

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Kubota North America Corporation,
Petitioner

PGR2025-00016
U.S. Patent No. 12,098,063

PETITION FOR POST-GRANT REVIEW

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PETITIONER’S EXHIBIT LIST

EX1001	U.S. Patent No. 12,098,063 (the “’063 patent”)
EX1002	Prosecution History of U.S. Patent No. 12,098,063
EX1003	Declaration of Steven Velinsky under 37 C.F.R. § 1.68
EX1004	<i>Reserved</i>
EX1005	Korean Patent No. 10-1041996 including original Korean language document, certified English translation, and certification of translation (“KR996”)
EX1006	JP2004017705A including original Japanese language document, certified English translation, and certification of translation (“JP705”)
EX1007	U.S. Patent No. 6,397,967 (“McIlwraith”)
EX1008	U.S. Patent No. 3,586,195 (“Beltrami”)
EX1009	U.S. Patent No. 6,695,568 (“Bares ’568”)
EX1010	U.S. Patent No. 6,832,659 (“Bares”)
EX1011	<i>Reserved</i>
EX1012	<i>Reserved</i>
EX1013	U.S. Patent Application No. 2008/0197588 to Azure (“Azure”)
EX1014	Korean Patent No. 10-1023528 including original Korean language document, certified translation, and certification (“KR528”)
EX1015	SAE International J2752 JUN2010 (“SAE J2752”), Surface Vehicle Recommended Practice, Personal Protection – Compact Tool Carriers
EX1016	International Organization for Standardization (ISO) 6165 (2012)
EX1017	International Organization for Standardization (ISO) 3457 (2003)

EX1018	<i>Reserved</i>
EX1019	First Amended Complaint, 4:24-cv-00799-P
EX1020	Claim Construction in Case No: 4-17-CV-76-CRW-HCA (Vermeer Corporation v. The Toro Company) (terminated)
EX1021	<i>Reserved</i>
EX1022	U.S. Patent No. 8,545,163 (“Yasuda”)
EX1023	N. Sclater, et al., Mechanisms and Mechanical Devices Sourcebook, Fourth Edition, Table of Contents, Chapter 1, Chapter 5
EX1024	N. Nariman-Zadeh, et al., “Pareto optimal synthesis of four-bar mechanisms for path generation,” 26 March 2008
EX1025	Four-Bar Coupler-Point Curves, Chapter 6
EX1026	H Nolle, Linkage Coupler Curve Synthesis: A Historical Review – II. Developments after 1875*, 7 July 1973
EX1027	Wen-Tzong Lee, et al., “Developments in quantitative dimensional synthesis (1970-present): four-bar path and function generation” 2017
EX1028	Theory of Machines and Mechanisms, Shigley, J.E. and Uicker, J.J. Jr., McGraw Hill, 1980, Table of Contents, Chapter 1, Chapter 2
EX1029	<i>Reserved</i>
EX1030	<i>Reserved</i>
EX1031	<i>Reserved</i>
EX1032	<i>Reserved</i>
EX1033	<i>Reserved</i>
EX1034	United States District Court – National Judicial Caseload Profile
EX1035	<i>Reserved</i>
EX1036	<i>Curriculum Vitae</i> of Steven Velinsky
EX1037	Scheduling order 4:24-cv-00799-P

I. INTRODUCTION

Kubota North America Corporation (“Petitioner”) respectfully requests the Board institute review and find unpatentable claims 4-14 (hereinafter, “Challenged Claims”) of U.S. Patent No. 12,098,063 (“the ’063 patent,” EX1001).

The ’063 patent describes a compact tool carrier for standing or walk-behind operation having a loader mounted to a mainframe using linkages and an actuator. As shown below and confirmed in the Declaration of Dr. Velinsky (EX1003), this configuration of a compact tool carrier or loader apparatus was already known. The references presented in this Petition render obvious the Challenged Claims.

II. GROUNDS FOR STANDING

Petitioner certifies that the ’063 patent is eligible for post-grant review (PGR) and that Petitioner is not barred or estopped from requesting PGR challenging the patent claims. 37 C.F.R. §42.204(a).

The ’063 patent was filed on October 7, 2022, and issued on September 24, 2024. EX1001, (22), (45). This Petition is being filed within 9 months of issuance of the ’063 patent (see 35 U.S.C. §321(c), 37 CFR §42.202). The AIA statutory framework applies to the ’063 patent, because at least one claim of the ’063 patent has an effective filing date on or after March 16, 2013. This is at least because the earliest alleged priority date for the ’063 patent is February 20, 2015. EX1001, (60).

III. NOTE

Petitioner cites to exhibits' original page numbers except for non-English documents for which the certified translation is cited. **Emphasis** in quoted material has been added. Claim terms are generally presented in *italics*.

IV. BACKGROUND

The '063 patent relates to earth-moving machinery and particularly to an equipment type—a compact tool carrier—well-known as of the earliest claimed priority date. This section describes background technology related to the claimed subject matter. Dr. Velinsky also describes relevant background technology predating the '063 patent, which is cited as appropriate below. *See* EX1003, ¶¶7-16, 28-39.

A. Compact Tool Carrier

The '063 patent is titled “Compact Tool Carrier and Mainframes for a Self-Propelled Machine.” EX1001, (54). The '063 patent describes its “compact tool carrier,” as being in line with industry standards' description of “self-propelled crawler or wheeled machine having an operating mass of less than 1500 kg with a rigid frame, having either a pedestrian operating position or standing operator platform at the rear of the machine and either front-mounted interchangeable equipment or lift arms with an attachment bracket capable of coupling to interchangeable, front-mounted attachments.” EX1001, 1:30-44 (citing ISO

Standard [EX1016] and SAE Standard [EX1015]). This type of equipment (compact tool carrier) may also be referred to as a compact utility loader (CUL) or a mini-skid steer. EX1003, ¶¶28-30 citing EX1005, EX1007, EX1009, EX1010, EX1013, EX1014 illustrating compact tool carriers.

B. Radial-Lift and Vertical-Lift Loaders

There are generally two conventional configurations of loaders that have been discussed during the prosecution of the family of patents that includes the '063 patent: a radial-lift loader and a vertical-lift loader, each well-before the '063 patent and based on basic engineering mechanisms. EX1003, ¶¶31-39. Radial-lift loaders implement a two-bar mechanism where the loader arm is attached to a frame by a direct pivot connection. EX1003, ¶¶31-32 citing EX1008, FIG. 1, EX1009. The vertical-lift loader attaches the loader arm to a frame indirectly through intermediary parts (linkages and an actuator) configured in a four-bar mechanism. EX1003, ¶¶33-39 citing EX1001, EX1005, EX1023, EX1024, EX1025, EX1026, EX1028. The '063 patent and KR996, the primary reference discussed below, implement vertical-lift loaders. EX1003, ¶¶37-38.

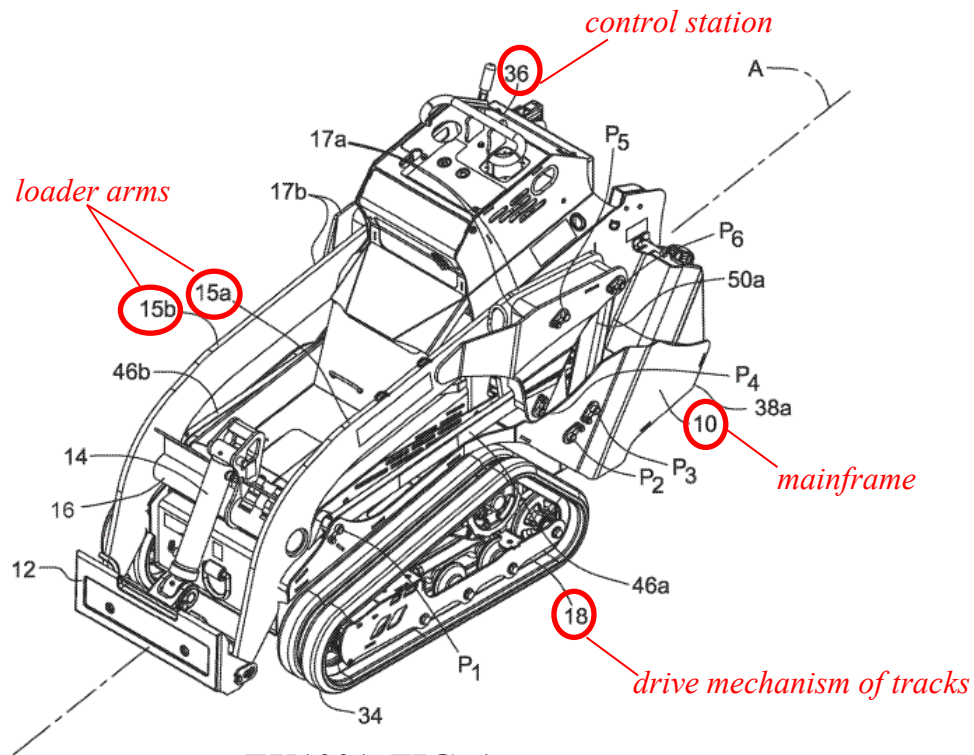
V. SUMMARY OF THE '063 PATENT

The '063 patent issued September 24, 2024, with claims 1-14.¹ The '063 patent claims priority through a plurality of continuation applications to an earliest date of February 20, 2015. EX1001, (60). The appropriateness of this priority claim is also not a subject of this Petition as all prior art predates February 2015.

The '063 patent relates to a compact tool carrier designed for standing operation and having a loader (with two arms). EX1001, Abstract, 1:30-49. In its background, the '063 patent asserts compact tool carriers “may be distinguished from much larger conventional skid steers in which an operator is seated in the operating position.” EX1001, 1:45-49. Tools such as buckets, augers, and the like may be provided as front-mounted attachments. EX1001, 1:42-44.

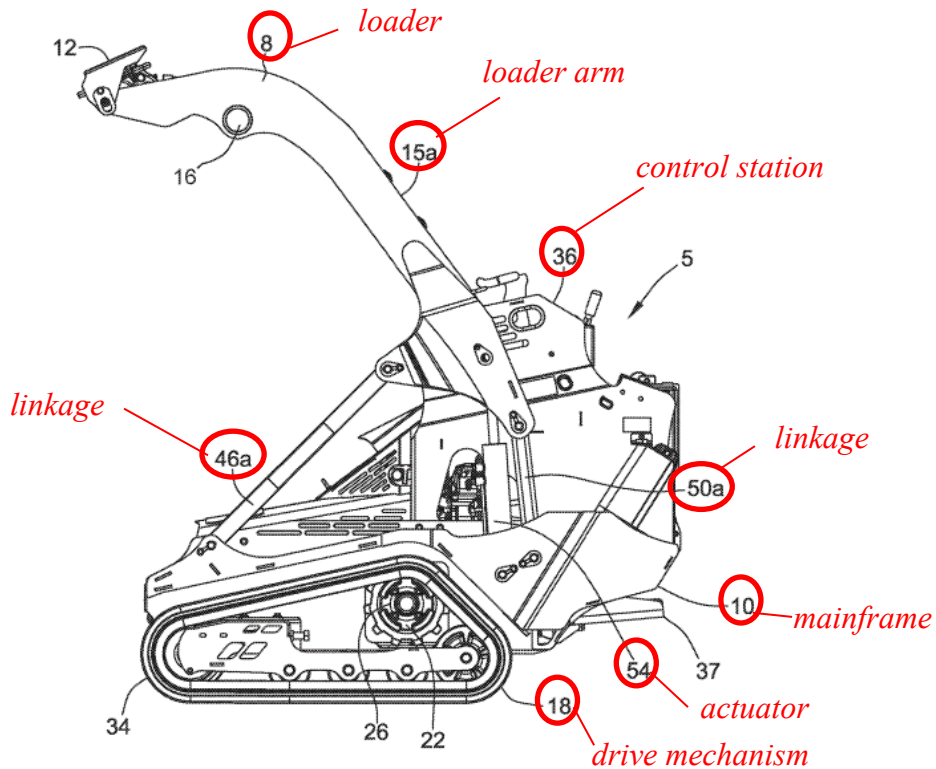
FIGS. 1 and 3 are illustrative of a compact tool carrier 5 including a loader 8 having loader arms 15*a*, 15*b* and mainframe 10. EX1001, 2:38-43, 56-66. A drive mechanism 18 may include tracks 34 (as shown) or wheels and control station 36 provides operator controls. EX1001, 3:31-41.

¹ Claims 1-3 directed to “A mainframe...” are not subject of this Petition.



**EX1001, FIG. 1
(annotated)**

The first loader arm 15a is pivotally connected to a first side 38a of the mainframe 10 and the second loader arm 15b is pivotally connected to a second side of the mainframe 10. EX1001, 4:23-26. Each loader arm is attached to a respective side of the mainframe by linkages 46a/50a and an actuator 54. EX1001, 4:26-47. Dr. Velinsky confirms this configuration is known to Persons of Ordinary Skill in the Art (POSITA) as a four-bar mechanism providing a path generation of the motion of the tool attachment plate 12. EX1003, ¶43. FIG. 1 above is illustrative of the carrier with the loader in a down position; FIG. 3 below is illustrative the loader in a raised position. EX1001, 2:38-43.



EX1001, FIG. 3
(annotated)

See EX1003, ¶¶40-44.

VI. PROSECUTION HISTORY

A. Prosecution Leading to '063 patent

The original application was filed with just three claims, directed to a mainframe. In response to a first office action, Applicant added new claims including prosecution claim 4, which issued as claim 4, the challenged independent claim of this Petition. EX1002, p. 178. The Office rejected claim 4 as being anticipated by U.S. Patent No. 3,074,572 to Ulinski (“Ulinski”). EX1002, p. 155. Applicant

provided Ulinski's Fig. 3 as representative:

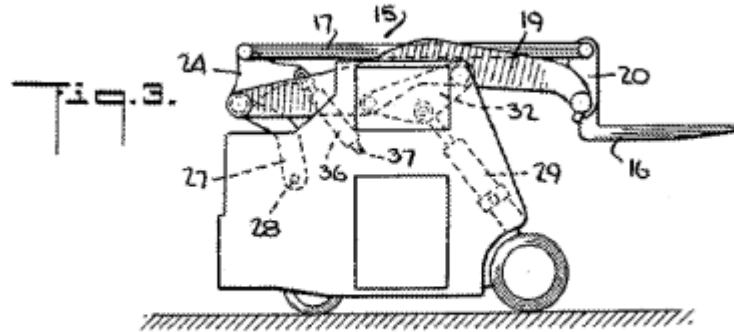


FIG. 3 of Ulinski

EX1002, p. 145

In its response, Applicant amended its prosecution claim 4 to recite that the claimed actuator is “directly pivotally attached to the loader arm,” (*see* limitation [4.5]) distinguishing Ulinski’s actuator (ram 36) being directly attached to a “crank arm 24” and not a loader arm. EX1002, pp. 140-145. The Examiner maintained the rejection alleging that Ulinski’s loader 15 “is made up of [a] series of interconnected arms (24, 19, 17) each of which can be considered a ‘loader arm’” and as such there is direct attachment to the loader arm. EX1002, p. 107.

The Applicant then amended its prosecution claim 4 to include that the first and second linkages are also “directly pivotally attached to the loader arm” (*see* limitations [4.3] and [4.4]) and argued that the claim required the first linkage,

second linkage and actuator all be “attached to the *same* loader arm,” which is not the case in Ulinski. EX1002, pp. 89-98. The following action allowed prosecution claim 4 and the claims that depended therefrom. EX1002, pp. 58-60. *See also*, EX1003, ¶¶45-49.

B. Previously Alleged Secondary Considerations

There are no secondary considerations of record in the prosecution of the '063 patent; however, during previous proceedings involving patents within the same family, the Patent Owner provided evidence purportedly directed to secondary considerations. Such evidence carries little weight in this proceeding. **First**, such factors must be assessed anew in light of this entirely different context and different claims. See EX1003, ¶¶26-27. **Second**, Patent Owner’s evidence relates to the alleged non-obviousness of replacing a radial lift mechanism of a compact tool carrier with a vertical lift mechanism. A vertical lift mechanism on a compact tool carrier was known in the art as shown here by KR996. And “case law makes clear that ‘objective evidence of nonobviousness **lacks a nexus** if it exclusively relates to a feature that was ‘known in the prior art’[.]” *See Yita LLC v. MacNeil IP LLC*, 69 F.4th 1356, 1364 (Fed. Cir. 2023) citing *Rambus Inc. v. Rea*, 731 F.3d 1248, 1257 (Fed. Cir. 2013). **Third**, Patent Owner’s evidence should not be given weight as it suffers from numerous deficiencies including reliance on declarations from interested parties (inventor); having a basis on Patent Owner’s presentation of its

loader as the first to provide vertical lift, which it was not; reliance on statements particular to Toro and its development process having no relevance here; reliance on performance data constrained to one vertical lift mechanism in comparison with one radial lift mechanism, which merely recognizes a predictably different lift path². **Finally**, secondary considerations, even if they do exist, would not overcome the clear obviousness shown here. *See Genentech, Inc. v. Sandoz Inc.*, 55 F.4th 1368, 1378 (Fed. Cir. 2022).

VII. EFFECTIVE PRIORITY DATE OF THE '063 PATENT

The '063 patent claims priority through a chain of patents to U.S. Patent No. 9,321,386 (“the '386 patent”), which claims priority to provisional application 62/118,860 filed February 20, 2015. Determining whether the '063 patent is entitled to an earlier priority date is unnecessary in this proceeding as all relied-upon prior art predates the earliest claimed date. Accordingly, Petitioner has not undertaken a priority date analysis but does not waive any right to dispute the priority of the '063 patent if relevant. EX1003, ¶50.

² “To be particularly probative, evidence of unexpected results must establish that there is a difference between the results obtained and those of the closest prior art, and that the difference would not have been expected [by POSITA].” *Bristol-Myers Squibb Co. v. Teva Pharms. USA, Inc.*, 752 F.3d 967, 977 (Fed. Cir. 2017).

VIII. LEVEL OF ORDINARY SKILL IN THE ART

POSITA in February 2015 (earliest effective filing date) 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. EX1003, ¶¶17-20.

IX. CLAIM CONSTRUCTION

Claim terms in a PGR are construed according to their “ordinary and customary meaning” to those of skill in the art. *See* 37 C.F.R. §42.200(b). Petitioner submits, for the purposes of this proceeding and the grounds presented herein, no claim term requires express construction.³ *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017). *See* EX1003, ¶51.

X. RELIEF REQUESTED AND THE REASONS FOR THE

³ A district court previously discussed construction of certain claim terms with respect to patents in the same family as the '063 patent. *See* EX1020. Petitioner was not a party to that case, which involved different points of dispute, and different claims. Petitioner reserves its rights to respond to assertions by Patent Owner that any claim term requires construction for the purposes of this PGR proceeding; and seek construction of any claim term in other forums as appropriate.

REQUESTED RELIEF

Petitioner challenges claims 4-14 (“Challenged Claims”) of the ’063 patent, and asks the Board institute a trial for post-grant review and cancel the Challenged Claims in view of the analysis below.

A. Prior Art Patents and Printed Publications

The following references are pertinent to the grounds of unpatentability explained below:

1. KR 10-1041996 (“KR996”) (EX1005) stemming from Korean Application 10-2009-0033050, which was published as 10-1041996 on June 16, 2011 (and published as 10-2009-0110253 in October, 2009); prior art under 35 U.S.C. §102(a)(1).
2. U.S. Patent No. 6,832,659 (“Bares”) (EX1010), filed October 30, 2002 and issued December 21, 2004; prior art under 35 U.S.C. §102(a)(1).
3. JP 2004-17705 (“JP705”) (EX1006); filed June 13, 2002; published January 22, 2004; prior art under 35 U.S.C. §102(a)(1).

KR996 and JP705 were not cited during prosecution of the ’063 patent. Bares was not cited, but shares disclosure with EX1009, which was cited. Bares is relied upon as a secondary reference in combination with KR996 to discuss conventional features such as an engine and pocket surrounding an operator.

B. Statutory Grounds for Challenges

This Petition, supported by the declaration of Dr. Velinsky (EX1003) (*see also* EX1036), requests cancellation of claims 4-14 under the following Grounds:

Grounds	Claims	Basis
#1 and #2	4, 7-12	35 U.S.C. §§ 102(a)(1) and 103 over KR996
#3	5-6	35 U.S.C. §103 over KR996 and JP705
#4	13-14	35 U.S.C. §103 over KR996 and Bares

EX1003, ¶¶52-53.

Petitioner’s obviousness grounds rely on the combined teachings of the references and not on a physical incorporation of elements. *See in re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012). “The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference[.]” *Allied Erecting & Dismantling Co. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016) (quoting *in re Keller*, 642 F.2d 413, 425 (C.C.P.A. 1981)). Instead, the question is whether “a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention[.]” *Id.* (quoting *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1361 (Fed. Cir. 2007)). *See also, in re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985) (en banc) (explaining that whether one reference can be incorporated in another is “basically irrelevant” since the test for obviousness is “not whether the references could be

physically combined but whether the claimed inventions are rendered obvious by the teachings of the prior art as a whole”).

Petitioner also cites below to additional prior art as evidence of the background knowledge of POSITA and to provide contemporaneous context to support Petitioner’s assertions regarding what POSITA would have understood from the prior art in the grounds. *See Yeda Research v. Mylan Pharm. Inc.*, 906 F.3d 1031, 1041 (Fed. Cir. 2018) (affirming the use of “supporting evidence relied upon to support the challenge”); 37 C.F.R. §42.104(b).

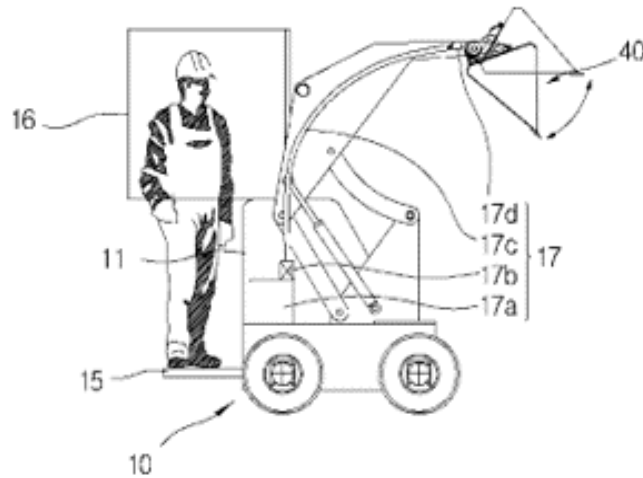
C. Grounds 1 and 2 : KR996

To the extent that Patent Owner argues that a single embodiment of KR996 does not disclose all the limitations of any claim, POSITA would have found claims obvious, in view of the POSITA’s own knowledge and/or the disclosures suggested by KR996 as explained herein. EX1003, ¶53.

1. KR996 (EX1005)

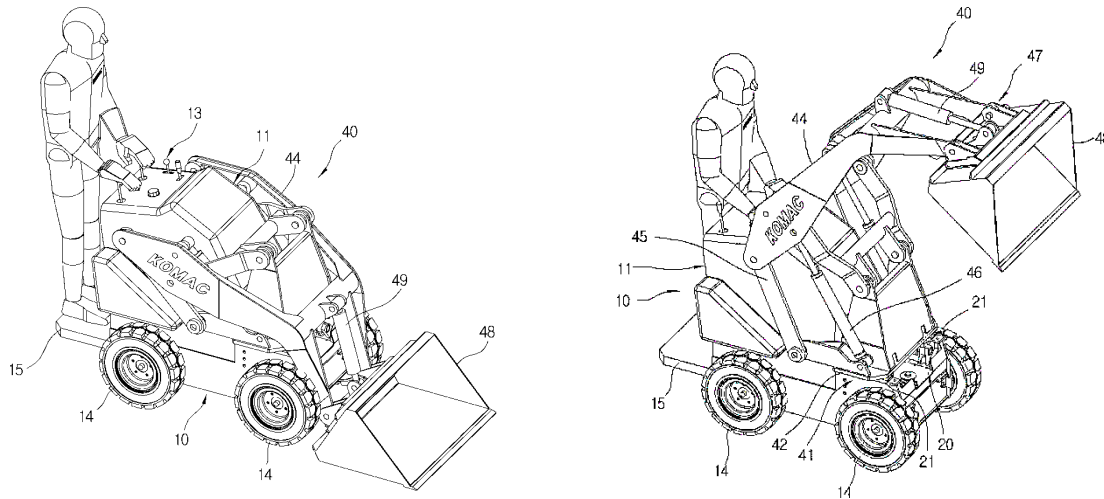
KR996 is a Korean patent publication entitled “Environmentally Friendly Construction Equipment for Building Deconstruction Work.” EX1005, (54). KR996 describes construction equipment that “can enter narrow buildings and carry out dismantling work inside the building” and “efficiently perform difficult tasks in narrow spaces, allowing for efficient operations such as building interior demolition, road maintenance, snow removal, and towing.” EX1005, [0001]-[0002]. KR996

illustrates a vehicle 10 to which a loader unit 40 is attached. EX1005, [0041], Figs. 1-13, 21. Fig. 21, reproduced below, illustrates a side view of the vehicle with loader unit 40. EX1005, [0113]-[0114].



EX1005, Fig. 21

Vehicle 10 includes control unit 13 for operating the vehicle including the loader unit 40 by an operator positioned on a folding safety step 15 at the rear of the vehicle. EX1005, [0042], [0049], [0072], Figs. 8-9. Loader 40 includes two booms 44 each connected to the mainframe of the vehicle by intermediary parts—link 45, another link, and boom cylinder 46. *Id.* Figs. 8-9 illustrate the loader in lowered and raised positions, respectively.



EX1005, Fig. 8 (portion), Fig. 9

EX1003, ¶¶54-55.

2. Claim 4

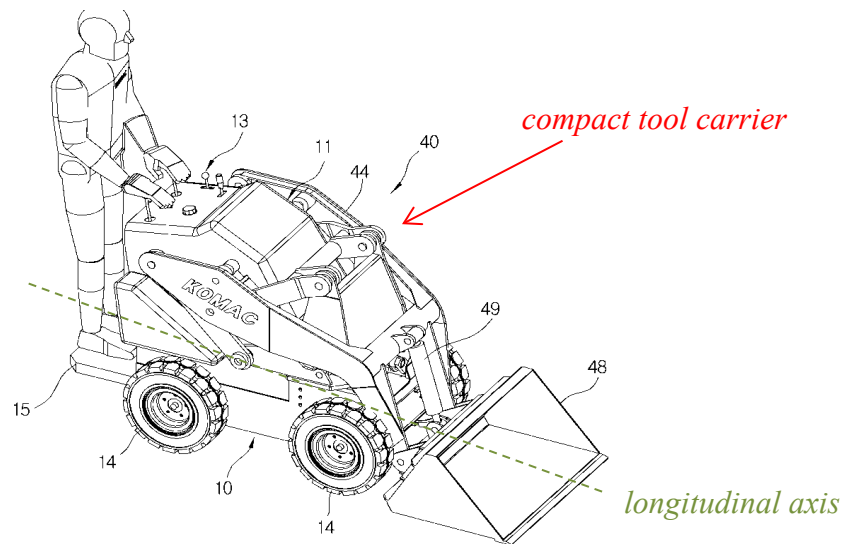
[4.0] A compact tool carrier having a longitudinal axis and comprising:

To the extent the preamble is limiting, KR996 discloses it. EX1003, ¶¶56-61.

As discussed above, KR996 describes a self-propelled vehicle (*compact tool carrier*)⁴ capable of carrying equipment for building deconstruction work, providing maneuverability in small spaces, and having the functionality of a mini skid loader when attaching a bucket to the front. EX1005, Abstract, [0001]-[0012]. KR996's

⁴ KR996's vehicle is a *compact tool carrier* of the same configuration as in '063 Patent. EX1003, ¶¶29-30, 57-60; EX1001, 1:30-49, 3:4-15. *See also*, EX1015.

compact tool carrier is configured for operator control from an operator platform of safety step 15, see Fig. 8 below, and has a *longitudinal axis*.



**EX1005, Fig. 8 (portion)
(annotated)**

KR996's vehicle is a *compact tool carrier*. EX1003, ¶¶29-30, 57-60. For example, KR996's vehicle is a self-propelled machine with an operating position from a platform at the rear of the machine having a loader with a tool of a bucket in a front-mounted attachment. EX1005, Figs. 1, 7-9. Further, to the extent that Patent Owner argues there is a limitation of weight embedded within this recitation of a compact tool carrier, POSITA would recognize that KR996's vehicle has a mass of less than about 1500 kg based on its illustrations, suitable tasks, and operator position. EX1003, ¶59 citing EX1005, [0002], EX1016, p. 7; EX1015, p. 2. To the

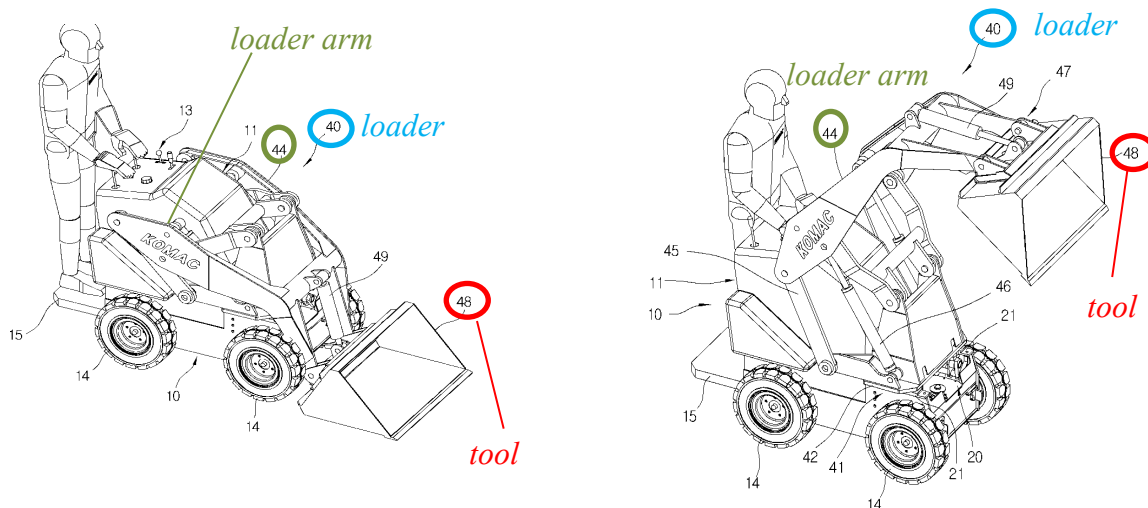
extent Patent Owner argues that this is both required by its claims and is not explicit in KR996, POSITA would have found it obvious to ensure the KR996 vehicle is less than 1500 kg to better perform its functions requiring maneuverability for quick and efficient operations and meet industry standards. EX1003, ¶60.

Thus, KR996 discloses or renders obvious *a compact tool carrier having a longitudinal axis*. EX1003, ¶¶56-61.

[4.1] *a loader having a loader arm, the loader being adapted to carry a tool;*

KR996 discloses a loader unit 40 that is *a loader*. EX1005, (57), [0016], [0036], [0040], [0054], [0131]; Fig. 8 illustrates the loader unit 40 in a down position; Figs. 7, 9, and 21 illustrate the loader unit 40 in a vertically raised position. The loader unit 40 has a boom 44, which is *a loader arm*. EX1005, [0054], claim 1, Figs. 1, 8-11.

The loader unit 40 is *adapted to carry a tool* as illustrated by a bucket 48, *a tool*, described and illustrated as attached to the loader unit 40. EX1005, claim 1, [0054], [0074]-[0075], Figs. 8-9; *see also*, EX1001, 1:40-41 (“tools such as buckets, augers...and the like.”). In particular, KR996 describes a “bucket attachment 47” that carries the bucket 48. EX1005, [0051].



**EX1005, Fig. 8 (portion) and Fig. 9
(annotated)**

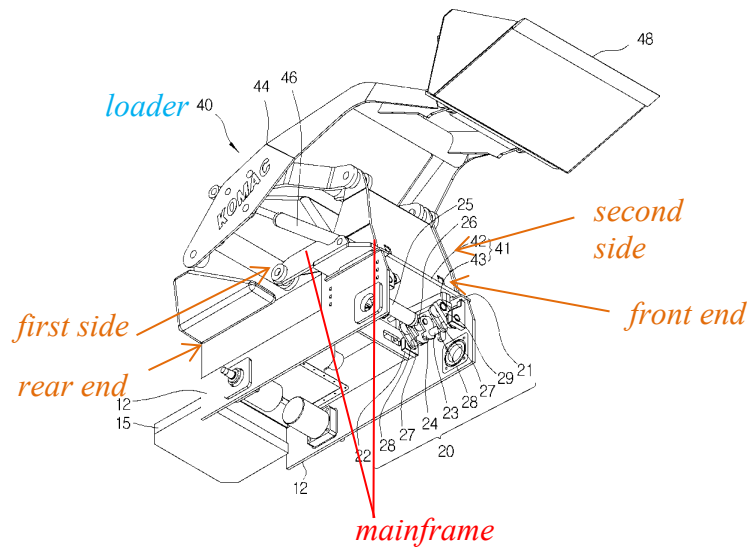
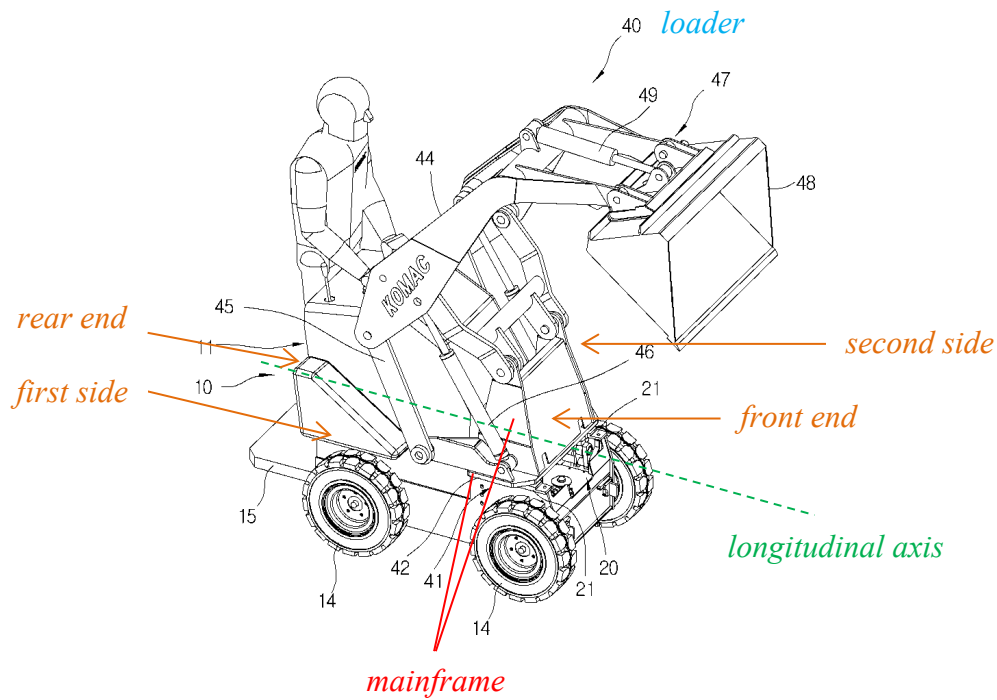
Thus, KR996 discloses *a loader having a loader arm, the loader being adapted to carry a tool* of [4.1]. EX1003, ¶¶62-64.

[4.2] *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;*

KR996's vehicle includes *a mainframe for supporting the loader* provided by loader unit 40 in element [4.1]. KR996's *mainframe* includes the frame components of KR996 vehicle for supporting the attached loader unit 40 by providing structural or weight-bearing support when the vehicle is in operation. EX1003, ¶¶65-67; EX1005, Figs. 8-10. These frame components have *a first side* and *a second side* as generally provided by the left and right sides of the frame. This is consistent with the '891 patent, which describes the second side 38b "generally opposite" the first

side 38a. EX1001, 4:14-15, FIG. 4. And the frame components have a *front end and rear end* relative to the operator and *the longitudinal axis* along the carrier.

In particular, the *mainframe* of KR996 includes the frame components having pivot attachments with ends of each of the respective intermediary parts (i.e., the boom cylinder 46, link 45 and the forward link of [4.3]-[4.5] discussed below), which are connected at their opposite ends to the boom 44 of the loader unit 40. Thus, the *mainframe* includes the bracket to which the link 45 and the boom cylinder 46 attach, as well as the frame protrusion, connected to the bracket, to which the forward link attaches. This is just like the '063 patent, which describes its “mainframe 10 includes bracket portions 40a, 40b [] through which various pivot linkages are attached.” EX1001, 4:18-20. *See also*, EX1001, FIG. 7. Figures 9 and 10 of KR996 is illustrative.



**EX1005, Figs. 9, 10
(annotated)**

KR996's *mainframe* also includes frame portions in addition to those providing direct attachment to the intermediary parts including the main body 11

and side plates 12. EX1005, [0044], [0049], Figs. 1, 7-9. These portions are part of a frame or body making up the KR996 vehicle when in operation providing structural and weight-bearing support for the loader unit 40, in addition to support for other features such as the control station and drive mechanism. This is also consistent with the '063 patent. EX1003, ¶67 discussing the drive mechanism and control station of the '063 patent supported by its frame, drive mechanism attached to mainframe (3:35-37), “control station 36 is...supported by the mainframe 10.” (4:5-7); '063 patent frame is also provided in multiple pieces (see, FIG. 7).

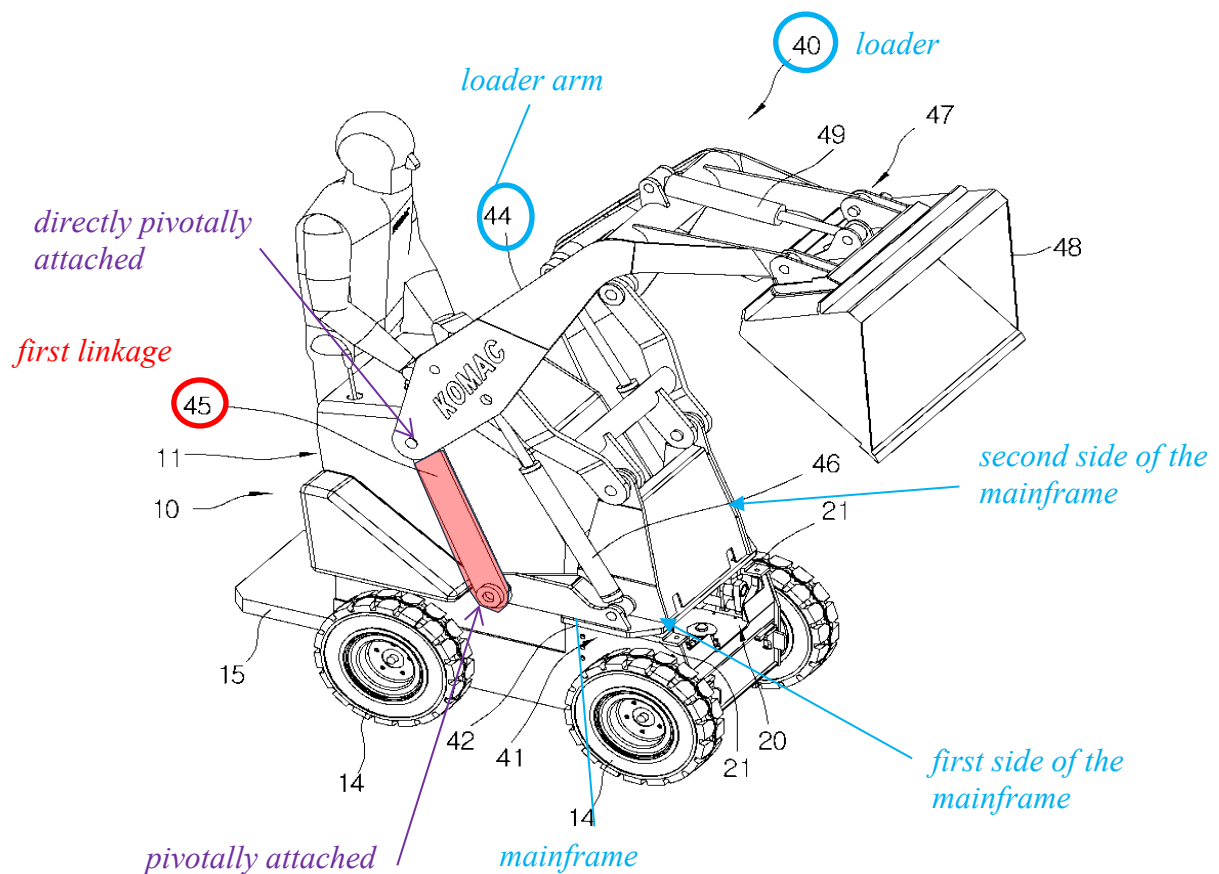
To the extent that Patent Owner argues that the term *mainframe* requires a single piece construction, requires certain aspects to be a contiguous piece, or requires certain configuration of those pieces, this is not what is shown in or required by the '063 patent. *See*, EX1001, FIG. 7, claim 7 further limiting the present element, and 4:15-18, which only refers to a “general” notion that a mainframe is a single weldment, which does not define the term nor amount to a disavowal; *see also*, EX1003, ¶68, EX1020. Nonetheless, POSITA would have found it obvious to provide the *mainframe* of KR996 as including or incorporating single piece construction or a single weldment as discussed in claim 7. EX1003, ¶¶68, 97-100. And POSITA generally recognize design choices in forming a mainframe of a vehicle including the separability, arrangement, and shape of frame portions such as brackets and other frame features. EX1003, ¶68. *See also*, KR996, Fig. 21, which

illustrates a first side of the mainframe and the connections thereto, the outline suggesting a contiguous, planar *first side* of the *mainframe*.

Thus, KR996 discloses or renders obvious *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*. EX1003, ¶¶65-69.

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

KR996 discloses a link 45, which is *a first linkage*. EX1005, Figs. 5, 8-10, 21, [0054] (“A boom (44) connected by a link (45)...”), [0134]. Figure 9 is illustrative:



EX1005, Fig. 9
(annotated)

The *first linkage* of link 45 is *pivotally attached to the first side of the mainframe* at one end and *directly pivotally attached to the loader arm of boom 44* at the other end. EX1003, ¶¶70-73. These are pivotally attached because the connection at each end of the link 45 is pivotable as each is a joint that allows for rotary motion, which is shown by a comparison of KR996's Figs. 8-9. Dr. Velinsky confirms the nature of the attachment is pivotable to effectuate the raising and lowering of the boom 44 when operating the loader 40. EX1003, ¶¶33-39, 70-73

citing EX1008, EX1023, EX1028 each discussing four-bar mechanism pivot attachments.

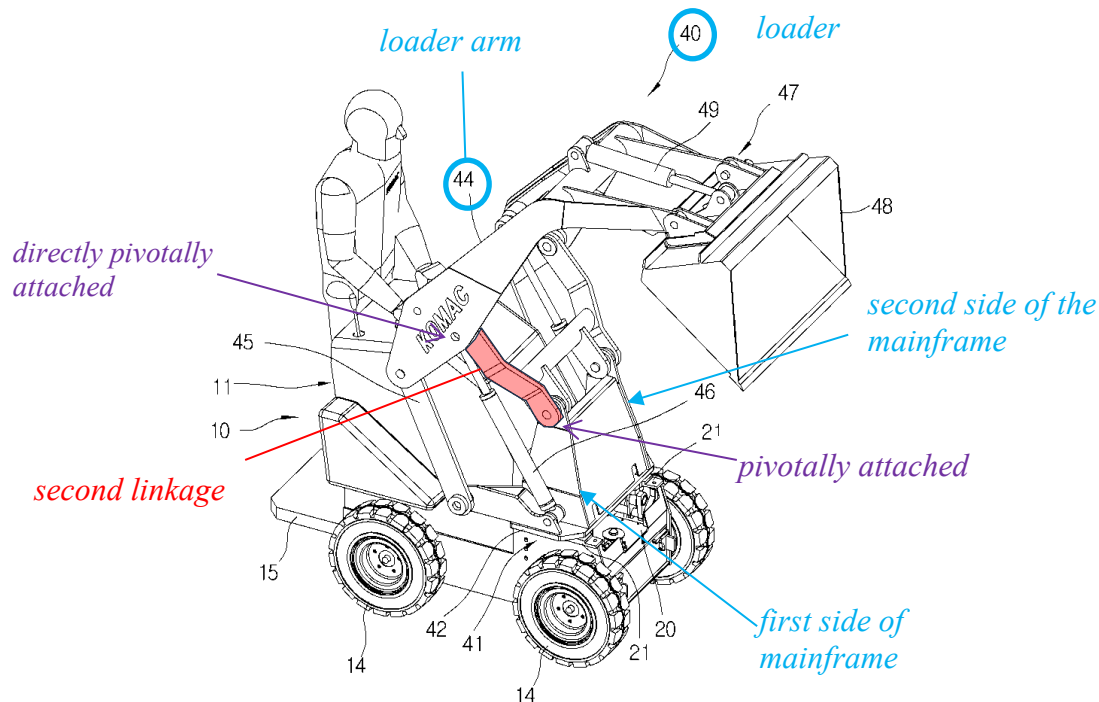
The link 45 is *directly pivotally attached* to the boom 44 that provides the *loader arm* because there are no intervening components rather the link 45 is directly attached to the boom 44 at a rotational joint. EX1005, Fig. 8-9, 21, [0054]. This is just like the '063 patent. EX1003, ¶74 citing EX1001, FIG. 3, 4:23-28. The link 45 attachment to KR996's *mainframe* is also consistent with '063 patent's disclosure of a linkage (46a/50a) pivotally attached to a bracket portion 40 on the first side of the mainframe 10. *See* EX1001, FIG. 3, 4:14-20. As discussed in [4.2], the bracket to which the link 45 is directly attached is part of the *mainframe* that supports the loader unit 40.

Thus, KR996 discloses *a first linkage pivotally attached to the first side of the mainframe and directly pivotally attached to the loader arm*. EX1003, ¶¶70-75.

[4.4] *a second linkage pivotally attached to the first side of the mainframe and directly pivotally attached to the loader arm;*

KR996 discloses another link that is *a second linkage pivotally attached to the first side of the mainframe* at one end and *directly pivotally attached* to the boom 44, *loader arm*, of the loader unit 40 at the other end. EX1005, claim 1, [0054], [0134], Figs. 1-10. This link is a forward link (relative to the operator) of the four-

bar mechanism of KR996's loader unit 40. EX1003, ¶¶78-79, 33-39. KR996's Figure 9 is illustrative.



EX1005, Fig. 9
(annotated)

See also, KR996's Fig. 21, which illustrates a first side of the mainframe and the connections thereto.

The forward link providing the *second linkage* is *pivotally attached to the first side of the mainframe* at one end *and directly pivotally attached to the loader arm* at the other end. EX1003, ¶¶76-80. The attachment at each end of the forward link highlighted above is pivotable as each is a joint that allows for rotary motion, which is shown by KR996's Figs. 8-9. Dr. Velinsky confirms the nature of the attachment

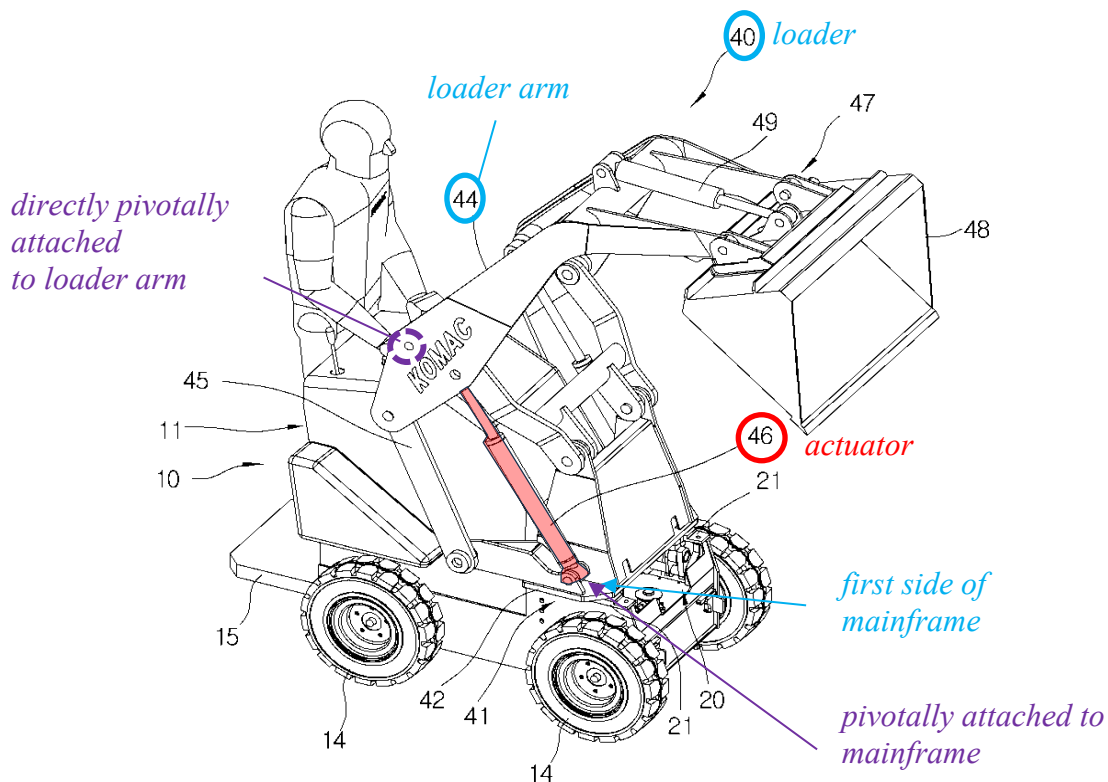
is pivotable to effectuate the raising and lowering of the boom 44 when operating the loader. EX1003, ¶78 citing EX1008, EX1023, EX1028 each discussing four-bar mechanism pivot attachments. This is consistent with '063 patent. *See*, EX1001, FIG. 3, 4:18-20. This forward link of KR996's vehicle is also *directly attached* to the boom 44, *loader arm*, because there are no intervening components. Rather, the boom cylinder 46 is fastened to the boom 44 at a rotational joint. EX1005, Fig. 8-9, 21, [0054]. This is also just like the '063 patent. EX1001, FIG. 3, 4:14-43.

Thus, *a second linkage pivotally attached to the first side of the mainframe and directly pivotally attached to the loader arm* is disclosed by KR996. EX1003, ¶¶76-81.

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

KR996 discloses a boom cylinder 46 that is *an actuator* with a function of “driv[ing] the boom” 44 of the loader unit 40. EX1005, [0054]; *see also*, EX1005, claim 1, [0134], Figs. 7-9, 21. Another word for actuator is cylinder. EX1003, ¶¶82-83 citing EX1010, EX1005, [0003].

The boom cylinder 46 that provides the *actuator* is *pivotally attached to the first side of the mainframe* at one end and *directly pivotally attached* to the loader arm boom 44 (*loader arm*) of the loader unit 40 at the other end. EX1005, Figs. 7-9. KR996's Fig. 9 below is illustrative:



**EX1005, Fig. 9
(annotated)**

The boom cylinder 46 is *directly attached* to the boom 44 because there are no intervening components, rather the boom cylinder 46 is fastened to the boom 44 at a rotational joint just like the '063 patent. EX1005, Fig. 8-9, 21, [0054]; EX1001, FIG. 3, 4:44-47. *See also*, EX1005, Fig. 21 illustrating the attachment to the first side of the mainframe and loader arm; EX1003, ¶87.

The boom cylinder 46 is *pivotally attached* at each end. EX1003, ¶¶84-86. The attachment at each end of the boom cylinder 46 is pivotable as each is a joint that allows for rotary motion, which is shown by a comparison of KR996's Figs. 8-

9. Dr. Velinsky confirms the nature of the attachment is pivotable to effectuate the raising and lowering of the boom 44 when operating the loader 40. EX1003, ¶¶84-86 citing EX1008, EX1023-EX1028 each discussing four-bar mechanism pivot attachments.

Thus, KR996 discloses *an actuator pivotally attached to the first side of the mainframe and directly pivotally attached to the loader arm*. EX1003, ¶¶82-88.

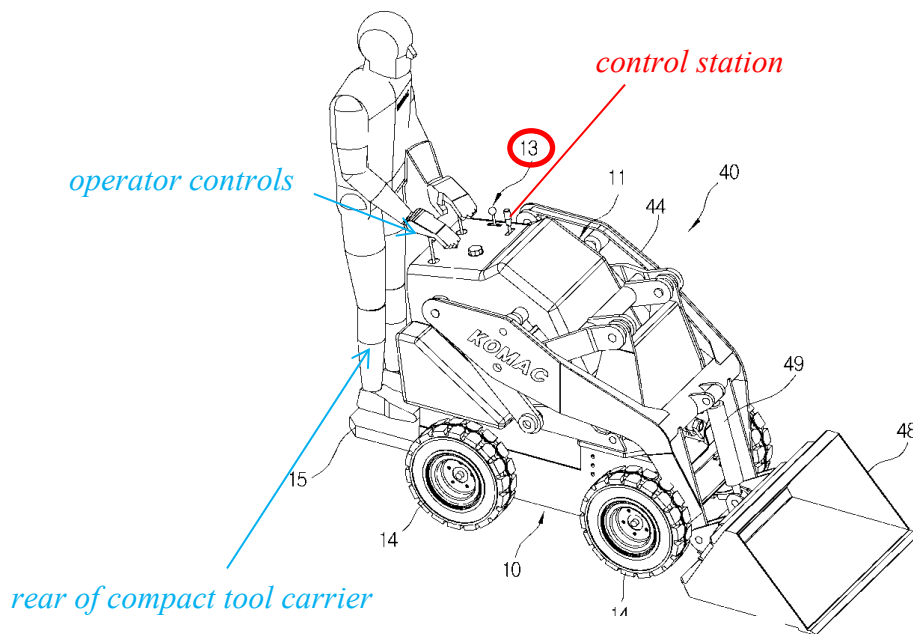
[4.6] a control station having operator controls for propelling the compact tool carrier forward and for raising and lowering the loader, the control station being mounted toward the rear end of the compact tool carrier.

KR996 describes a control unit 13 that provides a *control station* having *operator controls* to “operate the equipment while the worker is on board at the rear” and that is *mounted towards the rear* of the vehicle (*compact tool carrier*). EX1005, [0042], Figs. 1, 8-9.

The control unit 13 provides controls for moving the vehicle, which includes *controls for propelling the compact tool carrier forward*. EX1005, Abstract (“when the vehicle **moves forward**...when the vehicle **moves backward**”), [0016]-[0017], [0033] (“...allowing the **operator to board...when driving**”), [0042] (“a control unit (13) to **operate the equipment while the worker** is on board at the rear”), [0072], claim 1.

The control station 13 also controls the operation of the loader unit 40. “When the loader unit (40) is coupled to the vehicle (10)...the **control unit (13)** of the

vehicle (10) can be operated to **operate the loader unit (40).**” EX1005, [0072]. Operating the loader means performing its function of *raising and lowering the loader*. EX1003, ¶92 citing Figs. 8, 9 of the raised and lower boom 44, respectively, and describing the raising and lowering is effectuating the purpose of the loader such as to “load the waste onto the dump truck” EX1005, [0006]. Thus, the control 13 provides *operator controls...for raising and lowering the loader*. KR996’s Fig. 8 is illustrative of the lowered position of the loader.

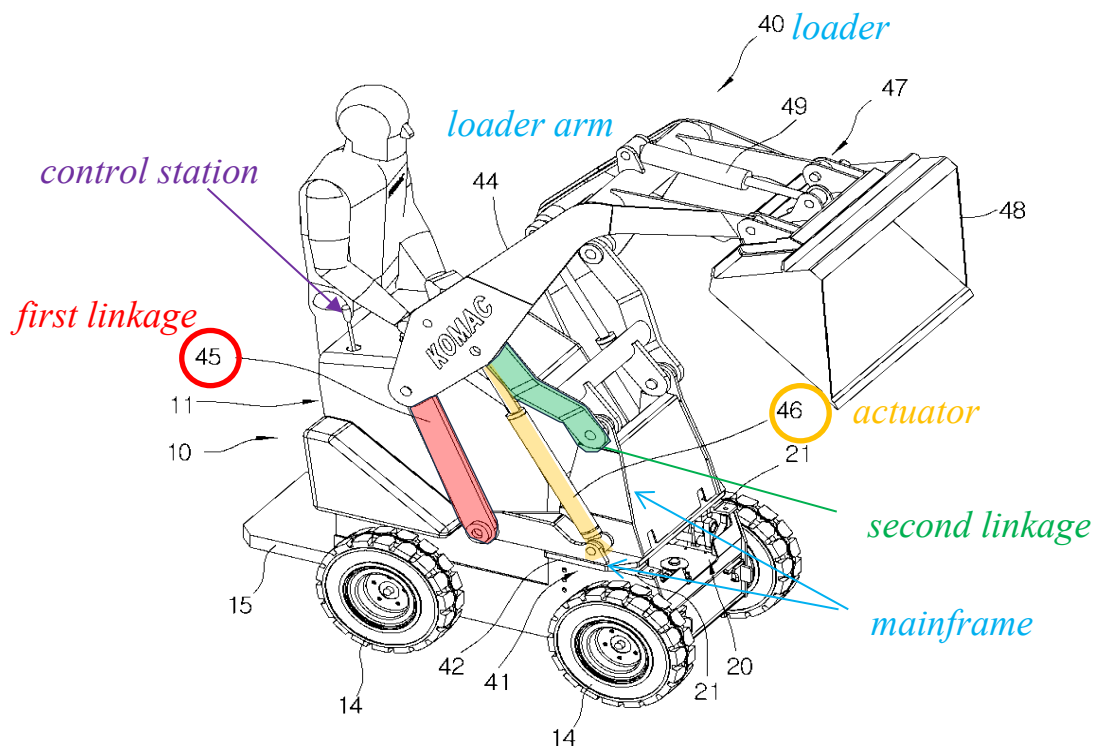


**EX1005, Fig. 8 (portion)
(annotated)**

KR996’s Figs. 7 and 9 are also illustrative of raised positions of the loader. Thus, KR996 discloses *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 end of the compact tool carrier as recited in [4.6]. EX1003, ¶¶89-93.

Therefore, KR996's vehicle having a loader unit 40 having a boom 44 (*loader having a loader arm*) attached by link 45 and a forward link (*first and second linkage[s]*) and boom cylinder 46 (*actuator*) to a mainframe and with a control unit 13 (*control station*) discloses or renders obvious claim 4.



**EX1005, Fig. 9
(annotated)**

EX1003, ¶¶94-95.

Thus, claim 4 is anticipated or rendered obvious by KR996. EX1003, ¶¶54-95.

3. Claim 7

[7] *The compact tool carrier as set forth in claim 4, wherein the mainframe incorporates a single weldment.*

KR996 discloses or renders obvious claim 4 and further discloses or renders obvious this limitation.⁵ EX1005, ¶¶96-101.

KR996 describes a mainframe that would be recognized as incorporating a single weldment as it is a common technique for forming a frame such as illustrated in KR996. Further, POSITA would have found it obvious to form one or more portions of the *mainframe* of KR996, discussed above at [4.2], as a *single weldment* because use of welding to join components of a support frame for a loader apparatus was a well-known method of fabrication. EX1003, ¶98 citing numerous examples of welding with respect to mainframes generally, for compact utility loaders, and with vertical lift mechanisms including EX1006, EX1010, EX1022. POSITA would recognize that there are known trade-offs in the choice between a single weldment

⁵ The '063 patent does not define a “single weldment,” but does, with respect to a different component, contrast a “single weldment” with use of “fasteners (e.g., nuts and bolts).” See EX1001, 2:66-3:1.

and attachment, for example, by nuts and bolts. EX1003, ¶99 considering factors such as aesthetics, manufacturability, reliability. One benefit of connecting pieces by a weld allows for easy implementation and forming a smooth, continuous surface. EX1003 ¶99 citing EX1006, [0016] (“enabling welding work to be stably performed, easily and efficiently”), [0031] (“attaching means such as welding...to form a smooth, continuous surface.”).

This is confirmed by the prosecution leading to the '063 patent where the Examiner found this an obvious design choice, a determination not disputed by the Applicant. EX1002, p. 158. And case law affords similar construction design choices are *prima facie* obvious. *In re Larson*, 340 F.2d 965, 968 (CCPA 1965) (court affirms rejection of claims including “that the use of a one piece construction instead of the structure disclosed in [the prior art] would be merely a matter of obvious engineering choice.”)

To the extent Patent Owner argues certain components of the *mainframe* are required to be coupled by a weldment, POSITA would have been motivated to form KR996’s mainframe consisting of a *single weldment* because the fastening method was well within their skill set and provides benefits discussed above to predictably form a welded structure. EX1003, ¶100 citing EX1010, 4:8-10 (“The body or frame 12, as shown, is a **unitized welded body**...”), 4:31-35; EX1006, [0019].

Thus, claim 7 is disclosed or rendered obvious by KR996. EX1003, ¶¶96-101.

4. Claim 8

[8] *The compact tool carrier as set forth in claim 4, wherein the loader arm is a first loader arm, the loader comprising a second loader arm and the compact tool carrier comprising a third linkage pivotally attached to the second side of the mainframe and pivotally attached to the second loader arm and a fourth linkage pivotally attached to the second side of the mainframe and pivotally attached to the second loader arm.*

Claim 4 is disclosed or rendered obvious by KR996, and KR996 also discloses this element. EX1003, ¶¶102-108. This is because claim 8 merely recites the configuration of the loader with respect to the second loader arm and the second side of the mainframe, which is also provided in KR996 as its vehicle implements a symmetrical loader configuration with respect to a first side and a second side. EX1003, ¶¶104-105.

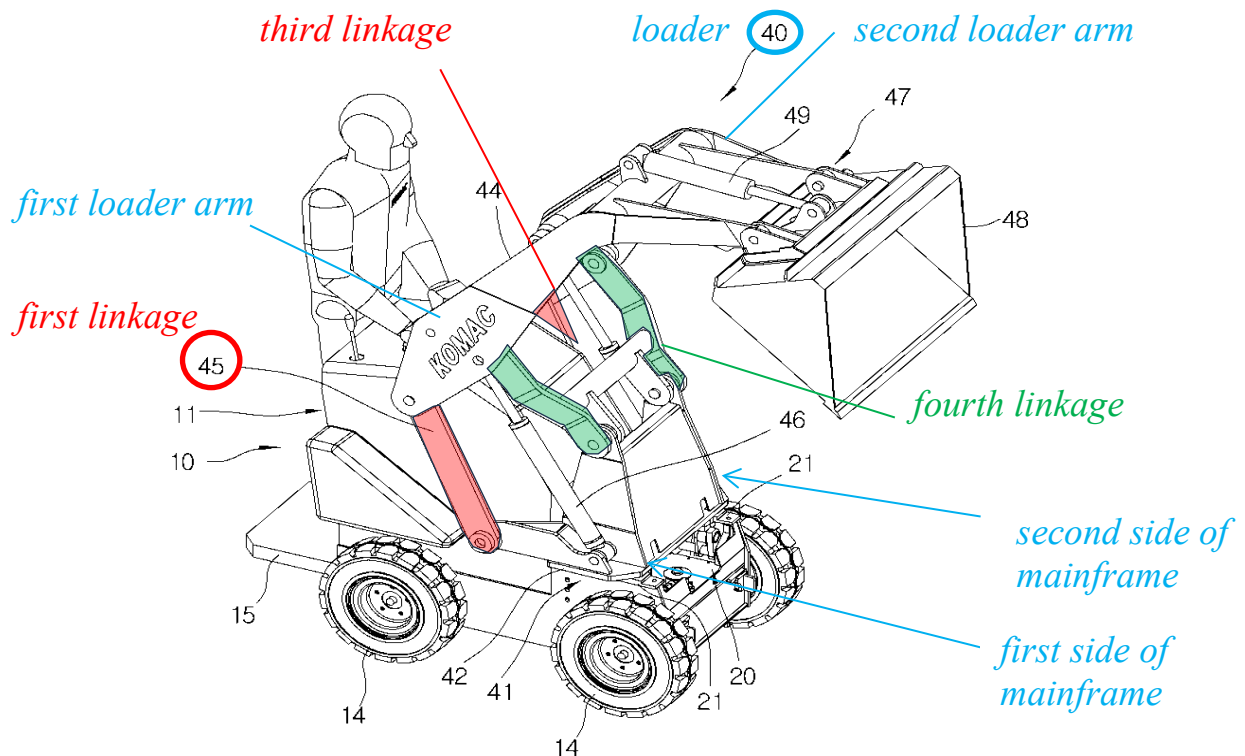
In KR996, the loader unit 40, *loader*, includes another boom 44 that is a *second loader arm* that is attached to the *second side of the mainframe* (opposing side of KR996's frame/body) (see [4.2]) through intermediary parts. This second loader arm of the loader unit 40 is connected in the same manner as the first loader arm to the first side of the mainframe. EX1003, ¶¶104-105 discussing the same vertical lift mechanism on each side citing EX1005, Figs. 1, 3, 5, 9, 11 illustrating each side has the same function and recognizing advantages of a balanced compact tool carrier.

Thus, KR996's second link 45 on the opposing side of the compact tool carrier

from that discussed in element [4.3] is *a third linkage pivotally attached to the second side of the mainframe* at one end of the link 45 *and* at an opposing end is *pivotally attached to the second boom 44, the second loader arm*, for the same reasons as discussed above. *See also*, KR996 at Fig. 2, which illustrates the link 45 attached to the boom 44 and mainframe on relative to the *second side*.

And KR996's forward link on the opposing side of the compact tool carrier from that discussed in element [4.4] is *a fourth linkage pivotally attached to the second side of the mainframe* at a first end of the link and the second end of the link is *pivotally attached to the boom 44* providing the *second loader arm* for the same reasons as discussed above. *See also*, KR996, Figs. 1, 9, which illustrate the forward link attached to the boom 44 and mainframe on relative to the *second side*.

Fig. 9 is annotated for illustration.



**EX1005, Fig. 9
(annotated)**

Thus, KR996 discloses or renders obvious claim 8. EX1003, ¶¶102-108.

5. Claim 9

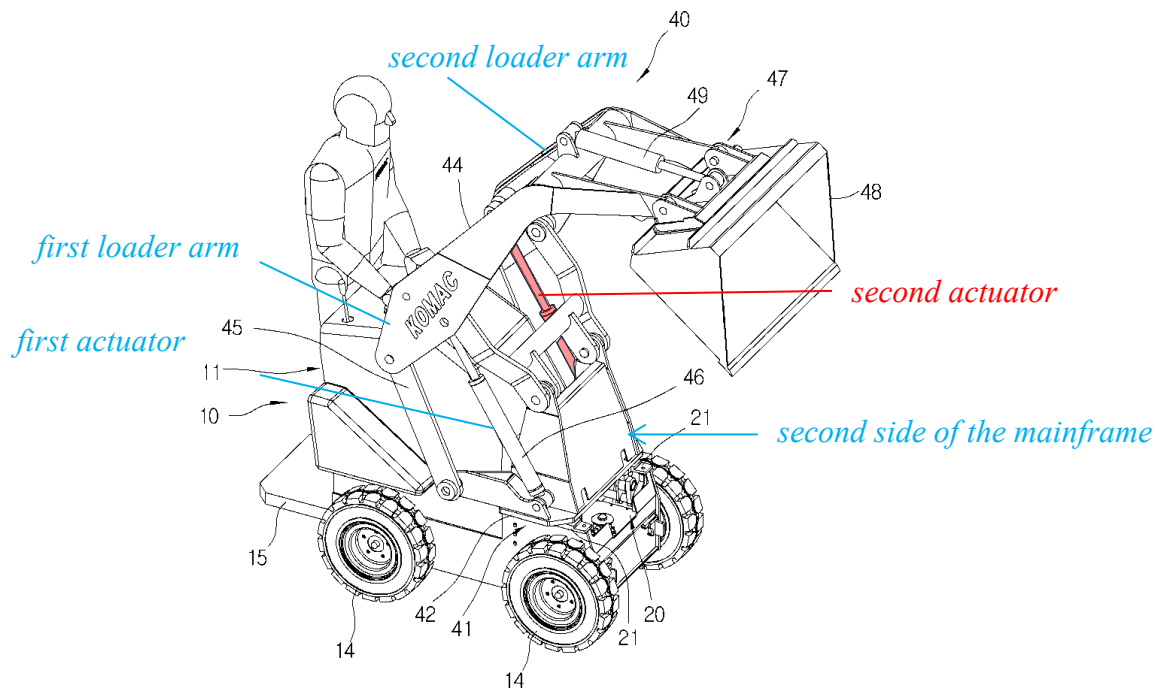
[9] The compact tool carrier as set forth in claim 8, wherein the actuator is a first actuator, the compact tool carrier comprising a second actuator, the second actuator being pivotally attached to the second side of the mainframe and pivotally attached to the second loader arm.

KR996 discloses or renders obvious claim 8 and KR996 also discloses this element. EX1003, ¶¶109-113.

First, KR996 discloses a boom cylinder 46 attached to the first side of the mainframe that is an *actuator* as shown in element [4.5]; this boom cylinder 46 is a

first actuator. EX1003, ¶¶83, 110.

Second, KR996 also discloses another boom cylinder 46 that is a *second actuator* that drives a second boom 44, a *second loader arm* as shown in [8]. EX1005, [0054], claim 1, [0134], Figs. 1-13, 21. The second boom cylinder 46 is *pivotally attached to the second side of the mainframe at a first end and pivotally attached to the second boom 44, the second loader arm, at a second end*. Fig. 9 is illustrative:



**EX1005, Fig. 9
(annotated)**

Figures, such as Figs. 1, 5, 11, confirm the two sides of the KR996 vehicle have the same loader mechanism configuration. EX1003, ¶¶105, 111. And POSITA would

have understood the two sides of the loader unit having the same configuration to provide symmetry to the four-bar mechanism of the loader. EX1003, ¶105. Thus, the boom cylinder 48 attached to the second side of the mainframe and second arm is *pivotally attached* to each for the same reasons as discussed above [4.5] with respect to the first boom cylinder. EX1003, ¶111.

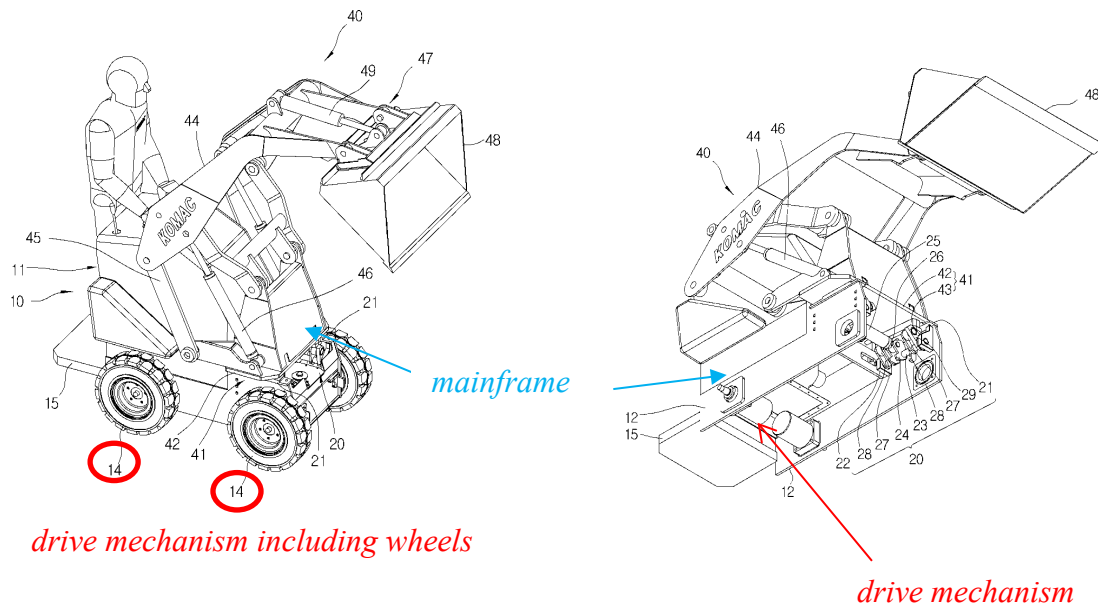
Thus, claim 9 is disclosed or rendered obvious by KR996. EX1003, ¶¶109-113.

6. Claim 10

[10] *The compact tool carrier as set forth in claim 4 comprising a drive mechanism comprising tracks or wheels, the drive mechanism being attached to the mainframe.*

KR996 discloses or renders obvious claim 4 and further discloses this claim element. EX1003, ¶¶114-116.

First, KR996 describes *a drive mechanism* including “wheels (14).” EX1005, [0042], [0052], [0060], [0118], Figs. 1, 8-10. This *drive mechanism* comprising *wheels* is *attached to the mainframe* at a rotational axis as illustrated in the representative figures of KR996 below, just the same as described in the ’063 patent. *See* EX1001, 3:31-32.



**EX1005, Figs. 9, 10
(annotated)**

Thus, claim 10 is disclosed or rendered obvious by KR996. EX1003, ¶¶114-116.

7. Claim 11

[11] The compact tool carrier as set forth in claim 4, wherein the actuator is a hydraulic cylinder.

KR996 discloses or renders obvious claim 4 including describing a “boom cylinder 46” that is an *actuator* as discussed in element [4.5]. The boom cylinder 46 is a *hydraulic cylinder*. EX1003, ¶¶117-118. KR996 uses the term “boom cylinder” interchangeably with a “hydraulic cylinder.” See EX1005, [0003].

Further, POSITA would recognize a cylinder such as a boom cylinder 46 is commonly a *hydraulic cylinder*; therefore, to the extent KR996 does not anticipate this claim, it would have been obvious. POSITA would recognize an obvious choice to implement the cylinder as a hydraulic cylinder in light of KR996's suggestion of a hydraulic cylinder and POSITA's knowledge of the common use of such a cylinder. EX1003, ¶118.

Thus, KR996 discloses or renders obvious claim 11. EX1003, ¶¶117-119.

8. Claim 12

[12] *The compact tool carrier as set forth in claim 4, wherein the loader arm incorporates a single weldment.*

KR996 discloses or renders obvious claim 4 and KR996 discloses or renders obvious this element. EX1003, ¶¶120-123. As discussed in [4.1], KR996 discloses a loader unit 40 including a boom 44 that is a *loader arm*. The drawings of KR996 suggest that the boom 44 *incorporates a single weldment* (e.g., portion without fasteners). EX1003, ¶121; EX1005, Figs. 1, 4, 7-8, 21.

Further, POSITA would have found it obvious to form a loader arm that *incorporates a single weldment* for substantially similar reasons as discussed above in claim 7 and the incorporation of a single weldment in the mainframe; this is merely a choice in the technique of forming the component with predictable benefits of reliable connection, reduction in fastening parts, and smooth surfaces in a single

weldment. EX1003, ¶122. Further, it was known in the art for a loader arm to incorporate a single weldment. EX1009, 3:50-52 (“The lift arms 24A and 24B are joined together with a cross member 70 which is welded to the plates 34”). This is confirmed by the prosecution leading to the ’063 patent where the examiner found one piece construction of a loader arm to be *prima facie* obvious to “facilitate the construction thereof and create a durable structure,” which the Applicant did not dispute. *See* EX1002, p. 157.

Thus, KR996 discloses or renders obvious claim 12. EX1003, ¶¶120-123.

D. Ground 3 : KR996 and JP705

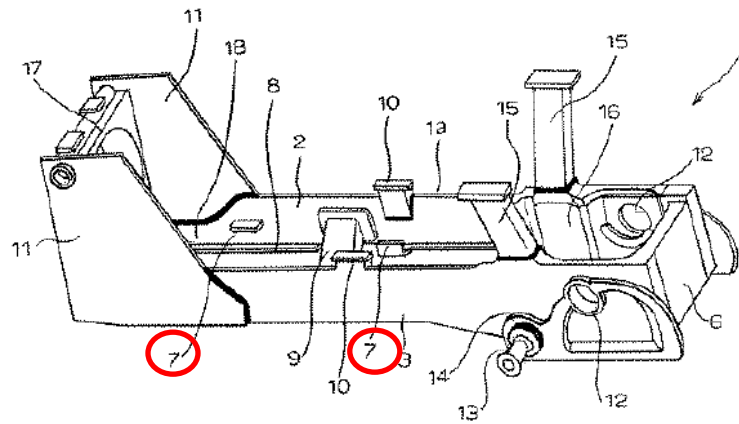
1. KR996

KR996 is discussed above at Section X.C.1.

2. JP705 (EX1006)

JP705 discusses “a main frame for a work vehicle such as a bulldozer, hydraulic excavator, or other construction or civil engineering machine, and more particularly relates to a main frame for a work vehicle that enables easy and reliable installation of various on-board devices such as an engine, a transmission, and the like.” EX1006, [0001]. A main frame 1 has a pair of parallelly extending left and right side plates 2, 3. EX1006, [0019]. Mounting parts such as parts 7 and 8 extend from the sides. EX1003, ¶125. “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.*



**EX1006, FIG. 1
(annotated)**

3. Reasons to Combine KR996 and JP705

KR996 and JP705 are analogous art to the '063 patent because they are in the same field of endeavor, pertaining to working vehicles including construction or agricultural machines (*i.e.*, earth-moving equipment). EX1003, ¶¶125-126; EX1005, Abstract, [0001], FIG. 21; EX1006, Abstract, [0001], FIG. 1; EX1001, 1:30-42, 2:56-3:15, FIG. 1. For example, JP705 suggests applying its teachings to an excavator, which is similarly a function of KR996 and the '063 patent. EX1006, [0017]; EX1005, [0005]; EX1001, 1:43 (“auger”). Further, KR996 and JP705 are analogous art to the '063 patent because they are reasonably pertinent to a same

problem faced by the inventor—mounting components onto a frame to effectuate the operation of a vehicle. EX1005, Fig. 12; EX1006, [0006]-[0008], FIG. 1; EX1001, 5:63-66, FIG. 6.

POSITA would have been motivated to combine the teachings of JP705, and in particular, its mounting parts as an engine bracket to KR996's vehicle to produce predictable and beneficial results as discussed below. EX1003, ¶¶127-133. First, the vehicle of KR996 has an engine disposed within its frame to provide energy to propel the vehicle. EX1003, ¶128 citing EX1005, Fig. 10; EX1014, [0002], Fig. 3; EX1016, p. 7; EX1017, p. 9; EX1013, [0003]. It follows that an engine bracket would secure the engine within the frame, this is a common technique. EX1003, ¶129. While KR996 does not detail how its engine is secured to its mainframe, JP705 does detail providing a mounting surface for just such an engine in a substantially similar vehicle. JP705's mounting surfaces are provided by mounting parts 7 (*engine bracket*) that extend from the frame—beneficially providing a mounting surface for receiving an engine to effectuate the vehicle's operation by securing the engine and allowing the engine to serve as structural support. EX1003, ¶130-131.

Using JP705's mounting parts 7 (*engine bracket*) extending from a side of KR996's frame provides a benefit of avoiding use of additional parts to secure the engine in the vehicle. EX1003, ¶¶132. 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]. And this formation of JP705's mounting parts integrally with the mainframe through conventional welding also prepares the receiving surface as advantageously, a "smooth, continuous surface." *See* EX1003, ¶132 citing EX1006, [0016], [0031]. Further, integrating the mounting parts extending from a frame side allows for efficient loading of an engine onto the available, prepared, designated mounting surface. EX1006, [0013], [0018], [0022]. POSITA would recognize these same benefits would be gained by implementing JP705's mounting parts 7 for mounting an engine in KR996's vehicle. EX1003, ¶132.

Thus, this combination is merely applying a known technique to a known device (e.g., JP705's recognition of a well-known technique of mounting an engine in a vehicle using an engine bracket, with KR996's vehicle having a frame and engine) ready for improvement (e.g., providing an easily accessible mounting surface extending from the frame suitable to receive the engine) to yield predictable results. EX1003, ¶133; *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1380–81 (Fed. Cir. 2023) (“[t]here is a motivation to combine when a known technique ‘has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way,’ using the ‘prior art elements according to their established functions.’”)

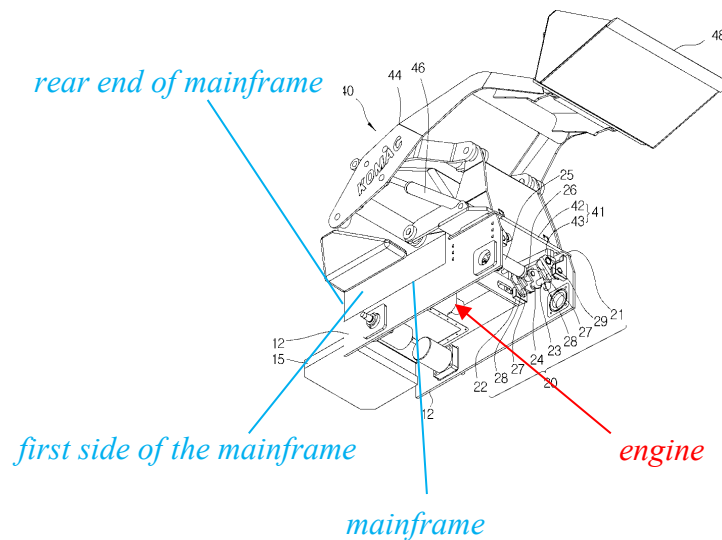
Combining JP705's engine bracket with KR996's frame would have been predictable and had a reasonable expectation of success given both JP705 and KR996 relate to similar vehicle types with an engine mounted between sides of a frame. There is limited range of options of placement of an engine bracket, and extending from the sides of the frame as illustrated in JP705 would have been a straightforward and simple matter of utilizing the engine mounting feature for its known function. JP705 recognizes welding operations to form the mounting parts extending from the frame can be performed "stably[], easily, and efficiently." EX1006, [0016]. Further, in evaluating the suggested frame of KR996 (*see* Fig. 10), POSITA would recognize available space on the sidewalls of KR996's frame to provide JP705's engine bracket extending therefrom. EX1003, ¶134.

4. Claim 5

[5] *The compact tool carrier as set forth in claim 4, wherein the mainframe comprises 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.*

KR996 discloses or renders obvious claim 4 and in combination with JP705 renders obvious this element. EX1003, ¶¶135-143.

As discussed in [4.2], KR996 describes a *mainframe*. KR996's vehicle also includes an engine for propelling the vehicle mounted within this mainframe.



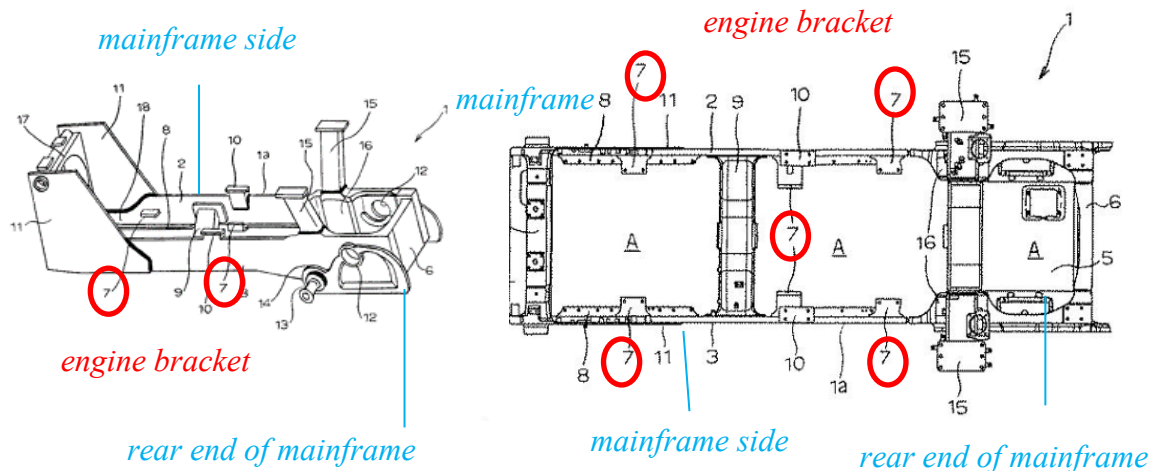
**EX1005, Fig. 10
(annotated)**

EX1005, Figs. 10, 12 [0002]-[0005]. KR996's engine and its relative location in the vehicle is illustrated by KR996's Figs. 10, 12 and confirmed by EX1014, a Korean patent publication having the same inventor, assignee, and directed to a substantially similar "green building deconstruction work" vehicle and further illustrating an engine. EX1003, ¶¶136-137 citing EX1005, Figs. 10, 12 [0002]-[0005], EX1014, (54), FIG. 3.

It 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. EX1003, ¶138. As discussed above in the Section X.D.3 - Reasons to Combine KR996 and JP705, it would have been obvious to provide the mainframe of KR996 such that it

comprises *an engine bracket* as taught by JP705 to provide a surface for mounting the engine of KR996's vehicle. EX1003, ¶¶138, 126-134.

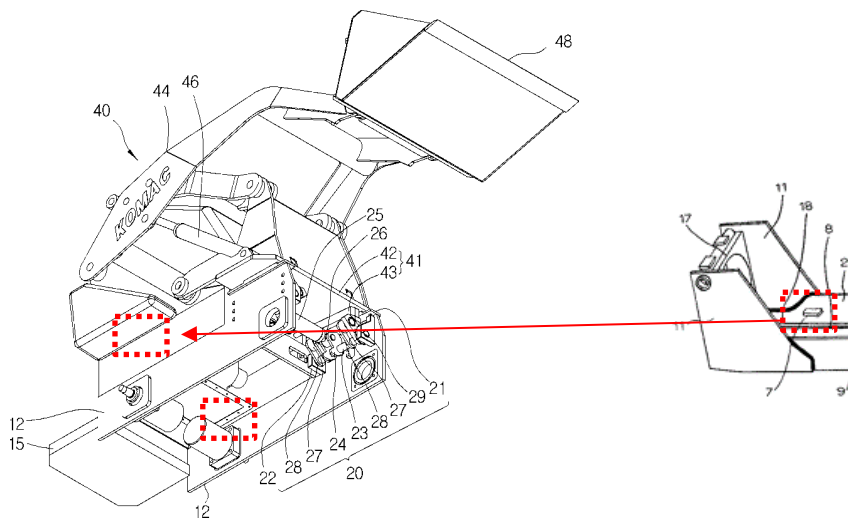
JP705 describes mounting parts 7 (and 8) extending from a side of a main body 1a of a mainframe 1 to mount an engine. EX1006, [0019], [0001], FIGS. 1, 3. “[T]he term ‘mounting part’ refers to a site with a mounting seat surface formed in a portion of the frame’s main body for attaching various attachment members[.]” EX1006, [0018]. The mounting parts 7 are particularly described as for “**mounting an engine**” and therefore provide an *engine bracket*... *for mounting an engine to the mainframe*. EX1006, [0019].



**EX1006, FIGS. 1 and 3
(annotated)**

The mounting part 7 (*engine bracket*) *extends from* a respective side 2[3] of the frame *toward* an opposing side 2[3] and is *spaced from the rear end of the*

mainframe. EX1006, FIGS. 1, 3. It would have been obvious to implement the mounting part 7 (*engine bracket*) of JP705 similarly *extend[ing] from the first side* of KR996's frame *toward the second side* for mounting the engine of KR996's vehicle. EX1003, ¶¶139-140. KR996's engine is spaced *from the rear end of mainframe*, and the JP705 engine bracket is similarly spaced *from the rear end of a mainframe*, thus, POSITA would have recognized to position JP705's mounting parts 7 a distance *from the rear end of the mainframe* of KR996. EX1003, ¶141.



**EX1005, Fig. 10, EX1006, FIG. 1 (portion)
(annotated)**

Thus, claim 5 is rendered obvious by KR996 and JP705. EX1003, ¶¶135-143.

5. Claim 6

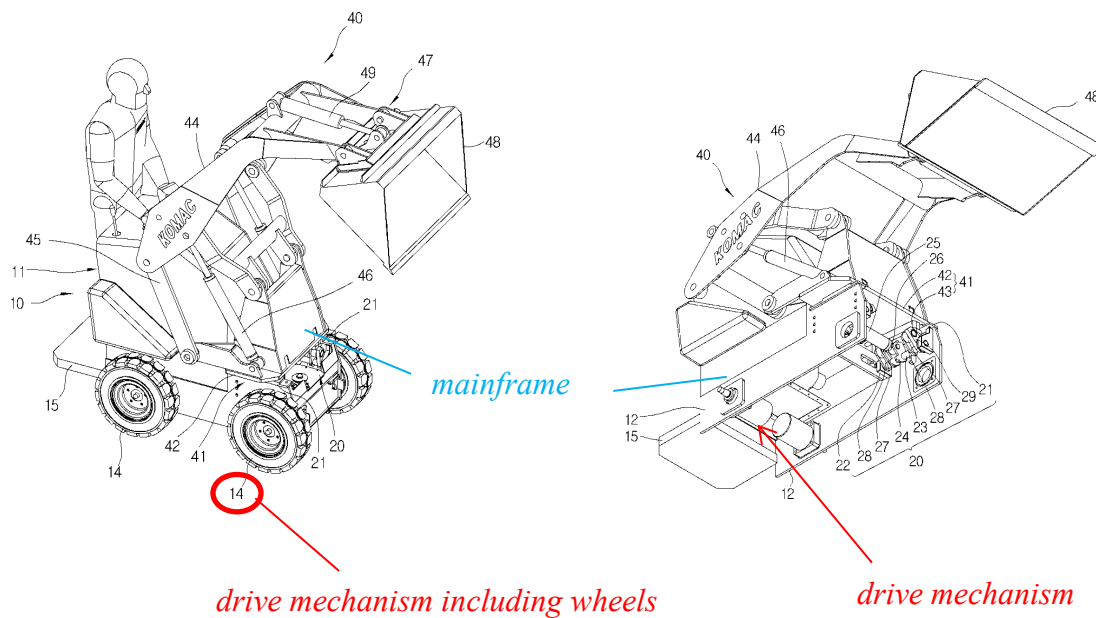
[6] *The compact tool carrier as set forth in claim 5 comprising an engine to propel a drive mechanism, the engine being attached to the engine bracket.*

KR996 in view of JP705 renders obvious claim 5 and also renders obvious

this claim. EX1003, ¶¶144-148.

First, as discussed above in claim 5, KR996 includes *an engine*. EX1003, ¶¶146, 136-138 citing EX1014, EX1005, Fig. 10. It would be obvious to *attach[]* the *engine* to the mounting parts 7 (*engine bracket*) of JP705 extending from KR996's mainframe as discussed above as this is merely effectuating the stated purpose of these mounting parts ("for mounting an engine"). EX1006, [0019].

Second, KR996 also discloses *a drive mechanism* including wheels 14 as discussed in claim 10. EX1005, [0042], Figs. 1, 8-10.



**EX1005, Figs. 9, 10
(annotated)**

POSITA would understand that the *drive mechanism* is propelled by the engine as this is a standard vehicle operation. EX1003, ¶¶145-147 citing EX1009, FIGS. 1-2, 2:34-47, EX1010, 2:35-46.

Thus, claim 6 is rendered obvious by KR996 and Bares. EX1003, ¶¶144-148.

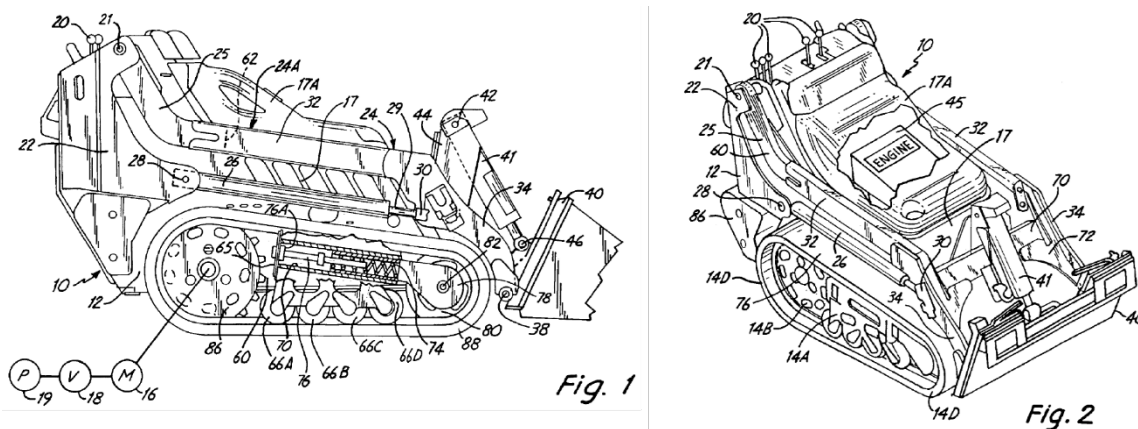
E. Ground 4 : KR996 and Bares

1. KR996

KR996 is discussed above at Section X.C.1.

2. Bares (EX1010)

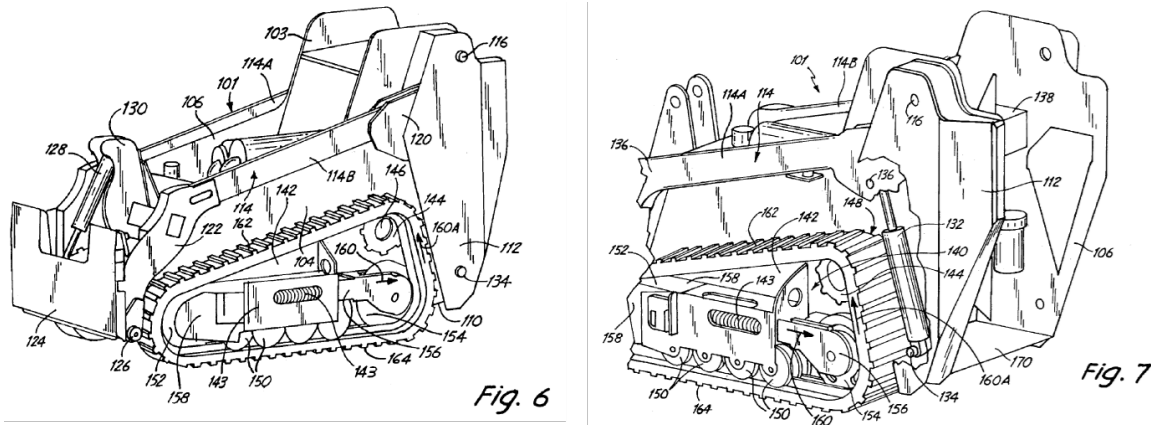
Bares “relates to a small...walk behind loader that is...track propelled.” EX1010, 1:33-36. Bares illustrates side and perspective views in a base embodiment illustrated in FIGS. 1-2. EX1010, 2:14-16.



EX1010, FIGS. 1, 2

A track assembly 14 is on each side of the loader for propelling the loader in a forward or reverse direction. EX1010, 2:35-47. Bares also describes modified

carrier an alternative form track drive (e.g., having a sprocket raised above a tensioner idler wheel). EX1010, 1:59-63, 5:24-29, FIGS. 6-8.



EX1010, FIGS. 6, 7

Bares describes its loader can be a “walk behind unit, or can have a support platform 170 for supporting an operator.” EX1010, 5:55-57. Bares describes its frame 108 that includes side support plates 104, 106 extending adjacent the platform 170. EX1010, 4:52-60, FIG. 7. Bares also recognizes in lieu of track assemblies, wheels are also a common configuration for this type of vehicle. EX1010, 2:1-11, 4:44-51.

3. Reasons to Combine KR996 and Bares (KR996-Bares)

Bares, like KR996, is in the same field of endeavor as the '063 patent, pertaining to working vehicles (e.g., earth-moving equipment) and in particular, vehicles with a stand behind operation and a loader arm. EX1003, ¶¶150-153;

EX1005, Abstract, [0001], FIG. 21; EX1010, 5:55-57, FIGS. 1-8; EX1001, 1:30-44, 2:54-3:15, FIG. 1. KR996, Bares and '063 Patent are also each reasonably pertinent to a same problem faced by the inventor of operator safety for such a vehicle. EX1003, ¶153 citing EX1005, [0010]-[0011], [0034], FIG. 21; EX1001, 3:66-4:3; EX1010, FIG. 7.

POSITA would have been motivated to combine the teachings of Bares with KR996 to produce a predictable and beneficial configuration of forming a pocket providing a barrier of protection for the operator when on KR996's safety step 15. EX1003, ¶154. The simple modification of KR996's frame (main portion 11) to provide an extension of the frame. This is predictable with a reasonable expectation of success as both KR996 and Bares relate to similar vehicle types with a similar mainframe having an operator platform extending behind the tool and the drive mechanism attached thereto. *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1380–81 (Fed. Cir. 2023) (“[t]here is a motivation to combine when a known technique ‘has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way,’ ...using the ‘prior art elements according to their established functions.’”)

POSITA would have recognized a benefit in Bares' configuration as it provides operator protection suggested by industry standards. EX1003, ¶¶154-155 citing ISO 3457 (EX1017). ISO 3457 would have suggested to POSITA to provide

Bares' extension of the mainframe to provide a barrier between the KR996's operator and drive mechanism as should a hazard exist, a "guard that restricts the movement of a person's body or a part of it, in order to avoid its contact with a machine component or exposure to other, similar hazards" is required. EX1017, p. 1. By providing the extension of the frame of Bares to that of KR996, a barrier is provided between an operator and the equipment (e.g., drive mechanism and/or loader) avoiding contact with the drive mechanism/loader and/or debris generated. EX1003, ¶154. KR996 itself recognizes the need to guard the operator from debris. EX1005, [0014] ("Another object of the present invention is to provide construction equipment for green building deconstruction work that can protect"). Applying Bares' teaching furthers this goal of KR996. EX1003, ¶¶154-155.

Further, KR996 describes forming a safety fence 16 at an upper portion of the operator's environment to protect the operator. *See* EX1005, Fig. 21, [0090]. This invites POSITA to look for other safety barriers such as provided in Bares to further protect the operator including at the lower portion of the operator's environment. EX1003, ¶155. Moreover, this is a portion more likely to encounter debris due its distance from the supporting surface. *Id.*

POSITA would have had a reasonable expectation of success in implementing the configuration as it merely extends a portion of the existing frame adjacent the safety step 15 of KR996 adjacent the operator. EX1003, ¶156 citing EX1007, 3:19-

24, FIGS. 1-3. Further, providing a pocket on such an apparatus was a common technique. EX1003, ¶156 citing EX1007. And implementing Bares' frame extension is an easy installation and a common practice. *Id.*

4. Claim 13

[13] *The compact tool carrier as set forth in claim 4, wherein the mainframe defines a pocket toward a rear of the mainframe to partially surround an operator.*

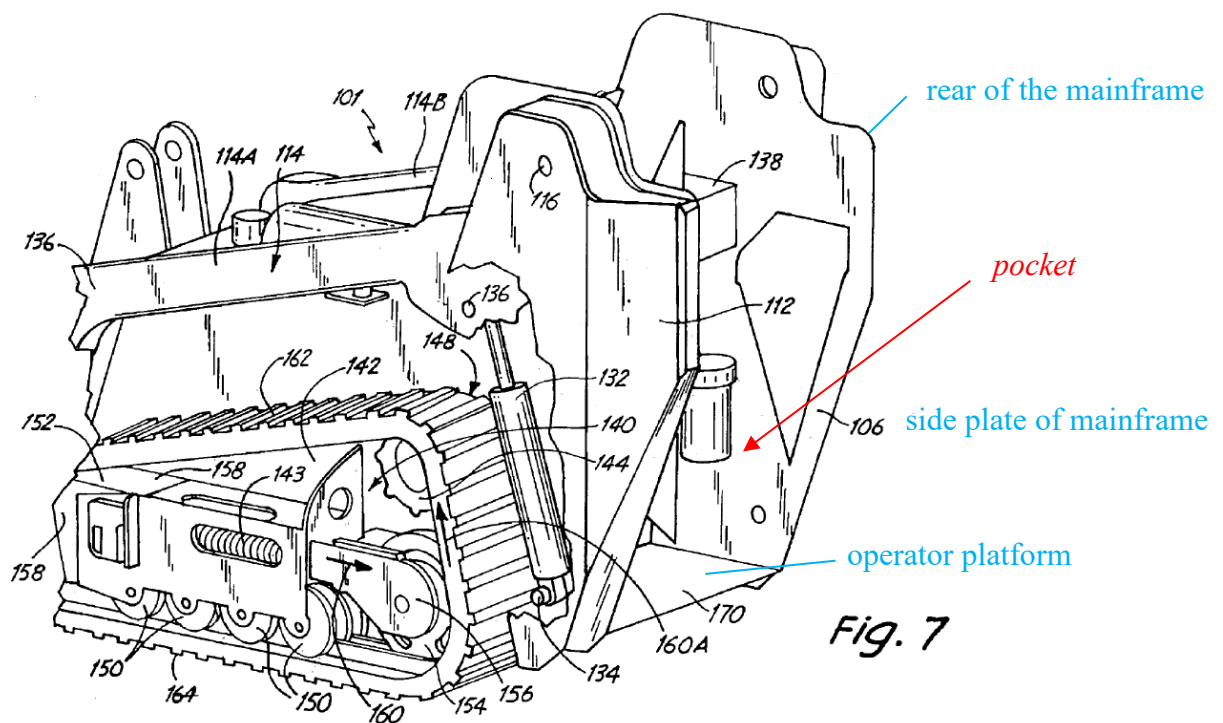
KR996 discloses or renders obvious claim 4 and in combination with Bares renders obvious this element. EX1003, ¶¶157-160.

As discussed in [4.2], KR996 describes a *mainframe*. As discussed above in the Section X.E.3 - Reasons to Combine KR996 and Bares, it would have been obvious to provide the mainframe of KR996 such that it includes plates that extend to *define[] a pocket toward a rear of the mainframe to partially surround an operator* as taught by Bares.

KR996 provides safety step 15 on which an operator stands while operating the vehicle. EX1005, Figs. 7-9, 21, claim 18, [0033], [0042], [0049]. At the rear lower part of the vehicle (10), a **folding safety step (15) is installed on the main body (11)** side of the vehicle (10) so that the **operator** can board the vehicle (10) when driving and fold it towards the side of the main body (11) of the vehicle (10) when stopped.” EX1005, [0049]. Bares similarly describes a step at the rear of a compact loader on which the operator stands during operation, “platform 170.”

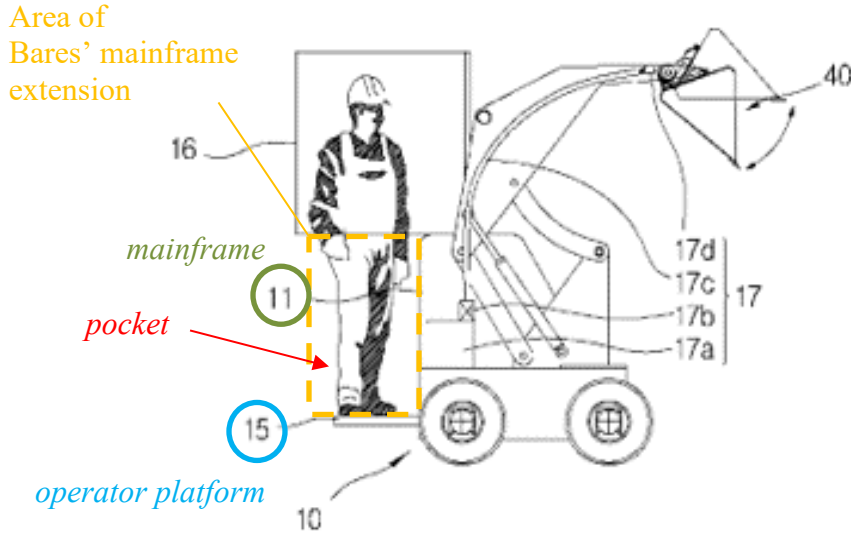
EX1010, 5:55-57, FIG. 7.

Bares illustrates a portion of a mainframe—side plates 104, 106—extends such that the operator platform 170, and thus *an operator* standing thereon, is at least *partially surround[ed]* by and within a *pocket* defined by the extension of the mainframe provided by side plates 104, 106. FIG. 7 of Bares is illustrative:



EX1010, FIG. 7
(annotated)

Extending KR996's *mainframe* including its main body 11, as taught by Bares, provides the safety step 15 of KR996 is within a *pocket* toward a rear of the *mainframe* that *partially surround[s]* an operator while on the safety step 15.



**EX1005, Fig. 21
(annotated)**

EX1003, ¶¶159-160.

Thus, claim 13 is rendered obvious by KR996 and Bares. EX1003, ¶¶157-160.

5. Claim 14

[14] *The compact tool carrier as set forth in claim 13 further comprising an operator platform at least partially within the pocket.*

KR996 in view of Bares discloses or renders obvious claim 13 and also teaches this claim. EX1003, ¶¶161-163.

As discussed in [13], KR996 describes a safety step 15 that is an *operator platform*. EX1005, Figs. 7-9, 21, claim 18, [0033], [0042], [0049]. Bares similarly describes a “platform 170” that provides an operator platform. EX1010, 5:55-57, FIG. 7. As illustrated and discussed above, applying Bares’ technique to KR996’s

forms a pocket. And the safety step 15, *the operator platform*, is *at least partially within the pocket*.

Thus, claim 14 is rendered obvious by KR996 and Bares. EX1003, ¶¶161-163.

XI. DISCRETIONARY DENIAL IS INAPPROPRIATE

A. No basis for 35 U.S.C. § 325(d) denial

The combinations of references presented in the grounds above have not previously been presented to the Office. KR996, the primary reference, was not cited or considered by the Examiner during prosecution of the '063 patent. As discussed above, a patent, EX1009, sharing an inventor and some disclosure with Bares cited during the original prosecution, but not relied upon or discussed. Further, Bares relied upon here has different scope and figures. Moreover, the Examiner did not consider EX1009 in combination with KR996 as presented in Ground 4.

Accordingly, the prior art, arguments and grounds raised here were not previously before to the Office. Discretionary denial under 35 U.S.C. § 325(d) is not appropriate.

B. No basis for denial under the 35 U.S.C. §314/*Fintiv*

The Board balances six factors in considering denial under § 314. *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (Mar. 20, 2020) (precedential). These factors strongly favor institution as this Petition presents compelling evidence of

unpatentability of all Challenged Claims. And moreover, the district court case is in its very early stages. Patent Owner just added the '063 patent to an Amended Complaint filed December 4, 2024. *See* EX1019. Petitioner has diligently worked to prepare this petition.

The current average time-to-trial scheduling order for the district court hearing the co-pending litigation is 19.8 months (mid-May 2026). EX1034 NDTX mean time); *In re Apple Inc.*, 979 F.3d 1332, 1350 (Fed. Cir. 2020). And the Scheduling Order (EX1037) has a trial date docketed for May 11, 2026. Here, the final written decision is due May 2026. If the median time-to-trial is around the same time or after the projected statutory deadline for the PTAB's final written decision, this weighs against discretion. Inefficiency concerns are minimal.

C. Discretionary denial under *General Plastic* is not appropriate

The '063 patent has not been challenged in any prior post grant petition, so none of *General Plastic* discretionary institution factors apply to this Petition. *See General Plastic Indus. Co., Ltd. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19 at 16 (Sept. 6, 2016).

XII. CONCLUSION

Petitioner has established a reasonable likelihood that the Challenged Claims are unpatentable.

Respectfully submitted,

Dated: January 7, 2025
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XIII. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8

A. Real party-in-interest

Pursuant to 37 C.F.R. § 42.8(b)(1), Petitioner certifies that the real party-in-interest is Kubota North America Corporation and Kubota Tractor Corporation.

B. Related matters

Pursuant to 37 C.F.R. § 42.8(b)(2), to the best knowledge of the Petitioner, the '063 patent is or was involved in the following cases:

Case Heading	Number	Court	Filed	Status
<i>Vermeer Manufacturing Company, vs. Kubota North America Corporation and Kubota Tractor Corporation</i>	4:24-cv-00799-P	NDTX	August 20, 2024	Pending
<i>Vermeer Corporation vs. The Toro Company</i>	4-17-CV-00076	SDIA	Feb. 28, 2017	Terminated

Petitioner has also filed petitions for *inter partes* review (“IPR”) of patents related to the ’063 patent.

Patent Number	Challenged Claims	Proceeding No.	Filing Date
9,321,386 Petition A	1-13, 15, 17, 19-30, 64-67	IPR2025-00167	November 14, 2024
9,321,386 Petition B	31-49, 70-79, and 86-87	IPR2025-00168	November 14, 2024
9,321,386 Petition C	50-63, 68-69, and 80-85	IPR2025-00169	November 14, 2024
9,975,750	1-36 (all claims)	IPR2025-00170	November 14, 2024
10,202,266	1-16 and 19-28 (all claims)	IPR2025-00171	November 14, 2024
11,465,891	1-10 (all claims)	IPR2025-00381	January 7, 2024

C. Lead and back-up counsel and service information

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Please address all correspondence in this proceeding to lead and back-up counsel. Petitioner consents to service in this proceeding by email at the addresses above.

CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), Petitioner hereby certifies, in accordance with and reliance on the word count provided by the word-processing system used to prepare this Petition, that the number of words in this paper is 9,474. Pursuant to 37 C.F.R. § 42.24(d), this word count excludes the table of contents, table of authorities, mandatory notices under § 42.8, certificate of service, certificate of word count, appendix of exhibits, and any claim listing.

Dated: January 7, 2024

/David M. O'Dell/
David M. O'Dell
Lead Counsel for Petitioner
Registration No. 42,044

CERTIFICATE OF SERVICE

The undersigned certifies that, in accordance with 37 C.F.R. § 42.6(e) and 37 C.F.R. § 42.105, service was made on Patent Owner as detailed below.

Date of service January 7, 2024

Manner of service FEDERAL EXPRESS

Documents served Petition for Post Grant Review of U.S. 12,098,063;
Petitioner's Power of Attorney;
Petitioner's Exhibit List;
Exhibits EX1001-EX1003, EX1005-EX1010, EX1013-
EX1017, EX1019-EX1020, EX1022-EX1028, EX1034,
and EX1036-EX1037

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