

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

STAHL'S INC.,
Petitioner,

v.

JODI A. SCHWENDIMANN, f/k/a JODI A. DALVEY, and
NUCOAT, INC.,
Patent Owner.

IPR2020-00641
Patent RE41,623 E

Before JEFFREY W. ABRAHAM, MICHELLE N. ANKENBRAND, and
Avelyn M. ROSS, *Administrative Patent Judges*.

ROSS, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 318

Denying Petitioner's Motion to Seal
37 C.F.R. §§ 42.20, 42.54, 42.55

I. INTRODUCTION

Stahls' Inc. ("Petitioner")¹ filed a Petition (Paper 1, "Pet.") requesting *inter partes* review of claims 1–5 of U.S. Patent No. RE41,623 E (Ex. 1002, "the '623 patent"). Pet. 1. Jodi A. Schwendimann and NuCoat, Inc. (collectively "Patent Owner") filed a Preliminary Response (Paper 9, "Prelim. Resp.").

Upon consideration of the Petition, Preliminary Response, and the parties' evidence, we determined that Petitioner had demonstrated a reasonable likelihood that it would prevail with respect to at least one claim of the '623 patent. Paper 11 ("Decision on Institution" or "DI"). Thus, pursuant to the Supreme Court's decision in *SAS Institute Inc. v. Iancu*, 138 S. Ct. 1348, 1355 (2018), and the USPTO Guidance,² we instituted review of all challenged claims on all asserted grounds. *Id.*

Following institution of trial, Patent Owner filed a Patent Owner Response (Paper 15, "PO Resp."), Petitioner filed a Reply (Paper 26, "Pet. Reply"), and Patent Owner filed a Sur-reply (Paper 37, "Sur-reply"). In support of their respective positions, Petitioner relies on the testimony of Dr. Christopher E. Scott (Ex. 1001; Ex. 1039,), and Patent Owner relies on the testimony of Dr. Scott Williams (Ex. 2001) and the Declaration of Dr. Christopher Ellison (Ex. 2011). The parties also rely on the Declaration of

¹ Petitioner identifies Stahls' Inc. and Siser North America, Inc. as the real parties-in-interest. Pet. 3.

² In accordance with USPTO Guidance, "if the PTAB institutes a trial, the PTAB will institute on all challenges raised in the petition." *See* USPTO, Guidance on the Impact of SAS on AIA Trial Proceedings (April 26, 2018) (available at <https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/trials/guidance-impact-sas-aia-trial>) ("USPTO Guidance").

Jodi A. Schwendimann executed on January 31, 2013 (Ex. 2003, “2013 Schwendimann Declaration”) and the Declaration of Jodi A. Schwendimann executed on January 11, 2021 (Ex. 1052, “2021 Schwendimann Declaration”).

An oral hearing was held on July 14, 2021, and a transcript of the hearing is included in the record (Paper 41, “Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed below, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–3, and 5 of the ’623 patent are unpatentable.

A. Related Proceedings

Petitioner identifies the pending lawsuit between the parties, styled *Jodi A. Schwendimann v. Stahls’ Inc.*, Case No. 2:19-cv-10525-LVP-RSW (E.D. Mich.), as a related proceeding in which Patent Owner asserts the ’623 patent. Pet. 4; *see also* Paper 10, 2 (Patent Owner’s Mandatory Notices).

The ’623 patent is asserted in the following pending litigations:

Jodi A. Schwendimann v. Neenah, Inc., Case No. 1:19-cv-00361-LPS (D. Del.) (the “Delaware Lawsuit”); and

Jodi A. Schwendimann v. Siser North America, Inc., Case No. 1:19-cv-00362-LPS (D. Del.).

Pet. 4; Paper 10, 2. The ’623 patent was also asserted in *Jodi A. Schwendimann v. Arkwright Advanced Coating, Inc.*, Case No. 0:11-cv-00820-JRT-HB (D. Minn.) (“Arkwright Lawsuit”). Pet. 4. The ’623 patent is also the subject of additional, separate IPRs: *Neenah, Inc. v. Jodi A. Schwendimann*, IPR2020-00628 and *Stahls’ Inc. v. Jodi A. Schwendimann*, IPR2020-00633. Paper 10, 2. Concurrently with the entry of this Final

Written Decision, we also separately enter judgment in the -00628 and -00633 cases.

Petitioner states that the '623 patent is a reissued patent of U.S. Patent No. 6,844,311, which issued from U.S. Patent Application No. 09/541,845 ("the '845 application"), which is a continuation-in-part of U.S. Patent Application No. 09/391,910 ("the '910 application"). Numerous patents claim priority to the '845 and '910 applications including U.S. Patent No. 7,749,581 ("the '581 patent"), U.S. Patent No. 7,754,042 ("the '042 patent"), U.S. Patent No. 7,771,554 ("the '554 patent"), and U.S. Patent No. 7,766,475 ("the '475 patent") (together with the '623 patent, collectively "the Schwendimann patents"). Pet. 3.

Petitioner also identifies related petitions for *inter partes* review against claims of the '581 patent, the '042 patent, the '475 patent, and the '554 patent. Pet. 4; *see* Paper 10, 2. On September 15, 2020, we instituted *inter partes* review on Petitioner's challenges against the '581 patent in IPR2020-00634 (Paper 13) and IPR2020-00644 (Paper 10) and the '042 patent in IPR2020-00629 (Paper10) and IPR2020-00635 (Paper 10). On September 10, 2021, we issued Final Written Decisions in each case. *See* IPR2020-00629 (Paper 39); IPR2020-00634 (Paper 39); IPR2020-00635 (Paper 46); IPR2020-00644 (Paper 35). We declined, however, to institute review on Petitioner's challenges against the '581 patent in IPR2020-00645 (Paper 10). We also instituted *inter partes* review of the '475 patent, but declined to institute *inter partes* review of the '554 patent. *See* IPR2020-00915, Paper 9; IPR2020-00636, Paper 10; IPR2020-01121, Paper 8.

The Schwendimann patents were also involved in Patent Interference Nos. 105,961, 105,964, and 105,966 (collectively “Interference Proceedings”). Ex. 2004, 1; Ex. 2003, 2.

B. The '623 Patent

The '623 patent, titled “Method of Image Transfer on a Colored Base,” issued on September 7, 2010. Ex. 1002, codes (45), (54). The '623 patent is directed to “a method for transferring an image onto a colored base and to an article comprising a dark base and an image with a light background on the base.” *Id.* at 1:13–15.

The '623 patent explains that conventional image transfer processes use two-steps: applying a white or light background polymeric material to a colored base with heat and then using another sheet to impart an image to the substantially white polymeric material. *Id.* at 3:35–48. According to the '623 patent, the conventional two-step process requires careful alignment of an image with the white background, is “exceedingly time-consuming,” and produced significant waste of base and image transfer materials. *Id.* at 3:49–56.

An exemplary image transfer process of the '623 patent is depicted below in Figure 1.

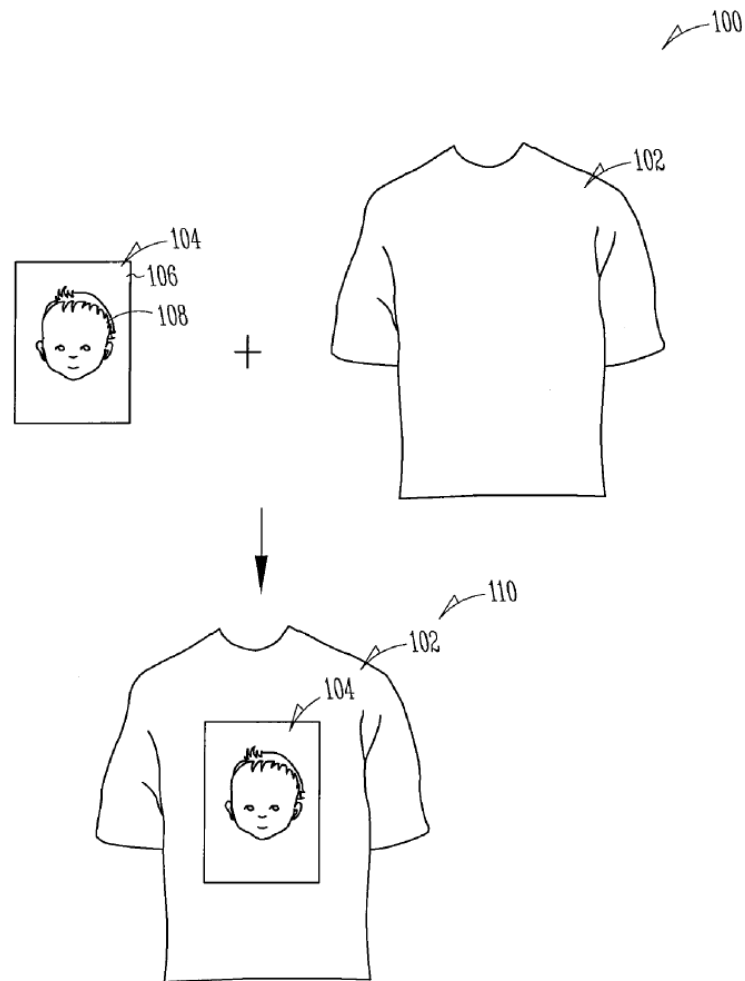


Fig. 1

Figure 1 “illustrates a schematic view of one process of image transfer onto a colored product.” *Id.* at 2:29–31. Figure 1 depicts colored base material 102 (e.g., a colored textile), image 104 including substantially white background 106, and indicia 108 disposed on substantially white background 106. *Id.* at 3:7–18. The ’623 patent states that image 104 is applied to colored base material 102 with heat to make completed article 110 in a single step. *Id.*

An embodiment of an image transfer device is depicted below in Figure 5.

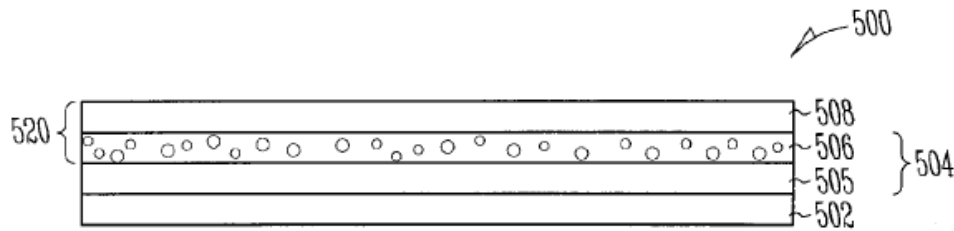


Fig. 5

Figure 5 illustrates “a cross-sectional view of one other embodiment of the image transfer device of the present invention.” *Id.* at 2:41–42. Figure 5 shows “an image transfer sheet 500 that is comprised of a substrate layer 502, a release layer 504, comprising a silicone coating 505 and a white layer 506.” *Id.* at 8:48–53. Figure 5 also depicts white layer 506 and receiving layer 508 as part of peel layer 520. *See id.* at 8:57–63, 9:7–9.

The ’623 patent describes the white layer as imparting “a white background on a dark substrate.” *Id.* at 3:31–34. According to one embodiment, “the white layer 506 of the image transfer sheet 500 is impregnated with titanium oxide or other white or luminescent pigment.”³ *Id.* at 8:57–60. In another embodiment, “the white layer 506 and a receiving layer 508, contacting the white layer 506 are impregnated with titanium oxide or other white or luminescent pigment.” *Id.* at 8:60–63. According to the ’623 patent

[f]or some embodiments, a white layer 506, 606, *such as is shown in FIGS. 5-6*, includes ethylene/methacrylic acid (E/MAA), with an acid content of 0-30%, and a melt index from 10 to 3500 with a melt index range of 20 to 2300 for some embodiments. A low density polyethylene with a melt index

³ “Titanium oxide,” “titanium dioxide,” and “TiO₂” are synonymous, and used interchangeably in the prior art, the parties’ papers, and in this Decision.

higher than 200 is also suitable for use. Other embodiments of the white layer include ethylene vinyl acetate copolymer resin, EVA, with vinyl acetate percentages up to 50%/EVA are modifiable with an additive such as DuPont Elvax, manufactured by DuPont de Nemours of Wilmington, Del. These resins have a Vicat softening point of about 40 degrees to 220 degrees C., with a range of 40 degrees to 149 degrees C. usable for some embodiments.

Id. at 6:8–20.

Referring once again to the embodiment of Figure 5, the '623 patent describes an image transfer process. Specifically, the '623 patent discloses “an image is imparted to the polymer component of the peel layer 520 utilizing a top coat image-imparting material such as ink or toner.” *Id.* at 9:7–9. The '623 patent explains that “[t]he image transfer sheet 500 is applied to the colored base material so that the polymeric component of the peel layer 520 contacts the colored base” and a source of heat is applied to the image transfer sheet 500. *Id.* at 9:18–26. Thus, “[t]he peel layer 520 transfers the image” and “[t]he application of heat to the transfer sheet 500 results in ink or other image-imparting media within the polymeric component of the peel layer being changed in form to particles encapsulated by the polymeric substrate.” *Id.* at 9:28–32. As a result, “[t]he encapsulated ink particles or encapsulated toner particles and encapsulated titanium oxide particles are then transferred to the colored base in a mirror image to the ink image or toner image on the polymeric component of the peel layer 520.”

Id. at 9:36–40. The '623 patent further explains that

[b]ecause the polymeric component of the peel layer 520 generally has a high melting point, the application of heat, such as from an iron, does not result in melting of this layer or in a significant change in viscosity of the overall peel layer 520. The change in viscosity is confined to the polymeric component that

actually contacts the ink or toner or is immediately adjacent to the ink or toner. As a consequence, a mixture of the polymeric component, titanium oxide or other white or luminescent pigment, and ink or toner is transferred to the colored base as an encapsulate whereby the polymeric component encapsulates the ink or toner or titanium oxide or other white pigment. It is believed that the image transfer sheet, with the white titanium oxide or other white or luminescent pigment background is uniquely capable of both cold peel and hot peel with a very good performance for both types of peels.

Id. at 9:41–55.

C. Illustrative Claim

Petitioner challenges claims 1–5 of the '623 patent. Of the challenged claims, only claim 1 is an independent claim. Claim 1 is illustrative and is reproduced below.

1. A method for transferring an image to a colored substrate comprising woven, fabric based material, or paper, comprising:

providing an image transfer sheet comprising an image transfer substrate; a release layer contacting the image transfer substrate and an image -imparting layer that comprises a polymer that includes indicia wherein the release layer is impregnated with one or more of titanium oxide or other white pigment or luminescent pigment;

peeling the image transfer substrate from the image transfer sheet;

contacting at least the remaining portions of the image transfer sheet to the colored substrate comprising woven, fabric based material, or paper; and

applying heat to at least the remaining portions of the image transfer sheet so that an image including indicia from the image-imparting layer is transferred from the image transfer sheet to the colored substrate comprising woven, fabric based

material, or paper wherein the image comprises a substantially white background or luminescent background and indicia.

Ex. 1002, 11:44–12:7 (emphasis omitted).

D. Prior Art and Asserted Grounds of Unpatentability

We instituted trial to determine whether claims 1–5 of the ’623 patent are anticipated or would have been obvious in view of the following asserted grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §⁴	Reference(s)/Basis
1–2, 5	102	Williams ⁵
3	103	Williams
1–2, 4–5	102	Niemoller ⁶
3	103	Niemoller
1–5	103	Oez, ⁷ Takao ⁸
1–5	103	Oez, Keino ⁹

DI 9, 39 (instituting review on all asserted grounds); *SAS*, 138 S. Ct. at 1355.

⁴ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the application from which the ’042 patent issued was filed before this date, the pre-AIA version of § 103 applies.

⁵ Williams et al., US 6,875,487 B1, issued April 5, 2005 (Ex. 1024, “Williams”).

⁶ Niemoller et al., US 6,177,187 B1, issued Jan. 23, 2001 (Ex. 1023, “Niemoller”).

⁷ Oez, US 5,665,476, issued Sep. 9, 1997 (Ex. 1020, “Oez”).

⁸ Takao et al., US 5,753,589, issued May 19, 1998 (Ex. 1019, “Takao”).

⁹ Keino et al., US 4,515,849, issued May 7, 1985 (Ex. 1017, “Keino”).

II. ANALYSIS

A. Legal Standards

“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 Patent Owner. See *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

To anticipate, a reference must “show all of the limitations of the claims arranged or combined in the same way as recited in the claims.” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1370 (Fed. Cir. 2008); accord *In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990). Although the elements must be arranged or combined in the same way as the claim, “the reference need not satisfy an *ipsissimis verbis* test,” i.e., the identity of terminology is not required. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009); accord *In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990). Further, to be anticipating, a prior art reference must be enabling and must describe the claimed invention sufficiently to have placed it in possession of a person of ordinary skill in the art. *Helifix Ltd. v. Blok-Lok, Ltd.*, 208 F.3d 1339, 1346 (Fed. Cir. 2000); *In re Paulsen*, 30 F.3d 1475, 1479 (Fed. Cir. 1994).

A claim is unpatentable under 35 U.S.C. § 103(a) if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness.¹⁰ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

To show obviousness, it is not enough to merely show that the prior art includes separate references covering each separate limitation in a challenged claim. *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). “This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.” *KSR*, 550 U.S. at 418–419. Instead, Petitioner must articulate a reason why a person of ordinary skill in the art would have combined or modified the prior art references. *In re NuVasive, Inc.*, 842 F.3d 1376, 1382 (Fed. Cir. 2016); *see also Metalcraft of Mayville, Inc. v. The Toro Co.*, 848 F.3d 1358, 1366 (Fed. Cir. 2017) (“In determining whether there would have been a motivation to combine prior art references to arrive at the claimed invention, it is insufficient to simply conclude the combination would have been obvious without identifying any reason why a person of skill in the art would have made the combination.”); *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“[O]bviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the

¹⁰ The parties have not asserted or otherwise directed our attention to any objective evidence of nonobviousness.

combinations or modifications of prior art to arrive at the claimed invention.”) (citing *InTouch Techs., Inc. v. VGO Commc’ns, Inc.*, 751 F.3d 1327, 1352 (Fed. Cir. 2014)).

B. Level of Ordinary Skill in the Art

In the Decision on Institution, we determined that a person of ordinary skill in the art at the time of the invention of the ’623 patent

would have at least a Bachelor’s degree in Chemistry, Chemical Engineering, Imaging Technology or Material Science with at least one year of experience in coating technologies and imaging technologies, or at least five years of work experience in the field of coating technologies and imaging technologies.

DI 12 (adopting Patent Owner’s proposed definition).

For purposes of this Final Written Decision, we maintain our determination from the Decision on Institution because neither party disputes that determination and because that level of skill is consistent with the record. *See generally* PO Resp. 13; Pet. Reply 2.

C. Claim Construction

In an *inter partes* review we construe claims “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b); *see Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). Furthermore, we expressly construe the claims only to the extent necessary to resolve the parties’ dispute. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Ltd.*, 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))).

1. “white layer”¹¹

In the Decision on Institution, we construed the term “white layer” to mean “a layer comprising a concentration or configuration of pigment providing a white background for received indicia and which further comprises a polymer that melts and mixes with another layer or layers during application.” DI 14. Our construction was based on the parties’ agreement that the claims of the ’623 patent require a white layer that melts and mixes with another layer and the claim construction the district court in the Arkwright Lawsuit adopted. Ex. 1022, 17 (Arkwright Markman Order); *see also* Ex. 1045, 6 (Delaware Markman Order). In the Decision on Institution, we rejected Patent Owner’s attempt to broaden the interpretation adopted in the Arkwright Lawsuit to include “a polymer that softens or melts and mixes to some degree with another layer.” *Id.* (Patent Owner’s modifications indicated with underlining); Prelim. Resp. 14.

Patent Owner now requests that we adopt a construction of “white layer” that includes “a layer comprising a concentration or configuration of pigment providing a white background for received indicia and which further comprises a polymer that softens or melts, such that it mixes with another layer or layers during application, without the resulting composition

¹¹ Although the term “white layer” is not expressly recited in claim 1 of the ’623 patent, both parties agree that all claims of the ’581 patent require a white layer that melts and mixes. *See, e.g.*, Pet. 14–15, 31–35; Prelim. Resp. 21–26 (treating “white layer” and “white pigment” and “luminescent pigment” as synonymous).

needing to be substantially uniform.” PO Resp. 14 (Patent Owner’s modifications indicated with underlining).

Petitioner contends that we should construe the terms “melt” and “mix,” which are part of the “white layer” to have their plain and ordinary meaning. Pet. Reply 1. Petitioner notes that the District Court for the District of Delaware recently adopted a construction for “white layer” similar to the construction in the Decision on Institution. *Id.* (citing Ex. 1045, 6). Petitioner further explains that the construction applied in the Delaware Lawsuit requires actual melting, not just softening, and construes “mix” to have its plain and ordinary meaning, i.e., to “combine or blend into a single mass or mixture.” *Id.* (citing Ex. 1045, 8, 9).

We decline to adopt Patent Owner’s newly offered construction for the same reasons expressed in our Decision on Institution and because that construction departs from the construction in the Arkwright Lawsuit and the Delaware Lawsuit. DI 13–15; Ex. 1022, 17; Ex. 1045, 6. We further note that Patent Owner states that “the parties’ disputes with respect to the construction of the ‘white layer’ make no difference to the Board’s resolution of this matter.” PO Resp. 15–16. Accordingly, we maintain our construction of the term “white layer.”

2. order of steps

In the Decision on Institution we determined that it was not necessary to require that the “peeling,” “contacting,” and “applying” steps be performed in any particular order. DI 16. We based our decision on Petitioner’s argument that “Patent Owner clearly and unmistakably represented to the USPTO . . . that claims 1–5 cover methods where the ‘peeling step’ is performed before the ‘contacting’ and ‘applying heat’ steps,

and methods where the ‘peeling step’ is performed after the ‘contacting’ and ‘applying heat’ steps” and Patent Owner’s agreement to adopt Petitioner’s construction, for purposes of its preliminary response. *Id.* (citing Pet. 17; Prelim. Resp. 14–15).

Patent Owner, in its Patent Owner Response, does not advance any construction regarding the order of steps. *See generally* PO Resp. 14–16. Patent Owner, however, in its Sur-reply confirms its position that “[t]he method steps cover both a ‘peel first heat second’ and ‘heat first peel second’ method of application.” Sur-reply 4.

Accordingly, we apply the parties’ undisputed claim construction position, that is, that the claims do not require any particular order of contacting, peeling, and applying. *Nidec*, 868 F.3d at 1017.

D. Challenges based on Williams (claims 1–3, 5)

Petitioner contends claims 1–2 and 5 are anticipated by Williams (Pet. 30) and that claim 3 would have been obvious over Williams (*id.* at 38). Petitioner directs us to portions of Williams that purportedly disclose each of the limitations in the challenged claims. *See generally id.* at 30–38. Petitioner also relies on the testimony of Dr. Scott to support its arguments. *Id.*

1. Williams (Ex. 1024)

Williams is directed to “a heat-setting label sheet that is a polymeric transfer sheet that can be marked and transferred by the consumer.” Ex. 1024, code (57). Williams teaches that its transfer sheet may contain a support, a pressure-sensitive adhesive layer, an adhesion layer, one or more opaque layers, and one or more image receiving layers. *Id.* at 3:11–19. Williams explains that “a white pigment may be used to exhibit opacity

capabilities,” and indicates that the opaque layers “render the image visible against a dark receptor, and otherwise improve[] the appearance and readability of an image.” *Id.* at 20:2–6, 20:30–32; *see also id.* at 7:14–15 (indicating that opaque backgrounds are used “to aid in ink visibility on various colored receptors”).

Williams also teaches a process for transferring an image, which comprises imaging a heat-setting label sheet, peeling the adhesive layer from the base sheet, placing the peeled portion of the label sheet onto the receptor element, and heating the layers. *Id.* at 2:36–46.

2. Analysis

With reference to claim 1, Petitioner contends that Williams describes a method of transferring its “heat-setting label sheet,” upon which images can be printed and then directly transferred to a receiver such as a textile, including a shirt.” Pet. 30 (citing Ex. 1024, 1:12–15, 20:2–32).¹² Petitioner argues that Williams provides an image transfer sheet that comprises support 21 (i.e., an image transfer substrate), opaque layer 24, adhesion layer 23, and pressure sensitive layer 22 which together comprise the “release layer,” and polymer layer 25 (i.e., an image imparting layer that comprises an indicia). *See id.* at 31–35 (citing Ex. 1024, 2:3–6, 3:61–65, 4:11–14, 6:33–34, 21:41–56, 21:65–66, 22:7–9, 22:30–33; Ex. 1001 ¶¶ 112–113). Petitioner contends that Williams’s “release layer,” i.e., the combination of Williams’s layers 22, 23, and 24, includes a “white layer” that mixes and melts with adjacent layers because they “are of the same type and therefore would have the same or similar thermal properties, such as melt and glass transition temperature

¹² Petitioner also supports its Petition by citing to the provisional application, U.S. Application No. 60/148,562 (Ex. 1025), leading to issued Williams.

ranges, as the materials disclosed in the ‘623 Patent for corresponding layers.” *Id.* at 34 (citing Ex. 1001 ¶¶ 115–122). According to Petitioner, Williams states that “[a]fter peeling and upon the application of heat, the Adhesion Layer [23], the opaque layer(s) [24] if employed, and the optional IRL [Image Receiving Layer 25] become heat activated (e.g., melt and flow) to trap or encapsulate the dye image or ink and optionally impart waterfast characteristics.” *Id.* at 34–35 (quoting Ex. 1024, 21:1–5). Therefore, “to the extent the ‘623 Patent discloses a ‘melt and mix’ feature, the same feature is inherently disclosed by Williams.” *Id.* at 35.

Petitioner argues “Williams teaches that, after an image is printed on the image receiving layer 25, the support layer 21 is peeled from the laminate comprising the pressure sensitive adhesive layer 22, adhesion layer 23, opaque layer 24, and image receiving layer 25.” *Id.* at 35–36 (citing Ex. 1024, 25:55–58). According to Petitioner, Williams describes a “peeling” step. *Id.* at 36 (citing Ex. 1001 ¶ 123).

Petitioner asserts that “Williams teaches contacting the laminate comprising the pressure sensitive adhesive layer 22, adhesion layer 23, opaque layer 24, and image receiving layer 25 to a dark-colored textile (e.g., ‘shirt or the like’),” thereby meeting the “contacting” step. *Id.* at 36 (citing Ex. 1024, 3:27–36, 9:51–58; Ex. 1001 ¶¶ 124–125). Petitioner additionally argues that Williams applies heat and pressure to the label causing it to activate and adhere to the receptor, i.e., a dark woven fabric. *Id.* at 43–44 (citing Ex. 1024, 20:1–5, 20:18–21, 25:55–61; Ex. 1001 ¶ 126).

Petitioner additionally directs us to portions of Williams that purportedly disclose the additional limitations of claims 2, 3, and 5. *Id.* at 37–38 (citing Ex. 1024, 1:1–155:38–38, 25:49–51; Ex. 1001 ¶¶ 128–135).

Patent Owner, does not challenge any of Petitioner's allegations regarding the teachings of Williams. *See generally* PO Resp. 19–26. Rather, Patent Owner argues only that Williams is not prior art to the '623 patent. *Id.* We have reviewed the evidence and argument of record and determine that Petitioner establishes, by a preponderance of the evidence, that Williams discloses or suggests each limitation of claims 1–3 and 5 of the '623 patent. We turn now to Patent Owner's argument that Williams is not prior art.

Williams claims priority to U.S. Provisional Application No. 60/148,562 (Ex. 1025, the “Williams Provisional Application”), filed on August 13, 1999. Pet. 18. Petitioner contends that the Williams Provisional Application supports at least one of the claims in Williams and, therefore, is prior art to the '623 patent as of its filing date on August 13, 1999. *Id.* Patent Owner does not dispute that Williams is entitled to a priority date of August 13, 1999. PO Resp. 21 (stating “Williams has a priority date of August 13, 1999). We have reviewed Petitioner's showing and determine that the Williams Provisional Application discloses the pertinent limitations and supports at least claims 1, 51, 53, and 63 of Williams. Ex. 1001 ¶¶ 67–71. Therefore, Petitioner has shown that Williams is prior art as of August 13, 1999.

In its Response, Patent Owner states that “[c]ontemporary evidence demonstrates unequivocally that the inventors of the '623 Patent invented and created *image transfer articles* meeting all of the limitations of the Challenged Claims no later than December 16, 1997.” PO Resp. 21 (emphasis added). This evidence consists of two “Formula Books” (Exs. 2015 and 2016) described as “lab notebooks kept by the inventors to

document their experimentation and inventions” and the 2013 Schwendimann Declaration (Ex. 2003), describing and explaining the information contained in the Formula Books. *Id.* at 21–22.

Patent Owner argues that the Formula Books and 2013 Schwendimann Declaration show the inventors began working on a dark T-shirt transfer product around June 1996, and by July 1999, had made at least 22 samples and applied them to dark T-shirts. *Id.* (citing Ex. 2003 ¶¶ 7–21). Patent Owner contends these samples included each of the structures (i.e., the image transfer articles) the challenged claims require. *Id.* at 22–23. Patent Owner states that “during this time, the inventors also performed all of the steps of the Challenged Claims using the ‘peel-later’ method.” *Id.* at 24.¹³

Patent Owner also asserts that Ms. Schwendimann “subsequently used the ‘peel-first’ technique on August 10, 1999,” based on testimony in the 2021 Schwendimann Declaration (Ex. 1052). *Id.* According to Patent Owner, Ms. Schwendimann “came up with the idea of a peel-first method”

¹³ As we explain above, independent claim 1 recites a method for transferring an image to a colored substrate that requires providing an image transfer sheet comprising, *inter alia*, an image transfer substrate, a release layer, and an image-imparting layer. Ex. 1002, 1:44–53. Claim 1 also requires “peeling,” “contacting,” and “applying heat” steps. The parties agree that the claim does not require a particular order of steps. *See supra* Section II.C.2. When “peeling” is performed *before* “contacting” and “applying heat,” this is referred to as the “peel first” method. Pet. 13. And, when “peeling” is performed *after* “contacting” and “applying heat,” this is referred to as the “peel last” or “peel second” method. *Id.* In view of the parties’ agreement that the claim requires no particular order of steps, we understand the parties agree that the claims encompass both a peel first and peel last method. *See supra* Section II.C.2.

during a visit by a customer on August 10, 1999. *Id.* at 25 (citing Ex. 1052 ¶¶ 6–7). On that date, Ms. Schwendimann allegedly performed the peel first technique using the dark fabric transfer sheet formulation she had previously invented. *Id.* Patent Owner contends that this invention date is corroborated by “a contemporaneous Contact Report that NuCoat maintained to document all meetings with customers.” *Id.* (citing Ex. 1052 ¶ 7; Ex. 2018 (the “Contact Report”)). Patent Owner further contends that Ms. Schwendimann confirmed these facts in a deposition taken on May 20, 2008, in a district court proceeding involving the ‘623 patent. *Id.* (citing Ex. 1052 ¶ 6; Ex. 2017 (the May 2008 deposition transcript)). Patent Owner also argues that “the sworn Declaration of Dr. Scott Williams previously submitted confirms that the Williams reference is not prior art to the ‘623 Patent.” *Id.* at 26.

Petitioner argues that Patent Owner and Ms. Schwendimann’s “attempt to swear behind Williams fails because she has not corroborated her testimony, as she must as a matter of law.” Pet. Reply 2. Citing the Federal Circuit’s decision in *Apator Mitors ApS v. Kamstrup A/S*, 887 F.3d 1293, 1295 (Fed. Cir. 2018), Petitioner contends that “when a party seeks to prove conception through an inventor’s testimony the party must proffer evidence, “in addition to [the inventor’s] own statements and documents,” corroborating the inventor’s testimony.” *Id.* (citing *Mahurkar v. C.R. Bard, Inc.*, 79 F.3d 1572, 1577 (Fed. Cir. 1996); *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1171–72 (Fed. Cir. 2006); *Cooper v. GoldFarb*, 154 F.3d 1321, 1330 (Fed. Cir. 1998)).

Petitioner first argues that the Formula Books are unwitnessed, making them legally insufficient to corroborate Ms. Schwendimann’s

testimony that she conceived of the physical image transfer article recited in claim 1 because “an unwitnessed laboratory notebook, alone, cannot corroborate an inventor’s testimony of conception.” Pet. Reply 5 (quoting *Apator*, 887 F.3d at 1297, citing *Brown v. Barbacid*, 276 F.3d 1327, 1335 (Fed. Cir. 2002); *Procter & Gamble Co. v. Teva Pharms. USA, Inc.*, 566 F.3d 989, 998–99 (Fed. Cir. 2009)). Petitioner likewise argues the Contact Report is legally insufficient to corroborate Ms. Schwendimann’s testimony regarding the peel first method because she entered the notes in the Contact Report herself, and she cannot corroborate her testimony with her own documents. Pet. Reply 12 (citing Ex. 1042, 124:18–24, 127:12–14).

Petitioner also argues the Contact Report is factually insufficient to corroborate Ms. Schwendimann’s testimony because Ms. Schwendimann points to two lines in the Contact Report as demonstrating her invention of the peel first method, but neither entry references a peel first method. *Id.* at 13–14. Petitioner asserts that without an explanation from Ms. Schwendimann, the Contact Report is “untethered” to a peel first method and Ms. Schwendimann “cannot rely on her own testimony to circularly explain what the purportedly corroborating evidence is supposed to corroborate.” *Id.* at 14 (citing *Apator*, 887 F.3d at 1296–97).

Petitioner also notes that after “repeatedly testifying over the years, including in this IPR,” that she conceived of the peel first method during her customer meeting on August 10, 1999, Ms. Schwendimann “changed that long-standing story in her most recent deposition in this IPR, wherein she repeatedly testified that she had performed the ‘peel first’ method many times in the lab *before* her meeting.” *Id.* at 11–12 n.4 (citing Ex. 1052

¶¶ 6–7; Ex. 2017, 43:24–45:9; Ex. 1044, 137:14–17, 235:18–24, 242:2–10; Ex. 1042, 63:2–5, 79:15–22, 84:8–16). Petitioner contends this “180-degree change” in Ms. Schwendimann’s story is uncorroborated and “underscores the fundamental reason for the Federal Circuit’s absolute rule requiring independent corroboration of an inventor’s testimony.” *Id.* (citing Ex. 1042, 89:6–22, 92:11–21, 93:19–94:18).

Lastly, Petitioner asserts that Patent Owner has not established that “the examples described in the laboratory notebooks ‘worked for their intended purpose.’” Pet. Reply 8. According to Petitioner, Patent Owner does not direct our attention to any successful transfer. *Id.* Further, Petitioner contends that the record evidence establishes the contrary, that the samples from 1996–1999 did not work. *Id.* For example, Ms. Schwendimann was unable to make any product sales until “well into the 2000s” (*id.* (citing Ex. 1050, 87:12–88:3)), Ms. Schwendimann testified that “as of August 10, 1999, [Mr. Nabil F. Nasser] ‘tried and tried’ but ‘didn’t come up with anything’ to solve the dark fabric transfer problem” (*id.* (citing Ex. 1049, 44:11–24)), and the “litigation ‘experiment’ . . . “reconstructing one of the samples . . . resulted in a barely visible image” (*id.* at 8–9 (citing Ex. 1048 ¶¶ 8–96)).

In its Sur-reply, Patent Owner argues the Formula Books corroborate Ms. Schwendimann’s deposition testimony regarding the 1996–1998 invention date of the peel first method. Sur-reply 4–5. Patent Owner contends the Formula Books are legally sufficient to corroborate Ms. Schwendimann’s testimony because “[t]he law . . . holds that unwitnessed lab notebooks can corroborate inventor testimony so long as

there is additional corroborating evidence,” and the Contact Report constitutes such additional corroborating evidence. *Id.* at 6–7.

After considering the full record developed during trial, we agree with Petitioner that there is insufficient evidence to support Patent Owner’s assertion that inventors of the ’623 patent invented the subject matter of the challenged claims before the August 13, 1999 priority date of Williams.

Patent Owner initially attempts to establish August 10, 1999, as the invention date of the peel first method based on statements in the January 2021 Schwendimann Declaration (Ex. 1052 ¶¶ 6–10).¹⁴ PO Resp. 24–26. Then, in the Sur-reply, Patent Owner tries to establish an invention date between 1996 and 1998 for the peel first method—in addition to the peel last method—based on Ms. Schwendimann’s deposition testimony about six samples in the Formula Books, purportedly showing tests “in which the backing paper was peeled from the transfer sheet first, after which the transfer sheet was applied to the t-shirt, as claimed in the ‘623 Patent.” Sur-reply 4–5 (citing Ex. 1042, 79:10–80:15). The evidence of record, however, is insufficient to support either alleged invention date.

With regard to the August 10, 1999 date, Patent Owner attempts to corroborate Ms. Schwendimann’s declaration testimony using the Contact Report. PO Resp. 25–26. For example, in the January 2021 Schwendimann Declaration, Ms. Schwendimann testifies that she “first used a dark fabric transfer sheet using the ‘peel first’ method on August 10, 1999.” Ex. 1052 ¶ 6. She also states that “[m]y invention of the ‘peel first’ method on August 10, 1999, is confirmed and documented by the Contact Report for that date.”

¹⁴ Patent Owner mistakenly cites to Exhibit 2014. PO Resp. 24. In this *inter partes* review, the 2021 Schwendimann Declaration is Exhibit 1052.

Ex. 1052 ¶ 7. “It is well established, however, that when a party seeks to prove conception through an inventor’s testimony the party must proffer evidence, ‘in addition to [the inventor’s] own statements and documents,’ corroborating the inventor’s testimony.” *Apator*, 887 F.3d at 1295 (quoting *Mahurkar*, 79 F.3d at 1577). Ms. Schwendimann testifies that she personally entered the notes that appear in the Contact Report. Ex. 1042, 127:12–14; Ex. 2028 ¶ 8. Accordingly, we consider the Contact Report to fall within the category of the inventor’s “own statements or documents.”¹⁵ *Apator*, 887 F.3d at 1295. According to the Federal Circuit’s holding in *Apator*, Patent Owner cannot rely on the Contact Report to corroborate Ms. Schwendimann’s testimony. PO Resp. 25–26.

Patent Owner’s reliance on the Contact Report suffers from an additional problem. According to Patent Owner, the lines “[w]e figured out the Dark Fabric Transfer” and “we need to check into ammending [sic] our patent” in the Contact Report confirm the August 10, 1999 invention date of the peel first method. *Id.* at 25; Ex. 2018; Ex. 1052 ¶ 7. As Petitioner points out, however, these lines do not expressly refer to the peel first method. Pet. Reply 13. The only evidence linking these lines in the Contact Report to the

¹⁵ Patent Owner appears to place some significance on the fact that the company NuCoat “maintained” the Contact Report. PO Resp. 25. To the extent Patent Owner is arguing that the Contact Report is not Ms. Schwendimann’s own document because it is “maintained” by NuCoat, we do not consider such an argument to be persuasive. First, it is not clear what Patent Owner means by “maintained.” Second, Patent Owner has not presented any authority to support a position that the relevant inquiry into whether a document is an inventor’s own document is based on who “maintains” the document after it has been prepared, as opposed to the individual who prepared the document itself, including providing the relevant substantive information in the document. *See Id.*

peel first method is testimony from Ms. Schwendimann herself. Ex. 2018; Ex. 1052 ¶ 7. Thus, in order to understand the relevance of the allegedly corroborating evidence, we must rely on uncorroborated testimony from the inventor. This is analogous to the “catch-22 of corroboration” identified in *Apator*, in which the party attempted to corroborate the inventor’s testimony with a document, but the document only provided corroboration with help from the inventor’s testimony. *Apator*, 887 F.3d at 1296–1297. According to the Federal Circuit, “[i]t would be strange indeed to say that [an inventor], who filed the . . . affidavit that needs corroborating, can by his own testimony provide that corroboration.” *Id.* at 1297 (quoting *In re NTP, Inc.*, 654 F.3d 1279, 1292 (Fed. Cir. 2011)). For this additional reason, we do not consider the Contact Report to constitute sufficient evidence corroborating Ms. Schwendimann’s testimony regarding the August 10, 1999 invention date of the peel first method.

In view of the foregoing, Patent Owner has failed to sufficiently corroborate Ms. Schwendimann’s testimony that she invented the peel first method on August 10, 1999.

As to the alleged 1996–1998 invention date for either the peel first or peel last methods, Patent Owner attempts to corroborate Ms. Schwendimann’s deposition testimony with the Formula Books. PO Resp. 21–23. It is undisputed, however, that the Formula Books are unwitnessed. Sur-reply 6–7; Tr. 59:12–60:6. Thus, according to Federal Circuit precedent, the unwitnessed Formula Books *alone* cannot corroborate Ms. Schwendimann’s testimony regarding a purported invention date between 1996 and 1998. *Apator*, 887 F.3d at 1297; *Brown*, 276 F.3d at 1335; *Procter & Gamble*, 566 F.3d at 998–99. Nevertheless, Patent

Owner asserts that “[t]he law . . . holds that unwitnessed lab notebooks can corroborate inventor testimony so long as there is additional corroborating evidence,” and contends that the Contact Report constitutes “additional corroborating evidence” such that the unwitnessed lab notebooks can legally corroborate Ms. Schwendimann’s testimony. Sur-reply 6–10 (citing *Singh v. Brake*, 222 F.3d 1362, 1369 (Fed. Cir. 2000)).

We disagree. To the extent the Contact Report corroborates anything, it would be an invention date of August 10, 1999, for the peel first method. Ex. 2018; *see also* Ex. 1052 ¶ 6 (Ms. Schwendimann’s sworn testimony that she came up with the peel first method during a customer meeting on August 10, 1999). There is no indication of an earlier invention date in the Contact Report. Ex. 2018. Thus, the Contact Report does not constitute “additional corroborating evidence” of a 1996–1998 invention date. The *unwitnessed* Formula Books (which are insufficient) remain the only evidence purportedly corroborating Ms. Schwendimann’s deposition testimony regarding a 1996–1998 invention date. *Apator*, 887 F.3d at 1297; *Brown*, 276 F.3d at 1335; *Procter & Gamble*, 566 F.3d at 998–99.

Patent Owner appears to argue that prior Federal Circuit cases restricting the use of unwitnessed laboratory notebooks to corroborate inventor testimony are inapplicable here. In particular, Patent Owner argues that the reason behind the corroboration requirement is to “address[] the concern that a party claiming inventorship might be tempted to describe his actions in an unjustifiably self-serving manner in order to obtain a patent or to maintain an existing patent.” Sur-reply 6 n.4 (quoting *Singh*, 222 F.3d at 1367). According to Patent Owner, this is not a concern here because the Formula Books were recorded by “numerous individuals other than Ms.

Schwendimann who were working at her direction” and, therefore, the unwitnessed Formula Books “bear hallmarks of reliability to the same extent as witnessed lab notebooks do.” *Id.*

Patent Owner, however, offers no authority to support the argument that unwitnessed lab notebooks, purportedly drafted by persons working at the direction of an inventor and not the inventor herself, “bear hallmarks of reliability to the same extent as witnessed lab notebooks do.” *Id.* Indeed, the laboratory notebooks in the only case Patent Owner relies upon to support its argument were eventually witnessed. *Singh*, 222 F.3d at 1369 (noting the lab notebooks in question were witnessed several years after they were made). Here, it is undisputed that the lab notebooks were never witnessed. Further, the only testimony Patent Owner directs us to on this subject is Ms. Schwendimann’s deposition testimony “guess[ing]” that her co-inventor, Mr. Nasser, wrote one specific entry in a Formula Book. Ex. 1042, 94:20–24. This testimony does not support Patent Owner’s argument that we should consider *all* of the entries in *both* Formula Books without concern that “a party claiming inventorship might be tempted to describe his actions in an unjustifiably self-serving manner in order to obtain a patent or to maintain an existing patent.” *Singh*, 222 F.3d at 1367.

This is especially true considering Patent Owner describes the Formula Books as “lab notebooks *kept by the inventors* to document their experiments and inventions.” PO Resp. 37 (emphasis added). Likewise, in her January 2021 Declaration, Ms. Schwendimann testifies that “*we* keep a ‘Formula Book’ in which *we* record the formulas *we* make in our facilities.” Ex. 1052 ¶ 3 (emphasis added). Ms. Schwendimann provided similar testimony in her 2013 Declaration. Ex. 2003 ¶ 2 (“As part of our

development efforts, *we* keep a ‘Formula Book’ in which we record the formulas we make in our facilities.” (emphasis added)). In contrast to Patent Owner’s representation, these statements suggest some connection between Ms. Schwendimann herself and the information in the Formula Books, which undermines the argument that there “is not a concern here” that “a party claiming inventorship might be tempted to describe his actions in an unjustifiably self-serving manner in order to obtain a patent or to maintain an existing patent.” *Singh*, 222 F.3d at 1367; *see* Sur-reply 6.

Ms. Schwendimann’s inconsistent testimony regarding the samples in the Formula Books compounds the problem with Patent Owner’s argument regarding the reliability of the unwitnessed Formula Books. Prior to its Sur-reply, Patent Owner asserted that the samples in the Formula Books were peel last formulations. PO Resp. 22–24. This assertion was based on Ms. Schwendimann repeatedly testifying that the samples in the Formula Books were used with a peel last technique, not a peel first technique. Ex. 2003 ¶¶ 16–17; Ex. 1052 ¶ 4; Ex. 2017, 43:24–45:9.

Ms. Schwendimann offered this testimony in a sworn affidavit in the interference proceeding involving the ’623 patent (Ex. 2003), a deposition under oath in a district court action involving the ’623 patent (Ex. 2017), and a sworn declaration in this *inter partes* review proceeding (Ex. 1052). All of this prior testimony is inconsistent with the testimony presented during Ms. Schwendimann’s March 4, 2021 deposition, in which she stated, for the first time, that some samples in the Formula Book were used in peel first tests.

In addressing this issue during the oral hearing, counsel for Patent Owner explained that up until the time she provided her deposition

testimony in this *inter partes* review, Ms. Schwendimann “had always remembered” the samples from the Formula Book were peel last formulations, but that “she was just wrong about it.” Tr. 71:19–20. But Patent Owner has not offered any evidence (other than the Formula Books themselves) to support its position that Ms. Schwendimann’s prior recollection regarding the Formula Book samples was incorrect, and her new testimony is correct. Indeed, the fact that Ms. Schwendimann testified multiple times, under oath, that these formulations were peel last formulations suggests otherwise.

Thus, contrary to Patent Owner’s contentions, the facts in this case emphasize the need for evidence corroborating Ms. Schwendimann’s testimony. *Mahurkar*, 79 F.3d at 1577 (stating that the corroboration “requirement arose out of a concern that inventors testifying in patent infringement cases would be tempted to remember facts favorable to their case by the lure of protecting their patent or defeating another’s patent”); *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1171–72 (Fed. Cir. 2006) (“Even the most credible inventor testimony is *a fortiori* required to be corroborated by independent evidence.”).

Thus, in the absence of sufficient evidence corroborating Ms. Schwendimann’s testimony regarding the various alleged dates of invention for the subject matter of claim 1, we find there is insufficient evidence to support Patent Owner’s assertion that the inventors of the ’623 patent invented the subject matter of the challenged claims before the August 13, 1999 priority date of Williams. We thus consider Williams to be prior art to claims 1–3 and 5 of the ’623 patent.

As noted above, it is undisputed that Williams discloses all of the limitations in independent claim 1, and claims 2, 3, and 5, which depend therefrom. We have considered the evidence and arguments presented in the Petition, and agree with Petitioner that Williams discloses each limitation of claims 1–3 and 5. As a result, we find Petitioner has established, by a preponderance of the evidence, that Williams anticipates claims 1, 2, and 5 of the '623 patent, and that the subject matter of claim 3 would have been obvious in view of Williams.

E. Challenges based on Niemoller

Petitioner contends claims 1, 2, 4, and 5 are anticipated by Niemoller (Pet. 44) and that claim 3 would have been obvious in view of Niemoller (*id.* at 46). Petitioner directs us to portions of Niemoller that purportedly disclose all the limitations in the challenged claims. *Id.* at 44–53. Petitioner also relies on the testimony of Dr. Scott to support its arguments. *See id.* We consider below Petitioner's arguments as to claims 1 and 4 only. We do not address claims 2, 3, and 5 because we have already determined that Petitioner has shown that these claims are unpatentable based on Williams.

1. Niemoller (Ex. 1023)

Niemoller “relates to a recording material for inkjet printing, comprising at least one temporary sheet-like substrate material and a porous recording layer which is arranged thereon and can be converted into a film by the action of heat.” Ex. 1023, 1:4–8. A contact adhesive layer may be layered between the temporary substrate and the porous recording layer. *Id.* at 3:54–64. Figure 3, reproduced below, is exemplary of the recording material of Niemoller.

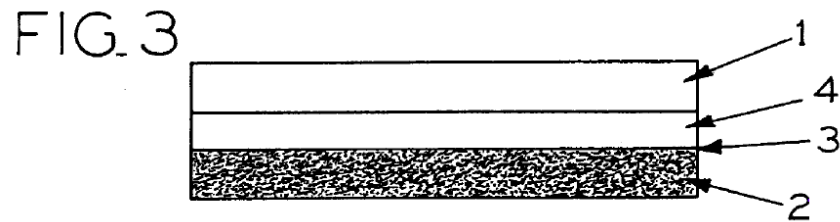


Figure 3 depicts “porous recording layer (1) . . . on a temporary substrate material (2) with an intermediate layer comprising contact adhesive (4) and the interface (3) at which the layers of the laminate can be readily separated from the temporary substrate (2).” *Id.* at 6:10–15. Niemoller explains that the porous recording layer “can be converted by action of heat into a cohesive self-supporting film comprising plastic[] particles fused or sintered together.” *Id.* at 4:3–5. “On conversion of the ink absorption layer into a cohesive self-supporting film, the dyes absorbed by the ink absorption layer during printing are included and enclosed in the film, so that they are protected from the direct influence of water and oxygen outdoors.” *Id.* at 5:37–41; *see also id.* at 9:59–65 (“[T]he recording material is brought to a temperature above the melting point . . . and the recording layer [is] essentially being destroyed and a cohesive self-supporting film which encloses the assistants used and the ink dyes applied [is] being formed.”). The intermediate adhesive layer may be colored and include white pigments, like titanium dioxide, “to prevent the background on which the printed image is applied after film formation from being visible through such contact adhesive.” *Id.* at 7:9–14. Niemoller explains that its printed recording material is “advantageous in all outdoor applications[,] but also in the transfer printing of surfaces, for example T-shirts.” *Id.* at 9:49–51.

2. *Analysis of Claims 1 and 4*

Claim 4 depends from claim 1 and additionally requires that “the image imparting layer is impregnated with one or more titanium oxide or other white pigment or luminescent material.” Ex. 1002, 12:12–14.

Petitioner argues that Niemoller anticipates claim 4 of the ’623 patent. Pet. 45.

Beginning with claim 1, Petitioner contends that Niemoller’s recording material for inkjet printing describes a method for transferring an image to a colored, woven substrate as claimed. Pet. 39 (citing Ex. 2023, code (57), 1:4–5, 4:57–60, 14:6–8, 5:59–63, 15:14–62). Petitioner argues that Niemoller provides an image transfer sheet that comprises temporary substrate 2 (i.e., an image transfer substrate), release agent coating at interface 3, adhesive layer 4 impregnated with titanium dioxide, and porous recording layer 1 (i.e., an image imparting layer that comprises an indicia). *See id.* at 40–42 (citing Ex. 2023, 6:35–43, 7:11–19, 7:39–41; Ex. 1001 ¶¶ 145, 148). Petitioner asserts that interface 3 and adhesive layer 4 together comprise “a release layer” as claimed. *Id.* at 42 (Ex. 1001 ¶ 148). Petitioner contends that Niemoller’s adhesive layer 4 is a “white layer” that mixes and melts with adjacent layers because they “are of the same type and therefore would have the same or similar thermal properties, such as melt and glass transition temperature ranges, as the materials disclosed in the ’623 Patent for corresponding layers.” *Id.* at 41 (citing Ex. 1001 ¶¶ 149–54); *see also* Ex. 1001 ¶ 152 (identifying porous recording layer 1 and adhesive layer 4 as the layers which are of the “same types of polymeric materials”). Petitioner asserts “whatever ‘melting and mixing’ that may occur in the ’623 Patent as

argued by the Patent Owner in the Interference will also occur in Niemoller.” *Id.*

According to Petitioner, the temporary substrate can be detached, i.e., peeled, from the image transfer sheet at interface 3, which may comprise silicone. *Id.* at 40 (citing Ex. 1020, 6:35–43), 42 (citing Ex. 1023, 6:3–16; Ex. 1001 ¶ 155). Petitioner additionally argues that Niemoller applies heat to its recording material to transfer the image to a colored fabric substrate. *Id.* at 43–44 (citing Ex. 1023, 4:51–65, 6:63–68, 7:9–15; Ex. 1001 ¶¶ 157–158).

With respect to the additional limitation of claim 4, Petitioner asserts that “Niemoller provides that the polymeric recording layer 1, which is the recited image imparting layer, may include ‘titanium dioxide,’ as well as other white pigments.” Pet. 45 (citing Ex. 1023, 8:66–9:4; Ex. 1001 ¶¶ 167–169).

Patent Owner does not dispute most of Petitioner’s allegations regarding the teachings of Niemoller but instead, focuses on Petitioner’s purported failure to show that Niemoller teaches all elements of the claimed invention *as arranged* in the claim and Petitioner’s failure to show a “white layer” that melts and mixes with another layer. PO Resp. 32–40. We determine Petitioner’s arguments and evidence are sufficient to show, by a preponderance of the evidence, that Niemoller describes each limitation of claims 1 and 4 of the ’623 patent, other than those Patent Owner disputes. We address Patent Owner’s arguments below.

3. *Whether Niemoller teaches an embodiment that discloses all limitations of claim 1 of the '623 patent as arranged in the claim*

Patent Owner argues that “Niemoller discloses two distinct embodiments: (1) an adhesive embodiment that uses a contact adhesive to transfer (not heat); and (2) a heat transfer [embodiment] that does not use white pigment.” PO Resp. 27, 32 (citing Ex. 2011 ¶¶ 154–155, 253). Patent Owner asserts that claim 1 of the '623 patent requires both a white layer and application of heat during the transfer of the image transfer sheet to the substrate. *Id.* According to Patent Owner “[b]ecause Niemoller never discloses the elements as arranged in the claim – i.e., in a single embodiment that uses heat to transfer and a white pigment – Niemoller does not anticipate.” *Id.* at 27 (citing *Net MoneyIN*, 545 F.3d at 1369). Specifically, Patent Owner alleges that “Niemoller teaches that white pigment can be used in the contact adhesive embodiments” but, in those embodiments, heat is applied *before transfer* to convert the recording layer into a film, *not after transfer*. *Id.* at 29–30 (citing Ex. 1023, 4:3–13, 7:9–14, Examples 1–4; Ex. 2011 ¶ 154), 33 (citing Ex. 1023, 4:3–13, claim 1; Ex. 2011 ¶¶ 154, 253). In a second embodiment, Patent Owner contends that heat is applied to both convert the recording layer into a film and anchor the recording material to the substrate. PO Resp. 31 (citing Ex. 1023, 14:45–52, Examples 5–6; Ex. 2011 ¶ 155), 34 (citing Ex. 1023, Examples 5–6; Ex. 2011 ¶¶ 155, 253–255). But, according to Patent Owner, “when Niemoller uses heat to anchor the image to the substrate (e.g., the textile), Niemoller does not disclose using a contact adhesive”—the limitation Petitioner relies upon to meet the “white layer” aspect of the claims. *Id.* at 34 (citing Ex. 1023, Examples 5–6; Ex. 2011 ¶¶ 155, 253–255; Pet. 40). Patent Owner reasons that Petitioner

should not be permitted to combine elements from distinct embodiments when anticipation is alleged. *Id.* at 34–36; *Finisar v. DirectTV*, 523 F.3d 1323, 1334 (Fed. Cir. 2008).

Petitioner contends¹⁶ that

[u]se of Niemoller’s image transfer sheet illustrated in Figure 3 to transfer an image to a fabric via heat includes first removing the temporary paper backing, then temporarily adhering ink absorption layer to the fabric via the white pigmented contact adhesive, and finally applying heat to convert the ink absorption layer to a film and permanently transfer the image to the fabric at the same time.

Pet. Reply 22. To support its position, Petitioner explains that “the contact adhesive layer (4) may be either a ‘permanent’ adhesive or a ‘detachable adhesive.’” *Id.* (citing Ex. 1023, 6:55–56). According to Petitioner, a person of ordinary skill in the art “would know that a ‘detachable adhesive’ would only be appropriate where it was used to *temporarily* adhere the image transfer sheet to a surface, including a fabric, until the image was *permanently* transferred to the surface via heat.” *Id.* (citing Ex. 1039 ¶ 9(c)).

¹⁶ Petitioner also argues against “Patent Owner’s position that Niemoller fails to disclose the use of the image transfer sheet . . . having a contact adhesive (which includes a white pigment) . . . *on a fabric*.” Pet. Reply 19–20 (emphasis added); *see also id.* at 21–22 (same argument). In its Preliminary Response, Patent Owner argued that Niemoller “disclose[s] two separate and distinct embodiments: 1) an embodiment relating to outdoor signage an[d] stickers including a contact adhesive and 2) an embodiment relating to transfer printing of textiles, such as t-shirts without white pigment”—where only the sticker embodiment includes a white layer. Prelim. Resp. 23. Patent Owner, however, does not reassert that argument in its Response and, therefore, has forfeited that argument. *See generally* PO Resp. 27–40; Paper 12, 10 (“Patent Owner is cautioned that any arguments not raised in the response may be deemed waived.”).

Petitioner states that Dr. Williams, an expert in the Arkwright Lawsuit, used a contact adhesive in this manner in his own provisional patent application. *Id.* at 23; *see* Ex. 1025, 15 (the Williams Provisional Application, now issued as Williams, U.S. Patent No. 6,875,487, Ex. 1024). Pet. Reply. 23–24 (citing Ex. 1056, 39:3–40:3). Petitioner further asserts that “Patent Owner’s position impermissibly focuses on Niemoller’s ‘Examples’ to the exclusion of the rest of the specification.” *Id.* at 24.

On this record, Patent Owner has the better argument. It is undisputed that claims 1 and 4 of the ’623 patent requires both a “white layer” and a heated image transfer. Ex. 1002, 11:44–12:7; PO Resp. 27; Pet. 40–42, 43–44. “Because the hallmark of anticipation is prior invention, the prior art reference—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements ‘arranged as in the claim.’” *Net MoneyIn*, 545 F.3d at 1370 (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)). A claim should not be viewed as “a mere catalog[] of separate parts, in disregard of the part-to-part relationships set forth in the claims and that give the claims their meaning.” *Id.* Niemoller describes that its contact adhesive may include white pigments because “[w]hitening is particularly advantageous for obtaining optimum color representation of the prints.” Ex. 1012, 7:11–17. Petitioner identifies the contact adhesive, including a white pigment, as corresponding to the “white layer” as claimed. Pet. 40–42. But Niemoller does not describe use of a contact adhesive in any of its heat transfer embodiments. Ex. 1023, 5:55–63, Examples 5–6.

Petitioner’s criticism that Patent Owner “impermissibly focuses” on the examples of Niemoller is unavailing as—with the possible exception of

column 5, lines 55 to 63 and column 11, lines 5 to 9—the examples are the only description of a heat transfer process in Niemoller and none include a contact adhesive. We are also not persuaded by Petitioner’s argument that because Niemoller describes a “detachable adhesive,” Niemoller discloses the adhesive as a positioning tool prior to heating. Pet. Reply 22. Niemoller contains no such disclosure, and Petitioner does not direct us to any portion of Niemoller describing such use. *See generally* Pet. Reply 22–24. We acknowledge Dr. Williams’s testimony regarding *his* patent application and lab notebook, but that testimony is unrelated to Niemoller. *See* Ex. 1056, 23:15–18, 39:3–40:3. At best, Dr. Williams’s testimony is that a skilled artisan could have used the contact adhesive in a manner not disclosed in Niemoller, which may be relevant to an obviousness inquiry but not anticipation. “[I]t is not enough that the prior art reference discloses part of the claimed invention, which an ordinary artisan might supplement to make the whole, or that it includes multiple, distinct teachings that the artisan might somehow combine to achieve the claimed invention.” *Net MoneyIn*, 545 F.3d at 1371 (“differences between the prior art reference and a claimed invention, however slight, invoke a question of obviousness, not anticipation”).

Therefore, Petitioner has not established that claims 1 and 4 are unpatentable as anticipated by Niemoller. Although this is reason enough to find that Petitioner has not met its burden on its challenge based on Niemoller, we also address the white layer limitation of claims 1 and 4 below.

4. *Whether Niemoller describes a “white layer” that mixes and melts with another layer as claims 1 and 4 require*

In the Decision on Institution, we expressed “substantial doubt,” based on Petitioner’s argument and evidence, that Niemoller teaches a white layer that mixes and melts with other layers as required by claims 1 and 4. DI 28. Specifically, we noted that “Petitioner does not direct our attention to any teaching in Niemoller that contact adhesive 4, impregnated with white pigment, and the release coating at interface 3 . . . melt and mix with any other layer” and instead, Petitioner heavily relies on its expert’s testimony that “‘to the extent melting and mixing occurs, as asserted by the inventor for the ‘623 Patent, that the layers described in Niemoller will behave in the same manner (i.e., melt and mix)’ when the same heat and pressure is applied.” *Id.* at 27–28.

Petitioner asserts that “Niemoller’s teachings with respect to ‘melt’ and ‘mix’ are at least as robust as those of the ’623 patent” and that “[l]ike Niemoller, the ’623 patent is devoid of any explicit statement that its white layer ‘melts.’” Pet. Reply 26–27. Therefore, Petitioner reasons that a person of ordinary skill in the art examining the ’623 patent “is left to *infer* that the white layer and adjacent layers *may* ‘melt’ and ‘mix’ from the identified melt points of the disclosed materials and prescribed application temperatures.” *Id.* at 27.

Having considered the full trial record, we determine that Petitioner has not carried its burden of showing, by a preponderance of the evidence, that the white layer of Niemoller melts and mixes as required by the claims 1 and 4 of the ’623 patent. As Petitioner admits, Niemoller fails to expressly describe melting. Pet. Reply 27. And when Niemoller discusses the

application of heat, it does so in the context of “converting” the recording layer into a self-supporting adhesive film and “anchor[ing]” the recording material to the substrate. *See, e.g.*, Ex. 1023, 3:30–32, 3:40–44, 4:3–5, 4:17–22, 4:51–56, 5:10–14, Examples 1–6. Unlike other prior art references on which Petitioner relies in other grounds to suggest melting, Niemoller does not describe or suggest the process of melting. *Compare id.* at 3:30–32 (“the ink absorption layer can converted by the action of heat into a cohesive self-supporting film”), 14:45–50, 15:16–20 (describing the recording material as “*anchored*” to the substrate), *with* Ex. 1024, 7:8 (“the adhesion layer melts and flows”). Petitioner does not address the “doubt” we expressed in the Decision on Institution by directing our attention to any passage in Niemoller that could suggest “melting” occurs, and our independent review of Niemoller reveals none. Petitioner has thus failed to carry its burden of establishing that Niemoller teaches a white layer that mixes and melts with other layers as claimed. For this additional reason, Petitioner has not established that claims 1 and 4 are unpatentable as anticipated by Niemoller.

In sum, Petitioner has not shown, by a preponderance of the evidence, that Niemoller teaches each and every element of claim 1 as arranged in the claim. Because claim 4 depends from claim 1, Petitioner has similarly failed to make the requisite showing, by a preponderance of the evidence, that claim 4 is anticipated by Niemoller.

F. Challenges based on Oez

Petitioner contends claims 1–5 are unpatentable as obvious over Oez and Takao. Pet. 47. Petitioner directs us to portions of Oez and Takao that purportedly disclose each of the limitations in the challenged claims. *Id.*

at 47–56. Petitioner contends claims 1–5 are unpatentable as obvious over Oez and Keino. Pet. 56. Petitioner directs us to portions of Oez and Keino that purportedly disclose all the limitations in the challenged claims. *Id.* at 56–65. Petitioner also relies on the declaration testimony of Dr. Scott to support its arguments. *See id.* We consider below Petitioner’s arguments as to claims 1 and 4 only. We do not address claims 2, 3, and 5 because we have already determined that Petitioner has shown that these claims are unpatentable over Williams. Because we determined above (*supra* Section D.2.) that claims 1–3 and 5 of the ’623 patent are unpatentable over Williams, we need only address claim 4 in our analysis below.

1. *Oez (Ex. 1020)*

Oez “relates to a transfer paper and to a process for transferring photocopies to textiles, such as, in particular, T-shirts.” Ex. 1020, 1:6–8. Oez describes “a transfer paper which has, as the coating of plastic, at least: a polyurethane which can be cross-linked under the action of heat by a melamine-formaldehyde resin esterified with methanol, mixed with an acrylic acid ester/acrylic acid copolymer, the latter being a thickener.” *Id.* at 1:37–42. Oez states that it is of “essential importance that a white pigment (TiO₂) can be incorporated into the mixture so that the prior white coating of dark (black) textiles hitherto necessary can now be dispensed with and the print can be transferred immediately with a single film.” *Id.* at 1:51–55.

Oez discloses that the coating “can be peeled off from the paper as a film and can be laid as a positive on the textile substrate to be ironed on and to bond with the textile fibers.” *Id.* at 1:47–49. Oez describes ironing the film onto a textile “at elevated temperatures.” *Id.* at 3:56–58.

2. *Takao (Ex. 1019)*

Takao “relates to a thermal transfer image-receiving sheet for use in a thermal dye transfer system and more particularly to a thermal transfer image-receiving sheet having improved whiteness in its image-receptive surface by virtue of provision of a specific whiteness-improving layer.” Ex. 1019, 1:6–10. Takao describes “a thermal transfer image-receiving sheet comprising a substrate sheet, a whiteness-improving layer, and a receptive layer provided on top of one another in that order, the whiteness-improving layer comprising a water-soluble polymer containing a water-soluble fluorescent brightening agent, the receptive layer comprising a resin soluble in an organic solvent.” *Id.* at 1:59–65.

Takao discloses that “[m]aterials for constituting the substrate sheet is not particularly limited, and examples thereof include various types of papers” and films of various types of polymers. *Id.* at 2:15–34.

According to Takao

[t]he whiteness-improving layer provided on the substrate sheet functions to enhance the whiteness of the image receiving surface of the thermal transfer image-receiving sheet. It may be formed by coating a substrate sheet with a coating solution of a water-soluble polymer and a water-soluble fluorescent brightening agent dissolved or dispersed in a solvent composed mainly of water and then drying the resultant coating.

Id. at 2:50–57. Takao further explains the following:

Since the thermal transfer image-receiving sheet of the present invention has a whiteness-improving layer, containing a specific substance, as an independent layer, unlike the conventional thermal transfer image-receiving sheet with additives, such as a fluorescent brightening agent, incorporated into a receptive layer, an improvement in whiteness of the image-receiving

surface can be attained without sacrificing the quality and fastness of the image.

Id. at 1:66–2:6.

Takeo explains that “[t]he receptive layer provided on the whiteness-improving layer functions to receive a dye being transferred from a thermal transfer sheet and to hold the resultant image thereon.” *Id.* at 6:6–9.

According to Takeo, “[t]he formation of the receptive layer using a solution or a dispersion of a water-soluble resin causes the water-soluble fluorescent brightening agent contained in the whiteness-improving layer to migrate into the receptive layer.” *Id.* at 6:12–16.

3. *Keino (Ex. 1017)*

Keino is directed to “a transfer printing sheet for marking articles of synthetic fibers with a distinct colorfast design or pattern.” Ex. 1017, 1:7–9.

According to Keino, its transfer printing sheet comprises the following:

a base sheet coated with a releasing resin, an intermediate pattern layer formed over the resulting release resin coating or base layer and containing a pigment and an elastic high-polymer resin or the like, and a top layer of a synthetic fiber dissolving agent or modifying agent formed over the entire surface of the pattern layer.

Id. at 2:31–37. Keino depicts its transfer sheet in Figure 1, reproduced below.

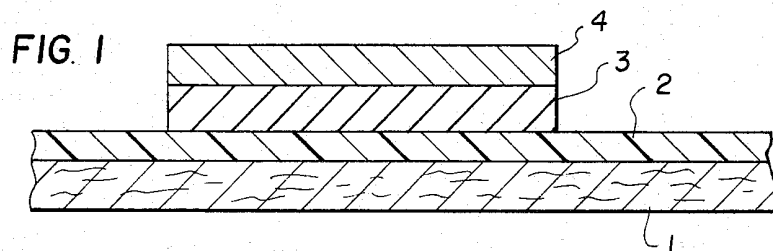


Figure 1 “is an enlarged schematic view in section showing a transfer sheet embodying [Keino’s] invention,” having base sheet 1, releasing resin layer 2 coating a surface of base sheet 1, pattern layer 3 formed on releasing resin layer 2, and dissolving agent layer 4 “covering the entire surface of the pattern layer 3.” Ex. 1017, 2:66–68, 3:8–16.

Keino teaches that pattern layer 3 “consists essentially of an elastic high-polymer resin and a pigment admixed therewith,” and dissolving agent layer 4 contains “at least one agent for dissolving synthetic fibers.” *Id.* at 3:41–45, 4:65–68. According to Keino,

[w]hen the above three-layer or multi-layer transfer printing sheet is subjected to printing pressure and heat with the surface of the dissolving agent layer in contact with the article of synthetic fiber to be printed therewith, the dissolving agent of the dissolving agent layer advantageously suitably dissolves or otherwise modifies the adjacent synthetic fibers of the article and, at the same time, the pattern layer is transferred, e.g. under heat flow, to the article and fixed thereto at the so modified fibers thereof.

Id. at 2:38–48.

According to Keino, exemplary pigments for pattern layer 3 include titanium oxide and zinc white. *Id.* at 4:22–24. Keino also explains that the pattern layer 3 may be in the form of “superposed layers; i.e. for example, the pattern layer 3 is provided as a composite layer subdivided into a colored pigment bottom sub-layer and a white pigment top sub-layer in superimposed stratified disposition on the releasing resin layer 2.” *Id.* at 4:58–64.

Keino discloses that “[e]xamples of useful coatable surface materials for the base sheet 1 of the present invention are cellulose paper, synthetic

fiber paper, synthetic paper, cellophane, synthetic resin film, fabric, etc.” *Id.* at 3:20–23.

4. *Analysis of Claims 1 and 4*

Petitioner asserts that claims 1 and 4 are obvious over Oez and Takao as well as obvious over Oez and Keino. Pet. 47, 56. In each combination (as detailed below) Petitioner relies on Oez to suggest much of the subject matter of claim 1. Pet. 47–54, 56–64. Petitioner relies on Takao and Keino to suggest a separate whiteness improving layer. *Id.* at 47–50, 57–59. We consider below Petitioner’s arguments as to claims 1 and 4 only, as claim 4 depends from claim 1. We do not address claims 2, 3, and 5 because we have already determined that Petitioner has shown that these claims are unpatentable based on Williams.

Petitioner contends that, like claim 1, “Oez discloses ‘a thermal transfer image-receiving sheet having improved whiteness in its image-receptive surface by virtue of provision of a whiteness-improving layer’” that is especially useful “for printing black textiles.” Pet. 50 (citing Ex. 2020, 1:7–11, 1:26–31), 59. Petitioner argues that Oez describes a heat transfer paper including a carrier paper (i.e., an image transfer substrate), a release coating (i.e., a release layer) and a polymer coating layer (i.e., an image-imparting layer), that together comprise the layers of the image transfer sheet of the ’623 patent. *Id.* at 51–53 (citing Ex. 1020, 1:50–55, 3:14–16, 6:6–9, 6:33–34, 6:61–65, 7:37–41, 7:63–8:4; Ex. 1001 ¶¶ 180–183), 60 (citing Ex. 1001 ¶¶ 215–218). Petitioner explains that “[t]he coating layer is formulated to have an image printed on it” and “includes a white pigment (titanium dioxide (TiO₂)) so that the transfer paper can be

used on dark (black) textiles without the need to first apply a white coating to the dark textile.” *Id.* at 47, 57 (citing Ex. 1020, 1:46–48, 1:51–55).

Petitioner contends that Takao describes a similar heat-transfer image-receiving sheet except that Takao describes incorporating white pigment in a layer separate from the receptive layer, i.e., the layer receiving the image.

Pet. 48. Specifically, “Takao teaches incorporating an intermediate whiteness-improving layer between the substrate sheet and the receptive layer to enhance the whiteness of the surface receiving the image.” *Id.* (citing Ex. 1019, 2:34–37, 2:50–54, 7:1–4). According to Petitioner, “Takao explains that the separate whiteness-improving layer, either alone or in addition to white pigment in the receptive layer, is important because the separate whiteness improving layer improves the final appearance of the image on the fabric,” thereby providing a reason for the person of ordinary skill in the art to combine the teachings of Oez and Takao to create “Modified Oez I.” *Id.* at 48–50 (Ex. 1019, 1:66–2:6; Ex. 1001 ¶¶ 183–184).

Likewise, Petitioner asserts that Keino and Oez describe “similar technologies printed heat-transfer sheets, and both address generating opaque white backgrounds on which to transfer images.” Pet. 58. Petitioner explains that “Keino teaches the use of pigments in a pattern layer (3) such as ‘titanium oxide, zinc white, carbon black or like inorganic pigments’ and that “[t]he pigment ‘is selected in view of the desired distinctness, fastness, hiding power, etc. sought.’” *Id.* at 57–58. As a result, Petitioner reasons that the person of ordinary skill in the art would have had reason to “modify Oez to include white pigment in its intermediate polymeric layer” to create “Modified Oez II.” *Id.* at 58–59.

Petitioner contends that the “white layer” in the Oez/Takao and Oez/Keino combinations mix and melt with adjacent layers because the layers “are of the same type and therefore would have the same or similar thermal properties, such as melt and glass transition temperature ranges, as the materials disclosed in the ‘623 Patent for corresponding layers.” *Id.* at 52–53 (citing Ex. 1001 ¶¶ 185–191), 61–62 (citing Ex. 1001 ¶¶ 220–226). Petitioner asserts that “[u]nder application of the same levels of heat and pressure, the materials disclosed in Modified Oez I would ‘melt and mix’ to the same degree, if any, as those disclosed in the ‘623 Patent.” *Id.* at 53; *see also id.* at 62 (discussing Modified Oez II).

Petitioner argues that “Oez teaches that it is advantageous to first peel the silicone coated paper from the polymeric receptive coating (*e.g.*, film) and then apply the remaining film having an image thereon directly to the fabric.” *Id.* at 54 (citing Ex. 1020, 1:47–55), 63. Petitioner contends that Oez applies heat to the thermal transfer sheet to transfer the image to the textile surface. *Pet.* 54 (citing Ex. 1020, code (57), 1:37–41, 3:4–6), 63. Petitioner explains that “Oez explains that incorporating white pigment is desirable for dark (*e.g.*, black) textiles, which are commonly woven fabrics.” *Id.* (citing Ex. 1020, 1:30–31, 1:51–55, 2:31–32; Ex. 1001 ¶¶ 193–194). Thus, Petitioner asserts Oez describes the remaining method steps of claim 1. *Id.* at 54, 63–64 (citing Ex. 1001 ¶¶ 192–194, 227–228).

Claim 4 requires that the “the image imparting layer is impregnated with one or more titanium oxide or other white pigment or luminescent material.” Ex. 1002, 12:12–14. Petitioner alleges that “Modified Oez I includes white pigment in both the receptive layer (as taught by Oez and Takao) and in the intermediate whiteness-improving layer (as taught by

Takao).” *Id.* at 55 (citing Ex. 1001 ¶¶ 201–204). Petitioner further contends that “Modified Oez II includes white pigment in both the receptive layer (as taught by Oez) and in the intermediate polymeric layer (as taught by Keino).” *Id.* at 65 (citing Ex. 1001 ¶¶ 236–238).

In the Decision on Institution, we determined that Petitioner failed to show a reasonable likelihood that the Oez/Takao or Oez/Keino combinations suggest a white layer that melts and mixes with another layer. DI 34–35, 38. Our determination was based on Petitioner’s failure to “provide any specific citation from either Oez or Takao that describes polymer melting or mixing” and its reliance solely on Dr. Scott’s testimony. *Id.* As we noted, Dr. Scott’s “testimony . . . is conclusory and fails to explain with objective support why one of ordinary skill in the art would have understood the transfer sheet of Oez to melt and mix in light of Oez’s teaching that its transfer paper contains a coating comprising a melamine formaldehyde resin esterified with methanol as a crosslinking component.” *Id.* Furthermore, we observed that expert testimony in related proceedings suggests that the polymeric layers of Oez do not mix and melt. For example, Dr. Wanat testified that “[a]nother important factor that can prevent mixing is an intentional choice to crosslink the polymer(s).” *Id.* (citing Ex. 2009 ¶ 53). And, Dr. Christopher M. Macosko opined that “[b]ecause of the chemical nature of the cross-lined polyurethane, it is my opinion that the polyurethane layer [of Oez] softened . . . but did not melt . . . and thus could not mix with the adhesive layer.” *Id.* (citing Ex. 2007, 112).

In addition, with respect to the Oez/Keino combination, we further observed that “Petitioner has failed to explain which layer Keino’s white pigment sub-layer would melt and mix with, if any at all.” *Id.* at 38.

Accordingly, we determined that “Petitioner must show that the prior art discloses or suggests each of the limitations of claim 1, and, on the present record, has not presented evidence sufficient to make that showing.” *Id.*

Petitioner, in its Reply, does not address any of the deficiencies outlined above. *See generally* Pet. Reply. Accordingly, because each of the challenged claims require a white layer that melts and mixes and Petitioner has not established that either of the Oez/Takao or Oez/Keino combinations suggest a white layer that melts and mixes with another layer, we determine Petitioner has failed to show by a preponderance of the evidence that claims 1 and 4 of the ’623 patent would have been unpatentable as obvious over either the combination of Oez and Takao or the combination of Oez and Keino.

III. PETITIONER’S MOTION TO SEAL

Petitioner seeks to seal Exhibits 1044, 1050, 1051, and 1056 in their entirety. Paper 28, 1 (“Motion”). These exhibits include Ms. Schwendimann’s trial testimony in the Arkwright Lawsuit (Ex. 1044), Ms. Schwendimann’s deposition testimony in the Delaware Lawsuit (Ex. 1050), Ms. Schwendimann’s discovery responses in the Delaware Lawsuit (Ex. 1051), and Dr. Williams’s deposition testimony in the Delaware Lawsuit (Ex. 1056). Motion 1–2. Petitioner asserts that these exhibits “should be sealed in their entirety because they were filed under seal in those cases.” *Id.* at 2. Petitioner’s Motion is unopposed. Petitioner represents that the parties “have agreed to the proposed Protective Order (Paper No. 25) in IPR2020-00635” and requests that “the [same] Protective Order govern the confidential materials in this Proceeding. *Id.* at 1.

There is a strong public policy in favor of making information filed in an *inter partes* review open to the public, especially because the proceeding determines the patentability of claims in an issued patent and, therefore, affects the rights of the public. Under 35 U.S.C. § 316(a)(1) and 37 C.F.R. § 42.14, all papers filed in an *inter partes* review are open and available for access by the public. A party, however, may file a motion to seal confidential information, and the information is sealed pending the outcome of the motion. 37 C.F.R. § 42.54. As set forth in the Board’s Consolidated Trial Practice Guide (“CTPG”), “[t]he rules aim to strike a balance between the public’s interest in maintaining a complete and understandable file history and the parties’ interest in protecting truly sensitive information.” CTPG 19.¹⁷

We have reviewed Exhibits 1044, 1050, 1051, and 1056 and we agree the documents may contain confidential information. Petitioner asks that the Board seal these exhibits in their entirety. But Petitioner, in its Petitioner Reply, and both parties, during the *public* oral hearing (Tr. 4:23–24), discussed the contents of and quoted from these exhibits. We acknowledge Petitioner’s argument that the exhibits “should be sealed in their entirety because they were filed under seal in [the other] cases” (Motion 2), but that does not explain why we should seal each exhibit in its entirety. We further note that Petitioner has not provided publicly available, redacted versions of these exhibits. On balance, we find that the parties’ treatment of the confidential information fails to effectively balance the parties’ commercial and legal interests against the Board’s strong public policy that favors

¹⁷ Available at <https://www.uspto.gov/TrialPracticeGuideConsolidated>.

making information filed in *inter partes* review proceedings open to the public. For these reasons, we determine Petitioner has not shown good cause for the Motion to Seal.

Accordingly, the Motion is denied without prejudice with regard to the sealing of Exhibits 1044, 1050, 1051, and 1056.

However, we authorize the parties to jointly file a revised motion to seal Exhibits 1044, 1050, 1051, and 1056, to be accompanied with redacted, public versions of these documents. Furthermore, though the parties “have agreed” to the protective order in IPR2020-00635, we entered that order in a separate proceeding involving a different record. In the interest of maintaining a complete record in this *inter partes* review, the parties are instructed to file a protective order in this case, should they file a revised motion to seal.

IV. CONCLUSION¹⁸

For the foregoing reasons, we conclude that Petitioner has satisfied its burden of demonstrating, by a preponderance of the evidence, that claims 1–3 and 5 of the ’623 patent are unpatentable. Petitioner, however, has not satisfied its burden of demonstrating, by a preponderance of the evidence, that claim 4 of the ’623 patent is unpatentable.

¹⁸ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner’s attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, Petitioner has established by a preponderance of the evidence that claims 1–3 and 5 are unpatentable;

FURTHER ORDERED that Petitioner has not established, by a preponderance of evidence, that claim 4 is unpatentable;

FURTHER ORDERED that Petitioner’s Motion to Seal is denied without prejudice; 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

In summary:

Claims	35 U.S.C. §	Reference(s)/ Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1–2, 5	§ 102	Williams	1–2, 5	
3	§ 103	Williams	3	
1–2, 4–5	§ 102	Niemoller ¹⁹		1, 4
3	§ 103	Niemoller		
1–5	103	Oez, Takao		1, 4
1–5	§ 103	Oez, Keino		1, 4
Overall Outcome			1–3, 5	4

¹⁹ In view of our determination that claims 1–3 and 5 are unpatentable in view of Williams, we do not reach the grounds addressing claims 1–3 and 5 based on Niemoller alone or Oez in combination with Takao or Keino.

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Patent RE41,623 E

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