

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Kubota North America Corporation,
Petitioner

IPR2025-00168
U.S. Patent No. 9,321,386
SECOND PETITION

**PETITION FOR *INTER PARTES* REVIEW
UNDER 35 U.S.C. § 312 AND 37 C.F.R. § 42.104**

(Claims 31-49, 70-79, and 86-87)

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PETITIONER’S EXHIBIT LIST

EX1001	Vermeer Patent U.S. Patent No. 9,321,386 (the “’386 Patent”)
EX1002	Vermeer Patent Prosecution History Prosecution History of U.S. Patent No. 9,321,386
EX1003	Second Declaration of Steven Velinsky under 37 C.F.R. § 1.68
EX1004	Reserved
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 Publication 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	Reserved
EX1019	Complaint, 4:24-cv-00799-P
EX1020	Claim Construction in Case No: 4-17-CV-76-CRW-HCA (Vermeer Corporation v. The Toro Company)
EX1021	U.S. Patent Application Publication No. 2007/0128012 A1 (“Yamada”)
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>Ex Parte</i> Reexamination 90013915
EX1030	<i>Ex Parte</i> Reexamination 90014109
EX1031	<i>Ex Parte</i> Reexamination 90014124
EX1032	U.S. Patent Publication Appl. 2010/0168933 (“Rorabaugh”)
EX1033	U.S. Patent Publication Appl. 2009/0116943 (“Valere”)
EX1034	United States District Court – National Judicial Caseload Profile
EX1035	U.S. Patent No. 3,828,873 (“Oestmann”)

EX1036	CV of Steven Alan Velinsky
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I. INTRODUCTION

Pursuant to 35 U.S.C. §§311, 314(a), and 37 C.F.R. §42.100, Kubota North America Corporation (“Petitioner”) respectfully request the Board institute review and find unpatentable claims 31-49, 70-79, and 86-87 (hereinafter, “Challenged Claims”) of U.S. Patent No. 9,321,386 (“the ’386 Patent,” EX1001).

The ’386 Patent describes a compact tool carrier for standing or walk-behind operation having a loader arm mounted to a mainframe using linkage(s) and an actuator. As shown below and confirmed in the Declaration of Dr. Velinsky (EX1003), this configuration of a compact tool carrier was already known. The references presented in this Petition render obvious the Challenged Claims.

II. GROUNDS FOR STANDING

Petitioner certifies that the ’386 Patent is eligible for IPR and that Petitioner is not barred or estopped from requesting IPR challenging the patent claims. 37 C.F.R. §42.104(a).

III. NOTE

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

IV. BACKGROUND

The '386 Patent relates to earth-moving machinery and particularly to a well-known type of machine—a compact tool carrier. This section describes background technology related to the claimed subject matter predating the '386 Patent, supported by Dr. Velinsky's declaration. *See* EX1003, ¶¶4-38.

A. Compact Tool Carrier

The '386 Patent is titled “Low Profile Compact Tool Carriers,” which it continues to describe as tool-mounted machines capable of working in tight spaces for utility or do-it-yourself home projects. EX1001, Title, 1:12-36. These compact tool carriers are defined by industry standard as “self-propelled crawler[s] or wheeled machine[s] 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, 1:21-28 (citing SAE Standard J2752 [EX1015]); EX1002, pp. 43-44, EX1016. This type of equipment (compact tool carrier) may also be referred to as a compact utility loader (CUL) or a mini-skid steer. EX1003, ¶¶28-29; EX1030, p. 12.

B. Radial and Vertical Lift Loaders

A loader, which includes lift arm(s), is attached to the frame of earth-moving equipment. As Patent Owner has recognized, there are generally two conventional

configurations of loaders each characterized by how the loader attaches to a frame of the equipment: a radial-lift loader and a vertical-lift loader. EX1003, ¶¶30-38; EX1029, pp. 105-108, 150, 155-157. Each was known well-before the '386 Patent. EX1030, p. 13. Radial-lift loaders implement a two-bar mechanism where the loader arm is attached to a frame by a direct pivot connection. EX1003, ¶¶30-31 citing EX1008, FIG. 1; EX1009; EX1030, p. 13. The vertical-lift loader connects the loader arm to a frame indirectly through intermediary parts, linkages and an actuator, configured in a four-bar mechanism. EX1003, ¶¶32-38 citing EX1001, FIG. 3, EX1005, Fig. 21; textbook explanations EX1023-EX1026, EX1028; EX1029, p. 142 ('386 Patent inventor declaring “[b]y using a linkage and actuator to support the loader (i.e., a vertical lift loader) as set forth in claim 1”), EX1030, p. 13.

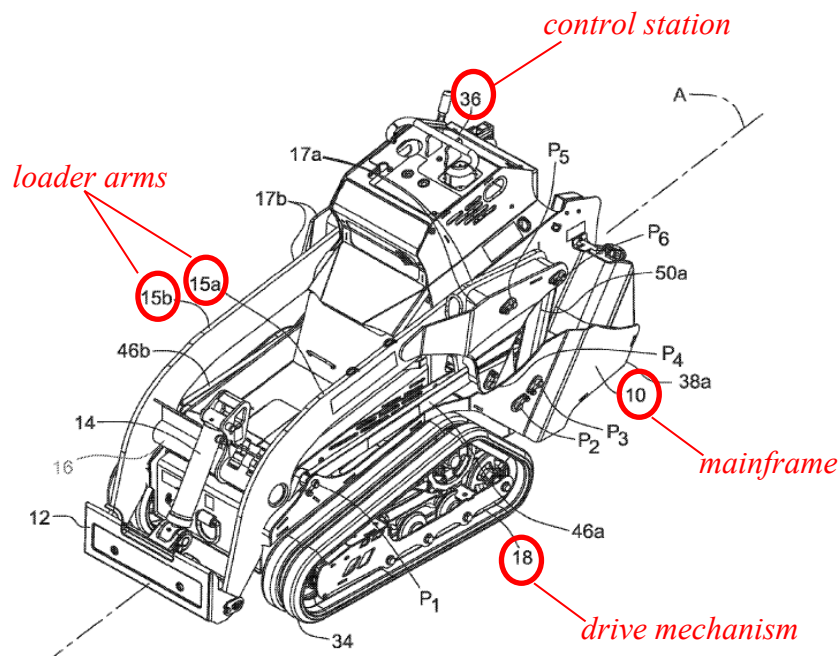
V. SUMMARY OF THE '386 PATENT

The '386 Patent issued April 26, 2016, and was subject to three (3) *ex parte* reexamination proceedings resulting in the '386 Patent having claims 1-15, 17, and 19-87. Petitioner was not a party to any of these proceedings.

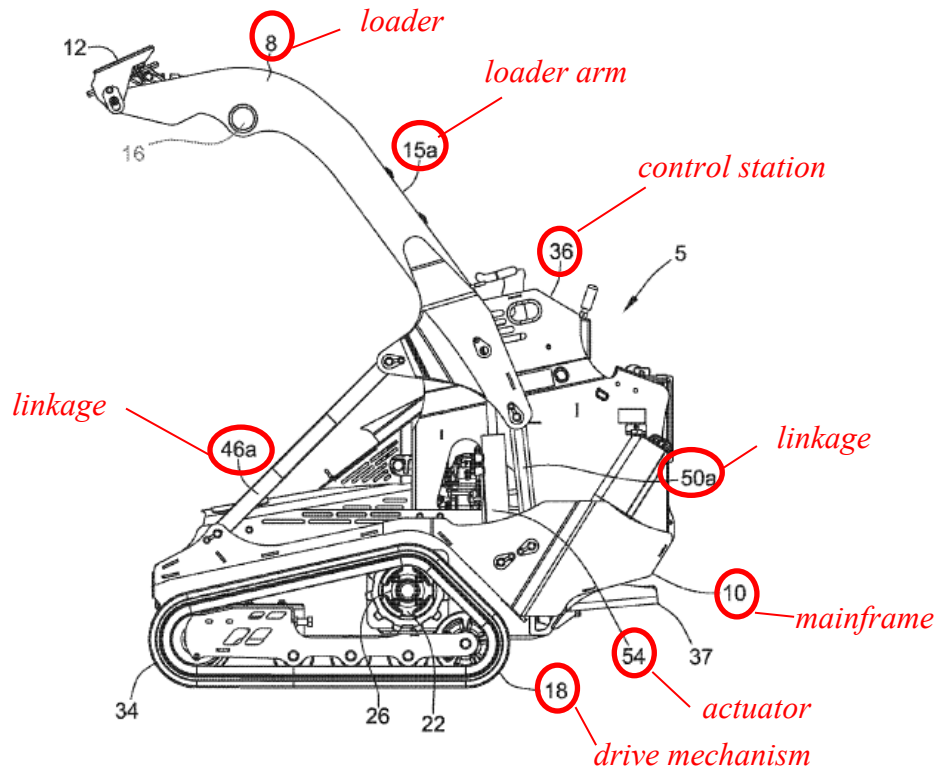
The '386 Patent relates to compact tool carriers having a loader (with two loader arms) operated by an operator standing at the rear of the equipment. EX1001, 1:21-34. In its background, the '386 Patent asserts compact tool carriers “may be distinguished from much larger conventional skid steers in which an operator is

seated in the operating position.” EX1001, 1:32-36. Tools may be provided as front-mounted attachments such as buckets, augers, and the like. EX1001, 1:28-31.

FIGS. 1 and 3 are illustrative of compact tool carrier 5 including loader 8 having loader arms 15a, 15b. EX1001, 2:44-46. Drive mechanism 18 is attached to the mainframe 10 and may include tracks (as shown) or wheels. EX1001, 3:20-30. Control station 36 provides controls for propelling the carrier forward and raising and lowering loader 8. EX1001, 3:31-61.



EX1001, FIG. 1
(annotated)



**EX1001, FIG. 3
(annotated)**

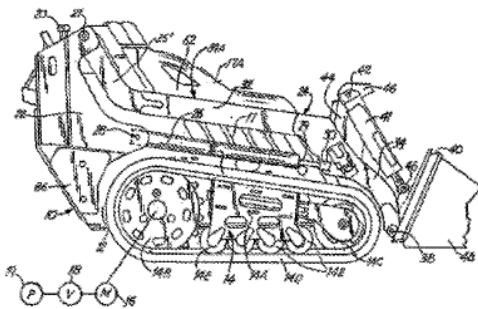
The first loader arm 15a is pivotally connected to a first side 38a of the mainframe 10 and the second loader arm 15b is pivotally connected to a second side of the mainframe 10. EX1001, 4:13-17. Each loader arm is attached to a respective side of the mainframe by a linkage 46a, an actuator 54 (e.g., a hydraulic cylinder), and a linkage 50a. EX1001, 4:13-60. This configuration was known to Persons of Ordinary Skill in The Art (POSITA) as a vertical-lift loader with a four-bar mechanism providing a path generation of the motion of the tool attachment plate 12. EX1003, ¶¶41, 33-38. FIG. 1 is illustrative of the carrier with the loader in a

down position; FIG. 3 is illustrative of the loader in a raised position. EX1001, 2:27-30. See also, EX1003, ¶¶39-41.

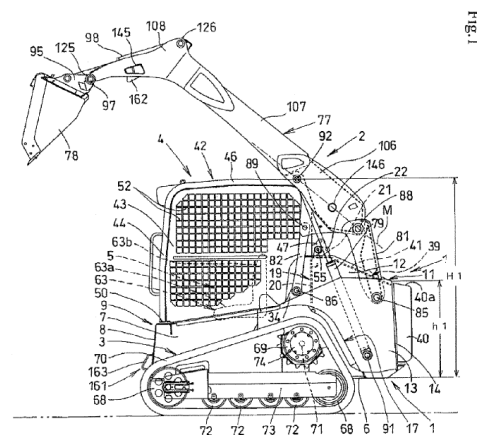
VI. PROSECUTION HISTORY OF '386 PATENT

A. Original Prosecution

In response to an Office Action rejecting all then-pending claims, Applicant amended its claims to specify the loader configuration (*i.e.*, its attachment to the frame) and the operator's position in the equipment. *See* EX1002, pp. 59-60. All claims were then rejected over Yasuda (EX1022), which illustrates the claimed loader configuration including its attachment to a mainframe, in combination with Bares '568 (EX1009), which illustrates equipment having a control station for walk-behind operation. EX1002, p. 52. Representative Yasuda and Bares '568 figures are illustrative:



EX1009, FIG. 1



EX1022, FIG. 1

Applicant argued against the **combination** asserting one would not look to combine a larger skid-steer machine and a small vehicle. EX1002, pp. 43-48. After the rejection was maintained over Applicants' arguments against the combination, Applicant amended its claims to recite an *engine bracket spaced from the rear end of the mainframe* to distinguish from Yasuda's engine location. EX1002, p. 21. After an interview, a Notice of Allowance issued. EX1002, p. 5.

B. Reexamination Proceedings (90/013,915 (EX1029)) (90/014,109 (EX1030)) (90/014,124 (EX1031))

The *ex parte* reexamination proceedings of the '386 Patent also turned on whether it was obvious to replace a radial lift loader of a compact carrier with a vertical lift loader illustrated on a larger skid-steer. EX1030. The Examiner recognized vertical and radial lift loaders were well-known, but found Patent Owner's evidence showed "**Toro** [the Third Party Requester])...did not find it obvious to employ a vertical lift loader arm arrangement on a [compact tool carrier]" and "the Declaration of L. Hartke [**'386 Patent named inventor**] is persuasive to show that designing a vertical lift having a four-bar linkage requires considerable experimentation and a combination such as would not have been obvious at least because it would require undue experimentation." EX1030, p. 16.

C. Previously Alleged Secondary Considerations

Patent Owner has during previous *ex parte* proceedings, entered evidence for

secondary considerations including claim 1. Such evidence carries little weight in this *inter partes* proceeding. **First**, such factors must be assessed anew in light of the entirely different obviousness framework here that relies, in the context of claim 1, on a secondary reference adding only a minor, well-known limitation (*e.g.*, engine bracket). **Second**, Patent Owner's evidence relates entirely to the question 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). For example, "if the feature that creates the commercial success was known in the prior art, the success is not pertinent." *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1312. **Third**, Vermeer's evidence should not be given substantial weight as it suffers from numerous deficiencies including reliance on declarations from interested parties (*i.e.*, '386 Patent named inventor alleging long-felt need and skepticism); alleged praise based on Patent Owner's presentation of its loader as the first to provide vertical lift, which it was not; evidence particular to a third-party (Toro); and reliance on performance data limited to one vertical lift mechanism in comparison with one radial lift mechanism, which merely recognizes predictable differences in lift path

between that specific equipment¹. **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).

D. Prosecution History Summary

Throughout original prosecution and reexaminations, Patent Owner repeatedly overcame challenges to its claims that relied upon an obviousness framework of placing a vertical lift loader onto a compact tool carrier. See also, EX1003, ¶¶42-47. This framework is not relied upon in the present petition. The present petition relies on a primary reference, KR996, that was not of record that shows it was known to provide, in a single embodiment, a compact tool carrier having a vertical lift loader.

VII. EFFECTIVE PRIORITY DATE OF THE '386 PATENT

The '386 Patent is based on a provisional application filed on February 20, 2015. Determining whether the '386 Patent is entitled to an earlier priority date is unnecessary as all of the cited and relied-upon prior art predates this earliest claimed

¹ “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).

date. Accordingly, Petitioner has not undertaken a priority date analysis. Petitioner does not waive any right or opportunity it may have to dispute the priority date in this or another forum. EX1003, ¶48.

VIII. LEVEL OF ORDINARY SKILL IN THE ART

POSITA in February 2015 (the earliest effective filing date claimed in the '386 Patent) 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 IPR are construed according to their “ordinary and customary meaning” to those of skill in the art. 37 C.F.R. §42.100(b). Petitioner submits, for the purposes of this proceeding and the grounds presented herein, no claim term requires express construction.² *Nidec Motor Corp. v. Zhongshan Broad Ocean*

² A district court previously discussed construction of certain claim terms in the '386 Patent. *See* EX1020. Petitioner was not a party to that case. Petitioner reserves its rights to respond to assertions by Patent Owner that any claim term requires construction for the purposes of this IPR proceeding; and seek construction of any claim term in other forums as appropriate.

Motor Co., 868 F.3d 1013, 1017 (Fed. Cir. 2017). *See also*, EX1003, ¶49. In co-pending litigation, Petitioner may argue that some claims are indefinite under 35 U.S.C. §112. Such issues are outside the scope of this proceeding and do not preclude the Board’s evaluation of grounds presented below.

X. RELIEF REQUESTED AND THE REASONS FOR THE REQUESTED RELIEF

Petitioner asks that the Board institute a trial for *inter partes* review and cancel the Challenged Claims in view of the analysis below.

A. Challenged claims

Petitioner challenges claims 31-49, 70-79, and 86-87 (“Challenged Claims”) by this Petition and concurrently files an additional two petitions to challenge other claims of the ’386 Patent. Patent Owner has declined to identify which of the 85 claims of the ’386 Patent it asserts in the co-pending litigation. *See* EX1019 (asserting “at least claim 1”).

B. 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. JP 2004 17705 (“JP705”) (EX1006); filed June 13, 2002; published January 22, 2004; prior art under 35 U.S.C. §102(a)(1).

3. 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).

KR996 and JP705 were not cited nor discussed during prosecution of the ’386 Patent. Bares was not cited but shares some disclosure with Bares ’568 that was relied upon, here Bares is a secondary reference illustrating a common conventional track assembly.³

C. Statutory Grounds for Challenges

This Petition, supported by the declaration of Dr. Velinsky (EX1003) (*see also* EX1004)(EX1036), requests cancellation of the Challenged Claims under the following Grounds:

Grounds	Claims	Basis
#1	31-36, 38-39, 41-44, 45-49, 86-87	35 U.S.C. § 103 over KR996 and JP705
#2	37, 40, 70-79	35 U.S.C. § 103 over KR996, JP705, and Bares

³ Here, Bares is used as a secondary reference to show conventional features such as track assembly and in combination with previously unconsidered art.

See EX1003, ¶50.

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”).

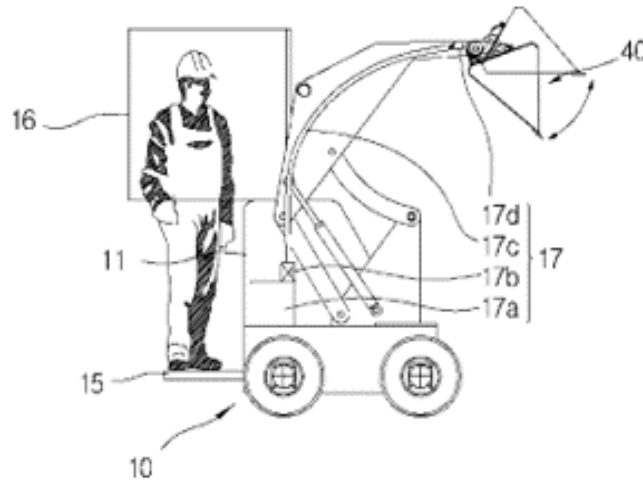
Petitioner also cites below to additional prior art as evidence of the background knowledge of POSITA and to provide contemporaneous context to support Petitioner’s assertions regarding what POSITA would have understood from the prior art in the grounds. *See Yeda Research v. Mylan Pharm. Inc.*, 906 F.3d 1031, 1041-1042 (Fed. Cir. 2018) (affirming the use of “supporting evidence relied upon

to support the challenge”); 37 C.F.R. §42.104(b).

D. Ground 1

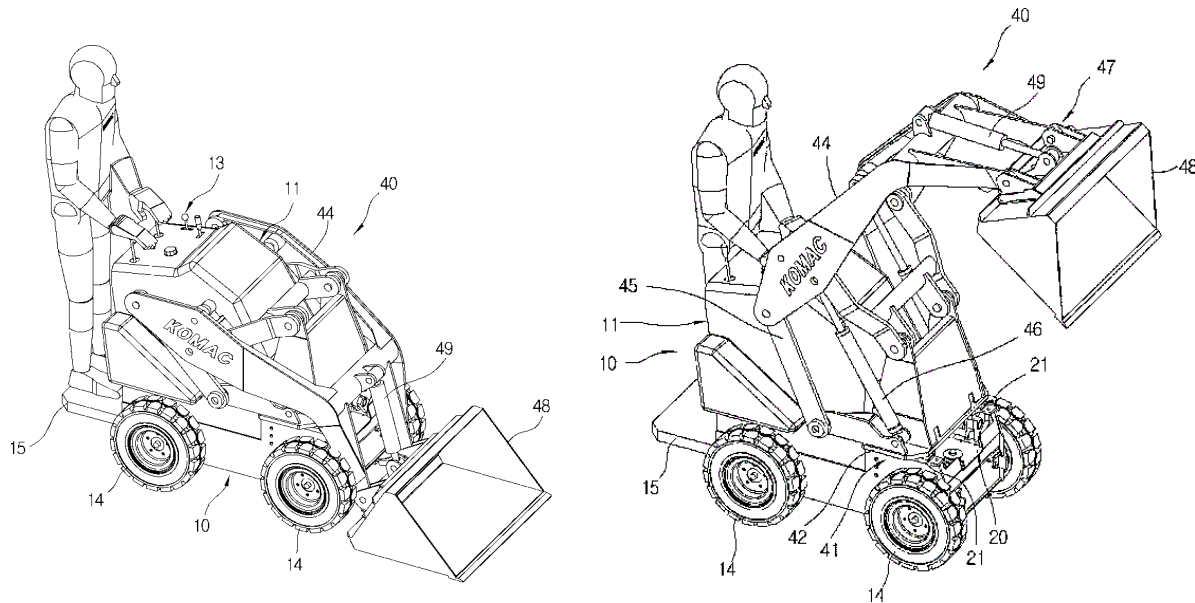
1. KR996 (EX1005)

KR996 is 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 “effectively perform difficult tasks in narrow spaces, allowing for efficient operations such as building interior demolition, road maintenance, snow removal, and towing[.]” EX1005, [0001]-[0002]. In particular, KR996 provides a vehicle 10 to which, interchangeably, a loader unit 40 or an arm unit 60 is attached. EX1005, [0041], Figs. 1-13, 21 illustrating the loader unit 40 and Figs. 14-20, 22 illustrating the arm unit 60. Fig. 21, reproduced below, illustrates a side view of the vehicle with the loader unit 40. EX1005, [0113]-[0114].



EX1005, Fig. 21

The vehicle 10 includes a control unit 13 for operating of the vehicle including the installed unit (here 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. The loader 40 includes a boom 44 connected to the mainframe of the vehicle by intermediary parts—a link 45, a link (unlabeled), and a boom cylinder 46. *Id.* Figs. 8-9 are illustrative of the loader in lowered and raised positions, respectively.



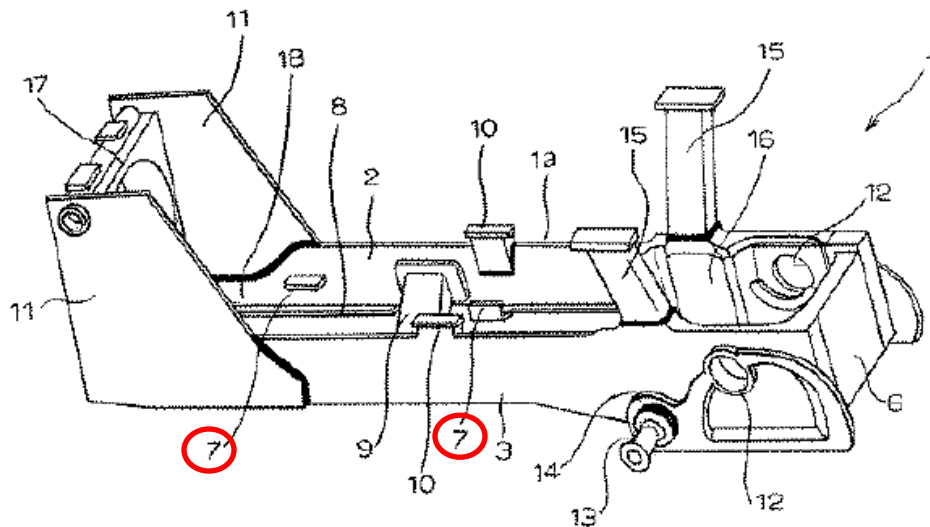
EX1005, Fig. 8 (portion), Fig. 9

Dr. Velinsky confirms KR996's loader is a vertical lift, four-bar mechanism based, configuration. EX1003, ¶¶51-52.

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]. And mounting parts extend from these sides. EX1003, ¶53. “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-JP705)

KR996 and JP705 are analogous art to the '386 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, ¶54, EX1005, Abstract, [0001], FIG. 21; EX1006, Abstract, [0001], FIG. 1; EX1001, 1:17-48, 2:44-3:2, FIG. 1. For example, JP705 suggests it applies to an excavator, which is similarly a function of KR996 and the '386 Patent. EX1006, [0017]; EX1005, [0005]; EX1001, 1:28-31 (“auger”). Further, KR996 and JP705 are analogous art to

the '386 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, 4:4-16, 5:52-55, FIG. 6.

POSITA would have been motivated to combine the teachings of JP705, and in particular, its mounting parts 7 as an engine bracket to KR996's vehicle to produce predictable and beneficial results as discussed below. EX1003, ¶¶55-62. First, the vehicle of KR996 has an engine disposed within its frame to provide energy to propel the vehicle. EX1003, ¶56 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. EX1003, ¶57. KR996 does not detail how its engine is secured to the mainframe. However, 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. EX1003, ¶58.

Using 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]. And a POSITA would recognize reliability benefits from the welding of the bracket and mainframe. EX1003, ¶60. POSITA would recognize these same benefits would be gained by implementing JP705's mounting parts 7 for mounting an engine in KR996's compact vehicle. *Id.*

Thus, this combination is merely applying a known technique to a known device (e.g., JP705's 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 suitable to receive the engine extending from the frame) to yield predictable results. EX1003, ¶¶54-61; *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.””)

The results of combining JP705’s technique 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 mounting parts 7 extending therefrom. EX1003, ¶62.

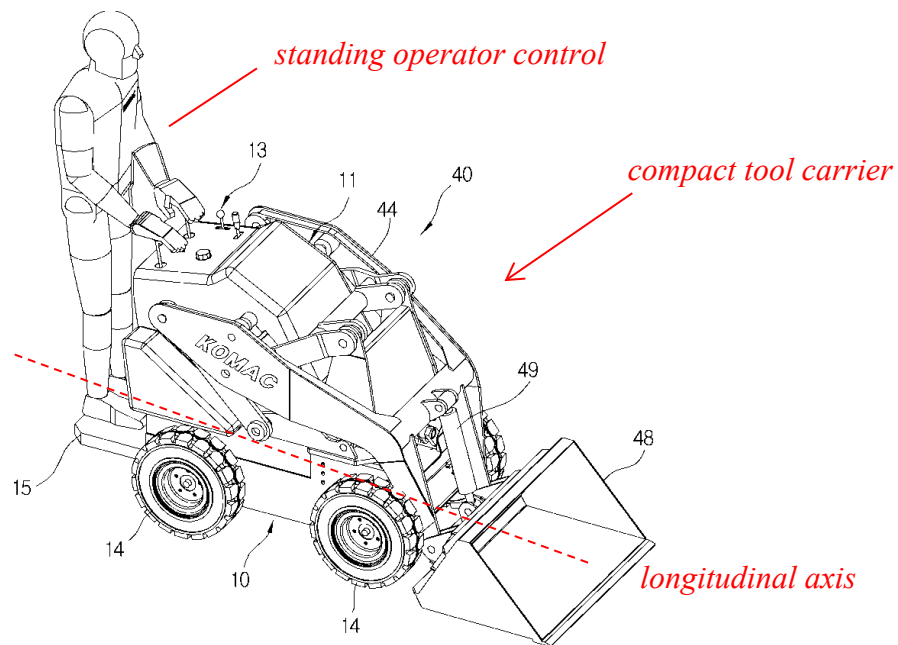
4. Claim 31

[31.0] *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:*

To the extent the preamble is limiting, KR996 discloses it. EX1003, ¶¶63-69.

As discussed above, KR996 describes a self-propelled vehicle (*a compact tool*

carrier)⁴ capable of carrying interchangeable equipment for building deconstruction work providing maneuverability in small spaces having the functionality of a mini skid loader with an attachment of a bucket. EX1005, Abstract, [0001]-[0012]. KR996's compact tool carrier is configured for *standing or walk-behind operator control* and has a *longitudinal axis*. Fig. 8 is illustrative:



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

⁴ KR996's vehicle is a *compact tool carrier* of the same configuration as in '386 Patent (EX1001, 2:59-3:3). EX1003, ¶¶28-29 citing industry standard EX1016.

See also, EX1005, [0033] (“foldable safety step is installed on the lower rear part of the vehicle, allowing the operator to board”), [0049]. This is the same configuration for operator control as provided in the ’386 Patent. EX1001, 3:38-43 (“As used herein, ‘standing operation’ generally refers to operation in which the operator stands on a platform attached to the compact tool carrier while ‘walk-behind operation’ generally refers to operation in which the operator stands on the surface supporting the compact tool carrier 5.”).

POSITA would readily appreciate the compact carrier of KR996 has *a mass of less than about 1500 kg* based on its illustrations, suitable tasks, and operator position. EX1003, ¶¶67-68. Further, recognized industry standards addressing carriers like KR996 describe the carriers as having a weight of *less than about 1500 kg*. *Id.* citing EX1016, International Organization for Standardization 6165 (2012), p. 7, which states compact tool carriers having an operator standing platform are less 1500 kg; EX1015, Society of Automotive Engineers (SAE), J2752 June 2010, p. 2; EX1001, 1:19-28. POSITA would recognize a benefit to keeping the weight of KR996 vehicle *less than 1500 kg* to comply with the standards and further on the suggestion of JP705 minimized frame as discussed above. EX1003, ¶68.

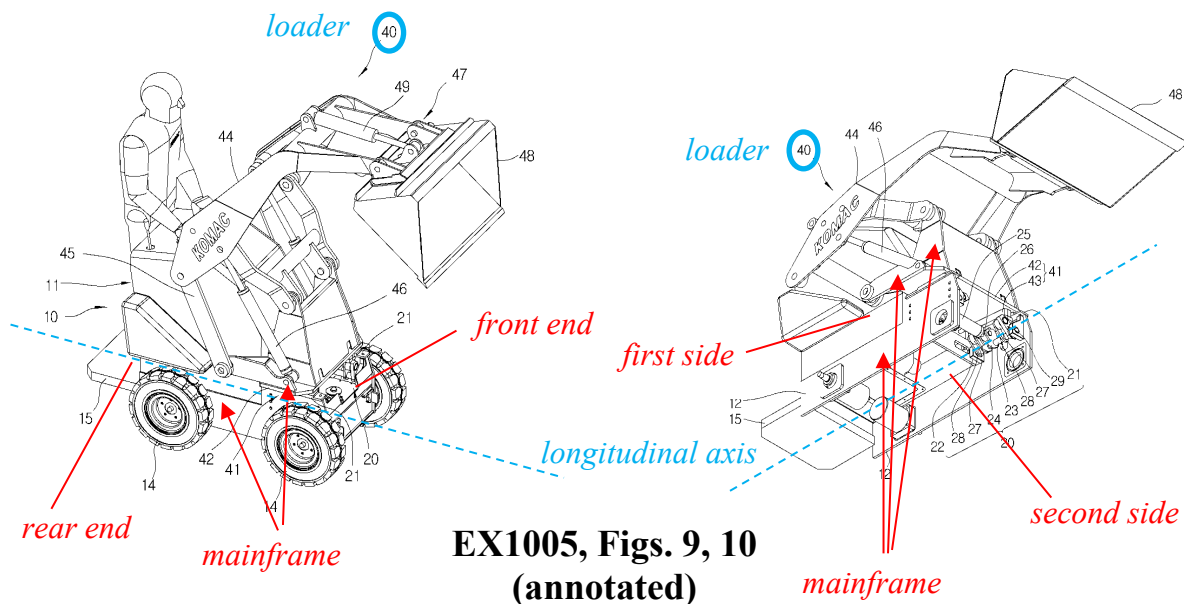
Thus, KR996 teaches a *compact tool carrier*.

[31.1] a loader adapted to carry a tool, the loader being moveable between a down position and a vertically raised position, 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;

KR996 provides *a loader* including loader unit 40, *moveable between a down position* (Fig. 8) *and a vertically raised position* (e.g., Fig. 9) and including two booms 44 (*first loader arm* and *second loader arm*). EX1005, (57), [0016], [0036], [0040], [0054], [0131], Figs. 7-11. The loader unit 40 (*loader*) is *adapted to carry a tool*, as illustrated by a bucket 48 (*tool*) attached to the loader unit 40 and its booms 44. EX1005, claim 1, [0054], [0074]-[0075], Figs. 8-9; *see also*, EX1001, 1:28-31 (“tools such as buckets, augers...and the like.”). Further, KR996 includes a cross-member (*at least one cross-member*) that *extends from* the first boom 44 to the second boom 44 (*first loader arm to second loader arm*). EX1003, ¶71.

The vehicle of KR996 includes a *mainframe*⁵ for supporting the loader unit 40 (*loader*) and having respective *first/second side[s]* and *front/rear end[s]* relative to the longitudinal axis. EX1005, Figs. 8-10.



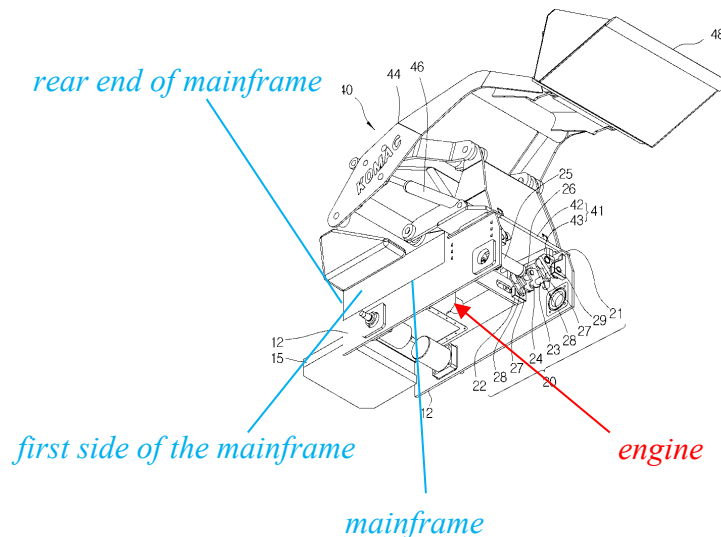
⁵ Patent Owner has stated “‘Mainframe’ is used in the ‘386 Patent to describe the body of the compact tool carrier that supports the loader. This is how the specification uses the term ‘mainframe.’” EX1030, p. 45 (emphasis omitted). “The mainframe 10 includes bracket portions 40a, 40b [] through which various pivot linkages are attached.” EX1001, 4:8-10. KR996 similarly provides a *mainframe* including main body 11 and sides 12 as well as other portions of KR996’s illustrated vehicle such as that support the loader by providing attachment to the actuator and links.

KR996's mainframe is *for supporting the loader* as the loader unit 40 is attached to the mainframe by way of the linkages and actuator connecting to the loader arm, discussed below. Thus, KR996 teaches [31.2a]. EX1003, ¶¶73-76.

[31.2b] *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,*

KR996 in view of JP705 renders obvious this limitation. EX1003, ¶¶77-84.

First, as discussed at [31.2a], the vehicle of KR996 includes a *mainframe* for supporting the loader unit 40 (*loader*). Second, KR996's vehicle includes an engine mounted to the mainframe for propelling the vehicle.

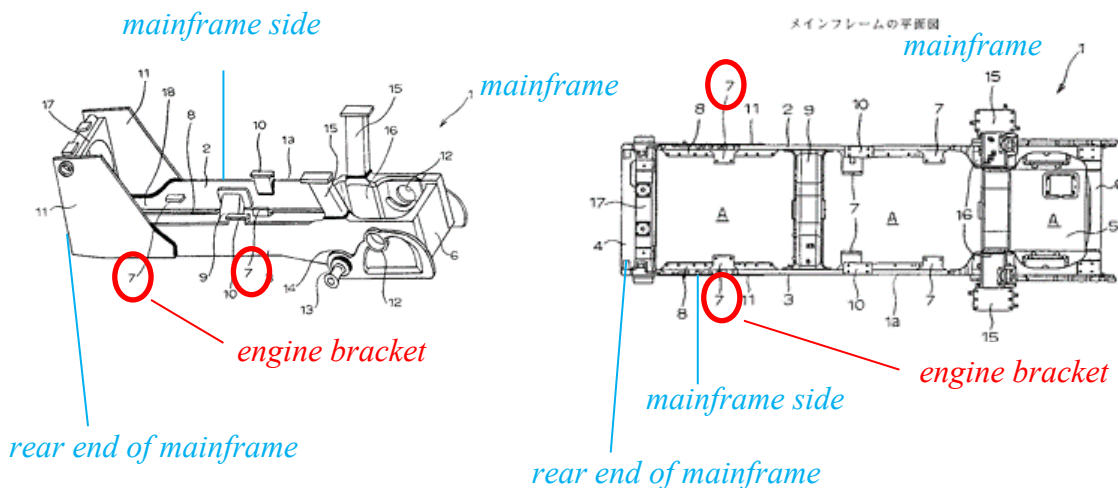


**EX1005, Fig. 10
(annotated)**

EX1003, ¶78 citing EX1005, Figs. 10, 12, claims 12, [0002]-[0005]; EX1014, FIG.

3. It was well-known in the art that a compact carrier such as KR996 typically uses an engine bracket to support and secure the engine in place. EX1003, ¶80.

POSITA would have been motivated to apply the teachings of JP705 (EX1006) to provide such an engine bracket to provide a surface for mounting the engine of KR996 for the reasons discussed above. EX1003, ¶¶54-62. JP705 describes “mounting part[] 7” (*engine bracket*). EX1006, [0019], [0001], FIGS. 1, 3. *See also*, mounting part 8. “The 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 part 7 is particularly described as for “mounting an engine” and therefore provide an *engine bracket...for mounting an engine to the mainframe*. EX1006, [0019].

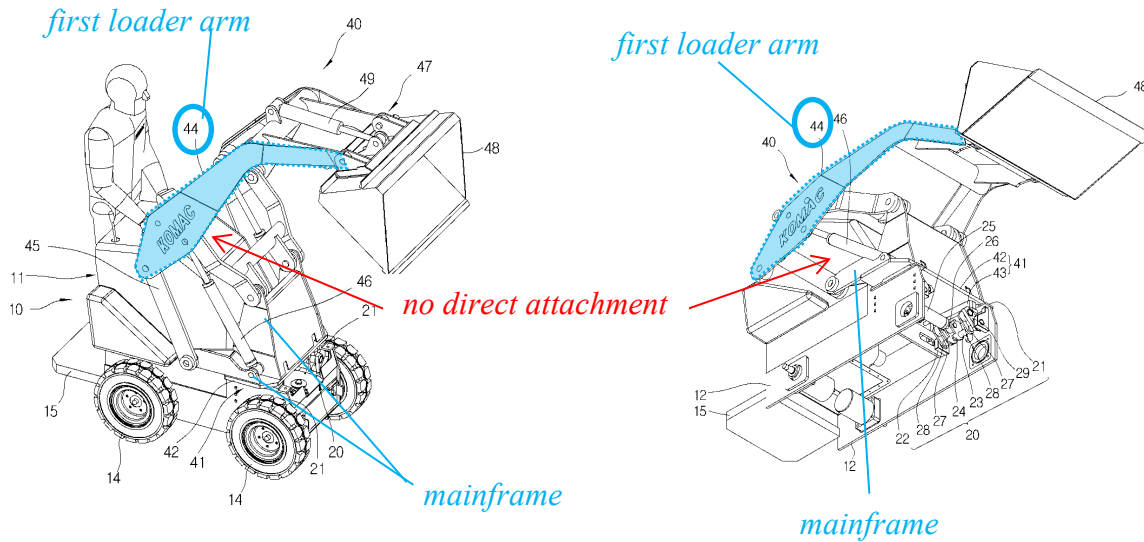


EX1006, FIGS. 1 and 3

In JP705, mounting part 7 (*engine bracket*) *extends from* a respective side 2[3] of the main body 1 *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*) in the same location in KR996—*extend[ing] from the first side* of the KR996 mainframe *toward the second side* of said mainframe for mounting the KR996 engine. EX1003, ¶82. KR996's engine is *spaced from the rear end of the mainframe*, and the JP705 engine bracket is similarly *spaced from the rear end* of its mainframe; thus, POSITA would have recognized to position the JP705's mounting part 7 (*engine bracket*) *spaced from the rear end of the mainframe* of KR996. EX1003, ¶83. Therefore, KR996 in view of JP705 renders obvious element [31.2b]. EX1003, ¶¶77-84.

[31.2c] *the first loader arm not being directly attached to the mainframe;*

KR996 illustrates a loader 40 having a boom 44 (*first loader arm*) *not being directly attached to the mainframe*, rather the boom 44 is attached only by intermediary parts of a hydraulic cylinder and linkages, which are discussed in more detail in [31.3]-[31.4] below.

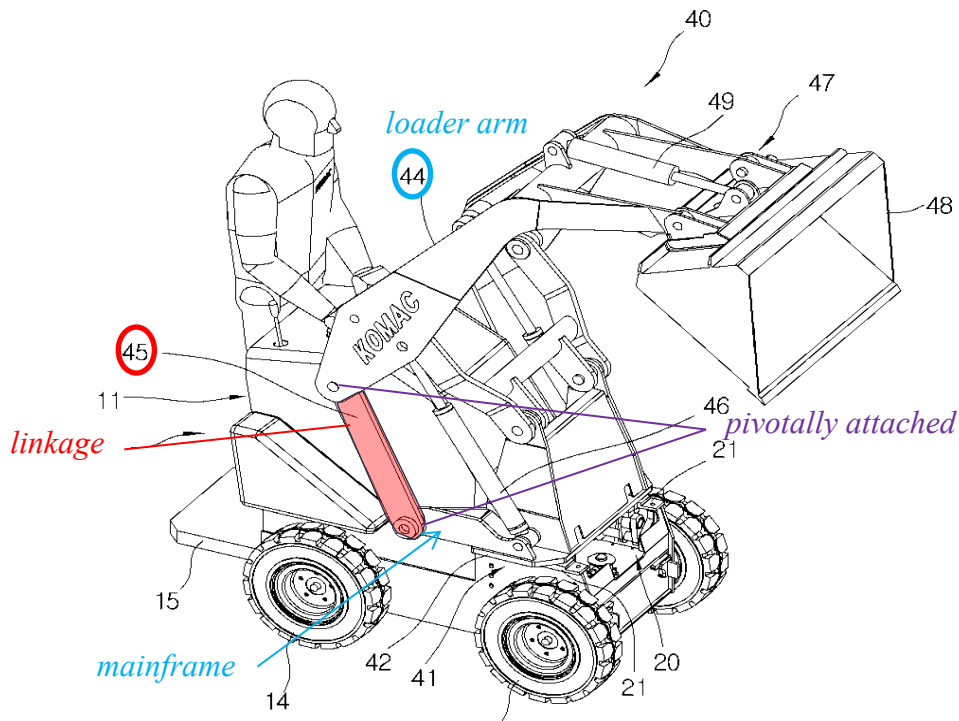


**EX1005, Figs. 9, 10
(annotated)**

This is the same configuration as in the '386 Patent. EX1003, ¶¶34-38 describing both as four-bar mechanisms. Thus, [31.2c] is taught by KR996. EX1003, ¶¶85-88.

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

KR996 illustrates a link 45 (*linkage*) that is *pivotally attached* to the *first side* of the *mainframe* of [31.2] at a pivot point and *pivotally attached* to the boom 44 (*first loader arm*) at another pivot point. EX1005, Figs. 5, 8-10, 21, [0054] (“A boom (44) connected by a link (45)...”), [0134].



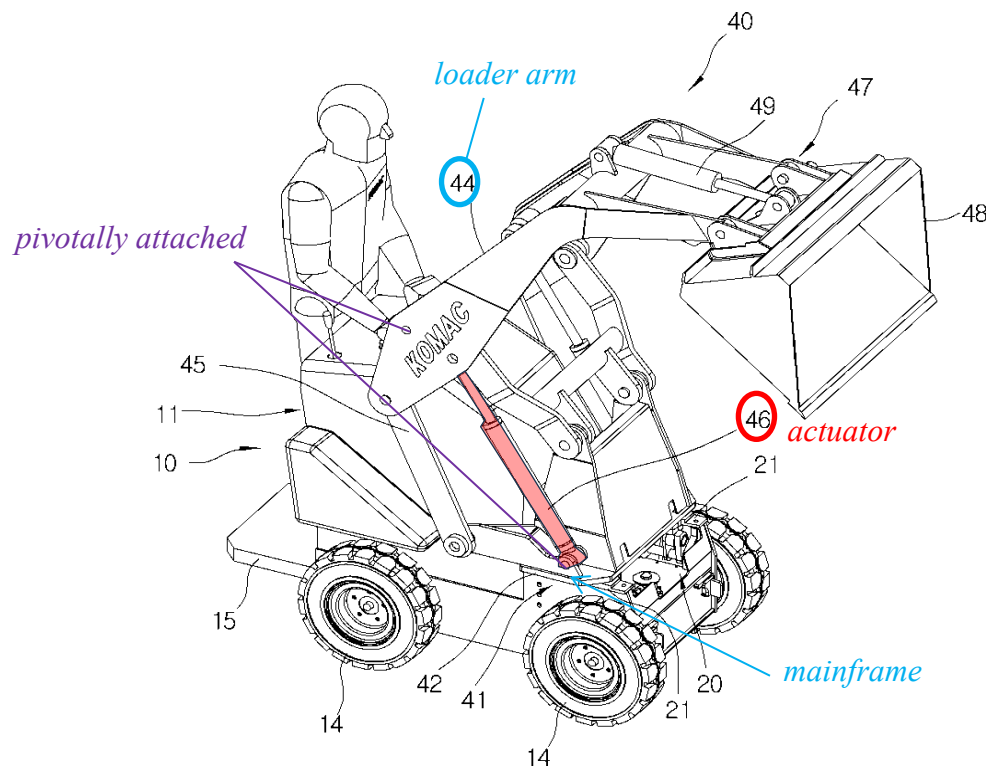
**EX1005, Fig. 9
(annotated)**

The attachment at each end of the link is pivotable as it is a joint that allows rotary motion, illustrated by comparison of KR996's Figs. 8,9. Dr. Velinsky confirms the attachment is pivotable to raise and lower boom 44 through the mechanism. EX1003, ¶¶90-93 citing EX1008, EX1023, EX1028 each discussing four-bar mechanism pivot attachments. This is consistent with '386 Patent's disclosure of a loader linkage (e.g., 50a) pivotally attached to the first side of the mainframe and pivotally attached to the loader arm. *See, e.g.,* EX1001, FIG. 3, 4:25-35.

Thus, [31.3] is taught by KR996. EX1003, ¶¶89-94.

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

KR996 describes a boom cylinder 46 (*actuator*) that drives the boom 44 (*loader arm*). EX1005, [0054], *see also*, claim 1, [0134], Figs. 1-13, 21. KR996's Fig. 9 is illustrative of the boom cylinder 46 (*actuator*) *pivotally attached to the first side of the mainframe* at a pivot point and *pivotally attached the boom 44 (first loader arm)* at another pivot point.



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

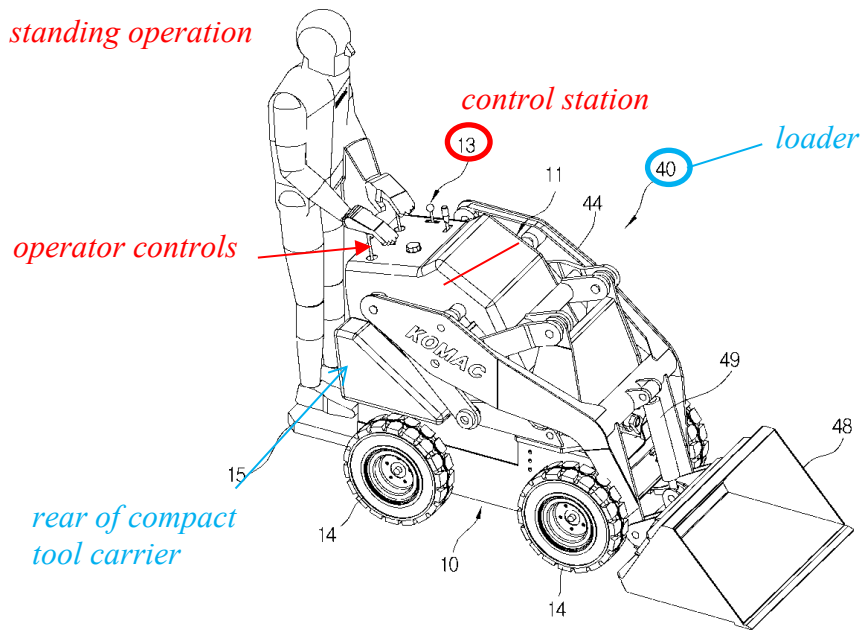
The attachment at each end of the cylinder is pivotable as it is a joint that allows rotary motion, illustrated by comparison of KR996's Figs. 8,9. Dr. Velinsky confirms boom cylinder 48 teaches an *actuator* that is *pivotably attached to*

effectuate the raising and lowering of the boom 44 in the loader mechanism of KR996. EX1003, ¶¶96-98 citing EX1010, EX1005 describing a cylinder is an actuator and EX1008 discussing the pivotable connection of the actuator in driving a four-bar mechanism.

Thus, [31.4] is taught by KR996. EX1003, ¶¶95-99.

[31.5a] 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 operation,

KR996 describes a control unit 13 (*control station*) having operator controls to “operate the equipment while the worker is on board at the rear” that is *mounted towards the rear compact tool carrier*. EX1005, [0042], Figs. 1, 8-9. The control unit 13 (*control station*) controls moving the vehicle including *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, Figs. 8-9. Operating the loader means performing its function of *raising and lowering the loader*. EX1003, ¶101.



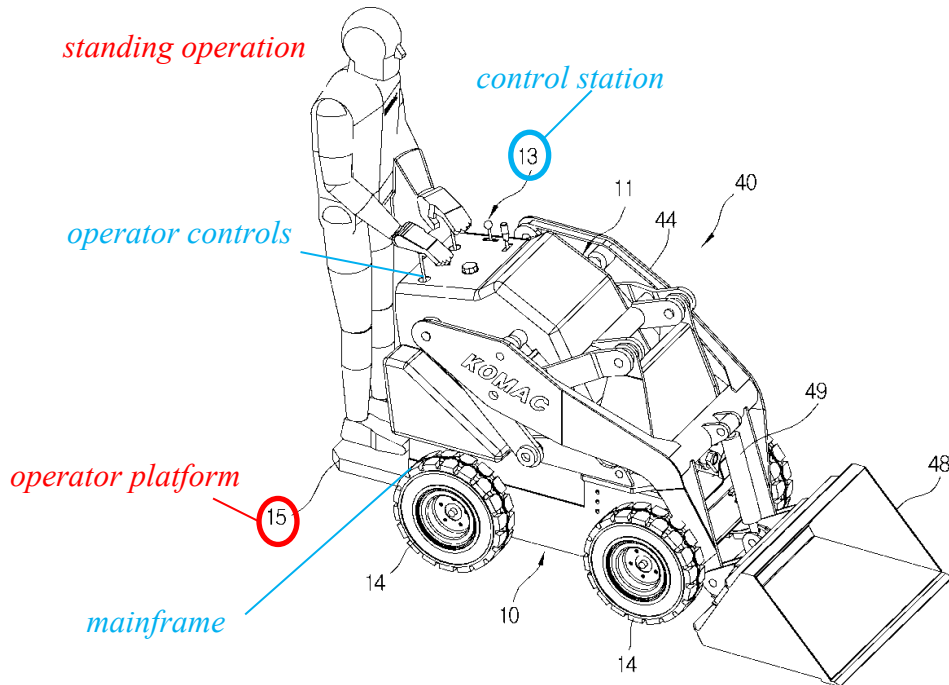
**EX1005, Fig. 8 (portion)
(annotated)**

As illustrated by KR996's figures and discussed in [31.0], the vehicle including its controls 13 (*control station*) is *adapted to allow for standing operation*. EX1005, Figs. 8-9, [0033].

Thus, [31.5a] is taught by KR996. EX1003, ¶¶100-104.

[31.5b] *each cross-member being disposed forward of the control station in the vertically raised position of the loader; and*

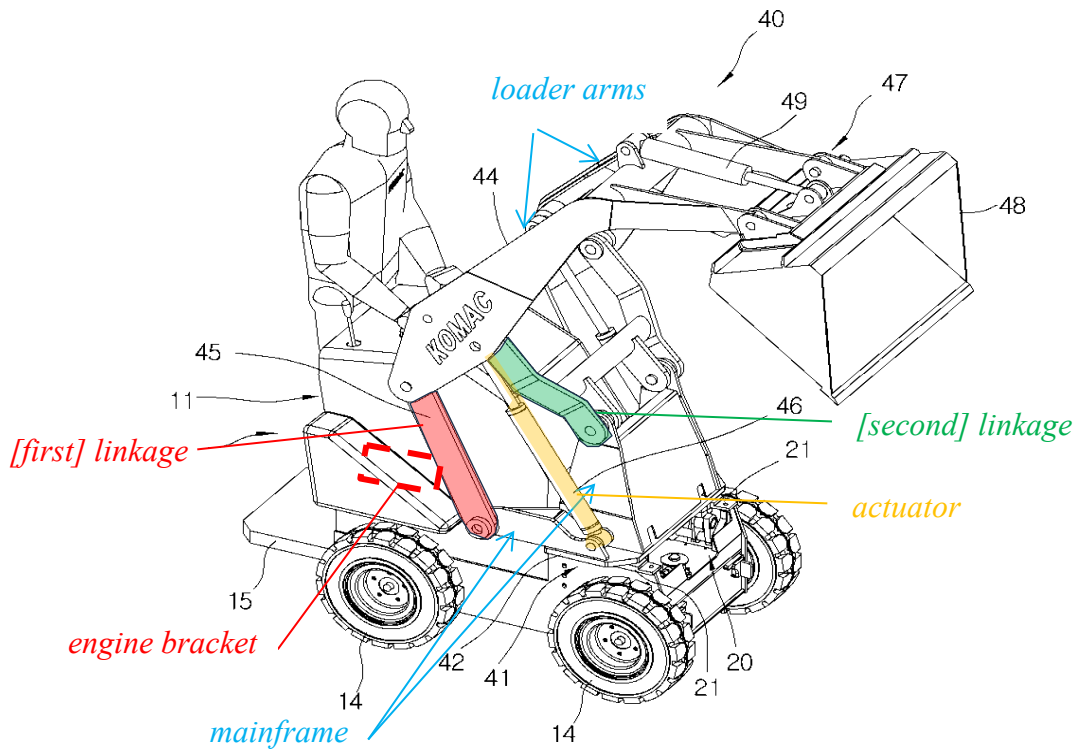
KR996 illustrates its cross-member is *disposed forward of control unit 13 (control station) in the vertically raised position of the loader unit 40 (loader)*.



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

Thus, [31.6] is taught by KR996. EX1003, ¶¶107-109.

Therefore, KR996 in view of JP705 renders claim 31 obvious. KR996's vehicle provides stand-behind operation from a step 15 (*operator platform*) through a control unit 13 (*control station*) and has a loader having a boom 44 (*first and second loader arm*) attached to each side of its *mainframe* by link(s) 45 (*linkage*) and boom cylinder 46 (*actuator*); KR996's *mainframe* is modified to include JP705's *engine bracket*, which renders obvious claim 31.



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

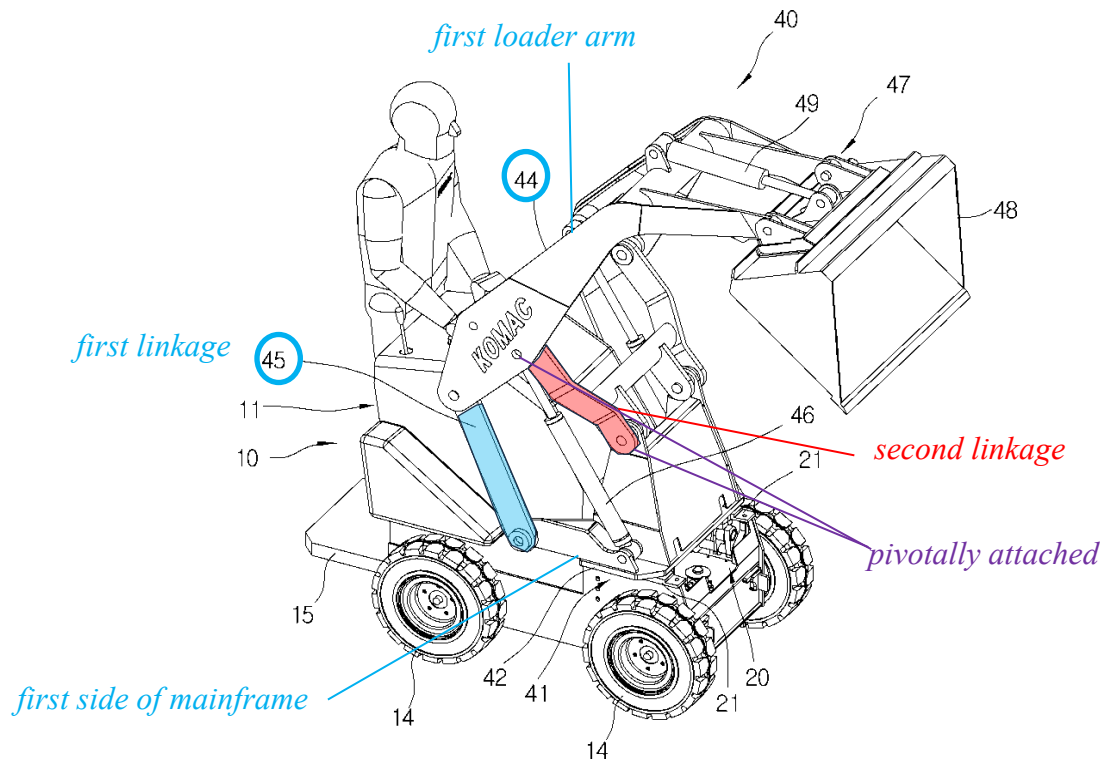
EX1003, ¶109.

5. Claim 32

[32] The compact tool carrier as set forth in claim 31 wherein the linkage is a first linkage, the compact tool carrier further comprising a second linkage pivotally attached to the first side of the mainframe and pivotally attached to the first loader arm.

KR996-JP705 renders obvious claim 31 and link 45 discussed in [31.3] provides a *first linkage*; KR996 also illustrates an additional link providing a *second linkage* similarly pivotally attached to a *first side of the mainframe* at a pivot point

and *pivotally attached* to the boom 44 (*first loader arm*) at a pivot point. EX1005, Figs. 1-10, claim 1, [0054], [0134].



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

The attachment at each end of the link is pivotable as it is a joint that allows rotary motion, illustrated by comparison of KR996's Figs. 8,9. Dr. Velinsky confirms the link (*second linkage*) is *pivotaly attached* to raise and lower the boom 44. EX1003, ¶¶111-113 citing EX1023, EX1028, EX1008 discussing four-bar mechanisms. Thus, claim 32 is rendered obvious by KR996-JP705. EX1003, ¶¶110-114.

6. Claim 33

[33] *The compact tool carrier as set forth in claim 31 wherein the mainframe*

incorporates a single weldment.

KR996-JP705 renders obvious claim 31 and as in [31.2b] and reasons to combine JP705, it would have been obvious to provide JP705's engine bracket, which is attached by a *weldment*, in the mainframe of KR996, thus providing a mainframe *incorporat[ing] a single weldment*.⁶

Further, POSITA would have found it obvious to form other portions of the mainframe of KR996 as part of a *single weldment* as use of welding to join components of a support frame for a loader apparatus was a well-known method of attachment. EX1003, ¶¶116-118 citing EX1010, EX1022. POSITA would recognize there are known trade-offs in the design choice between a single weldment and attachment by, for example, nuts and bolts. EX1003, ¶118 considering factors such as aesthetics, manufacturability, reliability. This is confirmed by the prosecution that led to the '386 Patent, where the Examiner found this limitation to be an obvious design choice, a determination not disputed by the Applicant. EX1002, p. 53. And case law affords similar construction design choices are *prima facie* obvious. *In re Larson*, 340 F.2d 965, 968 (CCPA 1965) ("the use of a one piece construction

⁶ The '386 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, 2:56-58.

instead of the structure disclosed in [the prior art] would be **merely a matter of obvious engineering choice.**")

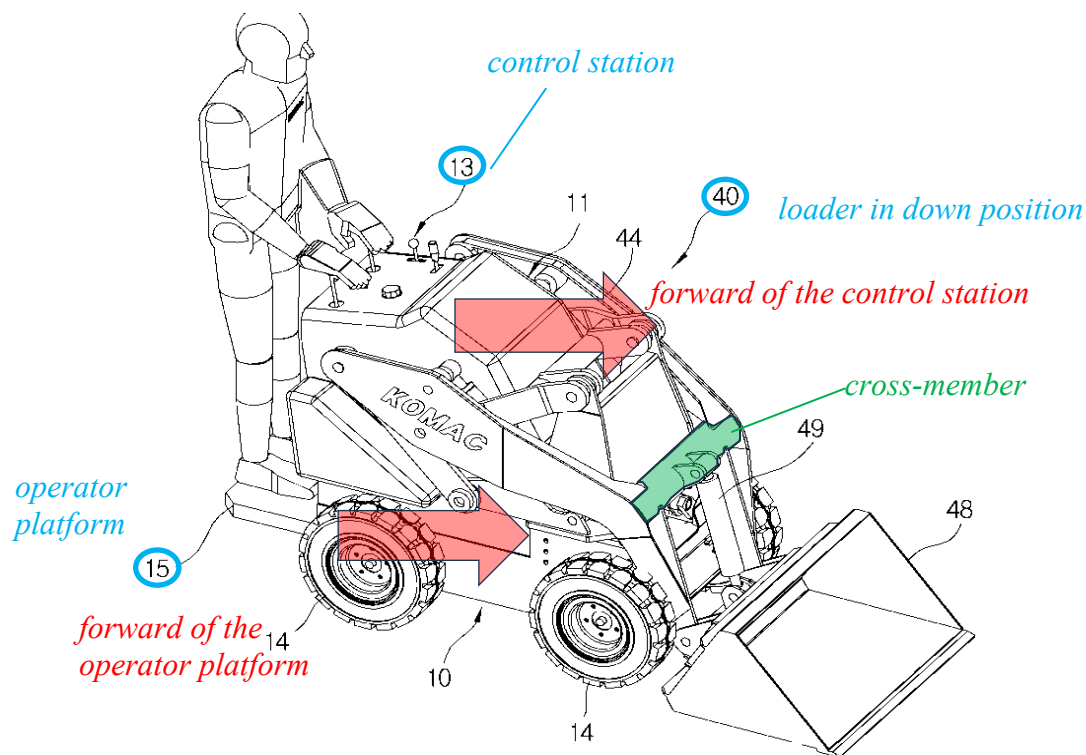
To the extent Patent Owner argues that certain components of the mainframe are required to be coupled by a weldment, JP705 illustrates a main frame (*mainframe*) that consists of one *single weldment*. EX1006, [0019] ("The main frame 1 is constructed from cast steel for **welding construction** and rolled steel") Providing the mainframe of KR996 as a welded structure as taught in JP705 would have been a predictable application of JP705's general teachings of benefits of welding, as discussed above with reference to an engine bracket. EX1003, ¶¶57-62 citing EX1010, 4:8-10, 4:31-34 implementing a unitary frame on a compact loader.

Thus, claim 33 is rendered obvious by KR996-JP705. EX1003, ¶¶115-120.

7. Claim 34

[34] *The compact tool carrier as set forth in claim 31 wherein each cross-member is disposed forward of the operator platform and forward of the control station in the down position of the loader.*

KR996-JP705 render obvious claim 31 and KR996 also illustrates *each cross-member is disposed forward of the safety step 15 (operator platform) and forward of the control unit 13 (control station) in the down position of the loader*. EX1005, claim 1, [0054], [0134], Figs. 1-8.



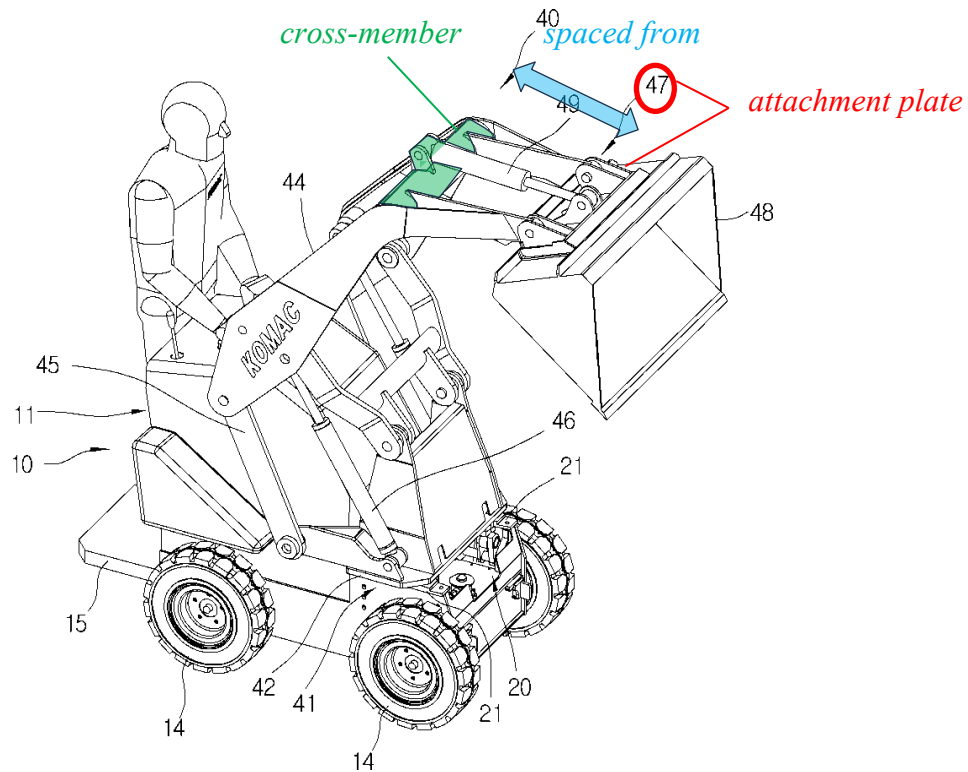
EX1005, Fig. 8 (portion)
(annotated)

Thus, claim 34 is rendered obvious by KR996-JP705. EX1003, ¶¶121-122.

8. Claim 35

[35] *The compact tool carrier as set forth in claim 31 further comprising an attachment plate for removably attaching a tool to the compact tool carrier, the cross-member being spaced from the attachment plate.*

KR996-JP705 renders obvious claim 31 and KR996 also illustrates a bucket attachment 47 (*attachment plate*) for removably attaching bucket 48 (*tool*) to the boom 44 of the KR996 vehicle (*compact tool carrier*): “At the end of the boom (44), a bucket attachment (47) is installed, and a **bucket (48)** is **coupled to the bucket attachment (47)**[.]” EX1005, [0054]. The cross-member is *spaced from* the bucket attachment 47 (*attachment plate*).



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

The bucket (*tool*) is *removably attach[ed]* as KR996 illustrates embodiments with the bucket attached and detached. *Compare* EX1005, Figs. 5-6 with Figs. 8-9; [0040] (“bucket removed”). Further, POSITA would recognize this capability of a bucket attachment (47). EX1003, ¶124 citing EX1009, 3:16-30 (“mounting a quick **attachment plate**...normally used with the BOBCAT® skid steer loaders...bucket 48...is supported on the attachment plate [] in a **known manner**.”); EX1013, [0033] (describing “attachment plate 132 located at the distal front ends of the loader arms

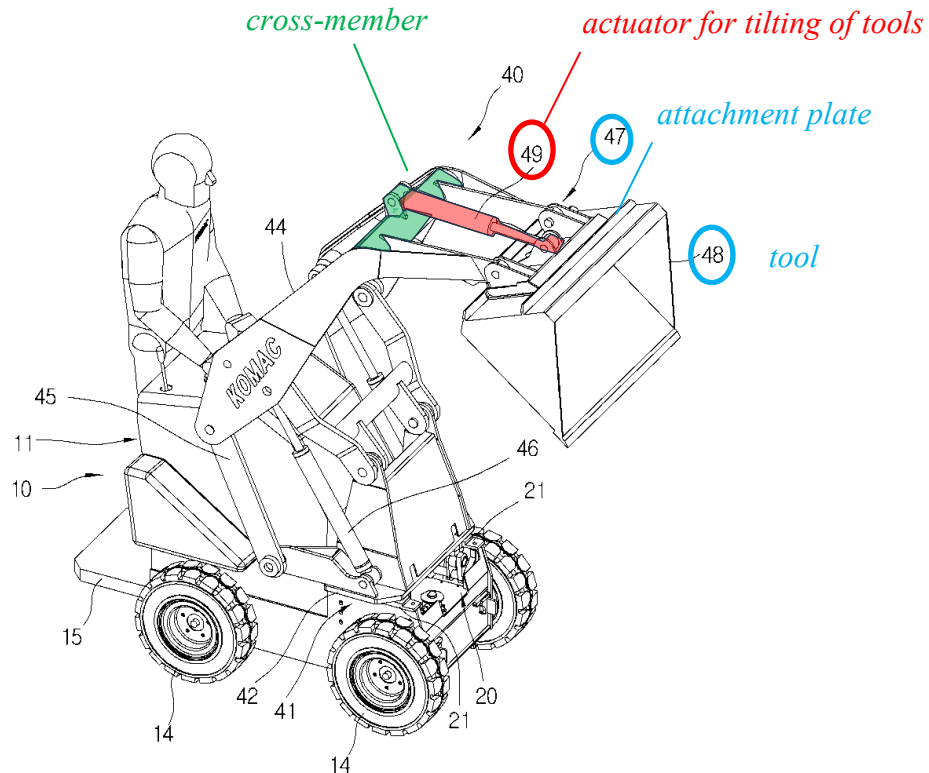
110. To ease the task of removing and installing attachments on the loader arms 110, various quick attachment systems may be used.”)

Thus, claim 35 is rendered obvious by KR996-JP705. EX1003, ¶¶123-125.

9. Claim 36

[36] *The compact tool carrier as set forth in claim 35 further comprising an actuator for tilting of tools connected to the attachment plate, the actuator being connected to the cross-member and the attachment plate.*

KR996-JP705 renders obvious claim 35 and KR996 also illustrates “boom (44) and a bucket attachment (47) are equipped with a **bucket cylinder (49)** that **rotates the bucket (48).**” EX1005, [0054]; *see also*, EX1005, claim 1. KR996’s bucket cylinder 49 is an *actuator for tilting of tools* such as bucket 48. EX1003, ¶127 citing EX1001, 4:36. Bucket cylinder 49 (*actuator for tilting of tools*) is *connected to the cross-member* and bucket attachment 47 (*attachment plate*) as shown in Fig. 9.



EX1005, Fig. 9
(annotated)

Thus, claim 36 is rendered obvious by KR996-JP705. EX1003, ¶¶126-128.

10. Claim 38

Claim 38 recites substantially the same limitations as discussed above with reference to claim 31 with the differences noted and similarly is rendered obvious by KR996 in combination with JP705's engine bracket.

	<i>Claim</i>	<i>See the analysis for:</i>
[38.0]	<i>A compact tool carrier configured for standing or walk-behind operator control and having a</i>	[31.0]

	<i>Claim</i>	<i>See the analysis for:</i>
	<i>longitudinal axis and a mass of less than about 1500 kg, the compact tool carrier comprising:</i>	
[38.1]	<i>a loader being adapted to carry a tool, the loader comprising: a first loader arm; a second loader arm; and a single cross-member that extends from the first loader arm to the second loader arm;</i>	[31.1] including loader unit 40 (loader) having booms 44 (<i>arms</i>) and a cross-member The cross-member illustrated in KR996 above is a <i>single cross-member</i> as no other cross-member extends between arms (boom 44)
[38.2a]	<i>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,</i>	[31.2a]
[38.2b]	<i>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 of the mainframe,</i>	[31.2b] including JP705's mounting parts 7 (<i>engine bracket</i>) combined with KR996's mainframe for the reasons above
[38.2c]	<i>the first loader arm not being directly attached to the mainframe;</i>	[31.2c]
[38.3]	<i>a linkage pivotally attached to the first side of the mainframe and pivotally</i>	[31.3] discussing pivotally attached link 45 (<i>linkage</i>)

	<i>Claim</i>	<i>See the analysis for:</i>
	<i>attached to the first loader arm;</i>	
[38.4]	<i>an actuator pivotally attached to the first side of the mainframe and pivotally attached to the first loader arm;</i>	[31.4] discussing pivotally attached boom cylinder 46 (<i>actuator</i>)
[38.5]	<i>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 operation; and</i>	[31.5a] discussing control unit 13 (<i>control station</i>)
[38.6]	<i>an operator platform for standing operation of the operator controls of the control station.</i>	[31.6] discussing safety step 15 (<i>operator platform</i>)

Thus, claim 38 is rendered obvious by KR996 in combination with JP705's *engine bracket*. EX1003, ¶¶129-130.

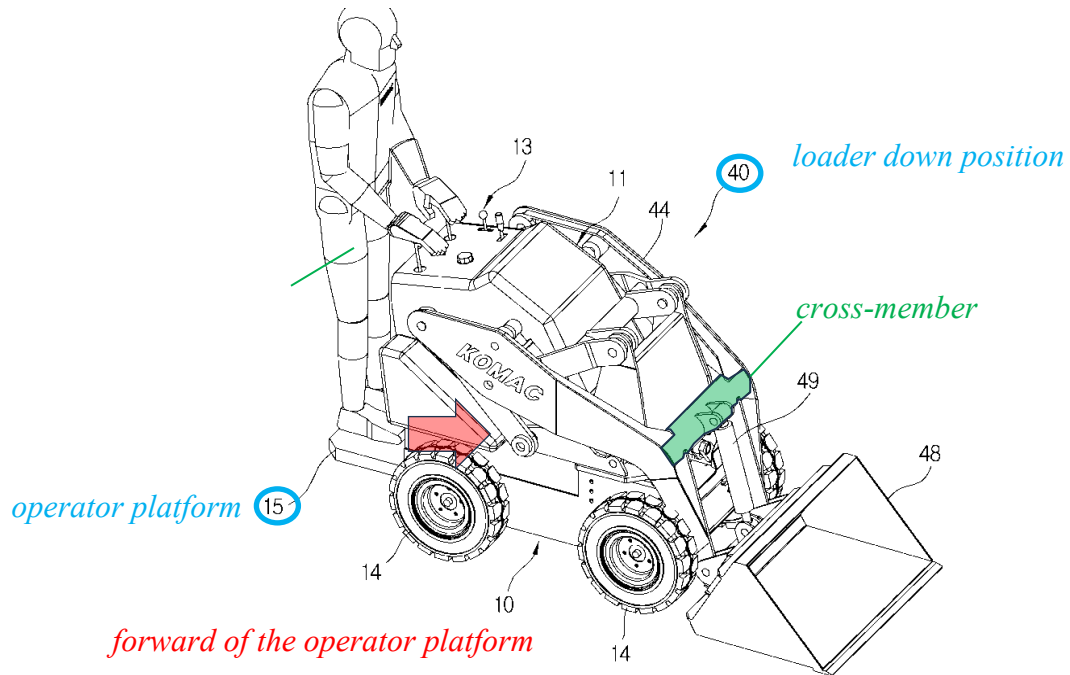
11. Claim 39

[39] *The compact tool carrier as set forth in claim 38 wherein the loader is moveable between a down position and a vertically raised position, the cross-member being disposed forward of the operator platform in the down position and the vertically raised position of the loader.*

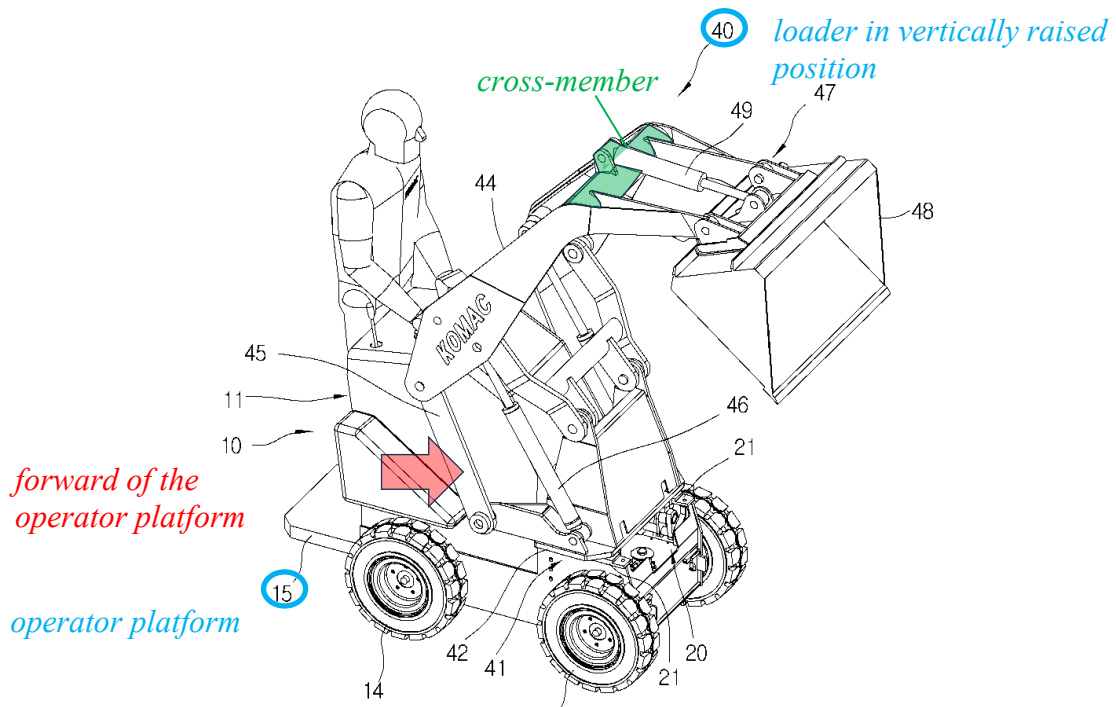
KR996-JP705 renders obvious claim 38 and KR996 further teaches the loader is *moveable* between a *down position* (Fig. 8) and a *vertically raised position* (e.g.,

Fig. 9). *See* [31.1]. In each of these positions, the *cross-member* is *disposed forward*

of the safety step 15 (*operator platform*).



EX1005, Fig. 8 (portion)
(annotated)



EX1005, Fig. 9
(annotated)

Thus, KR996-JP705 renders obvious claim 39. EX1003, ¶¶131-133.

12. Claim 41

[41] *The compact tool carrier as set forth in claim 38 wherein the linkage is a first linkage, the compact tool carrier further comprising a second linkage pivotally attached to the first side of the mainframe and pivotally attached to the first loader arm.*

KR996-JP705 renders obvious claim 38 including illustrating link 45 of element [38.3] is a *first linkage*. And KR996 also illustrates an additional link providing a *second linkage* similarly *pivotally attached* to a *first side of the mainframe* and *pivotally attached* to the boom 44 (*first loader arm*) as discussed in [32]. EX1005, Figs. 8-10, claim 1, [0054], [0134].

14. Claim 43

[43] *The compact tool carrier as set forth in claim 38 further comprising an attachment plate for removably attaching a tool to the compact tool carrier, the cross-member being spaced from the attachment plate.*

KR996-JP705 renders obvious claim 38 and KR996 also illustrates a bucket attachment 47 (*attachment plate*) for removably attaching a bucket 48 (*tool*) to the KR996 vehicle (*compact tool carrier*), where the *cross-member* is spaced from bucket attachment 47 (*attachment plate*) as illustrated in [35]. Thus, claim 43 is rendered obvious by KR996-JP705. EX1003, ¶140.

15. Claim 44

[44] *The compact tool carrier as set forth in claim 43 further comprising an actuator for tilting of tools connected to the attachment plate, the actuator being connected to the cross-member and the attachment plate.*

KR996-JP705 renders obvious claim 43 and KR996 further discloses a bucket cylinder 49 (*actuator for tilting*) that tilts a bucket 48 (*tool*) that is connected to the bucket attachment 47 (*attachment plate*) as discussed in [36]. Thus, claim 44 is rendered obvious by KR996-JP705. EX1003, ¶141.

16. Claim 45

The analysis of claim 45 is substantially the same as claim 31 and includes the second linkage of claim 32, and thus, claim 45 is similarly rendered obvious by KR996 in combination with JP705's engine bracket.

	<i>Claim</i>	<i>See the analysis for:</i>
[45.0]	<i>A compact tool carrier configured for standing or walk-behind operator control and having a longitudinal axis and a mass of less than about 1 500 kg, the compact tool carrier comprising:</i>	[31.0]
[45.1]	<i>a loader having an arm, the loader being adapted to carry a tool;</i>	[31.1] including loader unit 40 (<i>loader</i>) and boom 44 (<i>arm</i>) adapted to carry a bucket 48 (<i>tool</i>)
[45.2a]	<i>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,</i>	[31.2a]
[45.2b]	<i>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 of the mainframe,</i>	[31.2b] including JP705's mounting part 7 (<i>engine bracket</i>) that would have been obvious to combine with KR996 for the reasons above
[45.2c]	<i>the loader arm not being directly attached to the mainframe;</i>	[31.2c]
[45.3]	<i>a first linkage pivotally attached to the first side of the mainframe and pivotally attached to the loader arm at a first linkage pivot point;</i>	[31.3] discussing a link 45 which is a <i>first linkage</i> pivotally attached to boom 44 (<i>loader arm</i>) at a <i>first linkage pivot point</i>

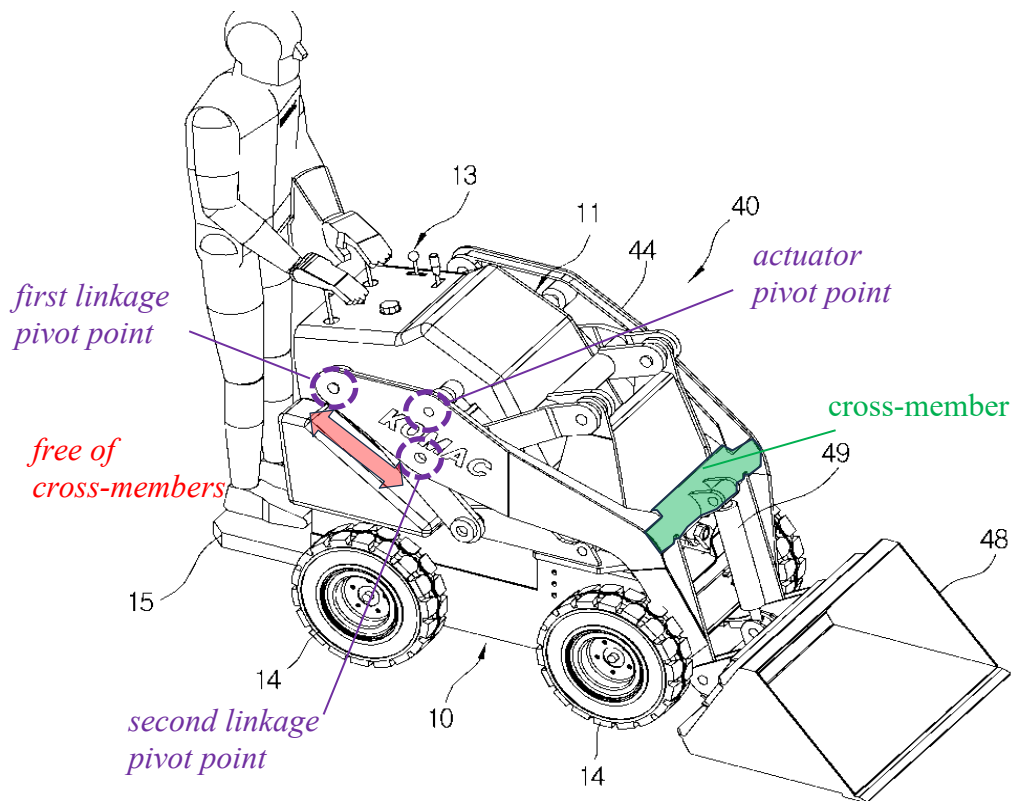
	<i>Claim</i>	<i>See the analysis for:</i>
[45.4]	<i>a second linkage pivotally attached to the first side of the mainframe and pivotally attached to the loader arm at a second linkage pivot point,</i>	[32] discussing a forward link providing <i>a second linkage</i> pivotally attached to the mainframe and to boom 44 (<i>loader arm</i>) at a <i>second linkage pivot point</i>
[45.5]	<i>the loader being free of cross-members between the first linkage pivot point and the second linkage pivot point;</i>	See below
[45.6]	<i>an actuator pivotally attached to the first side of the mainframe and pivotally attached to the loader arm at an actuator pivot point;</i>	[31.4] discussing boom cylinder 46 (<i>actuator</i>) pivotally attached to the mainframe and the boom 44 (<i>loader arm</i>) at an <i>actuator pivot point</i>
[45.7]	<i>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 operation⁷; and</i>	[31.5a] discussing control unit 14 (<i>control station</i>) having <i>operator controls</i> .

⁷ This claim term uses the disjunctive “or” meaning one or the other, or both. To the extent Patent Owner argues both standing and walk-behind operation are

	<i>Claim</i>	<i>See the analysis for:</i>
[45.8]	<i>an operator platform for standing operation of the operator controls of the control station.</i>	[31.6] discussing safety step 15 (<i>operator platform</i>)

As for element [45.5], KR996 illustrates loader unit 40 (*loader*) is *free of cross-members* between the pivot point attachments between the linkages and the boom 44 (*loader arm*).

required, KR996 supports this. EX1003, ¶103 citing EX1005, [0033] (“foldable safety step” and “folding step” EX1013 [0004]-[0008], FIG. 4.



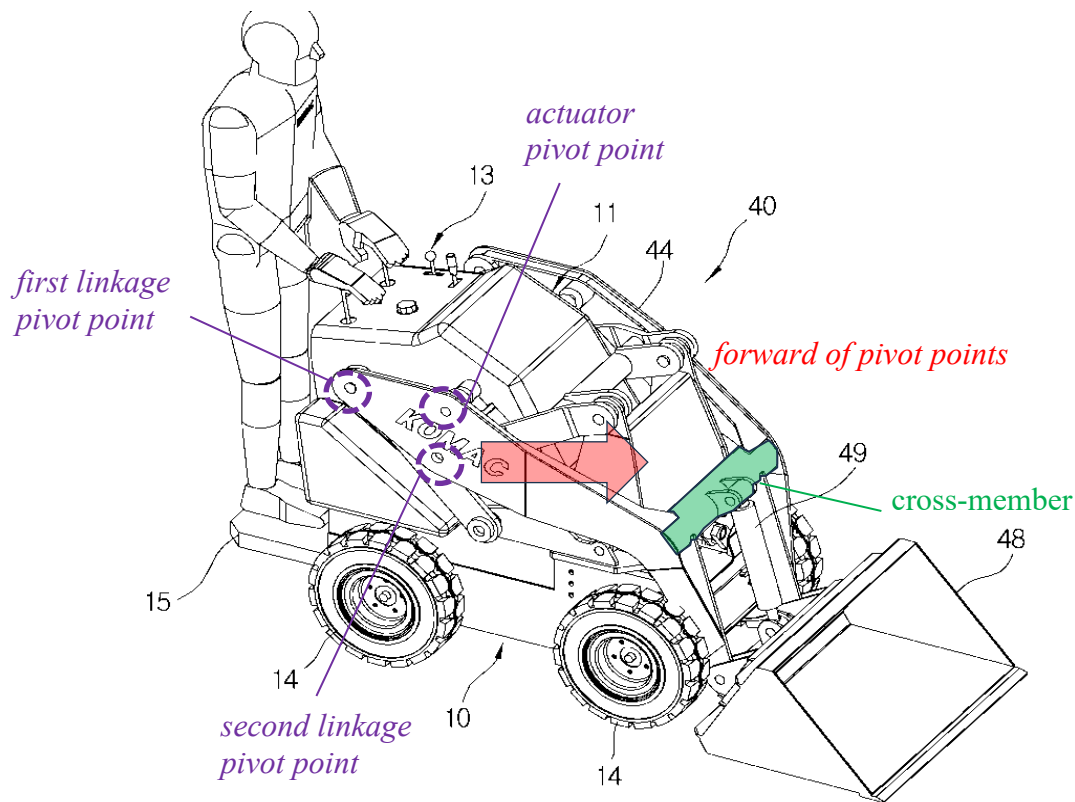
**EX1005, Fig. 8 (portion)
(annotated)**

Thus, claim 45 is rendered obvious by KR996-JP705. EX1003, ¶¶142-144.

17. Claim 46

[46] *The compact tool carrier as set forth in claim 45 wherein the loader comprises: a first arm; a second arm; and a cross-member that extends from the first arm to the second arm, the cross-member being fully disposed forward of the first linkage pivot point, the second linkage pivot point, and the actuator pivot point.*

KR996-JP705 renders obvious claim 45 and KR996 discloses a first side boom 44 and second side boom 44 (*first arm*⁸ and *second arm*) and a *cross-member* as in [31.1]. Fig. 8 as annotated below is exemplary of the cross-member being *fully forward of the first linkage pivot point, second linkage pivot point and the actuator pivot point*.



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

Thus, claim 46 is rendered obvious by KR996-JP705. EX1003, ¶¶145-146.

⁸ For this petition, and in line with the '386 Patent Figures, it is assumed that the arms recited in [46] are not additional arms from the “arm” recited in [45].

18. Claim 47

[47] *The compact tool carrier as set forth in claim 46 further comprising an attachment plate for removably attaching a tool to the compact tool carrier, the cross-member being spaced from the attachment plate.*

KR996-JP705 renders obvious claim 46 and KR996 also illustrates a bucket attachment 47 (*attachment plate*) for removably attaching bucket 48 (*tool*) to the KR996 vehicle (*compact tool carrier*); the *cross-member being spaced from* the bucket attachment 47 (*attachment plate*) each illustrated in [35]. Thus, claim 47 is rendered obvious by KR996-JP705. EX1003, ¶147.

19. Claim 48

[48] *The compact tool carrier as set forth in claim 47 further comprising an actuator for tilting of tools connected to the attachment plate, the actuator being connected to the cross-member and the attachment plate.*

KR996-JP705 renders obvious claim 47 and KR996 also illustrates a bucket cylinder 49 (*actuator for tilting of tools*) for tilting the bucket 48 (*tool*) that is connected to the cross-member and the bucket attachment 47 (*attachment plate*) as illustrated in [36].

Thus, claim 48 is rendered obvious by KR996-JP705. EX1003, ¶148.

20. Claim 49

[49] *The compact tool carrier as set forth in claim 45 wherein the mainframe incorporates a single weldment.*

Claim 45 is rendered obvious by KR996-JP705 and it would have been

obvious to provide the mainframe of KR996 *incorporat[ing] a single weldment* as in [33]. Thus, KR996-JP705 renders obvious claim 49. EX1003, ¶149.

21. Claim 86

Claim 86 recites substantially the same limitations as discussed for claim 31, the second linkage of claim 32, and the attachment plate of claim 35, with additional limitations also taught by KR996 and thus, is similarly rendered obvious by KR996-JP705. EX1003, ¶150.

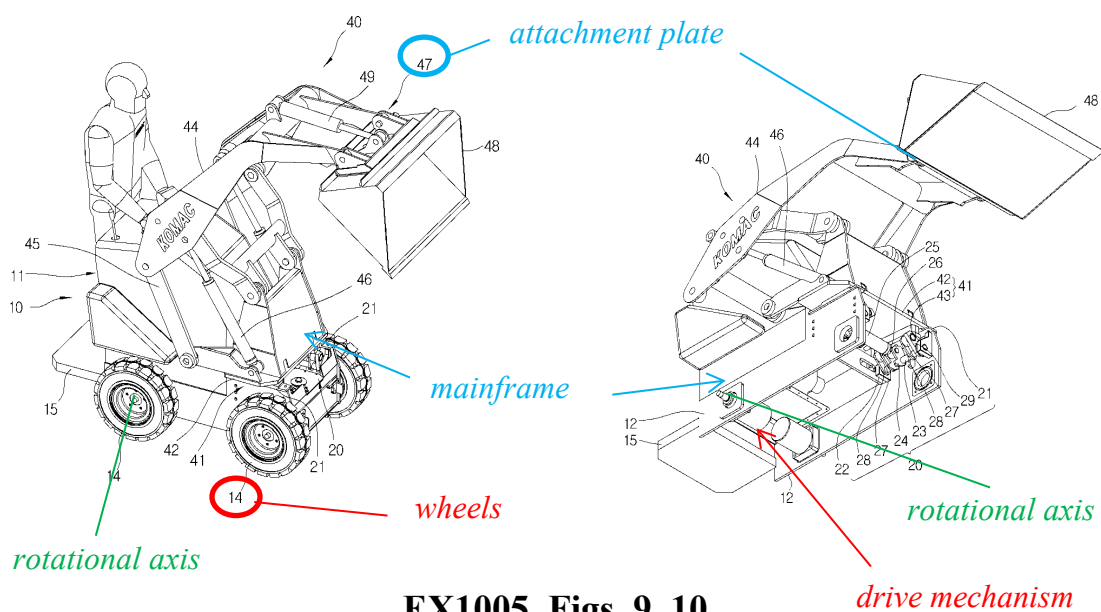
		See the analysis for:
[86.0]	<i>A compact tool carrier configured for standing or walk-behind operator control and having a longitudinal axis and a mass of less than about 1500 kg, the compact tool carrier comprising:</i>	[31.0].
[86.1]	<i>a loader having an arm, the loader being adapted to carry a tool, the loader being moveable between a down position and a vertically raised position;</i>	[31.1] discussing loader unit 40 (<i>loader</i>) having boom 44 (<i>arm</i>) that is raised and lowered. EX1005, Figs. 8-9.
[86.2a]	<i>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,</i>	[31.2a]

		See the analysis for:
[86.2b]	<i>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,</i>	[31.2b] including JP705's mounting part 7 (<i>engine bracket</i>) that would have been obvious to combine with KR996 for the reasons above
[86.2c]	<i>the loader arm not being directly attached to the mainframe;</i>	[31.2c]
[86.3]	<i>a first linkage pivotally attached to the first side of the mainframe at a first linkage pivot point and pivotally attached to the loader arm;</i>	[31.3] discussing link 45 (<i>first linkage</i>) pivotally attached to boom 44 (<i>loader arm</i>) and pivotally attached to the first side of the KR996 <i>mainframe</i> at a <i>first linkage pivot point</i>
[86.4]	<i>a second linkage pivotally attached to the first side of the mainframe at a second linkage pivot point and pivotally attached to the loader arm;</i>	[32] discussing a forward link (<i>second linkage</i>) pivotally attached to the boom 44 (<i>loader arm</i>) and pivotally attached to the first side of the KR996 <i>mainframe</i> at a <i>second linkage pivot point</i>
[86.5]	<i>an actuator pivotally attached to the first side of the mainframe at an actuator pivot point and</i>	[31.4] discussing boom cylinder 46 (<i>actuator</i>) pivotally attached to boom 44

		See the analysis for:
	<i>pivotally attached to the loader arm;</i>	<i>(loader arm) and pivotally attached to the first side of the KR996 mainframe at an actuator pivot point</i>
[86.6]	<i>a drive mechanism comprising tracks or wheels, the drive mechanism having a rotational axis, the pivot point at which the actuator is attached to the mainframe being above the rotational axis;</i>	See below
[86.7]	<i>an attachment plate for removably attaching a tool to the compact tool carrier, at least a portion of the attachment plate being forward of the drive mechanism when the loader is in the vertically raised position;</i>	[35] discussing a bucket attachment 47 (<i>attachment plate</i>) for removably attaching a bucket 48 (<i>tool</i>) to the carrier, at least a portion of the attachment plate being forward of the wheels 14 (<i>drive mechanism</i>) in a <i>vertically raised position</i> . See EX1005, Figs. 9 (below), 21.
[86.8]	<i>a control station having operator controls for propelling the compact tool carrier forward and for raising and lowering the loader, the control station</i>	[31.5a] including control unit 13 (<i>control station</i>). See also, fn#7

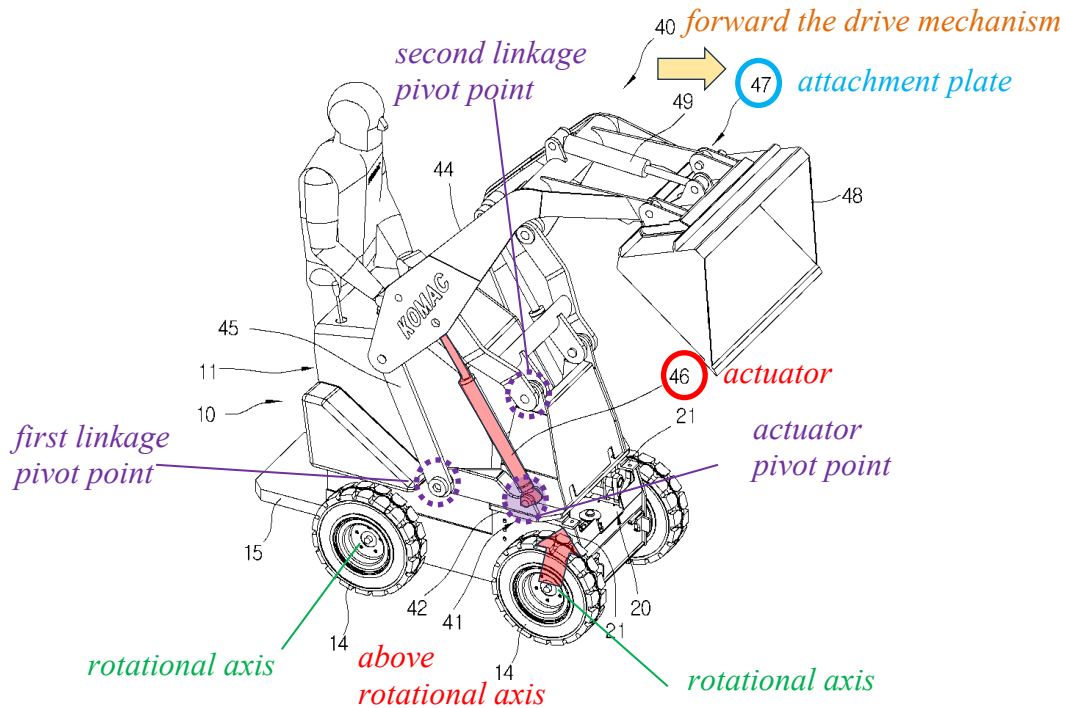
		See the analysis for:
	<i>being mounted toward the rear of the compact tool carrier and adapted to allow for standing or walk-behind operation; and</i>	
[86.9]	<i>an operator platform for standing operation of the operator controls of the control station.</i>	[31.6] discussing safety step 15 (<i>operator platform</i>)

As to element [86.6], KR996 describes a *drive mechanism* including “wheels (14)” (*wheels*). EX1005, [0042], [0052], [0060], [0118], Figs. 1, 8-10. The *drive mechanism* is attached to the mainframe via *rotational axis* as illustrated in the figures below, just like the attachment described in the '386 Patent. See EX1001, 1:67-2:3.



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

KR996 also illustrates the pivot point at which the boom cylinder 46 (*actuator*) is attached to the mainframe being *above the rotational axis*:



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

Further, as in [86.7], at least a portion of the bucket attachment 47 (*attachment plate*) is *forward of the drive mechanism*, e.g., KR996 wheels 14, when the loader is in the *vertically raised position*. See EX1005, Figs. 7, 9, 21. Thus, claim 86 is rendered obvious by KR996-JP705. EX1003, ¶¶150-152.

22. Claim 87

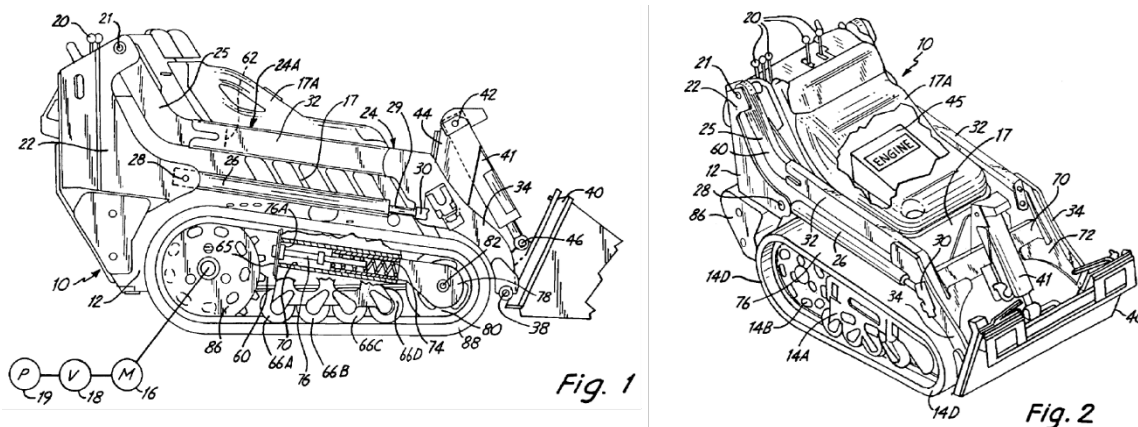
[87] *The compact tool carrier as set forth in claim 86 wherein the mainframe incorporates a single weldment.*

KR996-JP705 renders obvious claim 86 and it would have been obvious for the mainframe of KR996 to *incorporate[] a single weldment* for the reasons discussed in [33]. Thus, claim 87 is rendered obvious by KR996-JP705. EX1003, ¶153.

E. Ground 2 : KR996, JP705, and Bares

1. Bares (EX1010)

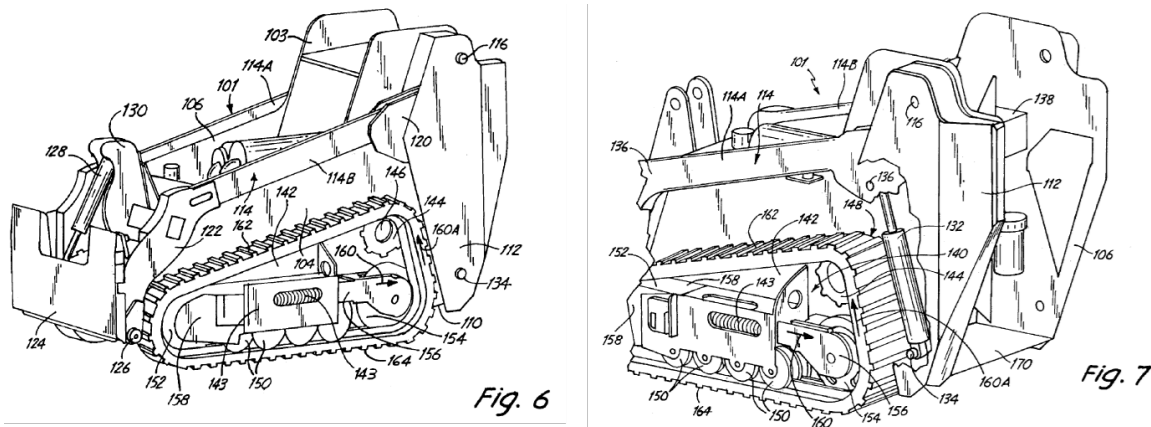
Bares “relates to a small...walk behind loader that is, in the form shown, track propelled.” EX1010, 1:33-35. Bares provides a first embodiment illustrated by side and perspective views in FIGS. 1-2, reproduced below. EX1010, 2:14-16.



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 through use of drive hydraulic motors indicated generally at 16, which are operated through a pump 19 “driven by an internal combustion engine 45 mounted on the [frame] 12.” EX1010, 2:35-46. Bares also

describes modified track assembly having a drive motor 146 and a drive sprocket 144 raised above a tensioner idler wheel. EX1010, 1:59-63, 5:24-29, FIGS. 6-8.



EX1010, FIGS. 6, 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. And 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. *See also*, EX1003, ¶¶154-155.

2. Reasons to Combine KR996 and JP705

The reasons to combine KR996 with JP705 (KR996-JP705) are discussed above in Ground 1. *See also*, EX1003, ¶¶156, 54-62.

3. Reasons to Combine KR996-JP705 and Bares

Bares, like KR996-JP705, is in the same field of endeavor as the '386 Patent, pertaining to working vehicles (*e.g.*, earth-moving equipment) and in particular, self-

propelled vehicles with a stand or walk behind operation and a loader. EX1003, ¶157; EX1005, Abstract, [0001], FIG. 21; EX1010, 5:55-57, FIGS. 1-8; EX1001, 1:16-31, 2:59-3:3, FIG. 1. KR996-JP705, Bares, and '386 Patent are also each reasonably pertinent to a same problem faced by the inventor regarding the need to provide compact tool carriers with a relatively low-profile, compact design. EX1005, [0008]-[0009], [0012]; EX1001, 1:28-30, 37-38; EX1010, 1:46-58.

POSITA would have been motivated to combine the teachings of Bares with KR996-JP705 to produce a predictable and beneficial configuration of a track assembly on the vehicle. EX1003, ¶¶158-161. The simple substitution of Bares' track assembly for the wheels in the KR996-JP705 vehicle would have been predictable with a reasonable expectation of success because both KR996-JP705 and Bares relate to similar vehicle types with a similar mainframe having a drive mechanism attached thereto.

Further, designing this type of vehicle, a compact tool carrier, with a drive mechanism of either a wheeled assembly or a track assembly was a well-known alternative. EX1003, ¶159 citing EX1032, [0011], which describes a compact tool carrier having a track or "[a]lternatively, ...a wheeled unit." Bares itself recognizes that wheel and track assemblies were known alternatives. EX1010, 2:1-2. See also, EX1009, 4:30-39 ("[t]he propulsion system for moving the loader is disclosed specifically as a **track unit**. However, skid steer loaders are **commonly mounted**

on wheels... Thus the propulsion system that supports the loader for movement can be sets of **wheels mounted in place of the tracks shown.**") Industry standards further recognize these assemblies as two common alternatives: "self-propelled **crawler** [track assembly] **or wheeled** machine." EX1003, ¶159 citing EX1015, p. 2 and explaining crawler is a track assembly, EX1016, p. 5 ("self-propelled [] machine **on wheels, crawlers or** legs...") Dr. Velinsky confirms that it was a known practice to market compact tool carriers such as KR996-JP705 and Bares to provide the buyer a choice of a wheel configuration or a track configuration. EX1003, ¶160.

In some desired applications for the vehicle, POSITA would have had reason to modify a vehicle design replacing a wheel assembly, which can provide more pressure to the supporting surface, with a track assembly, which can provide a reduced pressure to the supporting surface. EX1003, ¶160. The choice to provide the track assembly can be driven by the surface composition and/or need to mitigate impact to said surface intended for the vehicles use. *Id.* For example, track assembly, providing lower ground pressure, can be advantageous on soft surfaces; its significantly larger contact patch (surface area in contact with the ground) allows for much higher torque transmitted to the ground without slippage, i.e., better traction; its continuous tread provides ability to cross holes and trenches in which wheels would sink. EX1003, ¶¶160-161.

POSITA would have recognized a reasonable expectation of success in

providing a track assembly on the KR996-JP705 vehicle as track assemblies were well known in the art and perform the same function of a drive mechanism already illustrated in KR996-JP705. This is simple substitution of one known, equivalent element for another to obtain predictable results and perform the same function. EX1003, ¶162. Also Bares provides an easy to implement assembly. *See* Bares (EX1010), 1:33-45.

4. Claim 37

[37] *The compact tool carrier as set forth in claim 31 further comprising a drive mechanism for propelling the compact tool carrier over a supporting surface, the drive mechanism having a drive sprocket, the cross-member being disposed forward of the drive sprocket in the vertically raised position and the down position.*

KR996-JP705 renders obvious claim 31 and as discussed in [86.6], KR996 describes a *drive mechanism* including “wheels (14)” for *propelling* the vehicle (*compact tool carrier*) over a *supporting surface* (e.g., ground). EX1005, [0042], Figs. 1, 8-9; wheels (14). It would have been obvious, as a simple substitution for the wheeled assembly illustrated in KR996, to provide a track assembly drive mechanism, which includes a drive sprocket 144 (*drive sprocket*), on the KR996 vehicle for the reasons discussed above at Ground 2: Reasons to Combine KR996-JP705 and Bares.

Bares illustrates track assembly (*drive mechanism*) for *propelling* a small loader vehicle. EX1010, Figs. 1, 8, 2:36-37, 3:24-32, 5:18-43. In an embodiment of

Bares, each track assembly includes a frame 142, a drive sprocket 144 and wheels 150, 154 over which a track 148 (*track*) is mounted. EX1010, 5:18-42, FIGS. 6-8. Bares' drive sprocket 144 driven by motor 146 rotates around a rotational axis, just like in the '386 Patent. Bares explains its drive mechanism is *for propelling the loader apparatus over a supporting surface*. See EX1010, 2:37-39 (“**[ground drive] assembly []** on each side of the loader for **propelling the loader in forward** and reverse directions.”), 5:18-43 (“to power the unit and propel it over the ground.”) Bares' drive mechanism as illustrated and on KR996's provides these same features.

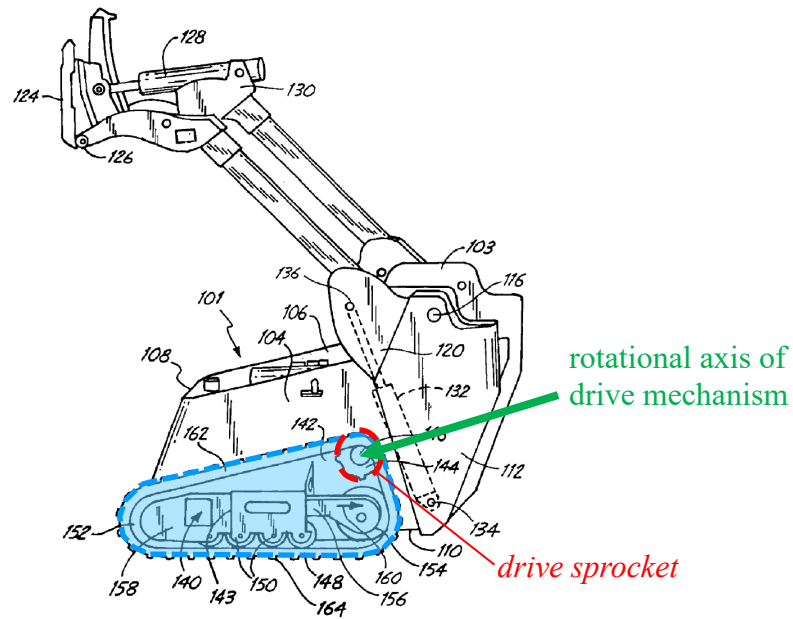


Fig. 8

EX1010, FIG. 8
(annotated)

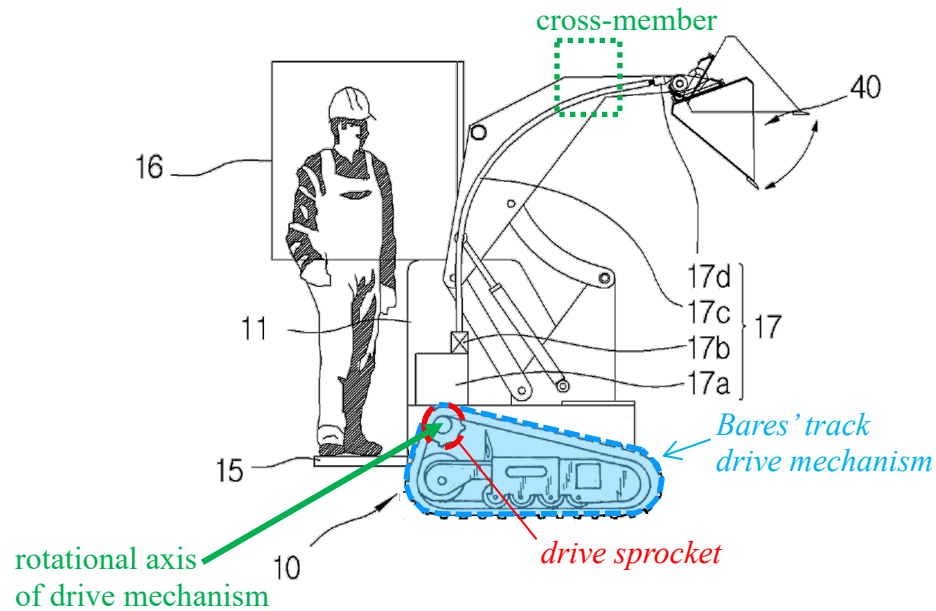
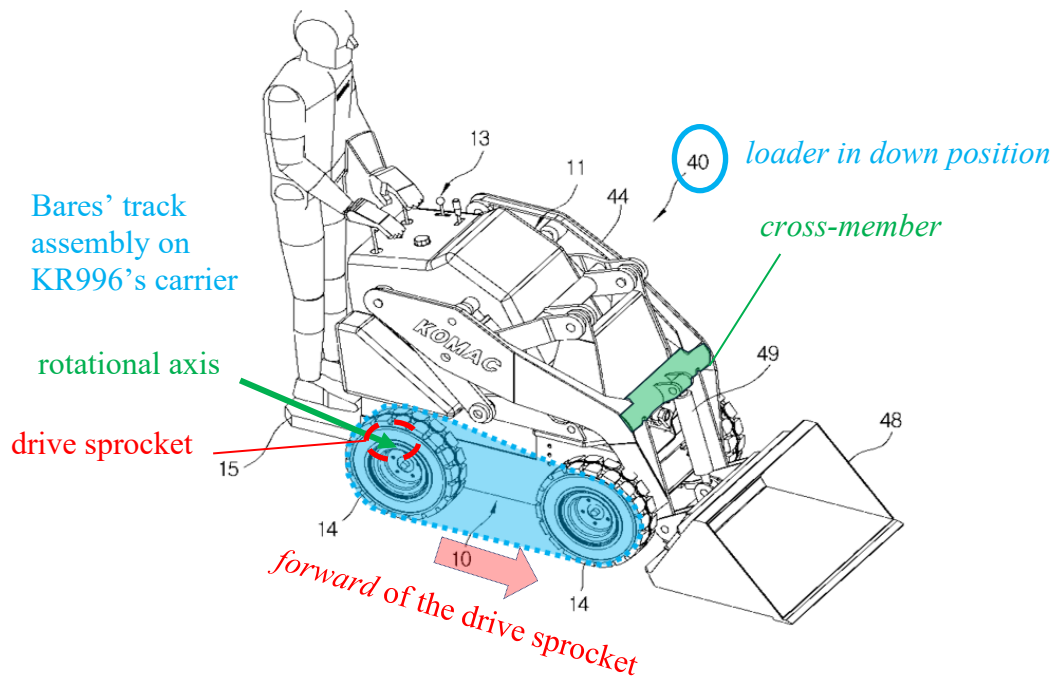


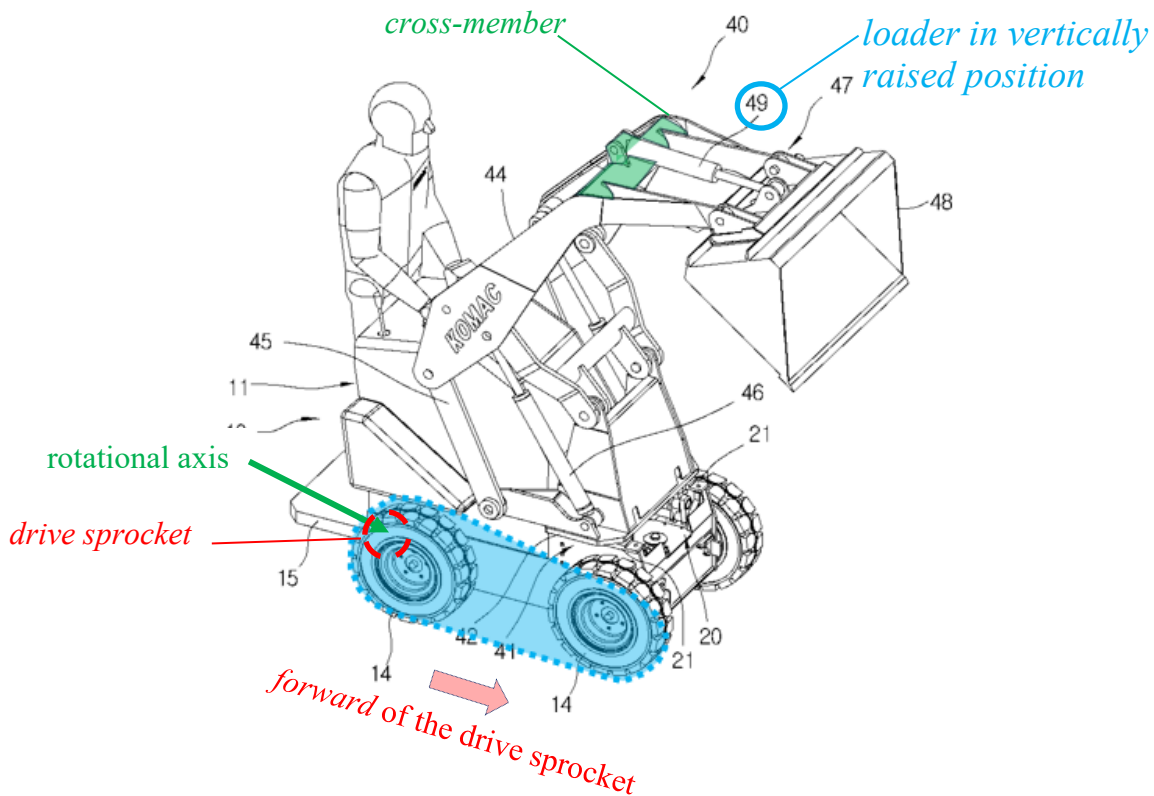
FIGURE A
KR996's Fig. 21 (annotated)
and modified with Bares' FIG. 8 track assembly

EX1003, ¶165, Figure A including Bares' track assembly of FIG. 8, flipped and lead lines/labels removed substituted for KR996's Fig. 21's wheel assembly.

Providing the drive mechanism of KR996-JP705 vehicle with the track assembly taught by Bares, the predictably resulting KR996-JP705-Bares vehicle has *the cross-member being disposed forward of the drive sprocket in the vertically raised position and the down position* of the loader. This is because the cross-member is *disposed forward of the* rotational axis of the rear of the drive mechanism of KR996 *in the vertically raised position and the down position* of the loader (KR996's Figs. 7-9) and thus, the cross-member is similarly forward of the rotational axis of the drive mechanism provided by the *drive sprocket* in the rear of track assembly in KR996-JP705-Bares.



**EX1005, Fig. 8 (portion) (annotated)
and with Bares' track assembly**



**EX1005, Fig. 9 (annotated)
and with Bares' track assembly**

Bares also illustrates its loader arm has a cross-member 70 between two loader arms that is *forward of the drive sprocket* and its rotational axis. See EX1010, FIGS. 6-8.

Thus, claim 37 is rendered obvious by KR996-JP705-Bares. EX1003, ¶¶163-167.

5. Claim 40

[40] *The compact tool carrier as set forth in claim 38 wherein the loader is moveable between a down position and a vertically raised position, the compact tool carrier further comprising a drive mechanism for propelling the compact tool carrier over a supporting surface, the drive mechanism having a drive sprocket, the cross-member being disposed forward of the drive sprocket in the down position and the vertically raised position of the loader.*

Claim 38 is rendered obvious by KR996-JP705 and KR996 further describes its loader unit 40 (*loader*) is *moveable between a down position* (Fig. 8) and a *vertically raised position* (e.g., Fig. 9) as described in [31.1]. And it would have been obvious to provide Bares' track assembly (*drive mechanism*) including its drive sprocket 144 (*drive sprocket*) as discussed above in [37] illustrating the *cross-member being disposed forward of the drive sprocket* in each position. Thus claim 40 is rendered obvious KR996-JP705-Bares. EX1003, ¶¶168-169.

6. Claim 70

Claim 70 recites substantially the same limitations as discussed above with reference to claims 31 and 32, which are taught by KR996 in combination with the engine bracket of JP705, and includes a drive mechanism having a drive sprocket and track, which is taught by Bares as in [37]. EX1003, ¶¶170-172.

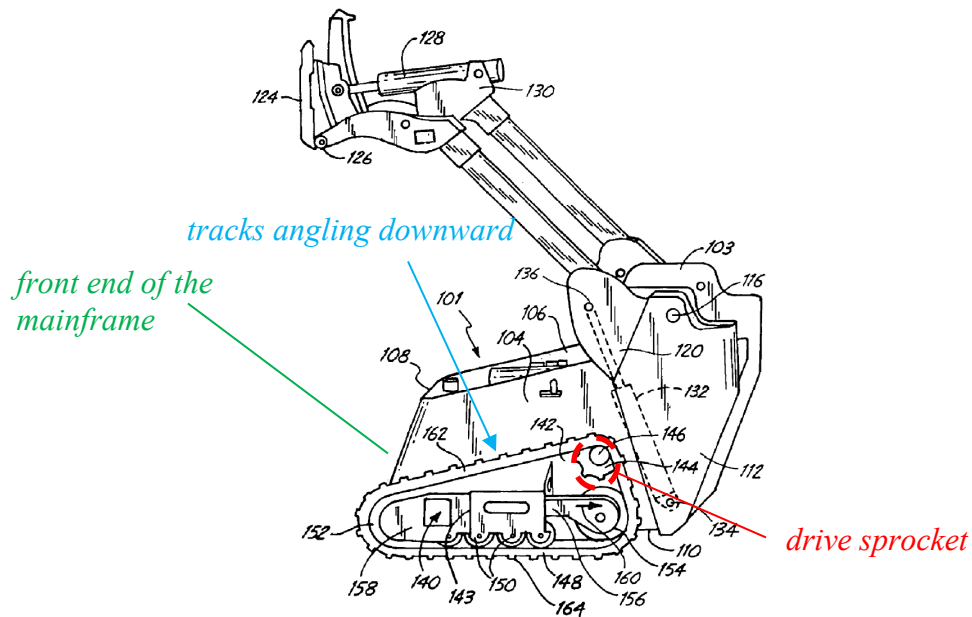
	Claim	See the analysis for:
[70.0]	<i>A compact tool carrier configured for standing or walk-behind operator control and having a longitudinal axis and a mass of less than about 1500 kg, the compact tool carrier comprising:</i>	[31.0]
[70.1]	<i>a loader having an arm, the loader being adapted to carry a tool;</i>	[31.1] discussing loader 40 (<i>loader</i>) and boom 44 (<i>arm</i>) adapted to carry a bucket 48 (<i>tool</i>)

	Claim	See the analysis for:
[70.2a]	<i>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,</i>	[31.2a]
[70.2b]	<i>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,</i>	[31.2b] including JP705's mounting part 7 (<i>engine bracket</i>) that would have been obvious to combine with KR996 for the reasons above
[70.2c]	<i>the loader arm not being directly attached to the mainframe;</i>	[31.2c]
[70.3]	<i>a linkage pivotally attached to the first side of the mainframe at a linkage pivot point and pivotally attached to the loader arm;</i>	[32] including link (<i>linkage</i>) <i>pivotally attached to the first side of the KR996 mainframe at a linkage pivot point and pivotally attached to the boom 44 (loader arm)</i> ⁹
[70.4]	<i>an actuator pivotally attached to the first side of the mainframe at an actuator pivot point and</i>	[31.4] including boom cylinder 46 (<i>actuator</i>) <i>pivotally attached to the first side of the KR996</i>

⁹ Due to dependent claim further limitations, here the forward linkage is referred to as the *linkage*.

	Claim	See the analysis for:
	<i>pivotally attached to the loader arm;</i>	mainframe at <i>an actuator pivot point</i> and <i>pivotally attached to the boom 44 (loader arm)</i>
[70.5a]	<i>a drive mechanism comprising a drive sprocket and tracks for propelling the compact tool carrier over a supporting surface,</i>	[37] including Bares' track assembly (<i>drive mechanism</i>) having a drive sprocket 144 (<i>drive sprocket</i>) and tracks 148 (<i>tracks</i>) that would have been obvious to combine with KR996
[70.5b]	<i>at least a portion of the tracks angling downward from the drive sprocket toward the front end of the mainframe, the linkage pivot point being disposed above the portion of the tracks that angles downward from the drive sprocket toward the front end of the mainframe; and</i>	See below
[70.6]	<i>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.</i>	[31.5a] including control unit 13 (<i>control station</i>), see also, fn#7

As for [70.5b], Bares' track drive mechanism provides for *at least portion of the tracks 148 (tracks) are angling downward from the drive sprocket 144 (drive sprocket) towards the front end of the mainframe. See EX1010, FIGS. 6-8. Bares describes "[t]he track 148 has an **inclined upper reach or portion 162**, and the flat ground support portion 164 that provides the support for movement over the ground."* EX1010, 5:52-54. POSITA would understand the same configuration to be provided when incorporating Bares' track assembly on KR996 and in doing so the *linkage pivot point is disposed above the portion of the tracks that angles downward.*



EX1008, FIG. 1
(annotated)

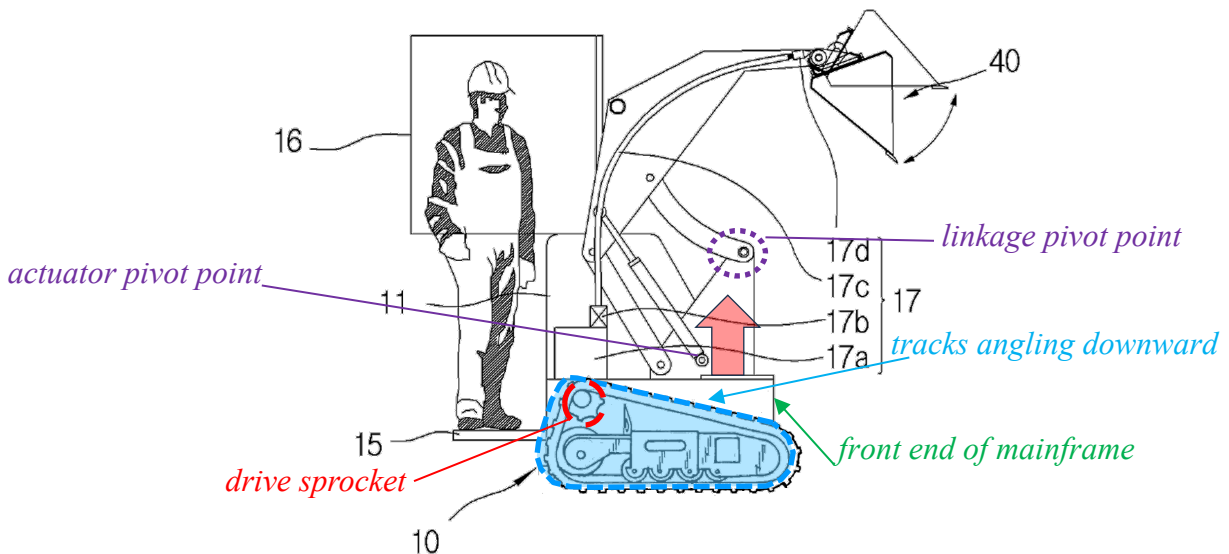


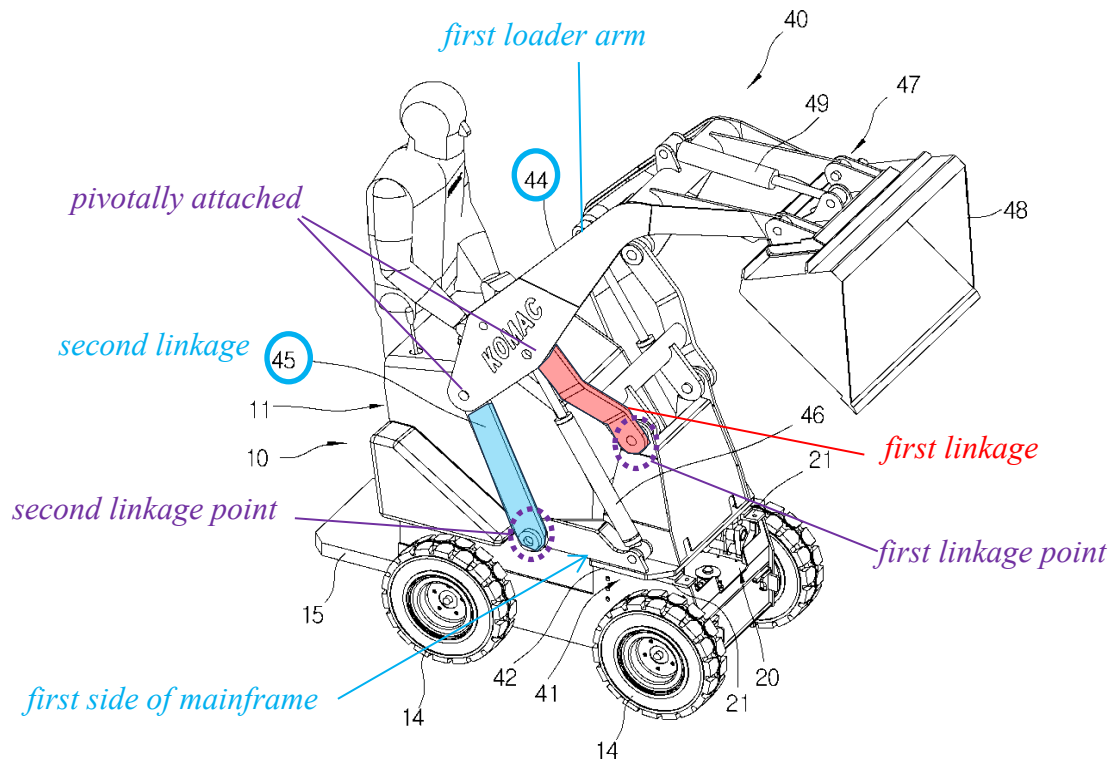
FIGURE A
KR996's Fig. 21 (annotated)
and modified with Bares' FIG. 8 track assembly

EX1003, ¶171 discussing this standard configuration including in EX1035, EX1015 industry standard, EX1033. Thus, claim 70 is rendered obvious over KR996-JP705-Bares. EX1003, ¶¶170-172.

7. Claim 71

[71] *The compact tool carrier as set forth in claim 70 wherein the linkage is a first linkage and the linkage pivot point is a first linkage pivot point, the compact tool carrier further comprising a second linkage pivotally attached to the first side of the mainframe at a second linkage pivot point and pivotally attached to the loader arm, the first linkage being forward of the second linkage.*

KR996-JP705-Bares renders obvious claim 70 and KR996 further illustrates the link (*linkage* at [70.3]) is a *first linkage* and includes another link 45 (*second linkage*) also pivotally attached to the first side of the mainframe at a *second linkage pivot point* and *pivotally attached* to boom 44 (*loader arm*) as in [31.3].



EX1005, Fig. 9
(annotated)

The link (*first linkage*), red above, is *forward* of the link 45 (*second linkage*), blue above, a configuration that would continue with Bares' track assembly. Thus, claim 71 is obvious under KR996-JP705-Bares. EX1003, ¶¶173-175.

8. Claim 72

[72] The compact tool carrier as set forth in claim 70 further comprising an operator platform for standing operation of the operator controls of the control station, the operator platform extending from the mainframe, at least a portion of the operator platform being forward of the rear end of the mainframe.

KR996-JP705-Bares renders obvious claim 70 and as discussed in [31.6], KR996 also provides a safety step 15 (*operator platform*) on which an operator

stands for *standing operation of the operator controls* of control unit 13 and that *extend[s] from the mainframe*. EX1005, Figs. 1, 7-10, 21, [0033], [0049].

In light of Bares, it would have been obvious for *at least a portion of the* safety step 15 (*operator platform*) to be *forward of the rear end of the mainframe* in KR996-JP705. Like KR996, 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 platform 170 is at least partially within a pocket defined by the extension of the frame and thus, forward of the rear end of the mainframe. FIG. 7 of Bares is illustrative:

EX1003, ¶179 citing ISO 3457 (EX1017). For example, ISO 3457 suggests 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 desired. 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, ¶179. 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, ¶¶178-179 citing EX1007, 3:19-24, FIGS. 1-3.

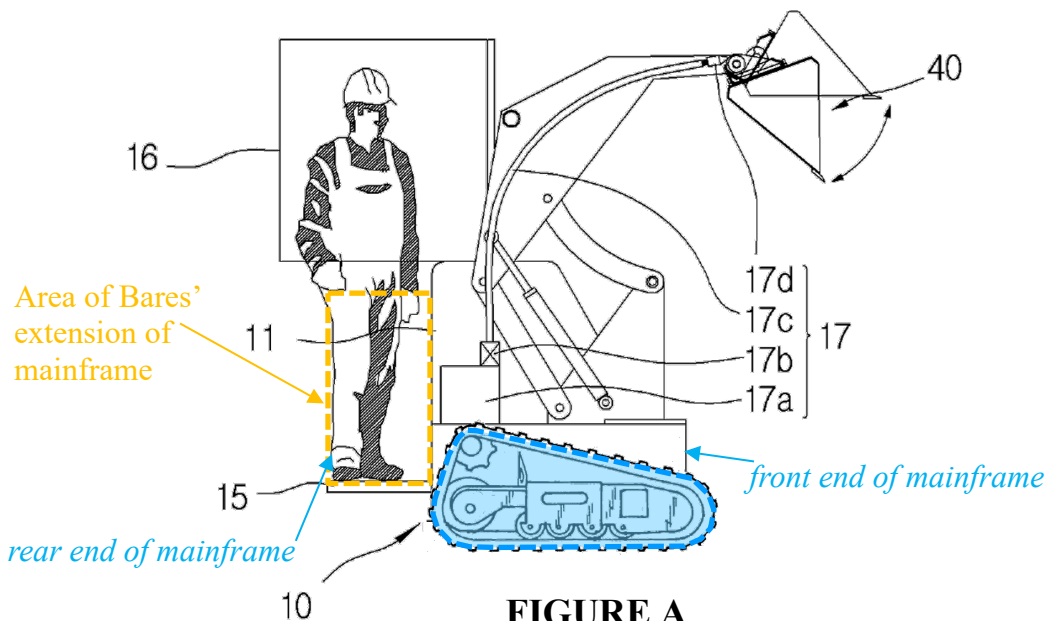


FIGURE A
KR996's Fig. 21 (annotated)
and modified with Bares' FIG. 8 track assembly

Thus, KR996-JP705 and Bares (track and frame extension) renders obvious claim 72. EX1003, ¶¶176-180.

9. Claim 73

[73] *The compact tool carrier as set forth in claim 70 wherein the mainframe incorporates a single weldment.*

KR996-JP705-Bares renders obvious claim 70 and it would have been obvious for the mainframe of KR996 to *incorporate[] a single weldment* for the reasons discussed in [33]. Thus, KR996-JP705-Bares render obvious claim 73. EX1003, ¶181.

10. Claim 74

The claim 74 includes substantially similar limitations as claims 31 and 32, and includes limitations directed a drive mechanism and frame extension taught by Bares; thus, claim 74 is rendered obvious by the combination of KR996 and JP705's engine bracket and in further combination with Bares' drive mechanism and frame extension for the reasons discussed above. EX1003, ¶¶182-186.

		See the analysis for:
[74.0]	<i>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:</i>	[31.0]
[74.1]	<i>a loader having an arm, the loader being adapted to carry a tool;</i>	[31.1] including loader unit 40 (<i>loader</i>) having boom 44 (<i>arm</i>) adapted to carry bucket 48 (<i>tool</i>)
[74.2a]	<i>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,</i>	[31.2a]
[74.2b]	<i>the mainframe comprising an engine bracket that extends from the first side toward the second side for</i>	[31.2b] including JP705's mounting part 7 (<i>engine bracket</i>) that would have been

		See the analysis for:
	<i>mounting an engine to the mainframe, the engine bracket being spaced from the rear end of the mainframe,</i>	obvious to combine with KR996 for the reasons above
[74.2c]	<i>the loader arm not being directly attached to the mainframe;</i>	[31.2c]
[74.3]	<i>a first linkage pivotally attached to the first side of the mainframe at a first linkage pivot point and pivotally attached to the loader arm;</i>	[32] including a forward link (<i>first linkage</i>) and <i>pivotally attached to the boom 44 (loader arm) and pivotally attached to the mainframe at a first linkage pivot point</i>
[74.4]	<i>a second linkage pivotally attached to the first side of the mainframe at an [sic] second linkage pivot point and pivotally attached to the loader arm;</i>	[31.3] including link 45 (<i>second linkage</i>) <i>pivotally attached to the boom 44 (loader arm) and pivotally attached to the first side of the mainframe at a second linkage pivot point</i>
[74.5]	<i>an actuator pivotally attached to the first side of the mainframe at an actuator pivot point and pivotally attached to the loader arm;</i>	[31.4] including boom cylinder 46 (<i>actuator</i>) <i>pivotally attached to the mainframe at an actuator pivot point and pivotally attached to the boom 44 (loader arm)</i>
[74.6a]	<i>a drive mechanism comprising a drive sprocket and tracks for propelling</i>	[37] including Bares' track assembly (<i>drive mechanism</i>) having a drive sprocket 144

		See the analysis for:
	<i>the compact tool carrier over a supporting surface,</i>	(drive sprocket) and tracks 148 (tracks) that would have been obvious to combine with KR996
[74.6b]	<i>the tracks being spaced from the rear end of the mainframe,</i>	[72] including Bares' frame extension forming a pocket in combination with KR996's mainframe
[74.6c]	<i>at least a portion of the tracks angling downward from the drive sprocket toward the front end of the mainframe,</i>	[70.5b] including Bares' tracks 148 angling downward
[74.6d]	<i>each of the first linkage pivot point, second linkage pivot point, and actuator pivot point being (1) disposed above at least part of the portion of the tracks that angles downward from the drive sprocket toward the front end of the mainframe or (2) disposed between the tracks and the rear end of the mainframe; and</i>	See below
[74.7]	<i>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</i>	[31.5a] including control unit 13 (control station); see also, fn#7

		See the analysis for:
	<i>rear of the compact tool carrier and adapted to allow for standing or walk-behind operation; and</i>	
[74.8]	<i>an operator platform for standing operation of the operator controls of the control station.</i>	[31.6] including safety step 15 (<i>operator platform</i>)

Regarding [74.6d], combining Bares' track assembly and KR996-JP705, each of the pivot point attachments between the links and boom cylinder 46 and mainframe—the *first linkage pivot point, second linkage pivot point, and actuator pivot point*—are (1) *disposed above at least part of the portion of Bares' tracks 148 (tracks) that angle[] downward from drive sprocket 144 (drive sprocket) toward the front end of the KR996 mainframe as shown below.*

12. Claim 76

[76] *The compact tool carrier as set forth in claim 74 wherein the operator platform extends from the mainframe, at least a portion of the operator platform being forward of the rear end of the mainframe.*

KR996-JP705-Bares render obvious claim 74 and as discussed in [72] it would have been obvious for Bares' extension of the mainframe to be applied such that *at least a portion* of the safety step 15 (*operator platform*) is *forward of the rear end of the mainframe*. Thus, claim 76 is rendered obvious by KR996-JP705-Bares. EX1003, ¶189.

13. Claim 77

[77] *The compact tool carrier as set forth in claim 74 wherein the mainframe incorporates a single weldment.*

KR996-JP705-Bares renders obvious claim 74 and it would have been obvious for the mainframe of KR996 to *incorporate[] a single weldment* for the reasons discussed in [33]. Thus, KR996-JP705-Bares renders obvious claim 77. EX1003, ¶190.

14. Claim 78

Claim 78 recites substantially similar limitations as discussed above with reference to claim 31 with the addition of the drive mechanism elements and extension of mainframe taught by Bares as discussed in [34] and [72], respectively. Table is illustrative:

	<i>Claim</i>	<i>See the analysis of</i>
[78.0]	<i>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:</i>	[31.0]
[78.1]	<i>a loader having an arm, the loader being adapted to carry a tool;</i>	[31.1] including loader unit 40 (<i>loader</i>) having a boom 44 (<i>arm</i>) carrying bucket 48 (<i>tool</i>)
[78.2a]	<i>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,</i>	[31.2a]
[78.2b]	<i>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,</i>	[31.2b] including JP705's mounting part 7 (<i>engine bracket</i>) in combination with KR996's mainframe
[78.2c]	<i>the loader arm not being directly attached to the mainframe;</i>	[31.2c]
[78.3]	<i>a linkage pivotally attached to the first side of the mainframe at a linkage pivot point and pivotally attached to the loader arm;</i>	[31.3] including link 45 (<i>linkage</i>) is pivotally attached at a linkage pivot point with the <i>first side</i> of the mainframe and

	<i>Claim</i>	<i>See the analysis of</i>
		<i>pivotally attached to the boom 44 (loader arm)</i>
[78.4]	<i>an actuator pivotally attached to the first side of the end of the mainframe at an actuator pivot point and pivotally attached to the loader arm;</i>	[31.4] including boom cylinder 46 (actuator) is <i>pivotally attached at an actuator pivot point to the first side of the mainframe and pivotally attached to the boom 44 (loader arm)</i>
[78.5]	<i>a drive mechanism comprising a drive sprocket and tracks for propelling the compact tool carrier over a supporting surface, the tracks being spaced from the rear end of the mainframe; and</i>	[37] including Bares' drive mechanism including a drive sprocket 144 and tracks 148 as a simple substitution for KR996's wheels 14, see also, [72] for rear end of the mainframe
[78.6]	<i>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</i>	[31.5a] including control unit 13 (control station) and fn#7

	<i>Claim</i>	<i>See the analysis of</i>
	<i>adapted to allow for standing or walk-behind operation; and</i>	
[78.7a]	<i>an operator platform for standing operation of the operator controls of the control station that extends from the mainframe,</i>	[31.6] including safety step 15 (<i>operator platform</i>) extends from the KR996 mainframe
[78.7b]	<i>at least a portion of the operator platform being forward of the rear end of the mainframe</i>	[72] including Bares' teaching of extending the rear end of the mainframe adjacent the safety step 15 (<i>operator platform</i>) to form a pocket protecting the operator

Thus, KR996's compact loader carrier in combination with JP705's engine bracket, Bares' track assembly and extension of the mainframe to form of a pocket adjacent the operator platform render obvious claim 78.

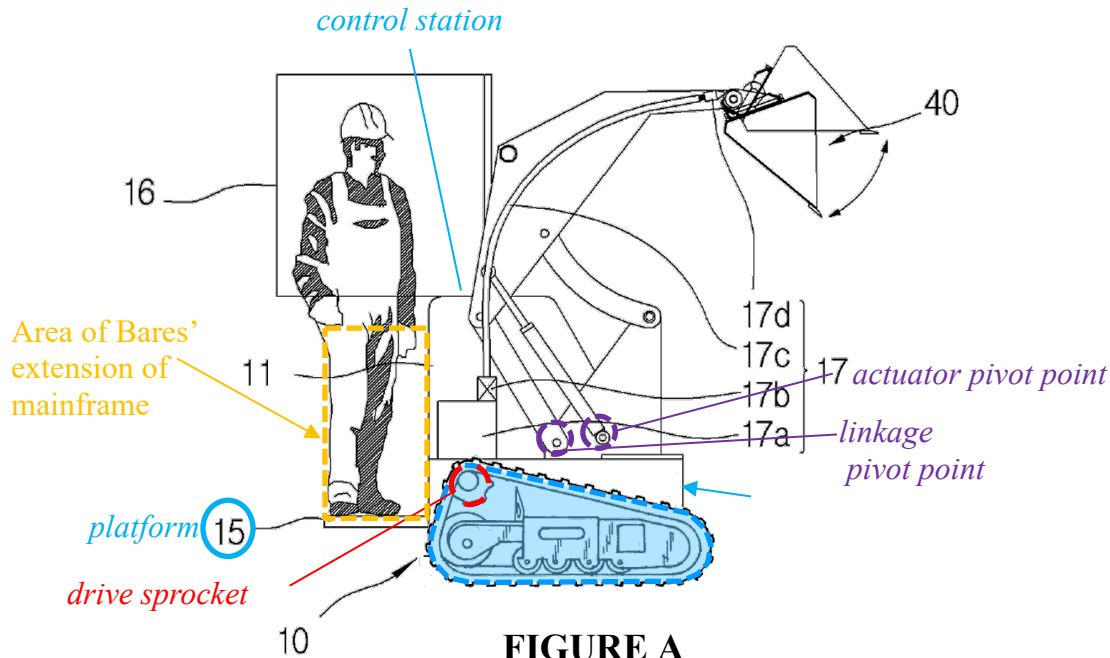


FIGURE A
KR996's Fig. 21 (annotated)
and modified with Bares' FIG. 8 track assembly

EX1003, ¶191.

15. Claim 79

[79] *The compact tool carrier as set forth in claim 78 wherein the mainframe incorporates a single weldment.*

Claim 78 is rendered obvious by KR996-JP705-Bares and it would have been obvious to provide the mainframe of KR996 as *incorporat[ing] a single weldment* for the reasons discussed in [33]. Thus, claim 79 is rendered obvious by KR996-JP705-Bares. EX1003, ¶192.

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 '386 Patent nor before the Office in any of the reexamination proceedings. Further, predominately all of the analysis during the '386 Patent prosecution and reexamination was directed to an obviousness framework of placing a vertical lift configuration loader arm disclosed on a larger tractor onto a compact tool carrier, which is **not** proposed here. In fact, the Examiner concluded the final reexamination proceeding of the '386 Patent reiterating that there was only one reference of record that included a vertical lift loader on a compact tool carrier.¹⁰ Here, KR996, which was not of record, shows in a single embodiment, a vertical lift configuration of a loader arm on a compact tool carrier, and thus is not cumulative to the previous presentations.¹¹

¹⁰ “Ulinski (U.S. Patent 3,074,572[]) is the only reference of record which uses linkages to indirectly attach loader arms to a standing or walk-behind machine to achieve vertical lift.” EX1030, p. 13. Ulinski was distinguished on other features.

¹¹ JP705 also does not appear to have been before the Examiner with respect to the '386 Patent.

Accordingly, the prior art, arguments and grounds raised here were not previously before to the Office. Accordingly, 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, without a scheduling order or opening of fact discovery, as Patent Owner just served the complaint September, 2024. *See* EX1019. Petitioner has diligently worked to prepare the petitions. The current average time-to-trial 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). Here, 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 '386 Patent has not been challenged in any prior IPR 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: November 15, 2024
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/ David M. O'Dell /
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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 Petitioner, 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 '386 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 is also concurrently filing petitions for *inter partes* review (“IPR”) for claims of the '386 Patent and related patents:

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, 86-87	IPR2025-00168	November 14, 2024

9,321,386 Petition C	50-63, 68-69, 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

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 13,587. 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: November 15, 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 November 15, 2024

Manner of service FEDERAL EXPRESS

Documents served Petition for *Inter Partes* Review Under 35 U.S.C. § 312 and 37 C.F.R. § 42.104 of U.S. 9,321,386;
Petitioner's Power of Attorney;
Petitioner's Notice Ranking Petitions and Explaining Material Differences Between Petitions for U.S. Patent No. 9,321,386;
Petitioner's Exhibit List;
Exhibits EX1001-EX1003, EX1005-Ex1010, EX1013-EX1017 and EX1019-EX1036

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