

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CASCADES CANADA ULC,
Petitioner,

v.

ESSITY PROFESSIONAL HYGIENE NORTH AMERICA LLC,¹
Patent Owner.

Case IPR2017-02198
Patent 8,273,443 B2

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

TORNQUIST, *Administrative Patent Judge*.

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

¹ After institution, Patent Owner changed its name from SCA Tissue North America, LLC, the originally named Patent Owner, to Essity Professional Hygiene North America LLC. Paper 10.

I. INTRODUCTION

Cascades Canada ULC (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 1–15 of U.S. Patent No. 8,273,443 B2 (Ex. 1001, “the ’443 patent”). Essity Professional Hygiene North America LLC (“Patent Owner”) filed a Preliminary Response to the Petition. Paper 6. Upon consideration of the Petition, the Preliminary Response, and the parties’ evidence, we determined that Petitioner had demonstrated a reasonable likelihood that it would prevail with respect to claims 1–15 of the ’443 patent. Paper 7, 28–29 (“Dec. on Inst.”). Thus, we instituted review with respect to those claims. We did not, however, institute review on all asserted grounds of unpatentability set forth in the Petition. Dec. on Inst. 5, 28–29.

On April 27, 2018, pursuant to the Supreme Court’s decision in *SAS Institute, Inc. v. Iancu*, 138 S. Ct. 1348, 1355 (2018), we modified the institution decision to institute review of all challenged claims on all challenged grounds. Paper 12, 2.

Following institution of trial, Patent Owner filed a Patent Owner Response² (Paper 17, “PO Resp.”), Petitioner filed a Reply (Paper 26, “Pet. Reply”), and Patent Owner filed a Sur-Reply (Paper 30, “PO Sur-Reply”). Petitioner also filed a motion to exclude evidence (Paper 32, “MTE”). In support of their respective positions, Petitioner relies on the testimony of

² Although Patent Owner’s papers indicate that they were filed by “Essity Hygiene and Health AB,” Patent Owner confirmed at oral argument that Essity Professional Hygiene North America LLC is the owner of the ’443 patent. Paper 39, 3:11–4:7. Thus, we understand the identification of “Essity Hygiene and Health AB” to be a typographical error.

Mate Mrvica (Ex. 1002), and Patent Owner relies on the testimony of Paul Carlson (Ex. 2007) and T. Kim Parnell, Ph.D. (Ex. 2008).

An oral hearing was held on December 14, 2018, and a transcript of the hearing is included in the record (Paper 39, “Tr.”).

A. Related Proceeding

The parties indicate that the ’443 patent is at issue in *SCA Hygiene Products Aktiebolag v. Cascades Canada ULC*, Case No. 3:17-cv-00282-wmc (W.D. Wis.). Pet. 1; Paper 4, 1.

B. The ’443 Patent

The ’443 patent “relates to a stack of interfolded absorbent sheet products,” and preferably “to a stack of interfolded paper napkins bearing a predetermined pattern imparted by embossing or by formation by the Through-Air Drying” technique. Ex. 1001, 1:14–18.

The folded absorbent sheet products of the ’443 patent are “preferably single ply paper napkins having a basis weight from about 10 to 20 lb per unfolded sheet.” *Id.* at 2:1–3. The ’443 patent explains that these paper napkins may be embossed “by conventional embossing rollers” and that the embossing may “take the form of a logo of the restaurant in which the napkins will be used.” *Id.* at 3:54–55, 3:65–4:10.

The ’443 patent contemplates four-panel, six-panel, and eight-panel napkins. *Id.* at 2:27–31. In a four-panel napkin, the sheet has “two folds each bisecting the napkin” that are “perpendicular to one another.” *Id.* at 2:22–24. “[I]n a six panel napkin, the initial sheet comprises one fold in the longitudinal direction of the sheet and two folds in the transverse direction, such that the resulting folded sheet comprises six equally sized panels.” *Id.* at 2:31–35. The eight-panel napkin has a structure similar to

the six-panel napkin, “but with three parallel folds in the transverse direction.” *Id.* at 2:35–36.

Figures 2(a) and 2(b) of the ’443 patent show the interfolding relationship of the six panel napkin embodiment:

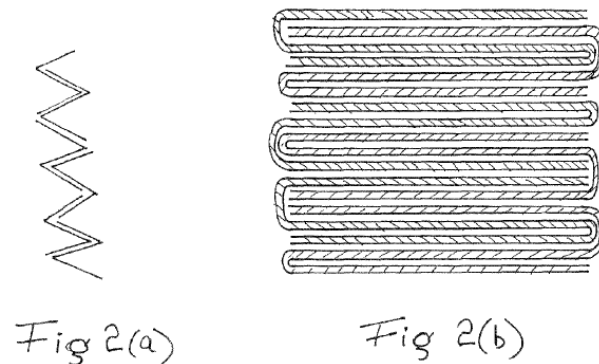


Figure 2(a) is a schematic representation of the interfold configuration of a stack of folded absorbent sheet products. *Id.* at 3:8–10. Figure 2(b) is a schematic cross-sectional view of the napkin stack shown in Figure 2(a). *Id.* at 3:11–12. As shown in Figures 2(a) and 2(b), “the uppermost napkin has its four lower panels sandwiched between two adjacent panels of the next lower napkin in the stack, whose lower four panels are in turn sandwiched between the lowermost two panels of the top napkin, and the uppermost two panels of the third napkin.” *Id.* at 4:50–55.

C. Illustrative Claim

Petitioner challenges claims 1–15 of the ’443 patent. Pet. 7. Claims 1, 5, and 10 are independent. Claim 1 is illustrative of the challenged claims and is reproduced below:

1. A stack of interfolded absorbent sheet products, comprising a plurality of absorbent sheets each bearing an embossed surface relief of a predetermined pattern or design,
wherein each of said absorbent sheets is a rectangular paper napkin,

wherein each of said absorbent sheets is entirely detached from all other absorbent sheets within said stack,

wherein each of said absorbent sheets has one fold along and coextensive with a longitudinal direction and two folds along and coextensive with a transverse direction, said two folds being parallel to one another and perpendicular to said one fold,

wherein each of said napkins comprises at least two panels sandwiched between adjacent panels of another of said paper napkins,

wherein said adjacent panels comprise an upper panel positioned above said at least two panels and a lower panel positioned below said at least two panels, and

wherein each of said napkins within said stack comprises an uppermost panel whose length and width are approximately equal to an overall length and width of each of said napkins, respectively, and a lowermost panel whose length and width are approximately equal to an overall length and width of each of said napkins, respectively.

Ex. 1001, 6:34–57.

D. Instituted Grounds of Unpatentability

We instituted trial to determine whether claims 1–15 of the '443 patent are unpatentable based on the following grounds (Dec. on Inst. 5, 28–29; Paper 12, 2):

References	Basis	Claim(s) Challenged
Teall ³ and ASTM-D4560 ⁴	§ 103	1–15
Teall, ASTM-D4560, and Wheeler ⁵	§ 103	2, 7, and 11

³ US 1,290,801, issued Jan. 7, 1919 (Ex. 1015).

⁴ ASTM-D4560, Standard Specification for Paper Napkins for Industrial and Institutional Use, *American Society for Testing and Materials*, dated December 1992 (Ex. 1018).

⁵ US 1,430,709, issued October 3, 1922 (Ex. 1022).

References	Basis	Claim(s) Challenged
Teall and Heath ⁶	§ 103	1–15
Teall, Heath, and Wheeler	§ 103	2, 7, and 11
Grosriez ⁷ and ASTM-D4560	§ 103	1–15
Grosriez, ASTM-D4560, and Wheeler	§ 103	2, 7, and 11
Winter ⁸ and ASTM-D4560	§ 103	1–15
Winter, ASTM-D4560, and Wheeler	§ 103	2
Winter and Heath	§ 103	1–15
Winter, Heath, and Wheeler	§ 103	2

II. ANALYSIS

A. Claim Construction

In an *inter partes* review, claim terms in an unexpired patent are construed according to their broadest reasonable interpretation in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b) (2017).⁹

Petitioner provides a proposed construction for the term “approximately equal.” Pet. 34–35. Patent Owner provides proposed constructions for the terms “has” or “having,” “approximately equal,” and

⁶ US 6,699,360 B2, issued March 2, 2004 (Ex. 1021).

⁷ US 6,602,575 B2, issued August 5, 2003 (Ex. 1016).

⁸ US 2,050,030, issued August 4, 1936 (Ex. 1017).

⁹ A recent amendment to this rule does not apply here because the Petition was filed before November 13, 2018. *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) (to be codified at 37 C.F.R. pt. 42).

“an embossed surface relief of a predetermined pattern or design.” PO Resp. 11–13. Upon review of the parties’ arguments and the prior art of record, we determine that no claim terms require construction for purposes of this Decision. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”)).

B. Principles of Law

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *See 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) if in the record, objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

C. Level of Ordinary Skill in the Art and Mr. Mrvica’s Testimony

1. The Level of Ordinary Skill in the Art

Petitioner contends a person of ordinary skill in the art at the time of the invention 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.”

Pet. 34 (citing Ex. 1002 ¶ 34). Alternatively, Petitioner contends an ordinary artisan could have “no formal education but at least five years of experience in the design and/or manufacture of folded napkin products.” *Id.*

Patent Owner does not discuss the level of skill in the art in its Patent Owner Response, but Mr. Carlson testifies that “one skilled in the art at the time of the invention . . . 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 alternatively, the equivalent of an associate’s degree and “at least one year of experience in the design and/or manufacture of folded napkin products.” Ex. 2007 ¶ 30.

We agree with the parties that a person of ordinary skill in the art would have had an engineering background and experience in the design and/or manufacture of folded napkin products. Ex. 1002 ¶ 34; Ex. 2007 ¶ 30. This conclusion is both undisputed and supported by the disclosures of the ’443 patent and the prior art references. We need not parse the necessary amount of education or experience that an ordinarily skilled artisan would have possessed, however, as neither party asserts that this determination would have any effect on the arguments or analysis in this case. *See* Ex. 2007 ¶¶ 31 (“However, I do not believe that my opinions would be different even if the level of skill in the art were as offered by Mr. Mrvica.”), 32 n.1 (“Going forward I refer to a ‘POSITA’ as a person of ordinary skill at the time of the invention as defined by either Mr. Mrvica or me.”).

2. Mr. Mrvica’s Testimony

Patent Owner contends Mr. Mrvica’s testimony is entitled to little weight as it was “attorney-authored” and is “replete with conclusory

statements lacking any cited support.” PO Resp. 24 (citing 37 C.F.R. § 42.65(a)).

During his deposition, Mr. Mrvica testified that several paragraphs of his declaration were provided by counsel. *Id.* at 23, 25–26 (citing Ex. 2009, 55:4–59:3, 82:17–85:21, 125:22–126:8). Mr. Mrvica later clarified, however, that his declaration was a joint effort with an individual “who was typing [the declaration] up.” Ex. 2009, 84:17–85:7. Because we do not understand such an approach to be uncommon or problematic, we do not find that this approach renders Mr. Mrvica’s testimony unreliable. Accordingly, we do not disregard Mr. Mrvica’s testimony in view of the manner in which it was prepared.

Patent Owner also asserts that several paragraphs of Mr. Mrvica’s declaration contain conclusory and unsupported assertions that are, in some cases, repeated verbatim in the Petition. PO Resp. 23–24. We agree that conclusory or unsupported assertions of a declarant are entitled to little or no weight. Even if Mr. Mrvica’s 168-paragraph declaration contains some conclusory assertions, however, this is not a reason to disregard the entirety of his declaration. Thus, we decline to disregard Mr. Mrvica’s testimony as a whole, and instead look to the reasoning and support provided by Mr. Mrvica for each paragraph relied upon by Petitioner or specifically contested by Patent Owner.

D. Asserted Prior Art

1. Teall

Teall discloses a machine to fold and interleave paper napkins and towels. Ex. 1015, 1:12–14. Teall explains that, during manufacture, the napkins, which are made of “crepe paper,” are “ordinarily first folded

lengthwise” and then folded “transversely at two different points,” resulting in a napkin that is divided into three equal portions. *Id.* at 1:22–25, 1:40–42, 2:95. After folding, a cutting blade severs the napkins into appropriate lengths. *Id.* at 2:116–122. Each napkin is then advanced by rollers in such a manner that the leading edge of each napkin overtakes a preceding napkin “to the extent of one-third its length,” at which point two “fingers” within the machine tuck this leading edge “within one of the folds of the first napkin.” *Id.* at 1:45–61, 2:122–3:15.

Figure 4 of Teall (shading added by Petitioner) is reproduced below:

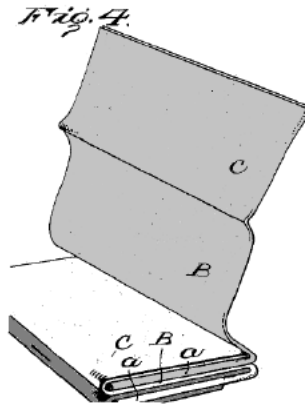


Figure 4 of Teall depicts the napkins in a partly folded position, with the leading edge “a” of each napkin tucked in between leaves B and C of the preceding napkin. *Id.* at 3:1–8, Fig. 4.

2. ASTM-D4560

ASTM-D4560 is titled “Standard Specification for Paper Napkins for Industrial and Institutional Use” and describes the “various sizes and folds of paper napkins for purchasers, such as government agencies, school boards, and industry.” Ex. 1018, 1.1.

Table 1 of ASTM-D4560, reproduced below, provides the standard dimensions for light weight, standard weight, and heavy weight one-ply napkins:

 **D 4560**

TABLE 1 Physical Requirements

Property	Classes					Method
	One-Ply			Two-Ply ^A	Three-Ply ^A	
	Light Weight	Standard Weight	Heavy Weight			
Basis weight, 24 by 36 in. 500 sheets, lb	11.9 or less	12.0 to 13.9	14.0 min	19.0 min	28.5 min	T 410
Grammage, g/m ²	19.4 or less	19.5 to 22.6	22.8 min	30.9 min	46.4 min	
Tensile strength, dry, min						
Machine direction, ozl/in. (N/m)	12 (131)	15 (164)	17 (186)	17 (186)	28 (306)	T 404
Cross direction, ozl/in. (N/m)	4 (44)	5 (55)	7 (77)	5 (55)	8 (88)	T 494
Absorption (0.01 mL water), max s	60	60	60	10	10	T 432

^APhysical tests shall be run on the number of ply indicated.

As set forth in Table 1, one-ply napkins may have a basis weight (in pounds) of 11.9 or less (light weight), between 12.0 and 13.9 (standard weight), and 14.0 or greater (heavy weight). *Id.* at Table 1.

ASTM-D4560 instructs that “[d]ispenser napkins must be folded to a size that will dispense properly from a particular fixture for which they are designed, and the fold should permit the user to remove one napkin at a time from the fixture.” *Id.* at 8.3.1. ASTM-D4560 also instructs that “[n]apkins shall be embossed.” *Id.* at 7.2.

3. Heath

Heath “is directed to a printed, soft, strong-in-use, bulky, single-ply bathroom tissue, facial tissue, and napkin having a low printed sidedness.” Ex. 1021, 3:27–30. Heath explains that single-ply napkins and tissues generally suffer from “the problem of thinness and therefore unprintability, lack of softness, and also ‘sidedness.’” *Id.* at 3:63–65. Heath discloses, however, that printed, soft, strong, and low sidedness tissues or napkins can be prepared by, among other things, providing a web having a basis weight

of at least 12.5 pounds from each 3000 square foot ream, and optionally embossing the one-ply absorbent paper product. *Id.* at 4:54–5:6. According to Heath, embossing improves the aesthetics and softness of one-ply products. *Id.* at 17:55–56 (“Optionally to obtain maximum softness of the one-ply tissue, the web is embossed.”), 17:63–67, 19:36–37 (“This embossing improves the aesthetics of the tissue and the structure of the tissue role.”).

4. Grosriez

Grosriez is directed to a stack of supple and absorbent sheets and, in particular, to a stack of absorbent sheets having a “longitudinal fold line forming a longitudinal border and at least one transverse fold line perpendicular to the longitudinal fold line.” Ex. 1016, 1:8–12, 4:55–60 (explaining that the napkins may have two transverse fold lines, forming C-fold or Z-fold napkins). Grosriez explains that the sheets “consist of at least one ply of supple and absorbent material,” and, when more than one ply is used, “they may be connected together, for example by bonding or any mechanical means of connection.” *Id.* at 4:21–24.

Figures 2 and 3 of Grosriez, reproduced below, depict prior art methods of stacking supple sheets:

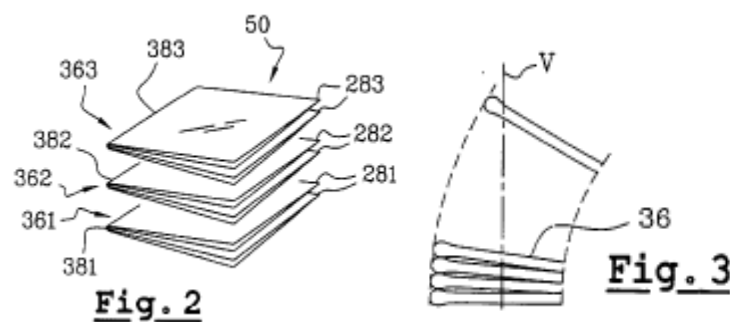


Figure 2 depicts stack 50 having three folded sheets 361, 362, and 363, wherein longitudinal borders 281, 282, and 283 of the sheets are superposed,

as are transverse borders 381, 382, 383. *Id.* at 5:1–4. Figure 3 depicts an unnumbered stack 50 containing “a great many folded sheets 36.” *Id.* at 5:5–6. According to Grosriez, stack 50 in Figure 3 is unbalanced with respect to axis of stacking V—which is roughly vertical—and “[w]hen this imbalance exceeds a limiting value, the stack 50 topples and causes the folded sheets 36 to fall off.” *Id.* at 5:6–10.

To avoid the toppling of the napkin stacks, Grosriez proposes methods for balancing the stacks. *Id.* at 5:11–12. “To do this,” Grosriez instructs that “the longitudinal fold line 22 of an upper sheet of the stack must not be adjacent to the longitudinal fold line 22 of the previous lower sheet.” *Id.* at 5:13–15. Figures 4, 5, and 6, reproduced below, depict three exemplary methods used in Grosriez to balance the stacks.

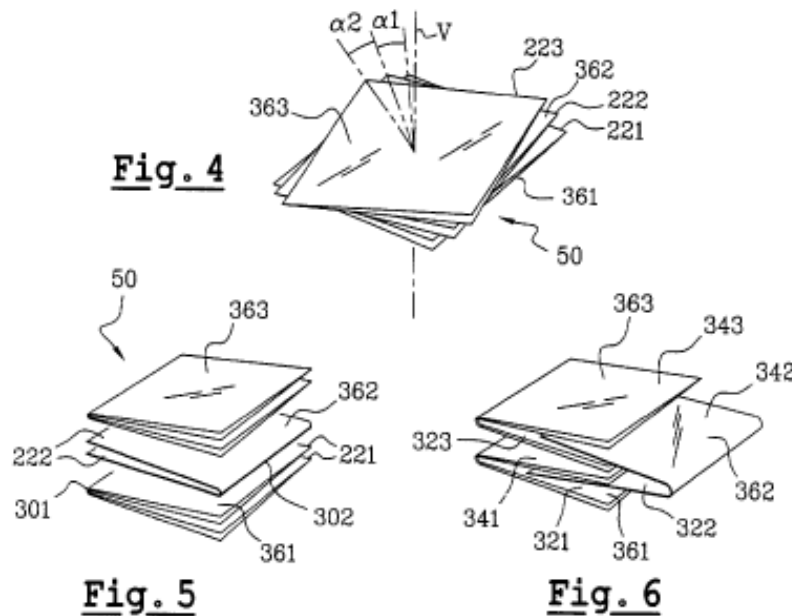


Figure 4 depicts a first exemplary embodiment wherein longitudinal fold line 222 is angularly offset by an angle $\alpha 1$ about vertical axis V with respect to fold line 221 of lower folded sheet 361, and “longitudinal fold line 223 of the upper folded sheet 363 is angularly offset by an angle $\alpha 2$ about the

vertical axis V . . . and so on.” *Id.* at 5:16–25. According to Grosriez, when the sum of the angles is equal to 360 degrees, stack 50 is balanced and runs no risk of toppling. *Id.* at 5:30–32.

Figure 5 shows a second exemplary stacking embodiment wherein longitudinal fold line 222 of intermediate sheet 362 is arranged parallel to and transversely opposite fold line 221 of lower sheet 361, and wherein transverse fold line 302 of the intermediate sheet is parallel to and longitudinally opposite transverse fold 301 of lower sheet 361. *Id.* at 5:39–44. According to Grosriez, this type of stack “is balanced.” *Id.* at 5:44–45.

Figure 6 depicts a third exemplary stacking embodiment, wherein “lower 361 and upper 363 folded sheets are intertwined with the intermediate folded sheet 362.” *Id.* at 5:54–56. According to Grosriez, such stacks of intertwined napkins are “balanced.” *Id.* at 7:17–18 (“This method makes it possible to obtain a stack 50 of folded supple sheets 36 which is balanced.”). Grosriez further explains that this orientation “makes it possible, particularly when the stack 50 is placed in a dispenser, for the lower panel 323 of the upper sheet 363 to carry (by virtue of the 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.

Figure 9(b) of Grosriez is reproduced below:

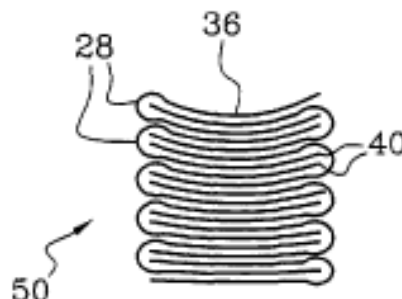


Fig. 9b

Figure 9(b) depicts in cross section the third exemplary embodiment of stack 50 wherein folded sheets 36 are intertwined. *Id.* at 6:22–24. As shown in Figure 9(b), stack 50 is balanced with respect to the vertical axis, but due to the superposition of longitudinal edges 28 and borders 40, top sheet 36 is curved in shape. *Id.* at 6:14–19. Grosriez explains that this curved shape does not “allow the vertical bulk of the stack 50 to be minimized.” *Id.* at 6:20–21.

Figures 13 and 14 of Grosriez are reproduced below:

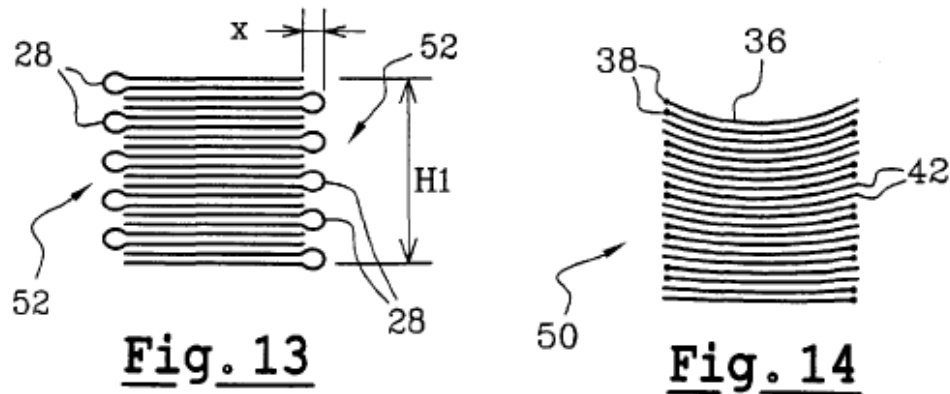


Figure 13 depicts a stack wherein longitudinal borders 28 of the sheets are shifted by a distance “x” towards the outside of the stack. *Id.* at 6:25–30. Figure 14 is a longitudinal section of this stack. *Id.* at 3:63–4:2. As shown in Figure 14, top sheet 36 in the stack is curved in shape, which again does not allow the top sheet to lie flat. *Id.* at 6:31–39.

Figures 17 and 18 of Grosriez depict a stack with sheets that have been shifted in both the “x” and “y” directions:

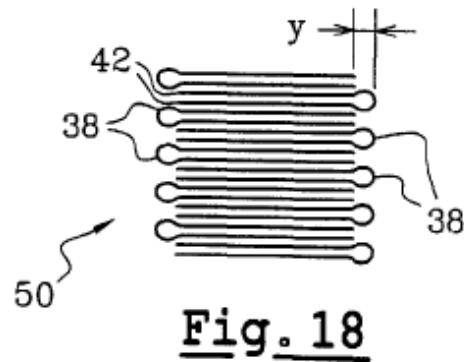
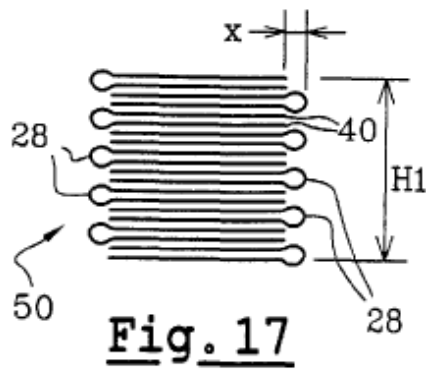


Figure 17 shows longitudinal borders 28 shifted by a distance “x.” *Id.* at 6:25–30, 6:48–51. Figure 18 shows the transverse borders shifted by a distance “y.” *Id.* at 6:41–51. According to Grosriez, in this configuration, longitudinal borders 28 and transverse borders 38 do not cause any excess thickness and, therefore, the height H1 of the stack is minimal. *Id.* at 6:31–51.

Grosriez proposes two methods for forming the stacks of supple sheets “according to the invention.” *Id.* at 6:52–7:21. In the first method, two supple webs, which may consist of several thicknesses of supple material, are folded longitudinally and then transversely to form supple sheets 36. *Id.* at 6:56–7:14. These sheets are then intertwined to obtain a stack that “is balanced.” *Id.* at 7:17–18. In a “variant” method of forming the stacks of the invention, “two successive supple sheets 36 may be longitudinally and/or transversely offset with respect to each other so as to reduce the height of the stack.” *Id.* at 7:19–21.

5. Wheeler

Wheeler discloses an interfolded package in which the sheets are interfolded such that the withdrawal of one sheet will position a portion of the following sheet “so that it may be grasped readily.” Ex. 1022, 1:10–19.

The sheets of Wheeler are “folded twice to form substantially equal leaves two of which are on opposite sides of a substantially equal middle leaf.” *Id.* at 1:99–102. Figures 2 and 4, reproduced below, depict interfolding embodiments of Wheeler:

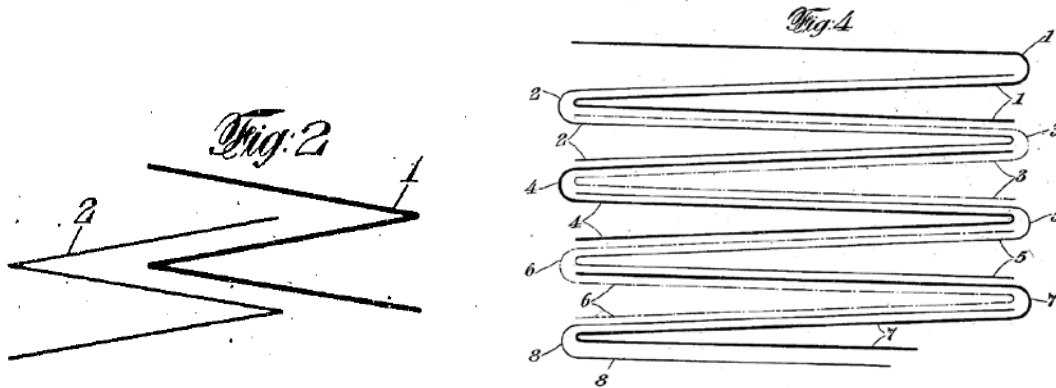


Figure 2 is an edge view of two similarly folded sheets and Figure 4 is an enlarged view of a series of interfolded sheets. *Id.* at 1:45–47, 1:57–60. As shown in Figures 2 and 4, the interleaved sheets of Wheeler may be oriented oppositely of each proceeding and succeeding sheet, with the middle and lower leaves of the first sheet lying between the upper and middle leaves of the following sheet. *Id.* at 2:8–10, 2:25–31.

E. Claims 1–15 over Teall and Heath and Claims 2, 7, and 11 over Teall, Heath, and Wheeler

Petitioner contends the subject matter of claims 1–15 would have been obvious over the combined teachings of Teall and Heath, and the subject matter of claims 2, 7, and 11 would have further been obvious over the combined teachings of Teall, Heath, and Wheeler. Pet. 50–53.

1. Claim 1

With respect to independent claim 1, Petitioner persuasively identifies where Teall discloses (1) a stack of interfolded, absorbent, rectangular paper napkins (Pet. 19–20, 40–41 (citing Ex. 1015, 1:12–20, Fig. 4)); (2) napkins

that are entirely detached from all other napkins in the stack (*id.* at 20, 41 (citing Ex. 1015, 2:116–119)); (3) napkins having two parallel transverse folds that are coextensive with a transverse direction and perpendicular to a longitudinal fold that is coextensive with a longitudinal direction (*id.* at 20, 41 (citing Ex. 1015, 1:20–25, 1:28–45, 2:99–116)); (4) napkins having at least two panels sandwiched between adjacent panels of another napkin (*id.* at 20–21, 41–42 (citing Ex. 1015, 1:55–61, 3:12–15, Fig. 4)); and (5) napkins having upper and lower panels that “are approximately equal to an overall length and width” of each napkin in the stack (*id.* at 21–22, 42–43 (citing Ex. 1015, 1:36–42, 2:9–12, 2:99–106, Figs. 1 and 4)).

Petitioner concedes that Teall does not disclose embossing its napkins, but contends that one of ordinary skill in the art would have sought to emboss Teall’s napkins to achieve the known benefits of embossing, such as improved softness and the ability to provide an economical product. Pet. 37 (citing Ex. 1021, 3:64–65; Ex. 1024, 7; Ex. 1002 ¶ 119; Ex. 1023; Ex. 1038); Pet. Reply 10–12 (citing *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.”)). According to Petitioner, embossing of single-ply napkins was well known in the art, as confirmed by Heath, and the benefits of embossing, such as improved aesthetics and softness, were so well known that the ASTM-D4560 industry standard does not just suggest embossing, but mandates it. Pet. 37, 50 (citing Ex. 1021, [57], 3:26–28, 5:3–4;

Ex. 1018, 7.2); Pet. Reply 11 (citing Ex. 1041, 13:14–14:15, 23:8–24:17, 91:3–7, 95:7–101:6, 103:11–104:8, 126:17–128:5, 147:15–148:9; Ex. 1002 ¶¶ 115, 119, 120; Ex. 2009, 109:18–110:6, 141:18–21).

The evidence of record confirms Petitioner’s assertion that, prior to the earliest possible priority date of the ’443 patent, embossing was well known in the art and understood to improve the physical and aesthetic qualities of napkins. Pet. 32, 36–37; Ex. 1002 ¶¶ 103, 115, 118–120. For example, Heath discloses that embossing “improves the aesthetics” and “structure” of single-ply products and allows for maximum softness. Ex. 1021, 3:26–29, 5:2–4, 17:55–56, 19:36–37 (“This embossing improves the aesthetics of the tissue and the structure of the tissue role.”). Likewise, Mr. Mrvica testified that it was understood in the art that embossing would increase softness and bulk of absorbent sheet products (Ex. 1002 ¶ 119), and Mr. Carlson testified that “[t]he main reasons for embossing napkins are for aesthetics and to make the napkin feel softer” (Ex. 2007 ¶ 35). Indeed, Mr. Carlson testified on cross examination that traditional dispenser napkins¹⁰ had “been embossed through [his] whole career.”¹¹ Ex. 1041, 14:1–15:18, 98:2–101:6; *see also* Ex. 2007 ¶ 47 (“Most napkins are typically embossed, unless the substrate used already has a textured surface, such as a TAD or ATMOS material.”).

Given that embossing was well known in the art and understood to improve the physical and aesthetic qualities of napkins, we find Petitioner

¹⁰ Mr. Carlson clarified that “traditional dispenser napkins” were not interleaved. Ex. 1041, 14:16–15:2.

¹¹ Mr. Carlson testifies that he began working with folded napkin products in 1984. Ex. 2007 ¶ 8.

has presented a persuasive, factually supported explanation as to why one of ordinary skill in the art would have sought to combine the identified elements of Teall and Heath.¹² See *KSR*, 550 U.S. at 418.

Patent Owner contends the grounds based on Teall and Heath should be denied because “Heath was considered and applied during prosecution, and the USPTO Examiner expressly recognized the patentability of the claims over Heath.” PO Resp. 36–37 (citing Ex. 2011, 2;¹³ 35 U.S.C. § 325(d)). We are not persuaded by this argument. First, Patent Owner provides no analysis of the prosecution history to explain what arguments were before the Examiner, or any analysis as to why the Examiner ultimately allowed the claims. Bald conclusory assertions regarding the prosecution history of a patent are insufficient to show that a petition should be denied under 35 U.S.C. § 325(d).

Second, upon an independent review of the prosecution history broadly cited by Patent Owner, it appears that the Examiner allowed the pending claims “for the reasons set forth by applicant on page 8, paragraph 1

¹² In its Sur-Reply, Patent Owner contends Mr. Carlson testified that interfolding napkins was not common and that embossing does not necessarily impart any benefits, including softness. PO Sur-Reply 21–22 (citing Ex. 1041, 14:19–22, 15:19–16:4, 93:18–22, 113:6–7, 115:1–5). Whether interfolding dispenser napkins was common is not relevant because Teall discloses interfolding napkins in a stack. Ex. 1015, Fig. 4. Moreover, Mr. Carlson conceded during cross-examination that embossing improves the aesthetics and hand feel of napkins. Ex. 1041, 109:9–113:14 (testifying that embossing is used to improve aesthetics and “hand feel”).

¹³ Patent Owner’s original citation is to Exhibit 2010, which is the curriculum vitae of Dr. Parnell. We understand this to be a typographical error, and presume that Patent Owner intended to cite to Exhibit 2011, which is the Notice of Allowance for the ’443 patent.

through page 10, third full paragraph of the response filed July 10, 2012.”

Ex. 2011, 2. Those identified arguments are directed to the failure of a reference (Koyama) to disclose “an uppermost panel whose length and width are approximately equal to an overall length and width of each of the napkins, respectively.” Ex. 3001, 8–10. We are directed to no portion of the prosecution history in which the Examiner concluded that embossing of napkins would not have been obvious in view of Heath. Thus, we are not persuaded that the Examiner “expressly recognized the patentability of the claims over Heath,” as asserted by Patent Owner. PO Resp. 36.

In support of Petitioner’s reasons to combine Teall and Heath,
Mr. Mrvica testifies:

I have been told that during prosecution of the ‘443 patent the Examiner noted that it would be obvious to one of skill in the art to utilize the single-ply embossing of Heath and apply it to interleaved stacks of absorbent sheets to increase softness and bulk and I agree.

Ex. 1002 ¶ 119. Patent Owner contends Mr. Mrvica’s testimony is not persuasive because it relies on the reasoning of the Examiner during prosecution, yet the Examiner ultimately found the claims patentably distinguishable over Heath. PO Resp. 38 (citing Ex. 2011, 2).

We are not persuaded by Patent Owner’s argument. First, as noted above, we are not persuaded that the Examiner ever found the challenged claims “patentably distinguishable over Heath.” Second, the reasoning of the Examiner that Mr. Mrvica discussed and adopted in paragraph 119 (quoted above) is directly supported by the evidence of record, including the express disclosures of Heath. Pet. 37; Ex. 1002 ¶¶ 118–119 (citing Ex. 1021, 3:63–65) (“One-ply bathroom tissue, facial tissue and napkin, generally suffers from the problem of thinness and therefore unprintability,

lack of softness, and also ‘sidedness.’”)); Ex. 1021, 17:55–56 (“Optionally to obtain maximum softness of the one-ply tissue, the web is embossed.”), 17:63–18:3, 19:4–7, 19:36–41. Indeed, Mr. Carlson testifies that the “main reason” that napkins are embossed is “to make the napkin feel softer.” Ex. 2007 ¶¶ 35, 47; Ex. 1041, 13:9–14:15 (Mr. Carlson testifying that since the start of his career “[e]mbossing was common”).

Patent Owner further contends that one of ordinary skill in the art would not have sought to emboss the interfolded napkins of Teall in view of the disclosure of Grosriez. PO Resp. 43–44. According to Patent Owner, “Grosriez teaches that napkins exhibiting high thickness or bulk produce uneven and unbalanced (i.e., having an uneven weight distribution) stacks that are problematic and lead to undesirable toppling of the stack and jamming of dispensers in which the stack is deployed.” PO Resp. 43 (citing Ex. 1016, 1:54–2:8; Ex. 2007 ¶¶ 88–91; Ex. 2008 ¶¶ 78–86).

The relevant disclosure of Grosriez relied upon by Patent Owner states:

To make storage easier and to reduce the amount of handling of the sheets, the stacks contain a high number of sheets. Now, such stacks are not symmetric with respect to their main axis of stacking and specifically are not geometrically symmetric *because the thicknesses of the longitudinal and transverse folds of a sheet are greater than the thickness that corresponds to the superposition of the panels of the folded sheet*, which leads to a lessening of the distribution of their mass with respect to the axis of stacking because the folded borders contain more material and are heavier than the free edges of the folded sheets.

The result of the dissymmetry of the stack is to unbalance the stack and, in some cases, to cause it to topple when it is placed vertically on a horizontal surface.

In addition, the sheet located at the top of the stack is not flat because the superposition of the folded borders causes its borders to be "raised" by comparison with the unfolded edges. This does not allow the longitudinal bulk of the stack to be minimized and may disrupt the operation of the supple sheet dispenser when such a dispenser is used.

The dissymmetry of the stack may also jam the dispenser in which it may be placed.

This is because when the upper sheet of the stack is pressed against the end of the dispenser which has the opening, the lower sheet is not perpendicular to the longitudinal axis, the thrusting forces applied by the elastic means then not being distributed uniformly over the lower sheet, which encourages malfunctioning and in particular encourages the pusher to jam or causes the lower sheet of the stack to become crumpled.

Ex. 1016, 1:54–2:16 (emphasis added). Contrary to Patent Owner's arguments, this disclosure does not indicate that thickness or bulk of the sheets creates an imbalance. It is, instead, the *relative thickness* of the transverse and longitudinal folds as compared to the free edges of the folded sheets that causes the unbalanced stacks of Grosriez. *Id.* at 1:56–61. This concept is shown in Figure 3 of Grosriez, where the stacking of sheets with superposed transverse and longitudinal folds leads to an imbalance with respect to the axis of stacking "V."¹⁴ *Id.* at Fig. 3. Thus, we find there is insufficient credible evidence to support Patent Owner's argument that Grosriez teaches that bulk is the cause of unbalanced stacks of napkins and should be avoided.

¹⁴ Further cutting against Patent Owner's argument, Grosriez indicates that the sheets may consist of multiple plies, which would tend to increase the bulk of the napkins. Ex. 1016, 4:21–24; *see also* Ex. 1018, Table 1 (indicating that two-ply and three-ply napkins have a higher basis weight than single ply napkins).

Patent Owner further argues that, “[u]pon reading Grosriez in its entirety, a [person of ordinary skill in the art] would understand that Grosriez teaches its ‘invention’ addresses and overcomes” the problematic characteristics of increased bulk “by ensuring that the sheets are stacked *without interfolding* or with the longitudinal borders of adjacent sheets offset from one another toward the outset of the stack.” PO Resp. 44 (citing Ex. 1016, 2:17–26, 6:25–51;¹⁵ Ex. 2007 ¶ 89; Ex. 2008 ¶¶ 79, 85–86). This argument is not supported by the disclosures of Grosriez, which teach that the intertwining of individual sheets produces a stack that “is balanced,” and which clearly identify interfolded stacks with non-minimized heights as part of the “invention.” Pet. Reply 13 (noting that interleaving is the solution to the unbalanced stacking problems identified in Grosriez); Ex. 1016, 5:11–6:24, 6:52–7:18. Indeed, it is only in a “variant” method of stacking that Grosriez’s sheets are not intertwined, but instead offset in one or both of the “x” and “y” directions to minimize the height of the resulting stack. *Id.* at 7:19–21; *see also id.* at 6:42–51 (disclosing that offsetting both transversely and longitudinally will minimize the height of the stack). Thus, we do not find Patent Owner’s argument persuasive.

Although not discussed by Patent Owner, Grosriez does suggest that a stack having a longitudinal bulk that is not minimized “may” disrupt the operation of a dispenser, if one is used. Ex. 1016, 2:1–6. In view of Grosriez’s identification of non-minimized, interfolded stacks as part of its “invention,” and its discussion of using these interfolded stacks in a

¹⁵ Patent Owner’s original citation is to Exhibit 1021, which is Heath. We understand this to be a typographical error, and presume Patent Owner intended to cite to Ex. 1016, which is Grosriez.

dispenser, however, it is not evident why this disclosure would counsel against embossing the napkins of Teall. *See id.* at 5:45–65 (discussing the use stacks of intertwined sheets in a dispenser). Moreover, neither Teall, Heath, nor the claims of the '443 patent require the use of a dispenser with an elastic means providing a thrusting force (the alleged cause of dispenser problems in Grosriez), and Mr. Carlson conceded on cross-examination that the emboss pattern applied to the napkin need not be extensive and could only slightly increase the bulk of the napkin. *See id.* at 2:9–16; Ex. 1001, 5:24–26 (“[C]onsequently, the accompanying claims that are directed to the absorbent sheet product stack do not require the presence of a dispenser”); Pet. Reply 13 (citing Ex. 1041, 104:18–106:20, 125:17–126:11).¹⁶ Thus, it is not evident from Patent Owner’s arguments why Grosriez’s specific concern with dispenser jamming due to non-minimized stacks is relevant to the proposed combination of Teall and Heath, or why this teaching would have counseled against embossing Teall’s interleaved napkins.

In view of the foregoing, we find that Patent Owner’s arguments and Mr. Carlson’s and Dr. Parnell’s supporting testimony regarding Grosriez’s teachings are not credible or supported by the express disclosures of the reference. As such, there is insufficient argument or credible evidence to

¹⁶ During cross-examination, Mr. Carlson testified that interleaving does not eliminate all the stacking problems discussed in Grosriez. PO Sur-Reply 24 (citing Ex. 1041, 118:17–18, 201:3–5). Mr. Carlson does not explain what these remaining stacking issues are, however, and to the extent Mr. Carlson is referring to non-minimized heights, he does not explain why this would counsel against embossing Teall’s interleaved napkins, which do not expressly use a dispenser utilizing a thrusting force.

find that Grosriez would have counseled against embossing interleaved napkins.

For the reasons discussed above, we find that Petitioner has persuasively demonstrated that Teall and Heath disclose every limitation of claim 1. Petitioner also provides a persuasive explanation, supported by credible evidence, as to why one of ordinary skill in the art would have sought to apply embossing to Teall's interfolded napkins. Accordingly, Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 1 would have been obvious over the combined disclosures of Teall and Heath.

2. Independent Claims 5 and 10

Independent claim 5 is similar to claim 1, but differs in that claim 5 only requires "a rectangular napkin having six panels," and not any particular type or direction of folds. Ex. 1001, 7:6–7. Independent claim 10 contains the same modifications as claim 5, but also specifies that the sheets have a basis weight of from about 10 to 20 lbs. *Id.* at 8:21–22.

With respect to claim 5, Petitioner contends that Teall discloses napkins having one longitudinal fold line and two transverse fold lines, which would necessarily result in a six-panel, rectangular napkin. Pet. 46, 50. With respect to claim 10, Petitioner contends Heath's basis weight range (12.5 to 25 lbs) substantially overlaps with the claimed range of 10 to 20 lbs. *Id.* at 38, 51. Petitioner further contends that one of ordinary skill in the art would have sought to use the basis weights of Heath for the napkins of Teall in order to provide a desired level of absorbency, and contends this would involve a simple substitution of one known element for another to yield a

predictable result. *Id.* at 38, 51 (citing Ex. 1021, 21:14–15; Ex. 1023, 3; Ex. 1024, 5).

Patent Owner does not address Petitioner’s arguments with respect to independent claims 5 and 10.

With respect to claim 5, Petitioner persuasively demonstrates that the napkins of Teall are rectangular and have six panels. Pet. 46 (citing Ex. 1015, 1:20–25, Fig. 4), 50. Thus, Petitioner has shown by a preponderance of the evidence that the subject matter of claim 5 would have been obvious over the combined disclosures of Teall and Heath.

With respect to claim 10, because the 12.5 to 25 lbs basis weight range of Heath substantially overlaps the 10 to 20 lbs range recited in claim 10, and because Patent Owner provides no evidence to rebut the presumption of obviousness created by this overlap, Petitioner has shown by a preponderance of the evidence that the subject matter of claim 10 would have been obvious over the combined disclosures of Teall and Heath. *See E.I. DuPont de Nemours & Co. v. Synvina C.V.*, 904 F.3d 996, 1006 (Fed. Cir. 2018) (noting that an overlap between the ranges of the prior art and the claimed composition “creates a presumption of obviousness”).

3. Dependent Claims 2, 7, and 11

Dependent claims 2, 7, and 11 require that each napkin in the stack be “oriented oppositely from each preceding and succeeding napkin within said stack.” Ex. 1001, 6:58–61, 7:31–34, 8:23–26. Petitioner contends orienting napkins oppositely in a stack has been known for 100 years, as demonstrated by Wheeler, and there are only two possible orientations for Z-folded napkins, namely, oriented in the same direction or in the opposite direction. Pet. 38 (citing Ex. 1001 ¶¶ 124–125), 47–48, 51; Pet. Reply 15. Petitioner

further contends that for some types of six-panel napkins, such as C-folded napkins, the napkins can only be interleaved oppositely from each preceding and succeeding napkin in the stack, and one of ordinary skill in the art would have found it obvious to use either of these two interleaving orientations in Teall as they achieve the same predictable result. Pet. 38–39 (citing Ex. 1002 ¶¶ 54, 125); Pet. Reply 15–16.

Patent Owner does not dispute that interleaving napkins in the same or opposite orientations, as disclosed in Wheeler, was well known in the art. Nor does Patent Owner dispute that either orientation would provide the same predictable result. Instead, Patent Owner, citing the non-precedential decision in *Stryker Corp. v. Karl Storz Endoscopy America, Inc.*, IPR2015-00764, slip op. at 13 (PTAB Sept. 2, 2015) (Paper 13), argues that oppositely orienting the napkins of Teall and Heath cannot be obvious because the orientation utilized in Teall already achieves the allegedly predictable result. PO Resp. 54.

The Supreme Court in *KSR* instructed that “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR*, 550 U.S. at 416. *Stryker* does not suggest otherwise. Instead, the cited portion of *Stryker* stands for the proposition that a petitioner must explain why one of ordinary skill in the art would *add* an element to a system in order to perform a function that is already being performed by another element in that system. *See Stryker*, IPR2015-00764, slip op. at 13. Here, Petitioner does not suggest that one of ordinary skill in the art would have sought to interleave the napkins of Teall in the same and opposite orientations at the same time,

but instead that one of ordinary skill in the art would have found it obvious to use either approach. Thus, Patent Owner's argument is not persuasive.

Patent Owner also argues that Petitioner's simple substitution argument fails to consider that "switching the interleaving orientation of napkins requires reconfiguring the converting machinery and re-positioning the former, and could further require total replacement of the former with a reverse former." PO Resp. 55 (citing Ex. 2007 ¶ 94). Contrary to Patent Owner's argument, Petitioner is not arguing that one of ordinary skill in the art would have alternatively switched a particular production plant from producing stacks of napkins interleaved in the same direction to stacks of napkins interleaved in opposite directions. Petitioner contends, instead, that one of ordinary skill in the art would have found it obvious to produce stacks of interleaved napkins that are oriented in the same or opposite directions. Pet. 39, 52–53. Thus, Patent Owner's arguments regarding the cost or difficulty of reconfiguring a production plant are not persuasive.

Patent Owner also argues that oppositely orienting the Z-folded sheets of Teall "would further exacerbate the problem confronted by Grosriez—asymmetrical and unbalanced (i.e., having an uneven weight distribution) stacking of the folded napkins due to the uneven sandwiching of panels." PO Resp. 55 (citing Ex. 2007 ¶ 94; Ex. 2008 ¶¶ 92–94). As support for this position, Patent Owner relies on paragraph 94 of Mr. Carlson's testimony and paragraphs 92 through 94 of Dr. Parnell's testimony. *Id.* This testimony, however, does not support Patent Owner's arguments, as neither Mr. Carlson nor Dr. Parnell discusses balancing of oppositely oriented napkins, much less explains how such a method of stacking would result in uneven sandwiching of panels. *See* Ex. 2007 ¶ 94; Ex. 2008 ¶¶ 92–94; *see*

also Ex. 1022, 1:106–110 (Wheeler disclosing that “[w]hen the sheets then are interfolded, the package will occupy much less space than the full size of the sheet, and the sheets will stack evenly and form an even package”).

Thus, we do not find Patent Owner’s argument persuasive.

Patent Owner also argues that Wheeler’s products do not have a longitudinal fold, and Petitioner does not explain why one of ordinary skill in the art would have looked to this reference in view of its use of “fundamentally different” sheets from those of Teall. PO Resp. 56. Patent Owner does not adequately explain, however, why the lack of a longitudinal fold would render Wheeler’s interleaving disclosures inapplicable to Teall’s sheets, or why one of ordinary skill in the art would have ignored Wheeler’s general teaching that sheet products can be interleaved in the same or opposite orientations in view of the lack of a longitudinal fold.

Here, Wheeler demonstrates that interleaving napkins in the same or opposite orientations was known in the art, and Petitioner persuasively demonstrates that oppositely orienting the napkins of Teall would have provided a known, predictable result. Thus, Petitioner has demonstrated by a preponderance of the evidence that the subject matter of dependent claims 2, 7, and 11 would have been obvious over the combined disclosures of Teall, Heath, and Wheeler.

4. Dependent Claims 3, 8, and 12

Dependent claims 3, 8, and 12 require that each of the absorbent sheets is a single-ply paper napkin. Ex. 1001, 6:62–64, 7:35–37, 8:27–29. Petitioner contends Teall’s use of a single “web of paper” implies that it produces single-ply napkins. Pet. 48 (citing Ex. 1015, 2:95–96; Ex. 1002 ¶ 160). And to the extent it is unclear what type of napkin is used in Teall,

Petitioner contends it would have been obvious to use the most common type of napkins used outside the home, i.e., single-ply napkins, in Teall, because single-ply napkins would provide a predictable result “relating to bulk, absorbency, and cost.” *Id.* at 37 (citing Ex. 1002 ¶ 121 (asserting that single-ply napkins were the most commonly used type of napkin in the “Away-From-Home market”)), 48, 51.

Patent Owner does not directly address Petitioner’s assertions with respect to the subject matter of claims 3, 8, and 12.

Upon review of the record as a whole, we are persuaded by Petitioner’s argument that the use of a single web of paper in Teall indicates that the napkins are single-ply. Pet. 48. Moreover, to the extent it was unclear how many plies were used in Teall, we find persuasive Petitioner’s argument that one of ordinary skill in the art would have found it obvious to use the most common type of napkin in the art, i.e., a single-ply napkin, in Teall. *Id.* at 37–38, 48. Accordingly, Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claims 3, 8, and 12 would have been obvious over the combined disclosures of Teall and Heath.

5. Dependent Claims 4, 9, and 13–15

Dependent claims 4 and 9 require that the absorbent sheets have a basis weight “from about 10 to 20 lb.” Ex. 1001, 6:65–67, 7:38–40. Claim 13 requires that the basis weight is “from about 11 to about 17 lb,” claim 14 requires that the basis weight is “from about 12 to about 15 lb,” and claim 15 requires that the basis weight is “about 13 lb.” *Id.* at 8:30–38.

Heath discloses a basis weight range of from about 12.5 to about 25 lbs, and preferably from 17 to about 20 lbs. Pet. 52 (citing Ex. 1021, 21:13–16). Because the basis weight ranges disclosed in Heath substantially

overlap or fully encompass the ranges recited in claims 4, 9, and 13–15, Petitioner contends these ranges are presumptively obvious. *Id.* at 38. Patent Owner does not address Petitioner’s arguments with respect to claims 4, 9, and 13–15.

Because the basis weight range of Heath fully encompasses or overlaps the ranges recited in claims 4, 9, and 13–15, *see E.I. DuPont*, 904 F.3d at 1006, and because Patent Owner does not provide any persuasive reason as to why the claimed basis weight ranges would not have been obvious in view of the basis weight ranges of Heath, we determine that Petitioner has shown by a preponderance of the evidence that the subject matter of claims 4, 9, and 13–15 would have been obvious over the combined disclosures of Teall and Heath.

6. Dependent Claim 6

Claim 6 depends from claim 5 and further requires that each of said absorbent sheets has one fold along and coextensive with a longitudinal direction and two folds along and coextensive with a transverse direction, with the two transverse folds parallel to each other and perpendicular to the longitudinal fold. Ex. 1001, 7:23–29.

Teall expressly discloses napkins having the fold configuration recited in claim 6. Pet. 41, 49, 52; Ex. 1015, 1:20–45, 2:99–116, Fig. 4. Accordingly, Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 6 would have been obvious in view of the combined disclosures of Teall and Heath.

7. Conclusion with Respect to the Combinations of Teall and Heath as well as Teall, Heath, and Wheeler

For the reasons discussed above, we determine that Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claims 1, 3–6, 8–10, and 12–15 would have been obvious over the combined disclosures of Teall and Heath, and that the subject matter of claims 2, 7, and 11 would have been obvious in view of the combined disclosures of Teall, Heath, and Wheeler.

F. Claims 1–15 over Teall and ASTM-D4560 and Claims 2, 7, and 11 over Teall, ASTM-D4560, and Wheeler

Petitioner contends the subject matter of claims 1–15 would have been obvious over the combined teachings of Teall and ASTM-D4560, and that the subject matter of claims 2, 7, and 11 would have further been obvious over the combined teachings of Teall, ASTM-D4560, and Wheeler. Pet. 40–50.

1. Prior Art Status of ASTM-D4560

As a preliminary matter, we must resolve whether ASTM-D4560 is a prior art reference with respect to the '443 patent. ASTM-D4560 indicates that it was “Published December 1992,” was “reprinted from the Annual Book of ASTM Standards,” and was intended for use by “purchasers, such as government agencies, school boards, and industry.” Ex. 1018, 1 n.1, 1.1. Mr. Mrvica provides uncontroverted testimony that ASTM is a globally recognized leader in the development and delivery of voluntary consensus standards, and Petitioner presents evidence that ASTM-D4560 was ultimately withdrawn as redundant in view of the accreditation of two other standard developers in the industry. Ex. 1002 ¶¶ 92–93 (citing Ex. 1020, 1); Ex. 1019, 3.

Petitioner contends ASTM-D4560 is prior art to the '443 patent under 35 U.S.C. § 102(b) as it was published more than one year prior to the earliest effective filing date of the '443 patent. Pet. 30; Pet. Reply 2–6 (asserting that it is evident that ASTM-D4560 was publically available because the document states that it was published December 1992 and the entire purpose of the ASTM standard was to provide the relevant public with standardized specifications for napkins). Patent Owner contends Petitioner has not established through credible evidence that ASTM-D4560 is a printed publication because the assertion in ASTM-D4560 that it was published December 1992 is hearsay and, in any event, does not show that the standard was actually publicly available on that date. PO Resp. 19–23.

In its Reply, Petitioner contends that Patent Owner's hearsay arguments are improper because Patent Owner did not file evidentiary objections or a motion to exclude the contents of ASTM-D4560, as required under 37 C.F.R. § 42.64(b)(1). Pet. Reply 6 n.1; Paper 18, 3. Petitioner further contends the publication date recited in ASTM-D4560 falls under an exception to the hearsay rule. Pet. Reply 4–6.

In its Sur-Reply, Patent Owner contends that evidence of public accessibility typically requires evidence of how the reference sought to be used was “catalogued or indexed or searchable,” and that Patent Owner did not need to challenge the admissibility of ASTM-D4560 because the sufficiency of Petitioner's evidence is to be argued in the briefs and not in a motion to exclude. PO Sur-Reply 2 (citing *Chicago Mercantile Exch., Inc. v. 5th Mkt., Inc.*, CBM2014-00114, slip op. at 52 (PTAB Aug. 18, 2015) (Paper 35)).

As noted by Patent Owner, the sufficiency of the evidence to show that a prior art reference is a printed publication is to be argued in the substantive briefs. *See Chicago Mercantile Exch., Inc. v. 5th Mkt., Inc.*, CBM2014-00114, slip op. at 52 (PTAB Aug. 18, 2015) (Paper 35). To the extent a party asserts that the evidence relied upon to establish public availability contains inadmissible hearsay, however, the opposing party must file an objection and a subsequent motion to exclude if it wishes the Board to not consider this evidence at trial. *See id.* at 52–53 (addressing motions to exclude evidence that were directed to the underlying factual determinations used in the printed publication analysis). Patent Owner did not file a motion to exclude the disclosures of ASTM-D4560 as hearsay. PO Sur-Reply 9 (noting that Patent Owner is not moving to exclude Petitioner’s evidence). Thus, we decline to exclude these disclosures.¹⁷

Our reviewing court has explained that “even relatively obscure documents qualify as prior art” under §102(b), “so long as the relevant public has a means of accessing them.” *GoPro, Inc. v. Contour IP Holding LLC*, 898 F. 3d 1170, 1174 (Fed. Cir. 2018). When considered as a whole, the evidence demonstrating that ASTM-D4560 is an industry standard that was intended for public distribution and use, was published in 1992, was contained in an annual book of ASTM standards, and was ultimately withdrawn, is sufficient to demonstrate by a preponderance of the evidence

¹⁷ Even if Patent Owner had filed a proper motion to exclude, we are not persuaded that the disclosures of ASTM-D4560 constitute inadmissible hearsay. Petitioner asserts (Pet. Reply 2), and the reference indicates (Ex. 1018, 1 n.1), that the reference was published in 1992, and Federal Rule of Evidence 803(16) excludes from hearsay assertions made in ancient documents, i.e., those prepared before January 1, 1998.

that ASTM-D4560 was published in 1992 and accessible to the relevant public. Thus, we determine that ASTM-D4560 is prior art to the '443 patent under 35 U.S.C. § 102(b).¹⁸ See *Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1348 (Fed. Cir. 2016) (“A reference will be considered publicly accessible if it was ‘disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art exercising reasonable diligence, can locate it.’”) (quoting *Kyocera Wireless Corp. v. Int’l Trade Comm’n*, 545 F.3d 1340, 1350 (Fed. Cir. 2008)); see also *Rogers v. Missouri Pac. R. Co.*, 352 U.S. 500, 508 n.17 (1957) (“Circumstantial evidence is not only sufficient, but may also be more certain, satisfying and persuasive than direct evidence.”); *Moleculon Research Corp. v. CBS, Inc.*, 793 F.2d 1261, 1272 (Fed. Cir. 1986) (“It is hornbook law that direct evidence of a fact is not necessary.”).

2. Independent Claim 1

As discussed above with respect to the combination of Teall and Heath, Petitioner persuasively demonstrates that Teall discloses every limitation of claim 1, except embossing of its napkins. Pet. 40–45. Petitioner also persuasively demonstrates the embossing of single-ply napkins was well known in the art, as evidenced by both ASTM-D4560 and Heath, and was known to be beneficial. *Id.* at 38; Pet. Reply 9–11. Indeed, as noted by Petitioner, the ASTM-D4560 standard does not merely suggest embossing of dispenser napkins, but mandates it. Pet. 36–37; Ex. 1018, 7.2.

¹⁸ Although we appreciate that Petitioner bears the burden of demonstrating that ASTM-D4560 is prior art to the '443 patent, we note that Patent Owner has presented no credible evidence tending to refute Petitioner's argument and evidence that ASTM-D4560 was publicly available.

Thus, Petitioner has explained where the combination of Teall and ASTM-D4560 teaches or suggests every limitation of independent claim 1 and why one of ordinary skill in the art would have sought to combine the relevant disclosures of these references.

Patent Owner asserts that one of ordinary skill in the art reading Teall “would not have known whether the intention of the machine was to produce facial tissues, hand towels, or napkins,” and, absent this knowledge, “would not have been motivated to apply embossing to such a product.”

PO Resp. 30 (citing Ex. 2007 ¶ 36). This argument is not persuasive because Teall expressly discloses that its machine may be used to produce interleaved paper napkins, and Petitioner explains why one of ordinary skill in the art would have sought to emboss such products. Ex. 1015, 1:12–15, 1:20–22; Pet. 38; Pet. Reply 9–11.

Petitioner asserts that “a [person of ordinary skill in the art] would have known of the existence and contents of ASTM-D4560 and would have been motivated to follow these standards in the manufacture of interleaved stacks of paper napkins, as purchasers expect paper napkin products to comply with these standards.” Pet. 36–37. Patent Owner contends that, contrary to Petitioner’s argument, Mr. Mrvica was not aware of ASTM-D4560 prior to his work in this case, and he never made an attempt to determine whether the reference was known to those of ordinary skill in the art. PO Resp. 31, 33. Patent Owner also argues that Petitioner fails to cite to any credible evidence that a person of ordinary skill in the art would have sought to adhere to “a decades-old and withdrawn standard.” *Id.* at 34.

Patent Owner’s arguments are not persuasive. First, Petitioner need not show that those of ordinary skill in the art were actually aware of

ASTM-D4560, as the ordinarily skilled artisan is a *hypothetical* person who is presumed to be aware of all the pertinent prior art. *See Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 454 (Fed. Cir. 1985). Second, although ASTM-D4560 was withdrawn before the earliest effective filing date of the '443 patent, it expressly suggests embossing dispenser napkins, and we do not understand Petitioner to rely solely on the standard-setting nature of ASTM-D4560 as the reason one of ordinary skill in the art would have sought to emboss the napkins of Teall. Pet. 37 (asserting that embossing “and its known benefits were so well known in the art . . . that ASTM-D4560 does not just suggest napkins be embossed, but rather mandates ‘napkins *shall* be embossed’”); Ex. 1018, 7.2; Ex. 1002 ¶¶ 115–120; *see also* Ex. 2007 ¶ 35 (Mr. Carlson testifying that “[t]he main reasons for embossing napkins are for aesthetics and to make the napkin feel softer”). Instead, Petitioner’s “Motivation to Combine References” section, as a whole, relies on the fact that embossing was well known in the art and understood to provide known benefits to napkins as an overarching reason to emboss the napkins of Teall, Grosriez, and Winter. Pet. 36–37.

As noted above, Petitioner demonstrates that the combination of Teall and ASTM-D4560 discloses every limitation of claim 1. Petitioner also persuasively explains why one of ordinary skill in the art would have sought to emboss the napkins of Teall. Thus, Petitioner has shown by a preponderance of the evidence that the subject matter of claim 1 would have been obvious over the combined disclosures of Teall and ASTM-D4560.

3. Independent Claims 5 and 10

Independent claim 5 is similar to claim 1, but requires that “each of said absorbent sheets is a rectangular paper napkin having six panels.”

Ex. 1001, 7:6–7. Petitioner presents persuasive evidence that the napkins of Teall are rectangular and have six panels, and Patent Owner does not disagree. Pet. 45–46. Thus, Petitioner has shown by a preponderance of the evidence that the subject matter of claim 5 would have been obvious over the combined disclosures of Teall and ASTM-D4560.

Claim 10 requires that each absorbent sheet have a basis weight of from about 10 to 20 lbs. Ex. 1001, 8:21–22. ASTM-D4560 discloses that there are three types of single-ply napkins: light weight (basis weight of 11.9 lbs or less), standard weight (basis weight of 12.0 to 13.9 lbs), and heavy weight (minimum basis weight of 14.0 lbs). Ex. 1018, Table 1; Pet. 38. Petitioner contends the basis weight range of each type of single-ply napkin identified in ASTM-D4560 either substantially overlaps or falls within the claimed range of 10 to 20 lbs. Pet. 38, 47.

Patent Owner responds that, contrary to Petitioner’s argument, the ranges disclosed in ASTM-D4560 do not substantially overlap the claimed ranges. PO Resp. 52 (asserting that the claimed range is “nearly *one-and-a-half times* (not substantially overlapping) that taught in ASTM-D4560”). This argument is not persuasive, as even a slight overlap in range is sufficient to establish a *prima facie* case of obviousness. See *In re Peterson*, 315 F.3d 1325, 1329 (Fed. Cir. 2003) (“In cases involving overlapping ranges, we and our predecessor court have consistently held that even a slight overlap in range establishes a *prima facie* case of obviousness.”).

The presumption of obviousness in view of overlapping ranges may be rebutted by showing, among other things, that the claimed invention “produce[s] a new and unexpected result which is different in kind and not merely in degree from the results of the prior art.” *E.I. DuPont*, 904 F.3d at

1006 (quoting *In re Aller*, 220 F.2d 454, 456 (CCPA 1955)). Patent Owner contends the napkins of the '443 patent provide a softer napkin with improved drape and hand-feel properties as compared to napkins having basis weights above 20 pounds. PO Resp. 53 (citing Ex. 2007 ¶ 97). Thus, Patent Owner contends “[t]he claims . . . provide new and unexpected results over prior napkins.” *Id.* (citing *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990)).

Patent Owner and Mr. Carlson do not assert that the improved drape and hand-feel properties of napkins having a basis weight of 20 lbs or less was unexpected. See PO Resp. 53; Ex. 2007 ¶ 97 (Mr. Carlson testifying that “the napkins of the '443 patent provide a comparatively softer napkin with improved drape properties over” prior art napkins having a basis weight in excess of 20 lbs, but not asserting that this result was unexpected). Nor does Patent Owner demonstrate that production of a “comparatively softer napkin” is a result that differs in kind and not merely in degree from the results of the prior art. See *Aller*, 220 F.2d at 456. Thus, we are not persuaded that the basis weight range of claim 10 provides unexpected results sufficient to overcome the presumption of obviousness based on overlapping ranges. Accordingly, Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 10 would have been obvious over the combined disclosures of Teall and ASTM-D4560.

4. Dependent Claims 2, 7, and 11 and Claims 3, 8, and 12

Claims 2, 7, and 11 require that “each napkin within said stack is oriented oppositely from each preceding and succeeding napkin within said stack.” Ex. 1001, 6:58–61, 7:31–34, 8:23–26. Claims 3, 8, and 12 require

that each sheet is “a single-ply paper napkin.” *Id.* at 6:62–64, 7:35–37, 8:27–29.

Petitioner and Patent Owner repeat the same arguments for claims 2, 7, and 11 and claims 3, 8, and 12 that we addressed above with respect to the grounds based on Teall and Heath as well as Teall, Heath, and Wheeler. Thus, for the reasons discussed above, we determine that Petitioner has shown by a preponderance of the evidence that the subject matter of claims 2, 7, and 11, and claims 3, 8, and 12, would have been obvious over the combined disclosures of Teall, ASTM-D4560, and Wheeler.

5. Dependent Claims 4, 9, and 13–15

Dependent claims 4 and 9 require that the absorbent sheets have a basis weight “from about 10 to 20 lb.” Ex. 1001, 6:65–67, 7:38–40. Claim 13 requires a basis weight range of “from about 11 to about 17 lb,” claim 14 requires a basis weight range of “from about 12 to about 15 lb,” and claim 15 requires a basis weight range of “about 13 lb.” *Id.* at 8:30–38.

The standard weight napkins of ASTM-D4560 have a basis weight range of 12.0 to 13.9 lbs. Ex. 1018, Table 1. This range overlaps with, or is fully encompassed by, each basis weight range recited in claims 4, 9, and 13–15. Moreover, the basis weight range for the single-ply napkins of ASTM-D4560 as a whole fully encompasses the basis weight ranges recited in claims 4, 9, and 13–15. Thus, the claimed basis weight ranges are presumptively obvious.

Patent Owner asserts the same arguments with respect to claims 4 and 9 that are discussed above with respect to independent claim 10. PO Resp. 51–53. Patent Owner does not specifically address Petitioner’s arguments with respect to claims 13–15.

For the reasons discussed above, we find that Petitioner has shown by a preponderance of the evidence that the subject matter of claims 4, 9, and 13–15 would have been obvious over the combined disclosures of Teall and ASTM-D4560.

G. Remaining Grounds based on Grosriez and Winter

Because we find that the subject matter of claims 1–15 would have been obvious over the Teall-based grounds, we do not address Petitioner’s arguments with respect to the grounds based on Grosriez and Winter.

III. PETITIONER’S MOTION TO EXCLUDE

Petitioner moves to exclude the declaration and deposition transcript of Dr. Parnell in their entirety. Paper 32, 2. Petitioner contends this testimony should be excluded because Dr. Parnell is not qualified to offer expert testimony and does not base his opinions on an independent analysis that would be helpful in this case. *Id.*

Because we have considered Dr. Parnell’s testimony and still found in favor of Petitioner, we dismiss Petitioner’s Motion to Exclude as moot.

IV. CONCLUSION

For the foregoing reasons, we conclude that Petitioner has demonstrated by a preponderance of the evidence that challenged claims 1–15 are unpatentable over the prior art of record.

V. ORDER

It is hereby,

ORDERED that claims 1–15 of the ’443 patent are unpatentable;

FURTHER ORDERED, that Petitioner’s Motion to Exclude the testimony of Dr. Parnell is dismissed as moot; and

IPR2017-02198
Patent 8,273,443 B2

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.

IPR2017-02198
Patent 8,273,443 B2

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