

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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ARROWS UP, LLC,  
Petitioner,

v.

OREN TECHNOLOGIES, LLC,  
Patent Owner.

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Case IPR2018-01230  
Patent 9,248,772 B2

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Before KEVIN W. CHERRY, MICHAEL L. WOODS, and  
JEFFREY A. STEPHENS, *Administrative Patent Judges*.

STEPHENS, *Administrative Patent Judge*.

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

## I. INTRODUCTION

Arrows Up, LLC (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of all claims (claims 1–11) of U.S. Patent No. 9,248,772 B2 (“the ’772 patent”). Pet. 1. Oren Technologies, LLC (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”).

To institute an *inter partes* review, we must determine if the information presented in the Petition shows “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). Upon consideration of the Petition and for the reasons set forth below, we conclude that the information presented in the Petition establishes a reasonable likelihood that Petitioner would prevail in challenging claims 1–11 of the ’772 patent. Accordingly, pursuant to 35 U.S.C. § 314, we hereby authorize an *inter partes* review to be instituted as to these claims under all grounds.

Our factual findings and conclusions at this stage of the proceeding are based on the record developed thus far. This is not a final decision as to patentability of claims for which *inter partes* review is instituted. Our final decision will be based on the full record developed during trial.

### A. Related Proceedings

Petitioner identifies the following *inter partes* review proceedings that involve patents that claim priority to the same applications as the ’772 patent: IPR2017-01917, IPR2017-01918, IPR2017-02103, and IPR2018-00914. Pet. 65–66. Petitioner also identifies the pending lawsuits: *SandBox Logistics LLC v. Grit Energy Solutions, LLC*, No. 3:16-cv-00012 (S.D. Tex.)

and *SandBox Logistics LLC v. Proppant Express Investments LLC*, No. 4:17-cv-00589 (S.D. Tex.). *Id.* at 66.

In addition, we note that Petitioner has filed petitions in the following proceedings requesting institution of *inter partes* review of additional patents with priority claims that overlap that of the '772 patent: IPR2018-01231, IPR2018-01232, IPR2018-01233.

*B. The '772 Patent (Ex. 1001)*

The '772 patent is entitled “METHOD OF DELIVERING, TRANSPORTING, AND STORING PROPPANT FOR DELIVERY AND USE AT A WELL SITE.” Ex. 1001, [54]. Proppant is a material, such as sand, used in hydraulic fracturing (“fracking” or “fracing”). *Id.* at 1:25–38. Hydraulic fracturing is the propagation of fractures in rock layers to release for extraction fossil fuels such as petroleum, natural gas, and coal. *Id.* at 1:25–29. The injection of proppant into the rock fractures prevents the fractures from closing. *Id.* at 1:34–38. Typically, large amounts of proppant are required during hydraulic fracturing, *id.* at 1:59–60, and there is a need to ensure proppant is available during fracturing operations because, otherwise, fracturing may stall, *id.* at 2:18–26. The '772 patent describes a system for delivering proppant that purports to enhance productivity, reduce liabilities, improve safety, and increase profits. *Id.* at 4:33–50. To illustrate an embodiment of the '772 patent, we reproduce Figure 3, below:

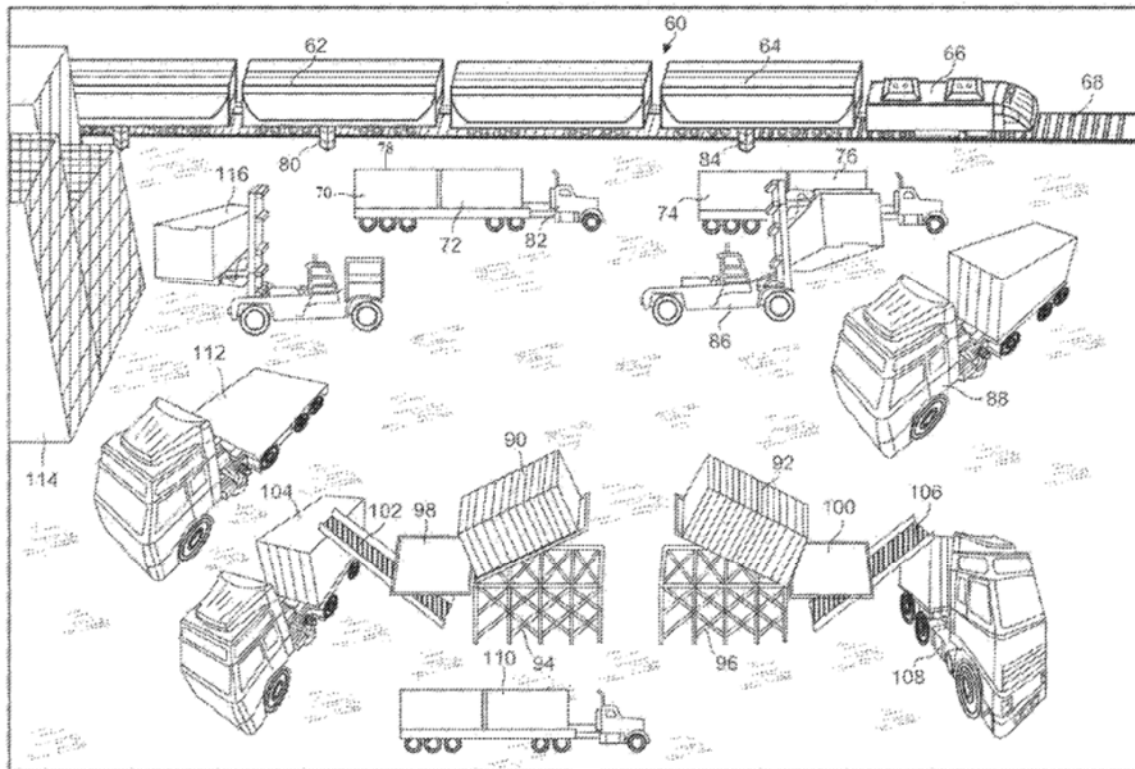


FIG. 3

According to the '772 patent, Figure 3 illustrates system 60 “of the present invention.” Ex. 1001, 6:19–20, 7:54. Bulk material train 64 transports proppant to a desired location via vessel 62. *Id.* at 7:54–57. The proppant is then unloaded into containers 70, 72, 74, and 76, which are supported on a bed of a truck. *Id.* at 8:4–14.

Loader/unloader 86 moves containers 70, 72, 74, and 76 as needed. *Id.* at 8:19–20. In particular, loader/unloader 86 can remove the containers from the truck and place them upon tilting mechanism 94 (or 96). *Id.* at 8:21–24. Tilting mechanism 94 includes a support panel pivotally connected to a frame, which allows the container to be titled so that the end wall faces at an angle toward hopper 98. *Id.* at 8:24–33. A conveyor 102 transports proppant from hopper 98 to pneumatic bulk trailer 104. *Id.* at 8:34–38.

Figure 3 also shows empty containers 114 arranged in a stacked configuration. *Id.* at 8:55–56. The '772 patent teaches that “if it is possible to unload the bulk material train 64 faster than the bulk material trailers 104 and 108 are available, then the filled containers can also be arranged in a stack.” *Id.* at 8:58–61.

To illustrate one of the '772 patent's containers, we reproduce Figure 1, below:

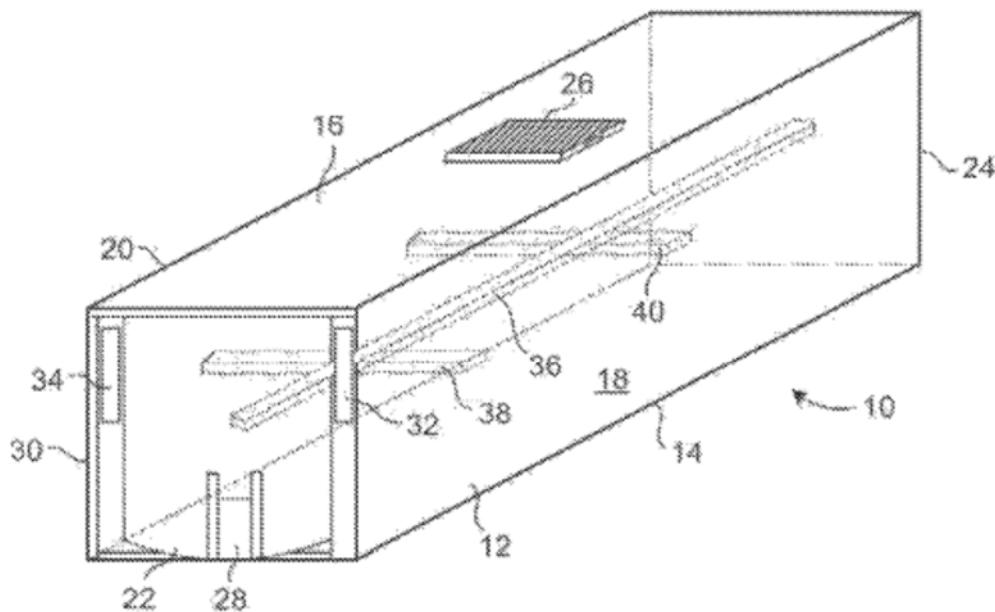


FIG. 1

As shown in the above Figure 1, the container has bottom wall 14, top wall 16, side walls 18, 20, and end walls 22, 24. *Id.* at 6:26–28.

### C. Illustrative Claim

Claim 1 is the sole independent claim and is reproduced below.

1. A method of transporting proppant, the method comprising:

a) vertically stacking a plurality of empty proppant containers in close proximity to a rail spur so that one of the plurality of empty proppant containers overlies another one of the plurality of empty containers thereby to reduce footprint of the area required adjacent the rail spur to store the plurality of empty proppant containers, each of the plurality of empty containers including at least a first end surface and at least a second different end surface and each of the first and second end surfaces having a plurality of upright structural support members thereon to enhance integrity of the container so that a large amount of weight can be stacked upon the container and so that heavy weight can be stored therein;

b) filling the plurality of empty proppant containers with proppant from one or more proppant transporting rail vehicles thereby to produce a plurality of proppant filled containers;

c) transferring the plurality of proppant filled containers with a loader onto one or more support platforms associated with one or more proppant transporting road vehicles.

Ex. 1001, 10:2–24.

*D. Relied-Upon Art*

Name	Reference	Ex. No.
Sheesley	US 2013/0206415 A1, published Aug. 15, 2013	1003
Mintz	US 8,915,691 B2, issued Dec. 23, 2014	1004
Uhryn	US 2013/0022441 A1, published Jan. 24, 2013	1005

*E. Alleged Grounds of Unpatentability*

Petitioner contends that all claims (claims 1–11) of the '772 patent are unpatentable under 35 U.S.C. § 103(a) based on the following grounds:

Ground	Prior Art	Claim(s)
1	Sheesley	1, 2, 6–10
2	Sheesley and Mintz	1
3	Sheesley, Mintz, and Uhryn	3–5, 11

Pet. 3. Petitioner also submits the declaration testimony of Robert Schaaf (Ex. 1002, “Schaaf Declaration” or “Schaaf Decl.”) in support of the grounds. *See, e.g.*, Pet. 3 (citing Ex. 1002 ¶ 62).

## II. ANALYSIS

### A. POSITA

Petitioner proposes that a person having ordinary skill in the art (“POSITA”) would have had either (a) a bachelor’s degree in an engineering or logistics discipline, plus one to two years of experience in hydraulic fracturing and logistical support of fracking operations, or (b) 4–5 years of experience in hydraulic fracturing and logistical support for fracking operations. Pet. 6–7 (citing Ex. 1002 ¶ 37).

Patent Owner does not propose a level of ordinary skill in the art. *See, generally*, Prelim. Resp.

For purposes of this Decision, we adopt Petitioner’s proposed level of ordinary skill in the art.

### B. Claim Construction

In an *inter partes* review, claim terms in an unexpired patent are given their 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 standard).<sup>1</sup> “Under a broadest reasonable interpretation, words of the claim must be given their plain meaning, unless such meaning is inconsistent with the specification and prosecution history.” *Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1062 (Fed. Cir. 2016).

Petitioner does not propose an express construction for any claim terms. *See* Pet. 7. Patent Owner, on the other hand, proposes an interpretation of “a second different end surface” (Prelim. Resp. 10), which we address below.

*1. “second different end surface”*

Claim 1 recites that the containers used in the method include “at least a first end surface and at least a second different end surface.” Ex. 1001, 10:10–12. Patent Owner proposes that the “second different end surface” is “an additional end surface that is not the same as the first end surface.” Prelim. Resp. 10.

Patent Owner contends that its proposed construction is correct because the second different end surface “should be construed to give meaning to ***both*** the word second ***and*** the word different.” *Id.* Patent Owner argues “different” must mean something more than not being the first

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<sup>1</sup> The revised claim construction standard for interpreting claims in *inter partes* review proceedings as set forth in the final rule published October 11, 2018, does not apply to this proceeding, because the new “rule is effective on November 13, 2018, and applies to all IPR, PGR, and CBM petitions filed on or after the effective date.” Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340 (Oct. 11, 2018) (to be codified at 37 C.F.R. pt. 42).



end wall because “that difference was already addressed by the use of the word ‘second.’” *Id.*

We agree with Patent Owner’s argument based on the ordinary meaning of the language of claim 1.<sup>2</sup> The term “different” indicates a *structural difference*, rather than the mere duplication of the first surface.

The written description of the ’772 patent does not attach particular importance to there being a difference in the two end surfaces, but does describe the two end walls (and, therefore, end surfaces) of the container differently. For example, as noted by Patent Owner, “end wall 22 is recessed inwardly of an end of the pair of side walls 18 and 20 and inwardly of the bottom wall 14 and the top wall 16,” such that “the outermost end 30 of the container 12 will provide a protective structure for the generally convex surface of the end wall 22.” Ex. 1001, 6:42–46; *see* Prelim. Resp. 11. End wall 22 is also described as including a flow gate 28, an inlet 32, and a vent 34, while there is no indication that end wall 24 includes such features. Ex. 1001, 6:38–41, 6:53–67, Fig. 1; *see* Prelim. Resp. 12.<sup>3</sup>

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<sup>2</sup> We note Patent Owner appears to equate the end “surface” recited in claim 1 with an end “wall.” Nonetheless, Patent Owner’s arguments as to the wall also apply to the surface of the wall.

<sup>3</sup> Patent Owner also argues end walls 22 and 24 are different because “[t]he end wall 22 extends between the bottom wall 14 and the top wall 16,” whereas end wall 24 extends between those top and bottom walls ‘and also between the side walls 18 and 20.’” Prelim. Resp. 11 (quoting Ex. 1001, 6:32–35). Although end wall 22 is not described as extending between side walls 18 and 20, Figure 1 appears to show that it does. To the extent the convex shape of end wall 22 means it does not extend between the side walls in the same way that end wall 24 does, we have already noted this difference.

For purposes of this Decision, upon reviewing the claim language in light of the Specification, we agree with Patent Owner and determine that a broad, but reasonable construction of the claimed “second different end surface” limitation requires that the two end surfaces are structurally different.

## 2. *Other Claim Terms*

At this stage, we determine that no other claimed limitation requires express construction for purposes of this Decision. *See Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) (“claim terms need only be construed ‘to the extent necessary to resolve the controversy’” (internal citation omitted)).

### C. *Mr. Schaaf’s Testimony (Ex. 1002)*

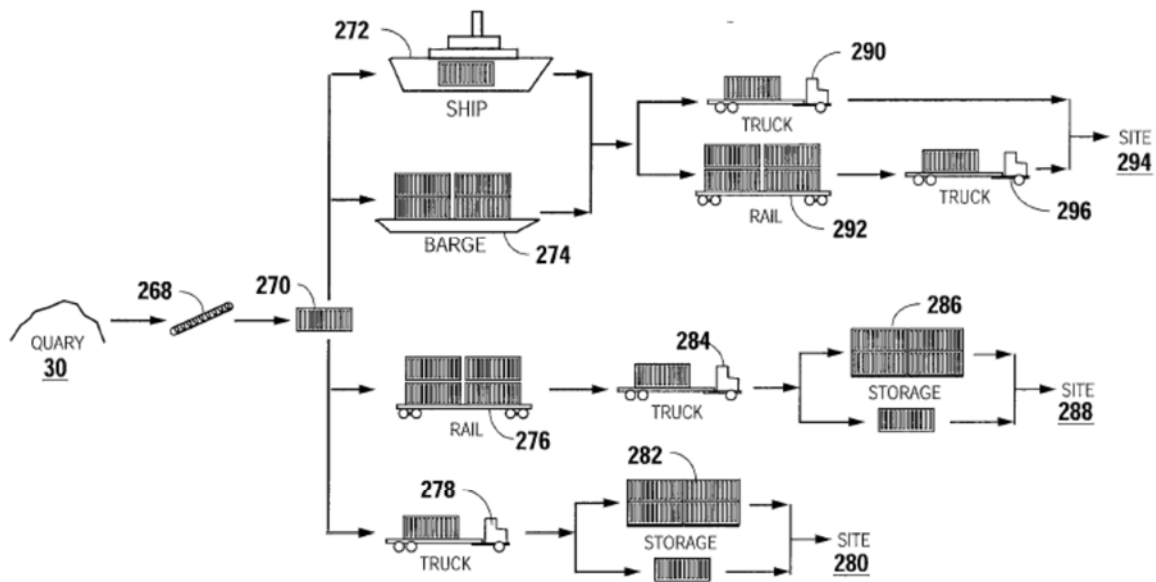
Patent Owner asserts that the testimony of Petitioner’s expert—Mr. Schaaf—should be given little or no weight because it merely repeats, essentially word-for-word, Petitioner’s arguments. Prelim. Resp. 12 (citing 37 C.F.R. § 42.65(a)). Patent Owner argues that “[b]ecause Petitioner’s expert declaration fails to describe the facts and data underlying his opinions . . . it should be given no weight.” *Id.* at 13. Patent Owner does not specifically cite to testimony that should be given no weight, leaving us to assume that Patent Owner seeks that the entire declaration be disregarded.

The Board will weigh Mr. Schaaf’s opinions on particular issues in accordance with the underlying support provided for those opinions.

*D. Prior Art*

*1. Sheesley (Ex. 1003)*

Sheesley is entitled “METHOD AND APPARATUS FOR MODIFYING A CARGO CONTAINER TO DELIVER SAND TO A FRAC SITE” and describes cargo containers for carrying “proppant such as sand from a quarry or source to the frac site.” Ex. 1003, [54], [57]. In particular, Sheesley discloses a method whereby “cargo containers may be taken directly to the quarry and loaded with sand . . . [and that the] containers can then move through all of the normal modes of transportation including ship, barge, rail or by truck, all the way to the frac site.” *Id.* ¶ 17. To illustrate an embodiment of Sheesley’s method, we reproduce its Figure 2, below:



*Fig. 2*

According to Sheesley, the above Figure 2 depicts the delivery of “sand from the quarry or source to the frac site.” *Id.* ¶ 20. Sand from quarry 30 or source may be loaded by conveyor 268 and into cargo container 270. *Id.* ¶ 78. Containers 270 may be loaded on ship 272, barge 274, rail 276, or flatbed trailer 278. *Id.* If container 270 is loaded on trailer 278, container 270 may be taken directly to fracing site 280 or placed in storage 282 at fracing site 280. *Id.* ¶ 79.

Sheesley further discloses that the containers can be stacked and that a cargo handler can be used to pick up full or empty containers. *Id.* ¶ 83 (referencing Figs. 3, 4).

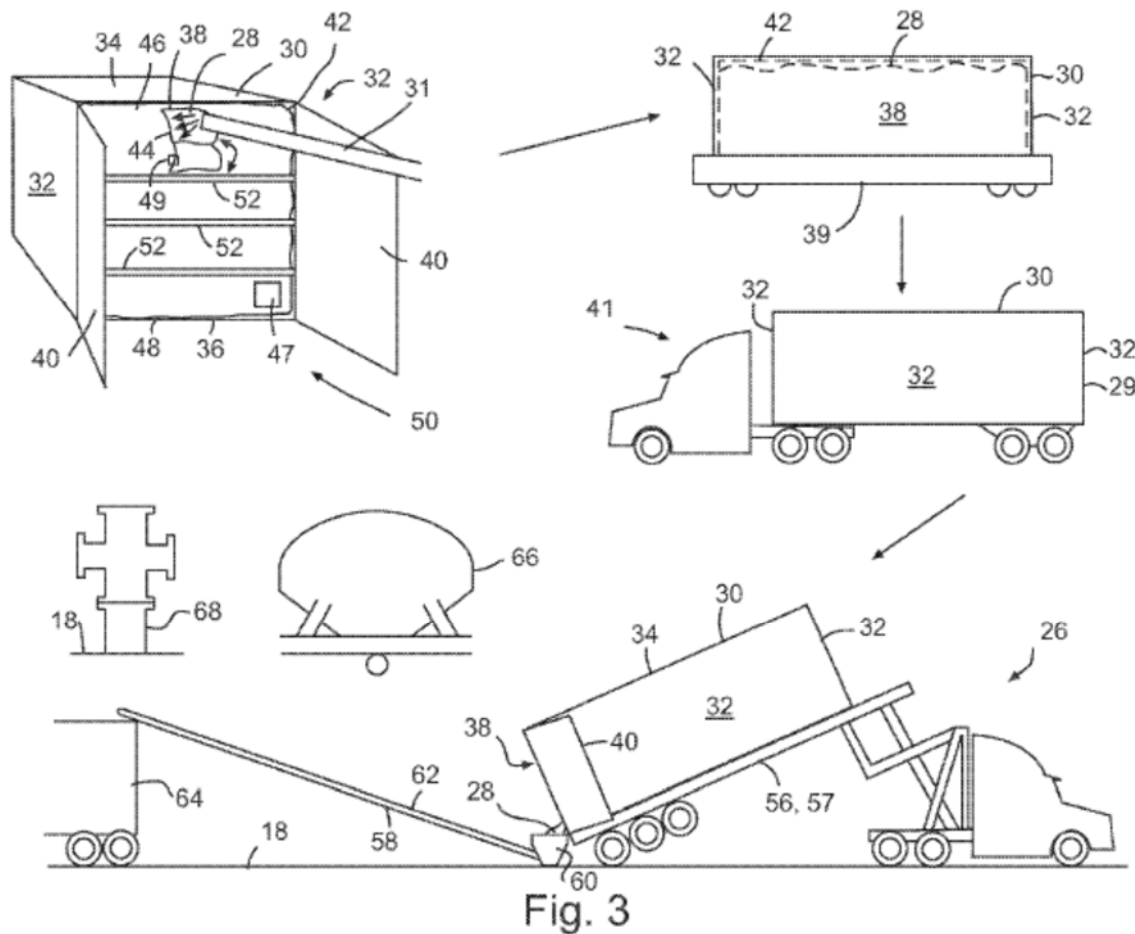
## 2. *Mintz (Ex. 1004)*

Mintz is entitled “APPARATUS FOR TRANSPORTING FRAC SAND IN INTERMODAL CONTAINER” and describes “internal structure adapted to support and strengthen walls and floor of” standard ISO shipping containers. Ex. 1004, [54], 1:65–67. In particular, Mintz discloses, “[h]orizontal and peripheral angular bracing framework to strengthen the side walls of such standard ISO intermodal shipping container.” *Id.* at 2:55–57. ISO corresponds to an acronym for the International Organization for Standardization, which promulgates worldwide industrial and commercial standards. *Id.* at 2:10–13.

## 3. *Uhryn (Ex. 1005)*

Uhryn is entitled “METHOD AND APPARATUS FOR BULK TRANSPORT OF PROPPANT.” Ex. 1005, [54]. Uhryn discloses an

intermodal transport container with one or more gates used for unloading proppant. *Id.* ¶ 4. “Unloading may be carried out using a container tilter 56, such as a hydraulic fifth wheel tilter . . . . Tilter 56 may be mounted on a wheeled trailer . . . .” *Id.* ¶ 20. Tilter 56 is shown in Uhryn’s Figure 3, which is reproduced below.



According to Uhryn, Figure 3 is a flow diagram illustrating a method of intercontinental bulk transport of proppant using an intermodal transport container. *Id.* ¶ 11.

*E. Ground 1: Claims 1, 2, and 6–10 as Unpatentable over Sheesley*

Petitioner submits that claims 1, 2, and 6–10 are unpatentable as obvious over Sheesley. Pet. 23. We address each of these claims separately, below, beginning with independent claim 1.

*1. Independent Claim 1*

*a. A method of transporting proppant, the method comprising:*

Petitioner contends that, to the extent claim 1’s preamble is limiting, Sheesley describes a method of transporting proppant with containers structured to store fracking proppant. Pet. 23 (citing Ex. 1003 Abstract, ¶¶ 2, 78).

At this stage of the proceeding, Petitioner establishes a reasonable likelihood that Sheesley teaches this limitation.

*b. vertically stacking a plurality of empty proppant containers in close proximity to a rail spur so that one of the plurality of empty proppant containers overlies another one of the plurality of empty containers thereby to reduce footprint of the area required adjacent the rail spur to store the plurality of empty proppant containers*

Petitioner asserts that Sheesley discloses this limitation, referring in part to Sheesley’s disclosure that Figure 3 “is a pictorial illustration of the stackability of modified cargo containers, with or without sand therein.” Pet. 24 (quoting Ex. 1003 ¶ 21); *see also* Ex. 1003 ¶ 18, Fig. 3.

Petitioner also contends Sheesley teaches that its containers can be filled with proppant at a rail site, such that they would be stacked while empty in close proximity to a rail spur. Pet. 24–26. In particular, Sheesley teaches that “sand from the sand quarry 30 *or source* can now be loaded by

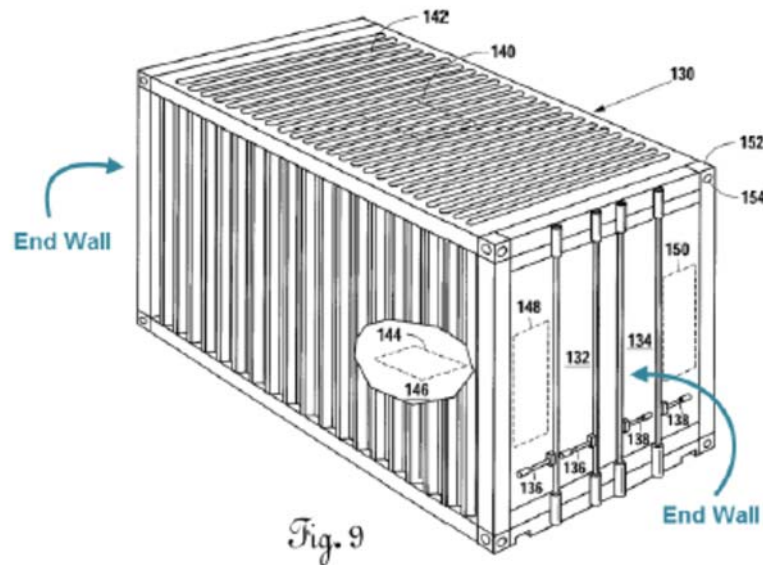
a conveyer 268 to a modified cargo container,” Ex. 1003 ¶ 78 (emphasis added), and that the source where proppant is obtained “may be any point along a supply chain of said proppant,” *id.* at claim 21. Petitioner asserts Sheesley teaches that the supply chain includes a rail site. Pet. 25 (citing Ex. 1003 ¶¶ 17, 19, 42, 49, 77, 78, Fig. 1).

Petitioner cites Sheesley’s Figure 5 to show that the containers may be filled while in a stacked configuration. *Id.* at 25–26. Sheesley’s container 302 can receive sand from auger 303 through upper hatch 305 and may feed sand through lower hatch 308 into container 304 below it. *Id.* (citing Ex. 1003 Fig 5, ¶¶ 23, 84). Petitioner also contends, with support from Mr. Schaaf, that one of ordinary skill in the art would have understood “that Sheesley’s auger could provide proppant received from a rail car on the rail spur (the ‘source’ on the supply chain of proppant) into Sheesley’s empty proppant containers.” *Id.* at 26 (citing Ex. 1002 ¶ 68).

At this stage of the proceeding, Petitioner establishes a reasonable likelihood that Sheesley teaches this limitation.

*c. each of the plurality of empty containers including at least a first end surface and at least a second different end surface*

Petitioner asserts that Sheesley discloses an ISO container modified to store and transport proppant, and that the container has a first end surface and a second different end surface, citing paragraph 50 and Figure 9 of Sheesley. Pet. 26. Petitioner’s annotated Figure 9 of Sheesley is reproduced below.



According to Sheesley, Figure 9 shows a standard cargo container made out of corrugated metal with “doors 132 and 134, on the one end thereof.”

Ex. 1003 ¶ 50.

Patent Owner argues that “Petitioner has failed to demonstrate Sheesley discloses ‘a second different end surface.’” Prelim. Resp. 13. Patent Owner refers to its proposed claim construction and argues that “a second different end surface” means that the second end surface cannot be the same as the first end surface. *Id.* Patent Owner asserts that “[w]hile Petitioner has identified two end walls, which may be a first and second end surface, it has failed to make any showing that the second end surface is not the same as the first end surface.” *Id.* at 14 (citing Pet. 26–27).

Although we agree with Patent Owner’s proposed construction of this term (*see supra* Part II.B.1), we disagree with Patent Owner’s argument that Petitioner failed to demonstrate that Sheesley’s two end walls are different from one another. Petitioner cites paragraph 50 of Sheesley, Pet. 26, which

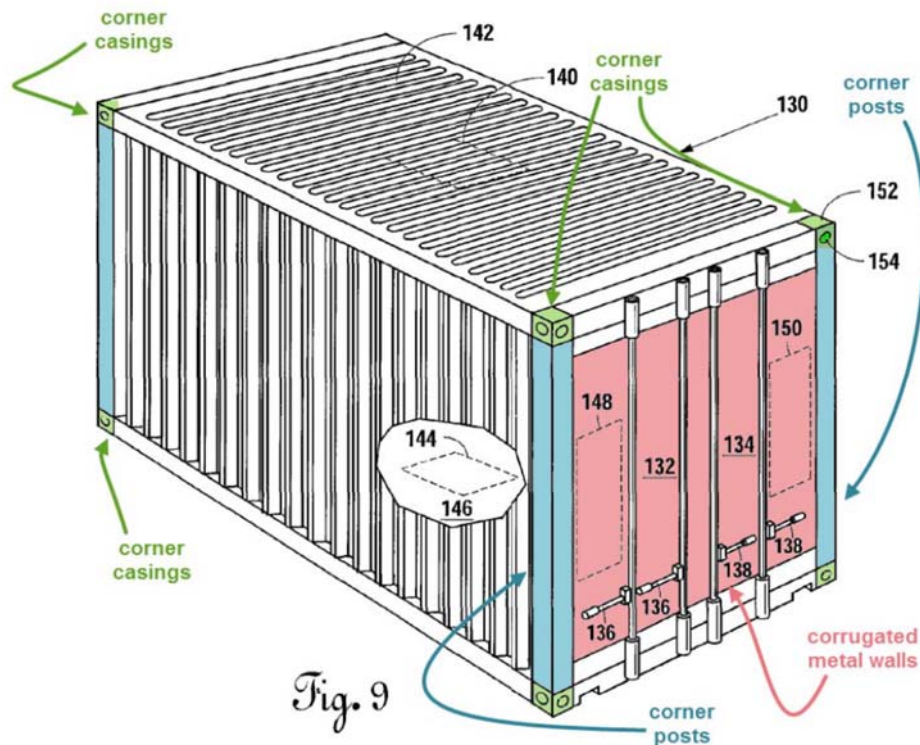


states that the container “has doors 132 and 134, *on the one end thereof*” (emphasis added). Sheesley’s “second end surface” is different from Sheesley’s “first end surface” in that only one of them has doors 132, 134.

At this stage of the proceeding, Petitioner establishes a reasonable likelihood that Sheesley teaches this limitation.

*d. each of the first and second end surfaces having a plurality of upright structural support members thereon to enhance integrity of the container so that a large amount of weight can be stacked upon the container and so that heavy weight can be stored therein*

Petitioner asserts that Sheesley teaches or renders obvious this limitation and submits an annotated version of Sheesley’s Figure 9, which we reproduce, below. Pet. 28.



According to Petitioner, and as shown in the above annotated Figure 9,

Sheesley's end walls include one or more structural support members (corner castings 152 with corner posts) at the corners and edges positioned to support each of the end walls. Petitioner contends that, during prosecution of a sister application (US No. 14/314,468), Patent Owner "admitted that 'Sheesley shows support members only at corners and edges of the containers where the side walls and end walls meet.'" Pet. 27–28 (quoting Ex. 1010, 26).

Petitioner also argues one of ordinary skill in the art would understand Sheesley's container to meet strength requirements of an ISO container because Sheesley teaches modifying an ISO container. Pet. 29–30 (citing Ex. 1003 ¶¶ 4, 16, 50; Ex. 1002 ¶ 73; Ex. 1013, 8–10; Ex. 1012). Petitioner further asserts that "to the extent that [Patent Owner] argues that certain structural requirements must be met in order for the container to hold a large amount of proppant, Sheesley discloses that the modified container is capable of holding proppant and of being stacked." *Id.* at 28 (citing Ex. 1003 ¶¶ 18, 21, 80, 84). In addition, Petitioner cites paragraphs 72–75 of the Schaaf Declaration in support of its arguments about this limitation. *See* Pet. 27–30.

At this stage of the proceeding, Petitioner establishes a reasonable likelihood that Sheesley teaches or renders obvious this limitation.

- e. filling the plurality of empty proppant containers with proppant from one or more proppant transporting rail vehicles thereby to produce a plurality of proppant filled containers*

Petitioner asserts that Sheesley teaches this limitation as discussed above in Part II.E.1.b. Pet. 31 (citing Ex. 1003 ¶¶ 17, 19, 42, 49, 77, 78, Fig.

1, Abstract, claim 15, claim 21; Ex. 1002 ¶¶ 76–77).

At this stage of the proceeding, Petitioner establishes a reasonable likelihood that Sheesley teaches this limitation.

*f. transferring the plurality of proppant filled containers with a loader onto one or more support platforms associated with one or more proppant transporting road vehicles*

Petitioner asserts that Sheesley teaches this limitation through its disclosure of a trailer that may be used to transport the modified cargo containers. Pet. 31 (citing Ex. 1003 ¶¶ 25, 78, 79, 88, Figs. 2, 7). Petitioner asserts that Sheesley’s flatbed truck trailer, such as that shown in Figure 2, is a support platform associated with a road vehicle. *Id.* (citing Ex. 1002 ¶ 78). Petitioner also cites to Sheesley’s disclosure of a loader/unloader, including a “Rough Terrain Cargo Handler,” that can be used to move the filled containers. Pet. 32 (citing Ex. 1003 ¶ 83). Petitioner also relies on Mr. Schaaf’s testimony that it would have been within the knowledge of one of ordinary skill in the art that a loader/unloader would be used to load/unload the containers to/from a trailer. *Id.* (citing Ex. 1002 ¶ 79).

At this stage of the proceeding, Petitioner establishes a reasonable likelihood that Sheesley teaches this limitation.

*g. Summary*

At this stage of the proceeding, Petitioner establishes a reasonable likelihood of prevailing in showing that independent claim 1 is unpatentable under 35 U.S.C. § 103(a) in view of Sheesley.

2. *Dependent Claim 2*

Claim 2 depends from claim 1 and further recites:

wherein the plurality of proppant filled containers comprises a first plurality of proppant filled containers, and the method further comprising:

filling a second plurality of empty proppant containers with proppant from one or more proppant transporting rail vehicles thereby to produce a second plurality of proppant filled containers: and

vertically stacking the second plurality of proppant filled containers with a loader so that one of the plurality of proppant filled containers overlies another one of the plurality of filled containers to reduce the footprint of the area required for storage of the proppant in close proximity to the rail spur.

Petitioner asserts that Sheesley discloses this limitation, citing Sheesley's disclosure that "Fig. 3 is a pictorial illustration of the stackability of modified cargo containers, with or without sand." Pet. 33–34 (citing Ex. 1003 ¶ 21). Petitioner contends one of ordinary skill in the art would have understood from this disclosure that multiple containers could be filled with proppant and stacked at the rail spur. *Id.* (citing also Ex. 1002 ¶¶ 80–81).

At this stage of the proceeding, we agree. Petitioner establishes a reasonable likelihood that dependent claim 2 is unpatentable over Sheesley.

3. *Dependent Claim 6*

Claim 6 depends from claim 1 and recites "moving the plurality of empty proppant containers from the storage location, to the one or more proppant transporting rail vehicles and then to the one or more support platforms located on the one or more proppant transporting road vehicles."

Petitioner contends that it would have been obvious to move the plurality of empty proppant containers from a storage area to the rail vehicles before moving the containers to the support platforms on the road vehicles. Pet. 35–36. Petitioner cites Mr. Schaaf’s testimony that one of ordinary skill in the art would have understood that Sheesley’s containers are re-used, and must be stored somewhere after being emptied. *Id.* (citing Ex. 1002 ¶ 83).

At this stage of the proceeding, we agree. Petitioner establishes a reasonable likelihood that dependent claim 6 is unpatentable over Sheesley.

#### 4. *Dependent Claim 7*

Claim 7 depends from claim 1 and further recites:

wherein the one or more proppant transporting road vehicles comprises a plurality of proppant transporting road vehicles, and wherein the method further comprises:

staging the plurality of proppant transporting road vehicles so that each of the plurality of proppant transporting road vehicles receives one or more of the plurality of proppant filled containers, delivers the container away from the one or more proppant transporting rail vehicles, thereby increasing the efficiency with which proppant is transferred from the one or more proppant transporting rail vehicles to the plurality of proppant transporting road vehicles.

With support from Mr. Schaaf’s testimony, Petitioner reasons that it would have been obvious to stage multiple vehicles at the proppant’s source to “facilitate fast and efficient loading.” Pet. 37 (citing Ex. 1002 ¶ 85). Petitioner also contends “it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art,

citing *St. Regis Paper Co. v. Bemis Co.*, 549 F.2d 833, 838–39 (7th Cir. 1977). Pet. 37.

Regarding the “delivers” step, Petitioner cites Sheesley’s disclosure of transporting containers away from the loading site, which can include a rail site, to the fracking site, and Sheesley’s emphasis on efficiency. Pet. 39–40 (citing Ex. 1003 ¶¶ 11, 17, 18, 79, 82; Ex. 1002 ¶¶ 88–90).

At this stage of the proceeding, we agree. Petitioner establishes a reasonable likelihood that dependent claim 7 is unpatentable over Sheesley.

#### 5. *Dependent Claim 8*

Claim 8 depends from claim 1 and further recites:

wherein step b) further comprises:

discharging the proppant from the one or more proppant transporting rail vehicles onto a conveyor; and

conveying the proppant on the conveyor from the proppant transporting rail vehicle to an inlet in each of the plurality of empty proppant containers.

Petitioner relies on Sheesley’s disclosure that proppant from the source can be loaded by conveyor 268 to a modified cargo container, noting again that the source can include a rail vehicle. Pet. 40 (citing Ex. 1003 ¶ 78, Fig. 2). In addition, Petitioner cites Figure 5 and its description in Sheesley, which describes how the modified cargo container receives sand from an auger through an upper hatch. *Id.* at 40–41 (citing Ex. 1003 ¶ 84, Fig. 5). Petitioner relies on Mr. Schaaf’s testimony that one of ordinary skill in the art would have understood that an auger moves sand through conveyance. *Id.* at 41 n.5 (citing Ex. 1002 ¶ 91 n.8). Petitioner also relies on additional passages and figures of Sheesley disclosing an opening in the

top of the container for filling the container. *Id.* at 41–42 (citing in part Ex. 1003 Abstract, ¶¶ 14, 16, 84, claims 1, 15, Fig. 10).

At this stage of the proceeding, we agree. Petitioner establishes a reasonable likelihood that dependent claim 8 is unpatentable over Sheesley.

#### 6. *Dependent Claim 9*

Claim 9 depends from claim 1 and recites:

after transferring the plurality of proppant filled containers to the one or more support platforms associated with the one or more proppant transporting road vehicles, returning another plurality of empty proppant containers to the proppant transporting rail vehicle to be filled [with] proppant.<sup>4</sup>

Petitioner contends that one of ordinary skill in the art would have understood that in order to fill Sheesley’s cargo containers at the rail site, there must be empty containers at the rail site. Pet. 43 (citing Ex. 1002 ¶ 96).

At this stage of the proceeding, we agree. Petitioner establishes a reasonable likelihood dependent claim 9 is unpatentable over Sheesley.

#### 7. *Dependent Claim 10*

Claim 10 depends from claim 1 and recites the additional steps of:

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<sup>4</sup> For purposes of this Decision, we interpret claim 9 as if it includes the bracketed addition. Claims 4, 5, and 9–11 appear to have minor typographical or transposition errors. For clarity in our Decision, and not as an amendment to the claims, we added bracketed portions to address these errors. This interpretation appears to be consistent with the parties’ understanding of the claims also.

positioning a conveyor proximate a proppant transporting rail vehicle to receive proppant from the proppant transporting rail vehicle and thereby convey the proppant away from the proppant transporting rail vehicle when the conveyor operates;

positioning the plurality of empty proppant containers to receive proppant from the conveyor sequentially so that as one of the plurality of empty proppant containers is filled to a desired level, such one container then being removed in favor of another one of the plurality of empty proppant containers with the capacity to accept more proppant;

after removal of proppant from the conveyor, transporting each of the plurality of proppant [filled] containers away from the proppant transporting rail vehicle.<sup>5</sup>

Regarding the use of the conveyor to convey proppant away from the rail vehicles to fill the proppant containers, Petitioner relies on the same disclosures of Sheesley relied on for claim 8 (*see* Part II.E.5 *supra*). Pet. 44. Petitioner acknowledges that “Sheesley does not expressly teach” filling the containers “sequentially,” as claimed. *Id.* at 45. To address this missing limitation, Petitioner reasons, with support from Mr. Schaaf’s testimony, that it would have been obvious to implement this “common filling practice.” *Id.* (citing Ex. 1002 ¶ 100). Regarding transporting each of the filled containers away from the rail vehicle, Petitioner relies on the same disclosure in Sheesley relied on for claim 7 (*see* Part II.E.4 *supra*). Pet. 46.

At this stage of the proceeding, we agree. Petitioner establishes a reasonable likelihood dependent claim 10 is unpatentable over Sheesley.

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<sup>5</sup> For purposes of this Decision, we interpret claim 10 as if it includes the bracketed alteration.



## 8. *Summary*

For the reasons discussed above, we determine that Petitioner is reasonably likely to show that claims 1, 2, and 6–10 are unpatentable under 35 U.S.C. § 103(a) over Sheesley.

### *F. Ground 2: Claim 1 as obvious over Sheesley and Mintz*

As discussed above in connection with Ground 1, Petitioner submits adequate evidence and reasoning to support its challenge that claim 1 is unpatentable based on Sheesley alone. For Ground 2, Petitioner asserts that Mintz also teaches “each of the first and second end surfaces having a plurality of upright structural support members thereon to enhance integrity of the container so that a large amount of weight can be stacked upon the container and so that heavy weight can be stored therein,” as recited in claim 1. Pet. 46–50. Petitioner cites Mintz’s disclosure that its ISO containers “are modified to ‘accommodate an internal structure adapted to support and strengthen the walls and floor of such ISO shipping containers . . . to efficiently and securely achieve prerequisite sand and proppant material transfer from such adapted containers.’” Pet. 47 (quoting Ex. 1004, 1:63–2:3). Petitioner submits an annotated version of Mintz’s Figures 1 and 2, which we reproduce, below.



Sheesley's container could receive further structural support when combined with the braces and trusses disclosed in Mintz" and that the combination would have predictably yielded an "improved structural support for the container holding the proppant." *Id.* at 50 (citing Ex. 1002 ¶¶ 109–10).

At this stage of the proceeding, Petitioner establishes a reasonable likelihood that claim 1 is unpatentable over Sheesley and Mintz.

*G. Ground 3: Claims 3–5 and 11 as obvious over Sheesley and Uhryn*

Petitioner asserts that dependent claims 3–5 and 11 are unpatentable under 35 U.S.C. § 103(a) over Sheesley and Uhryn. Pet. 51–63.

*1. Uhryn's Effective Priority Date*

Patent Owner argues Petitioner has failed to establish that Uhryn is prior art to the '772 patent. Prelim. Resp. 15–17. Petitioner contends that the earliest priority date to which the challenged claims are entitled is March 22, 2012, and that Uhryn is prior art under pre-AIA 35 U.S.C. § 102(e) because it claims priority to a provisional application filed on July 20, 2011. Pet. 5, 19–20; *see* Ex. 1005, [60]. Petitioner contends at least claim 1 of Uhryn is supported by the disclosure of the provisional application, and provides a claim chart comparing Uhryn's claim 1 to the provisional application's disclosure. Pet. 19–21.

Patent Owner responds that Petitioner failed to meet its burden of showing that Uhryn is entitled to the filing date of its provisional application under 35 U.S.C. § 102(e) because Petitioner only compared one claim in Uhryn to the provisional disclosure to determine whether the claim is supported under 35 U.S.C. § 112. *See* Prelim. Resp. 15–17. Patent Owner

argues that *Dynamic Drinkware, LLC v. National Graphics, Inc.*, 800 F.3d 1375 (Fed. Cir. 2015), requires all claims to be evaluated for support in the provisional because the decision uses the word “claims” in the plural, and the invention “claimed” includes all claims. *Id.* at 16–17.

*Dynamic Drinkware* did not directly address whether all claims in a published application or patent must be evaluated for support in the provisional application. Because priority may be determined on a claim-by-claim basis, *see, e.g., Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1327 (Fed. Cir. 2008); *Laitram Corp. v. NEC Corp.*, 62 F.3d 1388, 1392 (Fed. Cir. 1995) (noting “each claim is an independent invention”), we determine that adequate support in the provisional for one claim of Uhryn is sufficient to establish the priority date for prior art purposes. Here, Petitioner presents uncontroverted analysis to show that claim 1 of Uhryn is supported by its provisional application. Pet. 20–21.

At this stage, we determine that Uhryn is prior art to the ’772 patent under 35 U.S.C. § 102(e).

## 2. *Dependent Claim 3*

Claim 3 depends from claim 1 and recites

wherein the support platform is a tiltable support platform, the method further comprising:

tilting the support platform and one or more of the plurality of proppant filled containers located on the platform to discharge proppant from an opening adjacent an end of the one or more of the plurality of proppant filled containers.

Petitioner relies on Uhryn’s teaching of tilter 56 being used to tilt a container filled with proppant to empty the container through a rear gate.

Pet. 51–52 (citing Ex. 1005 ¶ 20, Fig. 3). Petitioner contends one of skill in the art would have wanted to use Uhryn’s tiltable platform and conveying mechanisms with Sheesley’s methods and containers for transporting proppant because of the similarities between the references, and because Uhryn’s tiltable platform

provides many advantages, including that “[u]nloading by container tilting has been found to be advantageous over pneumatic unloading in that container tilting is quicker and less hazardous to worker health in that less fine dust is produced,” and that “[c]ontainer tilter 56 also allows substantially all, if not all, of the proppant contained within intermodal transport container 30 to be unloaded.”

Pet. 63 (quoting Ex. 1005 ¶ 20 (alterations by Petitioner)). Petitioner also contends one of ordinary skill in the art would have recognized that the use of a tiltable platform allows the container to be configured to hold more proppant than Sheesley’s container will hold because Sheesley’s internal hopper mechanism is not needed, and would have had a reasonable expectation of success in combining the teachings of Sheesley and Uhryn in this predictable manner. *See id.*

At this stage of the proceeding, we determine that Petitioner is reasonably likely to show that claim 3 is unpatentable as obvious over Sheesley and Uhryn.

### 3. *Dependent Claim 4*

Claim 4 depends from claim 1 and recites the additional steps of conveying the proppant from the one or more proppant transporting rail vehicles to the plurality of empty proppant containers on a first conveyor; and

conveying the proppant from one or more of the plurality of proppant [filled] containers to one or more proppant transporting road vehicles on a second conveyor.<sup>6</sup>

Petitioner relies on Sheesley for teaching that proppant can be conveyed on a conveyor from a rail vehicle to empty proppant containers. Pet. 53–54 (citing Ex. 1003 ¶¶ 20, 78, 84, Figs. 2, 5, claim 21). Petitioner contends that Sheesley also renders obvious using a second conveyor to convey proppant from the filled containers to one or more road vehicles for transport because Sheesley teaches unloading the containers with a conveyor to send proppant to the blender, and one of ordinary skill in the art would have understood that proppant could just as easily be unloaded from the filled containers by conveying the proppant from the lower hatch to road transport vehicles. *Id.* at 55–56 (citing Ex. 1003 ¶¶ 83, 84, 89, Figs. 5, 7; Ex. 1002 ¶¶ 121–22). Petitioner also argues that, to the extent this limitation is not rendered obvious by Sheesley alone, Uhryn teaches unloading proppant from a container to a road transport vehicle using a conveyor. *Id.* at 56 (citing Ex. 1005 ¶ 20; Ex. 1002 ¶ 123). Petitioner relies on the same reasoning for combining the teachings of Sheesley and Uhryn as discussed above for claim 3. *Id.* at 61–63.

At this stage of the proceeding, we determine that Petitioner is reasonably likely to show that claim 4 is unpatentable as obvious over Sheesley and Uhryn.

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<sup>6</sup> For purposes of this Decision, we interpret claim 4 as if it includes the bracketed alteration.

#### *4. Dependent Claim 5*

Claim 5 depends from claim 4 and recites “channeling the proppant from the plurality of proppant [filled] containers to the second conveyor through a hopper.”<sup>7</sup> Petitioner contends Uhryn teaches transferring proppant from containers to road vehicles via proppant transfer device 58,” which may comprise a hopper and a conveyor. Pet. 57–58 (citing Ex. 1005 ¶ 20, Fig. 3; Ex. 1002 ¶¶ 126–27). Petitioner relies on the same reasoning for combining the teachings of Sheesley and Uhryn as discussed above for claim 3. *Id.* at 61–63.

At this stage of the proceeding, we determine that Petitioner is reasonably likely to show that claim 5 is unpatentable as obvious over Sheesley and Uhryn.

#### *5. Dependent Claim 11*

Claim 11 depends from claim 1 and recites the additional steps of:

loading each of the plurality of proppant [filled] containers onto a [tiltable] platform;  
providing a conveyor between the tiltable platform and one or more proppant transporting road vehicles; and  
tilting the platform to discharge the proppant from the container into the conveyor.<sup>8</sup>

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<sup>7</sup> For purposes of this Decision, we interpret claim 5 as if it includes the bracketed alteration.

<sup>8</sup> For purposes of this Decision, we interpret claim 11 as if it includes the bracketed alterations.

Petitioner relies on Uhryn's disclosure of unloading filled proppant containers onto conveyors using a tiltable platform, as discussed above for claim 3 (*see* Part II.G.2 *supra*). Pet. 59–60. Petitioner relies on the same reasoning for combining the teachings of Sheesley and Uhryn as discussed above for claim 3. *Id.* at 61–63.

At this stage of the proceeding, we determine that Petitioner is reasonably likely to show that claim 11 is unpatentable as obvious over Sheesley and Uhryn.

#### 6. *Summary*

At this stage of the proceeding, we determine that Petitioner is reasonably likely to show that claims 3–5 and 11 are unpatentable as obvious over Sheesley and Uhryn.

### III. CONCLUSION

Upon review of Petitioner's analysis and supporting evidence, we conclude that Petitioner has demonstrated a reasonable likelihood that it will prevail with regards to its challenge of claims 1–11 as unpatentable. At this stage of the proceeding, although we exercise our discretion and institute review, we remind the parties that we have not yet made a final determination as to the patentability of any challenged claims.

### IV. ORDER

In consideration of the foregoing, it is hereby:



ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–11 of the '772 patent is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of the '772 patent shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

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