

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ENVIROTAINER AB,
Petitioner,

v.

DOUBLEDAY ACQUISITIONS, LLC,
Patent Owner.

IPR2022-00292
Patent 7,263,855 B2

Before KEN B. BARRETT, ERIC C. JESCHKE, and
RICHARD H. MARSCHALL, *Administrative Patent Judges*.

JESCHKE, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. BACKGROUND

Petitioner, Envirotainer AB, filed a Petition to institute *inter partes* review of claims 19–21, 23, 26–31, 33, 35–37, and 41 (the “challenged claims”) of U.S. Patent No. 7,263,855 B2 (Ex. 1001, “the ’855 patent”). Paper 2 (“Pet.”). Patent Owner, DoubleDay Acquisitions, filed a Preliminary Response. Paper 5 (“Prelim. Resp.”).

We have authority to determine whether to institute *inter partes* review. See 35 U.S.C. § 314 (2018); 37 C.F.R. § 42.4(a) (2021) (“The Board institutes the trial on behalf of the Director.”). *Inter partes* review may not be instituted “unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314. Upon consideration of the evidence and arguments in the record, for the reasons below, we determine that the information presented shows a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims. We thus institute *inter partes* review on all challenged claims on all asserted grounds. See *SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1354, 1359–60 (2018); 37 C.F.R. § 42.108(a) (“When instituting *inter partes* review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”).

A. *Related Proceedings*

The parties identify a proceeding in the U.S. District Court for the Northern District of Georgia involving the ’855 patent: *DoubleDay Acquisitions LLC d/b/a CSafe Global v. Envirotainer AB*, No. 1-21-cv-03749 (N.D. Ga.), filed Sept. 10, 2021 (the “Georgia Litigation”). Pet. 100;

IPR2022-00292
Patent 7,263,855 B2

Paper 3 (Patent Owner’s Mandatory Notice) at 2. The Georgia Litigation also involves U.S. Patent No. 7,913,511 B2 (“the ’511 patent”). Pet. 100; Paper 3 at 2.

Petitioner also filed a petition for *inter partes* review of claims 1–5, 7–36, 40, and 41 of the ’855 patent in IPR2022-00864. See IPR2022-00864, Paper 2; see also IPR2022-00292, Paper 7 (Patent Owner Updated Mandatory Notices) at 1 (listing same).

Petitioner also filed a petition for *inter partes* review of claims 1, 2, 7–11, 30, and 31 of the ’511 patent in IPR2022-00293. See IPR2022-00293, Paper 2; see also IPR2022-00292, Paper 7 (Patent Owner Updated Mandatory Notices) at 1 (listing same). Concurrently with the issuance of this Decision, we institute *inter partes* review in IPR2022-00293.

Petitioner also filed a petition for *inter partes* review of claims 1–19, 39, and 40 of the ’511 patent in IPR2022-00851. See IPR2022-00851, Paper 2; see also IPR2022-00292, Paper 7 (Patent Owner Updated Mandatory Notices) at 1 (listing same).

B. The '855 Patent

The '855 patent relates to cargo containers for transporting temperature-sensitive cargo. Ex. 1001, codes (54), (57). Figure 2 is reproduced below:

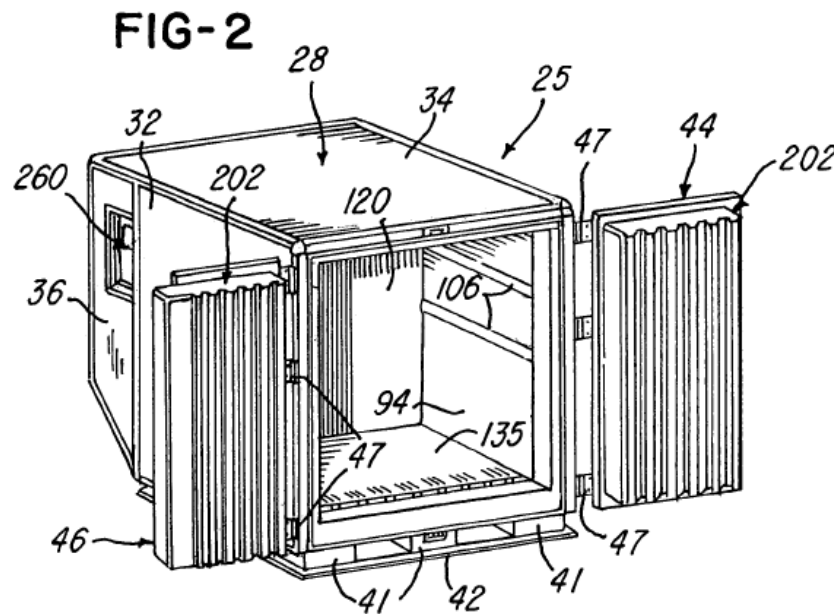


Figure 2 is a perspective view of a cargo container with the doors in their open positions. Ex. 1001, 2:41–45. Cargo container 25 in Figure 2 includes shell-sub-assembly 50 as well as outer housing 28, which is “formed of sheet aluminum and aluminum corner trim and sometimes referred to as a ‘can.’” *Id.* at 3:14–16. Outer housing 28 “includes opposite side walls 32, a removable top wall 34, a rear wall enclosure 36 and a bottom wall 38,” shown in Figure 3.¹ *Id.* at 3:16–19. In addition, outer housing 28 is supported by hollow aluminum supports or legs 41, connected to aluminum base plate 42, that are arranged to allow container 25 to be raised with a forklift. *Id.* at 3:19–22. Outer housing 28 also supports

¹ In this Decision, we omit emphasis on reference numerals and claim numbers in quotations from the '855 patent and prior art references.

swinging door units or assemblies 44/46, each of which are supported by hinges 47. *Id.* at 3:25–28.

Figure 6 is reproduced below:

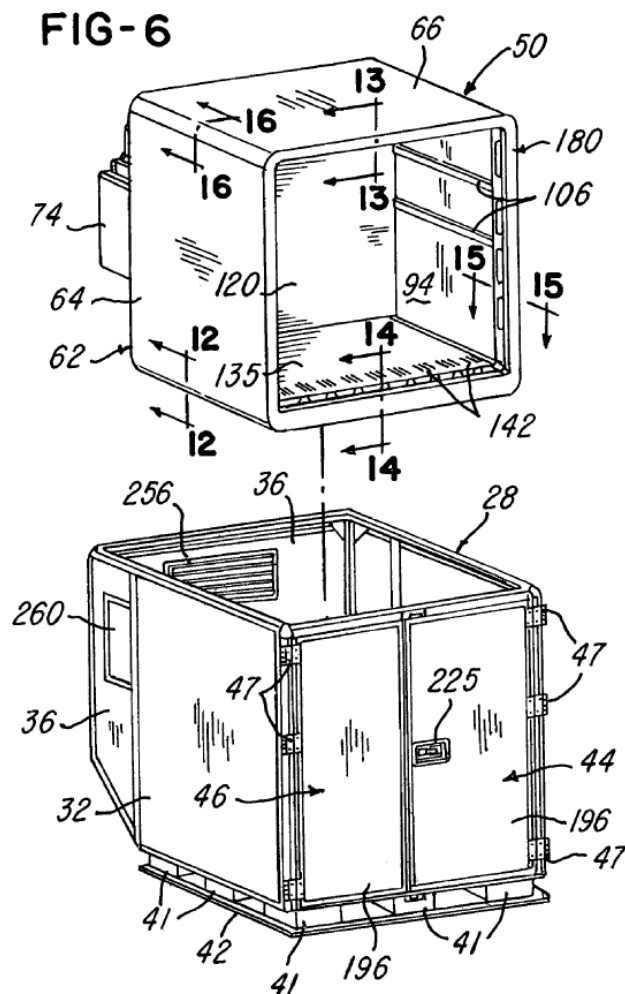


Figure 6 “is an exploded perspective view of the shell sub-assembly before being inserted into the outer housing assembly.” Ex. 1001, 2:53–55.

Referring to Figure 6, the '855 patent discloses that

before the top wall 34 of the housing is installed, the housing 28 receives a shell sub-assembly 50[,] which includes a molded composite box-like outer shell 54 (FIGS. 5 & 6) and a molded composite box-like inner shell 56, shown exploded in FIG. 5.

Ex. 1001, 3:29–33.

Figure 5 is reproduced below:

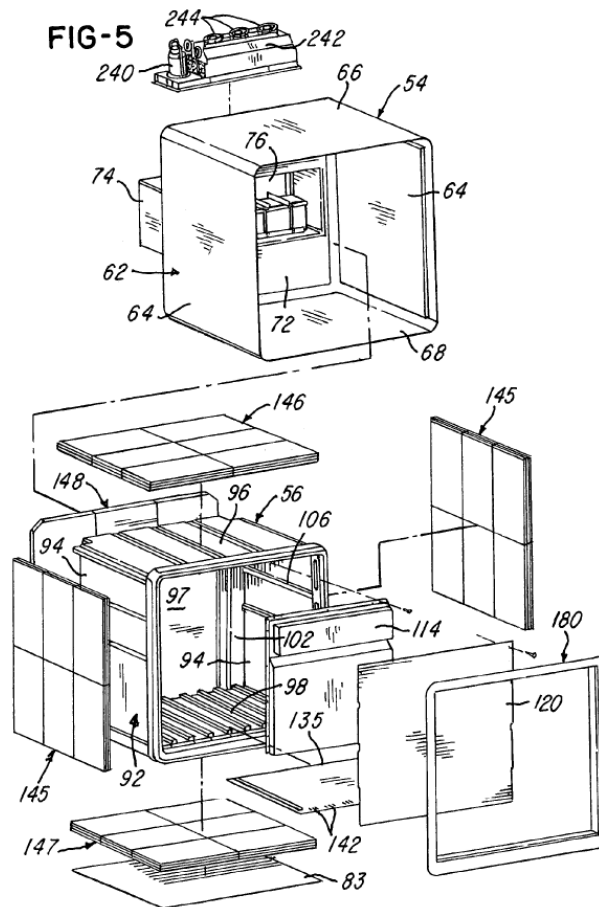
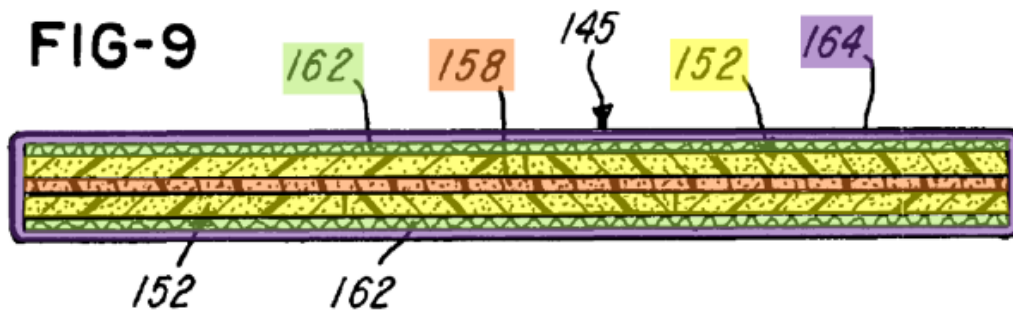


Figure 5 is an exploded view of a shell sub-assembly that is inserted into the outer housing assembly. See Ex. 1001, 2:50–52. Figure 5 shows molded composite box-like outer shell 54, which supports refrigeration compressor 240 and condenser 242 with a housing supporting fans 244. See *id.* at 3:29–33, 6:38–42. In addition, Figure 5 shows flat panel thermal insulation cartridges or cassettes 145–148, which “are confined or sandwiched” between the walls of outer shell 54 and inner shell 56. *Id.* at 4:48–51.

Figure 9 is reproduced below, with highlighting added by Petitioner:



Pet. 6. Figure 9 depicts a cross-section of an assembled insulation cartridge or cassette used in the walls of the shell sub-assembly. Ex. 1001, 2:58–62.

In the annotated version of Figure 9, Petitioner added (1) orange highlighting to sheet 158 of expanded polystyrene foam, (2) yellow highlighting to two layers 152 of vacuum insulated panels, (3) green highlighting to two layers 152 of vacuum insulated panels, (3) green highlighting to two outer sheets 162 of extruded corrugated plastic, and (4) purple highlighting to flexible film 164 of fire-retardant plastic material. See *id.* at 4:62–5:4.

C. Challenged Claims

Petitioner challenges claims 19–21, 23, 26–31, 33, 35–37, and 41, of which claims 19 and 35 are independent. Claims 20, 21, 23, 26–31, and 33 depend from claim 19, and claims 36, 37, and 41 depend from claim 35. Independent claim 19 is reproduced below, with alphanumeric designations to identify each clause:

19. [19.Pre] A cargo container assembly adapted for transporting a temperature sensitive cargo supported by a pallet, [19.A] said assembly comprising a box-like composite outer shell having side, top and bottom walls of resin impregnated fibers and having a front opening and a moveable door assembly for closing said front opening, [19.B] a box-like composite inner shell within said outer shell and having side, top and bottom walls disposed inwardly from the corresponding said walls of

said outer shell and defining a cargo receiving chamber, [19.C] vacuum insulated panel assemblies confined between the corresponding said side, top and bottom walls of said inner and outer shells, and [19.D] a refrigeration system connected to cool said chamber.

Ex. 1001, 9:44–56.²

D. Asserted Grounds of Unpatentability

Petitioner challenges claims 19–21, 23, 26–31, 33, 35–37, and 41 on the following grounds:

Claim(s) Challenged	35 U.S.C. § ³	Reference(s)/Basis
19, 20, 23, 28	102(a)	Kuhn ⁴
19–21, 23, 26–30	103(a)	Kuhn, Loeffler ⁵
19–21, 23, 26–28, 31, 33, 35–37, 41	103(a)	Sinclair ⁶ , Kuhn

² We adopt Petitioner’s designations for the elements of the challenged claims. *See, e.g.*, Pet. 13–19 (showing alphanumerical designations for the language in the challenged claims). We apply these designations below.

³ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. §§ 102, 103 that became effective on March 16, 2013. Pub. L. No. 112-29, §§ 3(b)–3(c), 3(n)(1), 125 Stat. 284, 285–87, 293 (2011). Because there is no dispute that the challenged claims of the ’855 patent have an effective filing date before March 16, 2013, we apply the pre-AIA versions of these statutes.

⁴ International Publication No. WO 2004/104498 A2, published December 2, 2004 (Ex. 1005, “Kuhn”).

⁵ International Publication No. WO 2004/045987 A2, published June 3, 2004 (Ex. 1006, “Loeffler”).

⁶ GB 1,117,899, published June 26, 1968 (Ex. 1007, “Sinclair”).

Claim(s) Challenged	35 U.S.C. § ³	Reference(s)/Basis
19–21, 28, 31, 35–37	103(a)	Ekerot ⁷ , Cur ⁸
19–21, 29–31	103(a)	Broussard ⁹ , Cur

Petitioner supports its challenges with a declaration from Mr. Michael Jobin. Ex. 1003 (“Jobin Decl.”). Patent Owner includes the Declaration of Mr. Nicholas Wynne (a named inventor on the ’855 patent). Ex. 2001.

II. DISCUSSION

A. *Discretion Under 35 U.S.C. § 325(d)*

Patent Owner argues that we should exercise discretion to deny institution under 35 U.S.C. § 325(d). *See* Prelim. Resp. 42–50. Petitioner argues that we should not. *See* Pet. 95.

1. *Legal Framework*

Section 325(d) provides that, in determining whether to institute *inter partes* review, “the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.” The Board uses a two-part framework in determining whether to exercise its discretion under § 325(d): (1) determining whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either

⁷ US 2003/0019870 A1, published January 30, 2003 (Ex. 1008, “Ekerot”).

⁸ US 5,082,335, issued January 21, 1992 (Ex. 1009, “Cur”).

⁹ US 2004/0226309 A1, published November 18, 2004 (Ex. 1012, “Broussard”).

condition of the first part of the framework is satisfied, determining whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims. *See Advanced Bionics, LLC v. Med-El Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential). In applying this framework, we consider several non-exclusive factors, including:

(a) the similarities and material differences between the asserted art and the prior art involved during examination; (b) the cumulative nature of the asserted art and the prior art evaluated during examination; (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection; (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art; (e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and (f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

Becton, Dickinson & Co. v. B. Braun Melsungen AG, IPR2017-01586, Paper 8 at 17–18 (PTAB Dec. 15, 2017) (precedential as to Section III.C.5, first paragraph). If, after review of factors (a), (b), and (d), we determine that the same or substantially the same art or arguments previously were presented to the Office, then factors (c), (e), and (f) relate to whether the petitioner demonstrates that the Office erred in a manner material to the patentability of the challenged claims. *Advanced Bionics*, Paper 6 at 10.

2. Summary of the Prosecution History

The '855 patent issued on September 4, 2007, from U.S. Application No. 11/147,564 (“the '564 application”). *See* Ex. 1001, codes (21), (45). The '564 application's claims were not rejected by the Examiner. *See*

Ex. 1002 (prosecution history). Broussard is incorporated by reference into the '855 patent. See Ex. 1001, 1:22–26.

The '511 patent—at issue in related IPR2022-00293—issued on March 29, 2011, from U.S. Application No. 11/895,242 (“the '242 application”), which is a continuation in part of the '564 application. See IPR2022-00293, Ex. 1001, codes (21), (45), (63). During prosecution of the '242 application, the applicants (1) listed Broussard on an Information Disclosure Statement filed on September 14, 2007 (IPR2022-00293, Ex. 1002 at 54 (showing a filing date of September 14, 2007), 56 (listing Broussard)); and (2) listed Cur on a Supplemental Information Disclosure Statement filed on February 7, 2008 (IPR2022-00293, Ex. 1002 at 52 (showing a filing date of February 7, 2008), 51 (listing Cur)).

3. Analysis

As to the first part of the *Advanced Bionics* framework, Patent Owner argues that the prior art in the Petition “is ‘substantially the same’ because two of the references were previously presented to the examiner of the '855 Patent, and the remainder are cumulative of those previously presented to the Office.” Prelim. Resp. 43; see also *id.* at 43–46 (entire argument on the first part of the *Advanced Bionics* framework).

We agree with Patent Owner (and Petitioner) that Broussard was before the Examiner during prosecution of the '855 patent. See Prelim. Resp. 44; Pet. 95. As noted by the parties, Broussard is listed on the face of the '855 patent and expressly incorporated by reference into the '855 patent. See Ex. 1001, code (56), 1:19–26 (discussing Broussard as “U.S. patent application Ser. No. 2004/0226309”). The Examiner also listed Broussard on a Notice of References Cited. See Ex. 1002 at 11.

We turn now to Cur. Patent Owner argues that Cur “was considered, by the same examiner, in the continuation application that led to the ’511 Patent, and did not prevent issuance of those related claims.” Prelim. Resp. 44. As an initial matter, we note that (as discussed above), the Supplemental Information Disclosure Statement identifying Cur in prosecution of the ’511 patent was not filed until February 7, 2008, which is over five months after issuance of the ’855 patent. *Compare* Ex. 1001, code (45) (showing an issuance date of September 4, 2007), *with* IPR2022-00293, Ex. 1002 at 51, 52. Thus, Cur was not presented to the Examiner prior to when the ’855 patent issued. Regardless, for purposes of this analysis, we assume that Cur was previously presented as to the ’855 patent.

Even with this assumption, however, the Examiner previously considered art applied in one ground in the Petition (Broussard and Cur) and part of another ground (Ekerot and Cur). As to the reliance on Ekerot and the additional prior art references in the remaining three grounds (Kuhn; Loeffler and Kuhn; Sinclair and Kuhn), Patent Owner argues that the additional references are “cumulative of those considered during examination.” Prelim. Resp. 45. In support, Patent Owner highlights that the 29 references considered by the Examiner during prosecution of the ’855 patent all “pertain to art within the relevant fields of temperature-controlled containers and vacuum insulation panels for containers” similar to “the IPR-asserted references.” *Id.* at 45–46.

The mere fact that the additional prior art references relied on by Petitioner (i.e., Ekerot, Kuhn, Loeffler, and Sinclair) pertain to one or more *of the same fields* to which the art cited in prosecution also pertains is not sufficient *alone* to satisfy the first part of the *Advanced Bionics* framework

by showing that these additional references are “substantially the same” as art previously presented to the Office. *See* Prelim. Resp. 45–46. Indeed, the prior art cited in petitions for *inter partes* review and the art cited during prosecution of the challenged patent will likely always relate to the same subject matter as that in the claims at issue.

On these facts, we conclude that Petitioner bases at least the first three asserted grounds (Kuhn; Loeffler and Kuhn; Sinclair and Kuhn) on prior art and arguments that are not the same or substantially the same as the prior art or arguments before the Examiner. When considering the Petition as a whole, we find that it does not sufficiently implicate the concerns addressed by § 325(d) to warrant discretionary denial. Because the first part of the framework in *Advanced Bionics* is not met, we need not reach “whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.” *Advanced Bionics*, Paper 6 at 8–9.

B. The Level of Ordinary Skill in the Art

The level of ordinary skill in the art is “a prism or lens” through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). The person of ordinary skill in the art is a hypothetical person presumed to have known the relevant art at the time of the invention. *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). In determining the level of ordinary skill in the art, we may consider certain factors, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *Id.*

Petitioner contends, with accompanying declaration testimony, that a person having ordinary skill in the art “would have at least a Bachelor’s degree in mechanical or structural engineering, or a related field, and two years of experience designing structures with comparable mechanical and/or structural elements to the subject matter of the ’855 Patent.” Pet. 10 (citing Jobin Decl. ¶¶ 22–25). Petitioner also states that “[a]dditional experience may compensate for less education.” *Id.* (citing Jobin Decl. ¶¶ 22–25).

Patent Owner does not dispute Petitioner’s proposed definition of the level of ordinary skill in the art, which appears consistent with the record at this stage of the proceeding, including the prior art. *See* Prelim. Resp. 10; *GPAC Inc.*, 57 F.3d at 1579. For purposes of this Decision, we adopt the definition of the level of ordinary skill in the art proposed by Petitioner.

C. Claim Construction

In *inter partes* reviews, the Board interprets claim language using the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b), as described in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b). Under that standard, we generally give claim terms their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1313–14. Although extrinsic evidence, when available, may also be useful when construing claim terms under this standard, extrinsic evidence should be considered in the context of the intrinsic evidence. *See id.* at 1317–19.

Neither Petitioner nor Patent Owner proposes express constructions for any claim terms. *See* Pet. 8. At this stage of the proceeding and based

on the current record, we do not discern a need to construe explicitly any claim terms because doing so would not change the outcome of the analysis below. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (stating that “we 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))).

D. Effective Filing Date of the Challenged Claims

In three of the five asserted grounds, Petitioner relies on Kuhn, which is an international application published on December 2, 2004, in accordance with the Patent Cooperation Treaty. *See* Ex. 1005; Pet. 1 (listing Kuhn in three grounds). Petitioner states that Kuhn is prior art under pre-AIA 35 U.S.C. § 102(a). Pet. 9. In addition, in one of the five asserted grounds, Petitioner relies on Broussard, which is a United States patent application pre-grant publication, which published on November 18, 2004. *See* Ex. 1012; Pet. 2 (listing Broussard in one ground). Petitioner states that Broussard is prior art under pre-AIA 35 U.S.C. § 102(a). Pet. 10. The filing date shown on the cover of the ’855 patent is June 8, 2005, and no provisional application is identified. *See* Ex. 1001, code (22).

On this issue, Petitioner states: “For purposes of this proceeding only, Petitioner contends the priority date [of the claims of the ’855 patent] should be June 8, 2005.” Pet. 8. In the Preliminary Response, Patent Owner presents extensive argument and evidence—including a 45-page declaration by Nicholas Wynne (one of the three inventors named on the ’855 patent)—that neither Kuhn nor Broussard qualifies as prior art because the inventors (1) conceived of and reduced to practice independent claim 19 before the

publication dates of Kuhn and Broussard and (2) conceived of the subject matter of the remaining challenged claims before the publication dates of Kuhn and Broussard and then reduced to practice that subject matter with reasonable diligence after the publication dates of Kuhn and Broussard. *See* Prelim. Resp. 28–42.

At this stage of the proceeding, we will not determine the effective filing date(s) of the challenged claims of the '855 patent. Instead, we will allow the record on this fact-intensive issue to fully develop over the course of trial to allow Petitioner to challenge Patent Owner's argument and evidence on this issue (such as by, for example, deposing Mr. Wynne).

In the Preliminary Response, Patent Owner cites 37 C.F.R. § 42.108(c) for the contention that the effective filing date(s) of the challenged claims is an issue “that may be properly decided on the merits at the institution-stage of this proceeding.” Prelim. Resp. 42. Although the cited regulation provides that a decision on institution “will take into account a patent owner preliminary response where such a response is filed, including any testimonial evidence,” it does not *require* panels to make preliminary findings *as to all issues* raised by patent owners, including issues on which the record is not fully developed. 37 C.F.R. § 42.108(c). Thus, the cited regulation does not require the panel to substantively address this issue. The parties should, however, fully develop this issue at trial.

E. Asserted Anticipation of Claims 19, 20, 23, and 28 by Kuhn

Petitioner asserts that claims 19, 20, 23, and 28 of the '855 patent are anticipated under pre-AIA 35 U.S.C. § 102(a) by Kuhn. Pet. 1, 10–25. Patent Owner provides arguments specifically addressing this asserted ground. Prelim. Resp. 11–15. We first summarize aspects of Kuhn.

1. Kuhn

Kuhn discloses heat-insulated containers that “are used in particular, but certainly not exclusively, for purposes of transport in order to be able convey temperature-sensitive goods, for example medications, while maintaining narrow temperature tolerance ranges.” Ex. 1005, 3:25–29.¹⁰

Figures 1 and 3 of Kuhn are reproduced below:

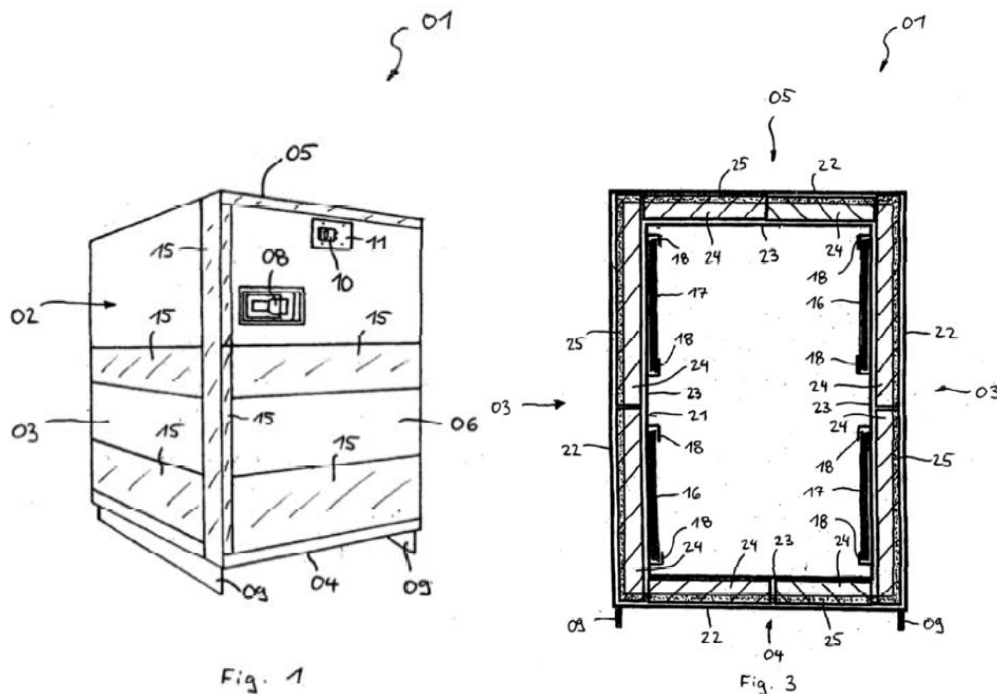


Figure 1 depicts a “transport container in an external perspective view” and Figure 3 shows the same container in cross-section. Ex. 1005, 8:18, 8:23. Both Figures 1 and 3 show container 01, which includes three side wall elements 03, floor element 04, cover element 05, and pivotably mounted door element 06. *See id.* at 9:26–10:4. Kuhn discloses that, “[a]fter closing the door element 06, the internal space 07 is enclosed on all sides and is insulated against the penetration of heat through the container

¹⁰ For Kuhn, we use the page numbering added by Petitioner, shown after “Ex. 1005.” in the bottom right corner of each page.

wall 02 by means of vacuum insulating elements.” *Id.* at 10:6–8. Figure 3 shows, among other features, “melting storage elements 16 and 17 . . . arranged parallel to the container wall 02 on the inside 21 of the container 01” and shows vacuum insulating elements 24 arranged between outer wall 22 and inner wall 23. *See id.* at 11:19–25.

2. Analysis

a. Independent Claim 19

Petitioner contends that Kuhn discloses each limitation in claim 19. Pet. 13–19. Patent Owner argues that Kuhn does not disclose the requirement for “a refrigeration system connected to cool [the] chamber” (the “‘refrigeration system’ limitation”). *See* Prelim. Resp. 11–14.

(1) The “Refrigeration System” Limitation

Petitioner argues that Kuhn satisfies the “refrigeration system” limitation. *See* Pet. 18–19 (citing Jobin Decl. ¶¶ 124–127). Specifically, Petitioner asserts that one of ordinary skill in the art would have “understood that a ‘refrigeration system’ at the relevant time included a broad range of active and passive systems designed to cool the chamber, including for example iceboxes, dry ice, or other chemicals to chill, or maintain a cool temperature in, the container.” Pet. 18–19 (citing Jobin Decl. ¶ 125). Petitioner thus relies on Kuhn’s disclosures of “melting storage elements filled with a suitable melting storage material” and that “buffer the thermal flow until reaching the capacity limits.” Ex. 1005, 4:22–5:3¹¹, *quoted at* Pet. 19. According to Petitioner, one of ordinary skill in the art would have

¹¹ Petitioner cites to the internal pagination of Kuhn. We revise Petitioner’s citations to the page numbering added by Petitioner.

“understood Kuhn taught its cargo would be cooled as required by” the “refrigeration system” limitation. Pet. 19 (citing Jobin Decl. ¶¶ 124–127).

Patent Owner responds that Kuhn does not satisfy the “refrigeration system” limitation because Kuhn teaches a “passive” cooling system rather than an “active” cooling system, as required by claim 19. See Prelim. Resp. 11–14; *id.* at 11 (arguing that Kuhn teaches “passive cooling systems” and that claim 19 requires “active cooling by way of refrigeration”).

At this stage of the proceeding, and based on the preliminary record, the record more strongly supports Patent Owner’s position. Neither Petitioner nor Mr. Jobin directly addresses whether one of ordinary skill in the art at the time of the invention would have understood the “refrigeration system” limitation—in the context of the ’855 patent—as including both active and passive cooling systems, and thus been satisfied by the “passive” system in Kuhn. See, e.g., Ex. 1005, 4:22–23 (“The basic idea of the invention is to arrange *passive* melting storage elements filled with a suitable melting storage material in the container.” (emphasis added)), *cited at* Prelim. Resp. 12. Instead, Petitioner relies on Mr. Jobin’s discussion of how both active and passive systems *existed* at the time of invention of the ’855 patent and that “[s]uch systems may use an icebox, dry ice, or other chemicals to cool or maintain a cool temperature in a space.” Jobin Decl. ¶ 125, *cited at* Pet. 18–19.

The issue, however, is not whether passive cooling systems *existed* and would have been understood to perform a cooling function similar to active systems. Cf. Pet. 19 (discussing how one of ordinary skill in the art would have “understood Kuhn taught its cargo would be cooled as required by” the “refrigeration system” limitation (citing Jobin Decl. ¶¶ 124–127)).

Rather, the issue is whether a passive system, such as in Kuhn, would have fallen within the scope of the “refrigeration system” limitation, as understood by one of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history of record. *See Phillips*, 415 F.3d at 1313–14.

Although the parties have not fully discussed this issue (and have not discussed the claim language or the prosecution history), based on the current record at this stage of the proceeding, we agree with Patent Owner that the Specification focuses on *active* systems that are driven by electrical power. *See* Ex. 1001, 2:22–33 (discussing a “refrigeration evaporator, an electrical heating element and circulating fans” and “a refrigeration compressor and storage batteries, and a control system senses the temperature within the chamber in different areas to operate the compressor and heating element from the batteries or an external power source”), code (57) (similarly describing use of a “refrigeration evaporator and electrical heating elements” and “refrigeration compressor”); Prelim. Resp. 13 (quoting same).

For example, *every use* of the term “refrigeration” in the written description refers to components of an *active* refrigeration system. *See, e.g.*, Ex. 1001, 1:42–54 (discussing a “refrigeration evaporator” and “refrigeration compressor”), 6:13–17 (discussing “evaporator assembly 230 of a refrigeration system”), 6:38–50 (discussing “refrigeration compressor 240”), 7:3 (same), 7:25 (same). Although “it is the *claims*, not the written description, which define the scope of the patent right” (*Laitram Corp. v. NEC Corp.*, 163 F.3d 1342, 1347 (Fed. Cir. 1998)), at this stage, Petitioner has not adequately addressed its implied construction of the “refrigeration

system” limitation as including “passive” systems. We have not adopted a formal construction for “refrigeration system” or made a final determination as to its application to Kuhn. The parties should further develop this issue at trial.¹²

(2) Conclusion as to Claim 19

Because the Petition shows a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see infra* § II.F.2.a; § II.G.2.a), we include this asserted ground in the instituted *inter partes* review. *See SAS*, 138 S. Ct. at 1354, 1359–60; 37 C.F.R. § 42.108(a).

b. Claims 20, 23, and 28

Claims 20, 23, and 28 depend from claim 19. Patent Owner does not present any arguments specifically addressing claims 20, 23, and 28. *See* Prelim. Resp. 11–16. We include claims 20, 23, and 28 in the context of this asserted ground in the instituted *inter partes* review. *See SAS*, 138 S. Ct. at 1354, 1359–60; 37 C.F.R. § 42.108(a).

F. Asserted Obviousness of Claims 19–21, 23, and 26–30 Based on Kuhn and Loeffler

Petitioner asserts that claims 19–21, 23, and 26–30 of the ’855 patent would have been obvious under pre-AIA 35 U.S.C. § 103(a) based on Kuhn and Loeffler. Pet. 1, 26–38. Patent Owner provides arguments specifically addressing this asserted ground. Prelim. Resp. 15–16, 18–21. We first summarize aspects of Loeffler.

¹² To the extent Petitioner seeks to rely on statements in Kuhn that “acknowledge[]” active systems (Pet. 19 (citing Ex. 1005, 4:10–13)), we note that this ground is based on anticipation, such that the Petition does not include any reason to modify Kuhn with an active system. *See* Pet. 13–19.

1. *Loeffler*

In this asserted ground, Petitioner relies on Loeffler, in addition to Kuhn (summarized above (see § II.E.1)). Loeffler discloses a cargo container “with a highly insulating housing, as well as with an air conditioning system monitored by a control system.” Ex. 1006, 5:19–21.¹³

Figure 6 of Loeffler is reproduced below:

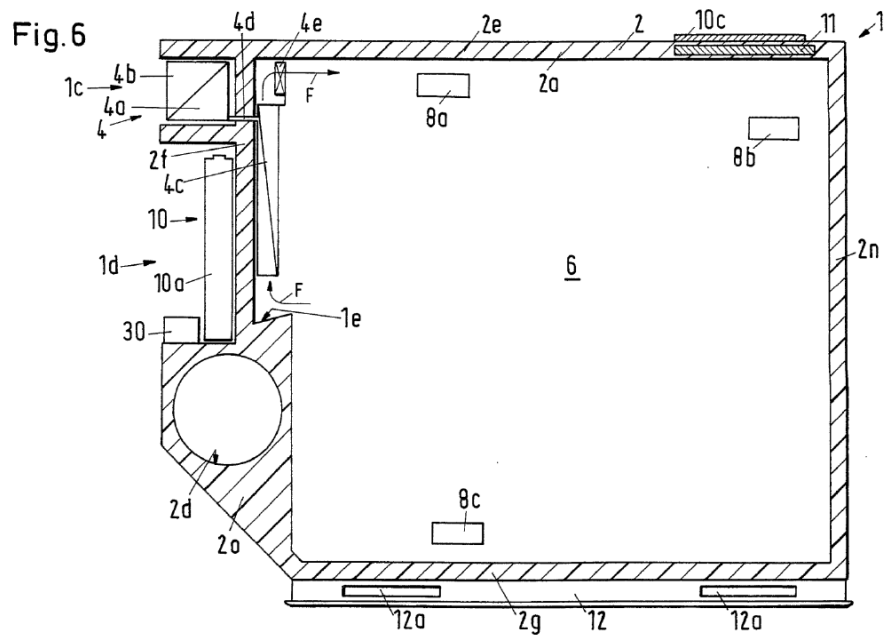


Figure 6 is a cross-sectional view of a cargo container with a refrigeration unit. See Ex. 1006, 8:33–37. Cargo container 1 shown includes, among other features, insulating housing 2 and “air conditioning system 4 having a compressor 4a, a condenser 4b, and an evaporator unit 4c disposed within the interior 6 and connected to the condenser 4b via a connecting line 4d.” *Id.* at 14:32–34, 15:6–9.

¹³ For Loeffler, we use the page numbering added by Petitioner, shown after “Ex. 1006.” in the bottom right corner of each page.

2. *Analysis*

a. *Independent Claim 19*

Petitioner contends that the proposed combination of Kuhn and Loeffler discloses each limitation of claim 19. Pet. 27–30. To support its arguments, Petitioner identifies certain passages in the cited references and explains the significance of each passage with respect to the corresponding claim limitation. *Id.* Petitioner also articulates reasons to combine the relied-upon aspects of Kuhn and Loeffler. Pet. 27–29. Patent Owner (1) argues that Kuhn teaches away from the use of “active” cooling and (2) argues that Petitioner has not provided adequate reasons to combine Kuhn and Loeffler. *See* Prelim. Resp. 15–16, 18–21.

We have reviewed Petitioner’s contentions with respect to claim 19, and for the reasons below, we determine that the Petition shows a reasonable likelihood that Petitioner would prevail in demonstrating that claim 19 would have been obvious based on Kuhn and Loeffler. Pet. 27–30. We address in turn below each of Patent Owner’s arguments.

(1) *The Motivation to Combine Kuhn and Loeffler*

As to the motivation to combine Kuhn and Loeffler, Petitioner first discusses how Kuhn and Loeffler both (1) “describe shipping containers for use with temperature sensitive cargo in aircraft,” (2) “teach insulation between inner and outer components of the container,” and (3) disclose vacuum insulation elements containing a partial vacuum. Pet. 27 (citing Ex. 1005, 5:20–24, 9:19–29; Ex. 1006, 1:3–5, 4:28–5:15, 7:15–32, 13:26–29). Petitioner notes, however, that Kuhn and Loeffler “use different methods to cool their respective shipping containers,” with Kuhn relying on “melting storage elements,” whereas “Loeffler teaches an air conditioning

device monitored by a control system to actively cool the interior.” *Id.* (quoting Ex. 1005, 4:22–31; citing Ex. 1006, 3:19–23). According to Petitioner, one of ordinary skill in the art at the time of the invention

would have reason to combine the Kuhn container with Loeffler’s active cooling system to derive enhanced cooling performance able to maintain a specific, desired temperature over an extended time. [Jobin Decl.] ¶148. Specifically, [one of ordinary skill in the art] understood that Loeffler’s active cooling system was designed “for transporting high-value and ultra-high-value goods with strictly defined climatic parameters.” Ex. 1006, 2:32–36. Loeffler discloses that its solution results in “low cost and reliable air-conditioned transportation of cargo.” *Id.*, 3:4–6. Taken together, the active cooling system of Loeffler increases both the variety of goods that may be transported in Kuhn’s container, as well as the distance and duration of feasible transportation. *Id.*, 10:9–31. Moreover, Loeffler’s active cooling system permits more precise temperatures, which are needed for some cargo. *Id.*

Pet. 27–28. Petitioner also discusses why one of ordinary skill in the art would have reasonably expected success from the combination. Pet. 29 (citing Jobin Decl. ¶¶ 146–151; Ex. 1006, 7:15–32, 13:26–29).

Patent Owner presents two arguments as to why one of ordinary skill in the art allegedly would not have combined Kuhn and Loeffler as proposed. First, Patent Owner argues that Kuhn teaches away from the “active refrigeration limitations” in claim 19 (i.e., in 19.D). Prelim. Resp. 15. Specifically, Patent Owner argues that Kuhn “expressly criticizes” “actively cooled containers” by “highlight[ing] that actively cooled containers have the ‘disadvantage’ of being ‘extraordinarily sensitive to disruptions’ and purport[ing] to offer an improvement over such containers.” *Id.* (quoting Ex. 1005, 4:9–18). According to Patent Owner, one of ordinary skill in the art “reading Kuhn would be ‘discouraged’ from implementing

Loeffler’s . . . active cooling in a container as Kuhn teaches away from the claimed invention’s use of active cooling.” *Id.* at 15–16 (quoting *Arctic Cat Inc. v. Bombardier Recreational Prod. Inc.*, 876 F.3d 1350, 1360 (Fed. Cir. 2017)).

At this stage of the proceeding, the record more strongly supports Petitioner’s position that Kuhn *does not* teach away from combination with Loeffler’s active refrigeration system. “A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1069 (Fed. Cir. 2018) (quoting *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1327 (Fed. Cir. 2009)). A reference does not teach away “if it merely expresses a general preference for an alternative invention but does not ‘criticize, discredit, or otherwise discourage’ investigation into the invention claimed.” *Id.* (citation omitted).

The current record indicates that Kuhn does not criticize active refrigeration system *in all instances*, but rather, merely highlights a potential disadvantage—active refrigeration systems will not continue to cool *if no power is supplied*. As noted by Petitioner (and Mr. Jobin), however, Loeffler discusses operation of its refrigeration unit *in the same situation*: (1) by providing external power before and after, but not during, flight and by relying on the insulative properties of the container, and (2) by “operat[ing] autonomously” using power from other sources, such as batteries, fuel cells, and solar panels. Pet. 28 (citing Ex. 1006, 4:5–26; Jobin Decl. ¶ 149) (discussing how Loeffler “discloses that its refrigeration system is

specifically designed to overcome the same loss of energy supply issue mentioned in Kuhn”). At least because Loeffler appears to have accounted for the alleged disadvantage identified in Kuhn, we do not view Kuhn, at this stage, as teaching away from combination with the active refrigeration system of Loeffler.

Moreover, Petitioner identifies potential *advantages* of active refrigeration systems that may be considered along with the potential *disadvantage* identified by Patent Owner, with the advantages being maintaining a more precise range of temperatures as needed for certain cargo for a given duration of time. See Pet. 27–28 (citing Jobin Decl. ¶¶ 148–149)) (discussing, e.g., how “some cargo may require a constantly maintained temperature for an extended period of time, which [one of ordinary skill in the art] understood is more aligned with Loeffler’s controlled system”), 28 (“Taken together, the active cooling system of Loeffler increases both the variety of goods that may be transported in Kuhn’s container, as well as the distance and duration of feasible transportation. Moreover, Loeffler’s active cooling system permits more precise temperatures, which are needed for some cargo.” (citing Ex. 1006, 2:32–36, 3:4–6, 10:9–31)); see also *Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n.8 (Fed. Cir. 2000) (“The fact that the motivating benefit comes at the expense of another benefit . . . should not nullify its use as a basis to modify the disclosure of one reference with the teachings of another. Instead, the benefits, both lost and gained, should be weighed against one another.”). The parties should consider developing these issues during trial.

Second, Patent Owner includes a section in the Preliminary Response with additional arguments as to why Petitioner’s reasons to combine Kuhn

and Loeffler are allegedly inadequate. *See* Prelim. Resp. 19–21 (addressing this ground). In that section, Patent Owner repeats the argument (discussed above) that Kuhn “expressly criticizes” active refrigeration system as in Loeffler, and thus teaches away from combining Kuhn and Loeffler in the manner proposed. *Id.* at 19–20 (citing Prelim. Resp. 11–16). For the same reasons discussed above, at this stage of the proceeding, the record more strongly supports Petitioner’s position that Kuhn *does not* teach away from a combination with Loeffler’s active refrigeration system.

In the same section in the Preliminary Response, Patent Owner then contends that “Petitioner offers *no explanation* for why [one of ordinary skill in the art] would have been motivated to combine Loeffler and Kuhn in spite of Kuhn’s express criticism of active cooling systems like Loeffler’s.” Prelim. Resp. 20 (emphasis added). Patent Owner argues that “it is not enough to allege that Loeffler and Kuhn *could* be combined; rather, Petitioner must show why [one of ordinary skill in the art] *would* combine them, which it does not.” *Id.* at 21 (underlining omitted).

Patent Owner’s generalized arguments do not identify a deficiency in Petitioner’s contentions as to this asserted ground. As summarized above, Petitioner provides a thorough discussion of why one of ordinary skill in the art would have modified Kuhn with the active refrigeration system of Loeffler. *See* Pet. 27–29. At this stage of the proceeding, Petitioner has provided reasoning with sufficient rational underpinning, contrary to Patent Owner’s assertion.

For these reasons, at this stage of the proceeding and on the current record, we determine that Petitioner has made a sufficient showing that a person of ordinary skill in the art would have had reason to modify Kuhn

and Loeffler as proposed, that the articulated reasoning is supported by rational underpinning, and that there would have been a reasonable expectation of success in the combination.

(2) The Subject Matter of Claim 19

Patent Owner does not offer any arguments addressing the subject matter of the limitations of claim 19. *See generally* Prelim. Resp. We have reviewed Petitioner's contentions with respect to the limitations of claim 19, and determine that the Petition provides a sufficient showing, at this stage of the proceeding, that the combination of Kuhn and Loeffler satisfies each limitation. *See* Pet. 29–30.

(3) Conclusion as to Claim 19

For the reasons above, we determine, based on the current record, that the Petition shows a reasonable likelihood that Petitioner would prevail in demonstrating that claim 19 would have been obvious based on Kuhn and Loeffler.

b. Claims 20, 21, 23, and 26–30

For dependent claims 20, 21, 23, and 26–30 (which depend from claim 19), Petitioner contends that the proposed combination of Kuhn and Loeffler discloses each of the limitations. Pet. 30–38. Patent Owner does not present any arguments specifically addressing claims 20, 21, 23, and 26–30. *See generally* Prelim. Resp. We include claims 20, 21, 23, and 26–30 in the context of this asserted ground in the instituted *inter partes* review. *See* SAS, 138 S. Ct. at 1354, 1359–60; 37 C.F.R. § 42.108(a).

G. Asserted Obviousness of Claims 19–21, 23, 26–28, 31, 33, 35–37, and 41 Based on Sinclair and Kuhn

Petitioner asserts that claims 19–21, 23, 26–28, 31, 33, 35–37, and 41 of the '855 patent would have been obvious under pre-AIA 35 U.S.C.

§ 103(a) based on Sinclair and Kuhn. Pet. 1, 39–57. Patent Owner provides arguments specifically addressing this asserted ground. Prelim. Resp. 15–16, 21–25. We first summarize aspects of Sinclair.

1. *Sinclair*

In this asserted ground, Petitioner relies on Sinclair, in addition to Kuhn (summarized above (see § II.E.1)). Sinclair discloses “thermally insulated containers suitable for use in the transport of refrigerated goods.” Ex. 1007, 1:9–12.

Figure 1 of Sinclair is reproduced below:

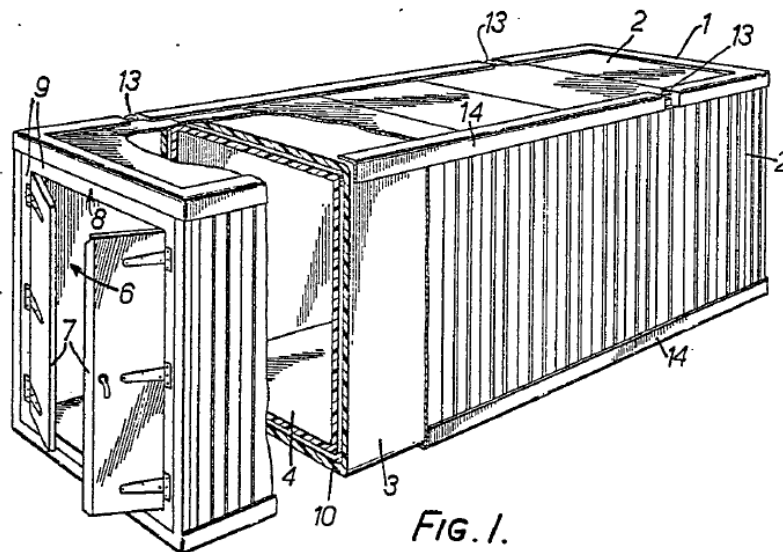


Figure 1 is “a perspective view of one container, with part broken away.” Ex. 1007, 2:11–12. The container in Figure 1 includes, among other features, “exterior casing 1 of box-like form which is rectangular in plan view and has substantially square ends one of which is closed and the other of which is open.” *Id.* at 2:19–24. Sinclair discloses that casing 1 “is externally metal clad at 2 and provided with an internal layer of thermal insulation, which may for example be a sprayed-on synthetic foam material 3.” *Id.* at 2:24–27. The container also includes “removable interior

casing 4 of similar shape to the exterior casing 1 [and] dimensioned to fit within the latter,” with interior casing 4 also including closed inner end 5 and outer end 6, which is closed by two side-hung hinged doors 7. *Id.* at 2:31–35. Sinclair discloses that the container

may as usual be used in conjunction with a refrigeration plant to maintain a desired low temperature within the interior casing, and the plant may be associated with dole plates mounted below the roof of the interior casing and connected to the plant through conduits having suitable couplings at the closed end of the exterior casing.

Ex. 1007, 1:79–2:3.

Figure 2 is reproduced below:

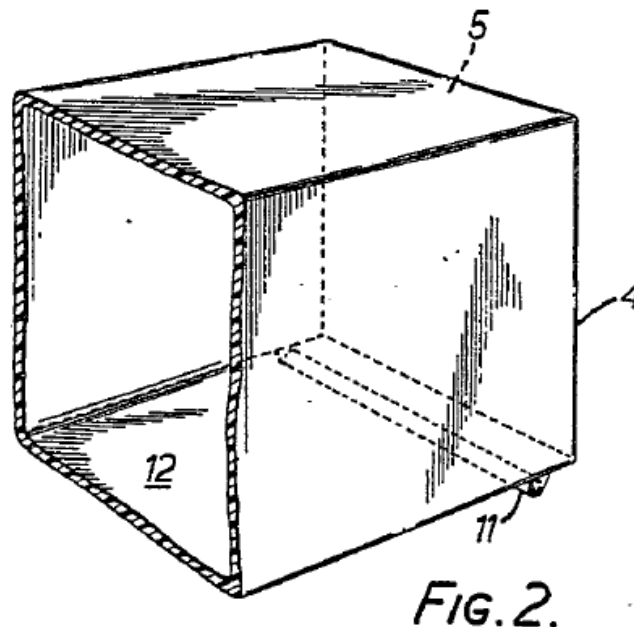


Figure 2 is a perspective view of interior casing 4. Ex. 1007, 2:13–15. Sinclair discloses that the walls of “interior casing 4 are suitably formed to provide thermal insulation and to that end they are conveniently of laminated glass-fib[er] reinforced synthetic resin.” *Id.* at 2:66–70.

2. *Analysis*

a. *Independent Claims 19 and 35*

Petitioner contends that the proposed combination of Sinclair and Kuhn discloses each limitation of claims 19 and 35. Pet. 40–45, 50–54. To support its arguments, Petitioner identifies certain passages in the cited references and explains the significance of each passage with respect to the corresponding claim limitation. *Id.* Petitioner also articulates reasons to combine the relied-upon aspects of Sinclair and Kuhn. Pet. 40–41. Patent Owner (1) again relies on the argument that Kuhn teaches away from the use of “active” cooling and (2) argues that Petitioner has not provided adequate reasons to combine Sinclair and Kuhn. *See* Prelim. Resp. 15–16, 21–25.

We have reviewed Petitioner’s contentions with respect to claims 19 and 35, and for the reasons below, we determine that the Petition shows a reasonable likelihood that Petitioner would prevail in demonstrating that claims 19 and 35 would have been obvious based on Sinclair and Kuhn. Pet. 40–45, 50–54. We address in turn each of Patent Owner’s arguments.

(1) The Motivation to Combine Sinclair and Kuhn

As to the motivation to combine Sinclair with Kuhn, Petitioner first discusses aspects of the insulation disclosed in Sinclair and states that one of ordinary skill in the art would have “understood Kuhn’s VIP^[14] panels to further enhance the thermal insulation of the container” of Sinclair. Pet. 40 (citing Ex. 1007, 1:43–56, 1:64–66, Jobin Decl. ¶ 191). According to Petitioner, “adding Kuhn’s VIP layering to Sinclair’s container would enhance its thermal insulation but avoid piercing the VIPs since Kuhn uses

¹⁴ Petitioner uses “VIP” to refer to vacuum insulated panels. *See* Pet. 2. We do the same.

layers of shock protection elements to protect the VIPs and mitigate damage.” Pet. 40–41 (citing Ex. 1005, 6:13–14, 9:19–29). Petitioner adds this as to why one of ordinary skill in the art would have combined Sinclair and Kuhn:

[A person of ordinary skill in the art would have] understood VIPs to provide enhanced thermal insulation for a fraction of the weight and thickness of foam insulation. [Jobin Decl.] ¶192. These advantages reduced shipping costs and allowed for larger interior spaces and/or smaller overall total volumes for the container. *Id.* VIPs, especially with several layers on all six sides of a container, increase thermal flow resistance. Ex. 1005, [12]:12–27.

Pet. 41. Petitioner also discusses why one of ordinary skill in the art would have reasonably expected success from the combination. *Id.* (citing Jobin Decl. ¶¶ 191–193; Ex. 1007, 2:24–29).

Patent Owner presents two arguments as to why one of ordinary skill in the art allegedly would not have combined Sinclair and Kuhn as proposed. First, Patent Owner relies on the same argument discussed above that Kuhn teaches away from the “active refrigeration limitations” in claims 19 and 35 (i.e., in 19.D and 35.E). Prelim. Resp. 15; *see id.* at 15–16 (entire argument). For the same reasons discussed above, at this stage of the proceeding, the record more strongly supports Petitioner’s position that Kuhn *does not* teach away from combination with Sinclair based on Sinclair’s active refrigeration system.

Second, Patent Owner includes a section in the Preliminary Response with additional arguments as to why Petitioner’s reasons to combine Sinclair and Kuhn are allegedly inadequate. *See* Prelim. Resp. 21–25 (addressing this ground). In that section, Patent Owner again repeats the argument (discussed above) that Kuhn “teaches away from active cooling,” and thus

one of ordinary skill in the art would not have been motivated to combine Sinclair and Kuhn in the manner proposed. *Id.* at 25 (citing *id.* at 12–14). For the same reasons discussed above, at this stage of the proceeding, the record more strongly supports Petitioner’s position that Kuhn *does not* teach away from a combination with Sinclair based on Sinclair’s active refrigeration system.

In the same section of the Preliminary Response, Patent Owner then argues that “Sinclair published in 1968, and no one arrived at the claimed invention for over 35 years” and contends that “[t]his significant time interval ‘speaks volumes to the nonobviousness’ of the claimed invention.” Prelim. Resp. 22 (quoting *Leo Pharm. Prods., Ltd. v. Rea*, 726 F.3d 1346, 1359 (Fed. Cir. 2013)).

At this stage of the proceeding, we do not view the decision cited by Patent Owner as supporting that the age of Sinclair undermines the motivation to combine provided by Petitioner. The decision in *Leo Pharmaceutical Products* dealt with the passage of time in the context of analyzing long-felt but unresolved need; it does not support the proposition that the mere passage of time from the dates of the prior art to the challenged patent indicate nonobviousness. *See Leo Pharm. Prods.*, 726 F.3d at 1359 (“The record also shows evidence of long felt but unsolved need, i.e., the need for a single formulation to treat psoriasis. The length of the intervening time between the publication dates of the prior art and the claimed invention can also qualify as an objective indicator of nonobviousness.” (emphasis omitted)); *see also Nike, Inc. v. Adidas AG*, 812 F.3d 1326, 1337–38 (Fed. Cir. 2016), *overruled by Aqua Prod., Inc. v. Matal*, 872 F.3d 1290 (Fed. Cir. 2017) (distinguishing *Leo Pharmaceutical Products* for similar reasons).

Patent Owner then argues that Petitioner relies on “hindsight” and “does not provide any explanation as to *why* [one of ordinary skill in the art] would have been motivated to replace Sinclair’s air gap thermal insulation with Kuhn’s entirely different type of insulation in the first place, let alone modify such references in the manner that Petitioner proposes, as it must.” Prelim. Resp. 22–23 (underlining omitted). Patent Owner contends that “instead of explaining *why* [one of ordinary skill in the art] would have been motivated to replace Sinclair’s insulation with Kuhn’s, Petitioner merely alleges that [one of ordinary skill in the art] *could* do so.” *Id.* at 24 (citing Pet. 41) (underlining omitted).

Patent Owner’s generalized arguments do not identify a deficiency in Petitioner’s contentions as to this asserted ground. As summarized above, Petitioner provides a thorough discussion of why one of ordinary skill in the art would have modified Kuhn with the active refrigeration system of Loeffler. *See* Pet. 40–41. At this stage of the proceeding, Petitioner has provided reasoning with sufficient rational underpinning, contrary to Patent Owner’s assertion. Notably, Patent Owner’s argument that Petitioner only discusses that one of ordinary skill in the art “could”—rather than “would”—have made the proposed modification refers to the discussion of reasonable expectation of success (rather than the discussion of the reasons to combine Sinclair with Kuhn) because only the discussion of reasonable expectation of success includes the word “could” on the cited page of the Petition. *See* Pet. 41 (bottom paragraph); Prelim. Resp. 24 (citing Pet. 41).

Further, Patent Owner argues that Petitioner “fails to establish that replacing Sinclair’s insulation with Kuhn’s is all that is required to meet the claim limitations” and that “Petitioner makes no attempt to explain how

Sinclair’s insulation could simply be swapped out for Kuhn’s given their significant structural differences.” Prelim. Resp. 23, 24. As an initial matter, we note that Patent Owner does not affirmatively argue that the combination of Sinclair and Kuhn fails to satisfy any limitation of claims 19 or 35. *See generally* Prelim. Resp. Moreover, at this stage of the proceeding, Patent Owner has not adequately explained (nor supported with declaration testimony) why the alleged “structural differences” between Sinclair and Kuhn would have undermined the proposed modification. *See id.* at 23–24. The parties should consider developing these issues at trial.

For these reasons, at this stage of the proceeding and on the current record, we determine that Petitioner has made a sufficient showing that a person of ordinary skill in the art would have had reason to modify Sinclair and Kuhn as proposed, that the articulated reasoning is supported by rational underpinning, and that there would have been a reasonable expectation of success in the combination.

(2) The Subject Matter of Claims 19 and 35

Patent Owner does not offer any arguments addressing the subject matter of the limitations of claim 19 or 35. *See generally* Prelim. Resp. We have reviewed Petitioner’s contentions with respect to the limitations of claims 19 and 35, and determine that the Petition provides a sufficient showing, at this stage of the proceeding, that the combination of Sinclair and Kuhn satisfies each limitation. *See* Pet. 42–45, 50–54.

(3) Conclusion as to Claims 19 and 35

For the reasons above, we determine, based on the current record, that the Petition shows a reasonable likelihood that Petitioner would prevail in

demonstrating that claims 19 and 35 would have been obvious based on Sinclair and Kuhn.

b. Claims 20, 21, 23, 26–28, 31, 33, 36, 37, and 41

For dependent claims 20, 21, 23, 26–28, 31, and 33 (which depend from claim 19), Petitioner contends that the proposed combination of Sinclair and Kuhn discloses each of the limitations. Pet. 45–50. And for dependent claims 36, 37, and 41 (which depend from claim 35), Petitioner contends that the proposed combination of Sinclair and Kuhn discloses each of the limitations. Pet. 55–57. Patent Owner does not present any arguments specifically addressing claims 20, 21, 23, 26–28, 31, 33, 36, 37, and 41. *See generally* Prelim. Resp. We include claims 20, 21, 23, 26–28, 31, 33, 36, 37, and 41 in the context of this asserted ground in the instituted *inter partes* review. *See SAS*, 138 S. Ct. at 1354, 1359–60; 37 C.F.R. § 42.108(a).

H. Asserted Obviousness of Claims 19–21, 28, 31, and 35–37 Based on Ekerot and Cur

Petitioner asserts that claims 19–21, 28, 31, and 35–37 of the '855 patent would have been obvious under pre-AIA 35 U.S.C. § 103(a) based on Ekerot and Cur. Pet. 2, 57–81. Patent Owner provides arguments specifically addressing this asserted ground. Prelim. Resp. 16–18, 25–28. We first summarize aspects of Ekerot and Cur.

1. Ekerot

Ekerot discloses “freight containers with controlled inner environment for transporting sensitive goods.” Ex. 1008 ¶ 1.

Figures 1 and 2 of Ekerot are reproduced below:

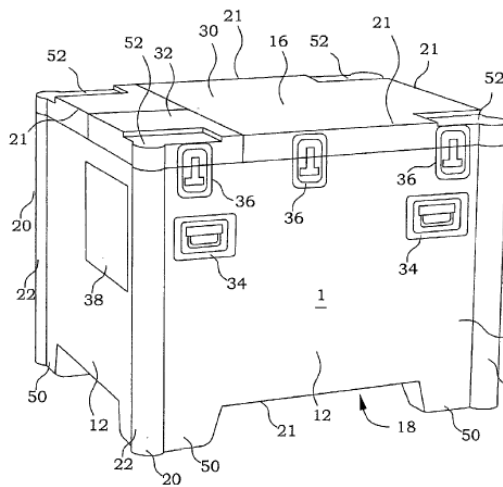


Fig. 1

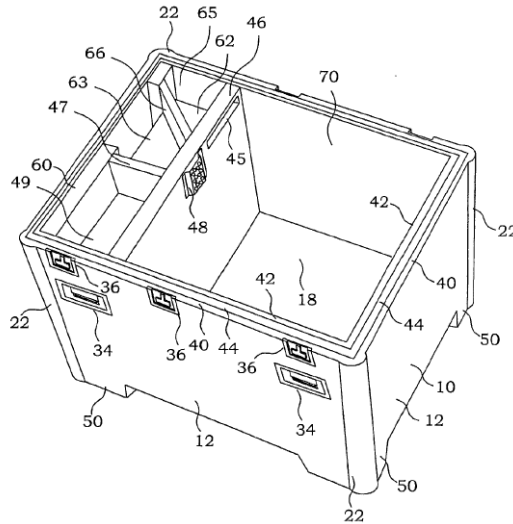


Fig. 2

Figure 1 depicts a freight container and Figure 2 shows the freight container of Figure 1 with the lid removed. Ex. 1008 ¶¶ 15–16. Both Figures show the outside of container 1, formed by four side walls 12, top wall 16, and bottom wall 18. *See id.* ¶ 22. These structures form outer shell 40, which Ekerot discloses can “consist[] of vinyl ester reinforced by glass fib[er], kevlar and carbon fib[er].” *See id.* ¶¶ 26–27. Lid 30 in top wall 16 provides access to the inner area of container 1. *See id.* ¶ 22. Ekerot also discloses (and shows in Figure 2) inner shell 42, which “consists of polyester reinforced by glass fib[er] and carbon fib[er].” *Id.* ¶ 27. Between outer shell 40 and inner shell 42 is “interspace 44.” *Id.*

2. Cur

Cur discloses vacuum insulated panels for use in “domestic refrigeration appliance[s].” Ex. 1009, 1:6–8.

Figures 3 and 5A of Cur is reproduced below:

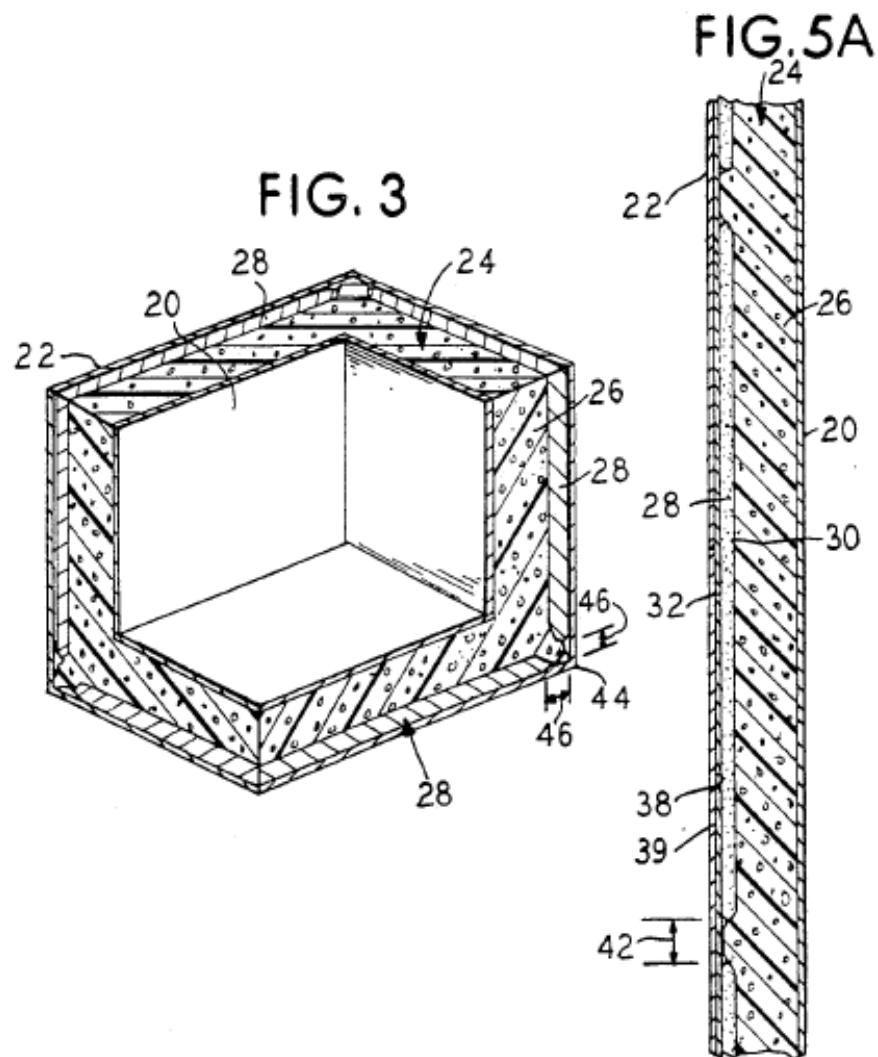


Figure 3 is a perspective sectional view of a corner of a freezer illustrating the insulation system, and Figure 5A is a side sectional view of a wall section of the insulation system. *See* Ex. 1009, 3:27–30, 3:34–36. Both Figures show interior liner wall 20 spaced from exterior outer wrapper 22, with space 24 in between. *See id.* at 4:4–15. Cur discloses that vacuum insulation panels 28 are inserted in space 24 “to enhance the insulation property of the insulation system.” *Id.* at 4:16–22.

Figure 4 is reproduced below:

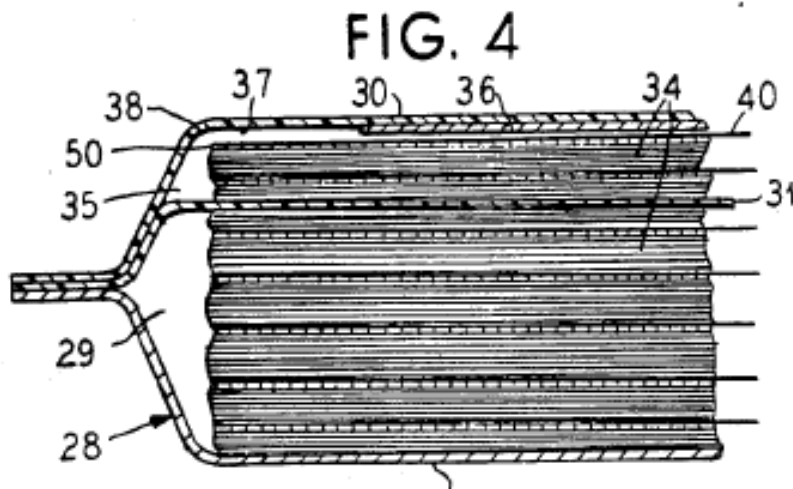


Figure 4 is a side sectional view of a portion of a vacuum insulated panel. Ex. 1009, 3:31–33. Describing Figure 4, Cur discloses that

each of the vacuum insulation panels 28 is preferably constructed with a pair of gas impermeable outer film walls 30, 32 (FIG. 4) and at least one gas impermeable inner wall 31 to form at least two adjacent compartments 29, 35 (FIG. 4) enclosing one or more microporous filler insulation materials 34 that support the barrier film walls 30, 31, 32 of the panel when atmospheric gases are evacuated from the interior compartments 29, 35 of the multicompartment vacuum insulation panels disclosed in the copending patent application.

Ex. 1009, 4:38–48.

3. Analysis

a. Independent Claims 19 and 35

Petitioner contends that the combination of Ekerot and Cur discloses each limitation in claims 19 and 35. Pet. 62–68, 76–81. Patent Owner (1) argues that Petitioner has not provided adequate reasons to combine Ekerot and Cur and (2) argues that the combination does not disclose the requirements for “installing a power operated refrigeration unit with an evaporator within the inner shell and connected to a motor driven

compressor outside of the outer shell” (the ““evaporator/compressor’ limitation”) in claim 35. *See* Prelim. Resp. 18, 25–28.

(1) The Motivation to Combine Ekerot and Cur

As to the motivation to combine Ekerot and Cur, Petitioner states that Ekerot discloses VIPs but that “Ekerot only explicitly discloses vacuum panels between ‘the ice box opening 49 and the adjacent inner shell 42 wall’ and not specifically in the interspace.” Pet. 62–63 (citing Ex. 1008 ¶¶ 3, 26, 27, 35, 41). According to Petitioner, one of ordinary skill in the art, however, “would have had reason to use VIPs as insulating material throughout interspace 44 as taught by Cur.” Pet. 63 (citing Jobin Decl. ¶ 274); *see also id.* (“Indeed, Cur teaches that its VIPs can be used in conjunction with polyurethane foam insulation ‘to maximize the thermal efficiency and structural rigidity of the cabinet.’” (quoting Ex. 1009, 1:60–64)). Petitioner states that one of ordinary skill in the art would have “understood Cur’s thinner panels achieve Ekerot’s goals of lighter-weight containers with attenuated heat transfer, which provides further reason to select Cur’s panels” and that “[t]he addition of Cur’s panels to Ekerot’s interspace would improve the thermal efficiency of Ekerot.” Pet. 62 (citing Jobin Decl. ¶ 274; Ex. 1008 ¶¶ 2, 11).

Petitioner adds this discussion of reasons that would have motivated one of ordinary skill in the art to combine Ekerot and Cur:

[A person of ordinary skill in the art would have] also understood that Ekerot’s structure would permit Cur’s VIPs without the need for foam to secure and protect the panels. [Jobin Decl.] ¶275. Ekerot’s composite shells maintain structural rigidity without metal reinforcement. Ex. 1008 [¶ 27]. Locating Cur’s panels in the interspace defined by Ekerot would remove the need for insulating foam, as the panels would be buttressed between Ekerot’s shells. [Jobin Decl.] ¶275. Without needing

foam, [one of ordinary skill in the art] could leverage additional layers of Cur's thin vacuum panel assemblies in the interspace for greater insulation. *Id.*

Pet. 63–64. Petitioner also discusses why one of ordinary skill in the art would have reasonably expected success from the combination. *Id.* (citing Jobin Decl. ¶¶ 273–276; Ex. 1009, 1:6–8).¹⁵

Patent Owner presents two arguments as to why one of ordinary skill in the art allegedly would not have combined Ekerot and Cur as proposed. *See* Prelim. Resp. 25–28. First, Patent Owner argues that “Ekerot [is] unrelated to, and from an entirely different field than, Cur” in that Ekerot “relate[s] to temperature-controlled shipping containers” whereas “Cur, on the other hand, relates to a much smaller refrigerator for home.” *Id.* at 25–26 (citing Ex. 1008 ¶ 1; Ex. 1009, 1:6–8). According to Patent Owner, “Petitioner makes no attempt to explain why [one of ordinary skill in the art] would have been motivated to combine a home refrigerator and a shipping container to arrive at the claimed invention given their fundamental differences, including differences in size, function, and purpose.” *Id.* at 26.

“Two separate tests define the scope of analogous prior art: (1) whether the art is from the same field of endeavor, regardless of the problem addressed and, (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved.” *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004), *quoted in Donner Tech., LLC v. Pro Stage Gear*,

¹⁵ Although Petitioner appears to rely, *in the alternative*, on Cur as teaching “active refrigeration” (*see* Pet. 68 (for limitation 19.D), 80–81 (for limitation 35.E)), Petitioner does not appear to address modifying Ekerot with the “active refrigeration” allegedly taught in Cur.

LLC, 979 F.3d 1353, 1359 (Fed. Cir. 2020) (applying the tests from *In re Bigio* in an appeal from an *inter partes* review).

As an initial matter, we note that the tests above do not assess the relationship between the relied-upon prior art (as argued by Patent Owner), but rather, the relationships between each prior art reference and the invention. *See In re Klein*, 647 F.3d 1343, 1348 (Fed. Cir. 2011) (“A reference qualifies as prior art for an obviousness determination under § 103 only when it is analogous *to the claimed invention*.” (emphasis added)).

Moreover, Patent Owner’s argument appears to address only *the first* of the two tests, relating to the field of endeavor. Patent Owner does not address whether Ekerot or Cur is “reasonably pertinent” to the particular problem with which the inventor is involved. *See* Prelim. Resp. 25–26. As to the “reasonably pertinent” test, although Petitioner does not appear to expressly address the issue, we note that Petitioner does state that “Ekerot minimizes heat transfer by removing aluminum framework around insulation” (Pet. 62 (citing Ex. 1008 ¶ 3)) and that “Cur teaches that its VIPs can be used in conjunction with polyurethane foam insulation ‘to maximize the thermal efficiency and structural rigidity of the cabinet’” (Pet. 63 (quoting Ex. 1009, 1:60–64)). Because the record is not adequately developed on this issue, we do not make preliminary findings on whether Ekerot and Cur are each analogous art to the invention. The parties should consider developing these issues at trial.

Second, Patent Owner argues that Petitioner relies on “hindsight” and that “Petitioner offers no explanation as to why [one of ordinary skill in the art] would seek to modify Ekerot . . . in the first place, let alone in the manner suggested, as it must.” Prelim. Resp. 26. Patent Owner contends

that Petitioner “fails to address whether implementing Cur’s VIPs in Ekerot[’s] containers would require any other corresponding changes or how the proposed substitutions would meet the claim limitations.” *Id.* at 27. Patent Owner also raises numerous allegedly required modifications for which Petitioner has not provided a motivation. *Id.* (stating, for example: this asserted ground requires “altering Ekerot’s method of ‘*injecting* [i.e., spraying] insulating material,’ which Petitioner fails to mention, since Cur’s VIP’s cannot be injected or sprayed like other insulating materials” (citing Ex. 1008 ¶ 33)).

As to these generalized arguments, first we question whether the modifications highlighted by Patent Owner (Prelim. Resp. 26–27) are *actually* part of or required by the proposed modification. The parties should develop this issue at trial. Second, we view as based in bodily incorporation Patent Owner’s argument that the “Petition is silent as to any structural changes that [one of ordinary skill in the art] would need to make to accommodate Cur’s home refrigerator-sized VIPs in a . . . handheld (Ekerot) shipping container, or how [one of ordinary skill in the art] would make those changes.” *Id.* at 27; *see also In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012) (“It is well-established that a determination of obviousness based on teachings from multiple references does not require an actual, physical substitution of elements.”).

(2) *The “Evaporator/Compressor” Limitation in Independent Claim 35*

In the “evaporator/compressor” limitation, independent claim 35 recites: “installing a power operated refrigeration unit with an *evaporator within the inner shell* and connected to a motor driven *compressor outside of the outer shell*.” Ex. 1001, 11:19–21 (emphasis added). Petitioner addresses

this limitation in this asserted ground. See Pet. 80–81 (citing Jobin Decl. ¶¶ 329–330).

Patent Owner argues that the combination of Ekerot and Cur fails to satisfy the “evaporator/compressor” limitation. See Prelim. Resp. 18. Specifically, Patent Owner argues that “Petitioner fails to show that either reference discloses ‘a refrigeration unit with an evaporator within the inner shell and a motor driven compressor outside of the outer shell’” and that, “[i]n fact, Petitioner does not mention a ‘motor driven compressor outside of the outer shell’ at all or even allege that either reference discloses this limitation.” *Id.* (citing Pet. 80–81). According to Patent Owner, the Petition “says nothing about *where* the refrigeration unit’s claimed evaporator and motor driven compressor should be placed (*i.e.*, ‘within the inner shell’ vs. ‘outside of the outer shell’),” as required. *Id.* (underlining omitted).

At this stage of the proceeding, we question the adequacy of Petitioner’s presentation as to the locations recited in the “evaporator/compressor” limitation (shown with emphasis in the first sentence of this section). See Pet. 80–81; *Intelligent Bio-Sys., Inc. v. Illumina Cambridge, Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (“It is of the utmost importance that petitioners in the IPR proceedings adhere to the requirement that the initial petition identify ‘with particularity’ the ‘evidence that supports the grounds for the challenge to each claim.’” (quoting 35 U.S.C. § 312(a)(3))). The parties should develop the record as to this issue at trial.

(3) Conclusion as to Claims 19 and 35

Because the Petition shows a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see supra* § II.F.2.a; § II.G.2.a), we

include this asserted ground in the instituted *inter partes* review. *See SAS*, 138 S. Ct. at 1354, 1359–60; 37 C.F.R. § 42.108(a).

b. Claims 20, 21, 36, and 37

In the discussion of dependent claim 20 for this asserted ground, Petitioner contends that U.S. Patent No. 5,018,328 (Ex. 1016, “’328 Cur”) is incorporated by reference into Cur, before discussing certain teachings from ’328 Cur allegedly relevant to Petitioner’s positions. *See* Pet. 68–71; *see also Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000) (“Material not explicitly contained in the single, prior art document may still be considered for purposes of anticipation if that material is incorporated by reference into the document.”). On the issue of incorporation by reference, Petitioner states:

Cur’s multicompartment embodiment is described in additional detail in its “copending patent application,” issued as U.S. Patent 5,018,328. [Ex. 1009], 1:64–2:3 (citing Ex. 1016), 4:38–52. [A person of ordinary skill in the art] understood Cur incorporates ’328 Cur by reference and therefore each of ’328 Cur’s teachings are also disclosed by Cur. *See Husky Injection Molding Sys. Ltd. v. Athena Automation Ltd.*, 838 F.3d 1236, 1248 (Fed. Cir. 2016) (“The incorporation standard relies only on the reasonably skilled artisan and his or her ability to deduce from language, however imprecise, what a host document aims to incorporate.”).

Pet. 61. In the discussion of dependent claim 21 (which depends from claim 20), Petitioner again discusses certain teachings from ’328 Cur. *See* Pet. 72–74. For dependent claims 36 and 37 (which depend from independent claim 35), Petitioner relies on the discussions of claims 20 and 21, respectively. Pet. 81. Patent Owner argues that Cur merely references ’328 Cur and does not properly incorporate by reference aspects of ’328 Cur. *See* Prelim. Resp. 16–17.

“To incorporate material by reference, the host document must identify with detailed particularity what specific material it incorporates and clearly indicate where that material is found in the various documents.” *Advanced Display Sys.*, 212 F.3d at 1282–83 (citing *In re de Seversky*, 474 F.2d 671, 674 (CCPA 1973)). In contrast, a “mere *reference* to another application, or patent, or publication is not an *incorporation* of anything therein.” *Callaway Golf Co. v. Acushnet Co.*, 576 F.3d 1331, 1346 (Fed. Cir. 2009) (quoting *In re de Seversky*, 474 F.2d at 674).

The passage in the Summary of the Invention in Cur discussing ’328 Cur states:

Vacuum insulation panels, such as those described in [’328 Cur] *would provide excellent thermal resistance to the heat gain to the refrigeration appliance cabinet on their own* However, the design of the present day refrigeration appliance cabinets preclude the usage of vacuum insulation panels alone. The polyurethane foam insulation used in today’s refrigeration appliances act as a structural member of the cabinet in addition to providing a good thermal insulation medium. *Therefore the present invention utilizes a combination of the relatively thin vacuum insulation panels with the polyurethane foam.*

Ex. 1009, 1:63–2:19 (emphasis added). In addition, in the Detailed Description of the Preferred Embodiments, Cur provides:

As disclosed in the referenced copending application, each of the vacuum insulation panels 28 is preferably constructed with a pair of gas impermeable outer film walls 30, 32 (FIG. 4) and at least one gas impermeable inner wall 31 to form at least two adjacent compartments 29, 35 (FIG. 4) enclosing one or more microporous filler insulation materials 34 that support the barrier film walls 30, 31, 32 of the panel when atmospheric gases are evacuated from the interior compartments 29, 35 of the multicompartiment vacuum insulation panels disclosed in the copending patent application. The two outer walls 30, 32 and one inner wall 31 (FIG. 4) or more are hermetically sealed to

each other about their outer edges or periphery to define at least two vacuum sealed compartments 29, 35 (FIG. 4) or more.

Ex. 1009, 4:38–52 (emphasis added). At this stage of the proceeding, we preliminarily determine that, with these passages, Cur identifies with detailed particularity the specific material being incorporated by reference (the vacuum insulation panels of '328 Cur) and clearly indicates where that material is found ('328 Cur), as required to incorporate this material from '328 Cur into Cur. *See Advanced Display Sys.*, 212 F.3d at 1282–83.

On the current record, we do not agree with Patent Owner that Cur “merely references the advantageous properties of VIPs like those disclosed in '328 Cur.” Prelim. Resp. 17. Instead, Cur clearly identifies disclosures in '328 Cur to incorporate into Cur’s invention. For example, Cur describes its “invention” as providing “an improved insulation system for a refrigeration appliance in which vacuum panels are used in conjunction with polyurethane foam insulation.” Ex. 1009, 1:60–64. Immediately thereafter, Cur refers to '328 Cur, stating that the VIPs of '328 Cur would “on their own” provide “excellent thermal resistance to the heat gain to *the refrigeration appliance cabinet*” of Cur’s invention. *Id.* at 1:64–2:3. Regardless, Cur then explains why “the present invention utilizes a combination of the relatively thin vacuum insulation panels with the polyurethane foam.” *Id.* at 2:3–2:19. On the current record, we understand “the relatively thin vacuum insulation panels” in this passage to at least include those from '328 Cur. Although this passage from the Summary of the Invention in Cur (*id.* at 1:63–2:19) does not *expressly* state that the VIPs from '328 Cur are “incorporated by reference,” it discusses the use of VIPs from '328 Cur in “the refrigeration appliance cabinet” of Cur (*id.* at 2:3) and in “the present invention” (*id.* at 2:16–17).

Express language—such as “hereby incorporated by reference”—is not required to incorporate by reference material from another document. For example, in *Calloway Golf Co. v. Acushnet Co.* (cited by Patent Owner (Prelim. Resp. 17)), material was properly incorporated by reference when the host document used the language “Reference is made to” without any form of the term “incorporated.” 576 F.3d, 1331, 1345 (Fed. Cir. 2009) (proper incorporation based, in part, on “Reference is made to [a U.S. patent,] which describes a number of foamable compositions of a character which may be employed for one or both layers 14 and 16 for the golf ball of this invention.” (emphasis omitted)); see also *S. Clay Prods., Inc. v. United Catalysts, Inc.*, 43 F. App’x 379, 384 (Fed. Cir. 2002) (nonprecedential) (proper incorporation based on “[e]xemplary of commonly employed physical or comminuting techniques . . . are those techniques disclosed in” various U.S. patents).

Patent Owner argues that the language in Cur is inadequate, noting that, in the decision in *Husky Injection Molding Systems* (cited by Petitioner (Pet. 61)), the host document expressly stated that “[a]ll cross-reference patents and application[s] referred to in this specification are hereby incorporated by reference.” Prelim. Resp. 17 (quoting, with emphasis added, *Husky Injection*, 838 F.3d 1236, 1248 (Fed. Cir. 2016)). As indicated by the decision in *Calloway Golf* (and decisions of the Court of Customs and Patent Appeals discussed therein), however, express language is not necessary to properly incorporate by reference. See *Callaway Golf*, 576 F.3d at 1346 (“We have previously held that language nearly identical to that used in [the host document] (‘[r]eference is made to’) can be sufficient to indicate to one of skill in the art that the referenced material is fully

incorporated in the host document.” (citing *In re Voss*, 557 F.2d 812, 815–16 (CCPA 1977); *In re Hughes*, 550 F.2d 1273, 1275–76 (CCPA 1977)).

Moreover, in *Callaway Golf*, as here, the host document clearly discussed use of the incorporated material in the context of “th[e] invention” identified. *Callaway Golf*, 576 F.3d at 1345 (“Reference is made to [a U.S. patent,] which describes a number of foamable compositions of a character *which may be employed for one or both layers 14 and 16 for the golf ball of this invention*” (certain emphasis omitted). As noted above, in the Detailed Description of the Preferred Embodiments, Cur references ’328 Cur (as “the referenced copending application”) as disclosing preferred features of the VIPs of the preferred embodiments. See Ex. 1009, 4:38–52.

For the reasons above, on the current record, we preliminarily determine that Cur incorporates by reference the VIPs of ’328 Cur. We have not made a final determination on this issue, and the parties should consider developing this issue further at trial.

c. Claims 28, 31, and 37

Claims 28 and 31 depend from claim 19, and claim 37 depends from claim 35. Patent Owner does not present any arguments specifically addressing claims 28, 31, and 37. See *generally* Prelim. Resp. We include claims 28, 31, and 37 in the context of this asserted ground in the instituted *inter partes* review. See *SAS*, 138 S. Ct. at 1354, 1359–60; 37 C.F.R. § 42.108(a).

I. Asserted Obviousness of Claims 19–21 and 29–31 Based on Broussard and Cur

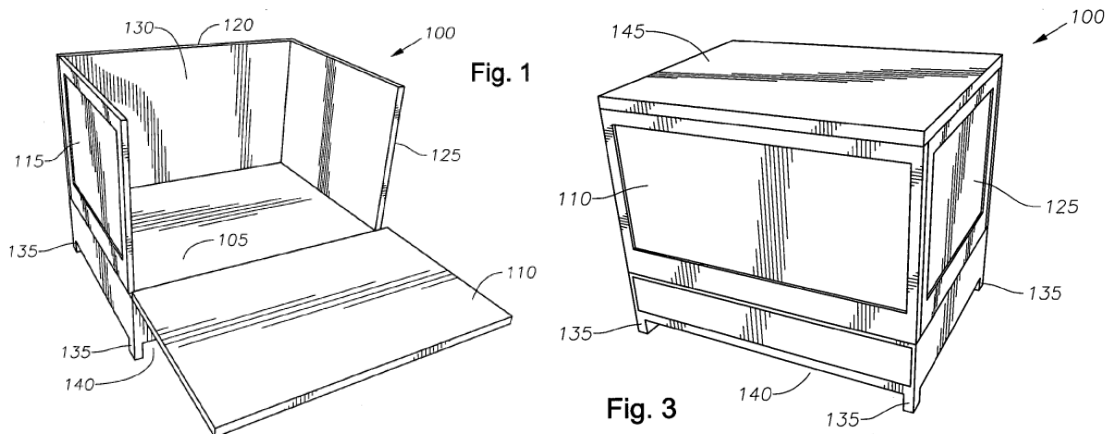
Petitioner asserts that claims 19–21 and 29–31 of the ’855 patent would have been obvious under pre-AIA 35 U.S.C. § 103(a) based on Broussard and Cur. Pet. 2, 81–94. Patent Owner provides arguments

specifically addressing this asserted ground. Prelim. Resp. 16–17, 25–28. We first summarize aspects of Broussard.

1. Broussard

In this asserted ground, Petitioner relies on Broussard, in addition to Cur (summarized above (see § II.H.2)). Broussard discloses “temperature-controlled containers that can both refrigerate and heat [a] cargo space, and to methods of transporting temperature-sensitive goods using such containers.” Ex. 1012 ¶ 3.

Figures 1 and 3 of Broussard are reproduced below:



Figures 1 and 3 are two configurations of one embodiment of a temperature-controlled container. Ex. 1012 ¶ 18. Container 100 in both Figures includes bottom 105, sides 110, 115, 120, 125, and top 145. *Id.* ¶ 25. In Figure 1, side 110 is shown in an open position that allows easy access to cargo space 130. *Id.* Broussard discloses that, “[t]o achieve high thermal efficiency, space efficiency, and long operating times on internal batteries, the container is insulated with high R value vacuum panels.” *Id.* The sides, bottom and top are made of “durable, high impact reinforced plastic” to “protect the insulated vacuum panels from damage.” *Id.* ¶¶ 27, 33, Fig. 2.

Figure 2 is reproduced below:

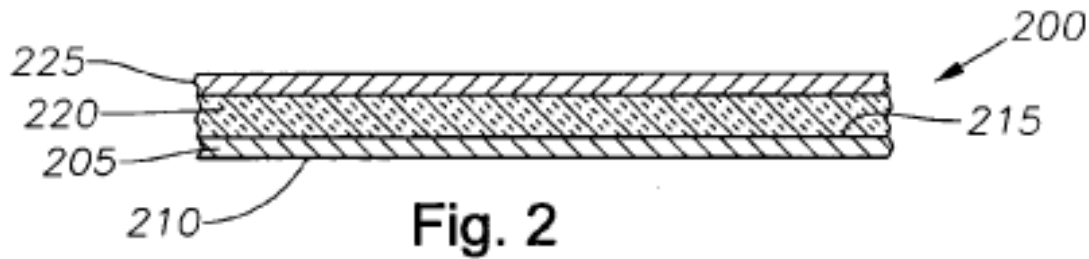


Figure 2 is a cross-section of one embodiment of a wall of the temperature-controlled container. Ex. 1012 ¶ 17. Side 200 shown in Figure 2 includes wall 205 (with outer surface 210 and inner surface 215), insulated vacuum panel 220, and protective sheet 225, which may be made of “hard plastic, metal, or other hard material.” *Id.* ¶¶ 26–27. Vacuum panel 220 “preferably has an R value per inch of at least about 20.” *Id.* ¶ 26.

Figure 4 is reproduced below:

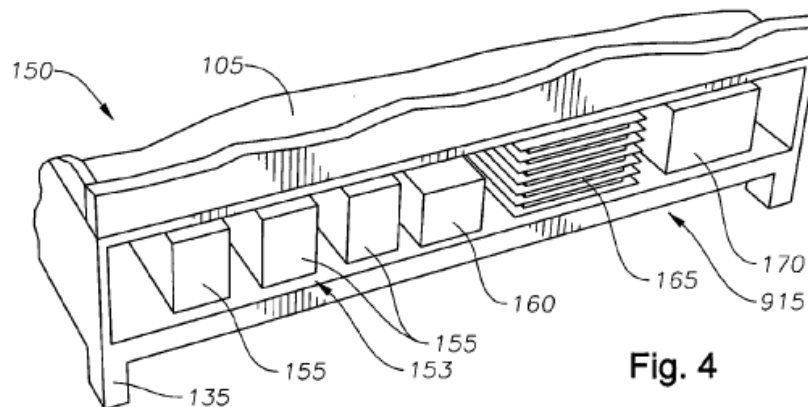


Figure 4 depicts a housing on one side of the temperature-controlled container. Ex. 1012 ¶ 19. Housing 150 is located between legs 135 and below unnumbered side 110 (shown in cutaway). *Id.* ¶ 30. As shown, housing 150 contains temperature regulating unit 915, battery charger 160, and batteries 155. *Id.* ¶¶ 30–31. Temperature regulating unit 915 includes condenser 165 and compressor 170. *Id.* ¶ 32.

2. *Analysis*

a. *Independent Claim 19*

Petitioner contends that the combination of Broussard and Cur discloses each limitation of claim 19. Pet. 83–89. Patent Owner argues that Petitioner has not provided adequate reasons to combine Broussard and Cur. See Prelim. Resp. 25–28.

(1) *The Motivation to Combine Broussard and Cur*

As to the motivation to combine Broussard and Cur, Petitioner states that Broussard “teaches VIPs confined within inner and outer shells ‘for high thermal efficiency, space efficiency, and long operating times on batteries,’ but does not explicitly disclose the composition of the panels.” Pet. 83 (citing Ex. 1012 ¶ 25). Further, Petitioner states that “Broussard discloses that it relies on conventional VIPs” and that “Broussard explicitly suggests using ‘[o]ther insulated vacuum panels having an R value per inch of at least about 20.’” Pet. 83–84 (quoting Ex. 1012 ¶ 26). According to Petitioner, however, “Cur teaches the use of VIPs meeting Broussard’s criteria as an insulation material” and, “[b]ecause Broussard suggests using other VIPs so long as they meet the required R value criteria, [one of ordinary skill in the art] would find it obvious to apply Cur’s VIP design to Broussard’s container, as Cur meets said criteria.” Pet. 84 (citing Ex. 1009, 1:6–8; Jobin Decl. ¶¶ 342–343).

Petitioner adds that one of ordinary skill in the art would have “understood that the Broussard’s structure would permit Cur’s VIPs without foam to secure and protect the panels” and that “Broussard’s structure maintains rigidity without the need for foam.” Pet. 84 (citing Jobin Decl. ¶ 344; Ex. 1012 ¶ 43). Petitioner states that, “[w]ithout needing foam

support, it would be obvious for [one of ordinary skill in the art] to leverage multiple layers of Cur’s thin vacuum panel assemblies in the interspace to more effectively insulate the container.” *Id.* (citing Jobin Decl. ¶ 344). Based on teachings in Broussard and Cur, Petitioner states that one of ordinary skill in the art would have “understood using Cur’s VIPs on the bottom [side] promotes thermal efficiency while maintaining space efficiency” and states that “[t]he VIPs used in the sides, top, and bottom would therefore share the structure of Cur Figure 2.” Pet. 85 (citing Ex. 1012 ¶¶ 25, 32; Ex. 1009, 2:3–19, Fig. 2; Jobin Decl. ¶ 345). Petitioner also discusses why one of ordinary skill in the art would have reasonably expected success from the combination. *Id.* (citing Jobin Decl. ¶¶ 342–346; Ex. 1009¹⁶, 1:6–8).

As to the combination of Broussard and Cur, Patent Owner presents two arguments similar to those discussed above for why one of ordinary skill in the art allegedly would not have combined Ekerot and Cur as proposed. *See* Prelim. Resp. 25–28. First, Patent Owner argues that “Broussard [is] unrelated to, and from an entirely different field than, Cur” in that Broussard “relate[s] to temperature-controlled shipping containers” whereas “Cur, on the other hand, relates to a much smaller refrigerator for home.” *Id.* at 25–26 (citing Ex. 1012, code (57); Ex. 1009, 1:6–8). According to Patent Owner, “Petitioner makes no attempt to explain why [one of ordinary skill in the art] would have been motivated to combine a home refrigerator and a shipping container to arrive at the claimed invention given their fundamental differences, including differences in size, function, and purpose.” *Id.* at 26.

¹⁶ Although Petitioner cites Exhibit 1008 (which is Ekerot), we understand Petitioner to have intended to cite Exhibit 1009 (which is Cur).

As an initial matter, again, we note that these tests do not assess the relationship between the relied-upon prior art (as argued by Patent Owner), but rather, the relationships between each prior art reference and the invention. *See In re Klein*, 647 F.3d at 1348. Moreover, Patent Owner’s argument appears to address only *the first* of the two tests, relating to the field of endeavor. Patent Owner does not address whether Broussard or Cur is “reasonably pertinent” to the particular problem with which the inventor is involved. *See* Prelim. Resp. 25–26. As to the “reasonably pertinent” test, although Petitioner does not appear to expressly address the issue, we note that Petitioner does state that “Broussard teaches VIPs confined within inner and outer shells ‘for high thermal efficiency, space efficiency, and long operating times on batteries’” (Pet. 83 (quoting Ex. 1012 ¶ 25)) and “Cur teaches the use of VIPs meeting Broussard’s criteria as an insulation material” (Pet. 84 (citing Ex. 1009, 1:6–8; Jobin Decl. ¶¶ 342–343)). Because the record is not adequately developed on this issue, we do not make preliminary findings on whether Broussard and Cur are each analogous art to the invention. The parties should consider developing these issues at trial.

Second, Patent Owner argues that Petitioner relies on “hindsight” and that “Petitioner offers no explanation as to why [one of ordinary skill in the art] would seek to modify . . . Broussard in the first place, let alone in the manner suggested, as it must.” Prelim. Resp. 26. Patent Owner contends that Petitioner “fails to address whether implementing Cur’s VIPs in . . . Broussard’s containers would require any other corresponding changes or how the proposed substitutions would meet the claim limitations.” *Id.* at 27. Patent Owner also raises numerous allegedly required modifications for

which Petitioner has not provided a motivation. *Id.* (stating, for example: this asserted ground requires “modifying Cur by removing its polyurethane foam insulation layer” (citing Pet. 63–64, 84)).

As to these generalized arguments, first we question whether the modifications highlighted by Patent Owner (Prelim. Resp. 26–27) are *actually* part of or required by the proposed modification. The parties should develop this issue at trial. Second, we view as based in bodily incorporation Patent Owner’s argument that the “Petition is silent as to any structural changes that [one of ordinary skill in the art] would need to make to accommodate Cur’s home refrigerator-sized VIPs in a pallet-sized (Broussard) . . . shipping container, or how [one of ordinary skill in the art] would make those changes.” *Id.* at 27; *see also In re Mouttet*, 686 F.3d at 1332 (“It is well-established that a determination of obviousness based on teachings from multiple references does not require an actual, physical substitution of elements.”).

(2) *Conclusion as to Claim 19*

Because the Petition shows a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see supra* § II.F.2.a; § II.G.2.a), we include this asserted ground in the instituted *inter partes* review. *See SAS*, 138 S. Ct. at 1354, 1359–60; 37 C.F.R. § 42.108(a).

b. *Claims 20 and 21*

As to claims 20 and 21 in the context of this asserted ground, Patent Owner relies on the same argument as to the allegedly improper incorporation by reference of aspects of ’328 Cur into Cur. *See* Prelim. Resp. 16–17 (addressing the grounds of Ekerot and Cur as well as Broussard

and Cur). For the same reasons discussed above (*see supra* § II.H.3.b), we preliminarily determine that Cur properly incorporates by reference the relied-upon aspects of '328 Cur.

c. Claims 29–31

Claims 29–31 depend from claim 19. Patent Owner does not present any arguments specifically addressing claims 29–31. *See generally* Prelim. Resp. We include claims 29–31 in the context of this asserted ground in the instituted *inter partes* review. *See SAS*, 138 S. Ct. at 1354, 1359–60; 37 C.F.R. § 42.108(a).

III. CONCLUSION

For the reasons above, we determine that the Petition shows a reasonable likelihood that Petitioner would prevail with respect to at least one of challenged claims 19–21, 23, 26–31, 33, 35–37, and 41 of the '855 patent. At this stage of the proceeding, no final determination has yet been made with regard to the patentability of any of the challenged claims or any underlying factual or legal issues, including the construction of claim terms. The final determination will be based on the record as developed during the *inter partes* review.

IV. ORDER

Accordingly, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), *inter partes* review is hereby instituted as to claims 19–21, 23, 26–31, 33, 35–37, and 41 of the '855 patent on all asserted grounds; and

IPR2022-00292
Patent 7,263,855 B2

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, *inter partes* review shall commence on the entry date of this Decision, with notice hereby given of the institution of a trial.

IPR2022-00292
Patent 7,263,855 B2

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