

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Kubota North America Corporation,
Petitioner

IPR2025-00170
U.S. Patent No. 9,975,750

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

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PETITIONER’S EXHIBIT LIST

EX1001	U.S. Patent No. 9,975,750 (the “’750 patent”)
EX1002	Prosecution History of U.S. Patent No. 9,975,750
EX1003	Declaration of Steven Velinsky under 37 C.F.R. § 1.68
EX1004	Appendix A to the Declaration of Steven Velinsky
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	JPH 11140900 to Komatsu (“Komatsu”) (machine translation)
EX1012	U.S. Patent No. 6,474,933 (“Hoechst”)
EX1013	U.S. Patent Application No. 2008/0197588 to Azure (“Azure”)
EX1014	Korean Patent No. 10-1023528 including original Korean language document, certified translation, and certification (“KR528”)
EX1015	SAE International J2752 JUN2010 (“SAE J2752”), Surface Vehicle Recommended Practice, Personal Protection – Compact Tool Carriers
EX1016	International Organization for Standardization (ISO) 6165 (2012)
EX1017	International Organization for Standardization (ISO) 3457 (2003)

EX1018	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) (terminated)
EX1021	U.S. Patent Application 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	Reexam Proceeding 90/014,148
EX1030	Reserved
EX1031	Reserved
EX1032	U.S. Patent Appl. 2010/0168933 (“Rorabaugh”)
EX1033	U.S. Patent Appl. 2009/0116943 (“Valere”)
EX1034	United States District Court – National Judicial Caseload Profile
EX1035	U.S. Patent No. 3,828,873 (“Oestmann”)
EX1036	<i>Curriculum Vitae</i> of Steven Velinsky

I. INTRODUCTION

Pursuant to 35 U.S.C. §§311, 314(a), and 37 C.F.R. §42.100, Kubota North America Corporation (“Petitioner”) respectfully requests the Board institute review and find unpatentable claims 1-36 (all claims, hereinafter, “Challenged Claims”) of U.S. Patent No. 9,975,750 (“the ’750 patent,” EX1001).

The ’750 patent describes a compact tool carrier for standing or walk-behind operation having a loader 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 ’750 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. **Emphasis** in quoted material has been added. Claim terms are generally presented in *italics*.

IV. BACKGROUND

The ’750 patent relates to earth-moving machinery and particular to an

equipment type—a compact tool carrier—well-known as of the earliest claimed priority date. This section describes background technology related to the claimed subject matter. Dr. Velinsky also describes relevant background technology predating the '750 patent, which is cited as appropriate below. *See* EX1003, ¶¶7-39.

A. Compact Tool Carrier

The '750 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 “self-propelled crawler[s] or wheeled machine[s] having an operating mass of less than 1500 kg with a rigid frame, having either a pedestrian operating position or standing operator platform at the rear of the machine and either front-mounted interchangeable equipment or lift arms with an attachment bracket capable of coupling to interchangeable, front-mounted attachments.” EX1001, 1:23-31 (citing SAE Standard [EX1015]). This type of equipment (compact tool carrier) may also be referred to as a compact utility loader (CUL) or a mini-skid steer. EX1003, ¶¶29-30 citing EX1007, EX1009, EX1010, EX1013, KR528 illustrating compact tool carriers; EX1029, p. 8.

B. Radial-Lift and Vertical-Lift Loaders

As Patent Owner has recognized, there are generally two conventional configurations of loaders: a radial-lift loader and a vertical-lift loader. EX1003,

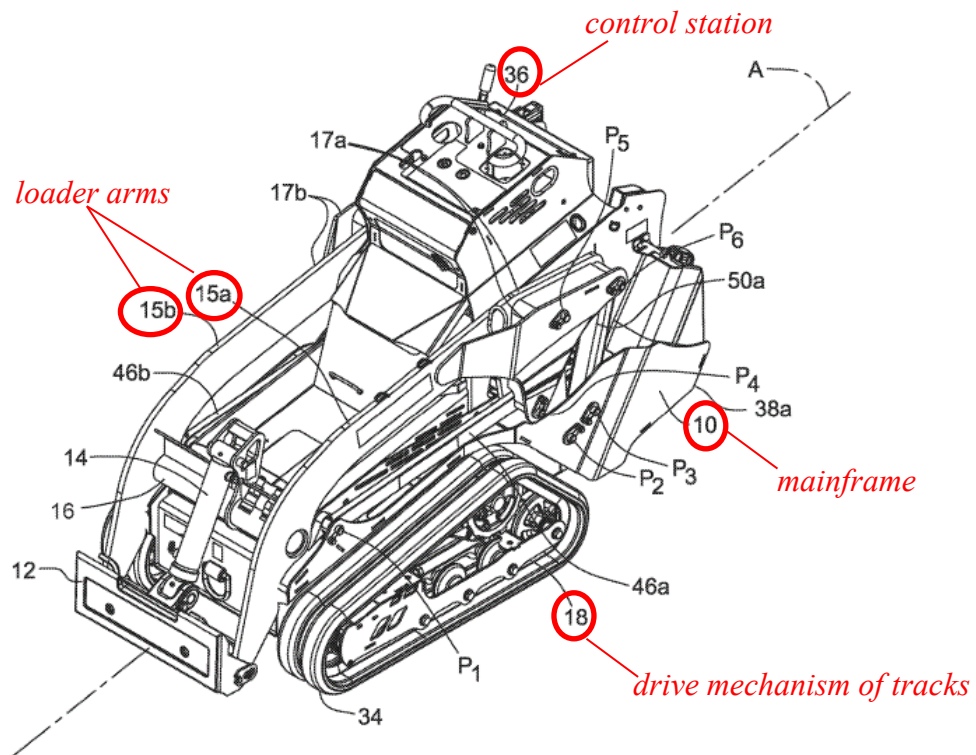
¶¶31-39; *e.g.*, EX1029, p. 111; EX1002, p. 60. Each of these two loader configurations was known well-before the '750 patent and is based on basic engineering mechanisms. Radial-lift loaders implement a two-bar mechanism where the loader arm is attached to a frame by a direct pivot connection. EX1003, ¶¶31-32 citing EX1008, FIG. 1, EX1009; EX1030, p. 13. The vertical-lift loader attaches the loader arm to a frame indirectly through intermediary parts (linkages and an actuator) configured in a four-bar mechanism. EX1003, ¶¶33-39 citing EX1001, EX1005, textbook explanations EX1023-EX1026, EX1028; EX1029, p. 249 (“vertical lift compact utility loaders in which the loader is free from direct attachment to the mainframe as recited in claim 1”).

V. SUMMARY OF THE '750 PATENT

The '750 patent issued May 22, 2018 and was subject to an *ex parte* reexamination proceeding; the '750 patent has claims 1-36. And it claims priority to U.S. Patent No. 9,321,386 (“’386 patent”), which Petitioner has also requested IPR.

The '750 patent relates to compact tool carriers having a loader (with two arms) designed standing operation. EX1001, 1:14-31. In its background, the '750 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, 1:34-38. Tools such as buckets, augers, and the like may be provided as front-mounted attachments. EX1001, 1:31-33.

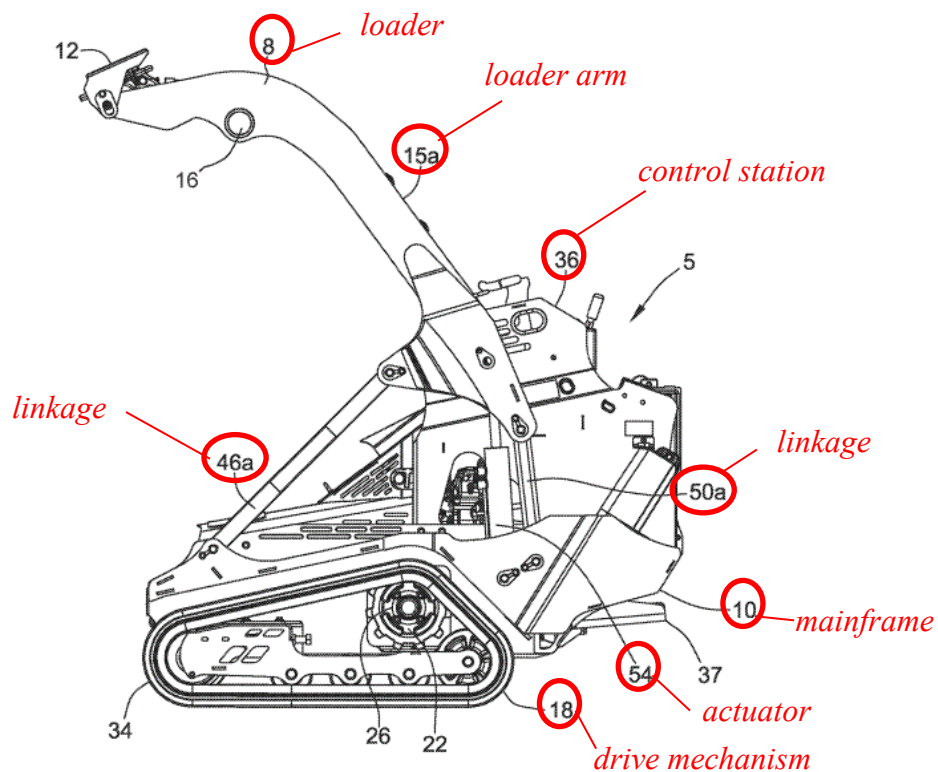
FIGS. 1 and 3 are illustrative of a compact tool carrier 5 including a loader 8 having loader arms 15a, 15b and mainframe 10. EX1001, 2:45-54. A drive mechanism 18 may include tracks 34 (as shown) or wheels and control station 36 provides operator controls. EX1001, 3:21-4:3.



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

The first loader arm 15a is pivotally connected to a first side 38a of the mainframe 10 and the second loader arm 15b is pivotally connected to a second side of the mainframe 10. EX1001, 4:13-16. Each loader arm is attached to a respective side of the mainframe by linkages 46a/50a and an actuator 54. EX1001, 4:13-44. Dr. Velinsky confirms this configuration is known to Persons of Ordinary Skill in the

Art (POSITA) as a four-bar mechanism providing a path generation of the motion of the tool attachment plate 12. EX1003, ¶¶37, 40-43. FIG. 1 above is illustrative of the carrier with the loader in a down position; FIG. 3 below is illustrative the loader in a raised position. EX1001, 2:26-31.



EX1001, FIG. 3
(annotated)

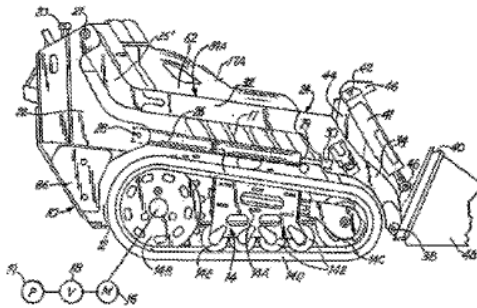
VI. PROSECUTION HISTORY

A. Original Prosecution and *Ex Parte* Reexamination

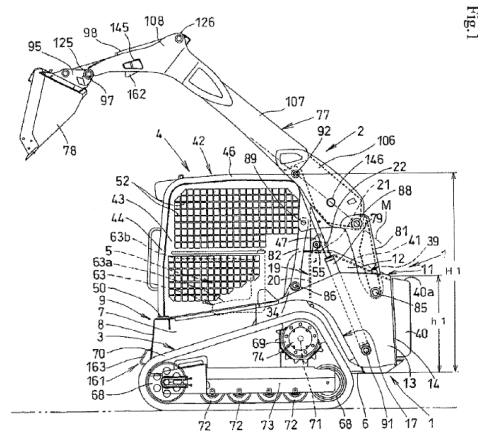
Rejections overcome during prosecution and *ex parte* reexamination of the '750 patent fall into two types: [1] an obviousness framework combining a compact

tool carrier with a vertical lift loader shown on larger equipment, and [2] rejections based on USP 3,074,572 (“Ulinski”), the “only reference of record which uses linkages to indirectly attach loader arms to a standing or walk-behind machine to achieve a vertical lift.” EX1029, p. 9.

Yasuda (EX1022) combined with Bares ’568 (EX1009) is an example of the type [1] rejection, where the loader of Yasuda is placed on the carrier of Bares ’568. EX1002, pp. 164-166.



EX1009, FIG. 1

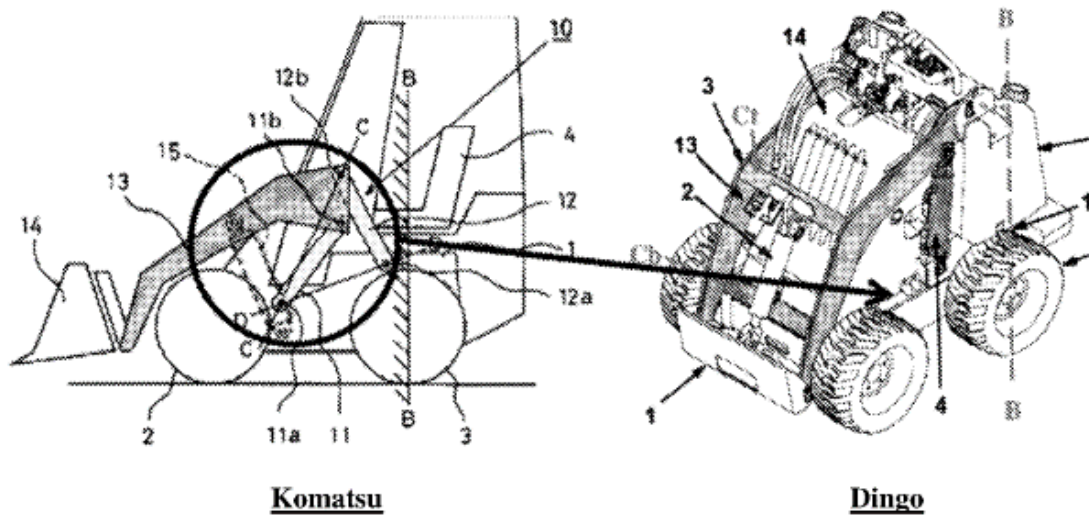


EX1022, FIG. 1

In response, Applicant argued against the combination due to the different equipment types and introduced claims with an “operator platform” arguing Bares ’568/Yasuda combination fails due to operator safety issues resulting from the operator’s location relative to certain features (*e.g.*, engine). EX1002, pp. 199-201.

The reexamination proceeding relied upon a similar combination of compact

tool carrier of the third-party requester (Toro's "Dingo") and a vertical lift loader disclosed on larger equipment (Komatsu):



EX1029, p. 379

During the *ex parte* proceeding, the Examiner withdrew this rejection stating “[Toro] over the course of several years and through multiple modifications of the Dingo series of CULs, did not find it obvious to employ a vertical lift loader arm arrangement on a CUL” and when they did “they chose to design an entirely new mainframe and vertical lift loader mechanism” rather than rely on the prior art loader. EX1029, p. 12. The Examiner also stated the ’750 patent inventor’s declaration “show[ed] that designing a vertical lift having a four-bar linkage requires considerable experimentation and a combination such as of Dingo and Komatsu

would not have been obvious at least because it would require undue experimentation.” EX1029, p. 12.

As to type [2], Applicant amended its claims to avoid Ulinski’s loader, which differs in its actuator attachment (i.e., to a bell crank rather than directly to an arm) and use of “shared” pivot points. EX1002, pp. 97-111. Amendments to prosecution claim 21, issuing claim 1, are illustrative:

21. (Currently amended) A compact tool carrier configured for standing operator control and having a longitudinal axis and a mass of less than about 1500 kg, the compact tool carrier comprising:

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

a mainframe for supporting the loader, the mainframe having a first side and a second side, the loader being free from direct attachment to the mainframe;

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

a second linkage pivotally attached to the first side of the mainframe at a third pivot point and pivotally attached to the loader arm at a fourth pivot point;

an actuator directly pivotally attached to the first side of the mainframe at a fifth pivot point and directly pivotally attached to the loader arm at a sixth pivot point, the fifth pivot point being distinct from the first pivot point and the third pivot point;

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;

an operator platform for standing operation of the operator controls of the control station; and

an engine disposed forward of the operator platform relative to the longitudinal axis.

22. (Previously presented) The compact tool carrier as set forth in claim 21 wherein the mainframe incorporates a single weldment.

EX1002, pp. 97-98. *See also*, EX1003, ¶¶44-49.

B. Previously Alleged Secondary Considerations

As indicated above, Patent Owner has, during previous *ex parte* proceedings, entered evidence purportedly directed to secondary considerations of non-obviousness of the '750 patent including claim 1. Such evidence carries little weight in this *inter partes* proceeding. **First**, such factors must be assessed anew in light of this entirely different context. **Second**, Patent Owner's evidence relates entirely to the alleged non-obviousness of replacing a radial lift mechanism of a compact tool carrier with a vertical lift mechanism. A vertical lift mechanism on a compact tool carrier was known in the art as shown here by KR996. And "case law makes clear that 'objective evidence of nonobviousness **lacks a nexus** if it exclusively relates to a feature that was 'known in the prior art'[".]” *See Yita LLC v. MacNeil IP LLC*, 69 F.4th 1356, 1364 (Fed. Cir. 2023) citing *Rambus Inc. v. Rea*, 731 F.3d 1248, 1257 (Fed. Cir. 2013). **Third**, Vermeer's evidence should not be given weight as it suffers from numerous deficiencies including reliance on declarations from interested parties (*e.g.*, inventor of the '750 patent); having a basis on Patent Owner's presentation of its loader as the first to provide vertical lift, which it was not; reliance on statements particular to Toro and its development process having no relevance here; reliance on performance data constrained to one vertical lift mechanism in comparison with one radial lift mechanism, which merely recognizes a predictably

different lift path¹. **Finally**, secondary considerations, even if they do exist, would not overcome the clear obviousness shown here. *See Genentech, Inc. v. Sandoz Inc.*, 55 F.4th 1368, 1378 (Fed. Cir. 2022).

VII. EFFECTIVE PRIORITY DATE OF THE '750 PATENT

The '750 patent claims priority to the '386 Patent, which claims priority to provisional application filed February 20, 2015. Determining whether the '750 patent is entitled to an earlier priority date is unnecessary in this proceeding as all relied-upon prior art predates the earliest claimed date. Accordingly, Petitioner has not undertaken a priority date analysis but does not waive any right to dispute the priority of the '750 patent if relevant.

VIII. LEVEL OF ORDINARY SKILL IN THE ART

POSITA in February 2015 (earliest effective filing date) would have had at least a Bachelor of Science degree in Mechanical or Agricultural Engineering and two years of experience in the design of vehicles, or have had equivalent knowledge

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).

and experience. Lack of professional experience can be remedied by additional education, and vice versa. EX1003, ¶¶50-51.

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 Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017). Petitioner may also 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. EX1003, ¶51.

X. RELIEF REQUESTED AND THE REASONS FOR THE REQUESTED RELIEF

Petitioner challenges all claims (1-36) of the ’750 patent, and asks the Board

² A district court previously discussed construction of certain claim terms in the ’750 patent. *See* EX1020. Petitioner was not a party to that case, which involved different points of dispute. 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.

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

A. Prior Art Patents and Printed Publications

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

1. KR 10-1041996 (“KR996”) (EX1005) stemming from Korean Application 10-2009-0033050, which was published as 10-1041996 on June 16, 2011 (and published as 10-2009-0110253 in October, 2009); prior art under 35 U.S.C. §102(a)(1).
2. U.S. Patent No. 6,832,659 (“Bares”) (EX1010), filed October 30, 2002 and issued December 21, 2004; prior art under 35 U.S.C. §102(a)(1).
3. U.S. Patent No. 3,586,195 (“Beltrami”) (EX1008); filed December 23, 1968; issued June 22, 1971; prior art under 35 U.S.C. §102(a)(1).

KR996 was not cited during prosecution of the ’750 patent. Beltrami was cited, but not discussed; Bares was not cited but shares disclosure with EX1009, which was discussed as above; Bares is provided here as a secondary reference illustrating common features of the claims of an engine and track.

B. Statutory Grounds for Challenges

This Petition, supported by the declaration of Dr. Velinsky (EX1003 including Appendix EX1004) (*see also* EX1036), requests cancellation of claims 1-36 (all

claims) under the following Grounds:

Grounds	Claims	Basis
#1	1-15, 17, 18	35 U.S.C. §103 over KR996
#2	1-18	35 U.S.C. §103 over KR996 and Bares
#3	19-36	35 U.S.C. §103 over KR996, Bares, and Beltrami

EX1003, ¶52.

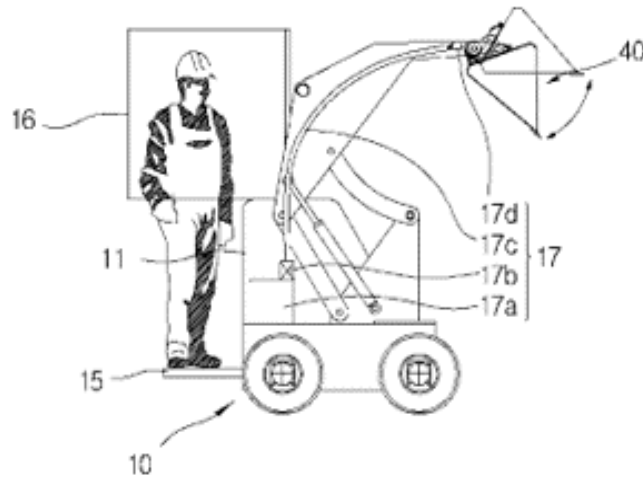
Petitioner’s obviousness grounds rely on the combined teachings of the references and not on a physical incorporation of elements. *See in re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012). “The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into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

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

C. Ground 1

1. KR996 (EX1005)

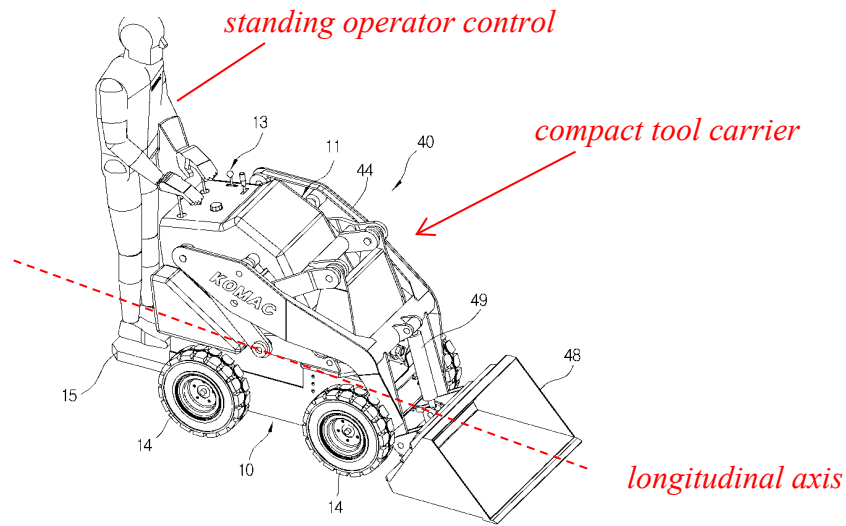
KR996 is a Korean patent publication entitled “Environmentally Friendly Construction Equipment for Building Deconstruction Work.” EX1005, (54). KR996 describes construction equipment that “can enter narrow buildings and carry out dismantling work inside the building” and “efficiently perform difficult tasks in narrow spaces, allowing for efficient operations such as building interior demolition, road maintenance, snow removal, and towing.” EX1005, [0001]-[0002]. KR996 illustrates a vehicle 10 to which a loader unit 40 is attached. EX1005, [0041], Figs. 1-13, 21 illustrating the loader unit 40. Fig. 21, reproduced below, illustrates a side view of the vehicle with loader unit 40. EX1005, [0113]-[0114].



EX1005, Fig. 21

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

bucket. EX1005, Abstract, [0001]-[0012]. This compact tool carrier is configured for *standing operator control* and has a *longitudinal axis*; KR996's Fig. 8 is illustrative:



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

See also, EX1005, [0033] (“foldable safety step...allowing the operator to board”), [0049]. This is the same configuration for operator control as provided in the ’750 patent. EX1001, 3:39-44 (“As used herein, ‘**standing operation**’ generally refers to operation in which the operator **stands on a platform** attached to the compact tool carrier[.]”).

POSITA would readily appreciate the KR996 vehicle has *a mass of less than about 1500 kg* based on its illustrations, suitable tasks, and operator position. EX1003, ¶59 citing EX1005, [0002]. This is confirmed by standards addressing the

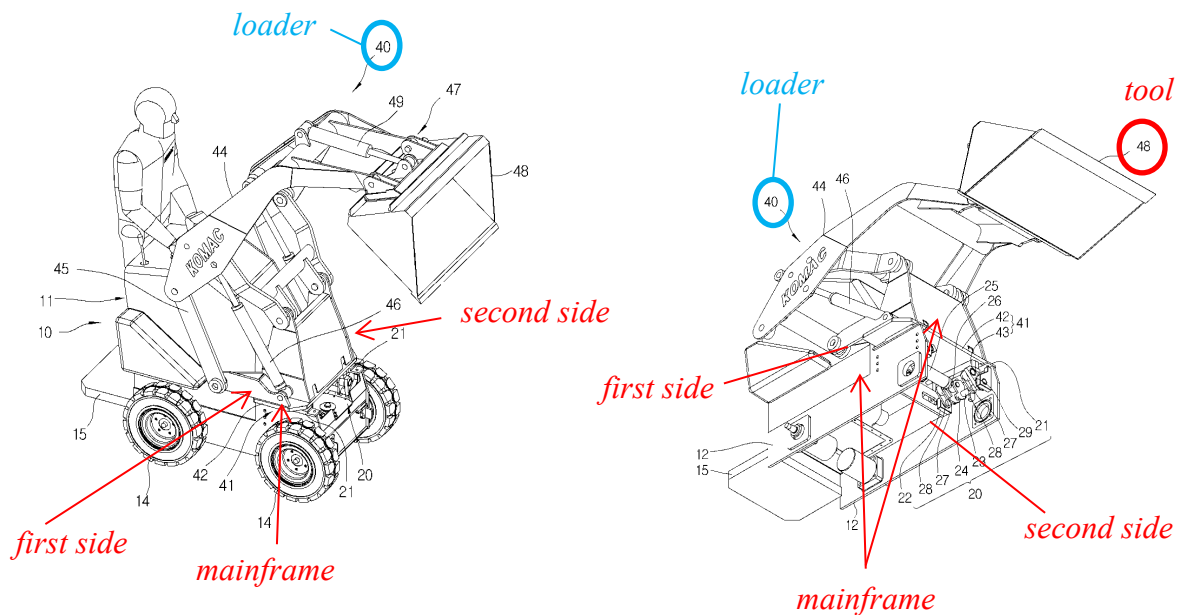
KR996 vehicle that define a weight of *less than about 1500 kg*. EX1003, ¶60 citing EX1016, International Organization for Standardization 6165 (2012), p. 7; EX1015, Society of Automotive Engineers (SAE), J2752 (2010), p. 2; EX1001, 1:19-30.

Further, to the extent it is required, POSITA would have found it obvious to make the KR996 vehicle *less than 1500 kg* to better perform its functions requiring maneuverability for quick and efficient operations. EX1003, ¶¶60-61. And POSITA would have had reason to provide the weight of the vehicle in line with the industry standards related to the vehicle type to ensure compliance with the standard. *Id.*

Thus, KR996 teaches a vehicle that discloses or renders obvious the claimed *compact tool carrier*. EX1003, ¶¶55-61.

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

KR996 provides *a loader* including loader unit 40, which is moveable between down and vertically raised positions, *having* a boom 44 (*an arm*). EX1005, (57), [0016], [0036], [0040], [0054], [0131]. The loader unit 40 is *adapted to carry a tool* because a bucket 48 (a *tool*) is described and shown as attached to its boom 44. EX1005, claim 1, [0054], [0074]-[0075], Figs. 8-9; *see also*, EX1001, 1:23-33 (“tools such as buckets, augers...and the like.”)



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

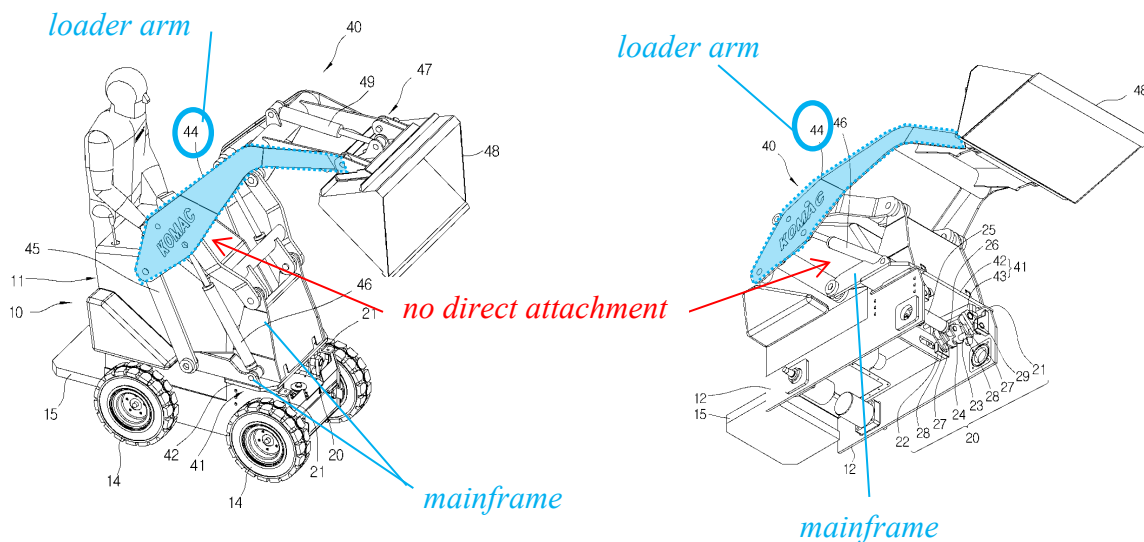
KR996's mainframe is *for supporting the loader* as its loader unit 40 is attached to the mainframe by way of linkages and actuator. EX1005, Figs. 8-9, 21.

KR996's *mainframe* includes main body 11 and its sides 12 as well as other portions (e.g., bracket connected to an end of link 45) that when in operation are providing a weight-bearing frame supporting the loader unit 40 as well as support for control station 13, drive mechanism, and other vehicle components. This is consistent with the '750 patent. *See* EX1001, 4:8-10 ("mainframe 10 includes bracket[s]...through which various pivot linkages are attached"), 3:62-64, 2:2-7 discussing attachment of drive mechanism to mainframe. And the '750 patent illustrates its frame as having multiple pieces including an upper frame to which the

operator controls are attached and lower frame where linkages/actuator are attached (see FIG. 7), just like KR996 (see EX1005, FIG. 1). Thus, KR996 teaches [1.2a]. EX1003, ¶¶65-69.

[1.2b] the loader being free from direct attachment to the mainframe;

KR996 illustrates a vertical lift loader, which is a *loader being free from direct attachment to the mainframe*, as the loader is attached to the mainframe only through intermediary parts including the boom cylinder 46 and links 45/unlabeled, which are discussed in [1.3]-[1.5].



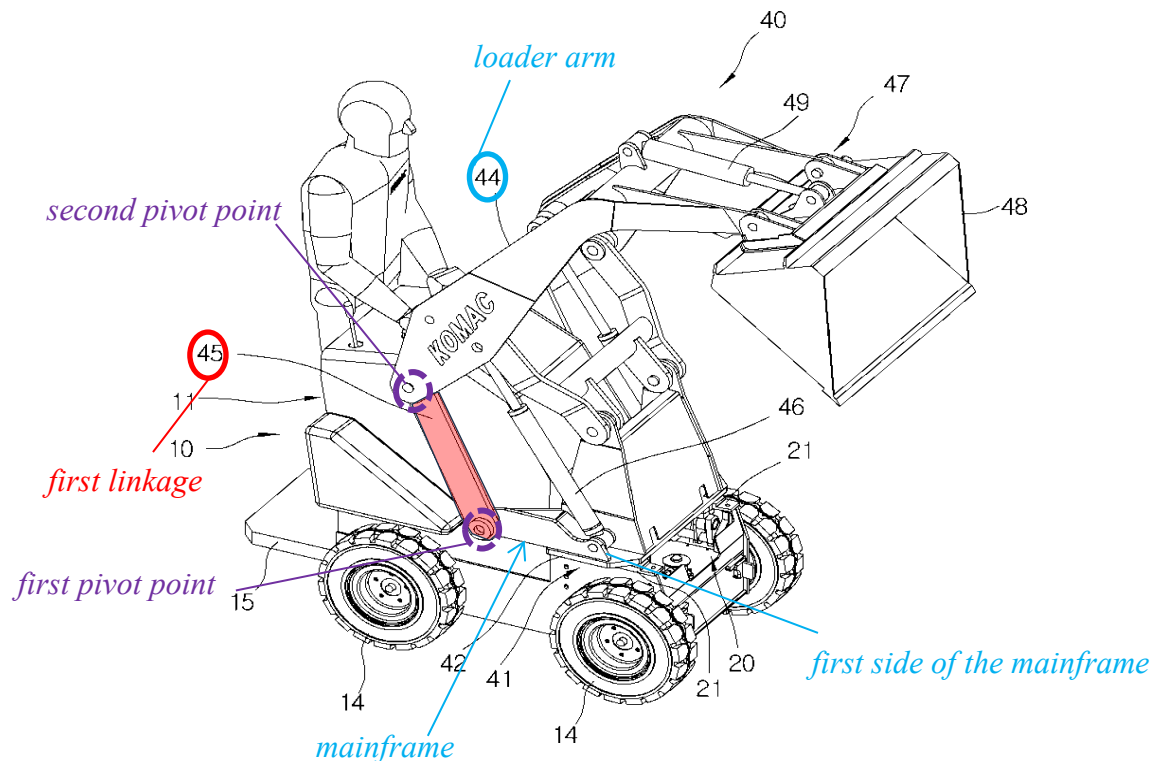
**EX1005, Figs. 9, 10
(annotated)**

Dr. Velinsky explains this is a feature of a four-bar mechanism. EX1003, ¶72.

Thus, [1.2] is taught by KR996. EX1003, ¶¶70-73.

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

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



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

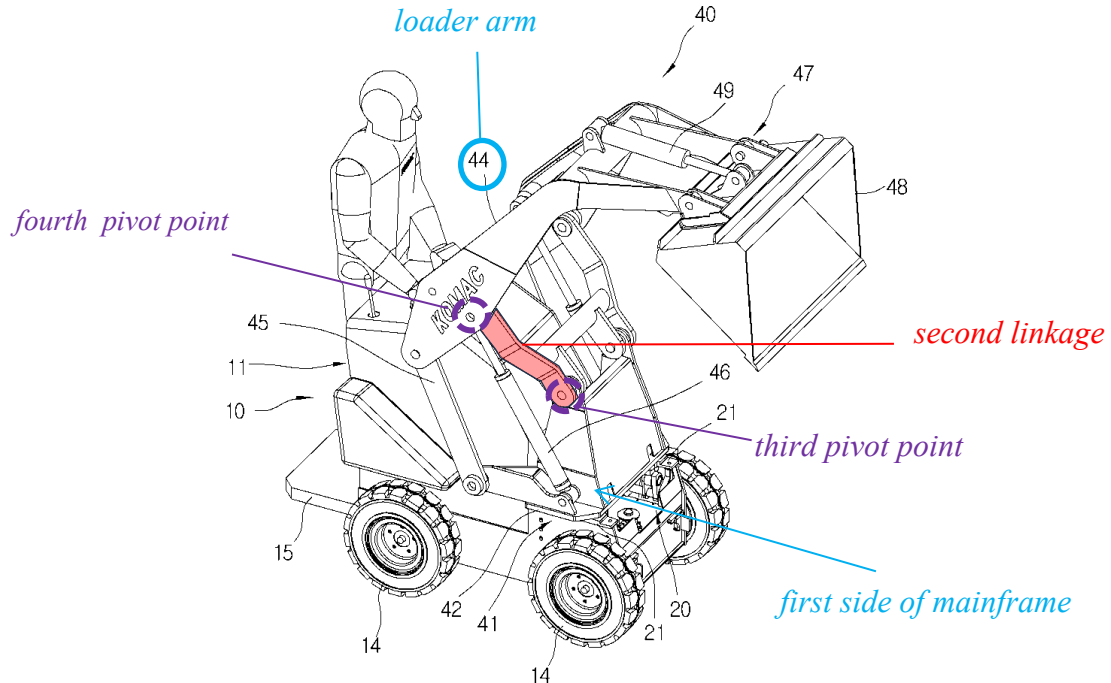
The attachment at each end of the link 45 is pivotable as it is a joint that allows for rotary motion, which is shown by a comparison of KR996’s Figs. 8-9. Dr. Velinsky confirms the nature of the attachment is pivotable to effectuate the raising and

lowering of the boom 44 when operating the loader. EX1003, ¶¶75-77 citing EX1008, EX1023-EX1028 each discussing four-bar mechanism pivot attachments. This is consistent with '750 patent's disclosure of a linkage (46a/50a) pivotally attached to a bracket portion 40 on the first side of the mainframe 10 and pivotally attached to the loader arm. *See* EX1001, FIG. 3, 4:4-28. The KR996 bracket to which the link 45 is directly attached is part of the *mainframe* as it supports the loader unit 40.

Thus, [1.3] is taught by KR996. EX1003, ¶¶74-78.

[1.4] *a second linkage pivotally attached to the first side of the mainframe at a third pivot point and pivotally attached to the loader arm at a fourth pivot point;*

KR996 illustrates another link (*second linkage*) *pivotally attached to the first side of the mainframe at a third pivot point and pivotally attached to the boom 44 (loader arm) at a fourth pivot point.* EX1005, claim 1, [0054], [0134], Figs. 1-10.



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

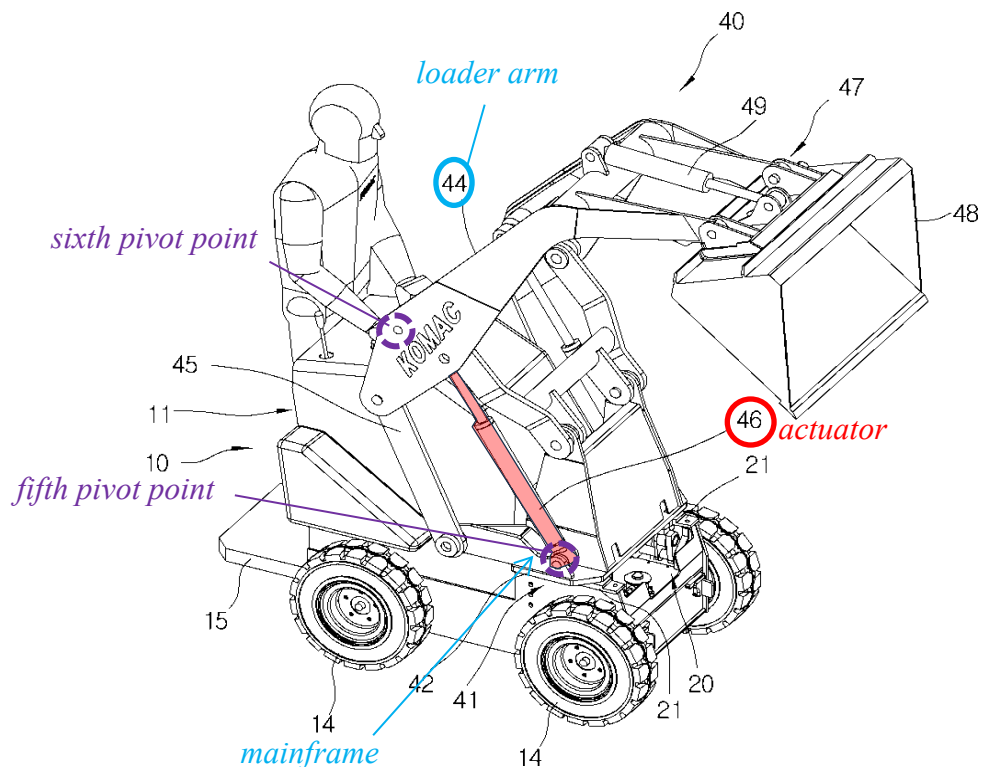
The attachment at each end of the link highlighted above is pivotable as it is a joint that allows for rotary motion, which is shown by KR996's Figs. 8-9. Dr. Velinsky confirms the nature of the attachment is pivotable to effectuate the raising and lowering of the boom 44 when operating the loader. EX1003, ¶¶81-83 citing EX1008, EX1023, EX1028 each discussing four-bar mechanism pivot attachments. This is consistent with '750 patent. *See*, EX1001, FIG. 3, 4:4-28.

Thus, [1.4] is taught by KR996. EX1003, ¶¶79-84.

[1.5] *an actuator directly pivotally attached to the first side of the mainframe at a fifth pivot point and directly pivotally attached to the loader arm at a sixth pivot point, the fifth pivot point being distinct from the first pivot point and the third*

pivot point;

KR996 describes boom cylinder 46 (*actuator*) that drives the boom 44 (*loader arm*). EX1005, [0054], claim 1, [0134], Figs. 7-9, 21. The boom cylinder 46 (*actuator*) is *directly pivotally attached to the first side of the mainframe at a fifth pivot point* and *directly pivotally attached the boom 44 (loader arm) at a sixth pivot point*. EX1003, ¶¶85-88 explaining another term for cylinder is actuator and the pivotable attachment of an actuator for driving a four-bar mechanism. Fig. 9 below is illustrative:



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

The attachments are *directly pivotally* attached as there is no intermediary component. The boom cylinder 46 (actuator) is *directly* connected to the boom 44 (*loader arm*) at the rotational joint that provides the *sixth pivot point* without any intervening components and *directly* connected to the mainframe the rotational joint that provides the *fifth pivot point* without intervening components. EX1005, Fig. 8-9, 21; EX1003, ¶86.

KR996 also discloses *the fifth pivot point being distinct from the first pivot point and the third pivot point* as each of the links and actuator are attached at different points on the mainframe shown in the annotated figures of [1.3], [1.4], [1.5], no attachment point is shared. *See* EX1005, Figs. 8-9.

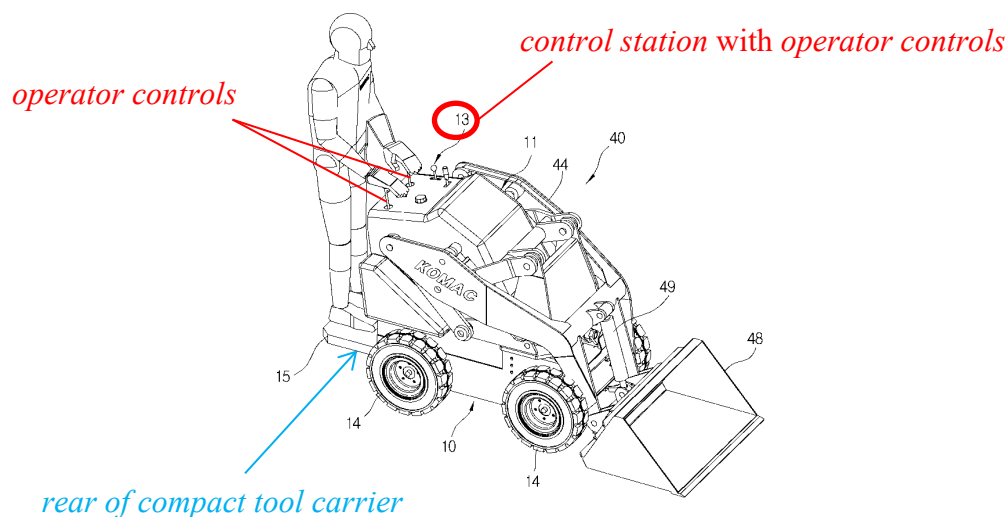
Thus, [1.5] is taught by KR996. EX1003, ¶¶85-89.

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

KR996 describes a control unit 13 (*control station*) *having operator controls* to “operate the equipment while the worker is on board at the rear.” EX1005, [0042], Figs. 1, 8-9. The control unit 13 has *operator controls for propelling the compact tool carrier forward*. EX1005, Abstract (“when the vehicle **moves forward**...when the vehicle **moves backward**”), [0016]-[0017], [0033] (“...allowing the **operator to board...when driving**”), [0042] (“a control unit (13) to **operate the equipment while the worker** is on board at the rear”), [0072], claim 1. The control station 13

also controls the operation—*raising and lowering*—of the boom 44 (arm of *loader*).
“When the loader unit (40) is coupled to the vehicle (10)...the **control unit (13)** of the vehicle (10) can be operated to **operate the loader unit (40)**.” EX1005, [0072].

The control station 13 is *mounted toward the rear* of the vehicle (*compact tool carrier*). EX1005, Figs. 8-9, 21, [0016] (“The construction equipment...includes a vehicle with a control unit **installed** to operate the equipment while a worker is on board at the rear.”)



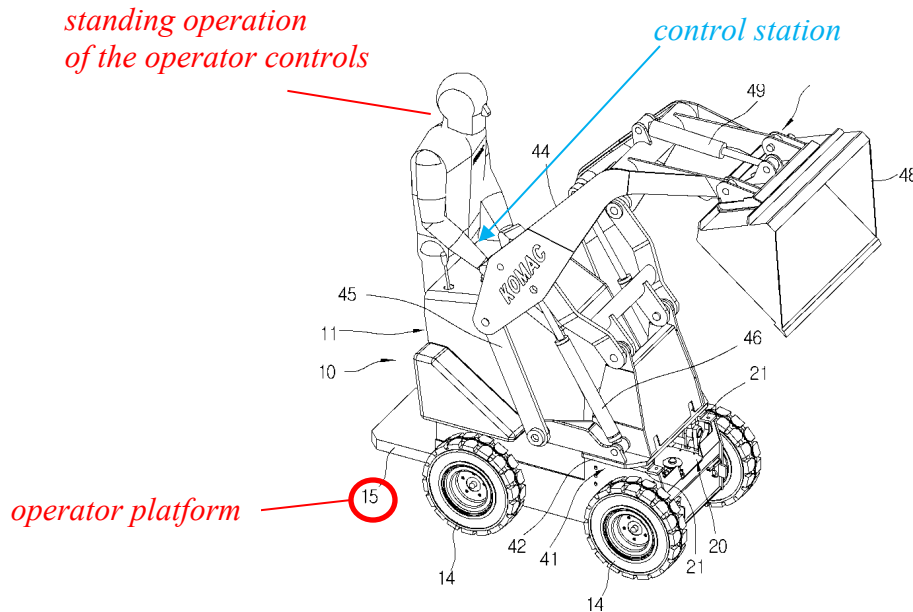
**EX1005, Fig. 8 (portion)
(annotated)**

Thus, [1.6] is taught by KR996. EX1003, ¶¶90-93.

[1.7] an operator platform for standing operation of the operator controls of the control station; and

KR996 describes a safety step 15 (*operator platform*) for *standing operation of the operator controls* of the control unit 13 (*control station*). EX1005, Figs. 1, 7-

10, 21, [0033] (“a **foldable safety step** is installed on the lower rear part of the vehicle, allowing the **operator to board** and alight from the vehicle when driving and fold it towards the body of the vehicle when stopped.”), [0049], [0118].

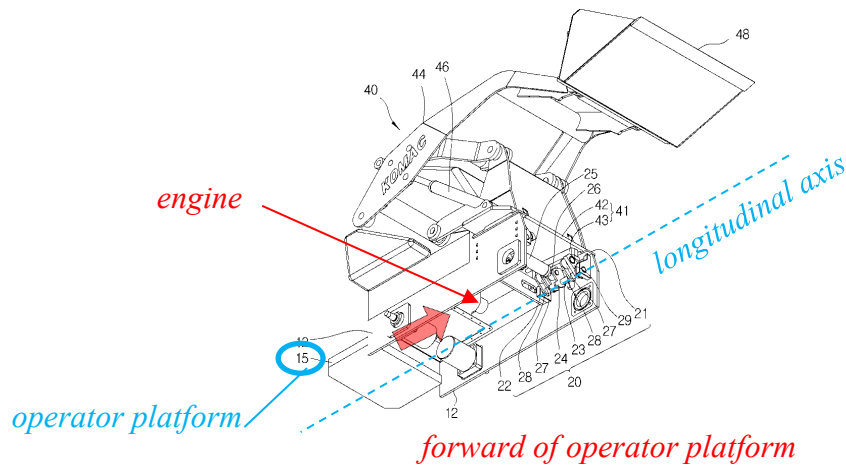


**EX1005, Fig. 9
(annotated)**

Thus, [1.7] is taught by KR996. EX1003, ¶¶94-95.

[1.8] *an engine disposed forward of the operator platform relative to the longitudinal axis.*

KR996’s vehicle includes an *engine* disposed forward of the safety step 15 (*operator platform*) relative to the longitudinal axis. Fig. 10 is illustrative:

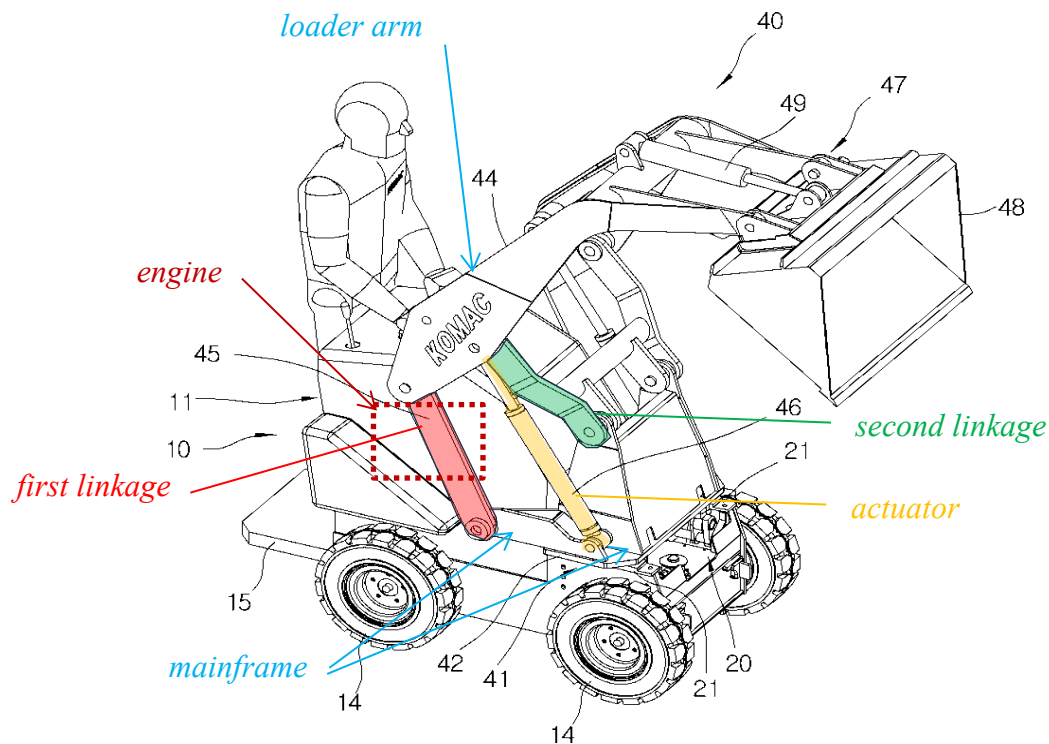


**EX1005, Fig. 10
(annotated)**

POSITA would readily recognize KR996 vehicle includes an engine. EX1003, ¶96 citing EX1005, Figs. 10, 12, claims 1, 2, [0002]-[0005], which is confirmed by KR528 (EX1014), FIG. 3, that shares same inventor and carrier structure. To the extent this is not explicitly described, it would have been *prima facie* obvious. The purpose of KR996's vehicle is for traveling a supporting surface while the operator is on safety step 15. EX1005, [0002], [0016]. The energy to provide this propulsion of the vehicle is commonly from an *engine*. EX1003, ¶94 citing industry standards EX1016, p. 7, EX1017, p. 8, EX1015, p. 4 and EX1013, [0003] ("Walk-behind power machines such as [] **compact utility skid-steer loaders** have been in use for some time. These vehicles **generally** include a frame **having an engine** that not **only**

powers drive members, but an optional implement...”) Thus, [1.7] is taught by KR996. EX1003, ¶¶96-98.

Therefore, KR996’s vehicle providing stand-behind operation from a step 15 (*operator platform*) with a boom 44 (*loader arm*) attached to its mainframe by links 45/unlabeled (*first and second linkage[s]*) and boom cylinder 46 (*actuator*) renders obvious claim 1.



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

EX1003, ¶99.

3. Claim 2

[2] *The compact tool carrier as set forth in claim 1 wherein the mainframe incorporates a single weldment.*

KR996 renders obvious claim 1 and further describes this limitation.⁴

POSITA would have found it obvious to form one or more portions of the mainframe of KR996 as a *single weldment* because use of welding to join components of a support frame for a loader apparatus was a well-known method of fabrication. EX1003, ¶101 citing numerous examples of welding with respect to mainframes generally, for compact utility loaders, and with vertical lift mechanisms EX1006, EX1010, EX1022. POSITA would recognize that there are known trade-offs in the choice between a single weldment and attachment, for example, by nuts and bolts. EX1003, ¶102 considering factors such as aesthetics, manufacturability, reliability. One benefit of connecting pieces by a weld allows for easy implementation and forming a smooth, continuous surface. EX1003 ¶102 citing EX1006, [0016] (“enabling welding work to be stably performed, easily and efficiently”), [0031] (“attaching means such as welding...to form a smooth,

⁴ The '750 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.

continuous surface.”).

This is confirmed by the prosecution leading to the '750 patent where the Examiner found this an obvious design choice, a determination not disputed by the Applicant. EX1002, pp. 92-93. And case law affords similar construction design choices are *prima facie* obvious. *In re Larson*, 340 F.2d 965, 968 (CCPA 1965) (court affirms rejection of claims including “that the use of a one piece construction instead of the structure disclosed in [the prior art] would be merely a matter of obvious engineering choice.”)

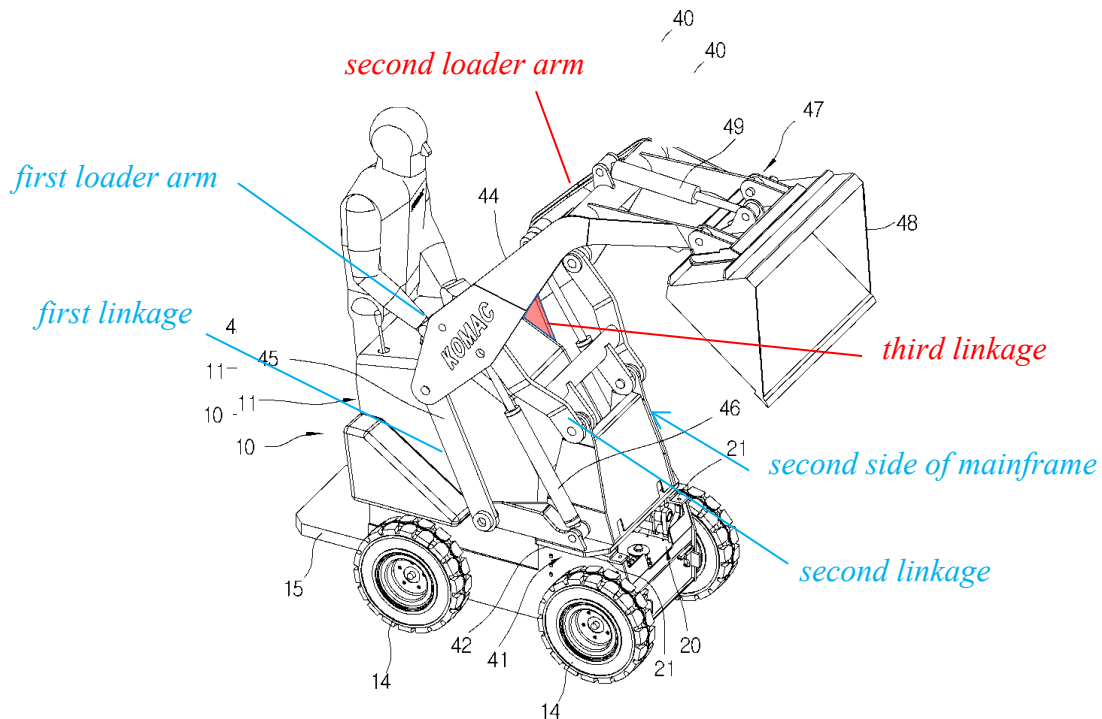
To the extent Patent Owner argues certain components of the mainframe are required to be coupled by a weldment, POSITA would have been motivated to form KR996's mainframe consisting of a *single weldment* because the fastening method was well within their skill set and provides benefits discussed above to predictably form a welded structure. EX1003, ¶103 citing EX1010, 4:8-10 (“The body or frame 12, as shown, is a **unitized welded body...**”), 4:31-35; EX1006, [0019].

Thus, claim 2 is rendered obvious by KR996. EX1003, ¶¶100-104.

4. Claim 3

[3] *The compact tool carrier as set forth in claim 1 wherein the loader arm is a first loader arm the loader comprising a second loader arm and the compact tool carrier comprising a third linkage pivotally attached to the second side of the mainframe and pivotally attached to the second loader arm.*

KR996 renders obvious claim 1 and further describes the boom 44 (*loader arm*) of [1.1] is a *first loader arm*. KR996 also describes another boom 44 (*second loader arm*) connected to a *second side* of the vehicle frame of [1.2a] also through a four-bar mechanism, which includes another link 45 (*third linkage*). EX1005, Figs. 1, 8-11. This link 45 (*third linkage*) is *pivotally attached* to boom 44 (*second loader arm*) and *second side of the mainframe*, just like the first side in [1.3].



EX1005, Fig. 9
(annotated)

KR996 Figures, such as Figs. 1, 5, 11, confirm the two sides of the vehicle have the same loader mechanism configuration including link 45 (*third linkage*) is *pivotally*

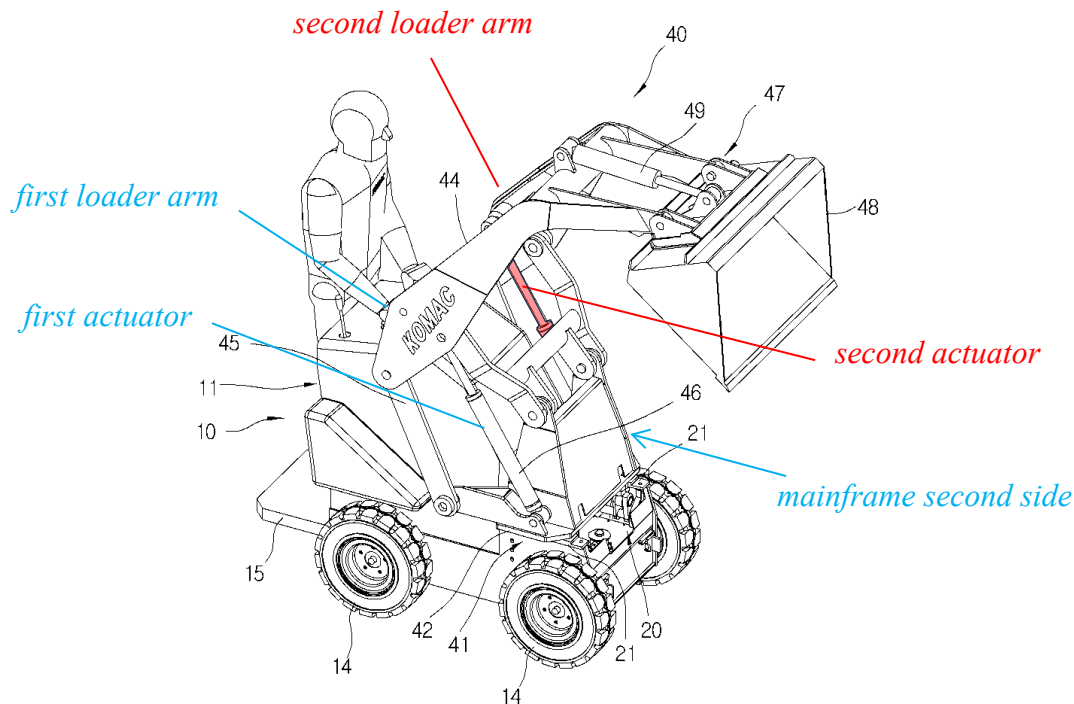
attached to the second side of the mainframe and the second boom 44 (second loader arm) just as discussed [1.3]. EX1003, ¶105.

Thus, KR996 renders obvious claim 3. EX1003, ¶¶105-106.

5. Claim 4

[4] *The compact tool carrier as set forth in claim 3 wherein the actuator is a first actuator, the compact tool carrier comprising a second actuator, the second actuator being pivotally attached to the second side of the mainframe and pivotally attached to the second loader arm.*

KR996 renders obvious claim 3 and further describes boom cylinder 46 (*actuator*) of [1.5] is a *first actuator*. Another boom cylinder 46 (*second actuator*) drives a second boom 44 (*second loader arm*) and is attached to a *second side of the mainframe*. EX1005, Figs. 1, 8-11. Fig. 9 is an exemplary illustration of boom cylinder 46 (*second actuator*) *pivotally attached to the second side of the mainframe and the second boom 44 (second loader arm)*.



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

The two sides of the vehicle have the same loader mechanism configuration and boom cylinder 46 (*actuator*) is *pivotally attached to the second side of the mainframe* and the boom 44 (*second loader arm*) just as discussed [1.5]. EX1003, ¶107.

Thus, KR996 renders obvious claim 4. EX1003, ¶¶107-108.

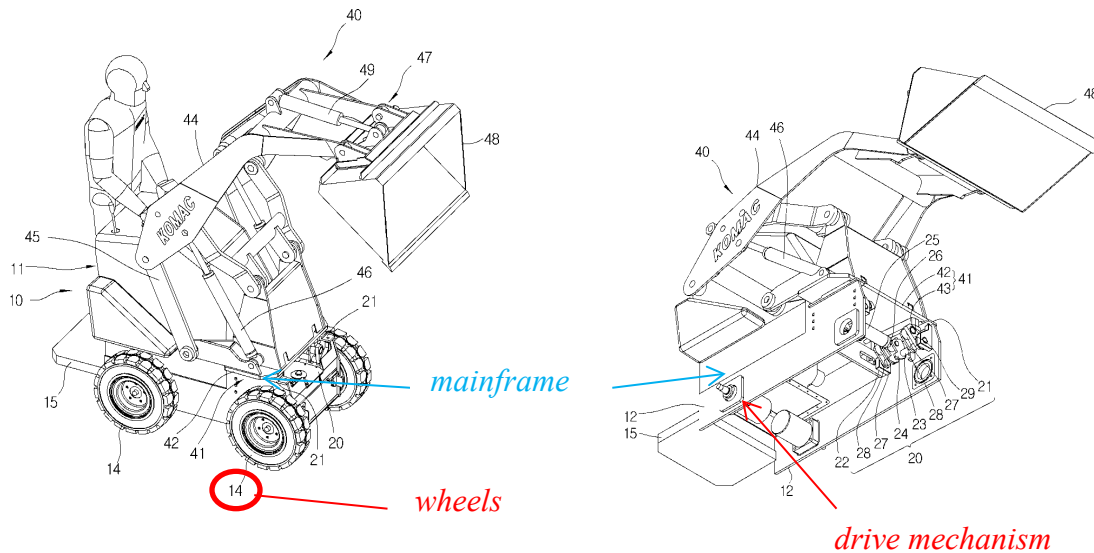
6. Claim 5

[5] *The compact tool carrier as set forth in claim 1 comprising a drive mechanism comprising tracks or wheels, the drive mechanism being attached to the mainframe.*

KR996 renders obvious claim 1 and further describes *a drive mechanism* including “wheels (14)” (*wheels*). EX1005, [0042], Figs. 1, 8-10. The *drive*

mechanism is attached to side plate 12, a portion of KR996's *mainframe*. KR996's

FIG. 10 illustrates the attachment.



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

This is the same configuration as the '750 patent. EX1001, 2:2-7 ("The drive mechanism is attached to the mainframe about a rotational axis.")

Thus, KR996 renders obvious claim 5. EX1003, ¶¶109-110.

7. Claim 6

[6] *The compact tool carrier as set forth in claim 1 comprising a drive mechanism propelled by the engine.*

KR996 renders obvious claim 1 and describes *a drive mechanism* including wheels 14 and *engine* as shown in [5] and [1.8], respectively. EX1005, [0042], Figs. 8-10, 12. The *drive mechanism* is *propelled by the engine* as this is a standard vehicle

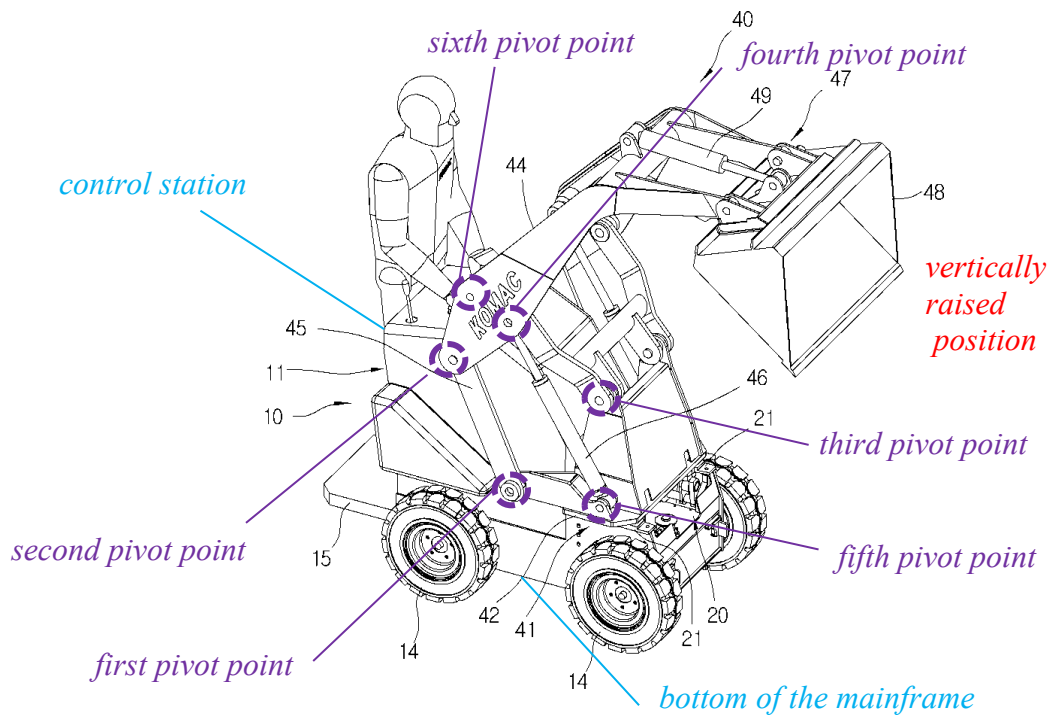
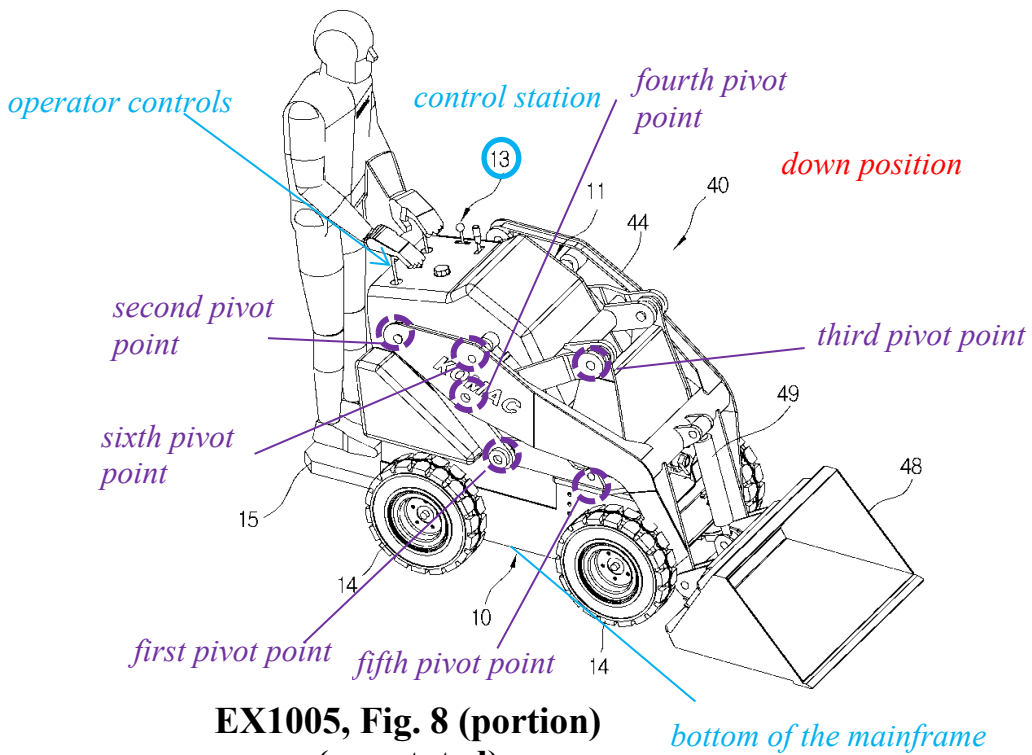
operation. EX1003, ¶111 citing EX1009, FIGS. 1-2, 2:32-47; EX1013, [0003] (“Walk-behind power machines such as [] compact utility skid-steer loaders have been in use for some time. These vehicles generally include a frame having **an engine** that not only **powers drive members**, but an optional implement...”)

Thus, KR996 renders obvious claim 6. EX1003, ¶¶111-112.

8. Claim 7

[7] *The compact tool carrier as set forth in claim 1 wherein each of the first, second, third, fourth, fifth and sixth pivot points is, individually, (1) disposed between the operator controls and a bottom of the mainframe or (2) disposed forward of the operator controls as the loader moves from a down position to a vertically raised position.*

KR996 renders obvious claim 1 and further describes, as the loader unit 40 (loader) moves from a down position (Fig. 8) to a vertically raised position (e.g., Fig. 9), the *first, second, third, fourth, fifth, and sixth pivot points* of claim 1 are *individually (1) disposed between the operator controls of control unit 13 and a bottom of the mainframe or (2) disposed forward of the operator controls of control unit 13*. KR996’s Figs. 8-9 illustrate of the points meeting (1) and/or also (2).



To the extent Patent Owner argues the perspective view of Fig. 9 does not illustrate the forward nature of the second pivot point, see Figs. 21, 7. As each of the *down* and *vertically raised position[s]* disclose at least one of the two disjunctive options, it is evident the claim is also met as the loader moves and the non-stationary points move forward, the configuration is met between positions. EX1003, ¶114. *See also*, EX1005, Fig. 21. Further, there is no extent of lift required by the “vertically raised position.” *See, e.g.*, EX1005, Figs. 7, 13, which show in a *vertically raised position*, the pivot points to the loader arm are lower than the operator controls.

To the extent Patent Owner argues KR996’s figures are insufficiently recognized as being to scale as to explicitly provide for claimed arrangement, the configuration would have been obvious to implement in KR996’s vehicle. First, plain inspection of the KR996 figures suggests just this configuration. EX1005, Figs. 7-9, 21. Second, the operator controls are described as being at a rear of the vehicle to be accessible by the operator on safety step 15 and thus, generally the equipment is forward of the controls. EX1005, [0049], Figs. 8-9. Third, POSITA would have recognized placing the attachment points low on the loader support to lower the center of gravity of the apparatus and reduce the frame requirements. EX1003, ¶115.

Thus, KR996 renders obvious claim 7. EX1003, ¶¶113-116.

9. Claim 8

[8] *The compact tool carrier as set forth in claim 1 wherein the loader arm*

incorporates a single weldment.

KR996 renders obvious claim 1 including boom 44 (*loader arm*) in [1.1]. KR996 figures suggest boom 44 is formed as a *single weldment* (e.g., without fasteners). EX1003, ¶118. Further, POSITA would have found it obvious to form boom 44 (*loader arm*) *incorporating a single weldment* for substantially similar reasons as discussed above with reference to [2] as this is merely a standard choice in the method of forming the component with predictable result. EX1003, ¶¶100-103. *See also*, EX1002, pp. 92-93 finding this element *prima facie* obvious, which the Applicant did not dispute.

Thus, claim 8 is rendered obvious by KR996. EX1003, ¶¶117-119.

10. Claim 9

[9] *The compact tool carrier as set forth in claim 1 further comprising a tool attached to the loader, the tool being selected from the group consisting of a bucket, auger, fork, stump grinder, tiller and roller.*

KR996 renders obvious claim 1 and describes its *compact tool carrier* includes a *tool* of a “bucket (48)” (*bucket*) attached to boom 44 of loader 40 (*loader*). EX1005, claim 1, [0054], [0074]-[0075].

Thus, KR996 renders obvious claim 9. EX1003, ¶¶120-122.

11. Claim 10

[10] *A method for operating the compact tool carrier as set forth in claim 1, the method comprising standing on the operator platform and operating the control*

station to propel the compact tool carrier forward and/or raise or lower the loader.

KR996 renders obvious the *compact tool carrier* of claim 1 and also a *method for operating* it. See EX1005, claim 8, [0033] (“allowing the operator to board and alight from the vehicle **when driving**”), [0042] (“a control unit (13) to **operate the equipment while the worker** is on board at the rear”), [0049] (“so that the operator can board the vehicle (10) when driving”). As discussed in [1.7], KR996 describes safety step 15 (*operator platform*) on which the operator stands when operating the vehicle including when operating control unit 13 (*control station*) to *propel* the vehicle forward and/or *raise or lower* the loader unit 40 (*loader*). EX1005, [0042] (“The vehicle (10) is equipped with a **control unit** (13) to **operate the equipment while the worker is on board at the rear**”); [0072] (“[T]he control unit (13) of the vehicle (10) can be **operated to operate** the loader unit (40).”)

Thus, KR996 renders obvious claim 10. EX1003, ¶¶123-125.

12. Claim 11

[11] *The compact tool carrier as set forth in claim 1 wherein no more than three linkages and actuators are attached to the first side of the mainframe.*

KR996 renders obvious claim 1 and illustrates two linkages and one actuator attached to the first side of the mainframe ([1.3]-[1.5]) and *no more than three linkages and actuators are attached to the first side of the mainframe*. This is consistent with '750 patent use of three linkages/actuators to support the loader.

EX1001, FIG. 1, 4:13-34 (forward/rear linkages 46a/50a and actuator 54), while other components such as drive mechanism 18 are still “attached to the mainframe 10” (3:21-22).

Thus, claim 11 is rendered obvious by KR996. EX1003, ¶¶126-128.

13. Claim 12

[12] *The compact tool carrier as set forth in claim 1 wherein a single actuator is attached to the first side of the mainframe.*

KR996 renders obvious claim 1 and further describes the boom cylinder 46 (*actuator*) attached to the first side of the mainframe of [1.5] *is a single actuator attached to the first side of the mainframe. See EX1005, Figs. 8-9.*

Thus, claim 12⁵ is rendered obvious by KR996. EX1003, ¶¶129-131.

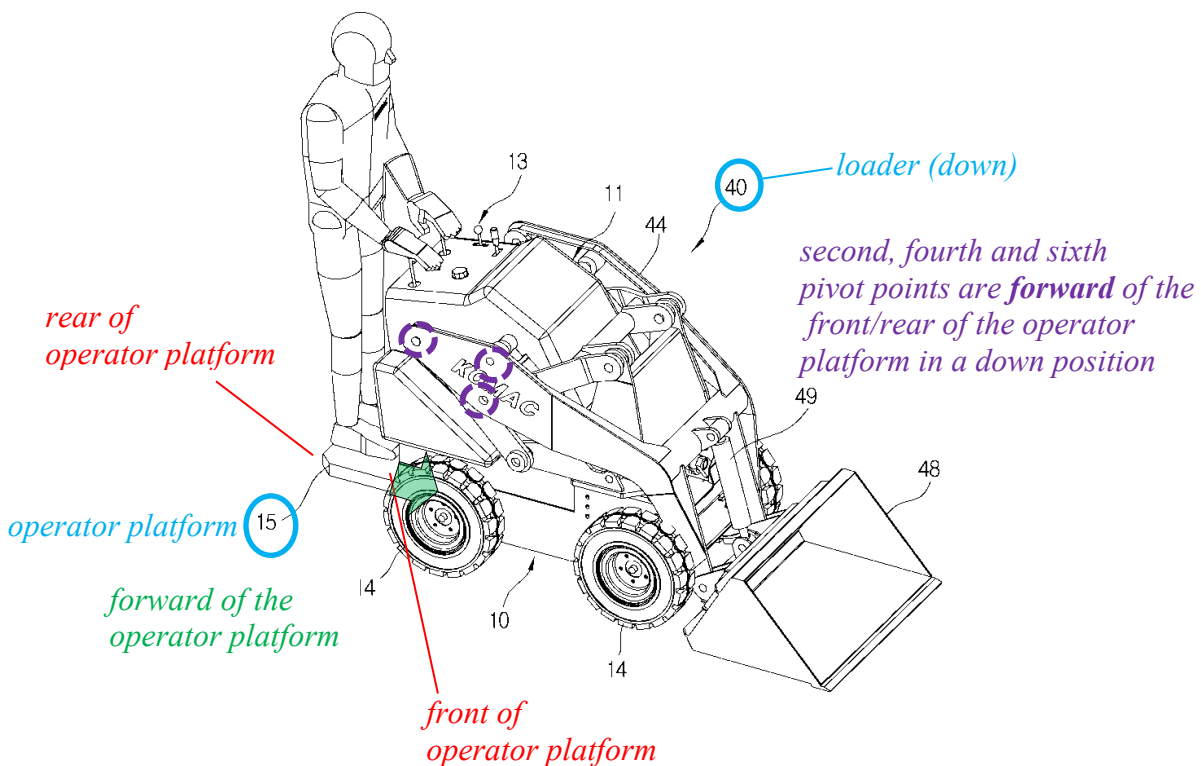
14. Claim 13

[13] *The compact tool carrier as set forth in claim 1 wherein the loader is moveable between a down position and a vertically raised position, the operator platform having a rear and a front relative to the longitudinal axis, the second pivot point, fourth pivot point, and sixth pivot point being disposed forward of the rear and front of the operator platform when the loader travels from the down position to the vertically raised position.*

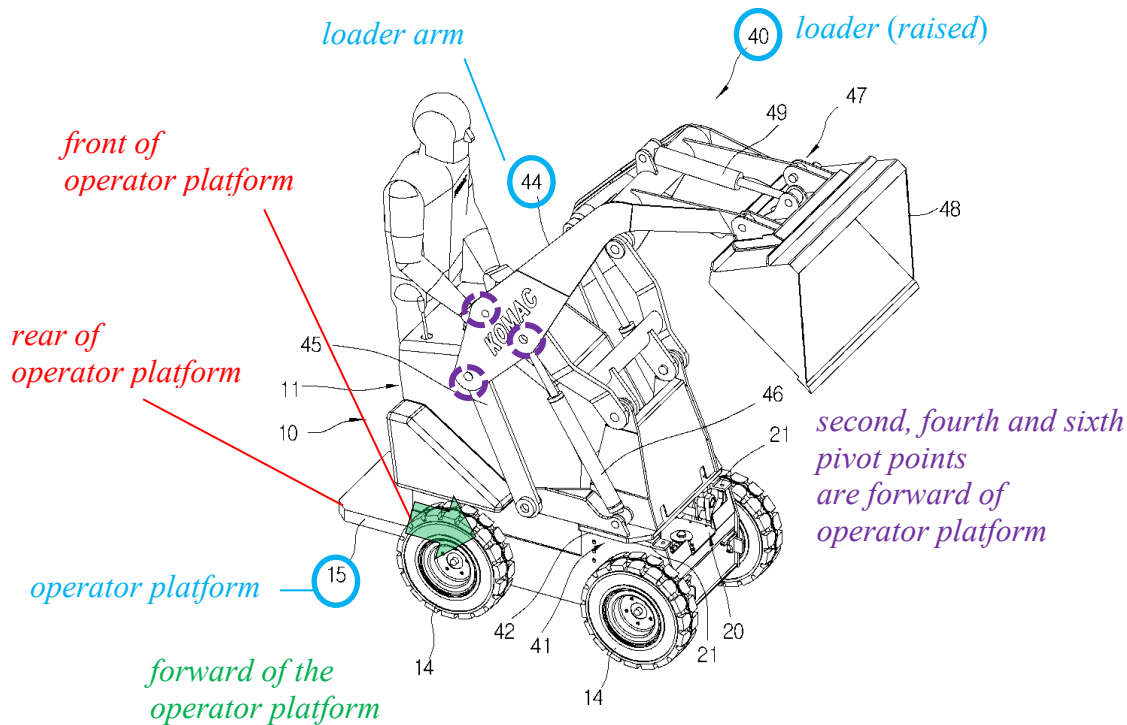
⁵ For purposes of the petition, and in line with the '750 patent figures, “a single actuator” of claim 12 refers to “an actuator” recited in claim 1.

KR996 renders obvious claim 1 and further describes loader unit 40 (*loader*) of [1.1] is *moveable between a down position* (Fig. 8) and a *vertically raised position* (e.g., Fig. 9).

The safety step 15 (*operator platform*) of [1.7] has a *rear and a front relative to the longitudinal axis*. EX1005, Figs. 8-9. And KR996 also illustrates the *second[]*, *fourth[]*, and *sixth pivot point[s]* of [1.3]-[1.5] are *disposed forward of the rear and front of the operator platform* when the loader travels from the down position to the *vertically raised position*. Figs. 8-9 are illustrative of each position.



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



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

See also, EX1005, Figs. 7, 12-13, 21.

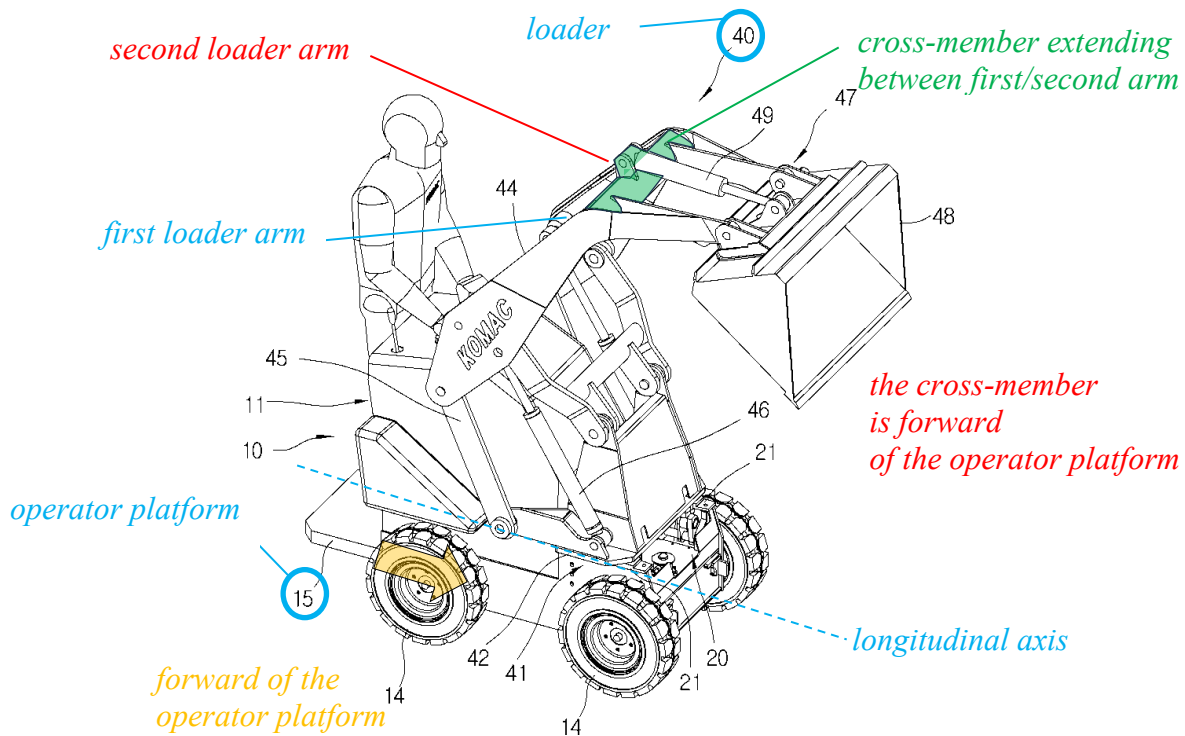
Thus, claim 13 is rendered obvious by KR996. EX1003, ¶¶132-136.

15. Claim 14

[14] The compact tool carrier as set forth in claim 1 wherein the loader is moveable between a down position and a vertically raised position, the arm of the loader being a first arm and the loader comprising a second arm and at least one cross-member that extends from the first loader arm to the second loader arm, wherein each cross-member is disposed forward of the operator platform relative to the longitudinal axis in the vertically raised position of the loader.

KR996 renders obvious claim 1 and further describes these elements. EX1003, ¶137-141.

First, KR996's loader unit 40 (*loader*) of [1.1] is *moveable between a down position* (Fig. 8) and a *vertically raised position* (e.g., Figs. 7, 9). Boom 44 (*arm of the loader*) attached to the first side of the mainframe, *see* [1.1], is a *first arm* and another boom 44 (*second arm*) is attached to the *second side of the mainframe* (*see* [3]). EX1005, Figs. 7-9. **Second**, KR996 illustrates a cross-member (*at least one cross-member*) that extends between booms 44 as annotated below. EX1005, [0054], Figs. 1, 5, 7-9. **Third**, KR996 illustrates its *cross-member is disposed forward of the safety step 15 (operator platform) relative to the longitudinal axis in the vertically raised position* (e.g., Fig. 9, [0101]) of loader unit 40.



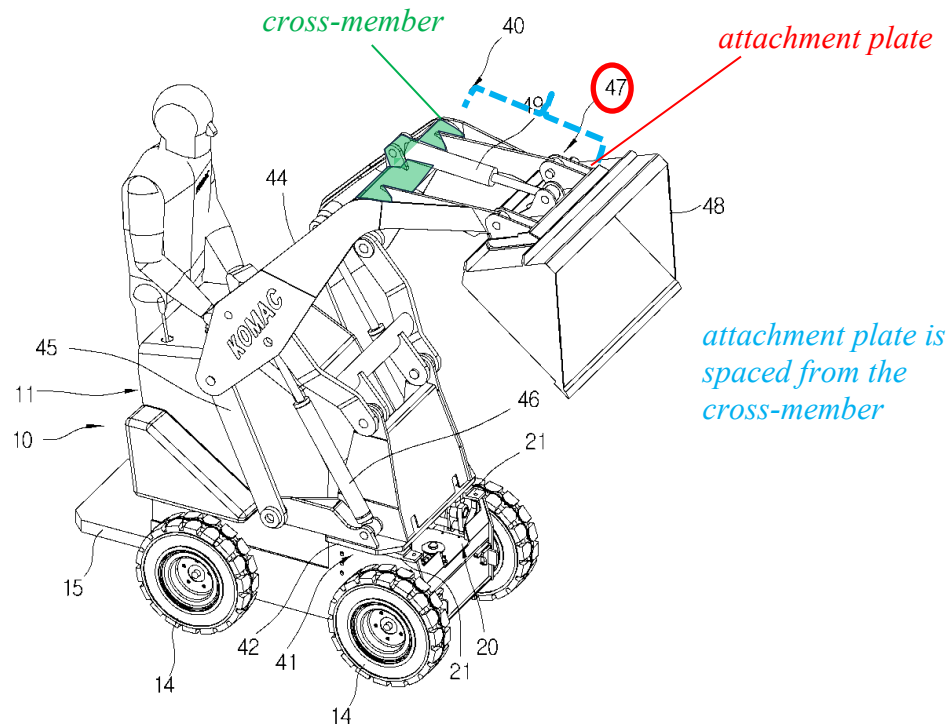
EX1005, Fig. 9
(annotated)

Thus, KR996 renders obvious claim 14. EX1003, ¶¶137-141.

16. Claim 15

[15] *The compact tool carrier as set forth in claim 14 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 renders obvious claim 14 and also illustrates a bucket attachment 47 (attachment plate) for removably attaching bucket 48 (tool) to its vehicle (compact tool carrier). “[A] bucket attachment (47) is installed, and a bucket (48) is coupled to the bucket attachment (47)[.]” EX1005, [0054]. KR996 illustrates the cross-member of [14] is spaced from the bucket attachment 47 (attachment plate).



EX1005, Fig. 9
(annotated)

Bucket 48 (*tool*) is *removably attach[ed]* as KR996 illustrates embodiments with the bucket attached and detached. EX1005, *compare* Figs. 5-6 and Figs. 8-9, [0040] (“bucket removed”). Further, this capability of an attachment plate was well-known and POSITA would recognize it as a capability of the bucket attachment 47. EX1003, ¶144 citing EX1009, 3:16-31 (“mounting a quick **attachment plate** 40 to the lower ends of the forward plates of **conventional design** [and] is the **type normally** used with the BOBCAT® skid steer loaders...bucket 48 is shown in position on the attachment plate 40, and this, too, is supported on the attachment plate 40 in a **known manner.**”); EX1013, [0033] (“various quick attachment

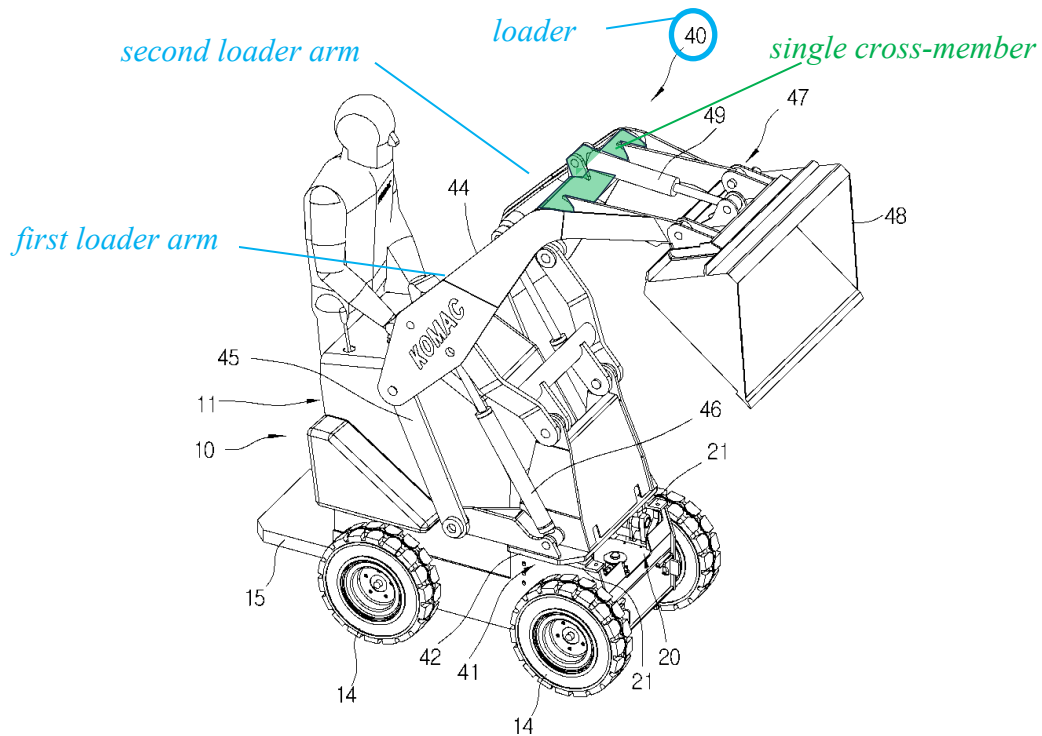
systems may be used.”) POSITA would recognize the attachment plate provides for removably coupling for, as an example, replacing a tool. EX1003, ¶144.

Thus, claim 15 is rendered obvious by KR996. EX1003, ¶¶142-145.

17. Claim 17

[17] *The compact tool carrier as set forth in claim 14 wherein the compact tool carrier comprises a single cross-member.*

KR996 renders obvious claim 14 including *a cross-member* extending between the first and second boom 44, which is *a single cross-member* consistent with the '750 patent (*e.g.*, FIG. 1 shows the single cross-member between loader arms, 2:54-56).



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

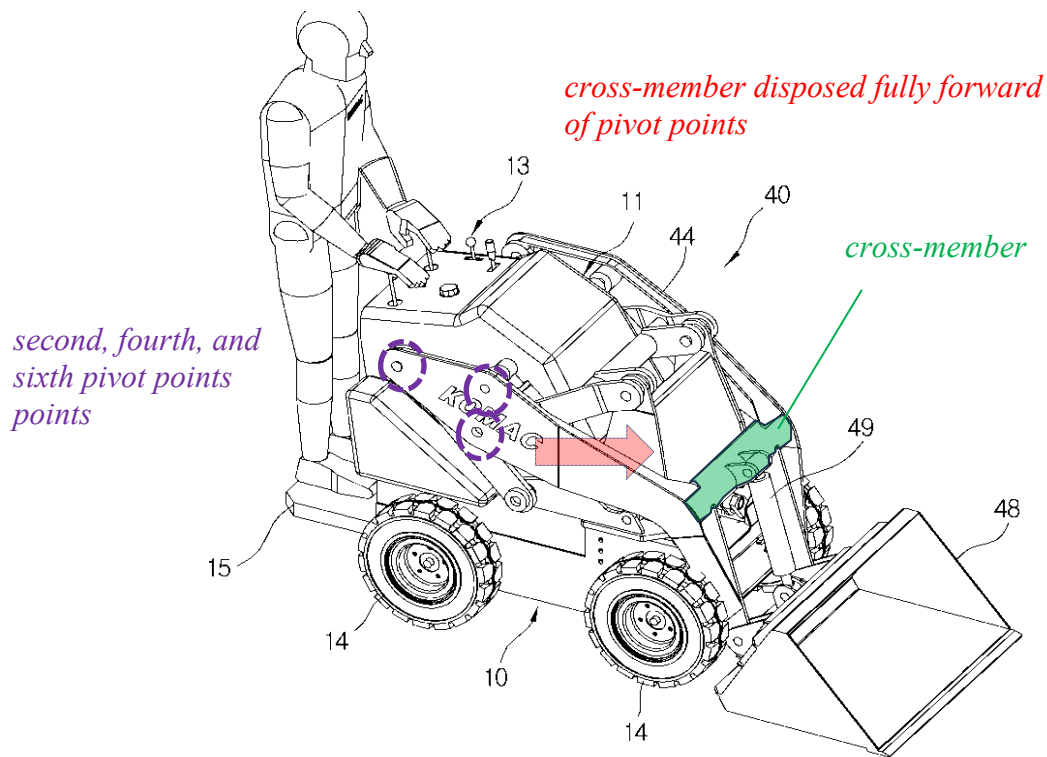
Thus, claim 17⁶ is rendered obvious by KR996. EX1003, ¶¶146-148.

18. Claim 18

[18] *The compact tool carrier as set forth in claim 14 wherein each cross-member is disposed fully forward of the second pivot point, the fourth pivot point, and the sixth pivot point.*

⁶ For purposes of the petition, and in line with the '750 patent figures, "a single cross-member" of claim 15 refers to "at least one cross-member" recited in claim 14.

KR996 renders obvious claim 14 and the cross-member is *disposed fully forward of the second pivot point, the fourth pivot point, and the sixth pivot point of* [1.3]-[1.5]. See KR996's Figures 8-9, 21.



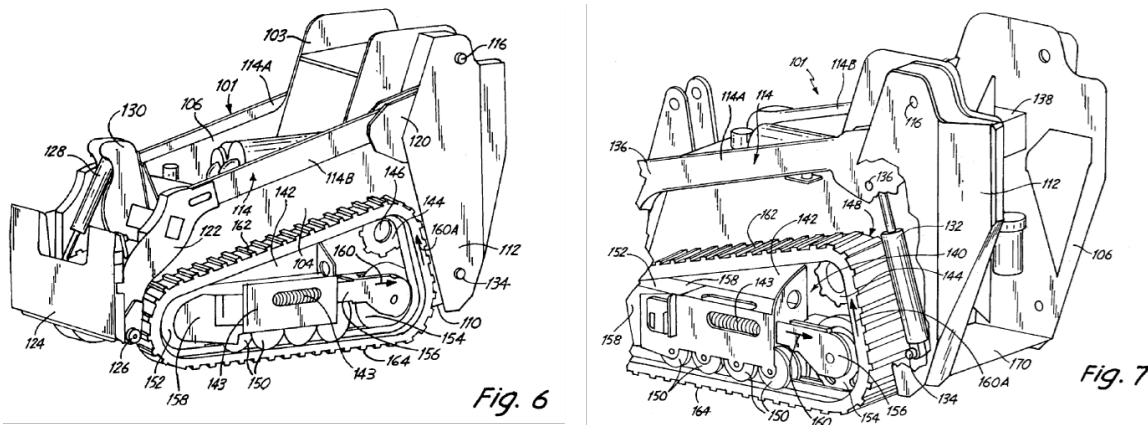
**EX1005, Fig. 8 (portion)
(annotated)**

Thus, claim 18 is rendered obvious by KR996. EX1003, ¶¶149-151.

D. Ground 2 : KR996 and Bares

1. Bares (EX1010)

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



EX1010, FIGS. 6, 7

Bares describes its loader can be a “walk behind unit, or can have a support platform 170 for supporting an operator.” EX1010, 5:55-57. Bares 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.

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

Bares, like KR996, is in the same field of endeavor as the '750 patent, pertaining to working vehicles (e.g., earth-moving equipment) and in particular, vehicles with a stand behind operation and a loader arm. EX1003, ¶¶152-155; EX1005, Abstract, [0001], FIG. 21; EX1010, 5:55-57, FIGS. 1-8; EX1001, 1:19-38, 2:61-3:5, FIG. 1. KR996, Bares, and '750 patent are also each reasonably pertinent to a same problem faced by the inventor of configuration of loader arms and tools attached thereto to provide efficient lifting of the tool. EX1005, [0011], [0016], FIG.

21; EX1001, 1:39-41; EX1010, 1:46-58.

POSITA would have been motivated to combine the teachings of Bares with KR996 to produce a predictable and beneficial configuration of a tracked vehicle. EX1003, ¶¶156-159. The simple substitution of Bares’ track assembly for the wheels in the KR996 vehicle would have been predictable with a reasonable expectation of success that both KR996 and Bares relate to similar vehicle types with a similar mainframe having a drive mechanism attached thereto. *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1380–81 (Fed. Cir. 2023) (“[t]here is a motivation to combine when a known technique ‘has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way,’...using the ‘prior art elements according to their established functions.’”)

Further, designing this vehicle type with a drive mechanism of either a wheeled assembly or a track assembly was a known alternative. EX1003, ¶157 citing 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...can be sets of wheels mounted in place of the tracks shown.”), EX1032, [0011] (describing a compact tool carrier having a track or “[a]lternatively...a wheeled unit.”) Bares itself recognizes wheel and tracked configurations were known alternatives. EX1010, 2:1-2. And industry standards for compact tool carriers

also recognize these are two common alternatives: “self-propelled crawler [tracked assembly] or wheeled machine.” EX1003, ¶157 citing EX1015, p. 2, EX1016, p. 5 (“self-propelled [] machine on wheels, crawlers [track] or legs...”) Dr. Velinsky confirms that it was a known practice to market compact tool carriers such as KR996 and Bares to provide the buyer a choice of a wheel configuration or a track configuration depending on target terrain. EX1003, ¶¶158-159.

In some desired applications for the vehicle, POSITA would have had reason to instead of including a wheel configuration, which can higher pressure to the supporting surface of the vehicle, provide a track configuration, which can provide a lower pressure to the supporting surface, in the design and implementation. *Id.* The choice to provide the tracked configuration can be driven by the surface composition and/or need to mitigate impact to said surface intended for the vehicles use, for example, lower ground pressure, can be advantageous on soft surfaces. Moreover, the significantly larger contact patch (surface area in contact with the ground) of a track allows for better traction. EX1003, ¶158. Tracked vehicles also have the ability to cross holes and trenches in which wheels would sink. *Id.*

POSITA would have recognized a reasonable expectation of success in providing a track assembly on the KR996 vehicle as track assemblies were well known in the art and perform the same function as the wheel mounted drive mechanism illustrated in KR996. This is a simple substitution of one known,

equivalent element for another to obtain predictable results and performing the same function. EX1003, ¶160. Further, implementing Bares' track assembly is an easy installation. EX1010, 1:33-45.

3. Claim 16

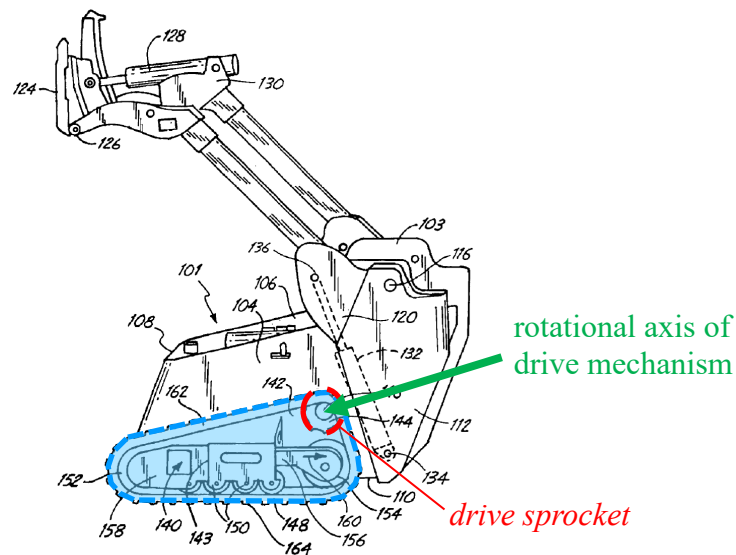
[16] *The compact tool carrier as set forth in claim 14 , further comprising a drive mechanism for propelling the compact tool carrier over a supporting surface, the drive mechanism having a drive sprocket, the cross-member being disposed forward of the drive sprocket in the vertically raised position and the down position of the loader.*

KR996 renders obvious claim 14 and in combination with Bares renders obvious this element. EX1003, ¶¶161-166.

As discussed in [5], KR996's drive mechanism is "wheels (14)" for *propelling* its *compact tool carrier over a supporting surface* (e.g., ground). EX1005, [0042], Figs. 1, 8-10; [14]. It would have been obvious, as a simple substitution for the wheeled assembly of KR996, to provide Bares' track assembly drive mechanism for the reasons discussed above.

Bares illustrates a track assembly (*drive mechanism*) for *propelling* a compact tool carrier. EX1010, Figs. 1, 8, 2:35-37, 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 is mounted. EX1010, 5:18-42, FIGS. 6-8. Bares' drive sprocket 144 (*drive sprocket*) driven by motor 146 rotates around a rotational axis, just like in the '750 patent. Bares explains its drive mechanism is *for propelling*

the loader apparatus over a supporting surface. See EX1010, 2:37-41 (“**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.



EX1010, FIG. 8
(annotated)

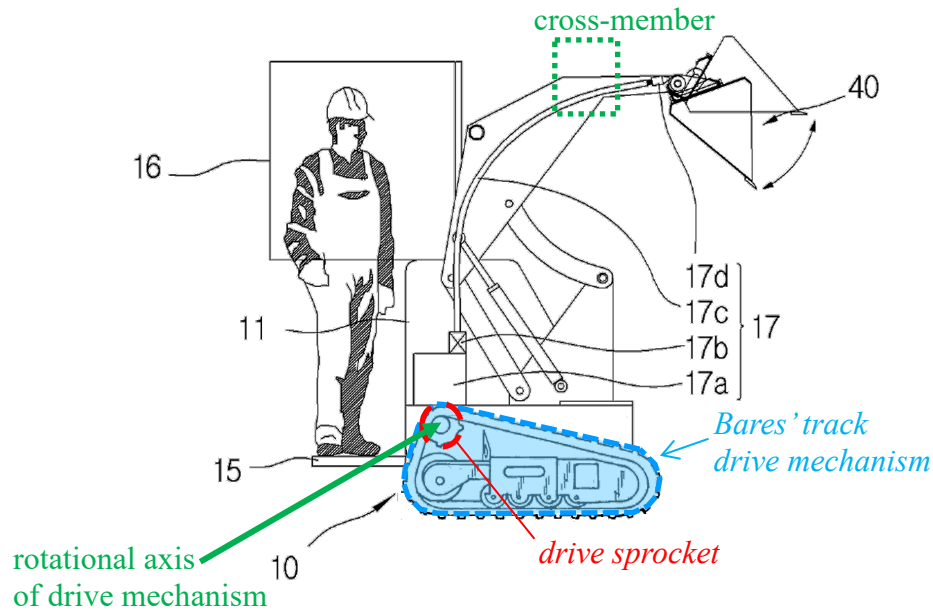
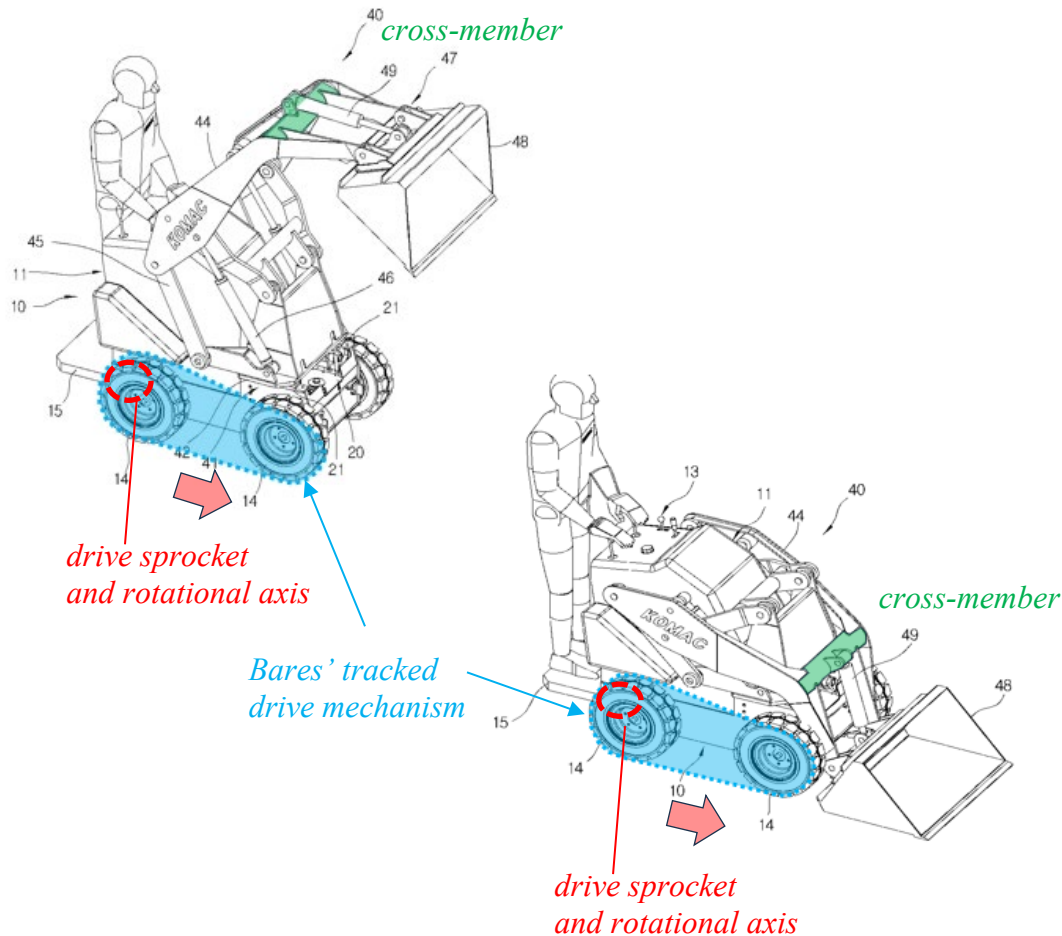


FIGURE A
KR996's Fig. 21 (annotated)
and modified with Bares' FIG. 8 track assembly

EX1003, ¶163, one example implementation is illustrated in Figure A (Bares' track of FIG. 8 substituted for KR996's Fig. 21's wheel assembly).

Providing KR996 vehicle with Bares' track assembly, the predictably resulting KR996-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 KR996's cross-member is illustrated *disposed forward of the rotational axis of the rear of its drive mechanism in the vertically raised position* (e.g., Fig. 9) *and the down position* (Fig. 8) *of the loader unit 40 (loader)* and thus, the cross-member is also forward of the rotational axis when provided by the *drive*

sprocket in the track assembly of KR996-Bares.



**EX1005, Fig. 9, Fig. 8 (portion)
(annotated including Bares' track mechanism)**

EX1003, ¶164. 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 16 is rendered obvious by KR996 and Bares. EX1003, ¶¶161-166.

E. Claims 1-18

KR996 renders obvious each and every element of claims 1-15 and 17-18 as discussed above in Ground 1, and KR996 in view of Bares renders obvious claim 16 as discussed above.

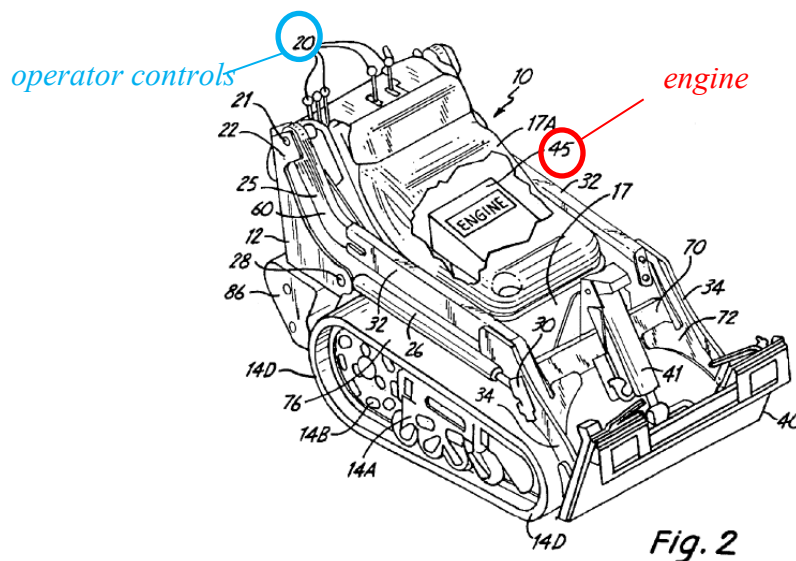
To the extent Patent Owner argues KR996 alone does not sufficiently illustrate an “engine,” KR996 in view of Bares renders claims 1-18 obvious because it would have been obvious to provide an engine, such explicitly illustrated and discussed in Bares, in KR996’s vehicle. In addition to the reasons to combine KR996-Bares discussed above, POSITA would have combined Bares’ engine teachings to KR996 to perform KR996’s desired function of propelling the vehicle. There are a limited number of options to provide power to a vehicle and implementing Bares’ engine is merely applying a known and common technique to perform the same purpose of propelling a compact carrier. EX1003, ¶¶167-170. There is a reasonable expectation of success as providing power for self-propelled vehicles by an engine was commonly implemented and Bares illustrates a similar compact tool carrier. EX1003, ¶169.

All elements of claims 1-15 and 17-18 are taught by or rendered obvious by KR996 as in Ground 1, elements [1.8] and [6] directed to an engine are also obvious under KR996-Bares, below. EX1003, ¶¶167-174.

[1.8] *an engine disposed forward of the operator platform relative to the*

longitudinal axis.

As discussed above, Bares describes a substantially similar vehicle and specifically and explicitly identifies its “engine,” which is located *forward* of its operator’s position. FIG. 2 of Bares is illustrative:



**EX1010, FIG. 2
(annotated)**

EX1010, 2:41-47 (“The drive motors 16 are connected to a pump 19 through a valve 18 shown schematically...The pump 19 is driven by an internal combustion engine 45 mounted on the [body or frame 12] in a housing 17 that has a cover 17A.”).

[6] *The compact tool carrier as set forth in claim 1 comprising a drive mechanism propelled by the engine.*

Bares explicitly describes what POSITA would readily recognize: the drive mechanism of the compact tool carrier is propelled by the engine. EX1010, 2:35-47

(“The body or frame 12 supports a ground drive and support member or assembly 14 on each side of the loader for propelling the loader in forward and reverse directions through the use of drive hydraulic motors indicated schematically at 16 in FIG. 1 and also in FIG. 3. The drive motors 16 are connected to a pump 19...driven by an internal combustion engine 45...”).

Thus, claims 1-18 are also rendered obvious by KR996 and Bares. EX1003, ¶¶167-174.

F. Ground 3 : KR996, Bares, and Beltrami

1. Beltrami (EX1008)

Beltrami, a patent issued in June 1971, is directed to digging and lifting devices “fitted on tractors or like tracked, half-tracked, wheeled or like self-propelling means, which comprise a standard bucket adapted to be driven upwardly...to dump the soil or other excavated material.” EX1008, 1:5-15. Beltrami begins by reviewing an “already well known” loader configuration with arm(s) supporting a bucket at one end and with an opposite end(s) directly, pivotally connected with a stationary pivot point providing a curved lift path. EX1008, 1:16-52, 2:41-3:7; FIG. 1. POSITA would recognize this as a radial lift loader. EX1003, ¶¶175-176, 31-32.

Recognizing drawbacks of a radial lift, Beltrami describes a **vertical** lift loader where the arms are not directly connected to the body of the vehicle rather

attached using two connecting rods (*i.e.*, linkages) and a hydraulic jack (*i.e.*, actuator), which are pivotally attached to raise the loader arm and mounted bucket in a more vertical manner. *See* EX1008, FIGS. 2-4, 1:57-2:25, 3:12-34. Beltrami recognizes a desire to keep the pivot point connections between the intermediate parts and mainframe “**in such a low position on the vehicle** that no supporting frame is needed...and finally a lifting can be performed without having the equipment gravity center to undergo an unnecessarily large shifting.” EX1008, 3:35-45.

2. Reasons to combine KR996 and Bares

Reasons to combine KR996 and Bares are provided in Ground 2. EX1003, ¶¶177, 155-160.

3. Reasons to combine KR996-Bares and Beltrami

KR996-Bares and Beltrami are analogous art to the '750 patent because they are in the same field of endeavor of earth-moving machinery. EX1003, ¶178; EX1001, 1:19-41; EX1005, Abstract; EX1008, 1:5-15. In fact, each of KR996-Bares and Beltrami, like the '750 patent, are directed to earth-moving machinery with a vertical lift loader. EX1001, FIG. 1; EX1005, Fig. 9; EX1008, Figs. 2-6, 2:10-15. KR996-Bares and Beltrami are also analogous art to the '750 patent because they are reasonably pertinent to a same problem faced by the inventor providing a more vertical lift path for the attached tool in operation. EX1001, 1:19-41; EX1005, Figs. 8-9; EX1008, 1:24-40.

POSITA would have been motivated to combine the teachings of Beltrami including locating the pivot point attachment of loader's intermediary parts **low** on the mainframe of KR996-Bares' vehicle to produce a predictable and beneficial vehicle configuration. EX1003, ¶¶179-183. As discussed above, KR996 and Beltrami describe substantially similar (four-bar) loader arm configuration attached to a vehicle in the substantially similar manner—using intermediate parts of two linkages and a hydraulic cylinder each pivotally attached to a mainframe. EX1005, Figs. 8, 9; EX1008, Figs. 2-3, 6. Beltrami explains well-known concept of vehicle design: the locations of the pivot point connections between each of these intermediate parts and the mainframe are result-affecting variables that can be selected based on desired performance of the vehicle. EX1008, 4:35-50 (“The **path** [] can be modified at the convenience both in the manufacturing stage e.g. by an **arrangement of pivot points...**”); 5:62-65 (“Even in the latter embodiment **the shape of path** [] can be **modified** by the previously specified means adapted to **change the position of pivot points...**”) Thus, POSITA would have recognized that a design of a vehicle such as KR996-Bares includes determining pivot point locations, because the pivot point locations are result-affecting design variables for loader path and vehicle structure, as explained by Beltrami. EX1003, ¶179.

In considering the pivot point locations, POSITA would have had reason to further apply Beltrami's teachings of locating the pivot point attachments between

the intermediate parts (linkage(s)/actuator) and the mainframe **low** on the mainframe, near the rotational axis such that the distance between the pivot points and the axis is, for example, less than the distance between the axis and the ground/bottom of the mainframe. EX1003, ¶¶180-182. Beltrami describes the benefits of positioning the location of these pivot points low on the equipment include decreasing the frame requirements and lowering gravity center. EX1008, 3:35-41. POSITA would recognize that these benefits stem from basic engineering principles. EX1003, ¶¶180-181. And POSITA would also recognize these same benefits would be gained by providing the pivot points of the similarly configured loader of KR996 low on its frame, in particular, a relatively small vertical distance from the rotational axis of its drive mechanism. *Id.* Thus, the proposed combination of Beltrami is merely applying a known technique to a known device (*e.g.*, Beltrami's technique of providing low pivot points in a vehicle using intermediate parts for connecting a loader arm, with KR996's using pivotally attached connections between the loader arm and intermediate parts) ready for improvement (*e.g.*, decreasing the frame requirements and/or lowering the center of gravity) to yield predictable results. EX1003, ¶182.

The results of combining Beltrami's technique with KR996-Bares would have been predictable and with a reasonable expectation of success since both KR996 and Beltrami relate to similar vehicles with a vertical lift loader. Modifying the vehicle

of KR996-Bares to provide lower pivot points would have been a straightforward and simple matter well within the skills of POSITA during a typical vehicle design process. EX1003, ¶183. And Dr. Velinsky has confirmed one example of a predictable placement of these points. EX1003, ¶¶209-227 discussing four-bar mechanisms and kinematic simulation of Appendix A showing vertical lift operation.

4. Claim 19

The analysis of claim 19 for Ground 4 is the same as that for claim 1 in Ground 1, with exceptions noted. EX1003, ¶184.

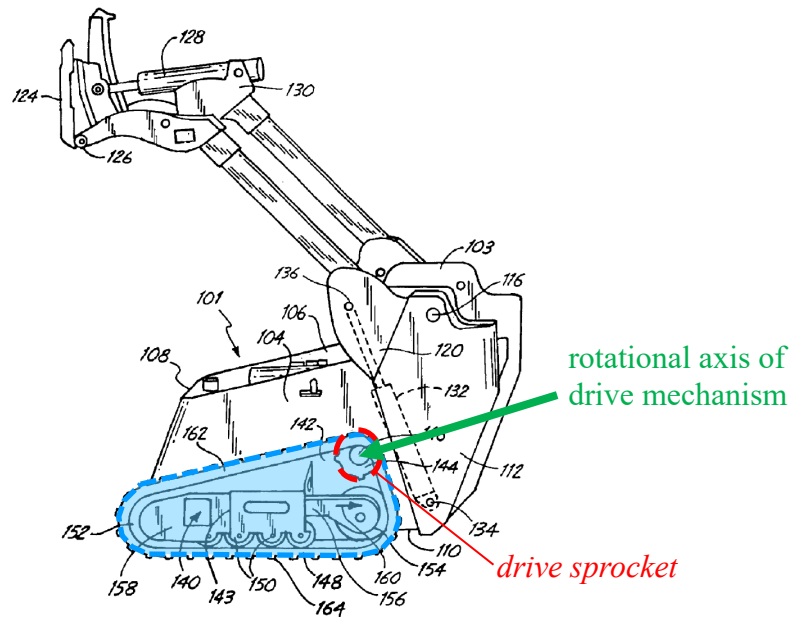
		See the analysis in
[19.0]	<i>A compact tool carrier having a longitudinal axis and comprising:</i>	[1.0]
[19.1]	<i>a loader adapted to carry a tool;</i>	[1.1] including loader unit 40 carrying bucket 48 (<i>tool</i>)
[19.2]	<i>a mainframe for supporting the loader, the mainframe having a first side and a second side, the loader being free from direct attachment to the mainframe;</i>	[1.2a], [1.2b]
[19.3]	<i>a first linkage pivotally attached to the first side of the mainframe at a first pivot point and pivotally attached to the loader at a second pivot point;</i>	[1.3] including link 45 (<i>first linkage</i>)
[19.4]	<i>a second linkage pivotally attached to the first side of the mainframe at a third pivot point and pivotally attached to the loader at a fourth pivot point;</i>	[1.4] including second link (<i>second linkage</i>)

[19.5]	<i>an actuator pivotally attached to the first side of the mainframe at a fifth pivot point and directly pivotally attached to the loader at a sixth pivot point;</i>	[1.5] including boom cylinder 46 (<i>actuator</i>)
[19.6a,b]	<i>a drive mechanism...being less than twice D5;</i>	See below
[19.7]	<i>a control station having operator controls for propelling the compact tool carrier forward and for raising and/or lowering the loader, the control station being mounted toward the rear of the compact tool carrier;</i>	[1.6] including control unit 13 (<i>control station</i>) mounted toward the rear of the vehicle (EX1005, Figs. 8-9).
[19.8]	<i>an operator platform for standing operation of the operator controls of the control station; and</i>	[1.7] including safety step 15 (<i>operator platform</i>)
[19.9]	<i>an engine disposed forward of the operator platform relative to the longitudinal axis.</i>	[1.8] including KR996's engine. See also Ground 2 and Bares' engine

[19.6a] *a drive mechanism for propelling the compact tool carrier over a supporting surface, the drive mechanism having a drive sprocket defining a rotational axis R, the compact tool carrier having a bottom at which the drive mechanism contacts the supporting surface, the rotational axis R and the bottom of the compact tool carrier being separated by a vertical distance D1, the rotational axis R and a bottom of the first side of the mainframe being separated by a vertical distance D5,*

As discussed above, KR996 describes *a drive mechanism* including wheels

(14). EX1005, [0042], Figs. 1, 8-10. *See also*, [5]. And as shown in Ground 2 claim 16, it would have been obvious to substitute the wheel assembly illustrated in KR996 with a track assembly as taught by Bares; Bares' track assembly includes drive sprocket 144 (*drive sprocket*) that *defines a rotational axis R*. As in [5] and [16], the drive mechanism including wheel/track is for *propelling the compact tool carrier over a supporting surface*.



EX1010, FIG. 8
(annotated)

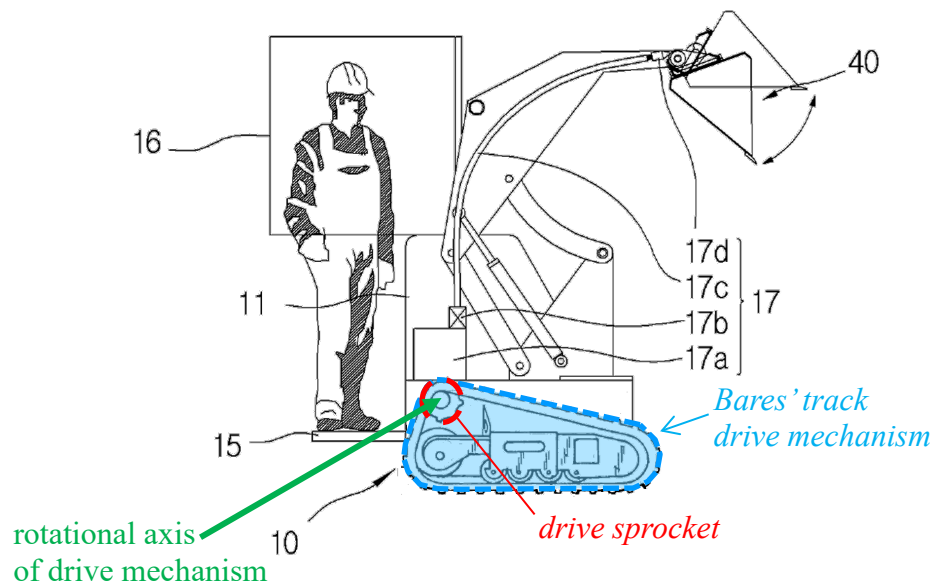


FIGURE A
KR996's Fig. 21 (annotated)
and modified with Bares' FIG. 9 track assembly

EX1003, ¶¶185-188. KR996's vehicle with Bares' track assembly has a *bottom* at which track 148 of the track assembly (*drive mechanism*) *contacts the supporting surface* (e.g., ground). The *rotational axis* and *bottom of the compact tool carrier* are separated by a *vertical distance D1*. EX1003, ¶¶189-193 explaining D1 is a design choice relating to wheel size. And the *rotational axis* and the *bottom of the first side of the mainframe* are separated by a *vertical distance D5*. EX1003, ¶189-193 explaining D5 is a design choice related to terrain and stress distribution.

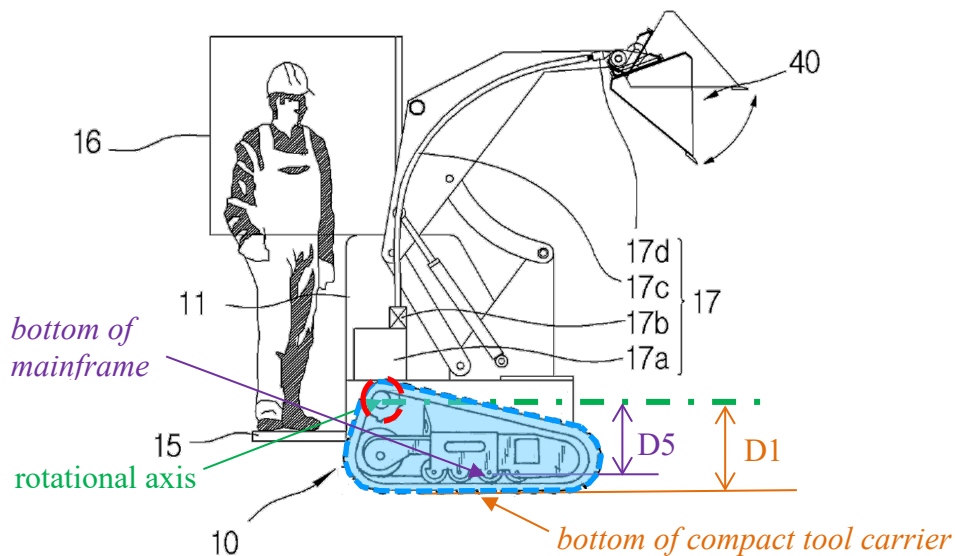


FIGURE A
KR996's Fig. 21 (annotated)
and modified with Bares' FIG. 9 track assembly

The vertical distances D1 and D5 are required for the functionality of the carrier and Dr. Velinsky also confirms design considerations suggest advantages to a common design choice of a raised sprocket like Bares' sprocket 144 (e.g., increase in protection from damage (e.g., debris or harsh conditions) and ease of connection to drive system, thus, increasing D1 and D5. EX1003, ¶164. citing EX1015, p. 11, EX1033, FIG.1, [0021], EX1035. Thus, KR996-Bares describes this element. EX1003, ¶¶185-194.

[19.6b] the rotational axis R and each of the first, third, and fifth pivot points being separated by a vertical distance, the vertical distance between the rotational axis R and the first pivot point being less than 1.5 times D1, the vertical distance between the rotational axis R and the third pivot point also being less than 1.5 times D1, the vertical distance between the rotational axis R and the fifth pivot point also being less than 1.5 times D1, the first side of the mainframe comprising a forward-most pivot point, the first pivot point, the third pivot point, or the fifth pivot point being the forward-most pivot point, the vertical distance between the rotational axis R and the forward-most pivot point being less than twice D5;

First, there is a forward-most pivot point in the loader mechanism of KR996, which is the *third pivot point* (KR996's forward link and mainframe) (see [1.4]), which is maintained in KR996-Bares. See EX1005, Figs. 8-9, 21; Figure A below.

Second, in the KR996 vehicle, there is a *vertical distance* between each of the *first, third, and fifth pivot point[s]*, i.e., where first linkage [1.3], second linkage [1.4], and actuator [1.5] are attached to the mainframe, respectively, and the *rotational axis*. See EX1005, Figs. 8-9, 21. In the KR996-Bares vehicle, these

vertical distances are also present though applying Bares' drive mechanism raises the rotational axis, decreasing these vertical distances.

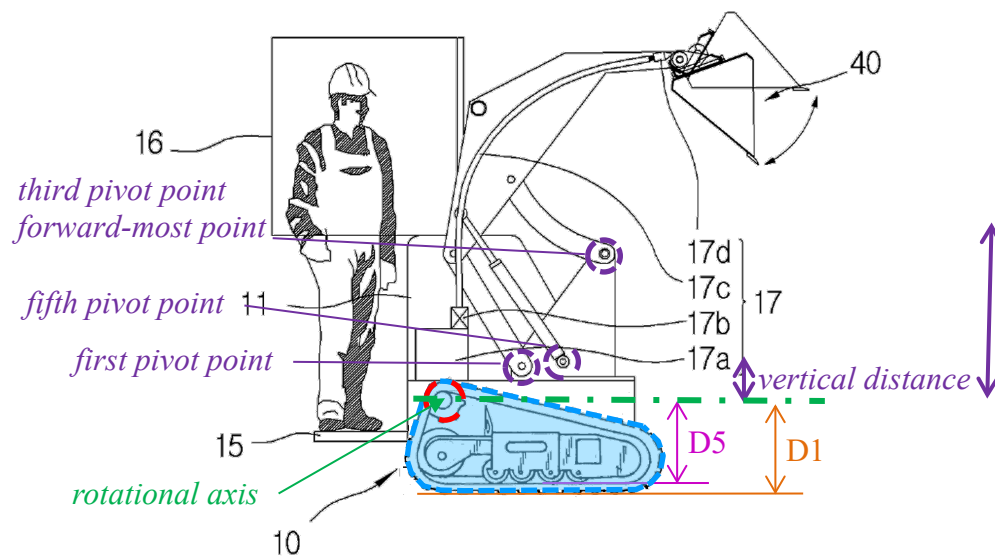


FIGURE A
KR996's Fig. 21 (annotated)
and modified with Bares' FIG. 9 track assembly

EX1003, ¶¶195-198.

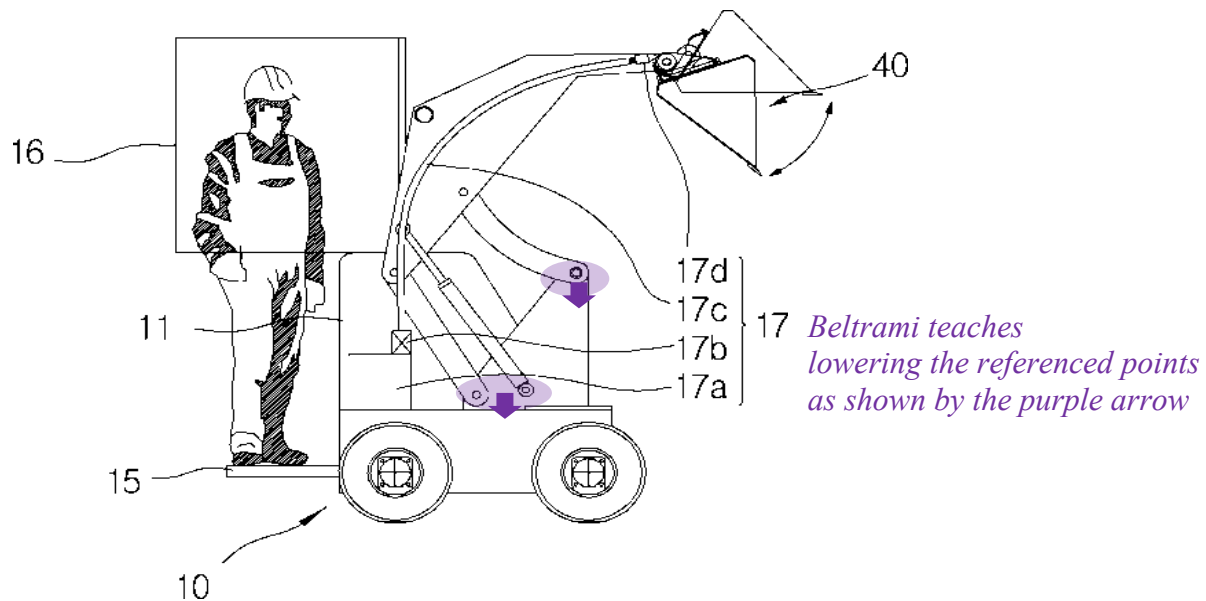
Third, the relative vertical distances of [19.6] are obvious. The *first pivot point* and the *fifth pivot point* appear by plain inspection to be within the recited relative dimension. Additionally, POSITA would have recognized a benefit to configure the vertical distance between each pivot point and the rotational axis each being *less than 1.5 D1* and the forward-most pivot point being *less than twice D5* in KR996-Bares vehicle in light of the teachings of Beltrami discussed in the reasons

to combine and below. EX1003, ¶¶178-183, 195-235.

Fundamentally, KR996 teaches the same vertical lift loader with pivot points between the same intermediary parts (linkages/actuator) as the '750 patent. And optimization within prior art conditions or through routine experimentation supports a finding of obviousness. *In re Williams*, 36 F.2d 436, 438 (CCPA 1929) (“It is a settled principle of law that a mere carrying forward of an original patented conception involving **only change of** form, proportions, or **degree**, or the substitution of equivalents doing the same thing as the original invention, **by substantially the same means, is not such an invention as will sustain a patent**, even though the changes of the kind may produce better results than prior inventions.”) Dr. Velinsky explains it was routine practice when designing a vehicle including a four-bar mechanism of KR996 to consider placement of pivot points between linkages/actuator and the mainframe depending on the desired design specifications. EX1003, ¶¶200-203. Beltrami also confirms decades prior to the '750 patent, modifying positions of the pivot points affected the design goals and was a known technique in design. EX1008, 4:35-50.

And Beltrami’s explicit teachings provide benefits of configuring the pivot point attachment locations **low** on the vehicle (i.e., minimizing the vertical distance between pivot points and the rotational axis); Beltrami explains “[a]mongst the various advantages, the following ones are to be emphasized: the pivot points 24, 26

and 30 can be kept in such a low position on the vehicle that no supporting frame is needed; the arm can be lifted with nearly constant power input and speed; and finally a lifting can be performed without having the equipment gravity center to undergo an unnecessarily large shifting.” EX1008, 3:35-41, 2:69-75. POSITA would recognize that general engineering principles dictate that lowering the attachment of the loader arm lowers the center of gravity, which reduces risk of tipping. EX1003, ¶¶204-208. POSITA would also recognize lowering the pivot points reduces the mainframe requirements. *Id.* citing Beltrami 3:35-41, which suggests no supporting frame is required (e.g., triangular portion of KR996’s mainframe).



EX1005, Fig. 21
(annotated)

EX1003, ¶205. **Thus**, POSITA would have had the skillset, desire, and motivation to provide the pivot points low (*i.e.*, minimizing vertical distance between the pivot points attachment to the mainframe and the rotational axis) to provide, for example, a compact size mainframe and a low center of gravity of the carrier as taught by Beltrami by lowering the attachment pivot points of the links and boom cylinder in the context of KR996-Bares.

Further, it would have been obvious to position the pivot points such that the vertical distances are *less than 1.5 times D1* or *less than twice D5* as claimed. Petitioner notes the '750 patent provides **no** specific advantage, benefit, or surprising result to any one of the myriads of claimed relative dimensions related to these pivot points including those of Claim 19. Instead, the '750 patent espouses only general benefits in general terms:

By positioning the pivot points relatively low on the mainframe 10, the mass of the mainframe 10 and the resulting **cost** of the carrier 5 may be reduced. Further, such a low-profile mainframe 10 **improves visibility for the operator** and **allows the center of gravity** of the carrier 5 to be **lowered** with improves its stability.

EX1001, 5:62-6:2. These **same** advantages of the location of pivot points—"relatively low"—were known well before the earliest priority date claimed by the '750 patent. As discussed above, Beltrami explicitly recognizes advantages of a lower center of

gravity and a reduction in frame. EX1008, 3:35-41 (“the pivot points 24, 26 and 30 **can be kept in such a low position on the vehicle that no supporting frame is needed; [] and finally a lifting can be performed without having the equipment gravity center** to undergo an unnecessarily large shifting.”), 2:69-75. POSITA would also have recognized providing pivot points low on the mainframe, and closer to the axis, for the exact same benefits touted in the ’750 patent. EX1003, ¶¶204-208 citing EX1012, 3:56-64 (“...[t]he rear **pivot** of link 50 is substantially directly vertically above the rear axle 17, and it is **much closer to the axle** than in previous designs. The **number of structural components** between the points of attachment of the boom to the loader frame and the wheel attachment to the loader frame is **reduced**...the shorter load bearing paths **simplifies and reduces the costs** in the overall load and carrying structure.”), EX1011 discussion of increased visibility and stability; EX1009 discussion of “visibility” and “lowering the center of gravity,” EX1006, [0010].

Further, Dr. Velinsky provides an example of a comparison of the kinematic drawings relative to the four-bar mechanism as illustrated in KR996 and an example of the loader attachment modified in light of Beltrami’s teachings:

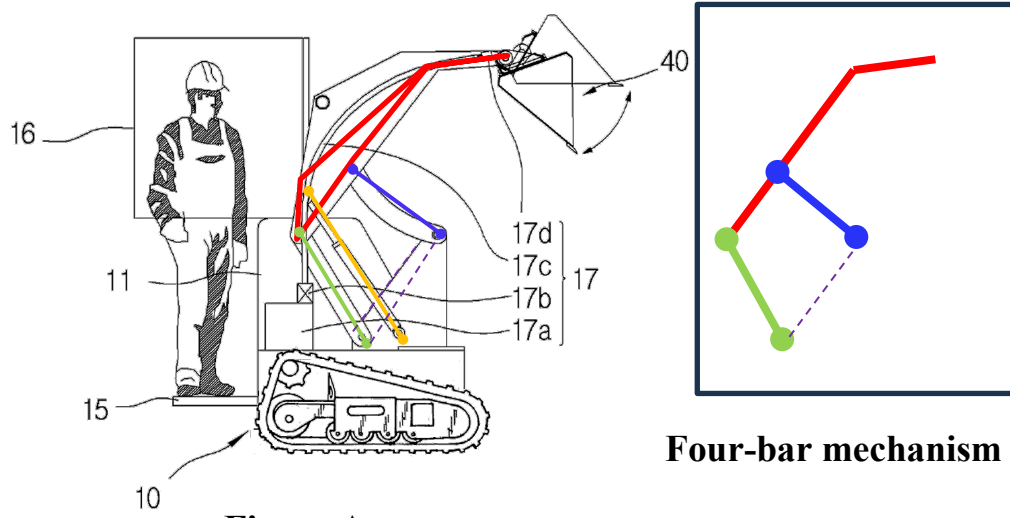


**Figure A
(annotated)**

Four-bar mechanism

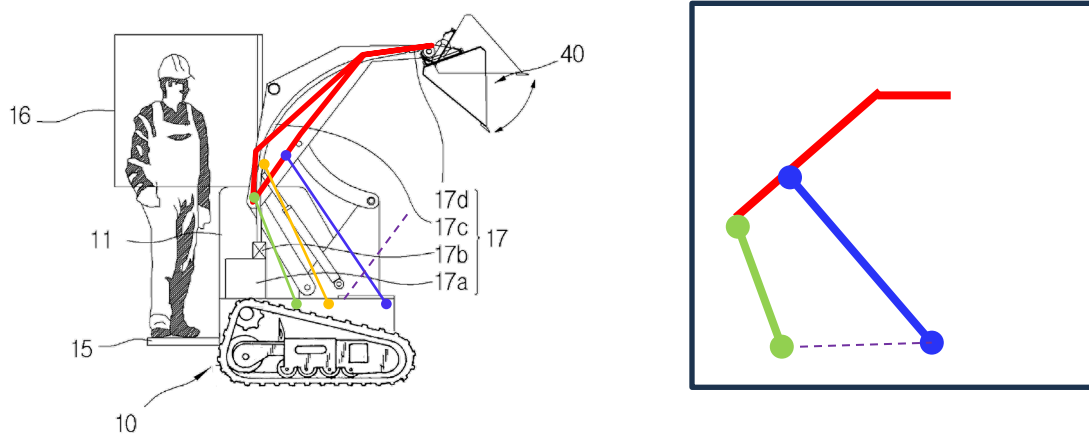
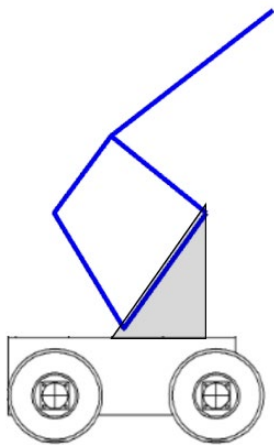


**Figure A
(annotated)
with lowered pivot points**

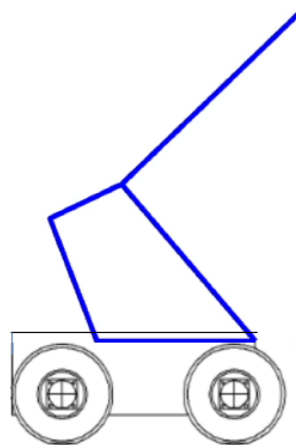
Four-bar mechanism

EX1003, ¶¶209-216. POSITA would have been readily able to arrange components of the vehicle to incorporate Beltrami's teachings to achieve benefits of keeping the pivot points low on the frame of the vehicle as discussed by Dr. Velinsky. EX1003,

¶¶217-219 including EX1021 illustrating each attachment of four-bar mechanism loader at “same level.” And the predictability of the exemplary embodiment discussed above is also illustrated by a kinematic simulation in Appendix A (EX1004) of Dr. Velinsky’s report, which shows functionality of as-illustrated and exemplary modified configuration based (screen shots below illustrative of one stage of the loader, which in each instance travels from a low to vertically raised position).



**Screen Shot of Simulation
in Appendix A of
KR996 as configured**



**Screen Shot of Simulation
in Appendix A of
KR996 as modified**

EX1003, ¶¶221-227.

Thus, POSITA would have recognized not only that the location of the pivot point was a result-affecting design choice, but also that there was a desire to and benefit of keeping the pivot points relatively low (*i.e.*, minimizing vertical distance

between the pivot points and rotational axis in the context of KR996-Bares) to provide for the benefits discussed above and provide the rotational axis R and each of the *first, third, and fifth pivot points* being separated by a vertical distance less than 1.5 times D1 (and less than twice D5). EX1003, ¶228.

Therefore, [19.6a]-[19.6b] are obvious in light of KR996 (including as modified by Bares) in view of Beltrami. EX1003, ¶¶184-229. And Claim 19 is rendered obvious by KR996-Bares and the teachings of Beltrami. *Id.*

5. Claim 20

[20] *The compact tool carrier as set forth in claim 19 wherein the second side of the mainframe comprises at least two pivot points, each vertical distance between the rotational axis R and the respective pivot point being less than 1.5 times D1.*

KR996-Bares-Beltrami renders obvious claim 19 and KR996 also describes *a second side of the mainframe* as in [19.2] just like the first side and similarly comprises *two pivot points* (e.g., link 45 [19.3] and boom cylinder 46 [19.5]) attachment to mainframe). For the same reasons as discussed in [19.6a,b], it would have been obvious to provide claimed distances. *See also* [3], [4], discussing attachment to *second side of the mainframe*.

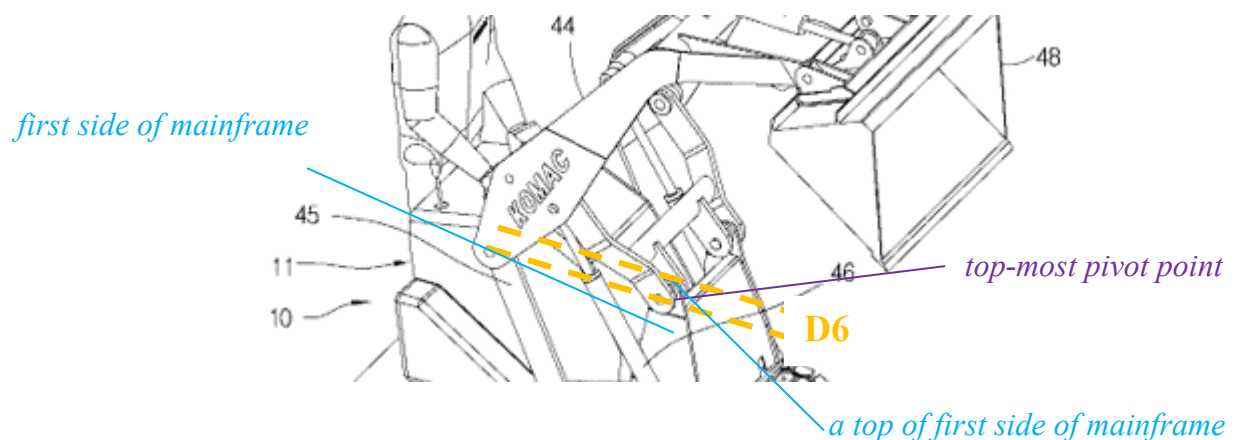
Thus, claim 20 is rendered obvious by KR996-Bares and the teachings of Beltrami (KR996-Bares-Beltrami). EX1003, ¶¶230-232.

6. Claim 21

[21] *The compact tool carrier as set forth in claim 19 wherein the first side of the*

mainframe comprises a top-most pivot point, the first pivot point, the third pivot point, or the fifth pivot point being the top-most pivot point, the top most pivot point and a top of the first side of the mainframe being separated by a vertical distance $D6$, $D6$ being less than about 1.5 times $D5$.

KR996-Bares-Beltrami renders obvious claim 19 and KR996 describes a second linkage, [19.4], connected to its mainframe at a *third pivot point*, which is a *top-most pivot point*. See [19.4], Figs. 8-10. There is a *vertical distance $D6$* between this *top-most pivot point* and a *top of the first side of the mainframe* illustrated in KR996's Figs. 8, 9.



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

As to the relative distance of $D6$ and $D5$, plain inspection of KR996's figures reasonably suggest that this was a known configuration. EX1003, ¶232. Thus, POSITA would have had reason to apply this configuration with respect to KR996-Bares vehicle as modified by Beltrami as well. *Id.* Further, POSITA would recognize

an advantage to minimizing the distance the mainframe extends above the topmost pivot to increase visibility for the operator, provide a low center of gravity, and minimize materials of the frame. EX1003, ¶234 citing EX1011 discussion of arranging points of linkages to increase visibility and stability. Bares confirms providing a pivot point at the upper point on its frame. EX1010, FIG. 1, 2:49-55 (“...the pivots 21 are **at or near the uppermost part of the loader**”). Thus, POSITA would recognize to minimize D6 and provide D6 less than 1.5 times D5, while also having the knowledge to arrange components (e.g., mainframe, drive mechanism, lift mechanism) to provide suitable functionality. EX1003, ¶¶234-235.

Thus, claim 21 is rendered obvious by KR996-Bares-Beltrami. EX1003, ¶¶233-235.

7. Claim 22

[22] *The compact tool carrier as set forth in claim 19 further comprising a tool attached to the loader, the tool being selected from the group consisting of a bucket, auger, fork, stump grinder, tiller and roller.*

KR996-Bares-Beltrami renders obvious claim 19 and as discussed in [19.1] and [9], KR996 illustrates a *tool* of a bucket 48 (*bucket*) attached to boom 44 (arm of the *loader*). Thus, KR996-Bares-Beltrami renders obvious claim 22. EX1003, ¶236.

8. Claim 23

[23] *The compact tool carrier as set forth in claim 19 wherein the mainframe*

incorporates a single weldment.

KR996-Bares-Beltrami renders obvious claim 19 and it would have been obvious for KR996's mainframe to *incorporate[] a single weldment* for the same reasons as discussed in [2]. Thus, KR996-Bares-Beltrami renders obvious claim 23. EX1003, ¶237.

9. Claim 24

[24] *The compact tool carrier as set forth in claim 19 wherein no more than three linkages and actuators are attached to the first side of the mainframe.*

KR996-Bares-Beltrami renders obvious claim 19 and as shown in [19.3]-[19.5], KR996 teaches three, and no more than three, linkages and actuators attached to the first side of the mainframe. EX1005, Figs. 8-9. Thus, KR996-Bares-Beltrami renders obvious claim 24. EX1003, ¶238.

10. Claim 25

[25] *The compact tool carrier as set forth in claim 19 wherein a single actuator is attached to the first side of the mainframe.*

KR996-Bares-Beltrami renders obvious claim 19 and boom cylinder 46 of [19.5] is *a single actuator attached to the first side of the mainframe*. EX1005, Figs. 8-9. *See also*, [12]. Thus, KR996-Bares-Beltrami renders obvious claim 25. EX1003, ¶239.

11. Claim 26-27

[26, [27]] *The compact tool carrier as set forth in claim 19 wherein the vertical distance between the rotational axis R and the forward-most pivot point is less*

than 1.75 [1.5] D5.

KR996-Bares-Beltrami renders obvious claim 19 and POSITA would have knowledge and reason to minimize the distances between the *forward-most pivot point* (that of [19.4]) and the rotational axis including to provide a low center of gravity and minimize materials of the frame as discussed in [19.6a, b]. The '750 patent provides no surprising or unexpected result for any specific relationship, *e.g.*, less than 2 (claim 19), less than 1.75 (claim 26), less than 1.5 (claim 27). *See* EX1001, 5:20-32. Thus, for the same reasons as discussed above in claim 19, it would have been obvious to position the *forward-most pivot point less than 1.75 or 1.5 D5*; claims 26 and 27 are rendered obvious by KR996-Bares-Beltrami. EX1003, ¶¶186-228, 240.

12. Claims 28-29

[28, [29]] The compact tool carrier as set forth in claim 19 wherein the vertical distance between the rotational axis R and the forward-most pivot point is less than [0.75] D1.

KR996-Bares-Beltrami renders obvious claim 19 and POSITA would have knowledge and reason to minimize the distances between the *forward-most pivot point* (that point in [19.4]) and the rotational axis including to provide a low center of gravity and minimize the frame. The '750 patent provides no surprising or unexpected result for any specific relationship claimed, *e.g.*, less than 1.5 D1 (claim 19), less than 1 (claim 28), less than 0.75 (claim 29). *See* EX1001, 5:20-32. Thus,

for the same reasons as discussed above with reference to [19.6a,b], it would have been obvious to position the *forward-most pivot point* less than *one or 0.75 times DI*; claims 28 and 29 are rendered obvious by KR996-Bares-Beltrami. EX1003, ¶¶186-228, 241.

13. Claim 30

[30] *The compact tool carrier as set forth in claim 19 wherein the loader is moveable between a down position and a vertically raised position, the loader comprising: a first arm; a second arm; and at least one cross-member that extends from the first loader arm to the second loader arm, wherein each cross-member is disposed forward of the operator platform relative to the longitudinal axis in the vertically raised position of the loader.*

KR996-Bares-Beltrami renders obvious claim 19 and KR996 further teaches this element as shown in [14], which shows *a cross-member* extending from one boom 44 to another boom 44 (*first/second loader arm*) is disposed forward of the safety step 15 (*operator platform*) in the raised position of the loader unit 40 (*loader*). EX1005, Fig. 9. Thus, claim 30 is rendered obvious by KR996-Bares-Beltrami. EX1003, ¶242.

14. Claim 31

[31] *The compact tool carrier as set forth in claim 30 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-Bares-Beltrami renders obvious claim 30 and KR996 further discloses bucket attachment 47 (*attachment plate*) for attaching bucket 48 (*tool*); the cross-

member of [30] being spaced a distance from the bucket attachment 47 (*attachment plate*) as illustrated in [15]. EX1005, Figs. 8-9. Thus, claim 31 is rendered obvious by KR996-Bares-Beltrami. EX1003, ¶243.

15. Claim 32

[32] *The compact tool carrier as set forth in claim 30 wherein the cross-member is disposed forward of the drive sprocket in the vertically raised position and the down position of the loader.*

KR996-Bares-Beltrami renders obvious claim 30 and KR996 teaches its *cross-member* disposed forward of a rotational axis (Figs. 8-9), so POSITA would have recognized the cross-member is also forward of the rotational axis defined by Bares' drive sprocket 144 in KR996-Bares as discussed in [16]. See Figure A. Thus, claim 32 is rendered obvious by KR996-Bares-Beltrami. EX1003, ¶244.

16. Claim 33

[33] *The compact tool carrier as set forth in claim 30 wherein the compact tool carrier comprises a single cross-member.*

KR996-Bares-Beltrami renders obvious claim 30 and KR996 also teaches the cross-member of [30] is a *single cross-member* extending between its boom 44 (loader arms). EX1005, Figs. 8-9; *see also*, [17]. This structure is maintained in KR996-Bares-Beltrami and thus, claim 33 is rendered obvious. EX1003, ¶245.

17. Claim 34

[34] *The compact tool carrier as set forth in claim 30 wherein each cross-member is disposed fully forward of the second pivot point, the fourth pivot point, and the sixth pivot point.*

KR996-Bares-Beltrami renders obvious claim 30 and KR996 further teaches a *cross-member is disposed fully forward* of the referenced pivot points between the linkages/actuator and the loader arm as discussed in [18]. See EX1005, Figs. 8-9. This structure is maintained in KR996-Bares-Beltrami and thus, claim 34 is rendered obvious. EX1003, ¶246.

18. Claim 35

[35] *The compact tool carrier as set forth in claim 19 wherein the first and fifth pivot points are above the rotational axis and the vertical distance between the rotational axis R and each of the first and fifth pivot points is less than twice D5.*

KR996-Bares-Beltrami renders obvious claim 19 and Beltrami also teaches lowering pivot pint connections including *the first and fifth pivot points* such that they are *less than twice D5* for the same reasons as discussed in [19.6]. KR996 also illustrates through its illustrations that it was a known configuration to provide pivot points *above the rotational axis* of the drive mechanism. See EX1005, Figs. 8-9. This configuration of the pivot point connection *above* the drive mechanism of Bares' tracks 148 would continue in KR996-Bares-Beltrami.

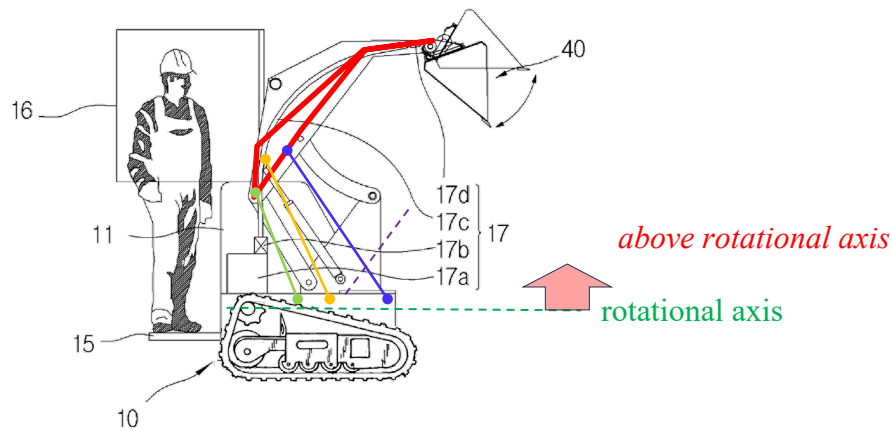


**Figure A
(annotated)
with lowered pivot points**

EX1003, ¶249 explaining no interference with the track assembly when disposed above the rotational axis R citing EX1021, [0035] which places the attachment above the drive mechanism so they “will not interfere with the front and rear wheels 3, 4, with the result that the vehicle may be made compact.”

Thus, claim 35 is rendered obvious by KR996-Bares-Beltrami. EX1003, ¶¶247-250.

19. Claim 36

[36] *The compact tool carrier as set forth in claim 19 wherein the drive mechanism comprises tracks or wheels and the first pivot point is above the tracks or wheels and the vertical distance between the rotational axis R and the first pivot point is less than twice D5.*

KR996-Bares-Beltrami renders obvious claim 19 and KR996 also discloses attachment of link 45 to the mainframe (*first pivot point*) is *above* the wheels 14 of

KR996 (see Figs. 8-9). EX1005, Figs. 8-9. This configuration of the pivot point connection *above* the drive mechanism would continue in KR996-Bares-Beltrami and be above Bares' tracks 148 (*tracks*).

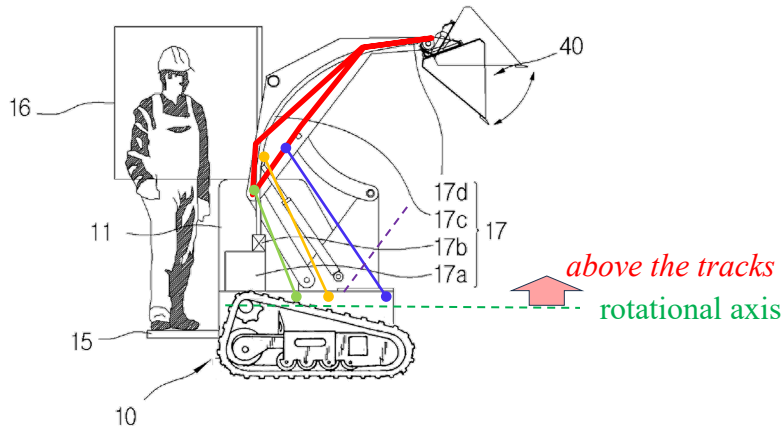


**Figure A
(annotated)
with lowered pivot points**

EX1003, ¶¶251-252 explaining no interference with the track assembly when disposed above the rotational axis R citing EX1021, [0035] which places the attachment above the drive mechanism so they “will not interfere with the front and rear wheels” and the vehicle may be made compact.

And as in [19.6], POSITA would have had the skill set and motivation to lower the pivot points to achieve benefits such as a lower center of gravity and smaller mainframe. Thus, it would have been obvious to provide *the first pivot point is less than twice D5*. EX1003, ¶253. And claim 36 is rendered obvious by KR996-Bares-

Beltrami. EX1003, ¶¶251-254.

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 or reexamination of the '750 patent. Further, as discussed above, '750 patent prosecution/reexamination was directed to an obviousness framework of placing a vertical lift configuration loader arm disclosed on a larger tractor onto a compact utility loader, which is not proposed here. The Examiner concluded the reexamination proceeding reiterating there was only one reference of record that included a vertical lift loader on a compact tool carrier, Ulinski, which was distinguished on other grounds. EX1029, p. 9. Here, KR996, again not of record, shows in a single embodiment, a vertical lift configuration of a loader arm on a compact utility carrier, and thus is not cumulative to the previous presentations. Accordingly, the prior art, arguments and grounds raised here were not previously before to the Office. Discretionary denial under 35 U.S.C. § 325(d) is not appropriate.

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

The Board balances six factors in considering denial under § 314. *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (Mar. 20, 2020) (precedential). These

factors strongly favor institution as this Petition presents compelling evidence of unpatentability of all Challenged Claims. And moreover, the district court case is in its very early stages, without a scheduling order or opening of fact discovery, as Patent Owner just served the complaint in 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, the final written decision is due May 2026. If the median time-to-trial is around the same time or after the projected statutory deadline for the PTAB's final written decision, this weighs against discretion. Inefficiency concerns are minimal.

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

The '750 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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XIII. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8

A. Real party-in-interest

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

B. Related matters

Pursuant to 37 C.F.R. § 42.8(b)(2), to the best knowledge of the Petitioner, the '750 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”) of patents related to the ’750 patent.

Patent Number	Challenged Claims	Proceeding No.	Filing Date
9,321,386 Petition A	1-13, 15, 17, 19-30, 64-67	IPR2025-00167	November 14, 2024
9,321,386 Petition B	31-49, 70-79, and 86-87	IPR2025-00168	November 14, 2024
9,321,386 Petition C	50-63, 68-69, and 80-85	IPR2025-00169	November 14, 2024
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 13,838. 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. 9,975,750;
Petitioner's Power of Attorney;
Petitioner's Exhibit List;
Exhibits EX1001 – EX1017, EX1019-EX1029
and EX1032-EX1036

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