

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

KUBOTA NORTH AMERICA CORPORATION,
Petitioner,

v.

VERMEER MANUFACTURING COMPANY,
Patent Owner.

IPR2025-00169
Patent 9,321,386 B1

Before MEREDITH C. PETRAVICK, ANNETTE R. REIMERS, and
ERIC C. JESCHKE, *Administrative Patent Judges*.

PETRAVICK, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. *Background and Summary*

Kubota North America Corporation (“Petitioner”) filed a Petition requesting *inter partes* review of claims 50–63, 68, 69, and 80–85 of U.S.

Patent No. 9,321,386 B1¹ (Ex. 1001, “the ’386 patent”). Paper 3 (“Pet.”). Vermeer Manufacturing Company (“Patent Owner”) file a Preliminary Response. Paper 6 (“Prelim. Resp.”).

We authorized (Ex. 3001) Petitioner to submit a reply addressing Patent Owner’s request for discretionary denial under 35 U.S.C. § 314(a). Paper 9 (“Pet. DD Br.”).

We also authorized the parties to submit additional briefing to address an issue of claim construction. Paper 12. Petitioner filed a supplemental brief (Paper 10, “Pet. Init. CC Br.”) and a reply (Paper 13, “Pet. Reply CC Br.”). Patent Owner filed a supplemental brief (Paper 12, “PO Init. CC Br.”) and a reply (Paper 14, “PO Reply CC Br.”).

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless the information presented in the petition “shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”

After considering the Petition, the Preliminary Response, the additional briefing, and the evidence of record, we determine the information presented shows a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of at least one of claims 50–63, 68, 69, and 80–85 of the ’386 patent.

Accordingly, we institute an *inter partes* review of the ’386 patent on the grounds asserted in the Petition.

¹ The ’386 patent is amended by two *ex parte* Reexamination Certificates (“Reexam. Cert.”). Ex. 1001. Claims 1–14 and 20 can be found in the original patent; claims 15, 17, 19, 22–45, and 47–63 can be found in the first reexamination certificate (“Reexam. Cert. C1”); claims 21, 46, and 64–87 can be found in the second reexamination certificate (“Reexam. Cert. C2”). Claims 16 and 18 have been canceled.

B. Real Parties-in-Interest

Petitioner identifies Kubota North America Corporation and Kubota Tractor Corporation as the real parties-in-interest. Pet. 98.

Patent Owner identifies Vermeer Manufacturing Company as a real party-in-interest. Paper 4, 2.

C. Related Matters

The parties identify the following related court proceedings: *Vermeer Manufacturing Company, vs. Kubota North America Corporation and Kubota Tractor Corporation*, Case No. 4:24-cv-00799-P (NDTX) (“the Parallel Litigation”) and *Vermeer Corporation vs. The Toro Company*, Case No. 4:17-cv-00076 (SDIA) (terminated) (“the Iowa Litigation”). Pet. 98; Paper 4, 2.

The ’386 patent is also the subject of IPR2025-00167 and IPR2025-00168. Petitioner submitted a Notice Ranking Petitions contending that three petitions, challenging different sets of claims, are necessary due to the numerous independent and dependent claims. Paper 2. Patent Owner does not dispute the necessity of three petitions.

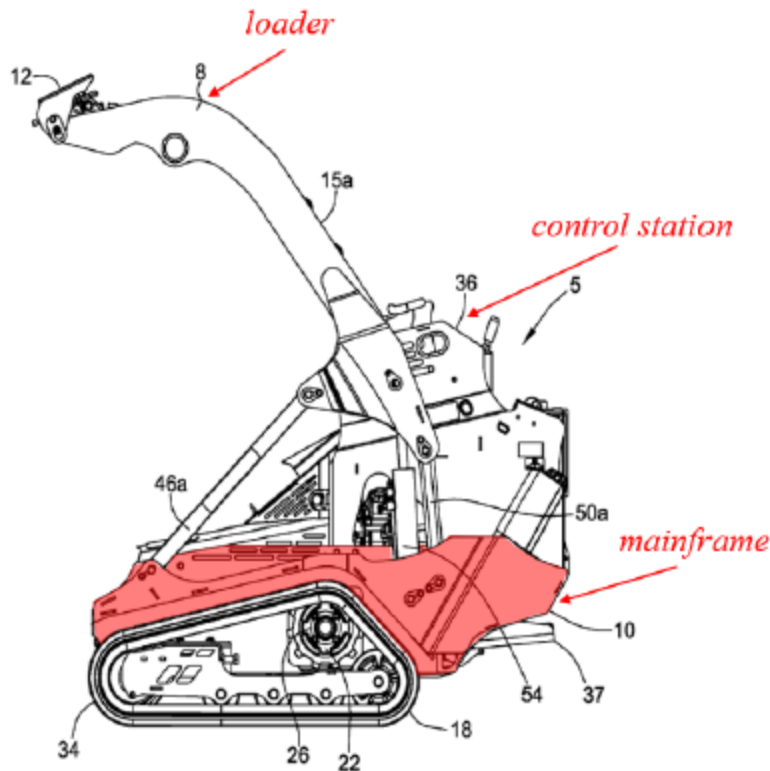
The parties also identify the following additional related *inter partes* reviews: IPR2025-00170, IPR2025-00171, IPR2025-00381, and PGR2025-00016. Pet. 98; Paper 8, 2.

D. The '386 Patent

The '386 patent is titled “Low Profile Compact Tool Carriers” and issued on April 26, 2016. Ex. 1001, codes (45), (54).

A compact tool carrier is a self-propelled machine that carries interchangeable equipment and generally has a mass of less than about 1500 kg. *Id.* at 2:59–63.

The '386 patent's Figure 3, with Patent Owner's annotations, is reproduced below. Prelim. Resp. 6.



Annotated Figure 3 depicts a side view of compact tool carrier 5 with raised loader 8. Ex. 1001, 2:29–30. Mainframe 10 (shaded red) supports loader 8 and mounts drive mechanism 18. *Id.* at 2:45–46, 3:20–21. Loader arm 15a is pivotally connected to side 38a of mainframe 10 by forward linkage 46a, rear linkage 50a, and actuator 54. *Id.* at 4:25–39. By positioning the pivot points relatively low on mainframe 10, compact tool

carrier 5's height and mass are reduced and, thus, the cost is reduced. *Id.* at 5:60–64. Keeping the profile of mainframe 10 low improves stability by lowering the center of gravity and improves visibility for the operator. *Id.* at 5:64–67.

Compact tool carrier 5 also has a control station 36 for driving compact tool carrier 5 and raising and lowering loader 8 (*id.* at 3:31–35) and an engine mounted to mainframe 10 by a bracket (*id.* at 5:52–55).

E. Illustrative Claims

Petitioner challenges claims 50–63, 68, 69, and 80–85 of the '386 patent. Of the challenged claims, claims 50, 55, 80, and 83 are independent, claims 51–54 depend directly or indirectly from claim 50; claims 56–63, 68, and 69 depend from claim 55; claims 81 and 82 depend directly or indirectly from claim 80; and claims 84 and 85 depend from claim 83.

Claims 50 and 55 are illustrative and reproduced below, with limitation labels added.

50.0 [50.0] A compact tool carrier configured for standing or walk-behind operator control and having a longitudinal axis and a mass of less than about 1500 kg, the compact tool carrier comprising:

[50.1] a loader adapted to carry a tool, the loader comprising: a first loader arm; a second loader arm; and at least one cross-member that extends from the first loader arm to the second loader arm;

[50.2a] a mainframe for supporting the loader, the mainframe having a first side and a second side, and having a front end and a rear end relative to the longitudinal axis, [50.2b] the mainframe comprising an engine bracket that extends from the first side toward the second side for mounting an engine to the mainframe, the engine bracket being spaced from the

rear end of the mainframe, [50.2c] the first loader arm not being directly attached to the mainframe;

[50.3] a first linkage pivotally attached to the first side of the mainframe and pivotally attached to the first loader arm at a first linkage pivot point;

[50.4a] a second linkage pivotally attached to the first side of the mainframe and pivotally attached to the first loader arm at a second linkage pivot point, [50.4b] each cross-member being disposed forward of the first linkage pivot point and the second linkage pivot point;

[50.5] an actuator pivotally attached to the first side of the mainframe and pivotally attached to the first loader arm at an actuator pivot point;

[50.6] a control station having operator controls for propelling the compact tool carrier forward and for raising and lowering the loader, the control station being mounted toward the rear of the compact tool carrier and adapted to allow for standing or walk-behind operation; and

[50.7] an operator platform for standing operation of the operator controls of the control station.

Ex. 1001, Reexam. Cert. C1 6:61–7:29.

55. [55.0] A compact tool carrier configured for standing or walk-behind operator control and having a longitudinal axis and a mass of less than about 1500 kg, the compact tool carrier comprising:

[55.1] a loader having an arm, the loader being adapted to carry a tool;

[55.2a] a mainframe for supporting the loader, the mainframe having a first side and a second side, and having a front end and a rear end relative to the longitudinal axis,

[55.2b] the mainframe comprising an engine bracket that extends from the first side toward the second side for mounting an engine to the mainframe, the engine bracket being spaced from the rear end of the mainframe, [55.2c] each side having a top and a bottom, the first side of the mainframe having at

least two pivot points relative to the loader, [55.2d] the loader arm not being directly attached to the mainframe;

[55.3] a linkage pivotally attached to the first side of the mainframe and pivotally attached to the loader arm;

[55.4] an actuator pivotally attached to the first side of the mainframe and pivotally attached to the loader arm;

[55.5a] a drive mechanism comprising tracks for propelling the compact tool carrier over a supporting surface, the drive mechanism having a rotational axis, the compact tool carrier having a bottom at which the drive mechanism contacts the supporting surface, the rotational axis and bottom of the compact tool carrier being separated by a vertical distance D1, the rotational axis and the bottom of the first side of the mainframe being separated by a vertical distance D5, [55.5b] the rotational axis and the pivot point at which the linkage is attached to the mainframe being separated by a vertical distance D2, the rotational axis and the pivot point at which the actuator is attached to the mainframe being separated by a vertical distance D4, both D2 and D4 being less than D1 and being less than 1.5 D5; and

[55.6] a control station having operator controls for propelling the compact tool carrier forward and for raising and lowering the loader, the control stations being mounted toward the rear of the compact tool carrier and adapted to allow for standing or walk-behind operation.

Id. at Reexam. Cert. C1 7:43–8:17.

F. Asserted Grounds and Evidence

Petitioner asserts that claims 50–63, 68, 69, and 80–85 would have been unpatentable on the following grounds:

Claims Challenged	35 U.S.C. §	Basis
50–54	103	KR996 ² , JP705 ³
55–63, 68, 69, 80–85	103	KR996, JP705, Bares ⁴ , Beltrami ⁵

Pet. 20. Petitioner additionally relies upon the Declaration of Steven Alan Velinsky, Ph.D. PE. Ex. 1003.

II. ANALYSIS

A. Discretionary Denial under 35 U.S.C. § 314

Patent Owner requests that we discretionarily deny the Petition in light of the Parallel Litigation, *Vermeer Manufacturing Company vs. Kubota North America Corporation and Kubota Tractor Corporation*, Case No. 4:24-cv-00799-P (NDTX). Prelim. Resp. 29–30 (citing *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”)).

In *Fintiv*, the Board discussed potential applications of *NHK*, as well as a number of other cases dealing with discretionary denial under § 314(a). *Fintiv* identifies a non-exclusive list of factors parties may consider addressing, particularly where there is a related, parallel district

² Korean Patent No. 10-1041996 (Ex. 1005). We refer to the English language translation, which is part of Exhibit 1005.

³ Japanese Patent No. JP2004-17705A (Ex. 1006). We refer to the English language translation, which is part of Exhibit 1006.

⁴ U.S. Patent No. 6,832,659 B1, iss. Dec. 21, 2004 (Ex. 1010).

⁵ U.S. Patent No. 3,586,195, iss. June 22, 1971 (Ex. 1008).

court action and whether such action provides any basis for discretionary denial. *Fintiv*, Paper 11 at 5–16. Those factors include:

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court’s trial date to the Board's projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board's exercise of discretion, including the merits.

Fintiv, Paper 11 at 5–6. In evaluating the *Fintiv* factors, we take a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review. *Fintiv*, Paper 11 at 6. We are also guided by the Chief Administrative Patent Judge’s March 24, 2025, memorandum titled “Guidance on USPTO’s recission of ‘Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation’” (“CAPJ Memo”).⁶

⁶ Available at https://www.uspto.gov/sites/default/files/documents/guidance_memo_on_interim_procedure_recission_20250324.pdf

1. *Factor 1 – whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted*

Patent Owner argues that it is unlikely that the District Court would grant Petitioner's February 11, 2025 motion to stay in the Parallel Litigation. Prelim. Resp. 30.

On March 19, 2025, however, the District Court stayed the Parallel Litigation pending the resolution of this *inter partes* review and the related *inter partes* review. Ex. 1037, 6; Pet. DD Br. 1.

"A district court stay of the litigation pending resolution of the PTAB trial allays concerns about inefficiency and duplication of efforts." *Fintiv*, Paper 11 at 6. Factor 1 strongly weighs against discretionarily denying the Petition.

2. *Factor 2 – proximity of the court's trial date to the Board's projected statutory deadline for a final written decision*

Patent Owner argues that trial in the Parallel Litigation is scheduled for May 11, 2026, one month before the June 2026 projected statutory deadline for a final written decision. Prelim. Resp. 31.

As the District Court has stayed and administratively closed the Parallel Litigation, no trial date is currently scheduled in the Parallel Litigation. Ex. 1037, 7; Pet. DD Br. 2.

Factor 2 weighs against discretionarily denying the Petition.

3. *Factor 3 – investment in the parallel proceedings by the court and the parties*

Patent Owner argues that the parties and the District Court have made a significant investment in the Parallel Litigation because the parties have exchanged all preliminary contentions and claim construction briefing would have been complete by May 19, 2025. Prelim. Resp. 31–32.

Petitioner argues that significant work remains in the Parallel Litigation because only preliminary invalidity contention had been filed and claim construction had just been initiated before the Parallel Litigation was stayed. Pet. DD Br. 2. When staying the Parallel Litigation, the District Court likewise indicated that the Parallel Litigation “is still in its early stage” and “while some discovery may have been exchanged, the ‘most significant and time-consuming tasks in patent infringement litigation have not begun.’” Ex. 1037, 6. According to the District Court, “no claim construction hearing has been conducted, no depositions have been taken, and the majority of discovery lays ahead.” *Id.* at 6–7.

Petitioner also expeditiously filed the Petition less than three months from the filing of the complaint in the Parallel Litigation. Pet. DD Br. 2.

“If, at the time of the institution decision, the district court has not issued orders related to the patent at issue in the petition, this fact weighs again exercising discretion to deny” and “[i]f the evidence shows that the petitioner filed the petition expeditiously, . . . , this fact has weighed against exercising the authority to deny institution.” *Fintiv*, Paper 11 at 10–11.

Factor 3 weighs against discretionarily denying the Petition.

4. *Factor 4 – overlap between the issues raised in the petition and the parallel proceeding*

Patent Owner alleges that Petitioner raises substantially the same grounds, as well as additional grounds in the Parallel Litigation. Prelim. Resp. 32–33 (citing Ex. 2014, 6).

“[I]f the petition includes the same or substantially the same claims, grounds, arguments, and evidence as presented in the parallel proceeding, this factor has favored denial.” *Fintiv*, Paper 11 at 12. Petitioner, however,

stipulates that if the PTAB institutes the IPR based on the grounds identified in the Petition . . . , then it (i) will not pursue the grounds identified in the Petition in the Parallel Litigation and (ii) will not pursue any other ground that could have reasonably been raised during the IPR (should it be instituted) in the Parallel Litigation (*i.e.*, any ground that could have been raised under §§102 or 103 on the basis of prior art patents or printed publications).

Pet. DD Br. 3. Petitioner’s stipulation is a *Sotera*-type stipulation. *See Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 18–19 (PTAB Dec. 1, 2020) (precedential as to § II.A) (“*Sotera*”). Petitioner’s stipulation may “mitigate[] any concerns of duplicative efforts between the district court and the Board, as well as concerns of potentially conflicting decision” and “ensures that an *inter partes* review is a ‘true alternative’ to the district court proceeding.” *Sotera*, Paper 12 at 19.

Petitioner’s *Sotera* stipulation “is highly relevant, but [is] not . . . dispositive by itself.” CAPJ Memo, 2–3. We consider Petitioner’s *Sotera* stipulation as part of our holistic analysis under *Fintiv*. *Id.*

Patent Owner also argues that

Petitioner has filed infringement counterclaims in the Parallel Litigation based on patents that relate to the same subject matter as Vermeer’s but were filed many years later. Petitioner’s obviousness arguments here are inconsistent with the assertion of its own derivative patents in the Parallel Litigation: if Vermeer’s patents are invalid on the grounds raised in the Petition, then so are Petitioner’s. Permitting Petitioner to simultaneously assert contradictory positions between proceedings is all but certain to result in conflicting decisions.

Prelim. Resp. 33–34.

Patent Owner’s argument is unpersuasive because Patent Owner does not sufficiently support its assertion that Petitioner’s patents are derivative and would also be invalidated by the grounds raised in the Petition. Patent

Owner does not provide sufficient information about Petitioner's patents asserted in the counterclaims in the Parallel Litigation to determine the overlap of issues.

We note that the District Court has indicated that even if Board cannot resolve Petitioner's counterclaims, the issues in the Parallel Litigation would be simplified if the Parallel Litigation was stayed until the final disposition in this proceeding. Ex. 1037, 5–7. The District Court states:

Simplification of the issue is highly likely [in the Parallel Litigation]. . . . this case is more complex than the average patent case. Kubota has filed for IPR on eighty different claims for the five patents at issue in Vermeer's Complaint. . . . And if the Patent Board invalidates one or more of the asserted claims on IPR, the case will be simplified. But even if the Patent Board denies institution on all of Kubota's petitions, "the Court would still receive the benefit of the [Patent Board's] opinion, including its initial claim construction and invalidity analysis."

Id. at 5–6; *see also id.* at 4 ("This case . . . is much larger than most patent cases that this Court sees on its docket.").

Factor 4 weighs against discretionarily denying the Petition.

5. *Factor 5 – whether the petitioner and the defendant in the parallel proceeding are the same party*

Petitioner is the defendant in the Parallel Litigation. Prelim. Resp. 34; Pet. DD Br. 3. Factor 5 weighs slightly for discretionarily denying the Petition.

6. *Factor 6 – other circumstances that impact the Board's exercise of discretion, including the merits*

Under factor 6, we consider "other circumstances that impact the Board's exercise of discretion, including the merits." *Fintiv*, Paper 11 at 6.

Patent Owner argues that the Petition’s merits are “weak” because “Petitioner’s challenge falls well short of the ‘reasonable likelihood’ standard.” Prelim. Resp. 35 n.9.

As discussed in our analysis below, on this record, we determine that Petitioner has met its burden of demonstrating a reasonable likelihood that it would prevail in showing that at least one of the challenged claims of the ’386 patent is unpatentable.

Patent Owner also asserts that the ’386 patent was extensively challenged in the Iowa Litigation. *Id.* at 34 (citing Pet. 98 (identifying the Iowa Litigation)).

However, as Petitioner points out, the Iowa Litigation was terminated without a validity determination. Pet. DD Br. 4; *see also* Paper 4, 2.

Factor 6 does not weigh for or against discretionary denial.

7. Conclusion

Factors 1, 2, 3, and 4 weigh against discretionary denial, and factor 1 weighs strongly against discretionary denial. Factor 5 weighs slightly in favor of discretionary denial. Factor 6 is neutral. Considering the six *Fintiv* factors together and taking “a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review” (*Fintiv*, Paper 11 at 6), we decline to discretionarily deny the Petition under 35 U.S.C. § 314(a).

B. Discretionary Denial under 35 U.S.C. § 325(d)

In its arguments for *Fintiv* factor 6, Patent Owner argues that the ’386 Patent was extensively challenged in previous . . . reexaminations but survived. *See* Petition at 14, 95. As here, the party that requested those reexaminations was an accused infringer attempting to invalidate the ’386 Patent on obviousness

grounds. Vermeer and the Patent Office have already expended significant resources confirming the '386 Patent's validity; therefore, the relatively weak arguments set forth by Petitioner here are insufficient to justify yet another proceeding.

Prelim. Resp. 34 (citing Pet. 14–15 (identifying Reexamination Nos. 90/013,915, 90/014,109, 90/014,124)). We construe this argument as a request for discretionary denial under 35 U.S.C. § 325(d).

In determining whether to deny institution under § 325(d) we use a two-part framework, as follows:

- (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and
- (2) if either condition of [the] first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.

Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential). If part one of *Advanced Bionics* is unsatisfied, discretionary denial is unwarranted, and we need not proceed to part two of *Advanced Bionics*. *Id.*

For part one of the *Advanced Bionics* framework, we evaluate the following factors:

- (a) the similarities and material differences between the asserted art and the prior art involved during examination;
- (b) the cumulative nature of the asserted art and the prior art evaluated during examination; and
- (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art.

Id. at 9.

Petitioner explains that “the *ex parte* reexaminations relied upon different prior art presented in an entirely different invalidity theory” because the *ex parte* reexaminations “relied on an obviousness framework that replaced a radial lift of a compact tools carrier with a vertical lift [from a larger skid-steer equipment having an operator cabin].” Pet. DD Br. 4 (emphasis omitted); *see also* Pet. 14–15 (explaining that the Examiner found it would not have been obvious to modify the smaller compact tool carrier to replace its radial lift loader with a vertical lift loader on a larger skid-steer (Ex. 1030, 16)). Petitioner further explains:

In contrast, challenges here rely upon previously uncited KR996 – a compact tool carrier having a vertical lift – that teaches the vast majority of the claim elements. The obviousness framework here is to minor conventional features such as an engine bracket. That the PTO had not previously been made aware of KR996, which is substantially different than the art that was before [the PTO], led to clear error in confirming and allowing claims in the previous proceedings correctable by these IPRs.

Pet. DD Br. 4.

All of Petitioner’s grounds and arguments rely primarily upon KR996. *See* Pet. 14–15; Pet. DD Br. 4. As Petitioner explains, KR996 was not previously presented to the Office, is not cumulative to the prior art relied upon during the reexaminations, and the obvious analysis based on KR996 is not the same or substantially the same as that made during the reexaminations. *Id.* We, thus, determine that part one of the *Advanced Bionics* framework is not satisfied, and we need not turn to part two.

We decline to discretionarily deny the Petition under 35 U.S.C. § 325(d).

C. Legal Standards

Petitioner bears the burden of persuasion to prove unpatentability of the claims challenged in the Petition, and that burden never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4), if present, any objective evidence of obviousness or non-obviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). There is no objective evidence of obviousness or non-obviousness in the record here.

In analyzing the obviousness of a combination of prior art elements, it can be important to identify a reason that would have prompted one of skill in the art “to combine . . . known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418. A precise teaching directed to the specific subject matter of a challenged claim is not necessary to establish obviousness. *Id.* Rather, “any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.” *Id.* at 420. Accordingly, a party who petitions the Board for a determination of unpatentability based on obviousness must show that “a skilled artisan

would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016) (quoting *Intelligent Bio–Sys., Inc. v. Illumina Cambridge, Ltd.*, 821 F.3d 1359, 1367–68 (Fed. Cir. 2016)).

D. Level of Ordinary Skill in the Art

We review the grounds of unpatentability in view of the understanding of a person of ordinary skill in the art (“POSITA”) at the time of invention. *Graham*, 383 U.S. at 17. Petitioner proposes the following definition for a POSITA:

[A] POSITA in February 2015 (the earliest effective filing date claimed) would have had at least a Bachelor of Science degree in Mechanical or Agricultural Engineering and two years of experience in the design of vehicles, or have had equivalent knowledge and experience. Lack of professional experience can be remedied by additional education, and vice versa.

Pet. 16–17 (citing Ex. 1003 ¶¶ 17–20). Patent Owner does dispute this definition in its Preliminary Response. Prelim. Resp. 21–22.

For purposes of this decision, we adopt Petitioner’s definition of the level of ordinary skill in the art as it is consistent with the ’386 patent and the asserted prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

E. Claim Construction

1. The Applicable Standard

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

2. Procedural History

In its initial filing, Petitioner stated that “no claim term requires express construction” (Pet. 17), but Petitioner noted that the district court in the Iowa Litigation discussed constructions of certain claim terms (*id.* at 18 n.1). In the Preliminary Response, Patent Owner proposed a construction for the claim term “mainframe.” See Prelim. Resp. 23–29.

Following a *sua sponte* request by the Board (Paper 7), Petitioner filed an initial claim construction brief (Pet. Init. CC Br.) and a reply claim construction brief (Pet. Reply CC Br.) addressing the term “mainframe,” and Patent Owner did the same (PO Init. CC Br.; PO Reply CC Br.). Below, we discuss the parties’ proposed constructions.

3. “mainframe”

All challenged independent claims recite a “mainframe.” For example, limitation 50.2a in independent claim 50 and limitation 55.2a in

independent claim 50 recite “a mainframe for supporting the loader” with other limitations (including limitations 50.2b–50.5 and limitations 55.2b–55.5b) referring back to the “mainframe.” *See* Ex. 1001, Reexam. Crt. C1 6:61–7:29 (claim 50), 7:43–8:17 (claim 55).

Petitioner proposes that “mainframe” should be construed “according to its plain and ordinary meaning, and not require a ‘single weldment,’” with Petitioner adding that, “[t]o the extent the PTAB wants a specific construction, a ‘mainframe’ is a supporting structure of a vehicle.” Pet. Init. CC Br. 5. Patent Owner proposes that “mainframe” be “given its plain and ordinary meaning: the body of the compact tool carrier that supports the loader.” PO Init. CC Br. 1; *see also* Prelim. Resp. 29 (same proposed construction). For the reasons below, we preliminarily construe “mainframe” under its plain and ordinary meaning as a primary supporting structure. *See Exxon Chem. Patents, Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1556 (Fed. Cir. 1995) (“[T]he judge’s task is not to decide which of the adversaries[’ constructions] is correct. Instead the judge must independently assess the claims, the specification, . . . and declare the meaning of the claims.”).

We begin the analysis with the language of the claims. *TQ Delta, LLC v. DISH Network LLC*, 929 F.3d 1350, 1357 (Fed. Cir. 2019). After presenting its proposed construction of “mainframe”—“the body of the compact tool carrier that supports the loader”—Patent Owner adds that “this body is the *primary frame* of the machine (*i.e.*, the core structure of the machine that is always present and not selectively removeable) to which the other components attach.” PO Init. CC. Br. 1. The current record supports Patent Owner’s argument for “primary” in that the claim language at issue recites a “*mainframe*” rather than merely a “frame.” *See* Prelim. Resp. 24

(“And the addition of ‘main’ to ‘frame’ simply indicates that this frame is the primary—or most important—frame of the vehicle.” (citing Ex. 2007 at 4 (defining “main” as “chief in size or importance”)); *see also* Ex. 1006 (prior art reference JP705) ¶ 2 (“Conventionally, there have been various structures for *main frames which constitute a main part of a chassis* in various types of work vehicles for construction and civil engineering work, such as bulldozers, hydraulic excavators, and the like.” (emphasis added)), *cited at* PO Init. CC Br. 2.

But Patent Owner has not adequately explained why the “mainframe” must be “always present and not selectively removeable,” as asserted. *See* PO Init. CC. Br. 1. Patent Owner attempts to distinguish structures in KR996 from a “mainframe,” but does not explain the basis for the additional requirement of “always present and not selectively removeable” because Patent Owner did not present that position until *after* its Preliminary Response. *See id.* at 1; Prelim. Resp. 24–25 (“As the *primary* frame of the compact utility loader, the “mainframe” is the core structure of the machine to which the other components attach.”), PO Init. CC. Br. 1 (“As Vermeer explained in its Patent Owner Preliminary Response (‘POPR’), this body is the *primary frame* of the machine (*i.e.*, the core structure of the machine that is always present and not selectively removeable) to which the other components attach.”). Thus, we do not adopt Patent Owner’s proposal that the “mainframe” must be “always present and not selectively removeable.”

We turn now to the three phrases making up Patent Owner’s proposed construction—(1) “the body” (2) “of the compact tool carrier” (3) “that supports the loader.” Because several issues relating to these phrases turn on the claim language itself, we discuss them here. Patent Owner first includes “the body,” allegedly because the Specification uses the terms “mainframe”

and “body” “interchangeably.” Prelim. Resp. 24 (citing Ex. 1001, 3:66–67). We disagree. The relied-upon sentence from the Specification provides: “In other embodiments, rather than being integrated as one unit in the compact tool carrier 5, the control station 36 is separate from the body (e.g., mainframe) of the carrier and is operated remotely.” Ex. 1001, 3:64–67. The term “body” is nowhere else in the Specification. We do not view this sentence as supporting the interchangeability of “body” and “mainframe” for at least two reasons. First, the sentence expressly describes “other embodiments,” which Patent Owner has not shown are claimed. *See* Pet. Reply CC Br. 2 (discussing this issue). Second, the sentence uses “e.g.”—indicating that a mainframe is merely *an example* of a body—rather than “i.e.,” which would potentially *define* body as mainframe. *See Edwards Lifesciences LLC v. Cook Inc.*, 582 F.3d 1322, 1334 (Fed. Cir. 2009) (“[U]se of ‘i.e.’ signals an intent to define the word to which it refers.”); Pet. Reply CC Br. 2 (“And in its use, ‘body’ includes, but does not define, ‘mainframe.’”). Thus, we do not adopt Patent Owner’s proposal to use “body” in the construction of “mainframe.”

In contrast, we view the record at this stage as supporting an understanding of the “frame” in “mainframe” as a supporting structure. Patent Owner provides a dictionary defining “frame” as a “rigid supporting structure” (Prelim. Resp. 24 (citing Ex. 2007 at 3)), and Petitioner proposes “a supporting structure” based on that definition (*see* Pet. Reply CC Br. 3). Further, this dictionary definition does not contradict the “mainframe” described in the Specification or any other intrinsic evidence. *See, e.g.*, Ex. 1001, Fig. 4, 2:32–33 (FIG. 4 is a perspective view of a mainframe of the compact tool carrier.”); *see also Phillips*, 415 F.3d at 1322–23 (stating that judges may “rely on dictionary definitions when construing claim terms, so

long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent documents”).

Turning to the second phrase in Patent Owner’s proposed construction—“of the compact tool carrier”—we do not see its presence as aiding in understanding the scope of the term “mainframe.” That the “mainframe” is a component “of the compact tool carrier” is clear from the preambles to two independent claims (i.e., limitations 50.0 and 55.0). *See* Ex. 1001, Reexam. Crt. C1 6:61–64 (claim 50), 7:43–46 (claim 55).

We turn now to the third phrase in Patent Owner’s proposed construction—“that supports the loader.” As noted above, limitation 50.2a (in claim 50) and limitation 55.2a (in claim 55) both recite “a mainframe for supporting the loader.” Ex. 1001, Reexam. Cert. C1 7:3 (claim 50), 7:49 (claim 55). Because the claim language immediately following “mainframe” in the independent claims would be rendered superfluous by Patent Owner’s third phrase in its proposed construction, we do not adopt it. *See* Pet. Init. CC Br. 5 (citing *Digital-Vending Servs. Int’l, LLC v. Univ. of Phoenix, Inc.*, 672 F.3d 1270, 1275 (Fed. Cir. 2012) (“If ‘registration server’ were construed to inherently contain the ‘free of content managed by the architecture’ characteristic, the additional ‘each registration server being further characterized in that it is free of content managed by the architecture’ language in many of the asserted claims would be superfluous.”)).

Having addressed the claim language at issue, we turn now to the Specification. We first address the sentence highlighted in the Board’s request for additional briefing on claim construction: “As used herein, the term ‘mainframe’ generally refers to a single weldment to which the loader 8 is attached, optionally through one or more pivotal linkages.” Ex. 1001, 4:5–8, *quoted at* Paper 7, 3. In the request, the Board sought briefing on

whether this sentence is (1) a lexicographical definition of “mainframe” or, in the alternative, (2) merely a description of an embodiment. Paper 7, 3. The parties both responded that this sentence is *not* lexicographical, but rather, merely describes an embodiment. *See* PO Init. CC Br. 1–5; Pet. Init. CC Br. 1–4; PO Reply CC Br. 1 (noting agreement); Pet. Reply CC Br. 1 (same). For the reasons below, we agree with the parties.

“To act as a lexicographer, a patentee must ‘clearly set forth a definition of the disputed claim term’ and ‘clearly express an intent to redefine the term.’” *Luminara Worldwide, LLC v. Liown Elecs. Co.*, 814 F.3d 1343, 1353 (Fed. Cir. 2016) (quoting *Thorner v. Sony Comput. Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)). As argued by both parties, the presence of “generally” in the sentence at issue shows a lack of clear intent to redefine “mainframe.” PO Init. CC Br. 3; Pet. Init. CC Br. 2; *cf. ParkerVision, Inc. v. Vidal*, 88 F.4th 969, 976–77 (Fed. Cir. 2023) (finding definitional the sentence “[s]torage modules and storage capacitances, on the other hand, refer to systems that store non-negligible amounts of energy from an input EM signal” (emphasis added)); *Sinorgchem Co., Shandong v. Int’l Trade Comm’n*, 511 F.3d 1132, 1136 (Fed. Cir. 2007) (finding definitional the sentence “[a] ‘controlled amount’ of protic material is an amount up to that which inhibits the reaction of aniline with nitrobenzene, e.g., up to about 4% H₂O based on the volume of the reaction mixture when aniline is utilized as the solvent” (emphasis added)).

Because the sentence at issue is not lexicographical, we also agree with the parties that “mainframe” is not limited to a single weldment. Pet. Init. CC Br. 1; PO Init. CC Br. 1–2. Instead, a single-weldment “mainframe” is merely one disclosed embodiment. *See* Pet. Init. CC Br. 3

(stating that “by including the term ‘generally’ in a statement, the feature (*i.e.*, single weldment) is expressly identified as merely included in some, but not all embodiments”); PO Init. CC Br. 3 (“This language is merely exemplary, using reference numerals to refer to the embodiment’s features and qualifying ‘single weldment’ as referring ‘generally’ to specific embodiments.”). The district court in the Iowa Litigation reached the same conclusion. *See* Ex. 1020 at 4 (holding that “‘mainframe’ will be given its plain and ordinary meaning and *does not require a single weldment*” (emphasis added)), *cited at* Pet. Init. CC Br. 2; *see also* 37 C.F.R. § 42.100(b) (“Any prior claim construction determination concerning a term of the claim in a civil action, or a proceeding before the International Trade Commission, that is timely made of record in the *inter partes* review proceeding will be considered.”).

As asserted by the parties, claim differentiation further supports the determination that “mainframe” is not limited to a single weldment. *See* Pet. Init. CC Br. 3–4; PO Init. CC Br. 4–5. “Claim differentiation . . . is clearly applicable when there is a dispute over whether a limitation found in a dependent claim should be read into an independent claim, and that limitation is the only meaningful difference between the two claims.” *Wenger Mfg., Inc. v. Coating Mach. Sys., Inc.*, 239 F.3d 1225, 1233 (Fed. Cir. 2001); *Phillips*, 415 F.3d at 1315 (“[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.”). Here, for example, independent claims 50 and 55 recite a “mainframe,” and dependent claims 52 and 63—which depend directly from claims 50 and 55, respectively,—recites *only one* additional limitation: “wherein the mainframe incorporates a single weldment.” Ex. 1001, Reexam. Cert. 7:33–

34 (claim 52), 9:4–5 (claim 63). The dependent claims support that “mainframe” in claims 50 and 55 is not limited to a single weldment.

Patent Owner argues that the prosecution history supports its position because Patent Owner’s proposed construction of “mainframe” was allegedly “uniformly applied by the Patent Office when evaluating the patentability of the claims.” Prelim. Resp. 24; *see also id.* at 25–28. We disagree. In its analysis, Patent Owner does not highlight, for example, any specific statements by the applicant or Office as to the scope of the term “mainframe” to show or suggest that Patent Owner’s proposed construction was applied. *See id.* at 25–28; *see also Phillips*, 415 F.3d at 1317 (generally discussing the use of prosecution histories in claim construction). Instead, Patent Owner merely summarizes certain prior art structures identified by the examiner as a “mainframe” during prosecution, implying that those structures fall within the scope of Patent Owner’s proposed construction. *See* Prelim. Resp. 25–28.

For the reasons above and for purposes of this decision only, we preliminarily construe “mainframe” in the independent claims under its plain and ordinary meaning as *a primary supporting structure*.

4. *Remaining Terms*

We do not need to construe any other claim terms explicitly to reach our decision on institution. *See Realtime Data LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

F. Ground 1

Petitioner contends that claims 50–54 are unpatentable over KR996 and JP705. Pet. 20–50.

1. Summary of KR996

KR996 is a Korean patent published on June 16, 2011 and titled “Environmentally Friendly Construction Equipment for Building Deconstruction Work.” Ex. 1005, code (45), (54). KR996 “relates to construction equipment for green building deconstruction work,” and, more particularly, to equipment “that can enter narrow buildings and carry out dismantling work inside the building, and can easily attach and detach various dismantling equipment to the vehicle according to the form of the deconstruction work.” *Id.* ¶ 1.

KR996's Figure 1 is reproduced below:

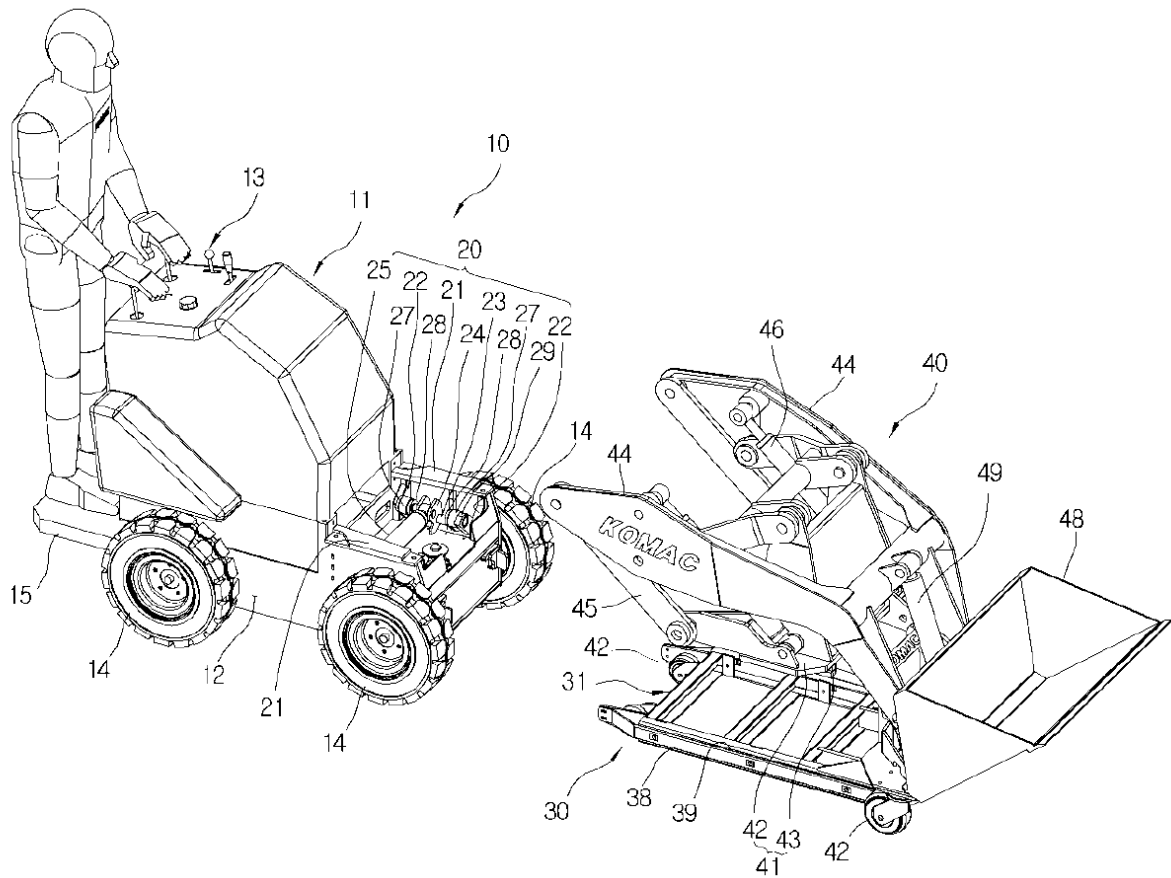


Figure 1 is a perspective view showing before loader unit 40 and bogie 30 are attached to vehicle 10. Ex. 1005 ¶¶ 40, 93. To attach bogie 30/loader unit 40 to vehicle 10, the operator shown on board at the rear uses control unit 13 to move vehicle 10 forward to engage detachable part 20 with fixture 41. *Id.* ¶¶ 42, 43, 54.

KR996's Figure 7 is reproduced below:

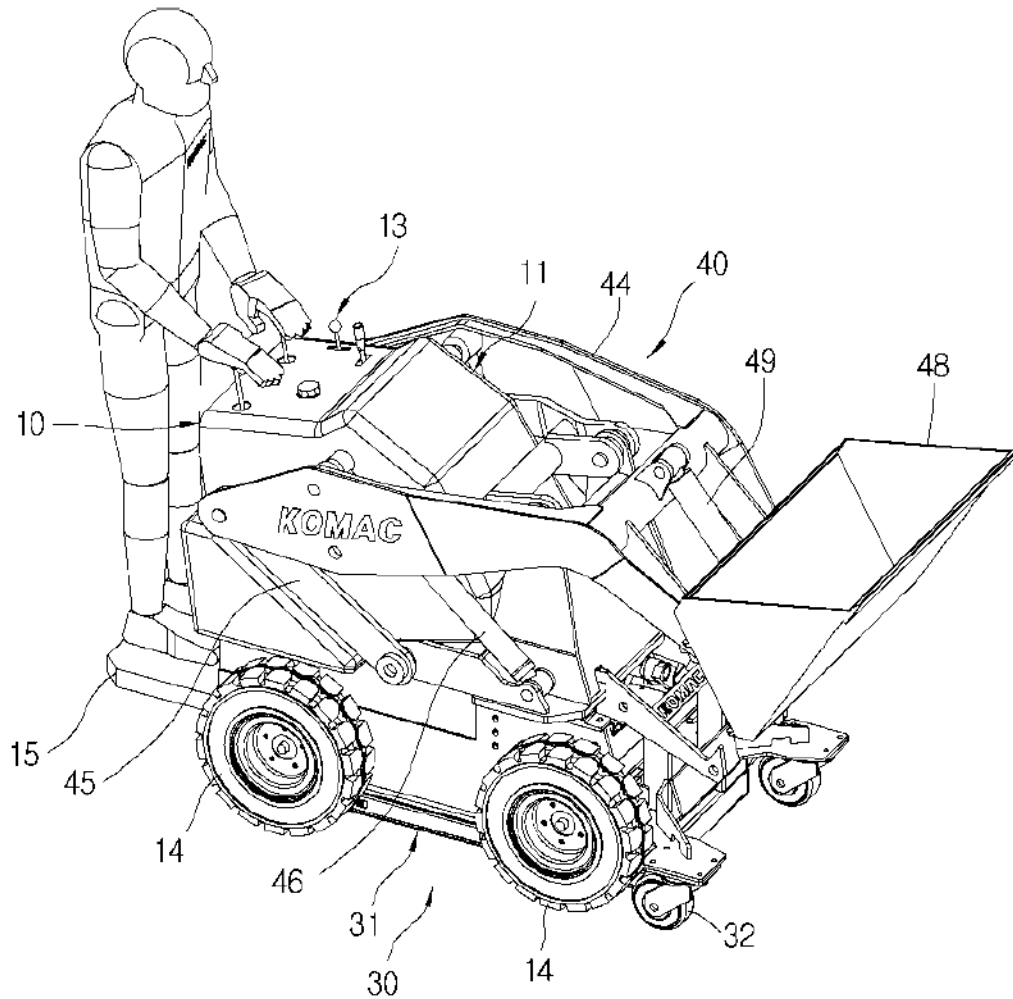
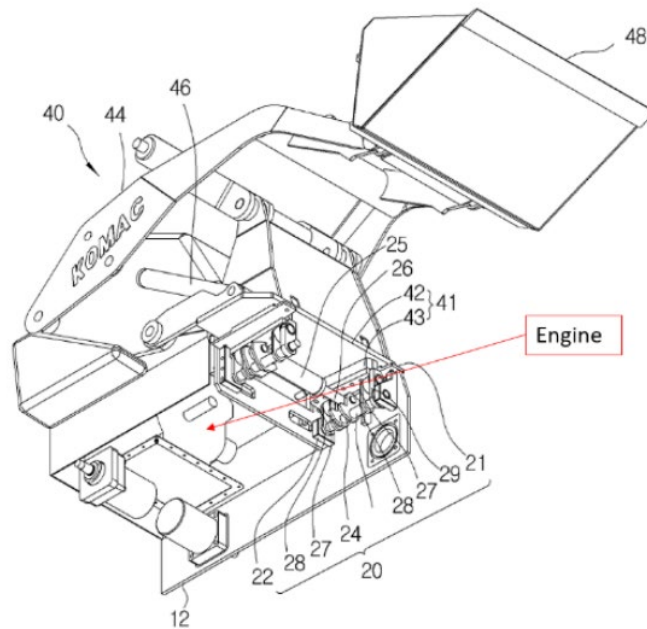


Figure 7 is a perspective view showing bogie 30 and loader unit 40 coupled to the detachable part of the vehicle. Ex. 1005 ¶¶ 40, 99. Vehicle 10 also includes (1) wheels 14 for moving vehicle 10, (2) linkage 45 to support boom 44, (3) actuator 46 to drive boom 44 upwards and downwards, and (4) bucket 48 to carry material. *Id.* ¶¶ 52, 54, 74.

KR996's Figure 12, as annotated by Patent Owner, is reproduced below. Prelim. Resp. 35.



Annotated Figure 12 depicts “a schematic bottom perspective view of the loader unit's fixture coupled to the vehicle's detachable part as the detachable part is operated.” *Id.* ¶ 104. Patent Owner annotated Figure 12 to highlight the engine. *See* Pet. 33 (annotating KR996's Figure 10 to highlight the engine).

2. Summary of JP705

JP705 is a Japanese patent published on January 22, 2004 and titled “Main frame for work vehicle.” Ex. 1006, codes (43), (54). JP705 relates to a mainframe for a construction vehicle, such as a bulldozer, excavator, or the like” and discloses a mainframe “that enables easy and reliable installation of various onboard devices, such as an engine.” *Id.* ¶ 1.

JP705's Figure 1 is reproduced below.

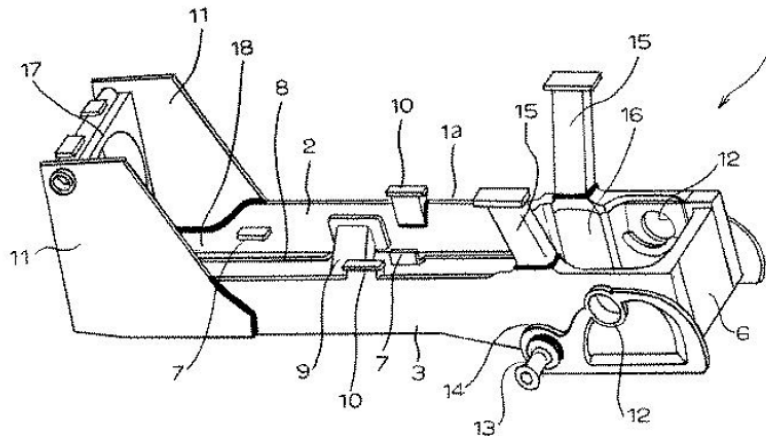


Figure 1 is “a perspective view schematically depicting an example of a main frame of a work vehicle according to a typical embodiment.” *Id.*

¶ 38. Mainframe 1 has left side plate 2 and right side plate 3. *Id.* ¶ 19. “A pair of left and right mounting parts 7 and 7 for mounting an engine, a steering device, and the like (not depicted) are provided near the upper surfaces of the side plates 2 and 3 and protrude from the inner side surfaces in the width direction of the frame.” *Id.* “A pair of similar left and right mounting parts 8 and 8 of various types are provided on the lower surfaces of the side plates 2 and 3.” *Id.*

3. Analysis of Claim 50

Petitioner challenges claim 50 as unpatentable over a proposed combination of KR996 and JP705. Pet. 23–44. Petitioner maps each of claim 50's limitation to the prior art and articulates a rationale to combine KR996 and JP705. *Id.* Except for the limitations discussed below, at this stage of the proceeding, Patent Owner does not dispute that Petitioner's proposed combination of KR996 and JP705 teaches claim 50.

a) Limitation 50.2b

Limitation 50.2b recites “the mainframe comprising an engine bracket that extends from the first side toward the second side for mounting an engine to the mainframe, the engine bracket being spaced from the rear end of the mainframe.”

Petitioner combines KR996 and JP705 to teach this limitation. Pet. 23–26, 32–35. Petitioner contends that KR996 discloses a mainframe and an engine mounted within and spaced from the rear end of the mainframe. *Id.* at 24 (citing Ex. 1003 ¶ 56), 32 (citing Ex. 1003 ¶¶ 79–80, 77; Ex. 1005 ¶¶ 2–5, claims 1–2, Fig. 10, Fig. 12), 35 (citing Ex. 1003 ¶¶ 81–84). Petitioner asserts that “[i]t was well-known in the art that a compact tool carrier such as KR996 typically uses an engine bracket to support and secure the engine in place.” Pet. 33 (citing Ex. 1003 ¶ 81).

Petitioner acknowledges that “KR996 does not detail how its engine is secured to its mainframe.” Pet. 24. Petitioner asserts that JP705 discloses mounting parts 7 used to mount an engine. *Id.* at 25 (citing Ex. 1003 ¶ 58), 33 (citing Ex. 1006 ¶¶ 1, 19, Fig. 1, Fig. 3).

Petitioner reasons that it would have been obvious to a POSITA, in view of the teachings of JP705, to provide a surface for mounting KR996’s engine to the vehicle (Pet. 24 (citing Ex. 1003 ¶¶ 58–60)) because

[u]sing JP705’s mounting parts 7 (*engine bracket*) extending from a frame provides a benefit of avoiding use of additional parts to secure the engine in the vehicle. EX1003, ¶60. JP705 suggests providing mounting parts extending from a frame reduces the number of fastening parts (such as a bolt, nut, collar, or the like) required and this reduction of parts allows for a reduction in component costs and weight. EX1006, [0008], [0016]. Forming JP705’s mounting parts 7 integrally with the mainframe through conventional welding processes also prepares the receiving surface, advantageously a “smooth,

continuous surface,” in the manufacturing process. *See* EX1003, ¶¶60 citing EX1006, [0016], [0031]. Further, integrating the mounting parts and a frame allows for efficient loading of an engine onto the available, previously prepared, designated mounting surface it provides. EX1006, [0013], [0018], [0022]. POSITA would recognize these same benefits would be gained by implementing JP705’s mounting parts in KR996’s compact vehicle. EX1003, ¶¶60-61.

Pet. 24–25.

On this record, we are persuaded by Petitioner that it would have been obvious to a POSITA to mount KR996’s engine to its mainframe, using engine brackets as taught by JP705.

Patent Owner argues that Petitioner’s articulated rationale for combining KR996 and JP750 is insufficient for two reasons. Prelim. Resp. 36–38. First, Patent Owner argues that “KR996 discloses an engine and, necessarily, a mechanism for securing the engine” and, thus, “Petitioner’s rationale for modifying KR996 to include the engine bracket in JPR705 fails.” *Id.* at 36–37. Second, Patent Owner argues that “Petitioner has failed to substantiate its assertion that KR996 and JP705 disclose ‘substantially similar’ vehicles” and argues that KR996 and JP705 relate to two different types of vehicles – small machines and large work vehicles. *Id.* at 37. Given this difference, Patent Owner argues that “JP705 would provide a POSITA with no guidance regarding the mounting mechanism or location of the engine of KR996 which is significantly smaller and has a different function and arrangement of components.” *Id.*

Patent Owner’s assertions as to what a POSITA would know from JP705 is mere attorney argument and unsupported by evidence. Mere attorney arguments and conclusory statements that are unsupported by factual evidence are entitled to little probative value. *In re Geisler*, 116 F.3d

1465, 1470 (Fed. Cir. 1997); *Elbit Sys. of Am., LLC v. Thales Visionix, Inc.*, 881 F.3d 1354, 1359 (Fed. Cir. 2018) (“‘[A]ttorney argument is not evidence’ and cannot rebut other admitted evidence.” (quoting *Icon Health & Fitness, Inc. v. Strava, Inc.*, 849 F.3d 1034, 1043 (Fed. Cir. 2017))).

On this record, we are not persuaded by Patent Owner’s unsupported assertion that differences in the size or type of vehicles discloses in KR996 and JP750 would discourage a POSITA from using engine brackets as a mechanism for mounting KR996’s engine to its mainframe. The evidence of record at this stage of the proceeding is to the contrary. As Patent Owner acknowledges (Prelim. Resp. 36), a mechanism is necessary for securing KR996’s engine to its mainframe. Dr. Velinsky testifies “[i]t is common practice to use a bracket to secure the engine to the mainframe of such a vehicle.” Ex. 1003 ¶ 57; *see also id.* ¶ 58 (“[I]n my experience, mounting an engine, such as in a compact utility loader, is typically done using an engine bracket.”). Dr. Velinsky’s testimony is consistent with JP750, which teaches providing an engine mounting surface extending from a frame to mount an engine. Ex. 1006 ¶ 19. “The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR*, 550 U.S. at 416. Nothing in the record suggests that Petitioner’s proposed combination of known prior art elements according to their known functions would involve more than routine engineering efforts.

On this record, we determine that Petitioner’s evidence and analysis sufficiently shows that the combination of KR996 and JP750 discloses limitation 50.2b.

b) Limitations 50.3, 50.4(a), and 50.5

Limitation 50.3 recites “a linkage pivotally attached to the first side of the mainframe”; limitation 50.4(a) recites “a second linkage pivotally attached to the first side of the mainframe”; and limitation 50.5 recites “an actuator pivotally attached to the first side of the mainframe.”

Petitioner relies upon KR996’s links 45 and boom cylinder 46 to teach the claimed linkages and actuator, respectively, and points to KR996’s fixture 41 as part of a mainframe. Pet. 38–41 (*see* annotated Figs. 9 and 10).

Patent Owner disputes that KR996 discloses these limitations. Prelim. Resp. 39–45. According to Patent Owner, KR996 teaches “that the linkages and actuators of that machines are pivotally attached to a ‘fixture’ that is part of a removable loader attachment—not to the mainframe of the machine.” *Id.* at 38–39. Patent Owner argues that fixture 41 cannot be considered a part of KR996’s mainframe, because, under Patent Owner’s proposed construction, “mainframe” means “the body of the compact tool carrier that supports the loader” and “is properly understood to be an inherent part of the core machine’s structure.” *Id.*

Patent Owner’s argument is based upon Patent Owner’s unadopted proposed construction of the term “mainframe,” and thus is unpersuasive.

We construe “mainframe” to mean a primary supporting structure. Both Patent Owner and Petitioner agree that the mainframe need not have a unitary construction or lack of separability. *See, e.g.,* Pet. Init. CC Br. 5, PO Reply CC Br. 3.

At this stage of the proceeding, Petitioner persuades us that when KR996’s loader is attached to the compact tool carrier, fixture 41 is part of the main frame or primary supporting structure of the compact tool carrier. *See* Pet. 38–41; Pet. Init. CC. Br. 5 n.6. Fixture 41 has a lower plate 42 and

left and right support blocks 43. Ex. 1005 ¶ 54. When attached to the vehicle, lower plate 42 is attached to the upper part of the combination plate 21 on both sides of the vehicle 10 and left and right support blocks 43 are supported on the inner corresponding edge of combination plate 21. *Id.* KR996's linkage 45 and boom cylinder 46 are attached to fixture 41 and, thus, attached to a mainframe. *Id.*

On this record, we determine that Petitioner's evidence and analysis sufficiently shows that KR996 discloses limitations 50.3, 50.4(a), and 50.5.

c) Conclusion as to Claim 50, Ground 1

After considering Petitioner's evidence and argument, and taking into account Patent Owner's arguments, we determine the information presented shows a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of claim 50 based on the combination of KR996 and JP750.

4. Remaining Claims of Ground 1

Patent Owner at this stage does not raise any arguments specifically directed to the remaining claims of Ground 1.

Because we have decided to grant institution on claim 50 under Ground 1, we must do the same for the remaining claims of Ground 1. "When instituting inter partes review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim." 37 C.F.R. § 42.108(a). We must "either (1) institute as to all claims challenged in the petition and on all grounds in the petition, or (2) institute on no claims and deny institution." Patent Trial and

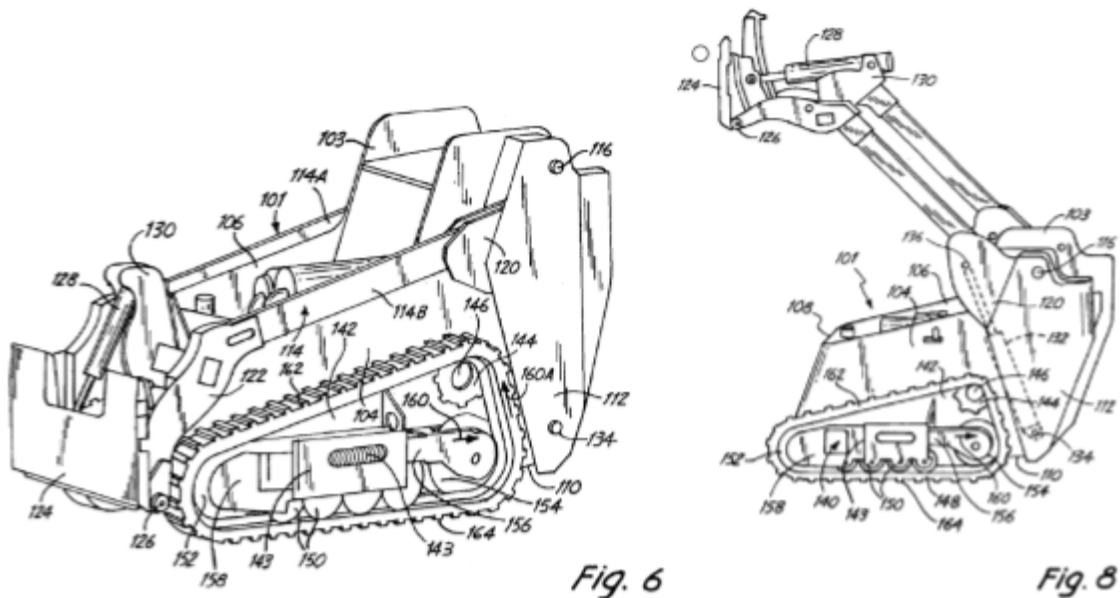
Appeal Board Consolidated Trial Practice Guide (Nov. 2019),⁷ 5–6, 64; *see also* 37 C.F.R. § 42.108(a), *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1359–60 (Fed. Cir. 2018) (stating a decision to institute is “a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition”).

G. Ground 2

Petitioner contends claims 55–63, 68, 69, and 80–85 are unpatentable over KR996, JP705, Bares, and Beltrami. Pet. 64–91.

1. Overview of Bares

Bares is a U.S. patent issued on December 21, 2004 and titled “Loader Frame and Bolt-OnTrack.: Ex. 1010, codes (45), (54). Bares discloses a small loader. *Id.* at 1:9–11. Figures 6 and 8 Bares are reproduced below:



⁷ Available at <https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf?MURL=TrialPracticeGuideConsolidated>

Figure 6 is a side perspective view of “a modified form of the invention schematically showing an alternate form of track drive and modified loader arms,” and Figure 8 is a perspective view showing the lift arms of the Figure 6 embodiment in a raised position. *See* Ex. 1010, 2:24–27, 2:30–31. In the depicted embodiment, track 148 can be placed over drive sprocket 144, and wheels 150/152/154 “so there is a full drive assembly made apart from the loader body.” *Id.* at 6:12–17.

2. Overview of Beltrami

Beltrami is a U.S. patent Beltrami issued on June 22, 1971 and titled “Digging and Lifting Device. Ex. 1008, codes [45], [54]. Beltrami discloses “a digging and lifting device of the type comprising a grabbing and excavating bucket.” *Id.* at 1:6–8.

Figure 3 of Beltrami is reproduced below:

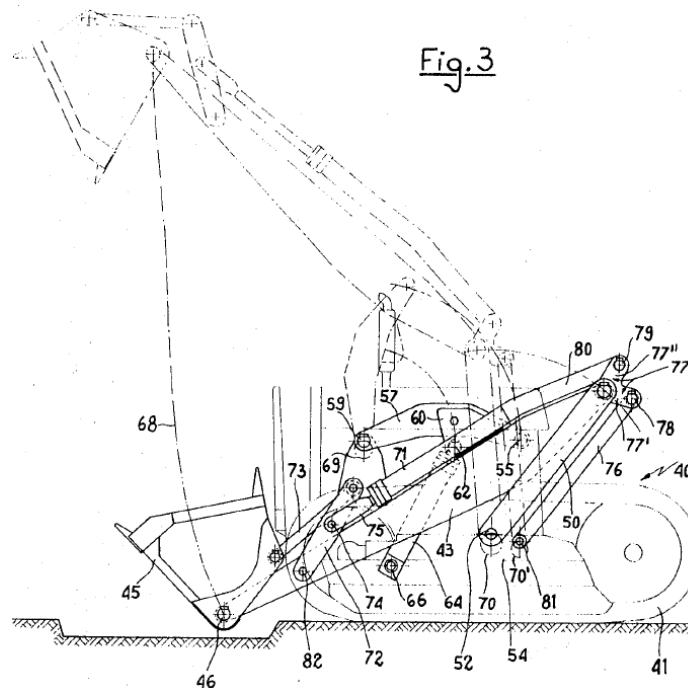


Figure 3 is a side view of a tracked power shovel fitted with a standard bucket. Ex. 1008, 2:28–30. Depicted tractor 40 includes movable

tracks 41/42, as well as arms 43/44, which perform digging and lifting motions and are connected to bucket 45 at pivot points 46/47. *Id.* at 4:8–11. Beltrami discloses that the pivot point configuration shown allows the bucket to travel in a substantially vertical path (reference number 68) from the starting position (shown in dark lines) to the final position (shown in dashed-dotted lines). *Id.* at 4:25–34. Bucket 45 can be tilted through operation of hydraulic jack 71. *See id.* at 4:59–63. According to Beltrami, the invention benefits from the pivot points being “kept in such a low position on the vehicle that no supporting frame is needed . . . and finally a lifting can be performed without having the equipment gravity center to undergo an unnecessarily large shifting.” *Id.* at 3:35–41.

3. *Analysis of Claim 55*

Petitioner challenges claim 55 as unpatentable over a proposed combination of KR996, JP705, Bares, and Beltrami. Pet. 50–73.

For limitations 55.0–55.4 and 55.6, Petitioner refers to its proposed combination of KR996 and JP705 and analysis made with respect to claim 50’s similar limitations under Ground 1. *See* Pet. 59–61. Patent Owner asserts that its arguments for Ground 1 also apply to Ground 2. Prelim. Resp. 49–50. We found those arguments unpersuasive as to Ground 1 and find them equally unpersuasive as to Ground 2 for the same reasons.

Claim 55 additionally recites limitations 55.5a and 55.5b, as follows:

[55.5a] a drive mechanism comprising tracks for propelling the compact tool carrier over a supporting surface, the drive mechanism having a rotational axis, the compact tool carrier having a bottom at which the drive mechanism contacts the supporting surface, the rotational axis and bottom of the compact tool carrier being separated by a vertical distance D1, the rotational axis and the bottom of the first side of the mainframe being separated by a vertical distance D5, [55.5b] the rotational

axis and the pivot point at which the linkage is attached to the mainframe being separated by a vertical distance D2, the rotational axis and the pivot point at which the actuator is attached to the mainframe being separated by a vertical distance D4, both D2 and D4 being less than D1 and being less than 1.5 D5.

Ex. 1001, Reexam. Cert. C2 7:49–59.

Petitioner combines KR996, Bares, and Beltrami to teach limitations 55.5a and 55.b. Pet. 53–59, 62–63. Petitioner first proposes to simply substitute KR996’s wheels with Bares’ known alternative drive mechanism, which comprises a track. *See* Pet. 53–56 (citing Ex. 1003 ¶¶ 143–146), 62–64 (citing Ex. 1003 ¶¶ 156–164; Ex. 1010, 2:36–37, 3:24–32, 5:18–43, Fig. 1, Fig. 8).

At this stage of the proceeding, Patent Owner does not dispute that it would have been obvious to a POSITA to combine KR996 and Bares as proposed by Petitioner. *See* Prelim. Resp. 45–50. Instead, Patent Owner disputes that it would have been obvious to a POSITA to further combine KR996 and Bares with Beltrami. *See id.*

To meet limitation 55.5b, Petitioner further proposes to combine KR996 and Bares with Beltrami’s teaching that low pivot point locations provide a lower center of gravity and a reduction in frame. Pet. 69–73 (citing Ex. 1008, 3:35–41 (“[T]he pivot points 24, 26 and 30 can be kept in such a low position on the vehicle that no supporting frame is needed . . . and finally a lifting can be performed without having the equipment gravity center to undergo an unnecessarily large shifting.”), 2:69–75).

Petitioner illustrates its proposed combination of KR996, Bares, and Beltrami by providing the figure reproduced below.

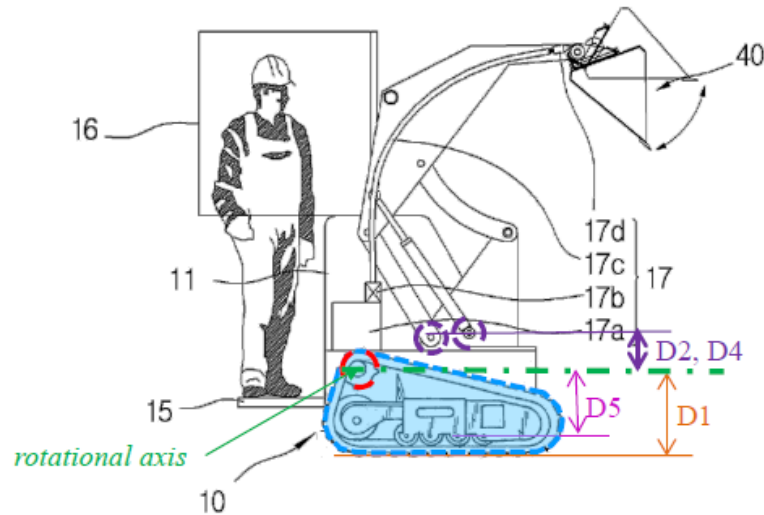


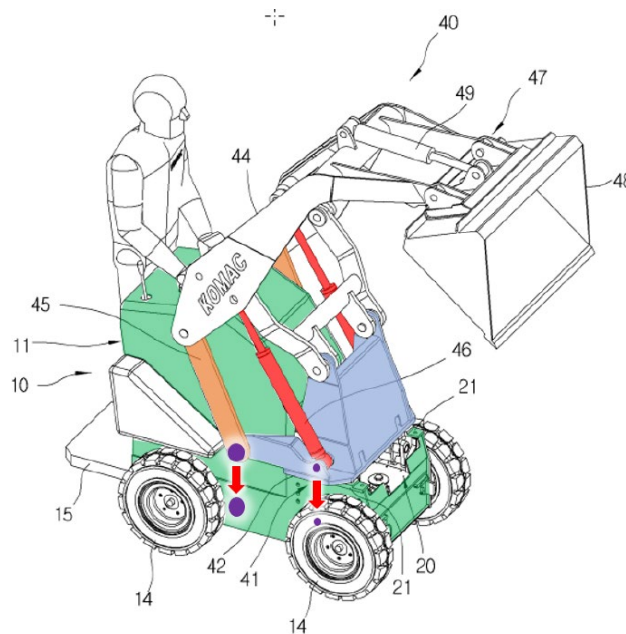
FIGURE A
KR996's Fig. 21 (annotated)
and modified with Bares' FIG. 8 track assembly

Petitioner's figure depicts KR996's Figure 21 modified to include Bares' track assembly from Bares' Figure 8 and includes annotations on the figure to show D1 (the vertical distance between the rotational axis and bottom of the compact tool carrier), D2 (the vertical distance between the rotational axis and the pivot point at which the linkage is attached to the), D4 (the vertical distance the rotational axis and the pivot point at which the actuator is attached to the mainframe), and D5 (the vertical distance between the rotational axis and the bottom of the first side of the mainframe).
Pet. 67–68.

Petitioner argues that it would have been obvious to a POSITA to make the pivot points be relatively low, with *both D2 and D4 each being less than D1 and being less than 1.5 D5* in KR996's modified tracked vehicle. *Id.* at 68–73. According to Petitioner, (1) this modification has the

following advantages: “decreasing the frame requirements and lowering gravity center” and (2) a POSITA “would recognize that these benefits stem from basic engineering principles.” *Id.* at 58 (citing Ex. 1008, 3:35–41; Ex. 1003 ¶¶ 149–150, 176–178).

Patent Owner disputes that it would have been obvious to a POSITA to further combine KR996 and Bares with Beltrami. Prelim. Resp. 45–50. Patent Owner argues that modifying KR996 to lower the pivot points would move the pivot points off fixture 41 and onto the main body of the frame and interference with detachable part 20 and the front wheels. *Id.* In support, Patent Owner provides the following annotated version of Figure 9 of KR996 (*id.* at 47):



Annotated Figure 9 of KR996 depicts two pairs of two dots and red arrows showing the purported relocated pivot points of the modified device. *Id.* According to Patent Owner, Petitioner’s proposed modification “would preclude the loader unit (40) from being detachable from the main body of the machine, which is the entire point of the design disclosed in KR996,” and thus, the “proposed modification would render the vehicle unsatisfactory

for its intended purpose by destroying the detachability feature that lies at the heart of KR996's disclosure.” *Id.* at 47–48. Patent Owner also argues that KR996's actuator pivot cannot be lowered because it would interfere with detachable part 20 and with the front wheel. *Id.* at 48–50.

Patent Owner's arguments are misplaced because they focus on KR996 alone and not on Petitioner's proposed combination of KR996 and Bares. When combined KR996 and Bares, a track drive mechanism replaces KR996's wheels and, thus, the location of the drive mechanism with respect to KR996's body change. *See* Pet. 67–68 (explaining how KR996's vehicle is modified to include Bares' track).

Patent Owner's arguments are further unpersuasive because, at this stage of the proceeding, they are mere attorney argument, unsupported by sufficient evidence. On this record, Patent Owner provides no sufficient evidence to show that, in making the proposed combination, a POSITA would have lowered the pivot points in such a way as to destroy KR996's ability to detach the loader or to cause interference with the track or detachable part 20.

In contrast, Petitioner's proposed combination is supported by the testimony of Dr. Velinsky. Dr. Velinsky's testimony persuaded us that, in lowering the pivot points, a POSITA would arrange the components, such as the linkages and actuators, to accommodate other features of the equipment, such as a drive mechanism. Ex. 1003 ¶ 191; *see also id.* ¶¶ 181–199 (discussing a simulation of the workings of a modified KR996).

Patent Owner additionally argues that a POSITA would not have been motivated to combine Beltrami and KR996 because they “teach significantly different load-arm configurations” — KR996 connects the actuation to the

loader arm and Beltrami connects the actuator to the linkage. Prelim. Resp. 49–50.

On the current record, Patent Owner’s argument does not persuade us that a POSITA would not be capable of modifying KR996 and Bares with Beltrami. Petitioner does not rely on Beltrami for its loader-arm configuration, but rather, for example, for its description of “the benefits of positioning the location of these pivot points low on the equipment[,] includ[ing] decreasing the frame requirements and lowering gravity center.” Pet. 58 (citing Ex. 1008, 3:35–41). At this stage of the proceeding, and without supporting declaration testimony, Patent Owner’s argument as to what a POSITA would have been motivated to do is mere attorney argument. Mere attorney arguments and conclusory statements that are unsupported by factual evidence are entitled to little probative value.

On this record, Dr. Velinsky’s testimony persuades us that a POSITA would have had reason and found it beneficial to provide low pivot points, such that *both D2 and D4 are each less than D1 and less than 1.5 D5* in KR996’s modified track vehicle, given Beltrami’s teaching of the benefits of low pivot points. Ex. 1003 ¶¶ 149–150, 176–178.

At this stage of the proceeding, we determine that Petitioner’s evidence and analysis sufficiently shows that the combination of KR996, Bares, and Beltrami teaches limitations 55.5a and 55.5b.

4. Conclusion as to Claim 55, Ground 2

Because we have decided to grant institution on claim 50 under Ground 1, we must do the same for claim 55 on Ground 2.

5. Remaining Claims

Patent Owner at this stage does not raise any additional arguments specifically directed to the remaining claims of Ground 2.

Because we have decided to grant institution on Ground 1 with respect to claim 50, we must do the same for the remaining claims of Ground 2.

III. CONCLUSION

After considering the evidence and arguments presented in the Petition, Preliminary Response, and additional briefing, we determine that the information presented shows a reasonable likelihood that Petitioner would prevail in establishing that at least one claim of the '386 patent is unpatentable.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted for claims 50–63, 68, 69, and 80–85 of the '386 patent on the unpatentability grounds asserted in the Petition; and

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

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FOR PETITIONER:

David O'Dell
Kelly Lyle
Hong Shi
Greg Michelson
John Emerson
David.odell.ipr@haynesboone.com
Kelly.lyle.ipr@haynesboone.com
Hong.shi.ipr@haynesboone.com
Greg.michelson.ipr@haynesboone.com
Russ.emerson.ipr@haynesboone.com

FOR PATENT OWNER:

Richard Brophy
Marc Vander Tuig
Michael Vander Molen
rbrophy@armstrongteasdale.com
mvandertuig@armstrongteasdale.com
mvandermolen@armstrongteasdale.com