

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PROPPANT EXPRESS INVESTMENTS, LLC,
PROPPANT EXPRESS SOLUTIONS, LLC,
Petitioner,

v.

OREN TECHNOLOGIES, LLC,
Patent Owner.

Case IPR2017-02103
Patent 9,511,929 B2

Before MITCHELL G. WEATHERLY, KEVIN W. CHERRY, and
MICHAEL L. WOODS, *Administrative Patent Judges*.

CHERRY, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

Proppant Express Investments, LLC (“PEI”) and Proppant Express Solutions, LLC (“PES”), collectively, “PropX” or “Petitioner,” filed a Petition (Paper 1, “Pet.”) seeking *inter partes* review of claims 1–7, 10, and 12–19 of U.S. Patent No. 9,511,929 B2 (“the ’929 patent”) under 35 U.S.C. § 314(a). Pet. 1. As owner of the ’929 patent, Oren Technologies, LLC (“Patent Owner”) filed a Preliminary Response (Paper 7, “Prelim. Resp.”). In addition to challenging the Petition on the merits of patentability, the Preliminary Response contends that the Petition fails to identify “all real parties-in-interest” (“RPI”) namely, Liberty Oilfield Services, LLC (“Liberty”), as required by 35 U.S.C. § 312(a)(2). Prelim. Resp. 1, 13–33.

Upon reviewing Patent Owner’s Preliminary Response, we authorized Petitioner to either update its mandatory notices to name Liberty as an RPI, or, in the alternative, submit further briefing on the issue. *See* Paper 8. Rather than list Liberty as an RPI, Petitioner filed a Reply to the Preliminary Response. Paper 9, “Reply.” With our authorization (Paper 12), Patent Owner filed a Sur-Reply (Paper 14) in response to Petitioner’s Reply.

We have authority to determine whether to institute a trial under 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a). An *inter partes* review may be instituted only if “the information presented in the petition . . . and any response . . . 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(a).

We are persuaded there is a reasonable likelihood that Petitioner would prevail in showing that the challenged claims are unpatentable.

Pursuant to 35 U.S.C. § 314, we institute an *inter partes* review as to claims 1–3, 5–7, 10, and 12–19 of the ’929 patent.

A. Related Proceedings

The ’929 patent is involved in one pending lawsuit captioned *SandBox Logistics, LLC v. Proppant Express Investments, LLC*, No. 4:17-cv-00589 (S.D. Tex.), which names PES and PEI as defendants. Pet. 2. PES and PEI are also named defendants in *SandBox Logistics, LLC v. Grit Energy Solutions, LLC*, No. 3:16-cv-00012 (S.D. Tex.), which involves the parent patent, U.S. Patent No. 9,403,626 (“the ’626 patent”), of the ’929 patent.

PES—one of the two named petitioners in this proceeding—filed a petition in IPR2017-00768. *Id.* In IPR2017-00768, PES challenges certain claims of U.S. Patent 8,585,341, which is related to the ’929 patent and also owned by Patent Owner. *Id.*

Petitioner also filed a petition in IPR2017-01917 (challenging related U.S. Patent No. 9,296,518) and IPR2017-01918 (challenging the ’626 patent), which are patents also owned by Patent Owner.

B. The ’929 Patent (Ex. 1004)

The ’929 patent is titled “Proppant Storage Vessel and Assembly Thereof.” Ex. 1004, [54]. As described in the ’929 patent, proppant is a “material such as grains of sand, ceramic, or other particulates, that prevent the fractures [from hydraulic fracturing] from closing when the injection [highly-pressurized fracking fluid] is stopped.” *Id.* at 1:47–49. The

'929 patent purports to improve upon prior art storage vessels. *See id.* at 2:17–3:11.

Figure 1 of the '929 patent depicts a preferred embodiment of the Patent Owner's invention. *Id.* at 4:65–67. We reproduce Figure 1, below:

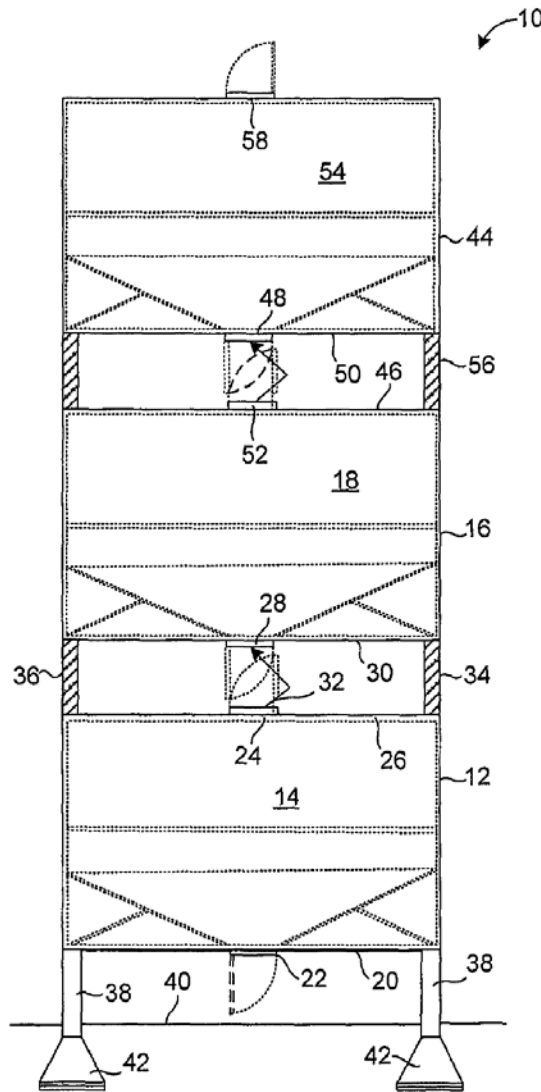


FIG. 1

As shown above, Figure 1 depicts proppant storage assembly 10 with first container 12, second container 16, and third container 44. *See id.* at 5:19–6:26. The containers are spaced apart from one another and each includes a

bottom wall (20, 30, 50) with a hatch (22, 28, 48) affixed thereto so that proppant from third container 44 can flow through hatch 48 into second container 16, and proppant in second container 16 can flow through hatch 28 into first container 12. *See id.*

Figure 2 of the '929 patent depicts a portable conveyor below first proppant storage assembly. *See id.* at 6:57–7:7.

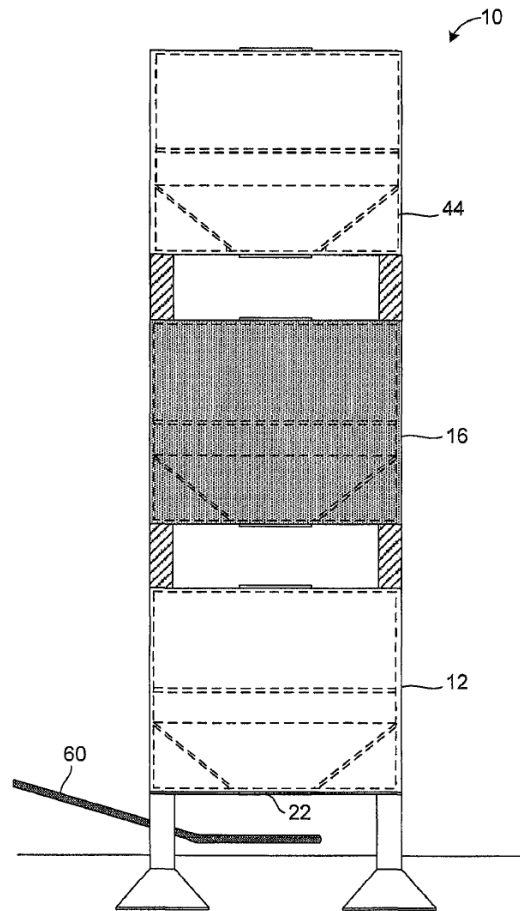
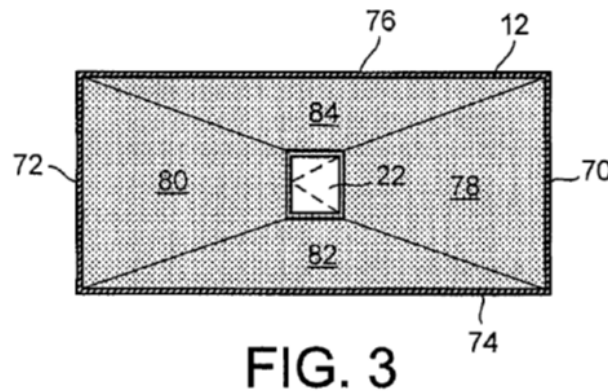


FIG. 2

As shown above, Figure 2 depicts portable conveyor 60, which is transportable, located directly beneath first container 12. *See id.* Bottom hatch 22 of first container 12 can be opened to discharge proppant onto conveyor 60. *See id.*

Figure 3 of the '929 patent depicts a plan view of a proppant storage container (*id.* at 5:4–6), which figure we reproduce below:



As shown above, Figure 3 depicts the interior construction of first container 12. *Id.* at 7:8–27. Container 12 has first end wall 70, second end wall 72, first side wall 74, and second side wall 76, along with inclined surfaces (78, 80, 82, 84) that extend from the side walls and end walls to bottom hatch 22. *See id.* The inclined surfaces funnel proppant toward bottom hatch 22. *See id.* at 7:23–26.

C. Illustrative Claim

Of the challenged claims, claims 1, 7, 13, and 18 are independent. Ex. 1004, 9:14–12:50. Claim 1, reproduced below, illustrates the claimed subject matter, and we add emphasis to a particular limitation addressed in this Decision:

1. A container structurally strengthened to transport and store large volumes of proppant effectively therein to supply to a fracturing site, the container comprising:
a top;
a bottom having an outlet formed therein;

- a plurality of sidewalls coupled to and extending between the top and bottom, so as to define an interior volume within the container thereby to store the proppant therein;
- a plurality of sidewall supports positioned to provide structural support to the sidewalls when large volumes of proppant are positioned within the interior volume of the container, the proppant comprising sand having a substantially spherical shape and a tightly graded particle distribution, the plurality of sidewall supports including a plurality of support braces extending in a substantially horizontal position and positioned in direct contact with interior surfaces of the sidewalls to enhance support of the sidewalls when the container is filled with the proppant, the plurality of support braces includes a first set of support braces attached to a first pair of sidewalls and a second set of support braces attached to a second pair of sidewalls, the first set of support braces extending in a plane direction transverse to a plane direction of the second set of support braces;
- ramps downwardly inclined and extending inwardly from the sidewalls to direct the proppant toward the outlet when the proppant is stored therein, at least one support brace of the plurality of support braces being positioned vertically higher than the ramps; and
- a hatch positioned proximate the outlet, the hatch being moveable between open and closed positions.

Id. at 9:14–45.

D. References Relied Upon

Petitioner relies on the following references:

Name	Reference	Ex. No.
Smith	US 2008/0226434 A1, published Sept. 18, 2008	1005
Hedrick	US 5,290,139, issued Mar. 1, 1994	1006
Krenek	US 2009/0078410 A1, published Mar. 26, 2009	1007

Name	Reference	Ex. No.
Claussen	US 2011/0127178 A1, published June 2, 2011	1008
Uhryn	US 2013/0022441 A1, published Jan. 24, 2013	1035
Racy	US 3,752,511, issued Aug. 14, 1973	1038

E. Alleged Grounds of Unpatentability

Petitioner contends that claims 1–7, 10, and 12–19 of the '929 patent are unpatentable under the following grounds:

Grounds	References	Basis	Claim(s)
1–3	Smith, Krenek and/or Uhryn, Hedrick, and Racy	§ 103(a)	7, 10, 12
4–5	Smith, Krenek and/or Uhryn	§ 103(a)	13, 16, 17
6–8	Smith, Krenek and/or Uhryn, Racy	§ 103(a)	14
9–11	Smith, Krenek and/or Uhryn, and Hedrick	§ 103(a)	1, 2, 4, 15
12–14	Smith, Krenek and/or Uhryn, Hedrick, and Claussen	§ 103(a)	3, 5, 6, 18, 19

Pet. 5.

Petitioner also relies on the declaration testimony of Dr. Gary R. Wooley, Ph.D. (Ex. 1001), Mark T. Garrett (Ex. 1045), and Michael Stock (Ex. 1047) in support of its Petition.

II. ANALYSIS

A. Claim Construction

As a first step in our analysis, we determine the meaning of the claims using the “broadest reasonable construction in light of the specification of the patent in which [they] appear[.]” 37 C.F.R. § 42.100(b); *Cuozzo Speed*

Techs., LLC v. Lee, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation approach). Under that standard, claim terms are generally given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

We determine that no claim term requires express construction for the purposes of this Decision. *See Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) (“[C]laim terms need only be construed ‘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))).

B. Discretion to Deny Institution

A threshold issue before us is whether we should exercise our discretion under 35 U.S.C. § 325(d) to deny the Petition. *See also* 35 U.S.C. § 314(a). Patent Owner argues that we should deny the Petition for two reasons: (a) the Petition relies upon the same or substantially the same prior art or arguments presented to the Patent Office during prior prosecution (Prelim. Resp. 38–48); and (b) Petitioner submits “unclear, excessive, and redundant” grounds (*id.* at 48–51). We address each of these arguments separately, below.

a. Prior Prosecution

Patent Owner argues that we should deny the Petition because the Petition relies upon prior art and arguments that are the same or substantially the same as considered during the prosecution of the ’929 patent. Prelim.

Resp. 37–46. In particular, Patent Owner argues that during prosecution of the '626 patent, the parent of the '929 patent, the Examiner rejected then-pending claims based on Smith and other prior art references not before us today. *See id.* at 41–42 (citing U.S. Patent Documents to “Allegretti,” “Liu,” and “Epp”).

Our discretion under § 325(d) involves a balance between competing interests. *See Neil Ziegmann, N.P.Z., Inc. v. Stephens*, Case IPR2015-01860, slip op. at 11 (PTAB Sept. 6, 2017) (Paper 13) (expanded panel) (“In determining whether to exercise our authority under Section 325(d), the Office is attempting to make a determination based on several competing policy goals articulated by Congress in promulgating the statute.”). “On the one hand, there are the interests in conserving the resources of the Office and granting patent owners repose on issues and prior art that have been considered previously.” *Apple, Inc. v. Uniloc USA, Inc.*, Case IPR2017-00224, slip op. at 6 (PTAB May 25, 2017) (Paper 7) (citation omitted). “On the other hand, there are the interests of giving petitioners the opportunity to be heard and correcting any errors by the Office in allowing a patent—in the case of an *inter partes* review—over prior art patents and printed publications.” *Id.*

Upon reviewing the record, we decline to exercise our discretion under 35 U.S.C. § 325(d). Even though Smith was relied upon by both the Examiner during prosecution and the Petitioner, here, we find that the other art relied upon by the Examiner (including Allegretti, Liu, and Epp) is not substantially similar to the art relied upon by Petitioner (including Hedrick, Claussen, and Racy), and that the arguments presented by the Petitioner are also not substantially similar. *Compare* Ex. 1011, 44–49, *with* Pet. 6.

Moreover, as we explain below, on this record, Petitioner presents a compelling challenge, and thus, we determine that the interests of error correction outweigh any interests in finality in this case. Accordingly, we decline to exercise our discretion under 35 U.S.C. § 325(d) to deny institution based on the prosecution of the '626 patent and '929 patent.

b. Multiple Grounds of Unpatentability

Patent Owner contends that we should deny the Petition because Petitioner submits “unclear, excessive, and redundant” grounds. Prelim. Resp. 48. In particular, Patent Owner points out that for each challenged claim, Petitioner presents two or three separate grounds of unpatentability (*see supra* Part I.E., identifying 14 grounds), and with each of these 14 grounds, Petitioner also argues that “it would have been obvious to a POSITA” to “use a single-compartment version of Smith’s container ‘in each instance above’” resulting in *twenty-eight* separate grounds. Prelim. Resp. 48 (citing Pet. 81). Patent Owner argues that it is left to speculate on the exact combination of references relied upon (*see id.*).

Although we decline to exercise our discretion to *dismiss* the Petition, or to dismiss Petitioner’s alternative grounds relating to Smith’s single-compartment version of its container, we agree with Patent Owner that part of the Petition lacks the particularity and specificity required by 35 U.S.C § 312(a)(3) and 37 C.F.R. § 42.104(b)(2). Here, Petitioner submits *twenty-eight different grounds* of unpatentability by relying on “Krenek and/or Uhryn” (Pet. 5), and we agree with Patent Owner that it is not clear why these two references are being relied upon in the “and/or” alternative. The function of the Board is not to comb through Petitioner’s arguments in

order to decipher the strongest argument or to determine the strongest combination of references to challenge the claims. *See generally LG Elecs., Inc. v. Rosetta-Wireless Corp.*, Case IPR2016-01516 (PTAB Apr. 3, 2017) (Paper 25). As such, for each identified ground, we exercise our discretion and consider Krenek instead of Uhryn in each ground of unpatentability, as we also find that this is the most consistent reading of the Petition. *See, e.g.*, Pet. 55–69 (citing Krenek, not Uhryn, in Grounds 4–5 for claimed “method for delivering large volumes of proppant”).

C. Principles of Law

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 skill in the art; and (4) objective evidence of nonobviousness, i.e., secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

“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). This burden never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

D. Level of Ordinary Skill in the Art

In determining whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention. *Graham*, 383 U.S. at 17.

Petitioner relies upon the declaration of Dr. Wooley (Ex. 1001) and contends that a person of ordinary skill in the art (“POSITA”) “would have had at least an undergraduate degree in mechanical engineering or an equivalent discipline and at least 2–3 years’ experience with discharge systems for use with particulate material, such as proppant.” Pet. 15 (citing Ex. 1001 ¶ 43). Petitioner also submits that “[s]omeone lacking higher education could qualify as a POSITA if they had an aptitude for mechanical systems and possessed an equivalent amount of training and experience with such discharge systems.” *Id.* (citing Ex. 1001 ¶ 44).

Patent Owner does not submit its own definition of a POSITA. *See generally* Prelim. Resp.

Based on our review of the ’929 patent, the types of problems and solutions described in the ’929 patent and applied prior art, and the testimony of Dr. Wooley, for purposes of this Decision, only, we adopt Petitioner’s definition of a POSITA.

E. Real Party in Interest

The Petition identifies five RPIs: (1) PEI; (2) PES; (3) Grit Energy Solutions, LLC (“Grit”); (4) Hi-Crush Partners LP (“Hi-Crush”); and (5) Hi-Crush PODS LLC. Pet. 2. The issue before us is whether Liberty should also be named as an RPI.

a. Law Pertaining to RPI

The America Invents Act is clear in its requirement that a petition “may be considered only if” it identifies all real parties-in-interest. 35 U.S.C. § 312(a)(2).

The purpose of requiring identification of all RPIs is to determine “conflicts of interest for the Office, the credibility of evidence presented in a proceeding, and standing of a party that previously has filed a civil action involving a patent for which an [*inter partes* review] is requested.” *GEA Process Eng’g. Inc. v. Steuben Foods, Inc.*, IPR2014-00041, slip op. at 24 (PTAB Feb. 11, 2015) (Paper 140).

Our Trial Practice Guide explains that an RPI “may be the petitioner itself, and/or it may be the party or parties at whose behest the petition has been filed.” *Office Patent Trial Practice Guide*, 77 Fed. Reg. 48,756, 48,759 (Aug. 14, 2012). The determination of whether a party is an RPI is highly fact-dependent, with the central focus on the party’s relationship to the proceeding and the degree of control the party can exert over the proceeding. *See Aruze Gaming Macau, Ltd. v. MGT Gaming, Inc.*, IPR2014-01288, slip op. at 11 (PTAB Feb. 20, 2015) (Paper 13). For example, we have held that the relationship between a nonparty parent corporation and the subsidiary petitioner blurred the lines of corporate separation such that the parent could control conduct of the *inter partes* review, thus making the parent an RPI. *See, e.g., ZOLL Lifecor Corp. v. Philips Elec. N. Am. Corp.*, Case IPR2013-00606, slip op. at 8–11 (PTAB Mar. 20, 2014) (Paper 13).

In sum, the RPI determination centers on whether a party other than the named petitioner is controlling, or capable of controlling, the proceeding.

While complete control is not required, “if a nonparty can influence a petitioner’s actions in a proceeding before the Board, to the degree that would be expected from a formal co-petitioner, that nonparty should be considered an RPI to the proceeding.” *Aruze Gaming Macau*, Paper 13, slip op. at 12.

b. Patent Owner’s Argument

Patent Owner argues that Liberty must be named as an RPI. *See* Prelim. Resp. 13–33. As discussed below, Patent Owner submits substantial evidence that reasonably calls into question whether Liberty is an unnamed RPI. *See id.* As such, Petitioner bears the burden of proving that it has named all RPIs, and that Liberty is not an RPI.

In 2016, Liberty provided 60% of the capital to fund Petitioner’s (PropX’s) “general and administrative expenses, other working capital needs and capital expenditures.” Ex. 1052, 1, 2. In separate pleadings before a state court, PropX acknowledged that Liberty “set up PropX as its affiliate” and that “Liberty paid PropX bills and salaries” until at least September 8, 2016. Ex. 2010, 4.

During this same time, Liberty and PropX shared office space, which Liberty paid for and let PropX use rent-free. Ex. 1055, 53:3–14 (PropX CEO acknowledging that Liberty paid PropX’s rent and that there was no sublease between PropX and Liberty). Liberty also paid certain PropX business expenses, signed credit applications on PropX’s behalf (Ex. 1055, 64:12–65:11; Ex. 1056), and provided human resources, IT, finance, and administrative support to PropX, without documenting the work spent by Liberty on PropX’s behalf (Ex. 1057, 1; Ex. 1055, 42:24–43:22 (Mr. Fisher

acknowledging, that despite the significant services provided by Liberty to PropX, he didn't believe that a services agreement existed between the companies), 46:20–47:17 (Mr. Fisher acknowledging that there has been no documentation of time, expenses, and work performed by Liberty for PropX)).

Also in 2016, Liberty employees acted as PropX employees, as acknowledged by Mr. Fisher. Ex. 1055, 58:15–19 (“it was my plan for Liberty employees to be able to act on behalf of PropX”), 59:22–60:1. Liberty paid the wages and benefit expenses of PropX employees. Ex. 1060. Liberty provided undocumented loans to PropX without charging interest or providing a payoff date. *See* Ex. 1055, 65:1–18 (Mr. Fisher acknowledging that there is no loan agreement between Liberty and PropX), 99:22–100:15 (Mr. Fisher acknowledging that there is no payoff date for PropX to pay Liberty for the money loaned).

Furthermore, during the time in 2016 when Liberty and PropX were closely related (discussed above), Mr. Fisher, while serving as both Liberty's President and CEO of PropX, hired Fox Rothschild to prepare an *inter partes* review petition to challenge the related '626 patent. Ex. 1053 (engagement letter between Fox Rothschild and PropX dated July 2016, for “general business advice” and, specifically, “intellectual property matters”); Ex. 1054, 1 (invoice dated October 20, 2016, from Fox Rothschild addressed to Mr. Fisher at PropX for “IPR – PATENT NO 9,403,626”). Invoices for this legal work were sent to Liberty's address. *Compare* Ex. 1054, 1 (listing recipient's (PropX's) address as 950 17th Street, Suite 2000, Denver, CO 80202), *with* Ex. 2014 (listing Liberty's address as 950 17th St. Floor 20, Denver, CO). Various Liberty officers and employees, at least persons who

were Liberty employees through September 2016, either authored or received communications regarding *inter partes* review petitions, including from Fox Rothschild, as late as November 2016. Ex. 1055, 29:7–18, 111:15–20.

Notwithstanding Liberty’s potential involvement in preparing an *inter partes* review of the ’626 patent with the law firm of Fox Rothschild in 2016, Petitioner submits evidence to persuade us that Liberty did not control or was otherwise capable of controlling the proceeding before us, which involves the ’929 patent and was filed by Norton Rose Fulbright.

c. Petitioner’s Response

Petitioner responds that “Liberty has not controlled, funded, or participated in the preparation of the ’929 Petition.” Reply 4. In particular, Petitioner explains that the Petition (i.e., the petition for *inter partes* review filed in this case) was drafted by Norton Rose Fulbright—not Fox Rothschild—and this work began in April 2017. *See id.* at 1–4. Petitioner argues that Patent Owner has produced no evidence relating to the time period—April 2017 to August 2017—when the ’929 Petition was drafted. *See id.* In support of this argument, Petitioner submits the sworn testimony of Mark T. Garrett, who supervised the drafting of the Petition before us. *Id.*; Ex. 1045 ¶ 2. Mr. Garrett testifies that “[a]t no time has Liberty . . . controlled, directed, or paid for any Norton Rose Fulbright’s work on any of [Patent Owner’s] IPRs.” Ex. 1045 ¶ 6. Mr. Garrett also testifies that “Liberty has had no input, feedback, or involvement in any way in any of the [Patent Owner’s] IPRs.” *Id.*

d. Our Analysis

Patent Owner submits a great deal of evidence that suggests that, through late 2016, Liberty may have controlled, or had the opportunity to control, PropX. If the Petition had been filed by Fox Rothschild in late 2016, then there may be a compelling case that Liberty was an RPI. However, Petitioner submits sworn testimony from Mr. Stock that PropX and Liberty separated their operations, at least by the beginning of 2017. Ex. 1047 ¶¶ 1–10. Moreover, Petitioner submits the sworn testimony of Mr. Garrett that this Petition was prepared by Norton Rose Fulbright attorneys, not Fox Rothschild attorneys, and that work did not begin on this Petition until April 2017 and the work continued until August 2017, when this Petition was filed. Ex. 1045 ¶¶ 1–6. Given this uncontroverted testimony, we are not persuaded, at this stage of proceeding, that Patent Owner has made a sufficient showing to rebut the presumption that the named RPIs on the Petition are correct.

Accordingly, at this stage of the proceeding, we are not persuaded that PropX should have named Liberty as an RPI.

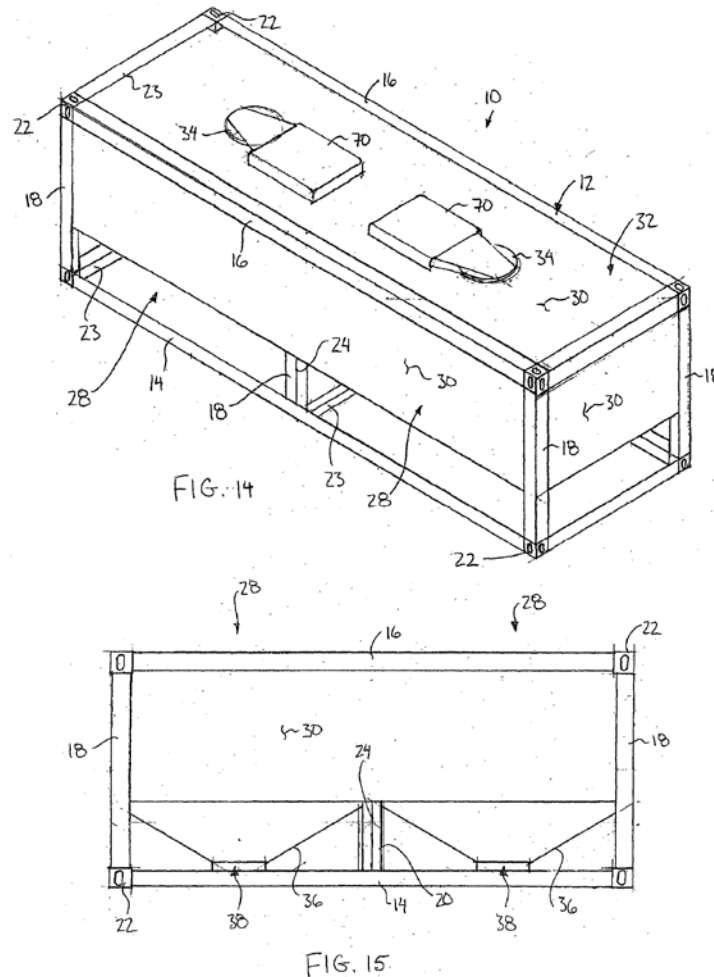
F. Grounds 1–3: Smith, Krenek, Hedrick, and Racy

Petitioner challenges claims 7, 10, and 12 as obvious over Smith, Krenek, and Hedrick. Pet. 5; *see also supra* Part II.B.b.

a. Smith (Ex. 1005)

Smith is titled “Hopper Container.” Ex. 1005, [54]. Smith discloses “a container comprising a structural frame defining a rectangular volume suitable for stacking with conventional intermodal containers.” *Id.* ¶ 7. To

illustrate a particular embodiment of Smith, we reproduce Figures 14 and 15, below:

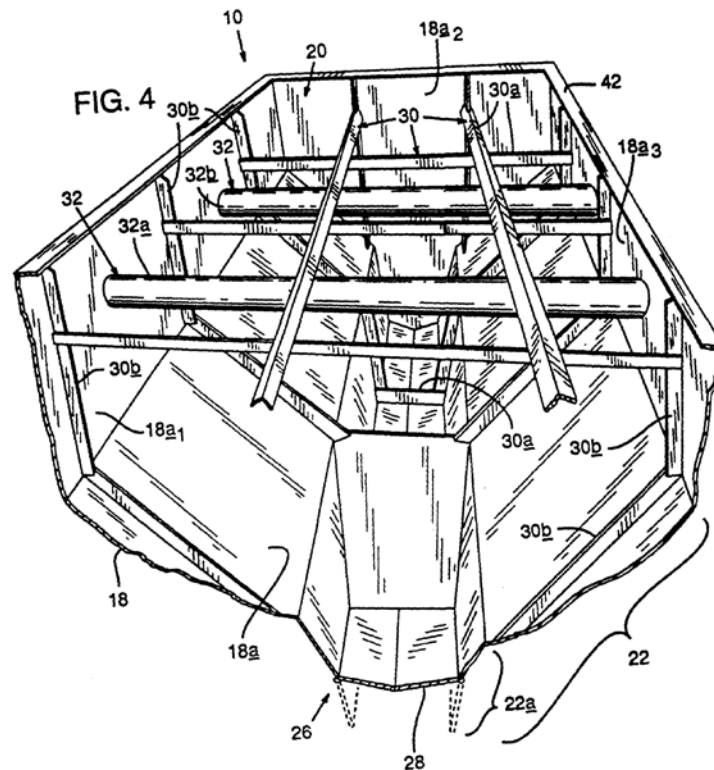


Smith describes Figure 14 as depicting a hopper container with Figure 15 depicting a side view of that same container. *Id.* ¶¶ 33, 34. In particular, these figures depict hopper container 10 with rectangular frame 12. *Id.* ¶ 36. Frame 12 includes corner connectors 22 at each of the corners to permit the containers to be interlocked with one another when stacked. *Id.* ¶ 38.

b. Hedrick (Ex. 1006)

Hedrick is titled “Portable Hopper with Internal Bracing.” Ex. 1006, [54]. Hedrick discloses a “lightweight, small portable hopper for bulk

materials that is removably mountable on a tractor trailer.” *Id.* at [57]. Hedrick discloses a hopper for holding particulate material, such as sand or gravel. *Id.* at 1:12–15, 4:57–64. We reproduce Figure 4 of Hedrick, below:



Hedrick describes Figure 4 as depicting hopper 10 with bracing structure 30. *Id.* at 3:44–47, 5:11–35. In particular, bracing structure includes first braces 30a and second braces 30b. *Id.* at 5:11–35. First braces 30a are preferably positioned transversely of second braces 30b. *Id.* Hedrick also discloses dispensing port 26 and hinged gate 28 that permit for dispensing of the bulk material. *Id.* at 4:57–64.

c. *Krenek (Ex. 1007)*

Krenek is titled “Aggregate Delivery Unit.” Ex. 1007, [54]. Krenek discloses a delivery unit for providing aggregate, such as proppant, to a worksite, such as a wellsite location. *Id.* at [57], ¶ 2. In particular, Krenek

discloses the use of a conveyor belt running below modular containers. *Id.* ¶ 28.

d. Racy (Ex. 1038)

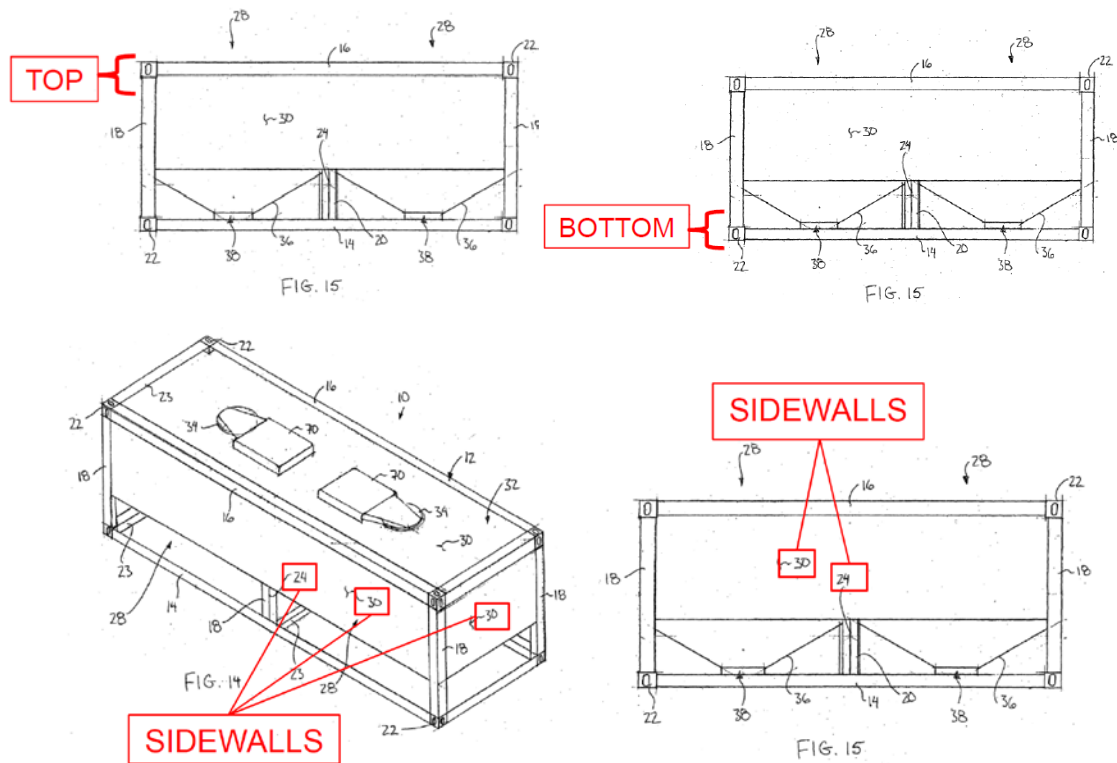
Racy is titled, “Container Coupler.” Ex. 1038, [54]. Racy discloses a “container coupler having a housing which acts as a spacing means.” *Id.* at [57].

e. Petitioner’s Challenge

i. Independent Claim 7

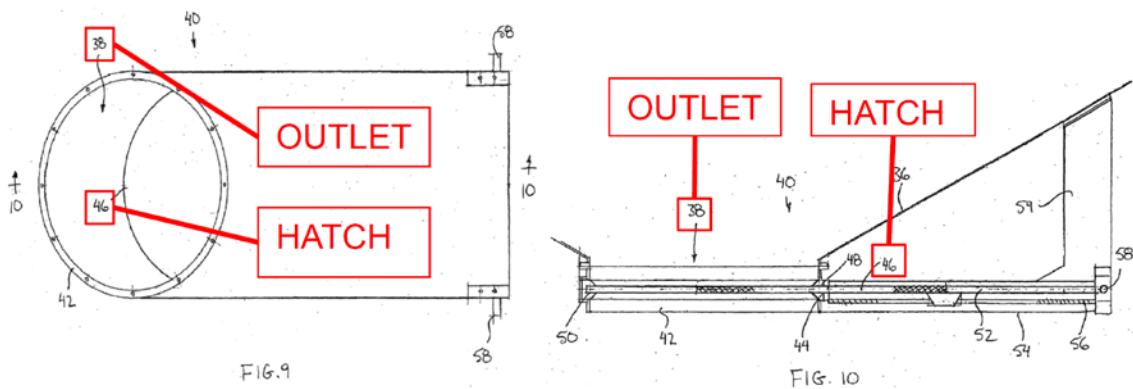
In addressing the claimed “system structurally strengthened to transport and store large volumes of proppant,” Petitioner relies on Smith’s container “for storing particulate material therein” (Pet. 35), and reasons that “a POSITA would have been motivated to use the Smith System similarly to how Krenek uses its containers—for storing proppant at a wellsite” (*id.* at 36 (citing Ex. 1001 ¶ 87)). Dr. Wooley testifies that a POSITA would have appreciated that using Smith’s system to store proppant would avoid costs associated with using different containers for transporting the proppant. Ex. 1001 ¶¶ 83–85.

To address the claimed “first container comprising” “a first top,” “a first bottom,” and “a first plurality of sidewalls coupled to the first top and first bottom,” Petitioner relies on Smith’s container 10 and submits several annotated versions of Smith’s Figures 14 and 15 (Pet. 40, 41, 42, and 45), four of which we reproduce, below:



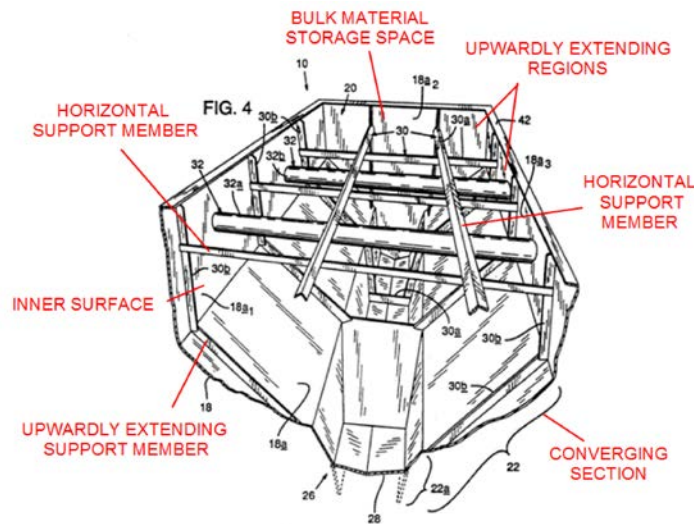
According to Petitioner, Smith’s container 10 satisfies the claimed “first top,” “first bottom,” and “first plurality of sidewalls coupled to the first top and first bottom.” *See* Pet. 40–45 (citations omitted)

To address the claimed first bottom “having a first outlet formed therein,” Petitioner relies on Smith’s chute opening 38 and submits annotated versions of Smith’s Figures 9 and 10 (Pet. 43), which we also reproduce, below:



According to Petitioner, and as shown above, “when gate panel 46, which covers chute opening [38] . . . is in the claimed open position, large volumes of proppant could have flowed through the chute opening.” Pet. 44 (citing Ex. 1005 ¶¶ 44, 45, 51). As for the limitation “the proppant comprising sand, the large volumes comprising at least 30,000 pounds of the sand” (Ex. 1004, 10:7–10), Petitioner relies on the declaration testimony of Dr. Wooley, who testifies that Smith’s containers would have been capable of holding 30,000 pounds of sand. *See* Pet. 44 (citing Ex. 1001 ¶¶ 180–181).

To address the claimed “first plurality of structural supports positioned to provide structural support to the first plurality of sidewalls,” Petitioner relies on “Hedrick’s bracing structure 30 [to] meet this element.” Pet. 46. Petitioner also submits an annotated version of Hedrick’s Figure 4, which we reproduce, below:

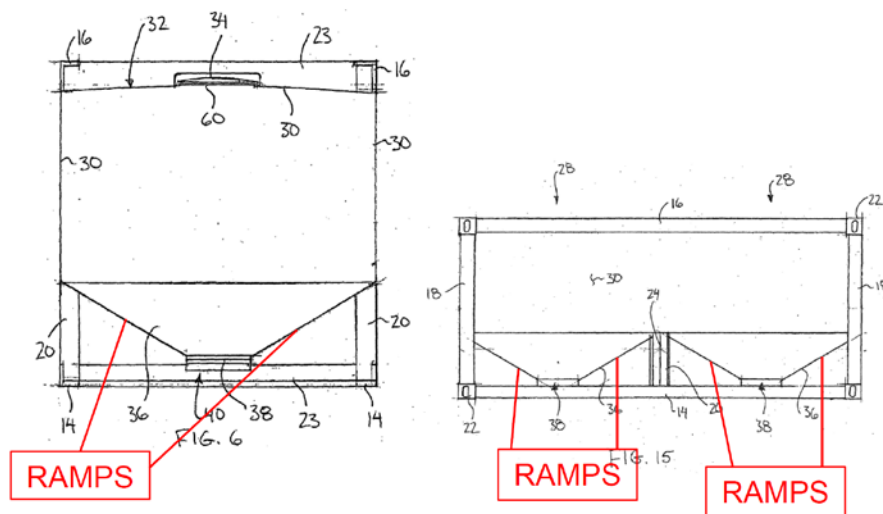


Hedrick’s FIG. 4 - Annotated

Id. at 49. According to Petitioner, Hedrick’s internal bracing structure 30, which includes horizontal support members 30a and upwardly extending support members 30b, strengthens the hopper. *See id.* at 50 (citations omitted).

In combining Smith with Hedrick, Petitioner reasons that a “POSITA would have been motivated to use such bracing to reinforce the rectangular section of at least one . . . of the compartments of [Smith’s] container 10” for several reasons, including increasing the maximum payload of Smith’s containers. *Id.* at 46, 47 (citations omitted); *see also id.* at 46–51; Ex. 1001 ¶ 149 (“POSITA would have found it desirable to modify Smith’s container to include support members like Hedrick’s horizontal and/or upwardly extending support members because they would increase the strength of the container (as taught by Hedrick) and thus the maximum payload of the container”).

To address the claimed “first plurality of ramps downwardly inclined and extending inwardly from the first plurality of sidewalls,” Petitioner relies on Smith and submits annotated versions of Smith’s Figures 6 and 15 to illustrate how Smith satisfies this limitation. Pet. 52. We reproduce these figures, below:



Id. According to Petitioner, the above figures illustrate Smith’s ramps and depict these ramps as being downwardly inclined and extending inwardly from the first plurality of sidewalls. *See id.* (citing Ex. 1005 ¶¶ 8, 41, 65).

To address the claimed second container adapted to be positioned below the first container to receive proppant flowing from the first outlet of the second container, Petitioner points to Smith's system that includes second container positioned below first container. Pet. 53 (citing Ex. 1005 ¶ 51). Petitioner further points out that Smith's second container has the same features as its first container and, thus, also satisfies the claimed "second top, having an opening," "second bottom, having a second outlet," "second plurality of sidewalls," and "second plurality of ramps." *Id.* at 53–54.

To address the claimed "second plurality of structural supports," as with the claimed "first plurality of structural supports," Petitioner reasons that a POSITA would have been motivated to use [Hedrick's] bracing to reinforce the rectangular section of each of the compartments of Smith's second container for "those same reasons discussed above, including to increase the maximum payload of the second container. *Id.* at 54 (citing in part Ex. 1001 ¶¶ 149, 150).

To address the claimed "one or more spacers positioned between the first container and the second container," Petitioner relies on Racy's disclosure of container couplers and reasons using Racy's couplers with Smith's system "would have allowed a POSITA to interlock those stacked Smith containers, just as Smith (and Racy) taught." Pet. 57 (citing Ex. 1001 ¶ 167); *see also id.* at 54–56 (citing Ex. 1001 ¶¶ 163–167). Petitioner explains that this combination "would have made it even easier for the bottom hatch of the top Smith container to be open at the same time the top hatch of the bottom container is open." *Id.* at 57 (citations omitted).

ii. Dependent Claim 10

Claim 10 depends from claim 7 and further recites, *inter alia*, “wherein the first plurality of structural supports comprises a first plurality of support braces . . . [that] comprises a first set of support braces attached to a first pair of sidewalls and a second set of support braces attached to a second pair of sidewalls.” Ex. 1004, 11:1–7.

To address this claimed limitation, Petitioner reasons that it would have been obvious to “position multiple sets of Hedrick-like support braces . . . between and attached to each pair of opposing sidewalls . . . such that they were running perpendicular to each other.” Pet. 57. In relying on the testimony of Dr. Wooley, Petitioner explains that “doing so would strengthen the compartments.” *Id.* at 57–58 (citing Ex. 1001 ¶ 150).

iii. Dependent Claim 12

Claim 12 depends from claim 7 and further recites, *inter alia*, “wherein each of the first and second containers includes a container frame.” Ex. 1004, 11:14–20.

To address this claimed limitation, Petitioner asserts that “Smith also discloses that each container . . . includes a ‘structural frame,’” as called for in the claims. Pet. 58 (citations omitted).

f. Our Analysis

Patent Owner does not expressly contest Petitioner’s challenge of independent claim 7 or any of its dependent claim 10, or 12. *See generally* Prelim. Resp.; *see also id.* at 51 (arguing that Hedrick does not disclose the claimed “support braces,” but only with respect to claims 1–6).

We have considered the Petition, its underlying supporting evidence, and the Patent Owner Preliminary Response. On this record, we are persuaded that Petitioner has shown that it has a reasonable likelihood of prevailing in its assertion that claims 7, 10, and 12 are unpatentable over Smith, Krennek, Hedrick, and Racy.

G. Grounds 4 and 5: Smith and Krennek

Petitioner challenges claims 13, 16, and 17 as obvious over Smith and Krennek. Pet. 5; *see also supra* Part II.B.b.

a. Petitioner's Challenge

i. Independent Claim 13

Independent claim 13 recites a “method for delivering large volumes of proppant to a fracturing site.” Ex. 1004, 11:21–49. Claim 13 also recites, *inter alia*, the steps of “positioning a first container to structurally support large volumes of proppant,” “stacking a second container . . . above the first container,” “moving the [first and] second container to a position at the fracturing site.” *See id.*

In addressing this method claim, Petitioner reasons that “a POSITA would have been motivated to use the Smith System for delivering large volumes of proppant to a wellsite” in light of Krennek’s disclosure. Pet. 59 (referencing Grounds 1–3). As similarly required by claim 7, claim 13 requires the claimed “first container” and “second container” to each have “openings” and “outlets.” *See* Ex. 1004, 11:21–49. Petitioner relies on the same findings discussed above with respect to claim 7 in addressing these claimed features. *See* Pet. 59–64.

To address the claimed “moving the second container to a position at the fracturing site” and “moving the first container to a position adjacent the second container at the fracturing site to allow proppant to flow from the first container onto a conveyor,” Petitioner relies on Krenek’s teaching of “moving pre-filled mobile containers from a position near a fracturing site . . . to a position at the fracturing site . . . so that proppant discharged from those containers can be directed by the conveyor belt.” Pet. 64–65 (citing Ex. 1007 ¶¶ 27, 28, 42; Ex. 1001 ¶ 170). In combining Krenek with Smith, Petitioner reasons that a “POSITA would have been motivated to use the Smith System in a similar fashion . . . in order to use its proppant for fracturing operations at the fracturing site.” *Id.* at 65 (citing Ex. 1001 ¶ 171); *see also id.* at 66–67.

ii. Dependent Claim 16

Claim 16 depends from claim 13 and further recites, *inter alia*, “replacing the second container with a third container” “when the second container is empty.” Ex. 1004, 12:1–9

To address the limitation, Petitioner relies on Smith’s disclosure of a third container—similar in structure to its other containers—and reasons that it also would have been obvious to use the additional container as called for in the claims. *See* Pet. 67–69.

iii. Dependent Claim 17

Claim 17 depends from claim 16 and further recites, *inter alia*, “wherein each of the first and second containers includes a container frame.” Ex. 1004, 12:11–17.

To address this limitation, Petitioner relies on the same findings discussed above with respect to claim 7. *See* Pet. 69.

b. Our Analysis

Patent Owner does not expressly contest Petitioner's challenge of independent claim 13 or its dependent claim 16 or 17. *See generally* Prelim. Resp.

We have considered the Petition, its underlying supporting evidence, and the Patent Owner Preliminary Response. On this record, we are persuaded that Petitioner has shown that it has a reasonable likelihood of prevailing in its assertion that claims 13, 16, and 17 are unpatentable over Smith and Krennek.

H. Grounds 6–8: Smith, Krennek, and Racy

Petitioner challenges claim 14 as obvious over Smith, Krennek, and Racy. Pet. 5; *see also supra* Part II.B.b.

a. Petitioner's Challenge

Claim 14 depends from claim 13 and further recites, *inter alia*, “arranging spacers between the first and second containers.” Ex. 1004, 11:50–52.

To address this limitation, Petitioner relies on Racy's couplers and reasons that a POSITA would have used these couplers with Smith's system “to provide clearance for the first open position.” *See* Pet. 69.

b. Our Analysis

Patent Owner does not specifically respond to Petitioner's challenge of claim 14. *See generally* Prelim. Resp.

We have considered the Petition, its underlying supporting evidence, and the Patent Owner Preliminary Response. On this record, we are persuaded that Petitioner has shown that it has a reasonable likelihood of prevailing in its assertion that claim 14 is unpatentable over Smith, Krenek, and Racy.

I. Grounds 9–11: Smith, Krenek, and Hedrick

Petitioner challenges claims 1, 2, 4, and 15 as obvious over Smith, Krenek, and Hedrick. Pet. 5; *see also supra* Part II.B.b.

a. Petitioner's Challenge to Claim 15

Claim 15 depends from claim 13 and further recites, *inter alia*, “wherein the first and second containers each comprises a plurality of structural supports.” Ex. 1004, 11:53–57.

To address this limitation, Petitioner relies on Hedrick's bracing structure and reasons that a POSITA would have added these structural supports to Smith's containers for the same reasons discussed above with respect to claim 7, namely, to increase the containers' strength and maximum payload. *See* Pet. 69–70.

b. Our Analysis

Patent Owner does not expressly contest Petitioner's challenge of claim 15. *See generally* Prelim. Resp.; *see also id.* at 51 (arguing that

Hedrick does not disclose the claimed “support braces,” but only with respect to claims 1–6).

We have considered the Petition, its underlying supporting evidence, and the Patent Owner Preliminary Response. On this record, we are persuaded that Petitioner has shown that it has a reasonable likelihood of prevailing in its assertion that claim 15 is unpatentable over Smith, Krenek, and Hedrick.

c. Petitioner’s Challenge to Claims 1, 2, and 4

i. Independent Claim 1

Independent claim 1 recites a container comprising a “top,” “bottom having an outlet,” “a plurality of sidewalls coupled to . . . the top and bottom,” “ramps downwardly inclined and extending inwardly from the sidewalls,” and “a hatch positioned proximate the outlet.” Ex. 1004, 9:14–45. As with independent claim 7, discussed above, Petitioner relies on Smith for satisfying these claimed features, and relies on Krenek’s disclosure of containers for storing proppant at a wellsite. *See* Pet. 72 (referencing grounds challenging claim 7).

Claim 1 also recites, “a plurality of sidewall supports positioned to provide structural support to the sidewalls . . . including a plurality of support braces extending in a substantially horizontal position.” Ex. 1004, 9:23–32. To address this limitation, and as with claim 7, Petitioner relies on Hedrick’s braces and reasons that it would have been obvious to add these braces to Smith’s structure and that “a POSITA would have found it desirable to orient such Hedrick-like support braces horizontally.” *See* Pet. 71.

ii. Dependent Claims 2 and 4

Claim 2 depends from claim 1 and further recites, *inter alia*, “wherein the outlet is adapted to be positioned adjacent a second container.”

Ex. 1004, 9:46–52.

To address the limitations of claim 2, Petitioner relies on the same findings and reasoning discussed *supra* with respect to claims 7 and 15. *See* Pet. 73.

Claim 4 depends from claim 3 and further recites “a container frame structurally arranged to support another container when filled with large volumes of proppant and when positioned in a vertically stacked arrangement there above, and the large volumes are at least 30,000 pounds.”

d. Patent Owner’s Argument

Patent Owner points out that claim 1, and its dependent claims 2 and 4, require the support braces to be “positioned in direct contact with interior surfaces of the sidewalls” of the container and extend “in a substantially horizontal position” (Prelim. Resp. 52), and argues that Hedrick’s horizontal braces 30a are not “positioned in direct contact with the interior surfaces,” but “merely attach to the sides of the hopper and sub hopper” (*id.*). Patent Owner contends that Petitioner offers inadequate explanation as to why a POSITA *would modify Hedrick* to position braces 30a to be in direct contact with the interior surfaces. *See id.* at 52–53.

Patent Owner further notes that claim 4 depends from claim 3, but Petitioner fails to account for the limitations of claim 3 under the ground asserted against claim 4 of Smith, Krennek, and Hedrick. *See* Prelim. Resp. 53 n.5.

e. Our Analysis

Patent Owner’s argument is unpersuasive, as it is well established that one cannot show non-obviousness by attacking references individually where the rejection is based upon the teachings of a combination of references. *See In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). In the present case, Petitioner relies on Hedrick’s disclosure of using horizontal support members in contact with the inner surface of a hopper to strengthen the hopper. *See, e.g.*, Pet. 48–50 (annotating Hedrick’s Figure 4, reproduced *supra*). Petitioner reasons that a POSITA would have *modified Smith* to “include support members like Hedrick’s horizontal . . . support members.” *Id.* at 50 (citing Ex. 1001 ¶ 149). We further note that Petitioner’s reasoning is supported by the sworn declaration of Dr. Wooley, who testifies that a “POSITA would have found it desirable to modify Smith’s container to include support members like Hedrick’s horizontal . . . support members because they would increase the strength of the container (as taught by Hedrick) and thus the maximum payload of the container.”

Ex. 1001 ¶ 149. Petitioner further provides testimony that a

POSITA could have positioned such support members in Smith’s container similarly to how Hedrick’s support members are positioned in its hopper—such that each was attached to (such as by welding) and extended upwardly along a sidewall of a compartment or was attached to (such as by welding) opposing sidewalls of and extended horizontally across the compartment.

Pet. 50 (citing Ex. 1001 ¶ 149). Petitioner further contends that a “POSITA would have understood that either positioning would have contributed strength to the container.” *Id.* (citing Ex. 1001 ¶ 149). Accordingly, we determine that Petitioner has articulated a reason supported with rational

underpinning for adding horizontal support braces to Smith's container (i.e., to strengthen the container). *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) ("rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness"), *cited with approval in KSR*, 550 U.S. at 418.

We do agree with Patent Owner that Petitioner has failed to adequately account for the limitations of claim 4 in the combination of Smith, Krensek, and Hedrick. As we noted above, claim 4 depends from claim 3. However, the Petition relies on the combination of Smith, Krensek, Hedrick, and Claussen to account for the limitation of claim 3. *See* Pet. 5. The Petition's analysis of claim 4 does not include Claussen. Because the Petition has failed to adequately account for the limitations of claim 4, we determine that Petitioner has failed to show a reasonable likelihood of prevailing on claim 4.

We have considered the Petition, its underlying supporting evidence, and the Patent Owner Preliminary Response. On this record, we are persuaded that Petitioner has shown that it has a reasonable likelihood of prevailing in its assertion that claims 1 and 2 are unpatentable over Smith, Krensek, and Hedrick.

J. Grounds 12–14: Smith, Krensek, Hedrick, and Claussen

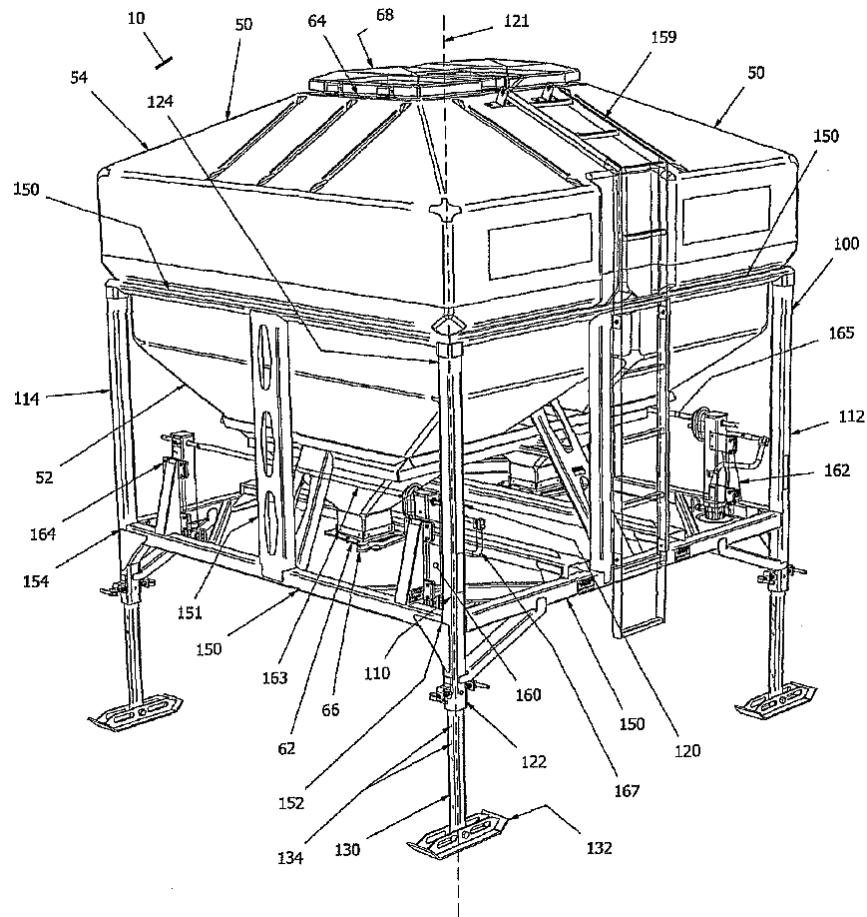
Petitioner challenges claims 3, 5, 6, 18, and 19 as obvious over Smith, Krensek, Hedrick, and Claussen. Pet. 5; *see also supra* Part II.B.b.

a. Claussen

Claussen is titled “Bulk Material Storage Apparatus” and discloses its apparatus as including adjustable leg members. Ex. 1008, [54], [57].

Claussen discloses bulk material storage apparatus. *Id.* at [57]. We reproduce Figure 1 of Claussen, below:

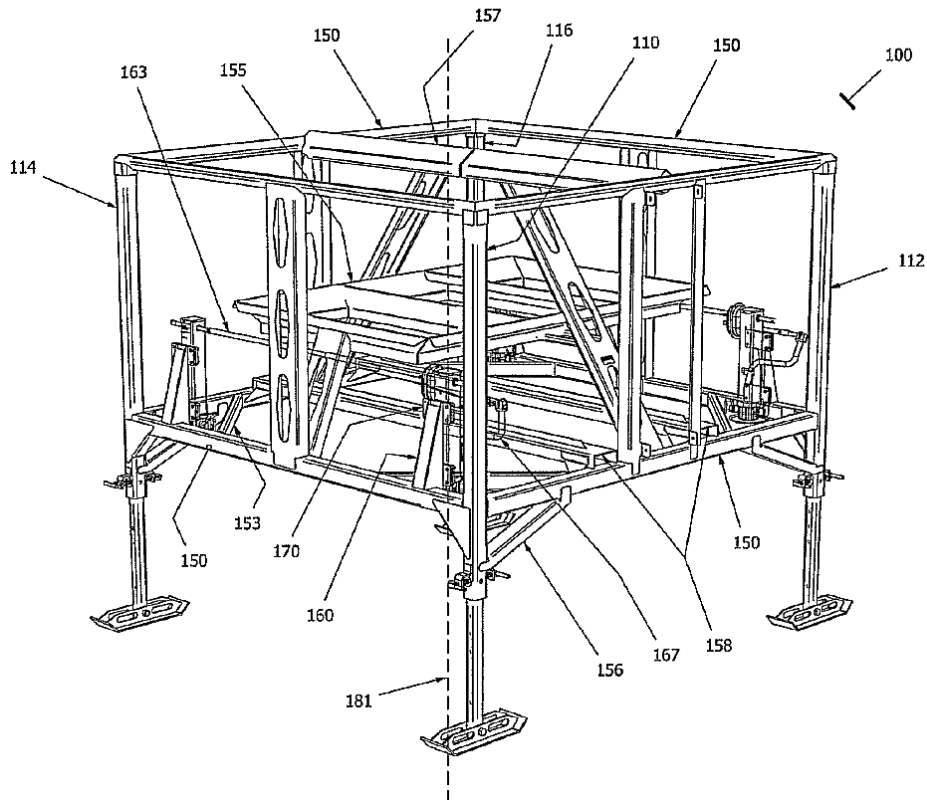
FIGURE 1



According to Claussen, Figure 1 depicts bulk material storage apparatus 10 with two containers 50 and frame 100. *Id.* ¶ 24.

We also reproduce Figure 2 of Claussen, below:

FIGURE 2



Claussen describes Figure 2 as depicting frame 100 without container 50. *See id.* ¶ 16. In particular, this figure depicts frame 100 for supporting a container above the ground. *Id.* ¶ 31. Frame 100 may also contain a lower container support apparatus 155 to support the lower portion of a container and an upper container support apparatus 157 to support the upper portion of the container. *Id.* ¶ 49.

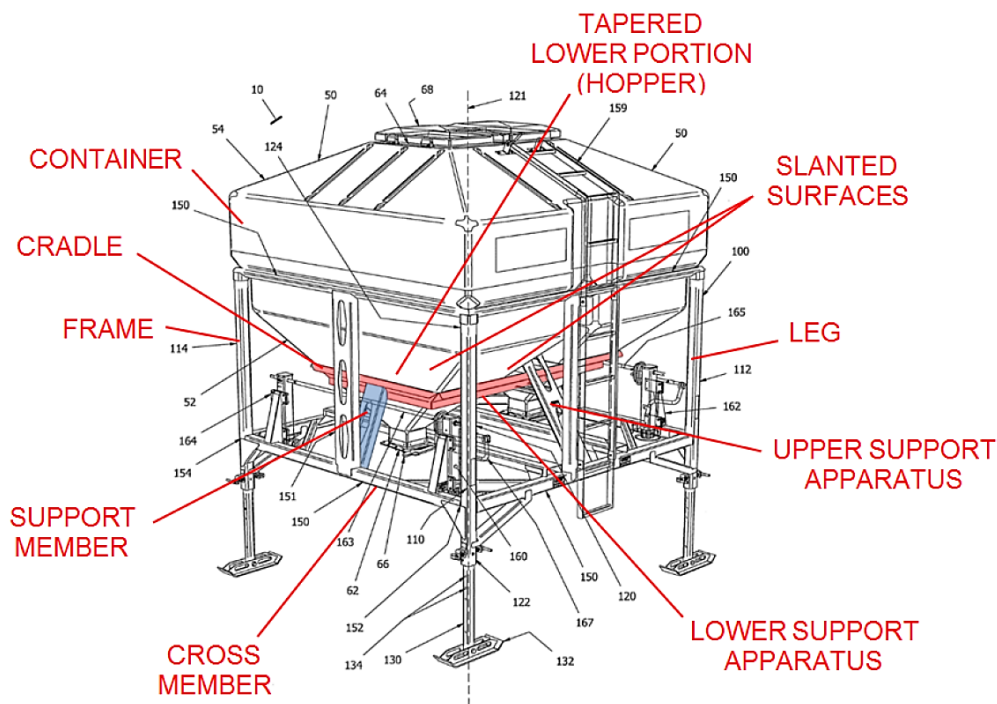
b. Petitioner's Challenge

i. Dependent Claim 3 and Independent Claim 18

Claim 3 depends directly from claim 1 (the claimed “container”) and independent claim 18 similarly recites a container “to transport and store large volumes of proppant.” Ex. 1004, 9:56–60, 12:18–49. Unlike the

claims previously discussed, however, claims 3 and 18 further recite, *inter alia*, “a plurality of support members attached to a bottom surface of the ramps and extending downwardly toward the bottom.”¹ *Id.*

To address this limitation, Petitioner relies on Claussen. Pet. 73–81. In particular, Petitioner asserts that “Claussen teaches support members that meet this element, and a POSITA would have been motivated to use support members like Claussen’s to increase the ability of [Smith’s] hopper defined by the ramps . . . to carry proppant.” *Id.* at 73 (citations omitted). In support of this combination, Petitioner submits an annotated version of Claussen’s Figure 1 (*id.* at 75), which we reproduce, below:



¹ We note that claim 18 appears to have an error and recites the limitation “a plurality of support members attached to a bottom surface of the ramps and extending downwardly toward the bottom” twice. See Ex. 1004, 12:39–41, 12:45–47.

According to Petitioner, the above Figure illustrates “support members . . . that extend between the bottom end of the frame and the cradle to support the cradle—and thus the hoppers of the containers—relative to the frame.” *Id.* (citing Ex. 1001 ¶ 154). Dr. Wooley testifies that a “POSITA would have understood that such support members allow for larger loads to be applied to the hoppers of the containers, at least by permitting such loads to be shared by those hoppers and the frame, thereby strengthening the containers. Ex. 1001 ¶ 154.

In combining Claussen with Smith, Petitioner reasons that a “POSITA would have modified Smith’s container to include support members like Claussen’s to strengthen Smith’s container, just as Claussen did.” Pet. 77 (citing Ex. 1001 ¶ 157). Petitioner also cites to Claussen’s disclosure that its containers and frame may be integral (Ex. 1008 ¶ 29) and further reasons that “a POSITA would have found it logical to attach such support members directly to Smith’s ramps in view of Claussen’s integral embodiment, and would have had the ability to accomplish the attachment with or without a cradle.” Pet. 78 (citing Ex. 1001 ¶ 158).

ii. Dependent Claims 5, 6, and 19

Claim 5 depends directly from claim 3, and further recites, “wherein the plurality of support members [are] arranged at respective angles relative to the bottom and the support members are attached to the bottom.” Ex. 1004, 9:61–64.

Claims 6 and 19 depend directly from claims 4 and 18, respectively, and further recite, “wherein at least one support member of the plurality of

support members is positioned vertically lower than the plurality of support braces.” Ex. 1004, 9:65–67, 12:53–56.

Claim 19 depends directly from claim 18 and recites both of these additional limitations from claims 5 and 6. Ex. 1004, 12:51–56.

To address the limitation of claim 5, which is also found in claim 19, Petitioner asserts that “[e]ach of the support members . . . would have the claimed configuration when attached to the ramps and bottom as described.” Pet. 79, 81.

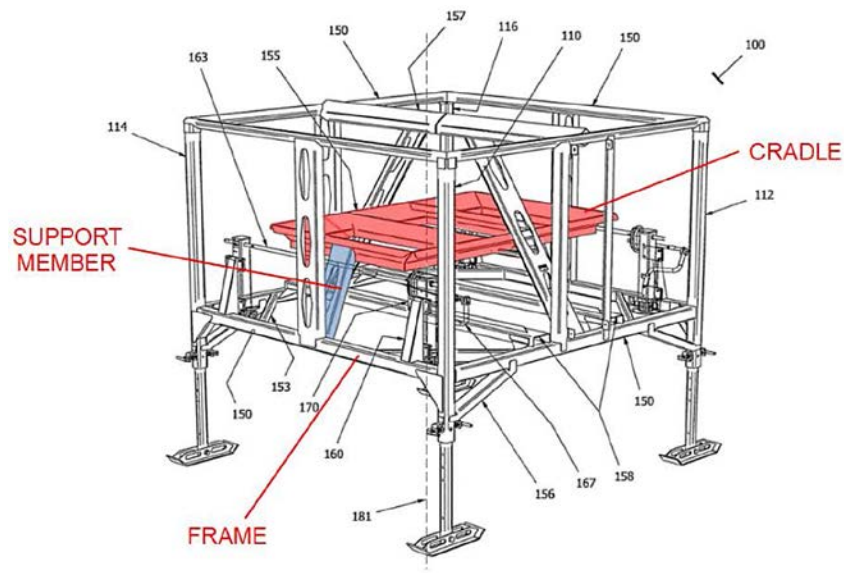
To address the limitation of claim 6, which is also found in claim 19, Petitioner asserts that “[e]ach of the support members described immediately above . . . would be positioned” as claimed. Pet. 79, 81.

c. Our Analysis

Patent Owner presents numerous arguments, which we address separately, below.

First, Patent Owner argues that the Petitioner’s reliance on Claussen’s “support members” is in error. *See* Prelim. Resp. 56 (“[W]hat [Petitioner] highlights in blue are not ‘support members’ as claimed in the ’929 Patent.”). In support of this argument, Patent Owner asserts that Petitioner “does not identify an alleged support member that is part of container 50—all it points to is an unidentified, unexplained part of the frame.” *Id.*

Patent Owner’s first argument is not persuasive. At this stage of the proceeding, we find that Claussen discloses “support members.” To illustrate this finding, we reproduce Claussen’s Figure 2 (as annotated by Petitioner (Pet. 76)), below:



As shown above, Petitioner asserts that Claussen discloses “support members . . . that extend between the bottom end of the frame and the cradle to support the cradle—and thus the hoppers of the containers—relative to the frame.” *Id.* at 75 (citing Ex. 1001 ¶ 154). Dr. Wooley acknowledges that Claussen does not describe this “support member” in detail, but testifies that a POSITA would have understood the support members to “extend between the bottom end of the frame and the cradle to support the cradle—and thus the hoppers of the containers—relative to the frame.” Ex. 1001 ¶ 154. Dr. Wooley further testifies that a “POSITA would have understood that such support members allow for larger loads to be applied to the hoppers of the containers, at least by permitting such loads to be shared by those hoppers and the frame, thereby strengthening the containers.” *Id.*

Second, Patent Owner contends that “there is no support for [Petitioner’s] contention that [an embodiment where Claussen’s frame 100 and container 50 are integral] would include the claimed support members.” Prelim. Resp. 57. As discussed above, Petitioner relies on Claussen’s disclosure that its containers 50 and frame 100 may be integral. *See* Pet. 75–

77; *see also* Ex. 1008 ¶ 29 (“[T]he container 50 and the frame 100 may be integral. For example, [they] may be a single, continuous piece.”). Patent Owner argues that Petitioner relies on impermissible hindsight as “[t]here is simply no basis for [Petitioner’s] assumption that in an embodiment of Claussen where the containers and frame are integral, that structure would also include an integral cradle and alleged ‘support members.’” Prelim. Resp. 58.

Patent Owner’s second argument is unavailing, as we are not persuaded that Claussen’s embodiment with integral containers and frame would exclude the same structural support members present in the non-integral embodiment. At this stage of the proceeding, Dr. Wooley’s uncontroverted testimony establishes that a

POSITA would have understood the integral configuration to be one in which the containers and the frame are non-removably attached to one another (e.g., welded to one another) at least where they meet—on cross members at the top end of the frame, on the upper container support apparatus, and within the lower container support apparatus.

Ex. 1001 ¶ 155. Dr. Wooley’s testimony also shows that Claussen teaches support members extending between the bottom frame and the slanted walls of the hopper (*see id.* ¶ 156).

Third, Patent Owner points out that the claim requires “support members *attached to a bottom surface of the ramps* and extending downwardly toward the bottom” of the container, and that Claussen’s alleged “support member” instead “is attached to the *cradle* (lower container support apparatus 155), *not* the ramps.” Prelim. Resp. 59.

Patent Owner’s third argument is not persuasive, as it is well established that one cannot show non-obviousness by attacking references

individually where the rejection is based upon the teachings of a combination of references. *See Merck*, 800 F.2d at 1097. Even if the particular embodiment (Claussen’s Figure 2) depicts the claimed “support member” attached to a cradle, rather than the ramps of the container, Patent Owner’s argument ignores Petitioner’s proposed modification, which is to attach Claussen’s “support members directly to the ramps.” Pet. 78 (citing Ex. 1001 ¶ 158). At this stage of the proceeding, we are persuaded by Dr. Wooley’s testimony that a “POSITA would have found it logical to attach [Claussen’s] support members to Smith’s slanted hopper walls in view of Claussen’s integral embodiment” and that a “POSITA could have accomplished such attachment with or without a cradle like Claussen’s” and that “[g]oing without a cradle like Claussen’s would have involved attaching the support members directly to the slanted walls.” Ex. 1001 ¶ 158.

Fourth, Patent Owner argues that Petitioner’s argument that a POSITA would have modified Smith to include Claussen’s “support members” is not supported by evidence, as Claussen does not disclose these support members as strengthening the container. Prelim. Resp. 59.

We find Patent Owner’s fourth argument unpersuasive. At this stage of the proceeding, we are persuaded by Dr. Wooley’s testimony that a “POSITA would have understood that such support members allow for larger loads to be applied to the hoppers of the containers, at least by permitting such loads to be shared by those hoppers and the frame, thereby strengthening the containers.” Ex. 1001 ¶ 154.

We have considered the Petition, its underlying supporting evidence, and the Patent Owner Preliminary Response. On this record, we are persuaded that Petitioner has shown that it has a reasonable likelihood of

prevailing in its assertion that claims 3, 5, 6, 18, and 19 are unpatentable over Smith, Krenek, Hedrick, and Claussen.

III. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted as to claims 7, 10, and 12 of the '929 patent as unpatentable under 35 U.S.C. § 103 over Smith, Krenek, Hedrick, and Racy;

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted as to claims 13, 16, and 17 of the '929 patent as unpatentable under 35 U.S.C. § 103 over Smith and Krenek;

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted as to claim 14 of the '929 patent as unpatentable under 35 U.S.C. § 103 over Smith, Krenek, and Racy;

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted as to claims 1, 2, and 15 of the '929 patent as unpatentable under 35 U.S.C. § 103 over Smith, Krenek, and Hedrick;

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted as to claims 3, 5, 6, 18, and 19 of the '929 patent as unpatentable under 35 U.S.C. § 103 over Smith, Krenek, Hedrick, and Claussen;

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, the trial commencing on the entry date of this Decision; and

FURTHER ORDERED that the trial is limited to the grounds identified above.

IPR2017-02103
Patent 9,511,929 B2

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