

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MEYER PRODUCTS, LLC,
Petitioner,

v.

DOUGLAS DYNAMICS, L.L.C.,
Patent Owner.

Case IPR2015-01247
Patent 6,928,757 B2

Before MICHAEL W. KIM, JAMES A. TARTAL, and
JAMES A. WORTH, *Administrative Patent Judges*.

WORTH, *Administrative Patent Judge*.

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

I. INTRODUCTION

On May 21, 2015, Petitioner Meyer Products LLC (“Meyer Products”), filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1, 4–7, and 18 of U.S. Patent 6,928,757 B2 (“the ’757 patent,” Ex. 1001). On September 10, 2015, Patent Owner, Douglas Dynamics, L.L.C. (“DDI”), filed a Preliminary Response (Paper 5, “Prelim. Resp.”). Pursuant to 35 U.S.C. § 314, we instituted trial as to claims 1, 4–7, and 18 of the ’757 patent. Paper 8 (“Dec.”). Petitioner filed a request for rehearing of the Decision on Institution (Paper 8), which was denied. Paper 13.

After institution of trial, Patent Owner filed a Patent Owner Response to the Petition (Paper 17, “PO Resp.”).¹ Petitioner filed a Reply to Patent Owner’s Response (Paper 30, “Pet. Reply”).

In addition, Petitioner filed a Motion to Exclude Evidence. Paper 36 (“Mot. Excl.”). Patent Owner filed an Opposition to Petitioner’s Motion to Exclude Evidence (Paper 38, “Opp. Mot. Excl.”), and Petitioner filed a Reply to Patent Owner’s Opposition to Motion to Exclude Evidence (Paper 42, “Reply Mot. Excl.”).

An oral hearing was held on August 11, 2016, a transcript of which has been entered in the record. Paper 46 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6(b). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

¹ Paper 17 was filed as a confidential document pursuant to a protective order for the treatment of confidential business information (Paper 31), along with a redacted, public version of the Patent Owner Response (Paper 18). Unless otherwise noted, we will refer to this latter version of the Patent Owner Response and its pagination.

For the reasons that follow, we determine that Petitioner has not shown by a preponderance of the evidence that claims 1, 4–7, and 18 of the ’757 patent are unpatentable.

A. Related Matters

The parties identify the following district court proceeding as a related matter: *Douglas Dynamics, LLC vs. Meyer Products, LLC*, Case No. 3:14-cv-00886 (W.D. Wis.). Pet. 1; Paper 4, 2.

B. The ’757 Patent (Ex. 1001)²

The ’757 patent is titled “Snowplow Mounting Assembly,” and relates to “snow removal equipment and, more particularly, to a snowplow mounting assembly for removably securing a snowplow to a vehicle.” Ex. 1001, at [54], 1:8–10. The ’757 patent discloses a mount frame adapted to be attached to a vehicle and a snowplow assembly removably attachable to the mount frame. *Id.* at 1:61–64. The ’757 patent discloses that the driver of the vehicle may drive the mount frame into engagement with corresponding components of the snowplow assembly in order to secure the snowplow assembly to the mount frame with minimal effort and time. *Id.* at 2:44–57. The snowplow assembly, itself, preferably comprises a plow with an A-frame, a lift frame, and a trunnion for pivoting the plow. *Id.* at 2:7–17.

C. Illustrative Claims

Claims 1, 4, 6, and 18 are the independent claims that are the subject of the petition. Challenged claim 5 depends from claim 4 and challenged

² The ’757 patent was the subject of a certificate of correction, issued August 3, 2010. Ex. 1001, 16–17.

claim 7 depends from claim 6. Claims 1 and 18, reproduced below, are illustrative of the subject matter at issue.

1. A snowplow assembly comprising:
 - a lift frame;
 - a trunnion pivotally connected to said lift frame for pivoting movement about a transverse, horizontal axis;
 - an A-frame having a plow blade on a forward end and being pivotally connected on a rearward end to said trunnion for pivoting movement about a longitudinal, horizontal axis; and
 - a motion generating device for effecting relative movement between said A-frame and lift frame for pivoting movement about the transverse, horizontal axis;said lift frame, trunnion, A-frame and motion generating device all being attachable to and detachable from a vehicle as one assembly.

Ex. 1001, 8:44–58.

18. A snowplow assembly comprising:
 - a lift frame;
 - a plow blade, said plow blade being pivotal relative to said lift frame about a longitudinal, horizontal axis; and
 - a motion generating device for effecting relative movement between said lift frame and said plow blade;said lift frame, plow blade and motion generating device being adapted to be attached to and detached from a vehicle as a single assembly.

Ex. 1001, 11:44–12:8.

D. Grounds of Unpatentability Instituted for Trial

We instituted a trial based on the following grounds of unpatentability:

References	Basis	Claims challenged
Pruss ³	§ 102	18
Keeler ⁴	§ 102	18
Coates ⁵ and Hetrick ⁶	§ 103	1, 4–7, and 18

II. ANALYSIS

A. Claim Construction

In an *inter partes* review, the Board interprets claim terms in an unexpired patent according to the broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); see *In re Cuozzo Speed Techs., LLC*, 136 S. Ct. 2131, 2142–46 (2016). Under that standard, and absent any special definitions, we give claim terms their ordinary and customary meaning, as would be understood by one of ordinary skill in the art at the time of the invention. See *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definitions for claim terms must be set forth with reasonable clarity, deliberateness, and precision. See *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

³ Pruss, U.S. Patent No. 2,139,625, iss. Dec. 6, 1938 (Ex. 1002).

⁴ Keeler, U.S. Patent No. 2,42,472, iss. May 20, 1941 (Ex. 1003).

⁵ Coates, U.S. Patent No. 3,605,906, iss. Sept. 20, 1971 (Ex. 1005).

⁶ Hetrick, U.S. Patent No. 4,236,329, iss. Dec. 2, 1980 (Ex. 1007).

Petitioner proposes constructions of “A-frame”; “being adapted to be attached to and detached from a vehicle as a single assembly”; “all being attachable to and detachable from a vehicle as one assembly”; “lift frame”; “longitudinal, horizontal axis”; “motion generating device”; “transverse, horizontal axis”; and “trunnion.” Pet. 8–11. Patent Owner disputes the construction of “trunnion” and “motion generating device,” and in addition requests construction of the limitations “adapted to be attached and detached from a vehicle as a single assembly” (claim 18) and “all being attachable to and detachable from a vehicle as one assembly” (claims 1, 4, and 6). PO Resp. 9–16.

We construe only claim terms relevant to issues in dispute and only to the extent necessary to resolve the issues presented by the Petition. See *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999). Accordingly, we address constructions for the terms “A-frame” “motion generating device,” “adapted to be attached and detached from a vehicle as a single assembly,” and “all being attachable to and detachable from a vehicle as one assembly.”⁷

1. “A-frame”

Petitioner asserts that the broadest reasonable construction of “A-frame” is “any frame structure of any shape.” Pet. 9. Petitioner relies on a statement in the Specification that “while the term ‘A-frame’ has been used herein, it is to be understood that other configurations of frames other than

⁷ Although the Decision on Institution set forth a preliminary construction of “trunnion,” we determine that it is not necessary to construe “trunnion” in order to resolve the current dispute. See *Vivid Techs.*, 200 F.3d at 803.

‘A’s’ may be substituted therefore, in the practice of the present invention and yet still be within the scope thereof.” Pet. 8–9. In its Patent Owner Preliminary Response, Patent Owner disagreed, asserting that a proper construction of “A-frame” is “a frame with a back bar and a pair of side bars arranged in a triangular or ‘A’ configuration.” Prelim. Resp. 11 (citing Ex. 1001, 4:62–64). In the Decision on Institution, we indicated that we agreed that Patent Owner’s construction was the broadest reasonable construction in light of the Specification, and in particular, that Petitioner had not shown persuasively that the letter “A” in “A-frame” is superfluous. Dec. 6–7.

After institution, Patent Owner indicates that it agrees with this construction, and provides additional support that this construction is consistent with the Specification (Ex. 1001, 4:62–64) and with the opinions of experts for Petitioner (Ex. 2006, 182:11–14) and for Patent Owner (Ex. 2007 ¶ 102). PO Resp. 8. Petitioner does not make any further arguments with respect thereto in its Reply. After considering all evidence and arguments anew, we determine that it is proper to maintain our construction of “A-frame” from institution as “a frame with a back bar and a pair of side bars arranged in a triangular or ‘A’ configuration.” See Ex. 1001, 4:62–64.

2. *“motion generating device”*

Petitioner asserts that the limitation “motion generating device” consists of terms that are well known by persons of ordinary skill in the art to mean “a device that causes something else to move.” Pet. 10. In the Patent Owner Preliminary Response, Patent Owner argued that “motion generating device” means “an integrated device that generates a force to create relative motion.” See Prelim. Resp. 17. In the Decision on

Institution, we set forth the preliminary construction of “a piston or equivalent structure.” Dec. 9.

After institution, Patent Owner argues that in order to avoid being overly broad, the broadest reasonable construction is “an integrated device that generates a force to create relative motion.” *See* PO Resp. 13–14. Patent Owner states that in the example of a hydraulically-operated piston in the Specification, there would additionally be a hydraulic pump, reservoir, and related hydraulic lines shown in Figure 2A of the Specification that should be detachable from the vehicle along with the piston and cylinder. *See id.* Patent Owner also argues that the piston and cylinder cannot generate motion without these structures. *Id.* at 14. Petitioner disagrees with Patent Owner’s basis for including additional structures such as a hydraulic pump, reservoir, and hydraulic lines, and argues that if Patent Owner were interested in including all structures related to power generation, then that would also require a power source (mechanical or electrical) and a control command. Reply 3–4.

We agree with Petitioner and determine to maintain our construction from the Decision on Institution. Petitioner states that a person of ordinary skill in the art would understand a “motion generating device” as “a device that causes something to move.” Pet. 10. The parties are in general agreement on this point. In the context of this case, the Specification states that hydraulically operated lifter 59, the only structure that actually moves, consists of piston rod 60 and cylinder 52. *See* Ex. 1001, 4:31–49. We also agree with Petitioner that Patent Owner’s identification of some attachments as being required in construing “motion generating device,” but not others, is arbitrary and unsupported by the Specification. We determine that the

appropriate construction of “motion generating device” in light of the Specification is “a piston or equivalent structure,” and that other attachments are not part of the “motion generating device.”

3. “*adapted to be attached and detached from a vehicle as a single assembly*”

Petitioner asserts that “adapted to be attached and detached from a vehicle as a single assembly” means “capable of being attached to and detached from a vehicle together as a unit.” Pet. 9. In the Patent Owner Preliminary Response, Patent Owner argued that “adapted to be attached and detached from a vehicle as a single assembly” means “designed or constructed to be attached to and detached from the vehicle as a single assembly.” See Prelim. Resp. 16. The Decision on Institution did not provide an express construction for the limitation “adapted to be attached and detached from a vehicle as a single assembly” found in claim 18.

Patent Owner argues that in applying this claim limitation to the prior art, the Board, in the Decision on Institution, implicitly construed the term as components that are “capable of being attached to and detached from a vehicle together as a unit.” PO Resp. 15. Patent Owner asserts that this implicit construction is too broad, and requests that the Board more narrowly construe the limitation as “designed or constructed to be attached and detached from a vehicle as a single assembly” in order not to read the word “adapted” out of the claim. *Id.* (citing *In re Giannelli*, 739 F.3d 1375, 1379 (Fed. Cir. 2014)).

Petitioner argues that *In re Giannelli* indicates that the phrase “adapted to” can also mean “capable of” or “suitable for” when the written description does not make it clear that it should be construed more narrowly,

and that the written description of the '757 patent does not require such a narrow construction in this case. Pet. Reply 5–6 (citing *In re Giannelli*, 739 F.3d at 1379; *Ex parte Ruiter*, Appeal 2013-7897 (PTAB 2013); *Ex parte Sperschneider*, Appeal 2012-1371 (PTAB 2012)).

To the extent that there may be a difference in this art between “configured to” or “capable of,” we need not construe the limitation so finely in order to resolve the controversy in this case. See *Vivid Techs., Inc.*, 200 F.3d at 803.

4. “all being attachable to and detachable from a vehicle as one assembly”

Petitioner asserts that “all being attachable to and detachable from a vehicle as one assembly” means “capable of being attached to and detached from a vehicle together as a unit.” Pet. 9. As with the previous limitation, Patent Owner argues that the limitation “all being attachable to and detachable from a vehicle as one assembly,” found in claims 1, 4, and 6 means “designed or constructed to be attached and detached from a vehicle as a single assembly” rather than “capable of” being attached. See PO Resp. 15. However, the language for this limitation is different from that of the previous limitation because it does not use the claim term “adapted to.” As such, the rationale for construing the limitation as argued by Patent Owner is not present, as it was for “adapted to be attached and detached from a vehicle as a single assembly.” Based on the plain meaning of the claim language, we determine that the broadest reasonable interpretation of “all being attachable to and detachable from a vehicle as one assembly” is “capable of being attached and detached from a vehicle as one assembly.”

B. Anticipation by Pruss (Ex. 1002)

Petitioner contends that Pruss anticipates claims 1, 4–7, and 18. Pet. 11–19. We have reviewed Petitioner’s explanation identifying where each limitation allegedly appears in Pruss. *Id.* Petitioner’s expert, David Scott Smith, does not cover anticipation by Pruss in his declaration, other than to comment that the description of Pruss in the Petition accurately describes the disclosure of Pruss. Ex. 1019 ¶ 25. We have also reviewed Patent Owner’s assertions and evidence as to why Petitioner’s explanations and evidence are deficient. PO Resp. 17–24; Ex. 2007 ¶¶ 49–65.

1. Overview of Pruss

Pruss discloses a plow, for removal of snow, ice, or dirt that can be permanently or removably secured to a vehicle. See Ex. 1002, Title, p. 1, col. 1, ll. 1–11. One embodiment is depicted below in Figure 1:

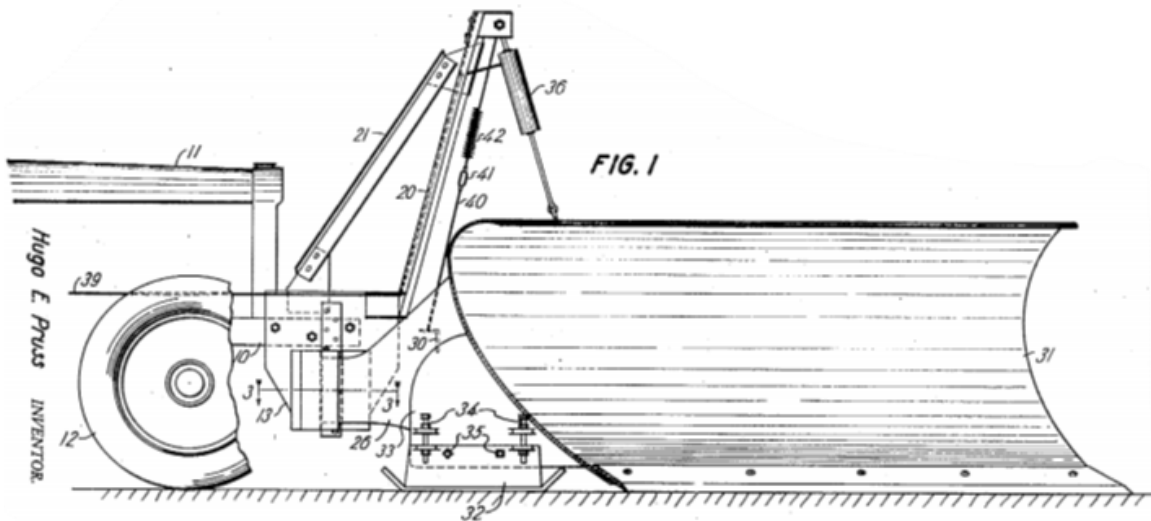


Figure 1 depicts a fragmental side elevation in which the plow blade is shown partly in section. *Id.*, p. 2, col. 2, ll. 1–5. In this embodiment, plow blade 31 is suspended from the top by hydraulic ram 36, which hangs from tower 20, and the plow blade is supported in the back by a pair of runners 32

and 32', one of which is depicted in Figure 1. Figure 2, below, depicts another perspective that shows both runners.

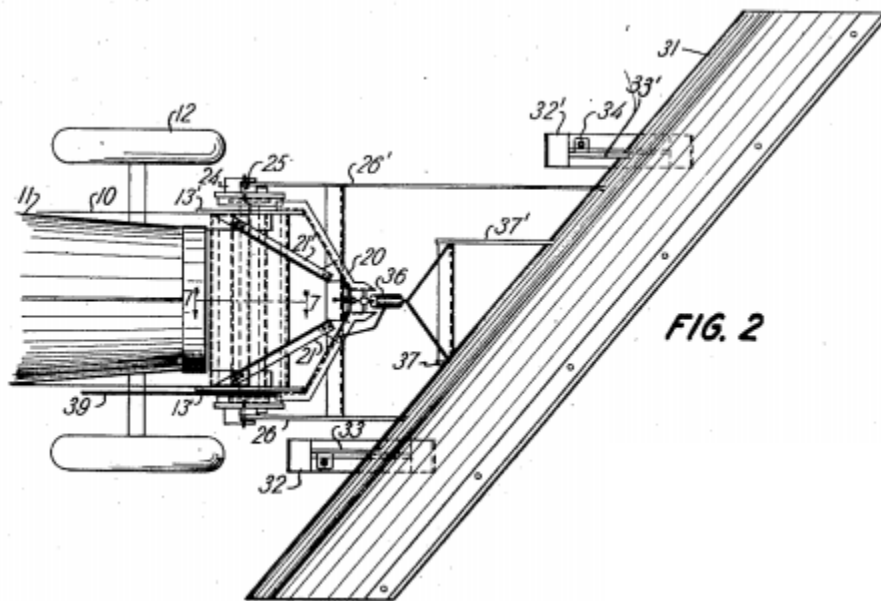


Figure 2 shows a top plan view. *Id.* at p. 2, col. 2, l. 6. Tower 20 is attached to chassis 10 of the vehicle, *inter alia*, by abutment plates 13, 13'. *Id.* at p. 2, col. 2, l. 71–p. 3, col. 1, l. 35. Struts 26 connect abutment plates 13, 13' to plow blade 31. *Id.* Figure 12, below, depicts an alternative embodiment:

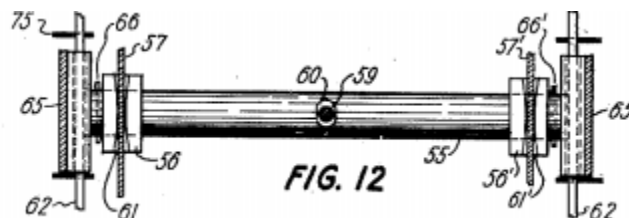


Figure 12 depicts an alternative embodiment with certain modifications. *Id.* at p. 2, col. 2, ll. 26–34. Plates 57 are similar to abutment plates 13, above. *Id.* at p. 4, col. 2, ll. 21–32. Bolster 55, is rotatably mounted in slides 56 in plates 57. *Id.* at p. 4, col. 2, ll. 26–27. Further, bolster 55 is laterally tiltable about trunnion bolt 59 through an arc of 10–15 degrees on either side of the horizontal. *Id.* at p. 4, col. 2, ll. 34–52. Trunnion bolt 59 extends between

channel bars 58, not shown in this figure. *Id.* Struts 65, 65' (which correspond to struts 26, 26' of Figures 1 and 2) form the sides of the plow frame. *Id.* at p. 4, col. 2, ll. 64–67.

2. Analysis

In the Petition, Petitioner alleges how each limitation of claim 18 would be understood to be disclosed by Pruss. Pet. 11–19. Patent Owner disputes Petitioner's contentions as to certain limitations, i.e., limitations relating to the “motion generating device” and to removal as a “single assembly.” PO Resp. 17–24.

As an initial matter, we make the following findings with respect to the undisputed limitations. With respect to the limitations “a lift frame” and “a plow blade, said plow blade being pivotal relative to said lift frame about a longitudinal, horizontal axis,” we find that Pruss discloses such structure as tower 20 and plow blade 31, which is pivotable about a longitudinal, horizontal axis using bolster 18 and journal 22. Ex. 1002, p. 2, col. 2, ll. 71–72, p. 3, col. 1, ll. 2–6, p. 3, col. 2, ll. 36–38, Figs. 1, 4.

We now turn to the disputed limitations. With respect to “a motion generating device for effecting relative movement between said lift frame and said plow blade” and the limitations that follow relating to the “motion generating device,” Patent Owner argues that pump 38, which drives ram 36, is part of the motion generating device. PO Resp. 24. However, applying the above construction of motion generating device, we find that Pruss's ram 36 meets the “motion generating device” limitation. Ex. 1002, p. 3, col. 1, ll. 40–61. In other words, the pump that drives the ram (and its hydraulic lines) are not part of the “motion generating device” within the meaning of the '757 patent (nor claim 18).

With respect to the limitation “said lift frame, plow blade and motion generating device being adapted to be attached to and detached from a vehicle as a single assembly,” Petitioner relies on the disclosure in Pruss that the plow blade may be removed, leaving plates 13, 13’ on the vehicle. Pet. 13–14, 17 (citing Ex. 1002, p. 4, col. 1, ll. 31–34). Specifically, Petitioner argues that the removal of bolts attaching plates 13, 13’ to other components allows the rapid removal of “trunnion 55/18, lift frame 20, A-frame 65/25, plow blade 31, and motion generating device 36” as a single assembly. Pet. 14 (citing Ex. 1002, p. 4, col. 1, ll. 31–34, Fig. 1, Fig. 6), Pet. 17–19. Patent Owner asserts that both Meyer’s expert Mr. Smith and Douglas’s expert Dr. Slocum agree that the alleged “lift frame” structure remains on the vehicle when plates 13, 13’ are not removed. PO Resp. 21 (citing Ex. 2006 at 154:22–156:17; Ex. 2007 ¶¶ 63, 115–117). Patent Owner contends, therefore, that Petitioner’s contentions for removal as a single assembly is not supported by expert testimony. PO Resp. 10. However, Petitioner argues that expert testimony is not required where the references and invention at issue are easily understandable. Pet. Reply 6 (citing *Synopsis, Inc. v Mentor Graphics Corp.*, 814 F.3d 1309, 1320 (Fed. Cir. 2016) (citing *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1242 (Fed. Cir. 2010))).

Petitioner essentially argues that tower 20 may be removed from plates 13, 13’ while remaining attached to the other components of the plow assembly. See Tr. 9:15–17. Patent Owner, nevertheless, observes that Pruss discloses that the cable connections are disconnected from tower 20 when the snow assembly is removed in this embodiment. PO Resp. 20. We are persuaded by Patent Owner’s argument for the reasons that follow.

In the primary embodiment, when the snow plow assembly of Pruss is attached to the vehicle, tower 20 is attached to the vehicle with plates 13, 13', and tower 20 is additionally attached to plow frame 30 by cable 40 and to ribs 37, 37' by ram 36. Ex. 1002, Fig. 1, Fig. 2, p. 2, col. 2, ll. 71–74, p. 3, col. 1, ll. 40–42, p. 3, col. 1, ll. 68–70; Ex. 2007 ¶¶ 53, 55. We agree with Patent Owner that when plates 13, 13' are left on the vehicle, tower 20 cannot be removed as a “single assembly” with the plow blade because Pruss discloses that the cable connections are disconnected from tower 20. Ex. 1002, p. 4, col. 2, ll. 19–22 (“When it is desired to detach the plow and frame from the vehicle it is only necessary to pull out pins 16 and 29 and to disconnect the cable connections depending from tower 20.”) We find that the plural form of the word “connections” in Pruss’s disclosure indicates that *all* cable connections from tower 20 are disconnected, i.e., both cable 40 and ram 36 are disconnected from tower 20. Thus, even if the bottom end of ram 36 remains connected to plow blade 31, the top end of ram 36 would no longer be connected to tower 20. As such, tower 20 would no longer be connected to plow blade 31 when tower 20 is finally removed from plates 13, 13'. *See also* Fig. 1; Ex. 2007 ¶ 59. This does not correspond properly to the “single assembly” limitation for removal, because the lift frame would not be removed as a single assembly with the plow blade and motion generating device.

Although not relied on in the Petition, Pruss proceeds to describe a further embodiment in which plates 13, 13' may be removed rather than left

on the vehicle.⁸ Unlike the primary embodiment for removal of the snow plow assembly, Pruss does not explicitly disclose removal of the cable connections 36, 40 for this further embodiment. Patent Owner argues that (a) this further embodiment cannot now be relied on by Petitioner, (b) Pruss does not disclose the removal of tower 20 from the vehicle along with plates 13, 13', even if tower 20 would likely be removed also when plates 13, 13' is disconnected from the rest of the vehicle, and (c) Patent Owner's expert, Dr. Slocum, testifies that the forces of gravity on the plow components render attachment and detachment of the plow frame and tower as a single unit both dangerous and unfeasible, such that one of ordinary skill would not have understood Pruss to disclose what Petitioner alleges. PO Resp. 22 (citing Ex. 2007 ¶¶ 64–66, 118–119). Petitioner does not go into further detail regarding this embodiment other than to assert that plates 13, 13' may be removed from the vehicle and that the other components of the snow assembly (including the lift frame) would be removed as a single assembly. Pet. Reply 8.

In any event, when we weigh Petitioner's general allegations, which are not set forth with particularity in the Petition and not supported by either expert testimony or any explicit disclosure in any reference, with Patent Owner's arguments, supported with explicit disclosures in the references and extensive explanation by Dr. Slocum, we are persuaded that Petitioner has not met its burden of showing sufficiently that Pruss discloses the "single assembly" limitation. In particular, Patent Owner asserts that it would be

⁸ The Decision on Institution cited the entire paragraph in Pruss, containing both embodiments.

“dangerous” and “infeasible” to remove tower 20 along with plates 13, 13’ without first disconnecting the cable connections and, thus, that one of ordinary skill would not have understood Pruss to disclose removing tower 20 with plates 13, 13’ in such a manner. For support, Patent Owner cites Dr. Slocum for stating the following:

65. In my opinion, the weight of the plow frame 30 and other components in the Pruss reference supported by the tower 20 and the abutment plates 13/13’ renders unbolting the abutment plates (to remove the tower 20 along with the other plow components) without first removing the other components in stages as described above, likely dangerous and certainly unfeasible. It is my opinion that anyone trying to attach or detach the snowplow in Pruss would quickly realize (even without an instruction manual) that the blade and frame assembly needs to be separately removed before attaching or detaching the abutment plates 13/13’.

Ex. 2007 ¶ 65. It is unnecessary for us to determine whether or not Patent Owner is unequivocally correct. It is enough that we find that Patent Owner’s arguments and evidence cast sufficient doubt concerning Petitioner’s unsupported argument with regards to removal of plates 13, 13’ such that Petitioner has not met its burden, especially given that this ground of unpatentability is based on anticipation. Indeed, as noted above, Petitioner has not identified any explicit disclosure in Pruss supporting detachment of plates 13, 13’ from the vehicle in a manner necessary to meet the “single assembly” limitation.

To be sure, even for anticipation, references are to be read from the perspective of one of ordinary skill. The problem for Petitioner here, however, is that Petitioner provides only attorney argument, with no evidence, as to why one of ordinary skill would have read Pruss to meet the

“single assembly” limitation. When we balance that against Dr. Slocum’s detailed assertions as to why one of ordinary skill would not have read Pruss in such a manner, assertions that we find credible, the correct choice becomes clear. Thus, for these reasons, we find that Petitioner has not shown sufficiently that Pruss discloses the “single assembly” limitation under either embodiment for removal of the plow assembly.

We, therefore, determine that Petitioner has not established by a preponderance of the evidence that Pruss anticipates claim 18.

C. Anticipation by Keeler (Ex. 1003)

In the Petition, Petitioner alleges how each limitation of claim 18 would be understood to be disclosed by Keeler. Pet. 19–25. Patent Owner disputes Petitioner’s contentions as to limitations relating to the “motion generating device” and removal as a “single assembly.” PO Resp. 24–31; *see* 37 C.F.R. § 42.23(a).

1. Overview of Keeler

Keeler discloses a snow plow apparatus, with a plow or blade positioned in front of a tractor to remove snow. Ex. 1003, Title, p. 1, col. 1, ll. 1–4. Keeler features power-operated hydraulic control means for adjusting the positioning of the snow plow, in which the pump of the hydraulic system may be selectively connected to the motor of the tractor. *Id.*, at p. 1, col. 1, ll. 5–15.

Figure 3 is depicted below:

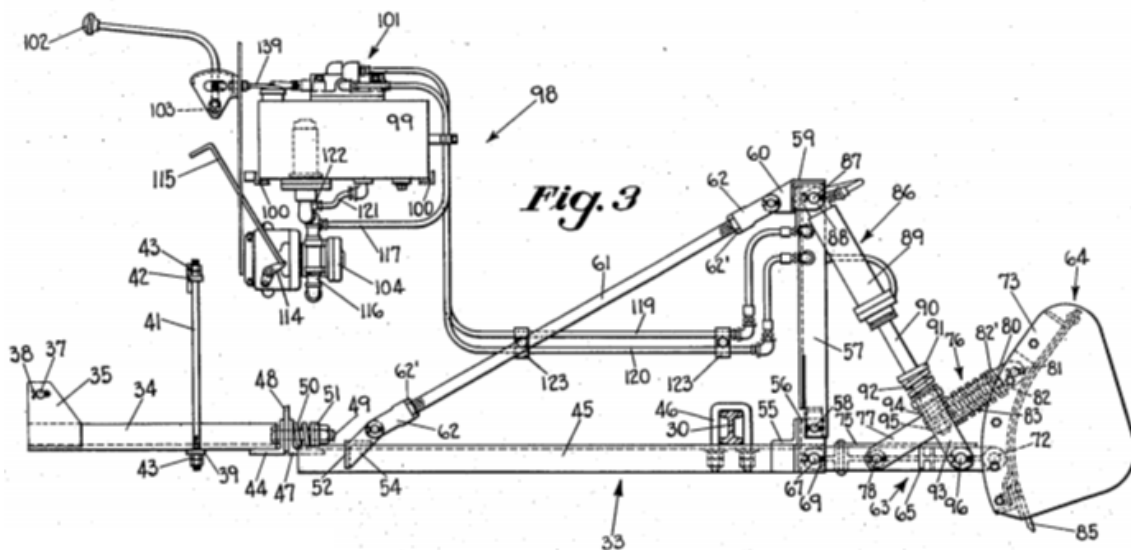


Figure 3 depicts a side elevational view of the mechanism of the snow plow attached to the tractor. *Id.*, at p. 1, col. 1, ll. 35–37. Tractor's body 34 is attached to main frame 33, which is pivotally connected at pin 67 to auxiliary frame 63, with pivotal adjustment by the hydraulic mechanisms. *Id.* at p. 2, col. 1, l. 67– col. 2, l. 6, p. 3, col. 1, ll. 11–23. Auxiliary frame 63, in turn supports snow plow 64, at pins 72, such that the blade of the snow plow is generally maintained at a predetermined angle with limited resilient pivotal movement. *Id.* at p. 2, col. 2, ll. 24–54. Uprights 57 support cylinders 89 and piston rods 90, which can lift snow plow 64. *See id.* at p. 2, col. 2, ll. 55–75, Fig. 3.

2. Analysis

We first make the following findings with respect to the undisputed limitations. With respect to the limitations “a lift frame” and “a plow blade, said plow blade being pivotal relative to said lift frame about a longitudinal, horizontal axis,” we find that Keeler discloses such structure as uprights 57

and snow plow 64, which is pivotable about the horizontal axis of pivot pins 67. Ex. 1003, p. 2, col. 2, ll. 55–70.

We turn next to the disputed limitations. With respect to “a motion generating device for effecting relative movement between said lift frame and said plow blade” and the limitations that follow relating to the “motion generating device,” Patent Owner argues that Keeler’s reservoir and pump components of the hydraulic system are part of the motion generating device. PO Resp. 31 (citing Ex. 2007 ¶¶ 78–79, 120–122, 127). However, applying the above construction of motion generating device, we find that Keeler’s cylinders 89 and piston rods 90 meet the “motion generating device” limitation. Ex. 1003, p. 2, col. 2, l. 55–p. 3, col. 1, l. 28.

With respect to the limitation “said lift frame, plow blade and motion generating device being adapted to be attached to and detached from a vehicle as a single assembly,” Petitioner relies on the disclosure in Keeler of the attachment of main frame 33 to the tractor. Pet. 21, 23–24 (citing Ex. 1003, p. 1, col. 2, ll. 43–46). Petitioner, thus, argues that main frame 33 forms as a single assembly with the auxiliary frame, the lift frame, plow blade, and motion generating device, and emphasizes that it has not argued separating Keeler’s auxiliary frame from the main frame. See Pet. Reply 10. Patent Owner argues that the disclosure relied on by Petitioner does not address at all removal of the lift frame, plow blade, and motion generating device as a single assembly. PO Resp. 27. Patent Owner asserts that the plow blade and upright 57 cannot be removed from the main frame 33 together as a single assembly, *inter alia*, because removal of pins 67 and 58 would detach the rear of the auxiliary frame and the bottom of the upright 57 from the main frame. PO Resp. 29 (citing Ex. 1003 at 2, col. 1, ll. 46–51; at

4, col. 2, ll. 8–14 & Fig. 18). Patent Owner also asserts that frictional and gravitational forces would prevent attachment and detachment of the entire frame assembly including the frame and plow blade together as a single assembly. PO Resp. 28–29 (citing Ex. 2007 ¶¶ 69, 73–76, 124). Dr. Slocum stated in this regard:

In my opinion, once these various components are attached and configured, frictional and gravitational forces would prevent one from attaching and detaching the entire frame assembly including the main frame 33 and along with the other frame components and plow blade together as a single assembly.

Ex. 2007 ¶ 75. Thus, according to Dr. Slocum, one would be prevented from removing the components as a single assembly.

We are persuaded by Patent Owner’s evidence and contentions. We find that Petitioner has not shown that one of ordinary skill would have understood it possible, with frictional and gravitational forces, to remove main frame 33 from the tractor without first removing the auxiliary frame and plow. When the plow assembly is attached to the vehicle, the main frame and auxiliary frame are connected to the vehicle with several connections e.g., main frame 33 is attached to the tractor near the rear axle through plates by pins 37; main frame 33 is attached to the bottoms of hang rods 41, which are attached to the vehicle with double locking nuts and brackets; main frame 33 comprises angle members, which are rigidly attached to the front axle of the tractor by U-bolts; auxiliary frame 63 is attached to angle members by pivot pins 67; uprights 57 are attached to angle members by pivot pins 58; and plow blade 64 is attached to auxiliary frame 63 by pivot pins 72. Ex. 1003 at p. 1, col. 2, l. 43 – p. 3, col. 2, l. 15; Figs. 1, 3. Pivot pins 67 and 72 are held in place with cotter keys 69 and 74.

Ex. 1003, p. 2, col. 2, ll. 7–15. Petitioner argues, without reliance on expert testimony, that “uprights 54 (the lift frame), piston 86 (motion generating device), and plow blade 146” would form an assembly that would not collapse because it would be removed together with, and supported by, main frame 33. *See* Pet. Reply 10. However, we agree with Patent Owner for the reasons given by Patent Owner’s expert, reasons that we find credible. *See* Ex. 2007 ¶¶ 75–76. In particular, we find that Petitioner has not shown that it would have been possible to remove Keeler’s plow frame from the tractor as a single assembly, i.e., because of the weight of the components and the manner in which the components are joined to the tractor with multiple connection points. *See* Ex. 2007 (Slocum Decl.) ¶ 76 (“Unbolting the main frame 33 from the underside of the tractor without first removing the other components in stages as described above, even if it was possible, would be dangerous”).

We further find Petitioner has not shown that, even if main frame 33 were left on the tractor, Keeler’s uprights 57, cylinders 89 and piston rods 90, and plow blade 64 (connected thereto by auxiliary frame 63) could be removed as a single assembly. In this connection, we note that Keeler discloses several cotter keys connecting several components that would need to be a part of the “single assembly,” for example, cotter keys 74 facilitate attachment of plow blade 64 to auxiliary frame 63 by pivot pins 72. We credit the testimony of Dr. Slocum that a person of ordinary skill in the art would have understood that a cotter key is used as a temporary attachment, and further that one of ordinary skill would have understood the existence of cotter keys as indicating that the aforementioned components of Keeler are to be assembled and disassembled in stages, and not maintained so as to

meet the “single assembly” limitation. Ex. 2007 ¶ 73. We further credit the testimony of Dr. Slocum that any resulting “single assembly” in Keeler would collapse under its own weight, further supporting Patent Owner’s position that it was not possible for Keeler to meet the “single assembly” limitation. Ex. 2007 ¶ 78 (“Moreover even if the hydraulic lines and top of the upright could be detached, the resulting assembly would collapse under its own weight and could not be attached and detached as a single assembly.”). As such, for these reasons, we find that Petitioner has not shown that Keeler meets the “single assembly” limitation for removal of the plow assembly. We, therefore, determine that Petitioner has not established by a preponderance of the evidence that Keeler anticipates claim 18.

D. Obviousness over Coates (Ex. 1005) and Hetrick (Ex. 1007)

Petitioner asserts that the combination of Coates and Hetrick would have rendered obvious claims 1, 4–7, and 18. Pet. 40–45, 47–58. We have reviewed Petitioner’s explanation identifying where each limitation allegedly appears in Coates and Hetrick, along with the testimony of Petitioner’s declarant, David Scott Smith. *Id.*; Ex. 1019 ¶¶ 33–40. We have also reviewed Patent Owner’s assertions and evidence as to why Petitioner’s explanations and evidence are deficient. PO Resp. 31–50.

1. Overview of Coates

Coates discloses a snowplow with means to facilitate mounting, in which push arms are attached to the vehicle frame, and cross beam means are attached to the push arms. Ex. 1005, Title, Abstract.

Figure 1 is depicted below:

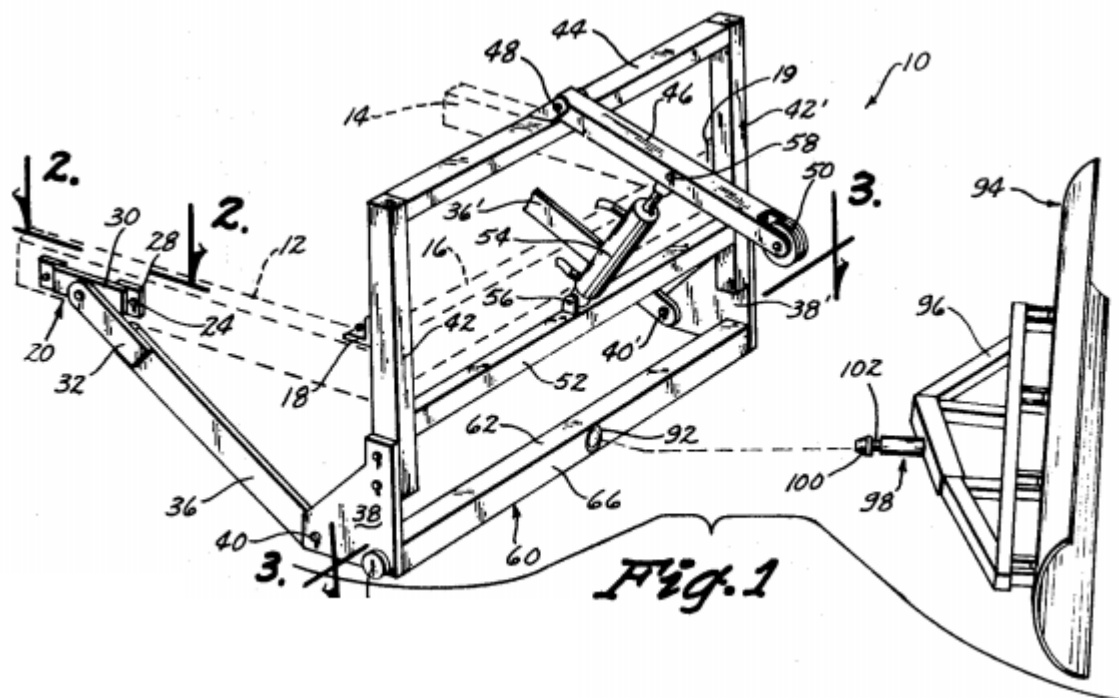


Figure 1 depicts push arms 36, 36' connected to side plates 38, 38' by bolt means 40, 40'. *Id.* at 2:45–60. Supports 42, 42' are also secured to side plates 38, 38'. *Id.* at 2:58–60. Beam 44 is secured to the upper ends of supports 42, 42'. *Id.* at 2:61–63. Lift arm 46 is pivotally connected to beam 44 at its rear end and at its forward end to sheave 50, which accommodates a chain. *Id.* at 2:63–3:1. This chain may be connected to blade 94. *Id.* at 4:54–58. Hydraulic cylinder 54, which is anchored to lift arm 46 at one end, is pivotally connected to cross beam 52 at its other end. Blade 94 is connected to frame means 96, which is pivotally connected to cross beam 60 in opening 92. *Id.* at 3:52–63. Cross beam 60 extends between side plates 38, 38', wherein the ends of cross beam 60 sit in O-rings in plates 38, 38', allowing cross beam 60 to rotate. *Id.* at 3:23–51.

2. Overview of Hetrick

Hetrick discloses a detachable blade mounting device, and in particular, an apparatus for mechanically latching a plow blade to a vehicle by hydraulic actuation. Ex. 1007, at [54], [57], 1:5–10. Figure 2 is depicted below:

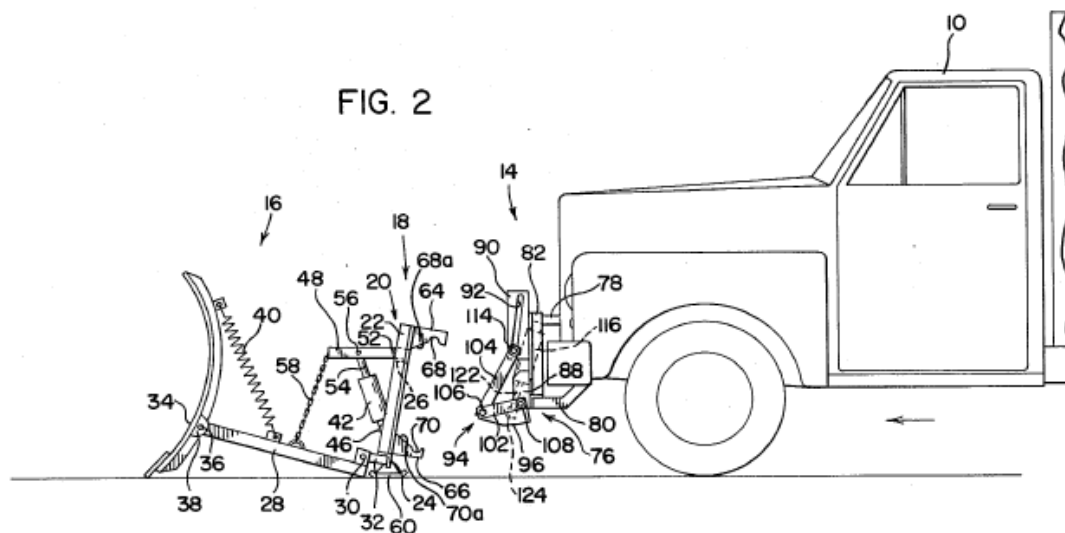


Figure 2 depicts a side elevation view in which the plow blade portion of the blade mounting device is disconnected from the vehicle portion of the device. *Id.* at 3:48–52. Upright frame member 22 has an upper bracket 64 with concave surface 68 and lower bracket 66 with concave surface 70. *Id.* at 4:60–62. Through activation of hydraulic cylinder 116, tube 114 may engage with concave surface 68 and tube 108 may engage with concave surface 70 to latch the plow blade portion to the vehicle portion of the blade mounting device. *Id.* at 7:32–61; *see also id.* at 5:30–6:60, Figs. 3–5.

3. Analysis

In the Petition, Petitioner alleges how each limitation of claims 1, 4–7, and 18 would be understood to be disclosed by Coates and Hetrick, and why such a combination would have been obvious. Pet. 40–45, 47–58. Patent

Owner disputes Petitioner's contentions as to certain limitations and as to the rationale for the combination of Coates and Hetrick. PO Resp. 31–50.

i. Claim 1

Petitioner asserts that it would have been obvious to mount the lift frame of Coates using the mounting device of Hetrick by mounting brackets onto the back portion of Coates's lift frame. Pet. 44–45.

With respect to the “lift frame” limitation, we find that Coates's disclosure of a frame comprising bars 42, 42', 44, 52, and side plates 38, 38' corresponds properly to that claim limitation. With respect to the limitation “a trunnion pivotally connected to said lift frame for pivoting movement about a transverse, horizontal axis,” we find that Coates's disclosure of bar 60 that rotates relative to plates 38, 38' corresponds properly to that claim limitation. With respect to “a motion generating device for effecting relative movement between said A-frame and lift frame for pivoting movement about the transverse, horizontal axis,” we find that Coates's disclosure of cylinder 54 corresponds properly to that claim limitation.

We do not find, however, that the combination of Coates and Hetrick meets the “A-frame” element of the limitation “an A-frame having a plow blade on a forward end and being pivotally connected on a rearward end to said trunnion for pivoting movement about a longitudinal, horizontal axis.” As above, we construe an “A-frame” as “a frame with a back bar and a pair of side bars arranged in a triangular or ‘A’ configuration.” Petitioner contends that Coates's frame means 96 is vaguely “triangular,” and that such a vaguely triangular configuration is sufficient to correspond properly to the aforementioned claim limitation. Pet. Reply 12. We disagree. Instead, we agree with Patent Owner and find that Coates's frame means 96 is not

triangular in shape. *See* Ex. 1005, Fig. 1. We find that Coates's frame means 96 is a trapezoid and does not have a pair of legs narrowing to an apex from a back bar. We further credit the testimony of Patent Owner's expert that a person of ordinary skill in the art would understand Coates's frame means 96 to be in the nature of a "truss" rather than an "A-frame" and that it is oriented backwards from how an "A-frame" would be oriented for purposes of distributing the load of a snow plow. Ex. 2007 ¶¶ 135, 137. We, therefore, determine that Coates fails to disclose an "A-frame."

Petitioner argues in its Reply that a person of ordinary skill could easily have modified Coates to meet the "A-frame" limitation, or could have adopted an "A-frame" from another prior art reference, such as Hetrick. Pet. Reply 12–14. Petitioner proposes in the Petition to mount the lift frame of Coates on the mounting device of Hetrick. Pet. 44–45. We find that such a modification would leave trunnion 60, frame means 96, and plow blade 94 of Coates attached to the lift frame of Coates, i.e., on the other side of the lift frame from the mount of Hetrick. *See id.*; Ex. 1005, Fig. 1. It is a new argument in the Reply for Petitioner to rely on the "A-frame" of Hetrick rather than on the frame means 96 of Coates in a combination. Because Petitioner's argument was set forth for the first time in its Reply, thereby depriving Patent Owner of a sufficient opportunity to respond to this new argument, Petitioner's argument is untimely and considered waived. *See* 37 C.F.R. § 42.23(b).

Further, Petitioner does not provide any rationale for the newly proposed combination of components, other than that an "A-frame" was a well-known component. Pet. Reply 12. In other words, not only is Petitioner's argument belated, but Petitioner does not sufficiently explain the

nature of the combination, and, thus, appears to be based on impermissible hindsight because Petitioner selects a disparate part from Hetrick to be combined with those of Coates for no particular reason other than to arrive at the features of the challenged claims. As such, we determine that even if Petitioner had not waived the argument, Petitioner has not shown persuasively a rationale in support of a combination of Coates and Hetrick to sufficiently disclose an “A-frame,” as recited in independent claim 1.

We conclude that there is an additional deficiency with the asserted combination. With respect to “said lift frame, trunnion, A-frame and motion generating device all being attachable to and detachable from a vehicle as one assembly,” we find that if brackets 64, 66 of Hetrick were added to the lift frame of Coates (to beams 44 and 52), as asserted in the Petition, the snow plow assembly of Coates would be attachable or detachable from the mount of Hetrick (*see* Pet. 44–45). Patent Owner disputes whether a person of ordinary skill in the art would have modified the lift frame of Coates in this manner.

Patent Owner argues, *inter alia*, that attaching Coates’s cross beam 60 to Hetrick’s mount (without attachment by Coates’s push arms 36) would be vulnerable to failure, according to Patent Owner’s expert, because there would be no structural support to counter the immense torque from the thrust of plowing. PO Resp. 47 (citing Ex. 2007 ¶ 165). We are persuaded by Patent Owner’s arguments for the reasons explained by Patent Owner’s expert. Ex. 2007 ¶ 165.

In its Reply, Petitioner seeks to assert that a person of ordinary skill would have, nevertheless, modified plates 38, 38’ of Coates to serve as mounting brackets rather than adding mounting brackets to lift frame 44 in

the manner indicated in the Petition. *See* Pet. Reply 19. We conclude that Petitioner's belated argument is both unsupported by expert testimony and waived, as it was made too late in the proceeding for Patent Owner to have a sufficient opportunity for rebuttal. *See* 37 C.F.R. § 42.23(b). Accordingly, we conclude that Petitioner has not adequately shown that a person of ordinary skill in the art would have combined the teachings of Hetrick and Coates, as asserted.

Thus, we determine that Petitioner has not established by a preponderance of the evidence that independent claim 1 is rendered obvious by the combination of Hetrick and Coates.

ii. Claims 4–7

We conclude that claims 4–7 are not rendered obvious by the combination of Hetrick and Coates, for the same reasons as for independent claim 1. In particular, we conclude that Coates' frame means 96 does not constitute an "A-frame," as recited in claims 4–7. Further, we conclude that Petitioner has not shown that a person of ordinary skill in the art would have mounted the lift frame of Coates on the mount of Hetrick, as asserted in the Petition. As such, we also need not reach Patent Owner's additional arguments with respect to claims 6 and 7. PO Resp. 41–42; Pet. Reply 14–15.

iii. Claim 18

Although independent claim 18 does not recite an "A-frame" structure, as does claim 1, we conclude that a person of ordinary skill in the art would not have mounted the lift frame of Coates on the mount of Hetrick, for the same reasons as for independent claim 1. In particular, Petitioner has now shown that a person of ordinary skill would have mounted brackets 64,

66 of Hetrick to beams 44 and 52 of the lift frame of Coates in view of the expert testimony that it would not have been structurally sound. *See supra* Section II.D.3.i.

iv. Conclusion as to Obviousness

We conclude that Petitioner has not established by a preponderance of the evidence that any of claims 1, 4–7, or 18 is rendered obvious by the combination of Hetrick and Coates. Because we determine that Petitioner has not proven its case-in-chief with respect to obviousness, we do not reach Patent Owner’s arguments as to secondary considerations of non-obviousness. *See* PO Resp. 55–60.

III. MOTION TO EXCLUDE

Petitioner seeks to exclude Exhibit 2008 (Declaration of Gary Watson), Exhibits 2011–2014 (documents relating to UltraMount product), Exhibit 2015 (infringement contentions), Exhibits 2016–2022 (documents produced in related litigation), Exhibits 2023–2027 (call reports, website feedback, and usage chart), Exhibit 2029 (document relating to UltraMount product), and Exhibit 2030 (components and sales) in part or in their entirety. Mot. Excl. 1–12. Petitioner’s motion is based on various objections made pursuant to FRE 801 (hearsay), FRE 701 (improper legal opinion), FRE 602 (lack of knowledge), FRE 702 (unqualified witness), FRE 901 (documents not properly authenticated), and 37 C.F.R. § 42.64(b)(2) (outside the scope of cross-examination and improper supplemental evidence). *Id.* Because we have not relied on any of the documents that are the subject of the motion to exclude, we dismiss the motion to exclude as *moot*.

Prior to the hearing and at the hearing, Petitioner objected to certain demonstrative exhibits as containing new evidence. *See* Tr. 46:14–22. We have not treated any material in demonstratives as substantive evidence unless otherwise in evidence. We, therefore, deny the objections to demonstratives as *moot*.

IV. CONCLUSION

We conclude that Petitioner has not established by a preponderance of the evidence that claim 18 is anticipated by Pruss nor by Keeler, nor that claims 1, 4–7, and 18 of the '757 patent are unpatentable as obvious over Coates and Hetrick.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1, 4–7, and 18 have not been shown to be unpatentable on the grounds as asserted and instituted in this proceeding.

FURTHER ORDERED that the motion to exclude is dismissed as moot.

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