not disclose creation of a defined surface on the bottom of the stabilization layer because the gel material seeped through the stabilization layer and integrated into the next layer “by capillarity during curing.” (*Id.*, 206-07, 209, 211.) Purple also argued that, because Rancourt disclosed the use of an anti-friction mat “to ensure slipping,” it could not have disclosed seepage of the elastomeric material through the anti-friction mat to create a reduced-slip surface. (*Id.*) Purple explained that one of ordinary skill would understand that slipping could not be ensured—the purpose of the disclosure of Rancourt—if the gel seeped through the anti-friction mat to create a reduced-slip surface. (*Id.*)

Allowance: The Examiner accepted Purple’s argument regarding Rancourt and allowed all claims. (*Id.*, 85.) The Examiner allowed the claims because he found that while Rancourt “teaches elastomeric layers seeping into ‘stabilization’ layers,” it “does not teach” that “the elastomeric material defines a reduced slip or non slip surface on the bottom of the stabilization layer positioned against another layer of the mattress.” (*Id.*)

Acknowledgement of Reasons for Allowance: Purple did not contest the reasons for allowance and in fact “acknowledged that the allowed independent claims are allowable for the reasons specified in the statement of Reasons for Allowance.” (*Id.*, 61.)

* * *

In sum, Purple repeatedly argued that the prior art did not disclose the use of “seepage” to connect various bedding layers and create a corresponding non- or reduced-slip surface. Based on Purple’s arguments that the prior art did not disclose this use of “seepage” to create a non- or reduced-slip surface, the Examiner allowed the patent.

III. OVERVIEW OF PRIOR ART

A. State of the Art at the Time of Filing

By the time of the ’733 Patent’s November 17, 2017 filing date, mattress assemblies were well known. Combining a base layer, a coil layer, an upper layer, a scrim layer, and an elastomeric cushioning layer in an outer casing was known and routine. (Ex. 1006, ¶¶ 31-34, 38, 77.)

As for the Seepage Limitation, it is disclosed in two of Purple’s own prior art references—Pearce and Whatcott. Those two prior art references are discussed below.

B. Pearce

Pearce is prior art under AIA 35 U.S.C. § 102(a)(1). Pearce, titled “Cushions Comprising Gel Springs,” issued on May 7, 2013 from an application filed on October 3, 2008. (Ex. 1003, 1.) Pearce is listed on the ’733 Patent as a reference

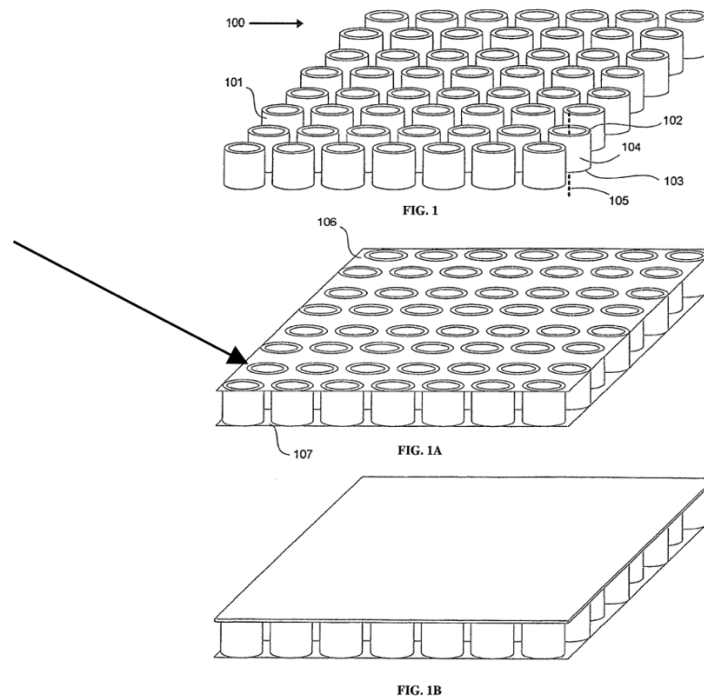
without an asterisk (Ex. 1001, 56), indicating the Examiner did not rely upon it in a rejection or cite it as pertinent prior art. *See* MPEP 707.05(c).

Pearce is directed to elastomeric springs that may be used as a cushioning layer in mattresses. (Ex. 1003, 1:24-25, 1:55-56, 2:9-11, 2:36-51, 8:33-35.) Pearce teaches using a “connecting material,” specifically a fabric, to connect an elastomeric cushion to other layers. (*Id.*, 6:30-40, 11:65-12:3.)

Pearce further teaches that the connecting material “can be fused into the gel ... so that the gel melts and interlocks with the fabric,” (*Id.*, 4:32-35) and discloses:

fabric that is heat-pressed into the top of [an elastomeric cushioning element composed of gel cylinders], causing the gel at the top of the cylinders to melt into the fibers of the fabric and fuse into the fabric. **Fig 1A shows the gel melted through a fabric** and visible from a top of the fabric.

(*Id.*, 6:35-40 (emphasis added)).



(*Id.*, Figs. 1, 1A, and 1B (arrow added to show the gel melted through the fabric).)

Pearce also discloses the same type of “seepage” in Figs. 2A-6A, with corresponding discussion of seepage or bleed-through in the text of the specification. (*Id.*, 7:25-27, 7:30-32, 7:38-40, 7:48-50, 7:54-56.)

Pearce also explicitly discloses that seepage of the elastomeric gel through the connecting material creates a reduced or non-slip surface due to “gel friction.” (*Id.*, 13:24-31.) Specifically, in Example 3, Pearce describes the use of the elastomeric cushion element in a shoe insert. (*Id.*, 13:16-31.) For that use, Pearce instructed limiting the amount of surface covered by the melted-through gel to avoid a completely non-slip surface, as that is not preferred in a shoe insert. (*Id.*) Thus, Pearce disclosed that the surface created by the melted-through gel in the disclosed

cushions creates a reduced or non-slip surface, with the amount of reduction in slip dependent on the amount of gel bleed-through. (Ex. 1006, ¶¶ 87-88.)²

Pearce discloses that the gel utilized in the sock insert is the same as that used in the embodiment of a mattress assembly. (Ex. 1003, 13:14-15.) Thus, a POSA would recognize that this tendency of the gel-created surface to grip, described in Example 3, is also present in the other uses of the gel, including the gel surface created by seepage described for use with mattresses. (Ex. 1006, ¶ 88.) The warning against limiting the amount of seepage to limit the grip of the surface is not present in the mattress use, so a POSA would understand the disclosure shows the gel surface may have a range of gripping properties. (*Id.*)

Moreover, to the extent the '733 Patent specification supports a reduced or non-slip surface formed by the gel, Pearce discloses it because Pearce uses the same

² Petitioners have argued in the Related Litigation that the term “reduced or non-slip” is indefinite. While the bounds of this element may be indefinite, and therefore, invalidating, it is also proper to argue that it is invalid as obvious. *See Target Corp. v. Proxicom Wireless, LLC*, IPR2020-00904, Paper 11 at 11-12 (PTAB Nov. 11, 2020) (rejecting discretionary denial because, in part, there was no inherent conflict in arguing that the claim element was obvious in the Petition and indefinite in the Related Litigation, especially because the element was not means plus function).

gels as the '733 Patent uses to make the claimed non-slip surface. (*See* Ex. 1003, 1:55-56 (“The term ‘gel,’ may refer to an elastomeric gel”).) Even the commercial gels described in the two patents are mostly identical; the two patents disclose the same three commercial gels with the '733 Patent including two additional largely identical gels. (*Compare* Ex. 1001, 7:14-38 to Ex. 1003, 1:58-2:8.) (Ex. 1007, ¶¶ 17-18.)

The properties of the gel surface disclosed in Pearce, therefore, are the same as those later claimed in the '733 Patent, and any claims to reduced or non-slip surfaces in the '733 Patent are necessarily disclosed in Pearce.

C. Whatcott

Whatcott is prior art under AIA 35 U.S.C. § 102(a)(1). Whatcott, titled “Mattress Toppers, Air Tables for Making Mattress Topper, and Related Methods,” was published on September 7, 2017, from an application filed on March 7, 2016. (Ex. 1004, 1.)

Whatcott is directed toward a mattress topper and ways to create that topper and attach it to a mattress. (*Id.*, Abstract.) Within the specification, there are number of detailed descriptions of the ways to connect various layers. One of those descriptions is the connecting of a grid and scrim layer together by seeping gel. (*Id.*, ¶ 0032.) That disclosure and its relationship to the '733 Patent is discussed below.

Seepage Limitation Disclosure: The seepage description contained in both the Whatcott and the '733 Patent specifications are nearly identical. (See below for a comparison with identical language highlighted.)

ment 108 and/or an upper surface of the upper layer 106. In some embodiments, the stabilization material 116 may comprise a scrim fabric (e.g., a woven or non-woven fabric material) and portions of the elastomeric cushioning element 108 may seep through (e.g., be melt-fused into, bleed through, push through, leak through, pass through, etc.) the scrim fabric of the stabilization material 116. For example, when the elastomeric cushioning element 108 includes a gel material (as described below), portions of the gel material may be heat fused through the stabilization material 116. The portions of the elastomeric cushioning element 108 that extend through the scrim fabric of the stabilization material 116 may create a non-slip surface or reduced slip surface on a lower surface of the stabilization material 116 (e.g., surface that would contact an upper surface of the upper layer 106). The non-slip surface or reduced slip surface created by the elastomeric cushioning element 108 may help the cushioning materials stay in place relative to one another.

(Ex. 1001, 4:46-63)

[0032] In some embodiments, the lower layer 102 of the mattress topper 100 may comprise a scrim fabric (e.g., a woven or non-woven fabric material) and portions of the deformable support layer 202 may seep through (e.g., be melt-fused into, bleed through, push through, leak through, pass through, etc.) the scrim fabric of the lower layer 102. For example, when the deformable support layer 202 includes a gel material, portions of the gel material may be heat fused through the lower layer 102 of the mattress topper 100. The portions of the deformable support layer 202 that extend through the scrim fabric of the lower layer 102 may create a non-slip surface or reduced slip surface on a lower surface 204 of the lower layer 102 (e.g., surface that would contact a mattress) of the mattress topper 100. The non-slip surface or reduced slip surface created by the deformable support layer 202 may help the mattress topper 100 stay in place relative to a mattress when fitted to a mattress.

(Ex. 1004, ¶ 0032)

Further, a POSA would understand the non-identical terms in the two passages to have identical meanings. The “lower layer of the mattress topper” and “lower layer” comprising a “scrim fabric” that stabilizes the mattress topper to “stay in place relative to a mattress,” disclosed by Whatcott, has the same meaning as the “stabilization layer comprising a scrim fabric” used in the corresponding '733 Patent specification. (Ex. 1004, ¶ 0032; Ex. 1006, ¶¶ 46-47, 79, 82, 86, 89, 91.) Whatcott defines the “deformable support layer” so that it “may include a cushion layer” comprised of a “hyper-elastic polymer” (*i.e.*, an elastomeric material) or “elastomeric gel.” (Ex. 1004, ¶ 0030.) Whatcott’s “deformable support layer” has

the same meaning as the “elastomeric cushioning element” of the ’733 Patent. (Ex. 1006, ¶¶ 46, 48, 82, 86, 89, 91.)

The Whatcott disclosure of the Seepage Limitation is the same as the Seepage Limitation in the ’733 Patent.³

Prior Art Status: Whatcott is prior art under 35 U.S.C. § 102(a)(1) because it is a printed publication with a publication date before the priority date of the ’733 Patent. Because Purple never disclosed Whatcott during prosecution, its status as prior art was not addressed. In the Related Litigation, however, Purple denied that Whatcott is prior art and denied that the inventors of the ’733 Patent did not disclose the Seepage Limitation to Whatcott. (Ex. 1011, ¶¶ 53, 54, 55, 56; Ex. 1012, ¶¶ 53, 54, 55, 56; *see* AIA 35 U.S.C. § 102(b)(1)(A).) The Petitioners expect Purple to take a similar position here.

³ Because the Seepage Limitation in the Challenged Claims was added as an amendment during prosecution of ’733 Patent, this limitation can only cover what is disclosed and described in the ’733 Patent specification, otherwise it is new matter. 35 U.S.C. § 112. Therefore, Applicant cannot argue that the claimed Seepage Limitation is somehow distinguishable from or adds new limitations to the disclosure in the specification.

As the Petitioners have not received any declarations or evidence from Applicant in support of Purple's position, the Petitioners should have the opportunity to investigate and challenge any such submissions by Purple post institution; the Board should not credit Applicant's submissions at this stage. *See Murray & Poole Enterprises LTD., v. Institute de Cardiologie de Montreal*, IPR2023-01064, Paper 9 at 52-55-25 (PTAB Jan. 16, 2024) (instituting trial and finding that a declaration submitted by the Patent regarding whether a reference was prior art was disputed and would therefore "benefit from development during trial").

To the extent the Board considers the veracity and weight of any Applicant submission prior to institution, the Federal Circuit has made clear that the Applicant must produce real evidence to support its claims that a reference is not prior art. For example, an inventor's affidavit is often insufficient to establish that a reference had a common inventive entity with the challenged patent, particularly when the inventor has a stake in the outcome. *EmeraChem Holdings, LLC v. Volkswagen Group of America, Inc.*, 859 F.3d 1341, 1345-48 (Fed. Cir. 2017), 859 F.3d at 1345-48. In *EmeraChem*, the Federal Circuit affirmed the Board's rejection of the inventor's declaration, in part, because of the declarant's interest in the matter, and affirmed that the patent relied upon was prior art. *Id.* at 1348. The Federal Circuit made clear that the Board must consider all the facts and circumstances when determining the veracity of any declaration. *See, id.* (internal citation omitted) (holding that an

evaluation of *all* pertinent evidence must be made to assess the credibility of an inventor's story).

Here, Tony Pearce, the only '733 Patent inventor apparently employed by Purple at the time of a possible transfer of the Seepage Limitation, could not be more interested—he is the founder of Purple. (Ex. 1011, ¶ 40.) Therefore, any declaration from Mr. Pearce regarding such transfer would be highly suspect and of limited value. *See EmeraChem*, 859 F.3d at 1345-48.

The veracity of any Purple declaration is further undermined by its statements in the Related Litigation. There, in apparent conflict with known facts, Purple took the position that Whatcott is not prior art and that each of the three '733 Patent inventors supplied the Seepage Limitation to the Whatcott inventor. (Ex. 1011, 7 ¶¶ 53-55; Ex. 1012, 46 ¶¶ 53-55.) However, two of the three '733 Patent inventors joined Purple *after* Purple filed Whatcott on March 7, 2016. Lars Christen Hamilton's LinkedIn profile states he joined Purple in 2017. (Ex. 1013.) Tanner Rick Wheadon's LinkedIn profile states he joined Purple in November 2016. (Ex. 1014.) Thus, it appears that neither Hamilton nor Wheadon invented the Seepage Limitation and disclosed it to Whatcott in March 2016, because they had not yet joined Purple.

Lastly, the circumstances strongly suggest that the Seepage Limitation was not an important disclosure to be relayed from one inventor to another. It appears that the description of the Seepage Limitation in the '733 Patent was largely cut and

pasted from Whatcott. The Seepage Limitation was not claimed in Whatcott, nor did the '733 Patent Applicant claim it in the submitted Application. Purple later added the Seepage Limitation to the '733 Patent claims, apparently after scouring the specification for additional limitations to overcome an insurmountable rejection.

In sum, Purple's failure to disclose Whatcott during prosecution, the limited value of any declaration from Tony Pearce, the apparent misstatements related to transmittal of the disclosure, and the fact that the transmittal and ultimate inclusion of the Seepage Limitation appears to be largely a prosecutor-driven decision to overcome a rejection, means any attempt by Applicant to avoid institution by arguing that Whatcott is not prior art must fail.

D. Kluft

U.S. Patent No, 7,640,611 ("Kluft") was issued on January 5, 2010, from an application filed on January 25, 2005. (Ex. 1010, 1.) Thus, Kluft is prior art under AIA 35 U.S.C. § 102(a). Kluft was cited by the Examiner as part of obviousness rejections under § 103 during the '733 Patent prosecution. (*See supra* Section II.C.)

As the Examiner found, Kluft teaches a mattress comprising a base layer, with a coil layer disposed over the base layer, an upper layer disposed over the coil layer having a plurality of pocketed coils with each coil within a plurality of casings, a stabilization layer disposed over the upper layer, and a cushioning layer disposed over the upper layer, with an outer casing over at least the upper layer. (Ex. 1010,

2:58-61, 3:59-60, 4:13-22, 4:56-60, 4:63-67, Figs. 1, 2, 3, 5; *see also* Ex. 1002, 285, 289-290, 293, 450, 452, 455, 557-559, 561.) Kluft also teaches the base layer and upper layer both comprise a polyurethane foam, the pocketed coils are oriented next to each other in a grid pattern, and the mattress assembly has one or more side panels around the perimeters of the base and upper layers. (Ex. 1010, 2:61-62, 3:59-65, 4:24-25, 4:33-35, 4:56-60, Figs. 1, 3, 5; *see also* Ex. 1002, 288, 291, 452, 456, 558, 562.)

IV. IDENTIFICATION OF CHALLENGE (37 C.F.R. § 42.104(B))

A. Grounds on Which Challenge is Based; Precise Relief Requested

In accordance with 37 C.F.R. §§ 42.22 and 42.104(b), Petitioners request cancellation of all '733 Patent claims (claims 1–20) and that those claims be found invalid based on the following grounds:

Ground	Claims	Basis⁴	References
1	1-20	§ 103	Pearce (Ex. 1003) and knowledge of a POSA
2	1-20	§ 103	Pearce (Ex. 1003) in view of Kluft (Ex. 1010)
3	1-20	§ 103	Whatcott (Ex. 1004) in view of Kluft (Ex. 1010)

B. Level of Ordinary Skill in the Art

The '733 Patent relates to the field of mattress design and manufacture. (Ex.

⁴ All obviousness grounds based on § 103(a) include the knowledge of a POSA.

1001, Abstract, 1:8–10, 2:48-51.) A POSA, on or around November 17, 2017, would have been a multi-disciplinary research team of individuals with complementary backgrounds and skills, including (1) a Ph.D. with expertise in the area of polymer science with at least two years of experience working with polymers, polymer formation techniques, mechanism and kinetics of polymerization, and polymer structure-property relationships, and (2) a bachelor’s degree in mechanical, manufacturing engineering, or a similar discipline, with at least two years of experience working in the mattress and bedding industry. (Ex. 1006, ¶ 27; Ex. 1007, ¶ 12.) Additional education could substitute for experience, and *vice versa*.

C. Claim Construction

The Board need only construe terms “to the extent necessary to resolve the controversy.” *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017). For the purpose of this Petition, the terms should be construed according to their ordinary and customary meaning to a POSA at the time of the alleged invention. Petitioners do not waive, and expressly reserve, their claim to scope arguments, constructions, and evidence that they may raise in other proceedings.

V. GROUND FOR UNPATENTABILITY

An explanation of how the Challenged Claims are unpatentable under the statutory grounds identified above, including the identification of where each

element of the claim is found in the prior art patents or printed publications, is provided below.

A. GROUND 1: Claims 1-20 Are Obvious Over Pearce and the Knowledge of a POSA

Claims 1-20 are unpatentable under § 103 as obvious over Pearce in view of the knowledge of a POSA. Pearce was not considered by the Examiner during prosecution.

(1) Motivation to Combine Pearce and the Knowledge of a POSA

A POSA would have been expressly motivated by Pearce to combine the disclosures of Pearce with its knowledge of mattress design and construction, and reasonably expect to arrive at the '733 Patent invention. (Ex. 1006, ¶¶ 53-56.)

Pearce teaches that the elastomeric cushion of its invention is intended to be used in mattresses (Ex. 1003, 8:32-35), and that the embodiments it describes are “especially adapted” to be combined with other cushioning elements, such as an innerspring mattress unit, to make a composite cushion. (*Id.*, 11:63-12:7). Not only does Pearce teach the elastomeric cushioning element of its invention placed on top of a “mattress innerspring unit,” (*id.*, 6:35-46), but Pearce provides an example of an embodiment of a mattress assembly comprising the elastomeric cushion with a fused fabric as an element within the mattress assembly. (*Id.*, 12:8-39 (Example 1), 7:61-8:6, Fig. 7).

To the extent that any elements of the '733 Patent claims are not expressly disclosed in Pearce, they are of the type a POSA would consider as disclosed when combined with its knowledge, or obvious to modify based on its background and knowledge. (Ex. 1006, ¶ 56.) Here, the types of modifications required are not only within a POSA's knowledge, but they also encompass the types of modifications and decisions a POSA would routinely make in mattress design and, therefore, are choices obvious to a POSA. (*Id.*) For example, Pearce discloses a fabric to connect layers (*see supra* Section III.B; *see infra* Sections V.A.2.vi-v.), and, because the scrim claimed in the '733 Patent is a fabric commonly used for this purpose, it is the fabric a POSA would consider. (Ex. 1006, ¶ 77.) Pearce also discloses a coil layer, while the '733 Patent claims pocketed coils. A POSA would know that of the two types of coils used in mattresses—pocketed and open coils—pocketed coils are preferred. (*Id.*, ¶¶ 34-35.) Other examples of obvious choices are in the discussions of each element. These types of decisions are within the POSA's knowledge and are routine and predictable decisions they make in designing a mattress. (*Id.*, ¶ 32.)

(2) Independent Claims

Pearce combined with the knowledge of a POSA discloses all of the elements in independent claims 1, 10, and 16 of the '733 Patent.

(i) Element [pre]: “A mattress assembly” or “A method of forming a mattress assembly”⁵

Even if limiting, Pearce teaches the preamble. The invention in Pearce is directed to “cushions such as mattresses.” (Ex. 1003, 2:23-25, 3:9-13, 3:29-32.) In Example 1, Pearce describes the “embodiment of a mattress,” referring to the combined layers of the mattress (including the mattress topper), as “[t]he entire assembly.” (*Id.*, 12:11, 12:36-39.) Pearce also refers to the making of mattresses (*id.*, 3:9-13, 3:29-32), including disclosure of the assembly of multiple components of the mattress such as “other cushioning elements to make a composite cushion” (*id.*, 11:63-12:3, 12:11-39). Thus, Pearce alone also teaches the preamble in claims 1, 10, and 16. (Ex. 1006, ¶ 68.)

(ii) Element [A]: “a base layer”

Pearce teaches Element [A] by simply stating its mattress has a base layer. Pearce discloses “the base of the mattress is four inches of 36-ILD, 1.8-pound-density conventional polyurethane foam.” (Ex. 1003, 12:11-13.) This corresponds to

⁵ References to independent claim elements are combined where appropriate and reference is made only to the language of claim 1 for convivence. Omitted language from the additional independent claims does not change the substance of the argument.

the claimed “base layer,” which “may include polyurethane foam.” (Ex. 1001, 5:23-24; Ex. 1006, ¶ 71.)

(iii) Element [B]: “a coil layer disposed over the base layer, the coil layer comprising a plurality of pocketed coils; an upper layer disposed over the coil layer”

Pearce teaches Element [B] by describing a coil layer generally, a coil layer from a manufacturer that sells pocketed coil layers, and the fact that a POSA would immediately recognize a coil layer to refer to a pocketed coil layer. (Ex. 1006, ¶ 73.) Pearce also teaches placing the coil layer over the base layer and using an additional layer over the coil layer.

Pearce discloses a “mattress innerspring unit” (Ex. 1003, 6:46, 12:1-3) and specifically the use of “innerspring units by Leggett & Platt” (Ex. 1003, 8:3-4). There are two types of coil layers comprising an innerspring unit: open coils and pocketed coils. (Ex. 1006, ¶ 34.) A POSA would understand a pocketed coil to be a coil within one or more casings. (*Id.*) Since at least 2000, pocketed coils have become the coil layer of choice in mattress design. (*Id.*, ¶ 35.) Additionally, in 2017, a POSA would have recognized that the disclosed Leggett & Platt innerspring units were comprised of a layer of a plurality of “fabric-encased” coils, which are pocketed coils. (*See Id.*, ¶¶ 35, 73; Ex. 1015.) Consequently, when designing a mattress, a POSA would select pocketed coils for the coil layer. (Ex. 1006, ¶ 37.)

These disclosures of Pearce combined with the knowledge of a POSA makes the use of pocketed coils obvious. *See KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007).

Pearce in combination with the knowledge of a POSA also discloses a coil layer between a base and upper layer. For a POSA, every bed with coils employs a base layer underneath the coil layer and an upper layer above the coil layer. (Ex. 1006, ¶¶ 33, 73.) This is a core mattress feature that is obvious from the disclosure of Pearce and the knowledge of a POSA. At the time of filing the '733 Patent, “innerspring” was defined as “having coil springs inside a padded casing.” (Ex. 1016.) A POSA would understand that an innerspring unit comprises a layer of coils enclosed within a casing, and that the casing would necessarily comprise a layer of casing underneath the coil layer (a base layer) and a layer of casing over the coil layer (an upper layer). (*Id.*; Ex. 1006, ¶¶ 33, 73.) A POSA would, therefore, understand that the “innerspring units” disclosed by Pearce corresponds to the claimed “coil layer disposed over the base layer, the coil layer comprising a plurality of pocketed coils; an upper layer disposed over the coil layer.” (*Id.*)

(iv) Element [C]: “a stabilization layer comprising a scrim fabric”⁶

Pearce teaches Element [C] by disclosing a fabric used to stabilize and connect layers (a stabilization layer) that, based on its general knowledge, a POSA would identify as a scrim. A POSA would understand the term “scrim” to mean “a relatively thin woven or non-woven fabric,” consistent with the ’733 Patent’s description that “the stabilization material **116** may include a relatively thin material (e.g., cotton spandex blend ‘scrim’)” and “the stabilization material **116** may comprise a scrim fabric (e.g., a woven or non-woven fabric material) and portions of the elastomeric cushioning element **108** may seep through ... the scrim fabric of the stabilization material **116**.” (Ex. 1001, 4:38-52; Ex. 1006, ¶ 77.)

The “connecting material,” disclosed by Pearce, can be a sheet of fabric that can be “fused into the gel.” (Ex. 1003, 4:29-38.) Pearce characterizes the fabric as “a stretchable or non-stretchable fabric” (*Id.*, 6:35-40, 6:64-7:2 (listing examples of suitable fabrics including “spandex-type fabrics”).) According to Pearce:

“[F]abric . . . is especially preferred because the preferred gels are difficult to bond by adhesives to foam, and it is difficult to fuse the gel into thick foams. Fabric is easily

⁶ Element [C] is limited to Independent Claims 1 and 10 and is not included in claim 16.

heat-fused into the gel, and fabric is also easily adhesively bondable to foam, so it is an excellent interface layer.”

(*Id.*, 6:55-60.)

A POSA would know scrim is an especially preferred fabric to use for this purpose because it is thin and, therefore, easier to use. (Ex. 1006, ¶ 77.) For this reason, a POSA would immediately recognize scrim as a preferred type of fabric disclosed in Pearce. *See KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007) (holding the obviousness analysis should consider the “background knowledge possessed by a person having ordinary skill in the art”).

(v) Element [D]: “an elastomeric cushioning element disposed over the stabilization layer”

Pearce teaches Element [D] because it describes the placement of a cushioning element made of an elastomeric gel placed over a stabilization layer.

Pearce discloses a gel spring cushioning element made of elastomeric gel. (Ex. 1003, 1:54-57.) Pearce explains that “[t]he term ‘gel,’ may refer to an elastomeric gel,” the “preferred material” for the gel layer “because it has the ‘feel’ that is desired in many cushions such as mattresses,” and states that “the elastomer will be referred to as ‘gel’” throughout. (*Id.*, 1:55-56, 2:21-25, 2:50-51.) Thus, a POSA would understand that the gel layer disclosed by Pearce is an elastomeric cushioning element. (Ex. 1006, ¶ 81.)

Pearce discloses that the fabric connecting layer (the stabilization layer) “is easily heat-fused into the gel” of the cushioning element. (Ex. 1003, 4:57-58.)

A POSA would understand that the “gel” here is the bottom surface of the elastomeric cushioning element as it is oriented in a mattress assembly. (Ex. 1006, ¶ 81.) Pearce discloses a mattress assembly in which the elastomeric cushioning element **701** is disposed over and “fused to connector fabrics **702** and **703**, a stretch knit mattress ticking fabric by Culp.” (Ex. 1003, 7:61-66, Fig. 7.)

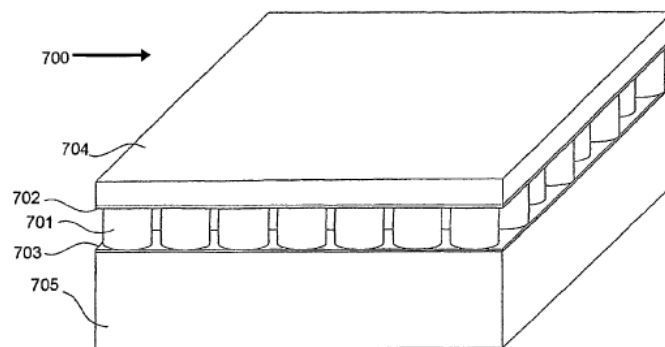


FIG. 7

(*Id.*)

The “connector fabric” (also referred to as “connecting material”) disclosed in Pearce is the same as the “stabilization layer” claimed in the ’733 Patent. (Ex. 1006, ¶¶ 77, 81.) Thus, Pearce discloses an elastomeric cushioning element disposed over the stabilization layer.

- (vi) **Element [E]: “an elastomeric material of the elastomeric cushioning element seeping through the stabilization layer to secure an upper surface of the stabilization layer to the elastomeric cushioning element”**

Pearce teaches Element [E] by expressly and repeatedly describing how the gel is melted through the stabilization layer to secure the two layers to each other.

First, Pearce discloses that the “[f]abric [connecting material] is easily heat-fused into the gel.” (Ex. 1003, 4:57-58.) Pearce explains that the fabric “should have sufficient air space or at least surface roughness to allow the gel to melt and flow into the fabrics (preferred).” (*Id.*, 7:2-4.) Pearce discloses a mattress assembly in which the elastomeric cushioning element **701** is “fused to connector fabrics **702** and **703**, a stretch knit mattress ticking fabric by Culp.” (*Id.*, 7:61-66, Fig. 7.)

Second, Pearce explains the process of adhering the stabilization layer to the cushion. It states that “[a]fter a sufficient period of time that allows the gel to melt and flow into the external and/or internal interstices of the fabric, the platen is raised, the gel is allowed to cool to the point of solidification and the assembly is removed from the press.” (*Id.*, 11:43-47.) A POSA would understand that the “assembly” removed from the press is the elastomeric cushion secured to the fabric by the heat-fusion process. (Ex. 1006, ¶¶ 84-85.)

Thus, Pearce teaches both the seeping of the elastomeric material through the fabric and securing the upper surface of the fabric to the cushioning element.

(vii) Element [F]: “the elastomeric material exposed and defining a reduced slip surface or a non-slip surface on a lower surface of the stabilization layer”

Pearce teaches Element [F] by describing the surface created by the exposed gel and explaining its non-slip properties. The inherent properties of the gels described in Pearce and the '733 Patent also means that any properties of the gel claimed by the '733 Patent are also disclosed in Pearce.

First, Pearce teaches the creation of a gel surface on the lower surface of the stabilization layer, stating:

After a sufficient period of time that allows the gel to melt and flow into the external and/or internal interstices of the fabric, the platen is raised, the gel is allowed to cool to the point of solidification and the assembly is removed from the press.

(Ex. 1003, 11:43-47.) This process ensures that gel of the elastomeric cushioning element will harden to form a surface on the underside of the fabric. (*See* Ex. 1006, ¶ 87.)

Second, Pearce explicitly discloses that the gel surface will be a reduced or non-slip surface due to “gel friction” that interferes with another layer sliding against it. (Ex. 1003, 13:24-31.) With respect to the gel surface of a shoe insert, where some slip is preferred, Pearce explains that limiting the infused gel to a percentage of the

fabric reduces the “slip” of the fabric, thereby providing a reduced-slip surface, instead of a non-slip surface. (*Id.*, 13:24-28.) Conversely, gel infused over the entirety of the fabric creates a “full-gel surface” that is non-slip. (*Id.*) This teaches that the gel surface described in Pearce is reduced or non-slip in the same manner as claimed in the ’733 Patent.

Third, to the extent the ’733 Patent specification supports a reduced or non-slip surface created by the gel, Pearce necessarily discloses it. This is because the gels used to make the claimed non-slip surface disclosed in Pearce and the ’733 Patent are the same types of gels with the same properties. (*See* Ex. 1003, 1:55-56 (“The term ‘gel,’ may refer to an elastomeric gel”); (Ex. 1007, ¶¶ 17-18.) Even the examples of the commercial gels described in the two patents are identical; the two patents disclose three identical commercial gels. (*Compare* Ex. 1001, 7:14-38 to Ex. 1003, 1:58- 2:8; Ex. 1007, ¶¶ 17-18.)

Thus, the properties of the gel surface created in Pearce are the same as those later claimed in the ’733 Patent, and any claims to reduced or non-slip surfaces in the ’733 Patent are disclosed in Pearce. Any later-claimed properties are disclosed by their earlier use. *See Hospira, Inc. v. Fresenius Kabi USA, LLC*, 946 F.3d 1322, 1332 (Fed. Cir. 2020) (citing the well-accepted proposition that later claimed inherent properties of an earlier disclosed composition does not impart patentability).

(viii) Element [G]: “the reduced slip surface or the non-slip surface positioned against an upper surface of the upper layer”

Pearce teaches Element [G] by describing the placement of the exposed gel surface against an identified upper layer. Pearce discloses a mattress assembly in which the fabric on the lower surface of the elastomeric layer is *positioned against* the upper layer of an innerspring unit. (Ex. 1003, 8:2-4, Fig. 7.) Pearce’s process of heat-fusing the elastomeric gel through the stabilization layer ensures that gel material will harden. (*Id.*, 11:43-47.) A POSA would understand that the hardened gel provides a reduced or non-slip surface on the underside of the stabilization layer prior to its placement and positioning against the upper layer. (Ex. 1006, ¶ 90.)

(ix) Element [H]: “an outer covering encasing the base layer, the coil layer, the upper layer, the stabilization layer, and the elastomeric cushioning element”

Pearce teaches Element [H] by describing mattresses with an outer cover. Pearce discloses an “entire” mattress assembly encased by an outer covering. (Ex. 1003, 7:61-8:6 (“The entire assembly is covered with a mattress cover ...”), 12:36-39 (Example 1) (“The entire assembly is then covered in a circular-knitted fire retardant sock and then a mattress cover is applied by conventional means.”); *see also* Ex. 1006, ¶¶ 92-93.)

(3) Dependent Claims

Claims 2-9, 11-15 and 17-20 depend from independent claims 1, 10, and 16 and are unpatentable as obvious over Pearce and the knowledge of a POSA for reasons stated in the above independent claim analysis and the following additional reasons.

(i) Dependent Claims 2, 3, and 9: Thickness of Mattress Layers

Pearce teaches the limitations to the thickness of the mattress layers in claims 2, 3 and 9.

Claim 2 further recites: “the coil layer has a thickness of about 6.00 inches to about 8.00 inches; and the elastomeric cushioning element has a thickness of about 1.0 inches to about 4.5 inches.” (Ex. 1001, 14:45-49.) Claim 3 further recites: “the coil layer has a thickness of about 7.50 inches; and the elastomeric cushioning element has a thickness of about 4.0 inches.” (*Id.*, 14:50-53.) Claim 9 further recites: “the base layer has a thickness of about 0.75 inches to about 1.50 inches and the upper layer has a thickness of about 0.25 inches to about 0.75 inches.” (*Id.*, 15:1-4.)

Because the intrinsic evidence offers no guidance for the range of the term “about,” this term is given the plain and ordinary meaning of “approximately” even when used as part of a numeric range. *See Par Pharm., Inc. v. Hospira, Inc.*, 835 Fed. Appx. 578, 584 (Fed. Cir. 2020). Further, “[a] presumption of obviousness

applies where a claimed range overlaps with a range disclosed in the prior art.” *UCB, Inc. v. Actavis Labs. UT, Inc.*, 65 F.4th 679, 689 (Fed. Cir. 2023) (internal quotation omitted).

Pearce provides an embodiment wherein the thickness of the elastomeric cushioning element is 3.5 inches. (Ex. 1003, 12:19-20.) This is “about 4.0 inches,” which is recited in claim 3, and falls within the thickness range of “about 1.0 inches to about 4.5 inches” recited in claim 2. Pearce does not teach the thickness of the coil layer, base layer, or upper layer. Nonetheless, it would have been obvious to a POSA, who would know that each layer of a mattress can be, and was, manufactured in a variety of thicknesses, to modify the thickness of the mattress layers to result in a sufficiently soft, elastic, and resilient mattress. (Ex. 1006, ¶¶ 31, 95.) And this type of change of parameters is obvious. *See In re Reese*, 290 F.2d 839, 844 (CCPA 1961) (holding that “[s]ince the results sought and the ingredients used were known, . . . it was within the expected skills of one having ordinary skill in this art to arrive at the optimum proportion of those ingredients”).

(ii) Dependent Claim 4: Side Panels Within the Outer Covering

Although Pearce does not explicitly disclose a mattress with side panels, a POSA would have knowledge of side panels as common components of a mattresses. (Ex. 1006, ¶ 95.) Thus, it would have been obvious to a POSA to modify

the mattress assembly disclosed in Pearce to comprise side panels to result in a sufficiently soft, elastic, and resilient mattress. (*Id.*) Because Pearce discloses that the “entire [mattress] assembly” is covered with an outer covering (Ex. 1003, 7:61-8:6, 12:36-39), a POSA would understand that any side panels would be within the outer covering. (Ex. 1006, ¶ 95.)

**(iii) Dependent Claim 5: Base and Upper Layers
Comprising Polyurethane Foam**

Pearce teaches a mattress assembly with a base layer comprising polyurethane foam. (Ex. 1003, 12:11-13; Ex. 1006, ¶ 71.) A POSA would know that the base and upper layers could be made from a variety of materials, including polyurethane foam. (Ex. 1006, ¶¶ 71, 100.) Thus, it would have been obvious for a POSA to modify the upper layers to comprise polyurethane foam to result in a sufficiently soft, elastic, and resilient mattress. *See In re Reese*, 290 F.2d 839, 844 (CCPA 1961).

**(iv) Dependent Claims 6-8 and 20: Stabilization Layer
Properties**

Pearce teaches the limitations to the stabilization layer in claims 6-8 and 20.

Claim 6 further recites: “the stabilization layer provides a slip-resistant surface against the upper layer.” (Ex. 1001, 14:61-63.) Claim 7 further recites: “the stabilization layer is secured to the upper layer.” (*Id.*, 14:64-65.) Claim 8 further recites: “the stabilization layer is adhesively secured to the upper layer.” (*Id.*, 14:66-

67.) Claim 20 further recites: “securing the stabilization layer to the upper layer. (*Id.*, 16:37-38.)

Pearce teaches that seepage of the gel through the stabilization layer fabric creates a slip-resistant surface due to “gel friction.” (Ex. 1003, 13:24-31.) It teaches “the assembly of the fabric with fused-in gel members ... facilitates gluing the assembly to other elements of the cushion.” (*Id.*, 11:27-32.) It also teaches that the stabilization layer placed against the upper layer of the innerspring unit of a mattress can be “bonded [to it] with water based adhesive,” (*id.*, 7:61-8:4, Fig. 7) thereby securing the stabilization layer to the mattress upper layer (*id.*, 7:61-8:4, Fig. 7).

(v) Dependent Claims 11, 13 and 17-19: Properties of the Pocketed Coils in the Coil Layer

Pearce teaches the limitations to the properties of the pocketed coils in claims 11, 13 and 17-19.

Claim 11 further recites: “the plurality of pocketed coils are oriented next to each other in a grid pattern.” (*Id.*, 15:28-30.) Claim 13 further recites: “the plurality of nested casings of each pocketed coil comprises: a first casing; and a single second casing disposed within the first casing, with the single coil being disposed within the second casing.” (*Id.*, 15:34-39.) Claim 17 further recites: “individually disposing each coil of the coil layer withing a first casing; and individually disposing of the first casing within a second casing.” (*Id.*, 16:24-28.) Claim 18 further recites:

“wherein individually disposing each coil of the coil layer within the first casing comprises individually disposing the coil within a polypropylene bag.” (*Id.*, 16:29-32.) Claim 19 further recites: “wherein individually disposing the first casing within the second casing comprises individually disposing the first casing within the polypropylene bag.” (*Id.*, 16:33-36.)

A POSA would have understood that a mattress’s plurality of pocketed coils, which was disclosed by Pearce (*see supra* Section V.A.2.iii), could be arranged in a grid pattern as they were in the disclosed innerspring unit of Leggett & Platt. (Ex. 1005, 8:3-4; *see* Ex. 1015; Ex. 1006, ¶ 97.) A POSA would further understand that “pocketed” coils describes coils wherein each coil would be within the innermost pocket of one or more nested pockets or casings. (Ex. 1006, ¶ 34, 73.) Because pockets comprising polypropylene fabric were known in the art (*see, e.g.*, Ex. 1017), it would have been obvious to a POSA to select this material to modify the pockets to optimize protection of the coils. (*See In re Leshin*, 277 F.2d 197, 199 (CCPA 1960) (holding selection of known materials, based on suitability for their use, to make an item known to be made of those materials prior to the invention, “would be entirely obvious”); *see also* Ex. 1002, 294-295, 239, 458, 564.)

(vi) Dependent Claims 12, 14 and 15: Properties of the Elastomeric Cushioning Element

Pearce teaches the limitations to the properties of the elastomeric cushioning element in claims 12, 14 and 15.

Claim 12 further recites: “the at least one elastomeric cushioning element comprises a grid of interconnected walls defining hollow buckling columns.” (Ex. 1001, 15:31-33.) Claim 14 further recites: “the at least one elastomeric cushioning element comprises a plurality of distinct elastomeric cushioning elements disposed at different locations over the upper layer.” (*Id.*, 16:1-4.) Claim 15 further recites: “the at least one elastomeric cushioning element covers a portion of an upper surface of the upper layer.” (*Id.*, 16:5-7.)

Pearce teaches an elastomeric cushioning element comprised of a grid of gel springs “that when compressed in the intended cushioning direction will buckle,” are “connected to each other at two or more points,” and “can be hollow” (Ex. 1003, 4:15-28, 12:11-20 (embodiment with an elastomeric cushioning element comprised of “square hollow column[s]”). Pearce teaches that the gel members of the elastomeric cushioning element may be of “a limitless variety” of hollow or non-hollow shapes, of varying diameter or wall cross-section, varying spacing between the members, and varying height of the members; “All of these effects can create a cushion that is ... zoned.” (*Id.*, 8:7-31.) A POSA would understand that such a

“zoned” elastomeric cushioning element comprises, in effect, distinct elastomeric cushioning elements disposed at different locations over the upper layer. (Ex. 1006, ¶ 98.) In Pearce’s mattress assembly example, the fabric on the elastomeric cushion’s lower surface is positioned against the upper surface of the upper layer of an innerspring unit, thereby covering at least a portion of the upper layer. (Ex. 1003, 7:61-8:4, Fig. 7.) Indeed, the ’733 Patent specification states that “[t]he elastomeric cushioning element 108 may comprise ... those structures and configurations described in [Pearce].” (Ex. 1001, 6:46-51.)

B. GROUND 2: Claims 1-20 Are Obvious Over Pearce in View of Kluft

Claims 1-20 are unpatentable under § 103 as obvious over Pearce in view of Kluft. Pearce was not considered by the Examiner during prosecution.

(1) Motivation to Combine Pearce and Kluft

A POSA would be motivated to combine the disclosures of Pearce with the additional elements of mattress assembly disclosed in Kluft. (Ex. 1006, ¶¶ 57-62.) As explained above (*see supra* Section V.A.1), Pearce expressly motivates a POSA to combine its disclosures with other elements of a mattress assembly that are known to those of skill in the art, which would include the mattress assembly elements disclosed by Kluft. (Ex. 1006, ¶¶ 59, 60.) Although, the steps required to modify Pearce to disclose all of the elements of the ’733 Patent claims are common

knowledge to a POSA and are exactly the steps a POSA would take in every mattress design (Ex. 1006, ¶ 32, 56), Kluft expressly discloses those elements. For example, Kluft discloses a mattress assembly comprising a core pocketed coil innerspring unit within an encasement that has a base and upper layer and side panels, as well as a cushioning and stabilization layer above the upper layer. A POSA would necessarily need to select these types of elements when designing a bed, and Kluft provides solutions to those choices, thereby providing motivation for a POSA to combine the disclosures of Kluft with the overall bed design in Pearce. (*Id.*, ¶¶ 57-62.)

Considering the similar design and purpose of optimizing mattress comfort, a POSA would have recognized the advantages that could be obtained by combining the teachings of Pearce with the teachings of Kluft and have a reasonable expectation of success of arriving at the inventions of the '733 Patent. (Ex. 1006, ¶ 57.)

(2) Independent Claims

The independent claims 1, 10, and 16 are obvious for largely the same reasons as articulated in the Section addressing obviousness over Pearce and the knowledge of a POSA above (*see supra* Section V.A.2)), with addition of the explicit disclosures of scrim fabric and pocketed coils in Kluft. Those additional bases are discussed below.

(i) Elements [Pre], [A], [D], [E], [F], [G], and [H].

Pearce, in view of the knowledge of a POSA, discloses all the limitations in the independent claim elements [Pre], [A], [D], [E], [F], [G], and [H]. (*See supra* Section V.A.2.)

(ii) Element [B]: “a coil layer disposed over the base layer, the coil layer comprising a plurality of pocketed coils; an upper layer disposed over the coil layer”

Kluft discloses Element [B] because it teaches a mattress assembly with a coil layer disposed over the base layer, the coil layer comprising a plurality of pocketed coils, and an upper layer disposed over the coil layer. (Ex. 1010, Figs. 1, 2; Ex. 1002, 285, 289, 293, 450, 453, 455, 557, 559, 561.) The mattress disclosed by Kluft “includes a foam encasement that contains an inner spring assembly” (*Id.*, 2:57-58, 4:13-14) and “a generally planar base” upon which the coil layer sits (*Id.*, 4:4-5). Kluft discloses that the “inner spring assembly” comprises “individually wrapped” (pocketed) coils. (*Id.*, 2:58-61, 4:15-22, Figs. 1, 3.) Kluft also teaches that “various layers of rectangular material” are “[p]laced directly on top of the spring assembly,” “[a] first thin, sheet layer **100** made from soft stretch knit material is placed adjacent and to overlay the wrapped coils.” (*Id.*, 4:45-46, 4:56-58, Fig. 1.) A POSA would understand that a layer placed directly on the coil layer is an upper layer. (Ex. 1006, ¶ 75.)

(iii) Element [C]: “a stabilization layer comprising a scrim fabric”⁷

Kluft discloses Element [C] because it teaches a mattress assembly with “a stabilization layer (Figure 2;104) disposed over the upper layer.” (Ex. 1002, 283, 289-290, 293.) A POSA would understand that Kluft discloses a stabilization layer (layer 104 in Fig. 2) “constructed from cotton or equivalent materials” (Ex. 1010, 4:63-64), like the “scrim fabric” the ’733 Patent (Ex. 1001, 4:40-42, 47-49). (Ex. 1006, ¶ 80.)

(3) Dependent Claims

Because claims 2-9, 11-15 and 17-20 depend from independent claims 1, 10, and 16, respectively, they are unpatentable as obvious over Pearce in view of the knowledge of a POSA, for reasons stated in Ground 1. (*See supra* Section V.A.3) Additional bases for finding dependent claims 4, 5 and 11 obvious over Pearce in view of Kluft are discussed below.

(i) Dependent Claim 4: Side Panels Within the Outer Covering

Kluft teaches the limitations of claim 4, which further recites: “one or more side panels extending around outer perimeters of the base layer, the outer covering also encasing the one or more side panels.”

⁷ Element [C] is limited to Independent Claim 1 and 10 and is not included in 16.

Kluft teaches a “foam encasement **60** [that] includes a generally planar base **62** and two long, foam sidewalls **64** and a pair of short, foam sidewalls [...] defin[ing] a generally rectangular interior space for retaining other components of the mattress **50**.” (Ex. 1010, 4:3-12; *see also* Ex. 1002, 288, 453, 558.) These side panels enhance “[t]he stability of the perimeter” of the mattress assembly. (Ex. 1010, 3:4-5.) Kluft also discloses an outer covering encasing all of the other components of the mattress assembly including the base layer, coil layer, and upper layer. (*Id.*, Figs.1, 2; Ex. 1002, 559, 561.) The outer covering disclosed by Kluft comprises a “quilted panel layer ... intended to define the surface upon which the bed sheets are placed” and “[a] similar quilted panel layer ... to surround and encompass the sidewalls ... [and] extending from the sidewalls ... to cover the base” (Ex. 1010, 5:1-11.) A POSA would understand that the outer covering formed by the quilted panel layer on the top surface, bottom surface, and side panels of the mattress encases all mattress layers. (Ex. 1006, ¶ 99.)

**(ii) Dependent Claim 5: Base and Upper Layers
Comprising Polyurethane Foam**

Kluft teaches the limitations to claim 1 of the mattress assembly recited in claim 5. Claim 5 further recites: “the base layer and the upper layer both comprise a polyurethane foam.”

Kluft teaches that “the mattress **30** includes a foam encasement **60** which forms an understructure of the bottom **56** [the base layer] ... of the mattress,” and “[t]he foam encasement **60** can be made from various conventional materials such as polyurethane or other foams.” (Ex. 1010, 3:60-65.) The upper layer of the mattress comprises a “soft foam layer **102** made from latex polyurethanes” or other materials. (*Id.*, 4:57-60.) Thus, Kluft teaches the base layer and upper layer both comprise a polyurethane foam. (*See* Ex. 1002, 288, 452, 558.)

(iii) Dependent Claim 11: Properties of the Pocketed Coils in the Coil Layer

Kluft teaches limitations to the properties of the pocketed coils in claim 11. Claim 11 further recites: “the plurality of pocketed coils are oriented next to each other in a grid pattern.” (Ex. 1001, 15:28-30.)

Kluft discloses the limitation of claim 11 by teaching that “the innerspring assembly includes a plurality of coils **80** (see also FIGS. 2 and 3) arranged adjacently” (Ex. 1010, 4:15-17), which “can be aligned in laterally extending rows or columns or can be offset or nested.” (*Id.*, 4:23-26, 4:33-36, Fig. 3.) Kluft teaches that the coils are pocketed coils. (*Id.*, 2:58-59 (“Each spring of the inner spring assembly is individually wrapped.”), 4:20-21 (“The coils **80** are contemplated to be individually wrapped in a sleeve ...”), Fig. 1 (80, 84).)

C. GROUND 3: Claims 1-20 Are Obvious Over Whatcott in View of Kluft

Claims 1-20 are unpatentable as obvious over Whatcott in view of Kluft. Whatcott was not disclosed by Purple during prosecution.

(1) Motivation to Combine

A POSA would be motivated to combine Whatcott with Kluft, with a reasonable expectation of success. (Ex. 1006, ¶¶ 63-67.) Considering their similar purposes of optimizing mattress comfort, a POSA would have recognized the advantages that could be obtained by combining the teachings of Whatcott and Kluft. (*Id.*, ¶ 63.) Whatcott teaches a mattress topper that is expressly intended “for fitting to a mattress” (Ex. 1004, Abstr., ¶¶ 0004, 0005, 0022) and “may be disposable on (e.g., fitted to) a mattress to add cushion (e.g., softness, comfort, pressure relief, etc.) and/or support (e.g. body support, spinal alignment, etc.) to the mattress.” (*Id.*, ¶ 0025.) Whatcott, thereby, expressly motivates a POSA to combine its disclosures with other elements of a mattress assembly, such as those disclosed in Kluft, with a high expectation of successfully making the combination to arrive at the inventions of claims 1-20. (Ex. 1006, ¶ 66.)

(2) Independent Claims

Whatcott in view of Kluft discloses all of the elements in independent claims 1, 10, and 16 of the '733 Patent. Each element is discussed below.

(i) Element [Pre]: “A mattress assembly”

Whatcott in view of Kluff teaches the preamble because they are both directed to a mattress assembly and a method of constructing that assembly. The invention in Whatcott is directed to “a mattress topper for fitting to a mattress.” (Ex. 1004, ¶ 0004.) The mattress topper disclosed in Whatcott is placed on a mattress for “adding cushion and/or support to the mattress.” (*Id.*, ¶ 0022.) Kluff discloses a mattress assembly and “relates generally to mattress construction.” (Ex. 1010, 1:5-6, 6:11, 6:63; Ex. 1006, ¶ 51.)

(ii) Element [A]: “a base layer”

Kluff discloses Element [A] because it teaches a mattress assembly with a base layer. (Ex. 1010, Figs.1, 2.) Kluff discloses a mattress assembly that “includes a foam encasement that contains an inner spring assembly” and “a generally planar base” underneath the coil layer. (*Id.*, 2:57-58, 4:4-5; Ex. 1006, ¶ 72.)

(iii) Element [B]: “a coil layer disposed over the base layer, the coil layer comprising a plurality of pocketed coils; an upper layer disposed over the coil layer”

Whatcott discloses Element [B] because it teaches that the mattress topper is fitted on a mattress. (Ex. 1004, ¶ 0035, Fig. 3.) A POSA would understand that the mattress could comprise a layer of pocketed coils between a base and upper layer. (Ex. 1006, ¶ 74.) Kluff discloses a pocketed coil layer disposed over a base layer, and an upper layer disposed over the coil layer. (*See supra* Section V.B.2.ii.)

(iv) Element [C]: “a stabilization layer comprising a scrim fabric”

Whatcott discloses Element [C] because it lists scrim fabric as a stabilizing layer. Whatcott states that “*the lower layer 102 of the mattress topper 100 may comprise a scrim fabric (e.g., a woven or non-woven fabric material)* and portions of the deformable support layer 202 may seep through (e.g., be melt-fused into, bleed through, push through, leak through, pass through, etc.) *the scrim fabric of the lower layer 102.*” (Ex. 1004, ¶ 0032 (emphasis added).) A POSA would understand that the “lower layer” is the same as the “stabilization layer” claimed. (*See supra* Section III.C; Ex. 1006, ¶¶ 46-47, 79, 82, 86, 89, 91.)

(v) Element [D]: “an elastomeric cushioning element disposed over the stabilization layer”

Whatcott discloses Element [D] because it teaches placing the elastomeric cushioning element over the stabilizing layer.

Whatcott teaches “a mattress topper having a deformable support layer disposed between the lower layer and the upper layer.” (Ex. 1004, ¶ 0023; *see also id.*, ¶ 0029 (“The mattress topper ... may include a deformable support layer 202 disposed between the upper layer 104 and the lower layer 102 of the mattress topper 100.”).) A POSA would understand that the “lower layer” of the mattress topper disclosed by Whatcott is the same as the “stabilization layer” claimed in the ’733 Patent. (*See supra* Section III.C.; Ex. 1006, 46-47, 79, 82, 86, 89, 91.) Whatcott

teaches that the “deformable support layer” “may include a cushion layer,” may be comprised of a “hyper-elastic polymer,” and “may be formed entirely from a gel,” which may be “an elastomeric gel.” (Ex. 1004, ¶¶ 0023, 0030, 0032.) A POSA would understand that the “deformable support layer” disclosed by Whatcott is the same as the “elastomeric cushioning element” claimed in the ’733 Patent. (*See supra* Section III.C; Ex. 1006, ¶¶ 46, 48, 82, 86, 89, 91.) Thus, Whatcott discloses an elastomeric cushioning element disposed over the lower layer of the mattress topper.

(vi) Element [E]: “an elastomeric material of the elastomeric cushioning element seeping through the stabilization layer to secure an upper surface of the stabilization layer to the elastomeric cushioning element”

Whatcott discloses Element [E] by providing an almost word-for-word description of the element as is used in the ’733 Patent specification. (*See supra* Section III.C.) Whatcott states:

[T]he lower layer **102** of the mattress topper **100** may comprise a scrim fabric (e.g., a woven or non-woven fabric material) and *portions of the deformable support layer 202 may seep through (e.g., be melt-fused into, bleed through, push through, leak through, pass through, etc.) the scrim fabric of the lower layer 102*. For example, when the deformable support layer **202** includes a gel material, portions of the gel material may be heat fused through the lower layer **102** of the mattress topper **100**.

(Ex. 1004, ¶ 0032 (emphasis added).) A POSA would understand the italicized language describes the fusion of the “lower layer” (the stabilization layer) to the “deformable support layer” (the elastomeric cushioning element). (*See supra* Section III.C; Ex. 1006, ¶ 86.)

(vii) Element [F]: “the elastomeric material exposed and defining a reduced slip surface or a non-slip surface on a lower surface of the stabilization layer”

Whatcott discloses Element [F] by providing an almost word-for-word description of the element as is used in the '733 Patent specification. (*See supra* Section III.C.) Whatcott states:

The portions of the deformable support layer 202 that extend through the scrim fabric of the lower layer 102 may create a non-slip surface or reduced slip surface on a lower surface 204 of the lower layer 102 (e.g., surface that would contact a mattress) of the mattress topper 100.

(Ex. 1004, ¶ 0032 (emphasis added)). A POSA would understand the “lower layer” of the mattress topper disclosed by Whatcott is the “stabilization layer” claimed in the '733 Patent, and the “deformable support layer” is the “elastomeric cushioning element” claimed in the '733 Patent. (*See supra* Section III.C; Ex. 1006, ¶ 89.))

(viii) Element [G]: “the reduced slip surface or the non-slip surface positioned against an upper surface of the upper layer”

Whatcott discloses Element [G] by providing an almost word-for-word description of the element as is used in the '733 Patent specification. (*See supra* Section III.C.) Whatcott states:

The portions of the deformable support layer **202** that extend through the scrim fabric of the lower layer **102** may create a non-slip surface or reduced slip surface on a lower surface **204** of the lower layer **102** (e.g., surface that would contact a mattress) of the mattress topper **100**.

(Ex. 1004, ¶ 0032). A POSA would understand the “lower layer” of the mattress topper disclosed by Whatcott is the “stabilization layer” claimed in the '733 Patent, and the “deformable support layer” is the “elastomeric cushioning element” claimed in the '733 Patent. (*See supra* Section III.C; Ex. 1006, ¶ 91.) Whatcott further discloses that the lower layer of the mattress topper “may rest on the top of the mattress... .” (Ex. 1004, ¶ 0022.) A POSA would understand that the mattress core is covered by an upper layer upon which the non- or reduced-slip surface of the stabilization would rest. (Ex. 1006, ¶ 91.)

(ix) Element [H]: “an outer covering encasing the base layer, the coil layer, the upper layer, the stabilization layer, and the elastomeric cushioning element”

Kluft discloses Element [H] by teaching the use of a mattress cover. A POSA would understand that Kluft teaches a mattress assembly that comprises an outer covering that encases all of the other components of the mattress assembly. (*See supra* Section V.B.3.i; Ex. 1006, ¶ 94.) Here, a POSA would be motivated to combine Kluft and Whatcott by recognizing that Kluft employs a known element to improve a mattress assembly that could be used to similarly improve the mattress assembly disclosed in Whatcott. *See Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1381 (Fed. Cir. 2023); (Ex. 1006, ¶ 66). Kluft provides a known technique for enclosing all of the layers of a mattress assembly in order to keep the mattress components together, protect the mattress layers from exposure to the environment, and enhance the appearance of the mattress assembly. (Ex. 1006, ¶ 94.)

(3) Dependent Claims

Because claims 2-9, 11-15 and 17-20 depend from independent claims 1, 10 and 16, respectively, they are unpatentable as obvious over Whatcott in view of Kluft for the same reasons stated in the independent claims analysis above (*see supra* Section V.C.2) and the following additional reasons.

(i) Dependent Claims 2, 3, and 9: Thickness of Mattress Layers

Whatcott teaches the thickness limitations of the mattress layers in claims 2, 3 and 9.

Whatcott teaches the thickness of the elastomeric cushioning element may be “within the range of about 0.5 inch (1.27 cm) to about 3.0 inches (7.62 cm)” (Ex. 1004, ¶ 0031), which overlaps with the claimed ranges of “about 2.0 inches to about 4.5 inches” (Ex. 1001, 14:45-49) and “about 4.0 inches” (Ex. 1004, 14:50-53), rendering them obvious. *UCB, Inc.*, 65 F.4th at 689. Even if a layer thickness is not disclosed in a prior art reference, the layer thicknesses claimed in the ’733 Patent would be obvious to a POSA who would know that each layer of a mattress can be manufactured in a variety of thicknesses to result in a sufficiently soft, elastic, and resilient mattress. (Ex. 1006, ¶ 95.) *See In re Reese*, 290 F.2d 839, 844 (CCPA 1961).

(ii) Dependent Claim 4: Side Panels Within the Outer Covering

Kluft teaches side panels extending around outer perimeters of the mattress assembly and an outer covering encasing the side panels. (*See supra* Section V.B.3.i).)

**(iii) Dependent Claim 5: Base and Upper Layers
Comprising Polyurethane Foam**

Kluft teaches that each of the base and upper layers of the mattress comprise a polyurethane foam. (*See supra* Section V.B.3.ii.)

**(iv) Dependent Claims 6-8 and 20: Stabilization Layer
Properties**

A POSA would understand that Whatcott teaches that the stabilization layer provides a slip-resistant surface that, when placed against the upper layer, secures the stabilization layer to the upper layer. (Ex. 1006, ¶ 96.) Whatcott discloses:

The portions of the deformable support layer **202** that extend through the scrim fabric of the lower layer **102** may create a non-slip surface or reduced slip surface on a lower surface **204** of the lower layer **102** (e.g., surface that would contact a mattress) of the mattress topper **100**. The non-slip surface or reduced slip surface created by the deformable support layer **202** may help the mattress topper **100** stay in place relative to a mattress when fitted to a mattress.

(Ex. 1004, ¶ 0032.) A POSA would understand that the “lower layer” disclosed by Whatcott is the same as the “stabilization layer” of the claims. (*See supra* Section III.C; Ex. 1006, ¶¶ 46-47, 79, 82, 86, 89, 91.) A POSA would also understand that the mattress core is covered by an upper layer upon which the non- or reduced-slip surface of the stabilization would rest. (Ex. 1006, ¶ 91.) Whatcott further teaches

that the mattress topper may be secured to the mattress assembly in a manner like that of a fitted sheet or “other means may be employed for the same purpose.” (Ex. 1004, ¶ 0026). A POSA would understand that “other means” could include “adhesively.” (Ex. 1006, ¶ 96.)

(v) Dependent Claims 11, 13 and 17-19: Properties of the Pocketed Coils in the Coil Layer

Kluft teaches the additional properties of the pocketed coils in claim 11. (*See supra* Section V.B.3.iii.) The limitations of claims 13 and 17-19 would have been obvious to a POSA who would have understood that “pocketed” coils describes coils nested in one or more casings and that pockets comprising polypropylene fabric were known in the art. (*See supra* Section V.A.3.v.))

(vi) Dependent Claims 12, 14 and 15: Properties of the Elastomeric Cushioning Element

Whatcott, in view of the knowledge of a POSA, teaches the limitations to the properties of the elastomeric cushioning element in claims 12, 14 and 15.

By incorporating in their entirety U.S. Patent Nos. 5,749,111 (the “111 Patent”) titled “Gelatinous Cushions with Buckling Columns” and 6,026,527 (the

“’527 Patent”) titled “Gelatinous Cushions with Buckling Columns,”⁸ Whatcott discloses the limitation of claim 12: “an elastomeric cushioning element comprising a grid of interconnected walls defining hollow buckling columns.” (Ex. 1004, ¶ 0030.) “Patents that are incorporated by reference are effectively part of the host patents as if they were explicitly contained therein.” *Finjan LLC v. ESET, LLC*, 51 F.4th 1377, 1382 (Fed. Cir. 2022) (internal quotation omitted). The ’111 Patent “relates to a cushion made of gelatinous elastomer or gelatinous viscoelastomer which has hollow columns” that are “laterally connected” and “which buckle to relieve pressure peaks.” (Ex. 1018, 1:8-11, 16:46-50.) Fig. 7 depicts an elastomeric cushion comprised of interconnected walls defining hollow square columns arranged in a grid pattern. (Ex. 1018, Fig. 7, 9:51-58.) Similarly, the ’527 Patent relates to an “elastic or visco-elastic” “cushioning element that has a number of substantially parallel elongate columns which buckle under an appropriate load.” (Ex. 1019, 1, Abstract.)

The ’111 Patent also discloses construction of the cushion from multiple cushioning elements which “can be stacked” (Ex. 1018, 16:1-8), thereby comprising

⁸ These two patents list ’733 inventor Tony M. Pearce as the sole inventor, are prior art under § 102(a)(1), are not listed as references cited in the ’733 Patent and were not considered by the Examiner during prosecution of the ’733 Patent.

a plurality of distinct cushioning elements at different locations over the mattress upper layer – the limitation of claim 14. In addition, Kluft discloses two layers of elastomeric cushioning—one of “latex polyurethanes or visco-elastic or slow recovery foam” and one of “latex foam” —placed at different levels in the mattress assembly. (Ex. 1010, 4:56-67.)

A POSA would understand that placement of an elastomeric cushion on the upper layer of a mattress would cover at least a portion of the upper surface of the upper layer, as claimed in claim 15. (Ex. 1006, ¶ 98.)

VI. SECONDARY CONSIDERATIONS

Purple may attempt to overcome the clear obviousness of the challenged claims by pointing to alleged secondary considerations of nonobviousness. Purple cannot establish a nexus here because all claim elements were known in the prior art. When objective evidence results from something that is not “both claimed and *novel* in the claim, there is no nexus to the merits of the claimed invention.” *In re Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011) (emphasis in original); *see also ClassCo, Inc. v. Apple, Inc.* 838 F.3d 1214, 1220 (Fed. Cir. 2016). No claim element is novel and there is thus no nexus to any secondary consideration of non-obviousness.

Finally, even if Patent Owner were able to establish any secondary considerations and a nexus to them, secondary considerations are insufficient to

overcome a strong case of obviousness, like the one here. *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010) (“[S]econdary considerations of nonobviousness . . . simply cannot overcome a strong prima facie case of obviousness.”); *see also NantKwest, Inc. v. Lee*, 686 F. App'x 864, 873 (Fed. Cir. 2017).

VII. TRIAL SHOULD BE INSTITUTED

The Board should institute this Petition because it sets forth “a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). Moreover, as the prior art, evidence, and arguments presented herein were not considered by the examiner, institution is warranted under Section 325(d). Petitioners respectfully request the Board to decline discretionary denial and grant this petition for review.

A. Discretionary Institution Under § 314(a)

Because the parallel district court case is in its infancy with trial dates not yet set, the Board should exercise its discretion and institute this Petition under § 314(a). The Board considers six factors in evaluating whether it should deny IPR institution under § 314(a) when there is a parallel district court proceeding involving the challenged patent:

- (1) district court case has just begun;
- (2) trial date is long after the IPR statutory deadline;

- (3) investment in parallel proceeding is minimal;
- (4) overlap with parallel proceeding is minimal;
- (5) parties are the same; and
- (6) merits of the petition.

Apple Inc. v. Fintiv, Inc., IPR2020-00019, Paper 11 at 5-16 (PTAB Mar. 20, 2020).

The parallel district court litigation should not preclude IPR institution, considering there is little “proximity of the court’s trial date” and limited “investment of time.” *See Fintiv* at 3, 7, 8, 9. The Board has declined to deny institution when the district court trial is scheduled for long after completion of the IPR. *See Polycom, Inc. v. direct Packet Research, Inc.*, IPR2019-01233, Paper 21 at 13 (PTAB Jan. 13, 2020). Here, the parallel court case has just begun, and the trial date, still unscheduled, will be substantially after the anticipated IPR conclusion. Moreover, this case is pending in the Middle District of North Carolina, and time to trial there is particularly lengthy. (*See Ex. 1020* (reporting in previous quarter that the average time to trial in M.D.N.C. was 42.7 months).) Resolution of the IPR will occur without trial interference, and aid in judicial efficiency by informing the court's decision. *See Fintiv* at 9.

Further, the court and parties' investment in the parallel proceeding to date is minimal. Parties have not taken depositions and the court has issued no substantive

orders related to the challenged patent. The stage of the parallel case strongly weighs against denial. *See Fintiv* at 10.

Although the parties in this IPR and the parallel case coincide, the issues and prior art diverge. The issues in the parallel case are infringement, invalidity for prior sale, and inequitable conduct, in addition to invalidity for obviousness over prior art publications. These distinctions minimize overlap and favor Board review to bring clarity to the patent's validity. *See Fintiv* at 12-13.

This Petition articulates strong, substantive arguments, supported by prior art, establishing a reasonable likelihood of prevailing on at least one claim. The strength of the merits of the grounds raised in the Petition favors IPR institution. *See Fintiv* at 14-15. IPR institution serves the public interest in overall system efficiency and ensuring patent integrity. *See Fintiv* at 15.

B. Discretionary Institution Under § 325(d)

The Board should not deny institution under § 325(d) because, under the two-part framework of *Advanced Bionics*, (1) Petitioners present new art and arguments not previously presented to the Office, and if not, (2) the Office erred in a manner material to the patentability of the challenged claims. *Advanced Bionics, LLC v. MED-EL Elektromechanische Geräte GmbH*, IPR2019-01469, Paper 6 at 8, 10 (PTAB Feb. 13, 2020) (precedential).

Regarding factor (1), the Petitioners present Whatcott, which was not disclosed to the Office. This art supports institution under the first part of the framework.

Regarding factor (2), the Office erred in a manner material to the patentability of the challenged claims by not raising the disclosures in Pearce. Pearce was included in the first IDS, before the Seepage Limitation was added to the claims. (Ex. 1002, 570.) At that point in the prosecution, Pearce had limited relevance and its review by the Examiner raised few concerns. When Purple added the Seepage Limitation to the claims, Purple did not alert the Examiner that its own previously disclosed prior art (Pearce) directly contradicted its arguments for patentability, and instead argued that the prior art did not disclose the Seepage Limitation. The fact that the Examiner did not raise Pearce during prosecution, combined with the fact that Pearce directly contradicts the reason for allowance, strongly supports institution. *See Scientific Design Company, Inc. v. Shell Oil Company*, IPR2021-01537, Paper 7 at 24-25 (PTAB Mar. 18, 2022) (declining to deny Petition under § 325(d) because, although listed in the IDS and initialed by the Examiner, the Examiner did not substantively evaluate or otherwise address the asserted art, and the asserted art was likely to invalidate the patent).

Further, Purple actively misled the Examiner as to the state of the art. The Board should not reward Purple's deception and should, instead, institute this Petition.

VIII. GROUND FOR STANDING

Pursuant to 37 C.F.R. §42.104(a), Petitioners certify that the '733 Patent is available for IPR, and that Petitioners are not barred or estopped from requesting an IPR challenging the patent claims on the grounds identified herein.

IX. PAYMENT OF FEES

Pursuant to 37 C.F.R. §§42.103 and 42.15(a), the required fee is being submitted herewith. The undersigned further authorizes the USPTO, including the Patent Trial and Appeal Board, to charge any fee deficiency or credit overpayment in connection with this Petition to Deposit Account No. 606369.

X. POWER OF ATTORNEY

Pursuant to 37 C.F.R. §42.10(b), a Power of Attorney accompanies this Petition.

XI. CONCLUSION

For the foregoing reasons, *inter partes* review of the '733 Patent should be instituted and claims 1-20 should be cancelled.

MANDATORY NOTICES

A. Real Parties-in-Interest (37 C.F.R. § 42.8(b)(1))

The real parties-in-interest are Petitioners Tempur Sealy International, Inc., Sealy Technology LLC, Sealy Mattress Manufacturing Co., LLC (collectively, “Petitioners” or “Tempur”). Aside from these entities, no other entity is funding, controlling, or directing this Petition, or otherwise has had an opportunity to control or direct this Petition or Petitioners’ participation in this IPR.

B. Related Matters (37 C.F.R. § 42.8(b)(2))

Petitioners identify the following related matter involving the ’733 Patent: *Purple Innovation, LLC v. Tempur Sealy International, Inc., Sealy Technology LLC, Sealy Mattress Manufacturing Co., LLC*, 1:23-CV-00257-CCE-LPA (N.C.M.D.) (the “Related Litigation”).

C. Lead and Back-Up Counsel, and Service Information (37 C.F.R. §§ 42.8(b)(3)-(4), 42.10(a))

Petitioners provide the following designation of counsel:

Lead Counsel for Petitioners	Back-up Counsel for Petitioners
Brian D. O’Reilly (Reg. No. 55,974) Phone: (212) 540-0651 Email: Brian@oreillyip.com	Leslie J. Kushner (Reg. No. 64,724) Phone: (212) 540-0648 Email: Lkushner@oreillyip.com

*Petition for Inter Partes Review
of U.S. Patent No. 11,317,733*

Petitioners consent to electronic service at the email addresses for counsel above and Service-PurpleIPR@oreillyip.com. Service via postal or hand delivery for Lead and Back-up Counsel is: O'REILLY IP PLLC, 26 Broadway, 8th Floor, New York, NY 10004.

DATED: February 7, 2024

Respectfully Submitted,

By: /Brian D. O'Reilly/

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APPENDIX: CHALLENGED CLAIM LISTING

No.	Limitation
Claim 1	
[1pre]	A mattress assembly, comprising:
[1A]	a base layer;
[1B]	a coil layer disposed over the base layer, the coil layer comprising a plurality of pocketed coils; an upper layer disposed over the coil layer
[1C]	a stabilization layer comprising a scrim fabric
[1D]	an elastomeric cushioning element disposed over the stabilization layer,
[1E]	an elastomeric material of the elastomeric cushioning element seeping through the stabilization layer to secure an upper surface of the stabilization layer to the elastomeric cushioning element,
[1F]	the elastomeric material exposed and defining a reduced slip surface or a non-slip surface on a lower surface of the stabilization layer,
[1G]	the reduced slip surface or the non-slip surface positioned against an upper surface of the upper layer
[1H]	an outer covering encasing the base layer, the coil layer, the upper layer, the stabilization layer, and the elastomeric cushioning element.
Claim 2	The mattress assembly of claim 1, wherein: the coil layer has a thickness of about 6.00 inches to about 8.00 inches; and the elastomeric cushioning element has a thickness of about 1.0 inches to about 4.5 inches.
Claim 3	The mattress assembly of claim 2, wherein: the coil layer has a thickness of about 7.50 inches; and the elastomeric cushioning element has a thickness of about 4.0 inches.
Claim 4	The mattress assembly of claim 1, further comprising: one or more side panels extending around outer perimeters of the base layer, the outer covering also encasing the one or more side panels.
Claim 5	The mattress assembly of claim 1, wherein the base layer and the upper layer both comprise a polyurethane foam.

No.	Limitation
Claim 6	The mattress assembly of claim 1, wherein the stabilization layer provides a slip-resistant surface against the upper layer.
Claim 7	The mattress assembly of claim 1, wherein the stabilization layer is secured to the upper layer.
Claim 8	The mattress assembly of claim 7, wherein the stabilization layer is adhesively secured to the upper layer.
Claim 9	The mattress assembly of claim 1, wherein the base layer has a thickness of about 0.75 inches to about 1.50 inches and the upper layer has a thickness of about 0.25 inches to about 0.75 inches.
Claim 10	
[10pre]	A mattress assembly, comprising:
[10A]	a base layer;
[10B]	a coil layer disposed over the base layer, the coil layer comprising a plurality of pocketed coils; each pocketed coil of the plurality of pocketed coils comprising: a plurality of nested casings; and a single coil disposed within an innermost casing of the plurality of nested casings; an upper layer disposed over the coil layer
[10C]	a stabilization layer comprising a scrim fabric
[10D]	at least one elastomeric cushioning element disposed over the stabilization layer,
[10E]	an elastomeric material of the at least one elastomeric cushioning element seeping through scrim fabric of the stabilization layer to secure an upper surface of the stabilization layer to the at least one elastomeric cushioning element,
[10F]	and to provide a non-slip surface or a reduced slip surface on a lower surface of the scrim fabric,
[10G]	the non-slip surface or the reduced slip surface positioned against an upper surface of the upper layer
[10H]	an outer covering encasing the base layer, the coil layer, the upper layer, the stabilization layer, and at least one elastomeric cushioning element.

No.	Limitation
Claim 11	The mattress assembly of claim 10, wherein the plurality of pocketed coils are oriented next to each other in a grid pattern.
Claim 12	The mattress assembly of claim 11, wherein the at least one elastomeric cushioning element comprises a grid of interconnected walls defining hollow buckling columns.
Claim 13	The mattress assembly of claim 10, wherein the plurality of nested casings of each pocketed coil comprises: a first casing; and a single second casing disposed within the first casing, with the single coil being disposed within the second casing.
Claim 14	The mattress assembly of claim 10, wherein the at least one elastomeric cushioning element comprises a plurality of distinct elastomeric cushioning elements disposed at different locations over the upper layer.
Claim 15	The mattress assembly of claim 10, wherein at least one elastomeric cushioning element covers a portion of an upper surface of the upper layer.
Claim 16	
[16pre]	A method of forming a mattress assembly, comprising:
[16A]	[a base layer] ⁹
[16B]	disposing a coil layer [over a base layer]; disposing an upper layer over the coil layer;
[16D]	the stabilization layer being located on a bottom surface of the elastomeric cushioning element,
[16E]	the elastomeric material of the elastomeric cushioning element securing the elastomeric cushioning element to an upper surface of the stabilization layer;

⁹ Element [16A] is bracketed to show that it is listed before its use in claim 16. This is to comport with the labeling used in independent claims 1 and 10, where the base layer is listed before the coil layer.

No.	Limitation
[16F]	a non-slip or reduced slip surface formed by elastomeric material on a lower surface of the stabilization layer
[16G]	disposing an elastomeric cushioning element over the upper layer including positioning a stabilization layer ... against the upper layer,
[16H]	encasing the base layer, the coil layer, the upper layer, the stabilization layer, and the elastomeric cushioning element in an outer casing.
Claim 17	The method of claim 16, further comprising: individually disposing each coil of the coil layer withing a first casing; and individually disposing of the first casing within a second casing.
Claim 18	The method of claim 17, wherein individually disposing each coil of the coil layer within the first casing comprises individually disposing the coil within a polypropylene bag.
Claim 19	The method of claim 18, wherein individually disposing the first casing within the second casing comprises individually disposing the first casing within the polypropylene bag.
Claim 20	The method of claim 16, further comprising: securing the stabilization layer to the upper layer.

CERTIFICATION UNDER 37 C.F.R. § 42.24(D)

Under the provisions of 37 C.F.R. § 42.24(d), the undersigned attorney hereby certifies that the word count for Sections I–XI of the foregoing Petition for *Inter Partes* Review is 13,470, according to the word count tool in Microsoft Word.

DATED: February 7, 2024

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CERTIFICATE OF SERVICE (37 C.F.R. §§ 42.6(E), 42.205(A))

The undersigned hereby certifies that the foregoing PETITION FOR INTER PARTES REVIEW OF U.S. PATENT NO. 11,317,733 PURSUANT TO 37 C.F.R. § 42.100 et seq., the accompanying Power of Attorney, and all associated exhibits, were served in their entirety on February 7, 2024 electronically via email access to a OneDrive folder emailed to Joseph A. Loy at jloy@kirkland.com, as well as delivering a copy via USPS Priority Mail Express or equivalent service, upon the following party: Attorney of Record: Dentons Durham Jones Pinegar, Brick Power, 3301 N. Thanksgiving Way, Suite 400, Lehi, UT 84043.

DATED: February 7, 2024

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