

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CASCADES CANADA ULC,
Petitioner,

v.

ESSITY PROFESSIONAL HYGIENE NORTH AMERICA LLC,
Patent Owner.

Case IPR2017-01921
U.S. Patent No. 9,320,372

PATENT OWNER'S NOTICE OF APPEAL

via PTAB E2E
Patent Trial and Appeal Board

via CM/ECF
United States Court of Appeals for the Federal Circuit

via Hand Delivery
Director of the United States Patent and Trademark Office
c/o Office of the General Counsel, 10B20
Madison Building East
600 Dulany Street
Alexandria, VA 22313

Pursuant to 35 U.S.C. §§ 141 and 142, and 37 C.F.R. §§ 90.2 and 90.3, Patent Owner, Essity Professional Hygiene North America LLC (“Essity”), hereby provides notice that it appeals to the United States Court of Appeals for the Federal Circuit from the Final Written Decision (Paper 51) entered on February 1, 2019, and from all underlying orders, decisions, rulings, institutions, and opinions regarding U.S. Patent 9,320,372 (“the 372 patent”) at issue in *Inter Partes* Review No. IPR2017-01921. This notice of appeal is timely filed.

In accordance with 37 C.F.R. § 90.2(a)(3)(ii), the issues on appeal include, but may not be limited to:

(1) the Board’s determination that claims 1-3, 8-9, 12, and 13 are unpatentable under § 102(b) as anticipated by Grosriez (U.S. Patent No. 6,602,575);

(2) the Board’s determination that claims 1-3 and 6-20 are unpatentable under § 103 as obvious in view of Hochtritt (U.S. Patent App. Pub. No. 2005/0058807);

(3) the Board’s determination that claims 1-20 are unpatentable under § 103 as obvious in view of Hochtritt and Grosriez;

(4) the unconstitutionality of *inter partes* review as retroactively applied to the 372 patent under Article III, the Seventh Amendment, and the Fifth Amendment of the United States Constitution; and

(5) any other findings or determinations supporting or related to the aforementioned issues, as well as all other issues decided adversely to Patent Owner in any order, decision, ruling, or opinion.

Pursuant to 35 U.S.C. § 142 and 37 C.F.R. § 90.2(a), this Notice is being filed with the Director of the United States Patent and Trademark Office, and a copy of this Notice is being concurrently filed with the Patent Trial and Appeal Board. In addition, a copy of this Notice along with the required docketing fees are being filed with the Clerk's Office for the United States Court of Appeals for the Federal Circuit via CM/ECF.

Date: April 4, 2019

Respectfully submitted,

By: /David A. Mancino/

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CERTIFICATION OF SERVICE

I hereby certify that on this 4th day of April, 2019, a true and correct copy of the foregoing “PATENT OWNER’S NOTICE OF APPEAL” was Hand Delivered to:

Andrei Iancu, Director
United States Patent and Trademark Office
c/o Office of the General Counsel, 10B20
Madison Building East, 600 Dulany Street
Alexandria, VA 22313-1450

I also hereby certify that on this 4th day of April, 2019, a true and correct copy of the foregoing “PATENT OWNER’S NOTICE OF APPEAL,” and the filing fee, were filed with the Clerk’s Office of the United States Court of Appeals for the Federal Circuit, via CM/ECF.

I also hereby certify that a true and correct copy of the foregoing “PATENT OWNER’S NOTICE OF APPEAL,” was filed in the E2E filing system and served by electronic mail on this 4th day of April, 2019, on counsel of record for the Petitioners as follows:

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Dated: April 4, 2019

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CASCADES CANADA ULC and
TARZANA ENTERPRISES, LLC,
Petitioner,

v.

ESSITY HYGEINE AND HEALTH AB,
Patent Owner.

Case IPR2017-01921
Patent 9,320,372 B2

Before JO-ANNE M. KOKOSKI, KRISTINA M. KALAN,
and JON B. TORNQUIST, *Administrative Patent Judges*.

KOKOSKI, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a)

I. INTRODUCTION

We have jurisdiction to conduct this *inter partes* review under 35 U.S.C. § 6, and this Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–20 of U.S. Patent No. 9,320,372 B2 (“the ’372 patent,” Ex. 1028) are unpatentable.

A. *Procedural History*

Cascades Canada ULC and Tarzana Enterprises, LLC (collectively, “Petitioner”) filed a Petition (“Pet.”) to institute an *inter partes* review of claims 1–20 of the ’372 patent. Paper 1. Essity Hygiene and Health AB¹ (“Patent Owner”) filed a Preliminary Response. Paper 8. Pursuant to 35 U.S.C. § 314(a), we instituted an *inter partes* review of claims 1–20 based on the following grounds: (1) whether claims 1–3, 6, and 10–18 are unpatentable under 35 U.S.C. § 102(b)² as being anticipated by Hochtritt³; (2) whether claims 1–3, 8, 9, 12, and 13 are unpatentable under 35 U.S.C. § 102(b) as being anticipated by Grosriez⁴; (3) whether claims 1–3 and 6–20 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Hochtritt; and (4) whether claims 1–20 are unpatentable under 35 U.S.C. § 103(a) as

¹ SCA Hygiene Products AB, the originally-named Patent Owner in this proceeding, legally changed its name to Essity Hygiene and Health AB. Paper 16, 1.

² The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended several provisions of 35 U.S.C., including §§ 102 and 103. Because the ’372 patent has an effective filing date prior to the effective date of the applicable AIA amendments, we refer herein to the pre-AIA versions of §§ 102 and 103.

³ U.S. Patent App. Pub. No. 2005/0058807 A1, published March 17, 2005 (Ex. 1015).

⁴ U.S. Patent No. 6,602,575 B2, issued August 5, 2003 (Ex. 1021).

being obvious over the combined teachings of Hochtritt and Grosriez.⁵
Paper 9 (“Dec. on Inst.” or “Institution Decision”), 31–32.

After institution of trial, Patent Owner filed a Patent Owner Response (“PO Resp.,” Paper 21), Petitioner filed a Reply (“Pet. Reply,” Paper 32), and Patent Owner filed a Sur-Reply (“Sur-Reply,” Paper 47). Petitioner relies on the Declaration of Mate Mrvica (“the Mrvica Declaration,” Ex. 1002). Patent Owner relies on the Declaration of Paul Carlson (“the Carlson Declaration,” Ex. 2004) and the Declaration of T. Kim Parnell, PhD, PE (“the Parnell Declaration,” Ex. 2005).

Petitioner filed a Motion to Exclude the Parnell Declaration, the transcript of the deposition of Dr. Parnell (Ex. 1041), certain paragraphs of the Carlson Declaration and the related portions of the transcript of his deposition (Ex. 1040), and portions of the transcript of the deposition of Mr. Mrvica (Ex. 2006). Paper 37. Patent Owner filed an Opposition (Paper 40), and Petitioner filed a Reply (Paper 46). Patent Owner filed a Motion to Exclude portions of the transcript of the deposition of Mr. Mrvica, and portions of Petitioner’s Reply that rely on Mr. Mrvica’s deposition testimony. Paper 35. Petitioner filed an Opposition (Paper 43), and Patent Owner filed a Reply (Paper 45).

An oral hearing was held on November 8, 2018, and a transcript is included in the record. Paper 50 (“Tr.”).

⁵ We subsequently modified our Institution Decision to include review of “all of the challenged claims and all of the grounds presented in the Petition” (Paper 17, 2), then, based on a stipulation between the parties, limited this proceeding to the grounds as initially instituted (Paper 20, 3).

B. Related Proceedings

The parties indicate that the '372 patent is being asserted in *SCA Hygiene Products AB v. Tarzana Enterprises, LLC*, Case No. 2:17-cv-4395-AB-JPR (C.D. Cal.) and *SCA Hygiene Products AB v. Cascades, Inc.*, Case No. 3:17-cv-00282-wmc (W.D. Wis.). Pet. 1–2; Prelim. Resp. 3. Petitioner further states that the '372 patent is being asserted in *SCA Hygiene Products AB v. Novex Products, Inc.*, Case No. 1:17-cv-02236-DCN (N.D. Ohio). Paper 8, 2.

The parties also identify IPR2017-01902, filed by Petitioner, as a related proceeding. IPR2017-01902 relates to U.S. Patent No. 8,597,761, to which the '372 patent claims priority. Pet. 2; Paper 5, 3.

C. The '372 Patent

The '372 patent, titled “Stack of Interfolded Absorbent Sheet Products,” is directed to a plurality of absorbent sheets, each of which is folded at least twice about axes that are perpendicular to each other. Ex. 1028, at [54], [57]. In particular, the absorbent sheets “comprise a first fold that is deliberately offset from a parallel line bisecting the sheet, and a second fold that preferably bisects the sheet in the perpendicular direction.” *Id.* at 2:8–11.

Figures 1a, 1b, and 1c of the '372 patent are reproduced below.

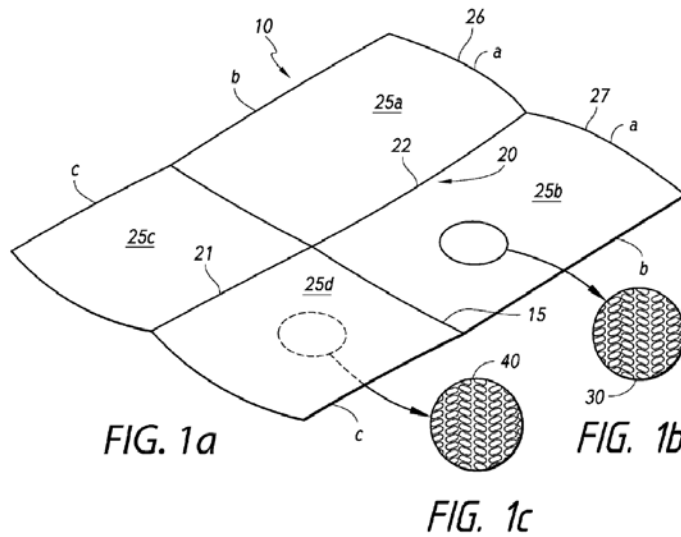


Figure 1a is a perspective view of an individual unfolded napkin according to an embodiment of the invention, and Figures 1b and 1c are details depicting embossing patterns applied to the obverse (front or principal) side and the reverse side of the napkin shown in Figure 1a, respectively. *Id.* at 2:42–48. In Figure 1a, sheet of absorbent material 10 “has been folded according to the invention and then unfolded.” *Id.* at 2:64–66. Prior to folding, sheet 10 “preferably has dimensions of approximately 8.5"x11”” that may “be varied to suit the particular desired application of the product.” *Id.* at 2:66–3:3. Sheet 10 is first folded along fold 15 (which is parallel to the short side of sheet 10 and thus has a length of 8.5”), then folded a second time along fold 20 that is perpendicular to fold 15. *Id.* at 3:4–7. First fold 15 is deliberately offset from the line parallel to it that would bisect sheet 10, in this case by approximately 2”, so that length “b” from fold 15 to the far short side of sheet 10 is approximately 6.5” and length “c” from fold 15 to the near short side of sheet 10 is approximately 4.5”. *Id.* at 3:11–17.

Second fold 20 substantially bisects sheet 10, defining length “a” to be 4.25” in the embodiment of Figure 1a. *Id.* at 3:31–33. Panel edges 26 and 27 of length “a” are on the far short side of sheet 10. *Id.* at 3:33–34. Folds 15 and 20 define panels 25a, 25b, 25c, and 25d, “wherein panels 25a and 25b in this embodiment each have dimensions of approximately 6.5”x4.25”, whereas panels 25c and 25d each have dimensions of approximately 4.5”x4.25”.” *Id.* at 3:43–47. First fold 15 is unidirectionally peaked, such that panels 25a and 25b of unfolded sheet 10 are slightly inclined upward from fold 15, as are panels 25c and 25d. *Id.* at 3:51–55. Second fold 20 is oppositely peaked, such that panels 25a and 25b of unfolded sheet 10 are slightly inclined upward from portion 22 of fold 20, and panels 25c and 25b are slightly inclined downward from portion 21 of fold 20. *Id.* at 3:56–64. When the napkin is fully folded, only the reverse sides of panels 25a and 25b are substantially visible, and the unequal sizes of panels 25a and 25b relative to panels 25c and 25d are concealed. *Id.* at 5:38–41, 50–54. The fully-folded napkin has dimensions of approximately 6.5”x4.25”. *Id.* at 6:3–4.

Figures 4a and 4b are reproduced below.

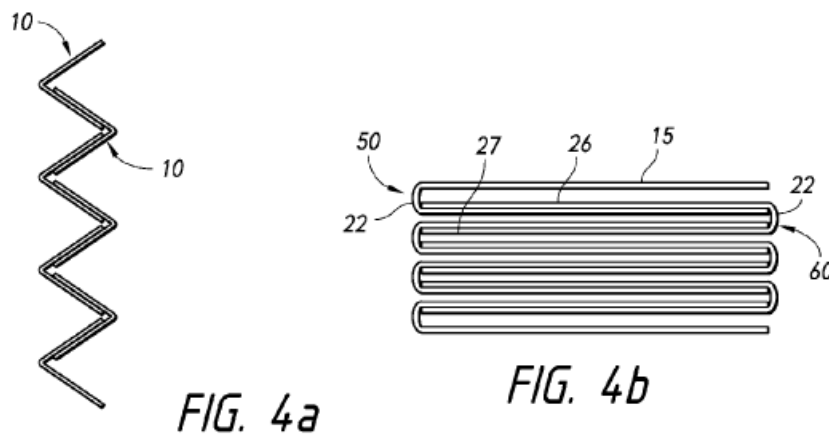


Figure 4a is a schematic representation of the interfold configuration of a stack of folded napkins according to the embodiment shown in Figure 1a,

and Figure 4b is a schematic cross-sectional view of the napkin stack shown in Figure 4a. *Id.* at 2:55–59. As shown in Figure 4a, “the interfolding of adjacent sheets is such that any given napkin within the stack receives, between a pair of adjacent panels of the given napkin, a pair of adjacent panels of each of an upper and a lower napkin within the stack.” *Id.* at 6:21–25. In Figure 4b, the interfolded napkins alternate between napkins 50 oriented with fold 15 being visible in the plane of the page, and napkins 60 that are oriented such that edges 26 and 27 are visible in the plane of the page. *Id.* at 6:33–39.

Claim 1 is the only independent claim, and is reproduced below.

1. A stack of interfolded absorbent sheet products, comprising a plurality of absorbent sheets, wherein each sheet comprises a first fold that is offset from a line bisecting said sheet substantially parallel to said first fold, and an interfolding fold intersecting said first fold, wherein said first fold, said interfolding fold, and outer edges of each of the absorbent sheets define boundaries for four panels, with the panels on opposing sides of the first fold having different lengths and contacting each other within the stack, and wherein each of said absorbent sheets within said stack comprises at least one pair of panels sandwiched between a pair of adjacent panels of another of said absorbent sheets within said stack.

Ex. 1028, 7:58–8:2.

II. ANALYSIS

A. *Level of Ordinary Skill in the Art*

Petitioner contends that a person having ordinary skill in the art (“PHOSITA”) at the time of the ’372 patent would have had “some post high school education in engineering or industrial manufacturing, and at least two to three years of experience in the design and/or manufacture of folded napkin products, or alternatively, no formal education but at least five

years of experience in the design and/or manufacture of folded napkin products.” Pet. 29 (citing Ex. 1002 ¶ 35).

Patent Owner does not dispute Petitioner’s contention in its Response. Patent Owner’s declarant Mr. Carlson, however, provides his own assessment regarding a person of ordinary skill in the art at the time of the ’372 patent. Ex. 2004 ¶ 31. Mr. Carlson opines that a person having ordinary skill in the art “would have had a bachelor’s degree in mechanical engineering and at least six months of experience in the design and/or manufacture of folded napkin products, or equivalent education and experience,” or “the equivalent of an associate’s degree or like technical training and at least one year of experience in the design and/or manufacture of folded napkin products.” *Id.* Mr. Carlson goes on to state that he “do[es] not believe that” his opinions “would be any different” when applying Petitioner’s suggested level of skill in the art. *Id.* ¶¶ 32, 34.

We agree with the parties that a person having ordinary skill in the art would have had an engineering background and experience in the design and/or manufacture of folded napkin products, which is consistent with the level of ordinary skill in the art at the time of the invention as reflected in the prior art in this proceeding. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (explaining that specific findings regarding ordinary skill level are not required “where the prior art itself reflects an appropriate level and a need for testimony is not shown” (quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir. 1985))). Our determination regarding the patentability of the challenged claims does not turn on the differences between Petitioner’s and Mr. Carlson’s definitions, and we note that our conclusions would be the same under either assessment.

B. Claim Interpretation

We interpret claims of an unexpired patent using the “broadest reasonable construction in light of the specification of the patent in which [the claims] appear[.]” 37 C.F.R. § 42.100(b) (May 2, 2016)⁶; *see Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016). Consistent with the broadest reasonable construction, claim terms are presumed to have their ordinary and customary meaning as understood by a person of ordinary skill in the art in the context of the entire patent disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Only those terms in controversy need to be construed, and only to the extent necessary to resolve the controversy. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’”) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

For the purposes of the Institution Decision, we determined that, based on the record at that time, no claim term required express construction. Dec. on Inst. 7. We see no reason to modify that determination in light of the record developed during trial.

⁶ The Office recently changed the claim construction standard applicable to an *inter partes* review. *See Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board*, 83 Fed. Reg. 51,340 (Oct. 11, 2018). The rule changing the claim construction standard, however, does not apply to this proceeding because Petitioner filed its Petition before the effective date of the final rule, i.e., November 13, 2018. *Id.* at 51,340 (rule effective date and applicability date), 51,344 (explaining how the Office will implement the rule).

C. *Principles of Law*

To prevail on its challenges to the patentability of the claims, a petitioner must establish facts supporting its challenge by a preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). “In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden of persuasion never shifts to the patent owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378–79 (Fed. Cir. 2015) (discussing the burdens of persuasion and production in *inter partes* review).

To establish anticipation, each and every element in a claim, arranged as recited in the claim, must be found in a single prior art reference. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008); *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001). Although the elements must be arranged in the same way as in the claim, “the reference need not satisfy an *ipsissimis verbis* test,” i.e., identity of terminology is not required. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009); *In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990).

A claim is unpatentable under 35 U.S.C. § 103 if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious to a person having ordinary skill in the art to which the subject matter pertains. *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 406 (2007). The question of

obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

D. Overview of the Prior Art

1. Hochtritt

Hochtritt relates to a stack of interfolded sheet products that “comprises a plurality of absorbent sheets each of which is itself folded at least twice about axes that are perpendicular to one another,” wherein “[e]ach of the absorbent sheets within the stack comprises at least one pair of panels sandwiched between a pair of adjacent panels of another of the absorbent sheets in the stack.” Ex. 1015, at [57]. Hochtritt describes an embodiment where the absorbent sheets are napkins that have two folds, each fold bisecting the napkin and being perpendicular to one another. *Id.* ¶ 11. This “quarter-fold” napkin is also considered a “four-panel” napkin because the perpendicular folds delineate four regions in the original napkin sheet. *Id.* Hochtritt also describes six-panel and eight-panel napkins, which comprise six equally-sized and eight equally-sized panels, respectively. *Id.* ¶ 12.

Hochtritt Figures 1(a) and 1(b) are reproduced below.



Fig 1(a)

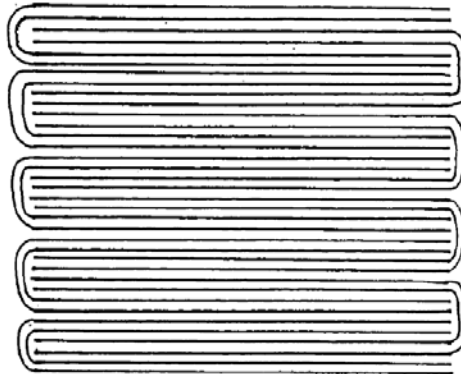


Fig 1(b)

Figure 1(a) is a schematic representation of the interfold configuration of a stack of folded absorbent sheets according to an embodiment described in Hochtritt, and Figure 1(b) is a schematic cross-sectional view of the napkin stack shown in Figure 1(a). *Id.* ¶¶ 17–18. Figures 1(a) and 1(b) depict quarter-folded napkins, and show that “the interfolding of adjacent sheets is such that any given napkin within the stack receives between a pair of adjacent panels of the given napkin, a pair of adjacent panels of each of an upper and a lower napkin within the stack.” *Id.* ¶ 26. In particular, Figure 1(b) demonstrates that “each napkin within the stack receives between its two inwardly facing adjacent panels a pair of adjacent panels from each of two napkins disposed respectively above and below it in the stack.” *Id.* ¶ 35.

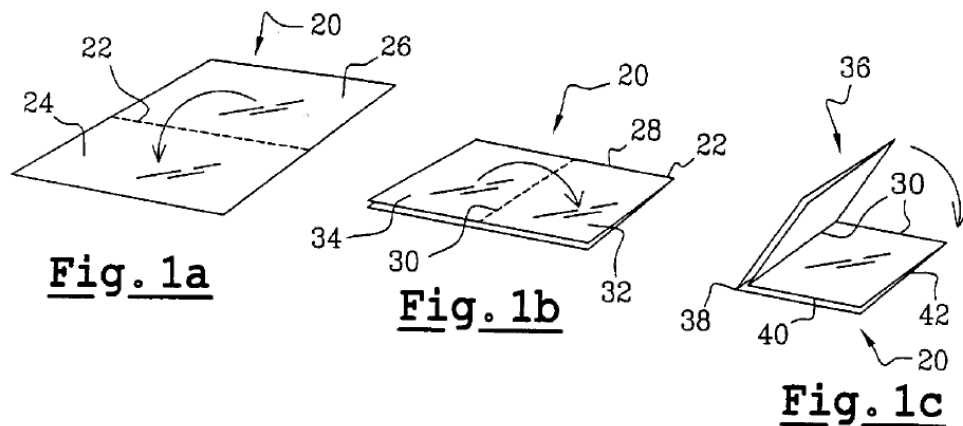
Hochtritt teaches that the quarter-fold napkin in Figures 1(a) and 1(b) “is formed from a single ply whose dimensions are preferably 8½"x13", such that the folded napkin will have dimensions of about 4¼"x6½",” and that “these dimensions can be varied to suit the particular application in

question.” *Id.* ¶ 34. According to Hochtritt, the folds visible in Figures 1(a) and 1(b) “are those extending across the long dimension of the napkins, whereas the folds not visible are those extending across the short dimension of the napkins.” *Id.*

2. *Grosriez*

Grosriez is directed to a stack of folded, supple, and absorbent sheets, wherein each napkin in the stack “has a longitudinal fold line forming a longitudinal border and at least one transverse fold line perpendicular to the longitudinal fold line.” Ex. 1021, 1:7–11, 4:30–32. *Grosriez* teaches that the stack of supple sheets is “characterized in that the longitudinal and transverse fold lines of an upper sheet in the stack are not adjacent to the respective longitudinal and transverse fold lines of the previous lower sheet,” such that “the stack has geometric symmetry and a distribution of the weight of the folded supple sheets which allow the stack to remain balanced with respect to the axis of stacking, regardless of the number of folded supple sheets.” *Id.* at 2:17–26.

Figures 1a, 1b, and 1c of *Grosriez* are reproduced below.



Figures 1a, 1b, and 1c depict the two successive foldings of a supple sheet. *Id.* at 3:29–30. In Figure 1a, square supple sheet 20 shows longitudinal first fold line 22 that separates symmetrical sections 24 and 26. *Id.* at 4:33–36. In Figure 1b, supple sheet 20 is folded in two along longitudinal fold line 22, forming longitudinal border 28. *Id.* at 4:37–39. Transverse fold line 30 delimits symmetrical panels 32 and 34. *Id.* at 4:39–41. In Figure 1c, supple sheet 20 is folded into four equal parts by folding along transverse fold line 30 to form supple sheet 36 with transverse border 38, longitudinal edge 40, and transverse edge 42. *Id.* at 4:42–47. Each of longitudinal edge 40 and transverse edge 42 consists of the superposition of the four superposed free edges of supple sheet 20. *Id.* at 4:47–49. Grosriez also teaches an alternative form of folding, where “the longitudinal fold line delimits two sections, the transverse dimension one of which differs from the transverse dimension of the other.” *Id.* at 4:50–53.

Grosriez Figure 6 is reproduced below.

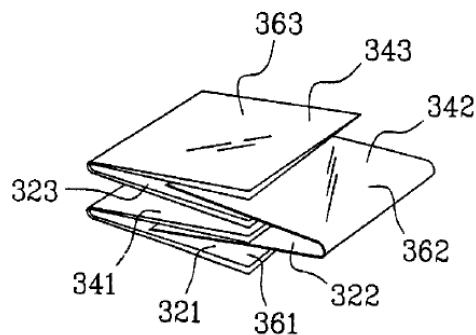


Fig. 6

Figure 6 is a perspective view of an example of a stack of three folded supple sheets according to a preferred embodiment described in Grosriez. *Id.* at 3:43–45. Lower folded sheet 361 and upper folded sheet 363 are

intertwined with intermediate folded sheet 362, wherein upper panel 341 of lower folded sheet 361 and lower panel 323 of upper folded sheet 363 are placed between lower panel 322 and upper panel 342 of intermediate folded sheet 363. *Id.* at 5:54–59. According to Grosriez, intertwining the folded sheets in this way makes it possible, particularly when the stack is placed in a dispenser, “for the lower panel 323 of the upper sheet 363 to carry (by virtue of friction forces) the upper panel 342 of the intermediate folded sheet 362 out of the opening that allows the folded sheets 36 to be grasped.” *Id.* at 5:60–65.

E. Anticipation by Hochtritt

Petitioner contends that claims 1–3, 6, and 10–18 of the ’372 patent are unpatentable under 35 U.S.C. § 102(b) as being anticipated by Hochtritt. Pet. 33–43; Pet. Reply 9–13. Patent Owner disagrees with Petitioner’s assertions. PO Resp. 27–36; Sur-Reply 8–12.

Petitioner contends that Hochtritt discloses all of the elements of claim 1. Pet. 34–38. For example, Petitioner contends that Hochtritt discloses a “sheet that comprises a first fold that is offset from a line bisecting said sheet substantially parallel to said first fold” because “Hochtritt broadly discloses napkins with at least two perpendicular folds, and one of ordinary skill in the art would recognize that the folds could be either bisecting or offset (the only two options).” *Id.* at 36 (citing Ex. 1002 ¶¶ 74, 117). Petitioner also contends that Hochtritt “expressly recognizes that single-fold napkins can either be bisecting or offset folded, and a single fold is simply the first fold in a quarter-folded napkin (or six-panel napkin).” *Id.* (internal citation omitted). In particular, Petitioner points to Hochtritt’s description of “[p]aper napkins that are single folded only (sometimes also

called ‘half-folded’ when the fold bisects the napkin, or ‘off-folded’ when it does not)” (Ex. 1015 ¶ 7), and to Hochtritt’s description of “‘one embodiment’ wherein the first and second folds bisect the napkin” (*id.* ¶ 11). Pet. 34, 36.

Patent Owner responds that “[t]he Petition fails to cite any factual basis for its assertion that Hochtritt’s discussion of an ‘off-folded’ single-fold napkin discloses an offset first-fold for a multi-fold sheet.” PO Resp. 31. In that regard, Patent Owner argues that “single-folded napkins and multi-folded napkins have fundamentally different structures,” and, accordingly, a PHOSITA would “view Hochtritt as disclosing, at most, two distinct and different products,” namely, “a prior art single-folded napkin that can include a half-folded or off-folded *interfolding fold*,” and “an invention of a multi-fold napkin that *only* includes two or more *equal, bisecting folds*, with only the multi-fold napkins forming a part of Hochtritt’s invention.” *Id.* at 33 (citing Ex. 2004 ¶ 88; Ex. 2005 ¶¶ 75–76). According to Patent Owner, Petitioner is improperly combining “elements from prior art in the BACKGROUND section with elements from a disclosed invention in the DETAILED DESCRIPTION to cobble together elements for an alleged anticipatory teaching.” *Id.* at 35.

We agree with Patent Owner that Petitioner’s anticipation argument requires combining disclosures from separate products described in Hochtritt. Hochtritt states that single-folded napkins having folds that either bisect the napkin or do not bisect the napkin were known in the prior art. Ex. 1015 ¶ 7. As its invention, Hochtritt discloses interfolded absorbent sheet products that are “folded at least twice about axes that are perpendicular to one another.” *Id.* ¶ 8. Hochtritt goes on to describe “one

embodiment” where “the folded absorbent sheet products are paper napkins each having two folds, the two folds each bisecting the napkin and being perpendicular to one another,” and “[o]ther contemplated embodiments” that “include six panel and eight panel napkins,” all of which result in paper napkins with equally-sized panels. *Id.* ¶¶ 11–12. Accordingly, Petitioner’s anticipation argument with respect to Hochtritt requires combining disclosures regarding single-folded napkins with disclosures regarding multi-folded napkins having equal-sized panels.

Combining separate disclosures in this manner is not a permissible way to argue anticipation. “[I]t is not enough that the prior art reference . . . includes multiple, distinct teachings that the artisan might somehow combine to achieve the claimed invention.” *Net MoneyIN*, 545 F.3d at 1371. “[U]nless a reference discloses within the four corners of the document not only all of the limitations claimed but also all of the limitations arranged or combined in the same way as recited in the claim, it cannot be said to prove prior invention of the thing claimed and, thus, cannot anticipate under 35 U.S.C. § 102.” *Id.* Here, Petitioner argues that a PHOSITA would combine Hochtritt’s separate disclosures of single-folded napkins and multi-folded napkins to arrive at the invention of the ’372 patent. Because Petitioner fails to point us to a portion of Hochtritt that discloses all of the limitations arranged or combined in the same way as recited in the challenged claims, or any portion of Hochtritt that directly relates the teachings of the separate disclosures to each other, Petitioner’s arguments cannot support a case of anticipation.

Accordingly, based on our review of the record, we find that Petitioner has not established by a preponderance of the evidence that

claim 1, and claims 2, 3, 6, and 10–18 that depend, directly or indirectly, therefrom, are anticipated by Hochtritt.

F. Anticipation by Grosriez

Petitioner contends that claims 1–3, 8, 9, 12, and 13 of the '372 patent are unpatentable under 35 U.S.C. § 102(b) as being anticipated by Grosriez. Pet. 44–52; Pet. Reply 13–16. Patent Owner disagrees with Petitioner's assertions. PO Resp. 36–43; Sur-Reply 12–15.

1. Claim 1

Petitioner contends that Grosriez discloses all of the elements of claim 1. Pet. 44–48. For example, Petitioner contends that Grosriez discloses “a first fold that is offset from a line bisecting said sheet substantially parallel to said first fold, and an interfolding fold intersecting said first fold” because it describes the embodiment shown in Figures 1a, 1b, and 1c as having a longitudinal fold line that separates two symmetrical sections, and a transverse fold line that delimits two additional symmetrical sections. *Id.* at 44–45 (citing Ex. 1021, 4:30–41). Petitioner also points to Grosriez's explanation that, in an alternative form of folding, “the longitudinal fold line delimits two sections, the transverse dimension one of which differs in dimension from the transverse dimension of the other” as describing an offset fold. *Id.* at 45 (quoting Ex. 1021, 4:50–53).

Patent Owner responds that “[t]he Petition fails to demonstrate that Grosriez discloses that its ‘alternative form of folding’ is employed with napkins that are interleaved with one another to form a stack of interfolded napkins.” PO Resp. 37. Patent Owner argues that “a PHOSITA would read and understand Grosriez as providing no teaching whatsoever for whether napkins formed by its ‘alternative form of folding’ should be interleaved or

interfolded.” *Id.* at 38 (citing Ex. 2004 ¶ 96; Ex. 2005 ¶¶ 87–89). In that regard, Patent Owner argues that “Grosriez depicts two embodiments of its napkins interfolded with one another, while also depicting numerous other embodiments of its napkins stacked without interfolding,” and does not “describe or depict how its alternatively-folded napkins are intended to be stacked.” *Id.* (citing Ex. 1021, Figs. 2–6, 8, 9a, 9b, and 10–18). Patent Owner further argues that “[a] PHOSITA would immediately recognize that Grosriez’s ‘alternative form of folding’ exacerbates the problem” of “asymmetrical and unbalanced” stacking of the folded napkins, and, “[u]pon reading Grosriez in its entirety,” would understand that Grosriez “overcomes these problematic characteristics by ensuring that the sheets are stacked, *without interleaving*, in alternating orientations.” *Id.* at 38–39 (citing Ex. 1021, 2:17–26, 6:25–51; Ex. 2004 ¶¶ 95–96; Ex. 2005 ¶¶ 88–89, 118).

We agree with Petitioner that Grosriez teaches “a first fold that is offset from a line bisecting said sheet substantially parallel to said first fold, and an interfolding fold intersecting said first fold” as recited in claim 1. Pet. 44–48; Pet. Reply 13–15. In particular, Grosriez teaches “a stack of supple and absorbent sheets,” wherein the sheets have “a longitudinal fold line forming a longitudinal border and at least one transverse fold line perpendicular to the longitudinal fold line.” Ex. 1021, 1:8–12. With reference to Figure 1c, Grosriez describes a supple sheet folded into four equal parts (*id.* at 4:43–50), and immediately thereafter states that “[a]ccording to an alternative form of folding, not depicted, the longitudinal fold line delimits two sections, the transverse dimension one of which differs from the transverse dimension of the other” (*id.* at 4:51–54).

Grosriez then explains that “[t]he remainder of the description will relate, non-limitingly, to a supple sheet” folded in four (*id.* at 4:61–62), and goes on to teach that the folded sheets “can be intertwined,” such that the upper panel of the lower sheet and the lower panel of the upper sheet are placed between the lower and upper panels of the intermediate folded sheet (*id.* at 5:54–59, Figures 6, 9b). Because Grosriez teaches that the supple sheets can be folded such that the transverse dimension of one section differs from the transverse dimension of the other, and that the supple sheets can be intertwined when stacked, Grosriez discloses “a first fold that is offset from a line bisecting said sheet substantially parallel to said first fold, and an interfolding fold that is substantially perpendicular to said first fold,” and that “each of said absorbent sheets within said stack comprises at least one pair of panels sandwiched between a pair of adjacent panels of another of said absorbent sheets within said stack” as recited in claim 1.

In light of these express disclosures in Grosriez, Patent Owner does not provide sufficient objective evidence or analysis to support its contentions, namely, that a PHOSITA would not understand Grosriez to teach that napkins formed by the alternative form of folding should be interleaved or interfolded. PO Resp. 38–39 (citing Ex. 2004 ¶ 96; Ex. 2005 ¶¶ 87–89). Patent Owner’s declarant, Mr. Carlson, testifies that “[w]hen napkins are produced with uneven folding due to being offset or off-folded, there are several downstream complications that are to be concerned” with respect to the manufacturing process used to produce the folded napkins. Ex. 2004 ¶ 96. For example, Mr. Carlson testifies that there would be “substantial obstacles to overcome regarding the stacks being transferred from the separator to the wrapping and casepacker areas,” and that

components such as “packer fingers, count fingers, separation fingers, side rails, pusher plates, wrapper plates, [and] casepack plates” “may need some adjustments to compensate for the uneven bulk of the package.” *Id.* As Patent Owner admits, however, the claims of the ’372 patent are not directed to the manufacturing process. *See* Tr. 42:7–9 (Patent Owner’s counsel agreeing “that the claim does not explicitly say that an offset is folded, is created in a certain way by a certain machine” and “[i]t’s not explicit in the patent claim itself”). That there may be difficulties implementing the alternative folding and intertwined stacking described in Grosriez in an existing manufacturing process, as Mr. Carlson testifies, does not negate the express teachings in Grosriez regarding the interfolding of supple sheets.

We are also not persuaded by Patent Owner’s argument that “a PHOSITA would be disinclined” to use Grosriez’s alternative form of folding “because an offset first-fold in a quarter-folded napkin would exacerbate the problems confronted by Grosriez.” Sur-Reply 12 (citing Ex. 2004 ¶¶ 95–96; Ex. 2005 ¶¶ 88–89, 118). Even if Grosriez went so far as to disparage the use of offset first-folds, however, it is irrelevant to the anticipation analysis. *See Celeritas Techs. Ltd. v. Rockwell Int’l Corp.*, 150 F.3d 1354, 1361 (Fed. Cir. 1998) (“A reference is no less anticipatory if, after disclosing the invention, the reference then disparages it.”).

We are similarly unpersuaded by Patent Owner’s argument that Grosriez’s description of the alternative form of folding is “a throwaway, catch-all statement.” PO Resp. 37. As the Federal Circuit has recognized, “[t]he fact that an embodiment is disclosed in a single sentence is not a license to ignore that disclosure.” *Advanced Fiber Techs. Trust v. J & L Fiber Services, Inc.*, 674 F.3d 1365, 1375 (Fed. Cir. 2012); *see also id.* (“A

disclosed embodiment is a disclosed embodiment, no matter the volume of ink required to adequately describe it.” (citing *Falkner v. Inglis*, 448 F.3d 1357, 1366–1367 (Fed. Cir. 2006) (“No length requirement exists for a disclosure to adequately describe an invention.”)). Moreover, as Patent Owner notes, a prior art patent must be considered as a whole for all that it teaches. PO Resp. 37 (citing *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1568 (Fed. Cir. 1987) (“[A] prior patent must be considered in its entirety, i.e., as a *whole*, including portions that would lead away from the invention in suit.”)); *see also EWP Corp. v. Reliance Universal Inc.*, 755 F.2d 898, 907 (“A reference must be considered for everything it teaches by way of technology and is not limited to the particular invention it is describing and attempting to protect.”). Reading Grosriez as a whole, we agree with Petitioner that “Grosriez’s statement immediately after describing the options for folding a single sheet—‘[t]he remainder of the description will relate, non-limitingly, to a supple sheet 36 folded in 4,’—[means that] each manner in which the sheets may be stacked and interleaved applies to each folding option previously described.” Pet. Reply 15 (quoting Ex. 1021, 4:61–67) (emphasis omitted).

Furthermore, we note that Grosriez’s claim 1 recites “[a] stack of supple and absorbent sheets,” each of which comprises “a longitudinal fold line” that forms a longitudinal border, “and at least one transverse fold line” that is “perpendicular to the longitudinal fold line.” Ex. 1021, 8:4–7. Grosriez’s claim 7, which directly depends from claim 1, further requires that the longitudinal fold line “delimits to two sections,” “the transverse dimension of one of which is at most twice the transverse dimension of the other.” *Id.* at 8:47–50. Grosriez’s recitation of offset folds in claim 7

creates a presumption that Grosriez's claim 1 encompasses both offset and bisecting folds. *See Comark Comm's Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) (stating that claim differentiation "create[s] a presumption that each claim in a patent has a different scope"). Grosriez's claim 1 and claim 7 are otherwise identical but for the reference to the transverse dimensions. Additionally, Grosriez's claim 2, which directly depends from claim 1, further recites "wherein two successive folded sheets (36) are interweaved." Ex. 1021, 8:23–24. That Grosriez's claim 1 presumptively encompasses both bisecting and offset folds and Grosriez's claim 2 is identical to claim 1 but for the reference to interweaving, is further indication that Grosriez's description of the alternative form of folding and subsequent intertwining of the folded sheets applies equally to napkins that are bisected and offset folded, as Petitioner contends.

After considering Petitioner's and Patent Owner's positions, as well as their supporting evidence, we determine that Petitioner has shown, by a preponderance of the evidence, that claim 1 is unpatentable under 35 U.S.C. § 102(b) as anticipated by Grosriez.

2. *Claims 8 and 9*

Claim 8 depends from claim 1 and further requires that "each said sheet is folded such that offset portions of said sheet are positioned interiorly of said sheet when folded." Ex. 1028, 8:38–31. Claim 9 also depends from claim 1 and further requires that "each said sheet is folded such that offset portions of said sheet are positioned exteriorly of said sheet when folded." *Id.* at 8:32–35. Petitioner asserts that claims 8 and 9 "each claim the only two possible options for the locations of 'offset portions' of a folded sheet—interiorly or exteriorly," and that Grosriez "shows both known options"

when it describes a napkin that “has a first longitudinal fold line and two transverse fold lines to fold a Z-folded napkin (claim 9 of Grosriez)” such that “one offset portion will be positioned interiorly of the sheet and the other offset portion will be positioned exteriorly of the sheet when folded.” Pet. 50–51. Patent Owner argues that “nothing in Grosriez even suggests, much less clearly and unequivocally teaches, where the offset portions allegedly formed by its ‘alternative form of folding’ would be positioned.” PO Resp. 42 (citing Ex. 2004 ¶¶ 99–102; Ex. 2005 ¶ 95).

We agree with Petitioner that Grosriez discloses offset portions positioned interiorly or exteriorly of the sheet when folded as required by claims 8 and 9, respectively. Grosriez teaches that “[t]he folded supple sheet may also have two transverse fold lines so as to form a central panel and two end flaps, . . . each of which faces one of the sides of the central panel, so as to form a so-called Z-fold.” Ex. 1021, 4:55–60. As Petitioner notes, “Z-folded sheets with an offset longitudinal fold naturally result[] in the offset portion positioned interiorly of the sheet at one side and exteriorly of the sheet at the other side.” Pet. Reply 16.

After considering Petitioner’s and Patent Owner’s positions, as well as the supporting evidence, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 8 and 9 are unpatentable under 35 U.S.C. § 102(b) as anticipated by Grosriez.

3. *Claims 2, 3, 12, and 13*

Patent Owner does not address separately Petitioner’s explanations and supporting evidence as to how Grosriez accounts for all the limitations of dependent claims 2, 3, 12, and 13, other than to say that “[t]he patentability of the challenged dependent claims can depend upon the

patentability of claim 1.” PO Resp. 41 (citing *RCA Corp. v. Applied Digital Data Sys., Inc.*, 730 F.2d 1440, 1446 (Fed. Cir. 1984)). As set forth above, we determined that Petitioner has established by a preponderance of the evidence that claim 1 is unpatentable as anticipated by Grosriez. We also have reviewed Petitioner’s explanation and supporting evidence as to how Grosriez accounts for all of the limitations of these dependent claims, and we agree with and adopt Petitioner’s analysis. Pet. 48–49, 51–52.

Based on the record developed during trial, we conclude that Petitioner has demonstrated by a preponderance of the evidence that claims 2, 3, 12, and 13 are unpatentable under 35 U.S.C. § 102(b) as anticipated by Grosriez.

G. Obviousness over Hochtritt

Petitioner contends that the subject matter of claims 1–3 and 6–20 is unpatentable under 35 U.S.C. § 103(a) as obvious over the teachings of Hochtritt. Pet. 59–65; Pet. Reply 16–22. The parties’ discussion concerning this ground focuses on the requirement of a “first fold that is offset.” In particular, Petitioner contends that, “[t]o the extent that it could be determined that Hochtritt does not expressly teach offset first folds, it would have been obvious to a PHOSITA to modify Hochtritt to have an offset first fold—the only other alternative to a bisecting fold.” Pet. 60 (citing Ex. 1002 ¶¶ 73, 118).

1. Motivation to Modify Hochtritt

Petitioner contends that “[a] PHOSITA would be motivated to modify Hochtritt to have a first offset fold” because of “the known paper and costs savings from utilizing an offset first fold,” and because once “the Hochtritt patents covering first bisecting fold lines” were granted, “the only other

option for making stacks of quarter-folded napkins interleaved in the known manner of Hochtritt . . . would be to offset the first fold line.” Pet. 61 (citing Ex. 1016; Ex. 1002 ¶¶ 61–63, 118). According to Petitioner, “[t]he substitution of a first offset fold for a first bisecting fold is a simple substitution of one of only two known options to fold a napkin, and is therefore obvious.” *Id.* at 60.

Patent Owner argues in response that: (1) Petitioner’s contention that cost savings would motivate a PHOSITA to modify Hochtritt’s first bisecting fold to a first offset fold is unsupported by the record; (2) the proposed modification of Hochtritt is not a simple substitution; and (3) the prior art teaches away from the proposed modification. PO Resp. 45–51. We address each argument in turn.

Contrary to Patent Owner’s argument, Petitioner provides significant, un rebutted evidence that so-called “cheater” folds, which are offset folds, were well known in the prior art, and were known to save costs. *See* Ex. 1002 ¶¶ 61 (“An offset fold is commonly referred to in the industry as a ‘cheater’ fold” that was known to “save costs because less paper is used for the same folded footprint.”), 62 (“For at least the last few decades, persons in my field have recognized the advantages of making folded napkins with offset fold lines, including decreased materials and costs involved in manufacturing napkins that have smaller unfolded sizes without decreasing the size of the folded napkin.”); Ex. 2004 ¶ 39 (Mr. Carlson stating that he agrees “with Mr. Mrvica’s [Ex. 1002] ¶ 62”); Ex. 1040, 251:5–17 (Mr. Carlson testifying that “[a] designed offset [fold] and a cheater [fold] are essentially the same,” and using a cheater fold is “one way to save on the amount of fiber per napkin,” resulting in a cost savings.); Tr. 45:18–20

(“JUDGE TORNQUIST: Do you agree with the proposition that these cheater folds were known to save costs? MR. MANCINO: Yeah, we are not arguing that point. And Mr. Carlson during his deposition has conceded that cheater folds have been known in the industry and cheater folds have been known to save paper if they are done in a certain way.”); Ex. 1016, 1:25–32 (explaining that offsetting the primary fold line from the center of the sheet “reduces the overall size of the sheet without reducing the visible surface area of the napkin when folded,” thus reducing the cost “because less paper is needed to make each napkin”). Thus, Petitioner has provided a well-supported rationale for the proposed modification of Hochtritt.

Moreover, “when a patent claims a structure already known in the prior art that is altered by the mere substitution of one known element for another known in the field, the combination must do more than yield a predictable result.” *See KSR*, 550 U.S. at 416; *see also Bayer Schering Pharma AG v. Barr Labs., Inc.*, 575 F.3d 1341, 1350 (Fed. Cir. 2009) (finding that the two known options are “a finite number of identified, predictable solutions,” and that choosing between the two would have been obvious). Here, Petitioner persuasively demonstrates that offset folds, or “cheater” folds, were: (1) well known in the art; (2) one of only two possible options; and (3) known to yield a predictable decrease in costs. *See* Ex. 1002 ¶ 118; Ex. 1040, 196:9–14; Ex. 1015 ¶ 7 (describing single-folded paper napkins as either half-folded when the fold bisects the napkin, or off-folded when it does not); Ex. 1016, 1:18–34 (describing napkins wherein the primary fold is centered on the sheet, and offset from the center of the sheet); *see also* Tr. 40:24–41:10 (Patent Owner’s counsel conceding that there are only two types of folds that can be used as a first fold in a quarter

folded napkin, namely, “one set of offset folds, up or down, one set of equal folds, up or down,” which “would be two sets of folds”). Accordingly, Petitioner has persuasively explained why a PHOSITA would have modified Hochtritt to arrive at the claimed invention.

Patent Owner further argues that “a PHOSITA would not view the proposed modification as a ‘simple substitution’ upon considering the complexities, difficulties, and time required to be expended in redesigning the napkin and recalibrating, reprogramming, and modifying the manufacturing machinery.” PO Resp. 46 (citing Ex. 2004 ¶¶ 104–106; Ex. 2005 ¶ 103). Patent Owner also argues that Hochtritt “provides no direction, or even a suggestion, for substituting an offset first fold for the equal fold that is depicted and described throughout Hochtritt’s disclosure of its invention,” and “fails to describe any recognizable benefit that would be imparted upon its napkins by the proposed modification.” *Id.* at 45–46. Contrary to Patent Owner’s argument, however, Petitioner does not argue that Hochtritt provides the reason for the addition of offset folds and, even pre-*KSR*, the motivation to modify a reference need not have come from the reference itself. *See DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1368 (Fed. Cir. 2006) (“Because the desire to enhance commercial opportunities by improving a product or process is universal—and even common-sensical—we have held that there exists in these situations a motivation to combine prior art references even absent any hint of suggestion in the references themselves.”).

We also find Petitioner’s argument that modifying Hochtritt as proposed would be a simple substitution of a first offset fold for a first bisecting fold to be persuasive. Patent Owner’s argument that it would not

be a simple substitution is premised on difficulties that may arise when manufacturing the napkins on a commercial scale. *See* PO Resp. 46 (arguing that the proposed modification is not a simple substitution due to the “complexities, difficulties, and time required” to modify the manufacturing machinery); Ex. 2004 ¶¶ 104–106; Ex. 2005 ¶ 103. As Patent Owner admits, however, the claims of the ’372 patent are not directed to a manufacturing process. *See* Tr. 42:7–9 (Patent Owner’s counsel agreeing “that the claim does not explicitly say that an offset is folded, is created in a certain way by a certain machine” and “[i]t’s not explicit in the patent claim itself”).

Patent Owner also argues that the prior art teaches away from modifying Hochtritt as Petitioner proposes. PO Resp. 49–51. Patent Owner first points to Dodge⁷ and argues that it “teaches that the ‘use of napkins with an offset fold line has not been entirely satisfactory’ and that ‘[a]n extension of the offset beyond one inch typically results in the napkins being unacceptable due to excessive amounts of crushing.’” *Id.* at 49 (quoting Ex. 1016, 1:35–50). According to Patent Owner, Dodge teaches that using an offset first fold in Hochtritt “would not have led to anticipated results,” which renders “the use of an offset fold and a bisecting fold as a nonobvious combination in view of Hochtritt.” *Id.* As Petitioner notes, however, Dodge’s teachings regarding excessive crushing are associated with an offset of more than one inch, which is not a limitation of claim 1 of the ’372 patent. Pet. Reply 18–19. Moreover, demonstrating that there are differences between the prior art references is insufficient, by itself, to

⁷ U.S. Patent No. 5,736,224, issued April 7, 1998 (Ex. 1016).

conclude that the reference teaches away from Petitioner's proposed modification. *See In re Beattie*, 974 F.2d 1309, 1312–13 (Fed. Cir. 1992).

Patent Owner also argues that Pigneul⁸ teaches sheets that “already achieve all of the properties that the Petition alleges a PHOSITA would seek to impart upon Hochtritt's sheets.” PO Resp. 50 (citing Ex. 2004 ¶¶ 110, 117; Ex. 2005 ¶ 137). As a result, Patent Owner argues, “a PHOSITA would not find any greater benefit from substituting an offset fold for one of Hochtritt's bisecting folds, especially given Pigneul's teachings that such a substitution would not have the desired effect for a U-folded (i.e., single-folded or quarter-folded) sheet.” *Id.* (citing Ex. 1023, 5; Ex. 2004 ¶ 114; Ex. 2005 ¶¶ 126–127).

To the extent that Patent Owner is arguing that Pigneul teaches away from Petitioner's proposed modification of Hochtritt, we do not find that argument to be persuasive. “Under a proper legal standard, a reference will teach away when it suggests that the developments flowing from its disclosure are unlikely to produce the objective of the [patented] invention.” *Syntex (U.S.A.) LLC v. Apotex, Inc.*, 407 F.3d 1371, 1380 (Fed. Cir. 2005) (citing *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994)). A reference does not teach away if it merely expresses a general preference for an alternative invention from amongst options available to the ordinarily skilled artisan, and the reference does not discredit or discourage investigation into the invention as claimed. *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). Patent Owner does not direct us to any statements in Pigneul that criticize or discredit the use of a first offset fold and an interfolding fold intersecting the

⁸ European Patent App. Pub. No. 0 286 538 B1 (Exs. 1013, 1023 (English translation)).

first offset fold, as required by the claims of the '372 patent. We are not persuaded that Pigneul's statement that "it is not possible" to reduce the transverse dimension of the sheet while not being subjected to a minimum stack height with "a bundle of sheets which have been bent in the shape of a U" would discourage a PHOSITA from modifying Hochtritt as proposed by Petitioner. PO Resp. 50 (citing Ex. 1023, 5). This is because Petitioner has persuaded us that one of ordinary skill in the art would have sought to use an off-set fold in Hochtritt to save costs. Petitioner also persuasively demonstrates that replacing the first bisecting fold disclosed in Hochtritt with a first offset fold would have been a simple substitution of one known fold for another that yields predictable results. Pet. 61; Pet. Reply 16–20. Accordingly, we determine that Petitioner articulates sufficient reasoning for the proposed modification of Hochtritt to support the legal conclusion of obviousness. *See KSR*, 550 U.S. at 398, 417–18.

2. *Claims 1–3, 6, and 10–20*

Petitioner contends that Hochtritt discloses and suggests all of the limitations of claim 1. Pet. 60–61. Petitioner relies on the disclosures in Hochtritt and the arguments made with respect to Petitioner's contention that Hochtritt anticipates claim 1, and further argues that a PHOSITA would be motivated to modify Hochtritt's first bisecting fold with a first offset fold. *See id.* Patent Owner does not separately address Petitioner's explanations and supporting evidence as to how the teachings of Hochtritt account for all the limitations of claim 1. PO Resp. 43–51. We have reviewed the evidence and arguments presented in the Petition and find that Petitioner has shown, by a preponderance of the evidence, that Hochtritt teaches or suggests all of

the limitations of claim 1, and we agree with and adopt Petitioner’s analysis. Pet. 34–38, 60–61.

Claims 2, 3, 6, and 10–20 depend, directly or indirectly, from claim 1. Patent Owner does not address separately Petitioner’s explanations and supporting evidence as to how Hochtritt accounts for all the limitations of these dependent claims other than to say that “[t]he patentability of the challenged dependent claims can depend upon the patentability of claim 1.” PO Resp. 51 (citing *In re Fine*, 837 F.2d 1071, 1076 (Fed. Cir. 1988)). We have reviewed Petitioner’s explanation and supporting evidence as to how Hochtritt accounts for all of the limitations of these dependent claims, and we agree with and adopt Petitioner’s analysis. Pet. 38–43, 61–64.

After considering Petitioner’s and Patent Owner’s positions, as well as the supporting evidence, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 1–3, 6, and 10–20 are unpatentable under 35 U.S.C. § 103(a) as obvious over Hochtritt.⁹

⁹ Patent Owner contends that “[t]he Petition fails to identify where claim 6 is disclosed by Hochtritt, which is fatal.” PO Resp. 51 n. 2. We disagree. Although Petitioner did not include claim 6 in the claim chart on page 61 of the Petition, immediately following the chart Petitioner states that “Hochtritt discloses the precise folded dimensions of 4.25” by 6.5”.” Pet. 61–62. Those folded dimensions are the dimensions recited in claim 6 of the ’372 patent. *See* Ex. 1028, 8:22–24. Petitioner also cites to Section VIII(A)(1)(c) of the Petition, in which Petitioner identifies where Hochtritt discloses the limitations of claim 6 in the context of its argument that claim 6 is anticipated by Hochtritt. Pet. 62. Accordingly, we find that the Petition sufficiently establishes that Hochtritt accounts for all of the limitations of claim 6.

3. *Claim 7*

Claim 7 depends from claim 1, and further requires that “each of said absorbent sheets has unfolded dimensions of approximately 8.5” by 11”.” Ex. 1028, 8:25–27. Petitioner contends that “Hochtritt discloses unfolded dimensions of 8.5”x13”, a minor variation from the claimed unfolded dimensions of the ’372 patent, and also states that ‘these dimensions may be varied to suit the particular application.’” Pet. 62 (citing Ex. 1015 ¶ 34; Ex. 1002 ¶ 127). Petitioner further contends that “8.5”x11” is a standard dimension for napkin products and does not cause the napkin to perform differently than a napkin with 8.5”x13” dimensions, but is simply a matter of design choice.” *Id.*

Patent Owner responds that Petitioner’s argument “ignores that while both the claimed sheets and Hochtritt’s sheets have identical folded dimensions, the claimed sheets have significantly smaller unfolded dimensions, thereby performing differently by requiring 15% less paper for the claimed dimensions.” PO Resp. 52. Patent Owner argues that this is a “distinct and advantageous difference” that is “created by the presence of the offset first fold,” and “is a crux of the ’372 patent.” *Id.* (citing Ex. 1028, 6:10–17). According to Patent Owner, “[b]ecause, when folded, the claimed sheets perform differently from Hochtritt’s sheets, particularly due to the presence of the claimed offset fold, the Petition’s obvious ‘matter of design choice’ argument is demonstrably unfounded and fails to demonstrate that Hochtritt renders any of these claims obvious.” *Id.*

We disagree. As set forth above, Petitioner sets forth sufficient evidence that cheater folds (i.e., offset folds) were well-known in the art, and were known to save paper and costs. *See supra* Section G.1. In light of this

evidence, Patent Owner's argument that sheets claimed in the '372 patent perform differently due to paper savings finds no support in this record. Moreover, Hochtritt teaches that the dimensions of the paper napkins described therein "may be varied to suit the particular application in question," which further indicates that the napkin dimensions are a matter of design choice. Ex. 1015 ¶ 34. We also find Petitioner's unrebutted argument that "a PHOSITA would understand that in order to create a sheet with folded dimensions of 4.25" x 6.5" with a first offset fold to reduce paper costs, the unfolded dimensions would necessarily be less than 8.5"x13"" to be persuasive. Pet. Reply 20 (citing Ex. 1002 ¶ 127).

Accordingly, we are persuaded that varying the dimensions of Hochtritt's napkin to arrive at the subject matter of claim 7 represents a design choice. The full record includes insufficient evidence to find that the claimed dimensions present unexpected results, perform differently than the prior art, result in a function different from the prior art, or are not within the ordinary skill in the art.

For these reasons, after considering Petitioner's and Patent Owner's positions, as well as their supporting evidence, we determine that Petitioner has shown by a preponderance of the evidence that claim 7 would have been obvious over Hochtritt.

4. *Claims 8 and 9*

Claim 8 depends from claim 1 and further requires that "each said sheet is folded such that offset portions of said sheet are positioned interiorly of said sheet when folded." Ex. 1028, 8:28–31. Claim 9 also depends from claim 1 and further requires that "each said sheet is folded such that offset portions of said sheet are positioned exteriorly of said sheet when folded."

Id. at 8:32–35. Petitioner argues that “[t]here are only two possible options for the location of ‘offset portions’ in a folded sheet—interiorly or exteriorly,” and it “would have been obvious to a PHOSITA to select one of these two known options to the folded napkins of Hochtritt.” Pet. 62. Patent Owner responds that the Petition “fails to cite to any portion of Hochtritt or any other teaching that would provide factual support” for the assertion “that both of these alternatives were design choices that were ‘well-known.’” PO Resp. 54.

We are persuaded that positioning offset portions of the sheet interiorly or exteriorly of the sheet when folded represents a design choice. Patent Owner does not dispute that positioning the offset portions interiorly or exteriorly of the folded sheet are the only two positioning options. *See* PO Resp. 53–54; Sur-Reply 5–18. Moreover, the full record includes insufficient evidence to find that the positioning of the offset portions provides unexpected results, performs differently than the prior art, results in a function different from the prior art, or is not within the ordinary skill in the art.

For these reasons, after considering Petitioner’s and Patent Owner’s positions, as well as the supporting evidence, we determine that Petitioner has shown by a preponderance of the evidence that claims 8 and 9 of the ’372 patent would have been obvious over Hochtritt.

H. Obviousness over Hochtritt and Grosriez

Petitioner contends that the subject matter of claims 1–20 is unpatentable under 35 U.S.C. § 103(a) as obvious over the combined teachings of Hochtritt and Grosriez. Pet. 66–70; Pet. Reply 22–26.

1. *Reasons to Combine Hochtritt and Grosriez*

Petitioner contends that

[t]o the extent that it could be determined that Hochtritt does not expressly teach offset first folds, it would have been obvious to a PHOSITA to combine the explicitly described offset of Grosriez to the stack of interfolded, absorbent sheets of Hochtritt because (1) both references relate to quarter-folded absorbent sheet products interleaved for economical and efficient dispensing; (2) use of offset first folds was known in the art at the time of the '372 patent as a way to save costs on paper and maintain the same folded dimensions as a napkin with larger unfolded dimensions; and (3) there are only two known options for fold line—bisecting or offset.

Id. at 66 (citing Ex. 1015; Ex. 1021; Ex. 1002 ¶¶ 61–63, 73–74, 96, 113, 117).

In response, Patent Owner argues that “[t]he mere fact that both Hochtritt and Grosriez relate to quarter-folded sheets is insufficient to show obviousness.” PO Resp. 57. Petitioner, however, does not rely only on this similarity between Hochtritt and Grosriez in order to support its obviousness contention. Instead, Petitioner explains that a PHOSITA would be motivated to combine Grosriez’s offset fold with Hochtritt’s folded napkin due to the known cost and paper savings of using an offset fold, and because it is a simple substitution of one known element for another when Hochtritt’s bisecting fold is substituted with an off-set first fold such as that described in Grosriez. Pet. 66–67. In that regard, Petitioner’s argument is similar to the argument it made with respect to its contention that a PHOSITA would have been motivated to modify Hochtritt to include an offset first fold in the context of Petitioner’s argument that claims 1–3 and 6–20 would have been obvious over Hochtritt alone, and Patent Owner reiterates its responsive arguments here. PO Resp. 57–58. Those arguments include that paper and

cost savings would not have motivated a PHOSITA to modify Hochtritt to include a first offset fold, that a first offset fold is not a simple substitution of a first bisecting fold, and that the prior art teaches away from the proposed modification. *Id.* For the reasons set forth above, we find that the preponderance of the evidence demonstrates that offset folds (i.e., cheater folds) were well known in the art and known to save costs, and that it is a simple substitution of one known element for another when Hochtritt's bisecting fold is substituted with an offset first fold. *See supra* Section II.G.1. Patent Owner also does not establish that the prior art teaches away from the proposed modification. *Id.*

Patent Owner further argues that "Grosriez never even suggests, much less 'explicitly teaches' that napkins formed by its 'alternative form of folding' are interleaved." PO Resp. 58. We disagree. For the reasons set forth above, we determined that Grosriez teaches that the supple sheets can be folded such that the transverse dimension of one section differs from the transverse dimension of the other, and that the supple sheets can be intertwined when stacked. *See supra* Section II.F.1.

Accordingly, we determine that Petitioner articulates sufficient reasoning to support the proposed combination of Hochtritt and Grosriez. *See KSR*, 550 U.S. at 398, 417–18.

2. *Claims 1–3 and 6–20*

Petitioner contends that the combined teachings of Hochtritt and Grosriez disclose or suggest all of the limitations of claim 1. Pet. 66–67. Petitioner relies on the disclosures in Hochtritt and the arguments made with respect to Petitioner's contention that claim 1 is obvious over Hochtritt and the disclosures in Grosriez and the arguments made with respect to

Petitioner's contention that Grosriez anticipates claim 1, and further argues that a PHOSITA would have reasons to combine those disclosures. *See id.* Patent Owner does not separately address Petitioner's explanations and supporting evidence as to how the teachings of Hochtritt and Grosriez account for all the limitations of claim 1, other than to argue that a PHOSITA would not be motivated to combine Hochtritt and Grosriez, addressed above. PO Resp. 54–62. We have reviewed the evidence and arguments presented in the Petition and find that Petitioner has shown, by a preponderance of the evidence, that the combined teachings of Hochtritt and Grosriez teach or suggest all of the limitations of claim 1.

Claims 2, 3, and 6–20 depend, directly or indirectly, from claim 1. Patent Owner does not address separately Petitioner's explanations and supporting evidence as to how the combination of Hochtritt and Grosriez accounts for all the limitations of these dependent claims other than to say that “[t]he patentability of the challenged dependent claims can depend upon the patentability of claim 1.” PO Resp. 62 (citing *In re Fine*, 837 F.2d 1071, 1076 (Fed. Cir. 1988)). We have reviewed Petitioner's explanation and supporting evidence as to how the proposed combination accounts for all of the limitations of these dependent claims, and we agree with and adopt Petitioner's analysis. Pet. 33–52, 60–64, 66–68.

After considering Petitioner's and Patent Owner's positions, as well as their supporting evidence, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 1–3 and 6–20 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combined teachings of Hochtritt and Grosriez.

3. *Claims 4 and 5*

Claims 4 and 5 depend from claim 2, and further recite that the first fold is located such that, in claim 4, the second length is at most about three times the first length and at least about 1.1 times the first length, and in claim 5, the second length is at most about twice the first length and at least about 1.3 times the first length. Ex. 1028, 8:14–21. Petitioner argues that Grosriez “specifically discloses that the dimensions of the panels created by the offset first (longitudinal) fold may be ‘at most twice the transverse dimension of the other,’ which is within the ranges recited in claims 4 and 5.” Pet. 69 (quoting Ex. 1021, 2:55–57; citing Ex. 1002 ¶ 126).

Grosriez’s second length of at most twice the first length falls within the “at most about three times the first length and at least about 1.1 times the first length” range of claim 4, and overlaps with the “at most twice the first length and at least about 1.3 times the first length” range of claim 5. In cases involving overlapping ranges, the Federal Circuit and its predecessor court have consistently determined that overlapping ranges establish a *prima facie* case of obviousness. See *In re Peterson*, 315 F.3d at 1330 (citing, for example, *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990) (concluding that a claimed invention was rendered obvious by a prior art reference whose disclosed range (“about 1–5% carbon monoxide”) overlaps the claimed range (more than 5% to about 25% carbon monoxide”)); *In re Geisler*, 116 F.3d 1465, 1469 (Fed. Cir. 1997) (acknowledging that a claimed invention was rendered *prima facie* obvious by a prior art reference whose disclosed range (50–100 Angstroms) “overlaps at its endpoint with” the claimed range (100–600 Angstroms)); *In re Malagari*, 499 F.2d 1297, 1303 (CCPA 1974) (concluding a claimed invention was rendered *prima facie* obvious by a prior

art reference whose disclosed range (0.020–0.035% carbon) overlapped the claimed range (0.030–0.070%).

The presumption of obviousness based on overlapping ranges may be rebutted by showing that the prior art taught away from the claimed invention or that the claimed invention achieves new and unexpected results relative to the prior art. *See Iron Grip Barbell Co., Inc. v. USA Sports, Inc.*, 392 F.3d 1317, 1322 (Fed. Cir. 2004). Patent Owner asserts that Grosriez’s teachings are “limited, at most, to panel length differences of up to two times, which values do not reach the claimed upper limits (i.e., a length different of ‘about three times’).” PO Resp. 62. Patent Owner also asserts that “the claimed ranges achieve unexpected results” because they “recite the *smallest* allowable offset at the lower limits of each range, while Grosriez fails to disclose any lower limits for the offset.” *Id.* at 63. According to Patent Owner, “there must be a lower limit for the size of the offset,” and “there is an unexpected result due to Grosriez’s failure to appreciate the claimed lower limits.” *Id.*

Patent Owner, however, does not point to any persuasive evidence that recognizing that there is a lower limit to the size of the allowable offset provided any unexpected results. Moreover, Patent Owner does not identify where the ’372 patent attaches any significance to the claimed lower limit, or characterizes that claimed lower limit as the smallest allowable offset, as Patent Owner contends.

Patent Owner also argues Dodge teaches away from the proposed combination. PO Resp. 63 (citing *id.* at 49–51 (arguing that substituting and offset fold for Hochtritt’s bisecting fold would not have led to anticipated results)). Patent Owner does not provide any explanation as to how its

argument that Dodge teaches away from substituting a first offset fold for a first bisecting fold teaches away from the ranges recited in claims 4 and 5.

Id.

Accordingly, we find that Patent Owner has not rebutted the presumption of obviousness based on the overlapping ranges disclosed in Grosriez. *See E.I. du Pont de Nemours & Co. v. Synvina C.V.*, 904 F.3d 996, 1006 (Fed. Cir. 2018) (explaining that prior art ranges that overlap with a claimed range create “a presumption of obviousness,” which may be rebutted if the patentee comes forward with evidence showing, *inter alia*, that the prior art teaches away from the claimed invention or that the claimed invention achieves unexpected results).

After considering Petitioner’s and Patent Owner’s positions, as well as their supporting evidence, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 4 and 5 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combined teachings of Hochtritt and Grosriez.

III. PETITIONER’S MOTION TO EXCLUDE

Petitioner moves to exclude the Parnell Declaration, the transcript of the deposition of Dr. Parnell (Ex. 1041), certain paragraphs of the Carlson Declaration and the related portions of the transcript of his deposition (Ex. 1040), and portions of the transcript of the deposition of Mr. Mrvica (Ex. 2006). Paper 37. We do not consider the merits of Petitioner’s Motion to Exclude because our Decision does not rely on the disputed portion of the transcript of Mr. Mrvica, and, as explained above, even if the disputed evidence from Dr. Parnell and Mr. Carlson is considered, Petitioner has shown by a preponderance of the evidence that claims 1–20 are

unpatentable. Accordingly, we dismiss Petitioner's Motion to Exclude as moot.

IV. PATENT OWNER'S MOTION TO EXCLUDE

Patent Owner moves to exclude portions of the transcript of the deposition of Mr. Mrvica, and portions of Petitioner's Reply that rely on Mr. Mrvica's deposition testimony. Paper 35. We do not reach the merits of Patent Owner's motion because our Decision does not rely on the disputed evidence. Accordingly, we dismiss Patent Owner's Motion to Exclude as moot.

V. CONCLUSION

After reviewing the record and weighing the evidence offered by both parties, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1–20 of the '372 patent are unpatentable.

VI. ORDER

In consideration of the foregoing, it is

ORDERED that claims 1–20 of the '372 patent are determined to be *unpatentable*;

FURTHER ORDERED that Petitioner's Motion to Exclude (Paper 37) is *dismissed*;

FURTHER ORDERED that Patent Owner's Motion to Exclude (Paper 35) is *dismissed*; and

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

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