

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Kubota North America Corporation,
Petitioner

IPR2025-00381
U.S. Patent No. 11,465,891

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. 11,465,891 (the “’891 patent”)
EX1002	Prosecution History of U.S. Patent No. 11,465,891
EX1003	Declaration of Steven Velinsky under 37 C.F.R. § 1.68
EX1004	<i>Reserved</i>
EX1005	Korean Patent No. 10-1041996 including original Korean language document, certified English translation, and certification of translation (“KR996”)
EX1006	JP2004017705A including original Japanese language document, certified English translation, and certification of translation (“JP705”)
EX1007	U.S. Patent No. 6,397,967 (“McIlwraith”)
EX1008	U.S. Patent No. 3,586,195 (“Beltrami”)
EX1009	U.S. Patent No. 6,695,568 (“Bares ’568”)
EX1010	U.S. Patent No. 6,832,659 (“Bares”)
EX1011	<i>Reserved</i>
EX1012	<i>Reserved</i>
EX1013	U.S. Patent Application No. 2008/0197588 to Azure (“Azure”)
EX1014	Korean Patent No. 10-1023528 including original Korean language document, certified translation, and certification (“KR528”)
EX1015	SAE International J2752 JUN2010 (“SAE”), Surface Vehicle Recommended Practice, Personal Protection – Compact Tool Carriers
EX1016	International Organization for Standardization (ISO) 6165 (2012)
EX1017	<i>Reserved</i>

EX1018	<i>Reserved</i>
EX1019	First Amended Complaint, 4:24-cv-00799-P
EX1020	Claim Construction in Case No: 4-17-CV-76-CRW-HCA (Vermeer Corporation v. The Toro Company) (terminated)
EX1021	<i>Reserved</i>
EX1022	U.S. Patent No. 8,545,163 (“Yasuda”)
EX1023	N. Sclater, et al., Mechanisms and Mechanical Devices Sourcebook, Fourth Edition, Table of Contents, Chapter 1, Chapter 5
EX1024	N. Nariman-Zadeh, et al., “Pareto optimal synthesis of four-bar mechanisms for path generation,” 26 March 2008
EX1025	Four-Bar Coupler-Point Curves, Chapter 6
EX1026	H Nolle, Linkage Coupler Curve Synthesis: A Historical Review – II. Developments after 1875*, 7 July 1973
EX1027	Wen-Tzong Lee, et al., “Developments in quantitative dimensional synthesis (1970-present): four-bar path and function generation” 2017
EX1028	Theory of Machines and Mechanisms, Shigley, J.E. and Uicker, J.J. Jr., McGraw Hill, 1980, Table of Contents, Chapter 1, Chapter 2
EX1029	<i>Reserved</i>
EX1030	<i>Reserved</i>
EX1031	<i>Reserved</i>
EX1032	U.S. Patent Appl. 2010/0168933 (“Rorabaugh”)
EX1033	<i>Reserved</i>
EX1034	United States District Court – National Judicial Caseload Profile
EX1035	<i>Reserved</i>
EX1036	<i>Curriculum Vitae</i> of Steven Velinsky
EX1037	Scheduling order 4:24-cv-00799-P

I. INTRODUCTION

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 1-10 (all claims, hereinafter, “Challenged Claims”) of U.S. Patent No. 11,465,891 (“the ’891 patent,” EX1001).

The ’891 patent describes a compact tool carrier for standing or walk-behind operation having a loader mounted to a mainframe using linkages and an actuator.¹ As shown below and confirmed in the Declaration of Dr. Velinsky (EX1003), this configuration of a compact tool carrier or loader apparatus was already known. The references presented in this Petition render obvious the Challenged Claims.

II. GROUNDS FOR STANDING

Petitioner certifies that the ’891 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

¹ The claims of the ’891 patent refer to a “loader apparatus,” similarly configured.

has been added. Claim terms are generally presented in *italics*.

IV. BACKGROUND

The '891 patent relates to earth-moving machinery and particularly to an equipment type—a compact tool carrier—well-known as of the earliest claimed priority date. This section describes background technology related to the claimed subject matter. Dr. Velinsky also describes relevant background technology predating the '891 patent, which is cited as appropriate below. *See* EX1003, ¶¶1-16, 28-39.

A. Compact Tool Carrier

The '891 patent is titled “Loader Apparatus Configured for Standing Operator Control.” EX1001, (54). The '891 patent uses the term “loader apparatus” in the Title, Abstract, and claims, while throughout the specification refers to a “compact tool carrier” with standing operator control. Industry standards describe a compact tool carrier as a “self-propelled crawler or wheeled machine having an operating mass of less than 1500 kg with a rigid frame, having either a pedestrian operating position or standing operator platform at the rear of the machine and either front-mounted interchangeable equipment or lift arms with an attachment bracket capable of coupling to interchangeable, front-mounted attachments.” EX1001, (54), (57), 1:29-39 (citing ISO Standard [EX1016] and SAE Standard [EX1015]). This type of equipment (compact tool carrier) may also be referred to as a compact utility loader

(CUL) or a mini-skid steer. EX1003, ¶¶29-30 citing EX1007, EX1009, EX1010, EX1013, EX1014 illustrating compact tool carriers.

B. Vertical-Lift Loaders

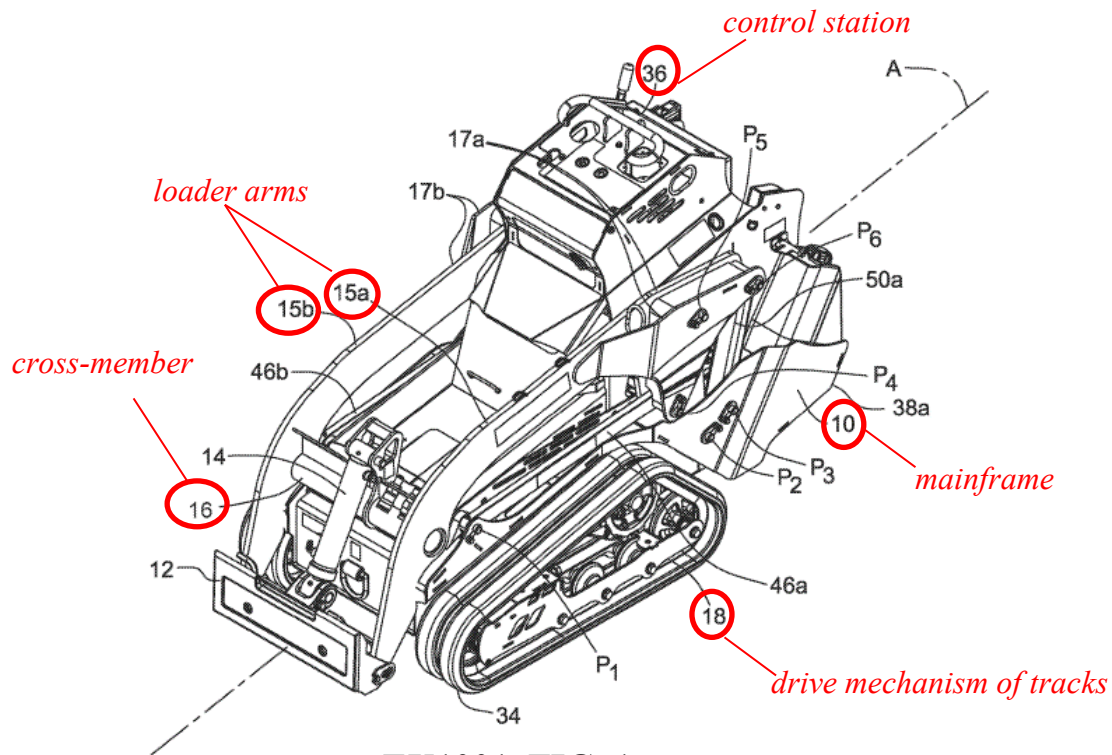
There are generally two conventional configurations of loaders that have been at issue during the prosecution of the family of patents including the '891 patent: a radial-lift loader and a vertical-lift loader, each well-known before the '891 patent and based on basic engineering mechanisms. EX1003, ¶¶31-39. Radial-lift loaders implement a two-bar mechanism where the loader arm is attached to a support such as a frame by a direct pivot connection. EX1003, ¶¶31-32 citing EX1008, FIG. 1, EX1009. The vertical-lift loader attaches the loader arm to a support such as a frame indirectly through intermediary parts (linkages and an actuator) configured in a four-bar mechanism. EX1003, ¶¶33-39 citing EX1001, EX1005, EX1008, EX1023, EX1024, EX1025, EX1026, EX1027, EX1028. The '891 patent, and KR996, the primary reference discussed below implement vertical-lift loaders. EX1003, ¶¶37-38.

V. SUMMARY OF THE '891 PATENT

The '891 patent issued October 11, 2022 with claims 1-10, and claims priority through a plurality of continuation applications to an earliest date of February 20, 2015.

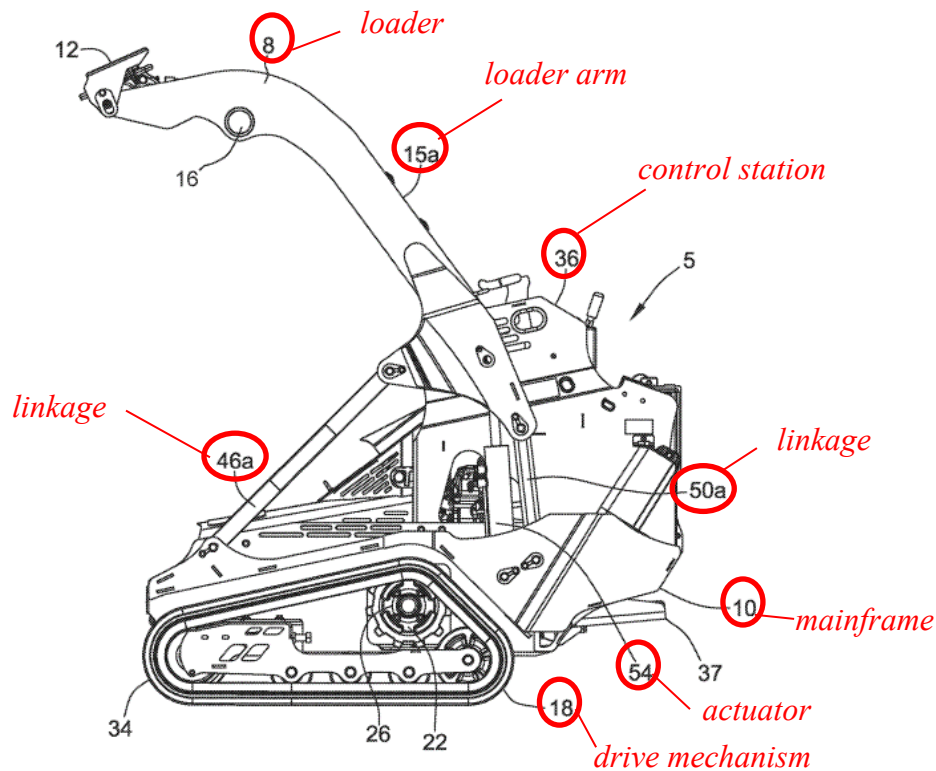
The '891 patent describes a compact tool carrier designed for standing operation and having a loader (with two arms). EX1001, Abstract, 1:27-49. In its background, the '891 patent asserts compact tool carriers “may be distinguished from much larger conventional skid steers in which an operator is seated in the operating position.” EX1001, 1:42-46. Tools such as buckets, augers, and the like may be provided as front-mounted attachments. EX1001, 1:39-41.

FIGS. 1 and 3 are illustrative of a compact tool carrier 5 including a loader 8 having loader arms 15*a*, 15*b* and mainframe 10. EX1001, 2:35-44, 54-64. A cross-member 16 extends from the first arm 15*a* to the second arm 15*b*. EX1001, 2:64-65. A drive mechanism 18 may include tracks 34 (as shown) or wheels, and control station 36 provides operator controls. EX1001, 3:31-41.



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

The first loader arm 15a is pivotally connected to a first side 38a of the mainframe 10 and the second loader arm 15b is pivotally connected to a second side of the mainframe 10. EX1001, 4:23-26. Each loader arm is attached to a respective side of the mainframe by linkages 46a/50a and an actuator 54. EX1001, 4:26-47. Dr. Velinsky confirms this configuration is known to Persons of Ordinary Skill in the Art (POSITA) as a four-bar mechanism providing a path generation of the motion of the tool attachment plate 12. EX1003, ¶37. FIG. 1 above is illustrative of the carrier with the loader in a down position; FIG. 3 below is illustrative of the loader in a raised position. EX1001, 2:35-41.



EX1001, FIG. 3
(annotated)

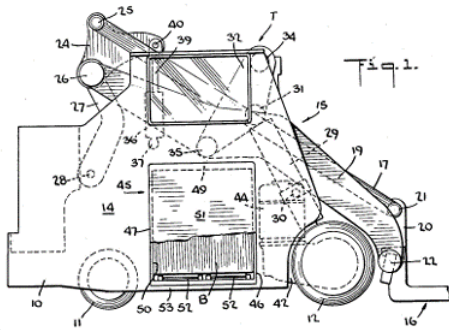
See EX1003, ¶¶40-44.

VI. PROSECUTION HISTORY

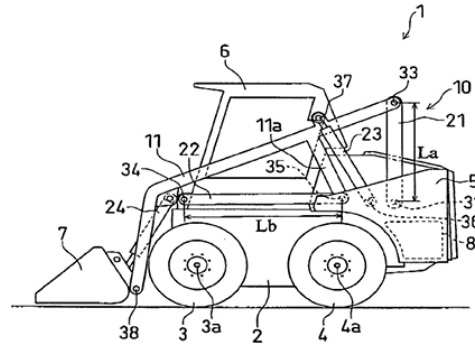
A. Prosecution Leading to '891 patent

In a first Office action, all claims were rejected. EX1002, pp. 139-148. The claims were rejected under two different primary references: U.S. Patent No. 3,074,572 (“Ulinski”) and U.S. Patent Appl. Publ. No. 2007/0128012 (“Yamada”). Representative figures of Yamada and Ulinski are each reproduced below and illustrate a loader attached by linkages and actuator to equipment with an operator

cab.



USP 3,074,572 (Ulinski)
Fig. 1



US Publ. No. 2007/0128012 (Yamada)
Fig. 1

In response, Applicant amended its then-pending claim 1 to recite “the loader apparatus does not include an operator’s seat” and to require the actuator be “directly attached” to the loader to contrast with Ulinski, which illustrates an actuator directly connected to a bell crack that is then connected to the loader. EX1002, pp. 101-104, 110-120.

The Office again rejected all claims relying upon two different primary references each in an obviousness context of modifying an operator’s position in the apparatus. EX1002, pp. 64-67. After an Examiner interview and amendments incorporating previously rejected, dependent claims into pending claim 1, an allowance was mailed and the remaining rejected claims canceled. EX1002, pp. 14-17, 44-57.

1. (Currently amended) A loader apparatus configured for standing operator control and comprising:

a loader adapted to carry a tool, the loader being moveable between a down position and a vertically raised position, the loader comprising:

a first loader arm;

a second loader arm; and

at least one cross-member that extends from the first loader arm to the second loader arm;

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

a first actuator for tilting of a tool connected to the loader;

a first linkage connected to the first side of the loader support and connected to the loader, the first linkage being pivotal relative to the first side of the loader support;

a second linkage connected to the first side of the loader support and connected to the loader, the second linkage being pivotal relative to the first side of the loader support;

a second actuator for raising the loader, the second actuator being connected to the loader support and connected to the loader, the second actuator being directly attached to the loader, the second actuator being pivotal relative to at least the first side of the loader support;

a control station having operator controls for propelling the loader apparatus forward and for raising and lowering the loader; and

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

a drive mechanism for propelling the loader apparatus over a supporting surface, at least a portion of the operator platform being disposed rearward of the drive mechanism relative to a longitudinal axis of the loader apparatus; and

wherein the loader apparatus does not include an operator's seat.

EX1002, pp. 44-45

During this prosecution, the applicant added to its specification and drawings a recognition of a cross-member 16, which did not previously appear, and claimed the feature. EX1002, pp. 108-109, 111 including adding EX1001, 2:64-66 and annotation of “16” in Fig. 1. The Examiner relied upon Bares ’568 (EX1009) as a secondary reference for its teachings of a “cross-member.” EX1002, p. 143.

Applicant argued against the combination of Bares '568's radial lift cross-member onto the vertical lift loaders of the primary references due to alleged inference, such as inhibiting access to a battery compartment. EX1002, pp. 114-122, 53. And Applicant further argued Bares '568's cross-member on Ulinksi's apparatus means the cross-member "would not be disposed forward of the operator platform[,]” which is at the middle of Ulinski's apparatus. *Id.* See also, EX1003, ¶¶45-49.

B. Previously Alleged Secondary Considerations

There are no secondary considerations of record in the prosecution of the '891 patent; however, during previous proceedings involving patents within the same family, the Patent Owner provided evidence purportedly directed to secondary considerations. Such evidence carries little weight in this *inter partes* proceeding. **First**, such factors must be assessed anew in light of this entirely different context and different claims. EX1003, ¶27. **Second**, Patent Owner's evidence relates to the alleged non-obviousness of replacing a radial lift mechanism of a compact tool carrier with a vertical lift mechanism. A vertical lift mechanism on a compact tool carrier was known in the art as shown here by KR996. Also, "case law makes clear that 'objective evidence of nonobviousness **lacks a nexus** if it exclusively relates to a feature that was 'known in the prior art'[,]” See *Yita LLC v. MacNeil IP LLC*, 69 F.4th 1356, 1364 (Fed. Cir. 2023) citing *Rambus Inc. v. Rea*, 731 F.3d 1248, 1257 (Fed. Cir. 2013). **Third**, Patent Owner's evidence should not be given weight as it

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

VII. EFFECTIVE PRIORITY DATE OF THE ’891 PATENT

The ’891 patent claims priority through a chain of patents to U.S. Patent No. 9,321,386 (“the ’386 patent”), which claims priority to provisional application filed February 20, 2015. Determining whether the ’891 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

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

analysis but does not waive any right to dispute the priority of the '891 patent if relevant. EX1003, ¶50.

VIII. LEVEL OF ORDINARY SKILL IN THE ART

POSITA in February 2015 (earliest effective filing date) would have had at least a Bachelor of Science degree in Mechanical or Agricultural Engineering and two years of experience in the design of vehicles, or have had equivalent knowledge and experience. Lack of professional experience can be remedied by additional education, and vice versa. EX1003, ¶¶17-20.

IX. CLAIM CONSTRUCTION

Claim terms in 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.³ *Nidec Motor Corp. v. Zhongshan Broad Ocean*

³ A district court previously discussed construction of certain claim terms with respect to patents in the same family as the '891 patent. *See* EX1020. Petitioner was not a party to that case, which involved different points of dispute, and different claims. Petitioner reserves its rights to respond to assertions by Patent Owner that any claim term requires construction for the purposes of this IPR proceeding; and seek construction of any claim term in other forums as appropriate.

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 (1-10) of the ’891 patent, and asks the Board 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. SAE International Surface Vehicle Recommended Practice (“SAE”) (EX1015), June 2010; prior art under 35 U.S.C. §102(a)(1).

KR996 was not cited during prosecution of the '891 patent. Bares was not cited but shares some disclosure with EX1009, which was discussed; Bares is provided here as a secondary reference illustrating a common feature of a track configuration of a drive mechanism, and is not relied upon for its loader configuration as previously discussed in Section VI.A. SAE was cited and is discussed in the background of the '891 patent (see EX1001, 1:32) and is relied upon in Ground 4 for rendering obvious common weight of claim 8.

B. Statutory Grounds for Challenges

This Petition, supported by the declaration of Dr. Velinsky (EX1003) (*see also* EX1036), requests cancellation of claims 1-10 (all claims) under the following Grounds:

Grounds	Claims	Basis
#1 / #2	1-8, 10	35 U.S.C. §§ 102(a)(1)/103 over KR996
#3	9	35 U.S.C. §103 over KR996 and Bares
#4	8	35 U.S.C. §103 over KR996 and SAE

EX1003, ¶¶52, 55-180.

Petitioner's obviousness grounds rely on the combined teachings of the references and not on a physical incorporation of elements. *See in re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012). "The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of

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

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

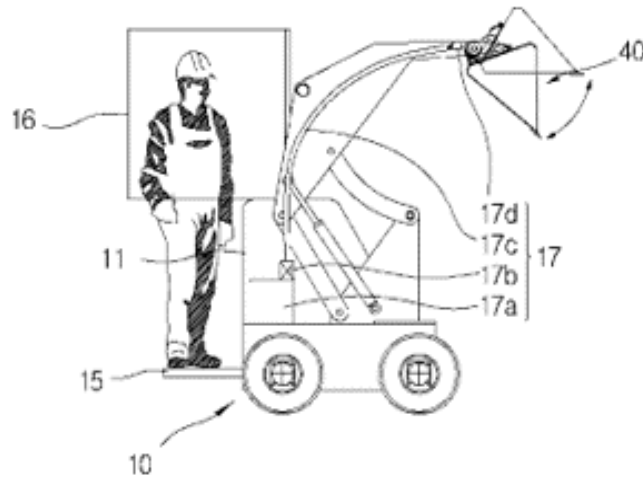
C. Grounds 1 and 2 : KR996

KR996 anticipates claims 1-8 and 10. EX1003, ¶52. KR996 also renders obvious claims 1-8 and 10. *Id.* To the extent that Patent Owner argues that a single embodiment of KR996 does not disclose all the limitations of any of claims 1-8 and

10, POSITA would have found claims 1-8 and 10 obvious, in view of the POSITA's own knowledge and/or the disclosures suggested by KR996 as explained herein. EX1003, ¶52.

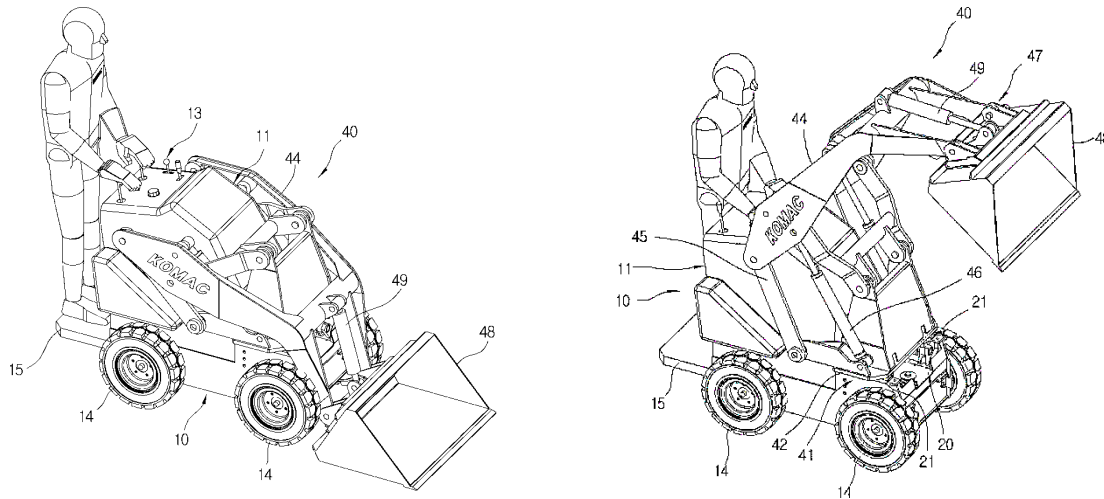
1. KR996 (EX1005)

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



EX1005, Fig. 21

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



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

EX1003, ¶¶53-54.

2. Claim 1

[1.0] A loader apparatus configured for standing operator control and comprising:

To the extent the preamble is limiting, KR996 discloses it. EX1003, ¶¶55-60.

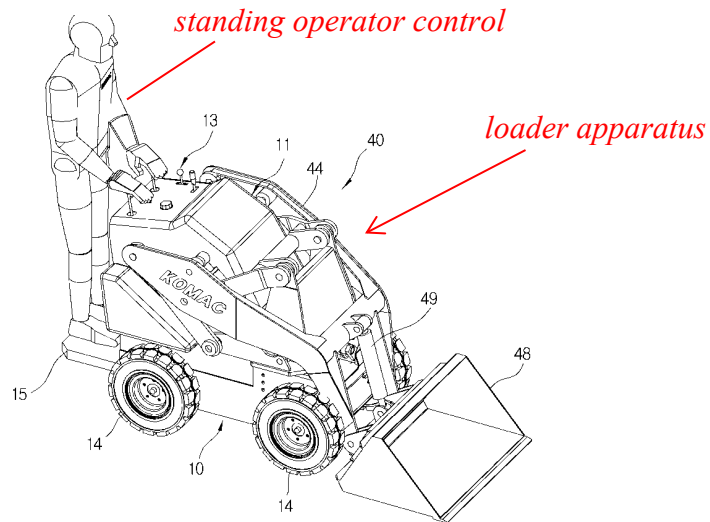
KR996 discloses *a loader apparatus* because as discussed above, KR996 describes a vehicle having a loader unit 40 for carrying and moving materials.⁴ The

⁴ The '891 patent uses the term *loader apparatus* in its Title, Abstract and claims, but does not define or otherwise use the term. When discussing its compact tool carrier 5 having “loader 8” with a first arm and a second arm and attachable tool, the carrier is referred to as an apparatus (“propelling the apparatus forward.”). EX1001,

loader apparatus of KR996 is a self-propelled vehicle capable of carrying interchangeable equipment for building deconstruction work, providing maneuverability in small spaces, and having the functionality of a mini skid loader with an attachment of a bucket. EX1005, Abstract, [0001]-[0012].

KR996's vehicle is configured *for standing operator control* as an operator stands on a platform at the rear of the equipment with access to controls. EX1005, Figs. 1, 7-9, 21, [0033] ("foldable safety step...allowing the operator to board"), [0049], claim 19. Fig. 8 is illustrative:

3:56-60. This compact tool carrier 5 has the same configuration as KR996's vehicle, which is also a compact tool carrier with a loader unit, and thus, also a *loader apparatus*. EX1003, ¶¶29-30, 59 citing EX1015, EX1016, EX1001, 1:27-39.



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

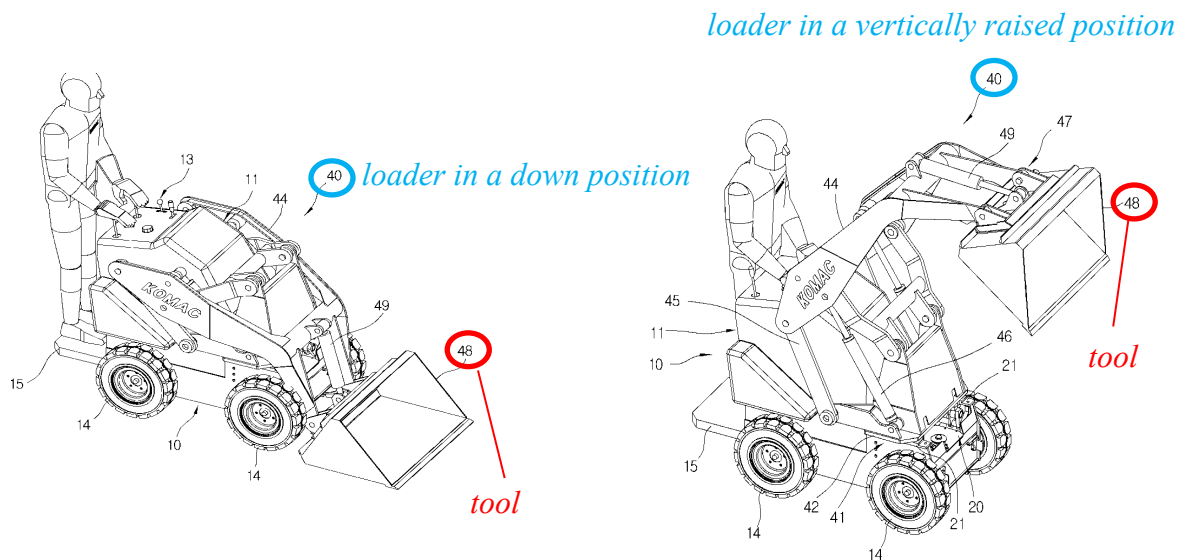
This is the same configuration for operator control as provided in the '891 patent. EX1001, 3:49-54 (“As used herein, ‘**standing operation**’ generally refers to operation in which the operator **stands on a platform** attached to the compact tool carrier[.]”).

Thus, KR996’s vehicle discloses the claimed *loader apparatus configured for standing operator control*. EX1003, ¶¶55-60.

[1.1] a loader adapted to carry a tool, the loader being moveable between a down position and a vertically raised position, the loader comprising:

KR996’s loader apparatus has a *loader* including “loader unit” 40, which is *moveable between a down position and a vertically raised position*. EX1005, (57), [0016], [0036], [0040], [0054], [0131], Fig. 8 illustrating a down position; Figs. 7,

9, 21 each illustrating a vertically raised position. The loader unit 40 is also *adapted to carry a tool* because a bucket 48 (a *tool*) is described and shown as attached to the loader arm(s), booms 44. EX1005, claim 1, [0054], [0074]-[0075], Figs. 8-9; *see also*, EX1001, 1:40-41 (“tools such as buckets, augers...and the like.”)



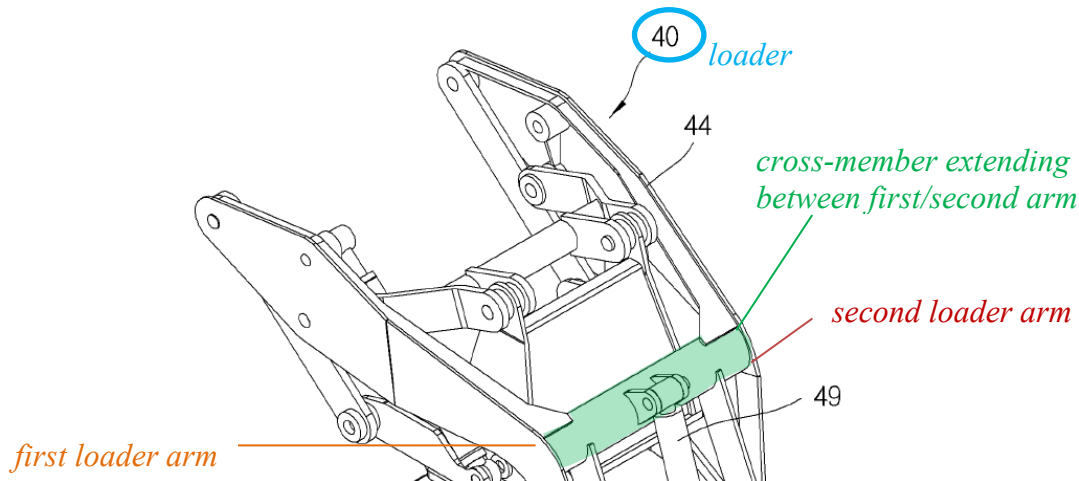
**EX1005, Fig. 8 (portion) and Fig. 9
(annotated)**

Thus, KR996 discloses [1.1]. EX1003, ¶¶61-63.

[1.2] [the loader comprising:] *a first loader arm; a second loader arm; and at least one cross-member that extends from the first loader arm to the second loader arm;*

KR996’s loader unit 40, described in [1.1], includes a first boom 44 (*a first loader arm*) and a second boom 44 (*a second loader arm*). EX1005, [0054], claim 1, Figs. 1, 8-11. The first boom 44 is at the first side of the vehicle and the second boom 44 is at the second, opposing side of the vehicle. EX1005, Figs. 1, 8-11. Each

KR996's Fig. 5, for example, illustrates in detail the *at least one cross-member* extends from a left-side boom 44 to a right-side boom 44, or in other words, *extends from the first loader arm to the second loader arm*.



**EX1005, Fig. 5 (portion)
(annotated)**

KR996's *at least one cross-member* is just like cross-member 16 that is illustrated in the '891 patent, which also did not identify or name this common structure in its originally filed documents. EX1002, pp. 108-129; EX1003, ¶¶68 discussing KR996's cross-member and illustrating this is a common feature.

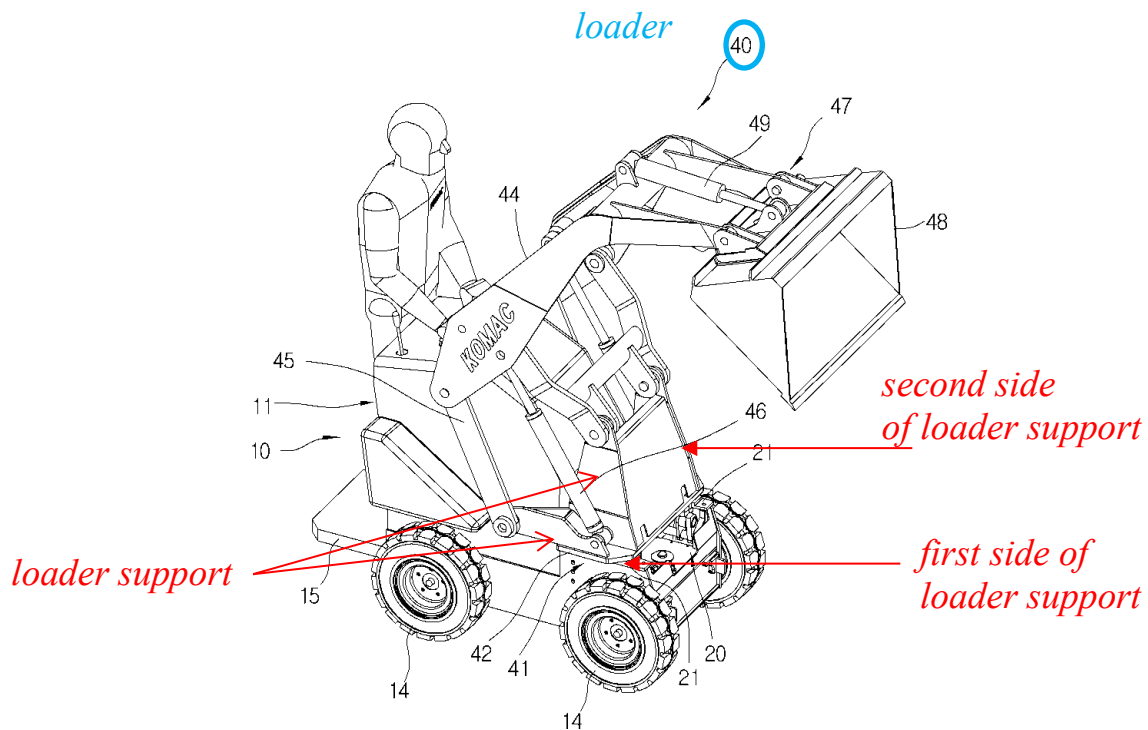
Thus, KR996 discloses this element. EX1003, ¶¶64-69.

[1.3] *a loader support having a first side and a second side, the loader being free from direct attachment to the loader support;*

First, KR996 discloses *a loader support having a first side and a second side*.

In particular, the *loader support* includes the portions of the frame of the KR996 vehicle that when in operation, support the attached loader unit 40 having loader arms of the booms 44. These frame portions have *a first side* and *a second side* as generally provided by the left and right sides of the frame of the vehicle relative to the operator. This is consistent with the '891 patent, which describes the second side 38b “generally opposite” the first side 38a. EX1001, 4:14-15, FIG. 4.

In particular, the *loader support* of KR996 includes the portions of the frame having pivot attachments with respective ends of each of the intermediary parts (*i.e.*, the boom cylinder 46, link 45, and forward link of [1.5]-[1.7] below), which are connected at their opposing ends to a boom 44 of the loader unit 40. For example, KR996's *loader support* includes the bracket to which the link 45 and boom cylinder 46 attach, as well as the frame protrusion, connected to the bracket, to which the forward link attaches. EX1003, ¶72. Fig. 9 is illustrative.



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

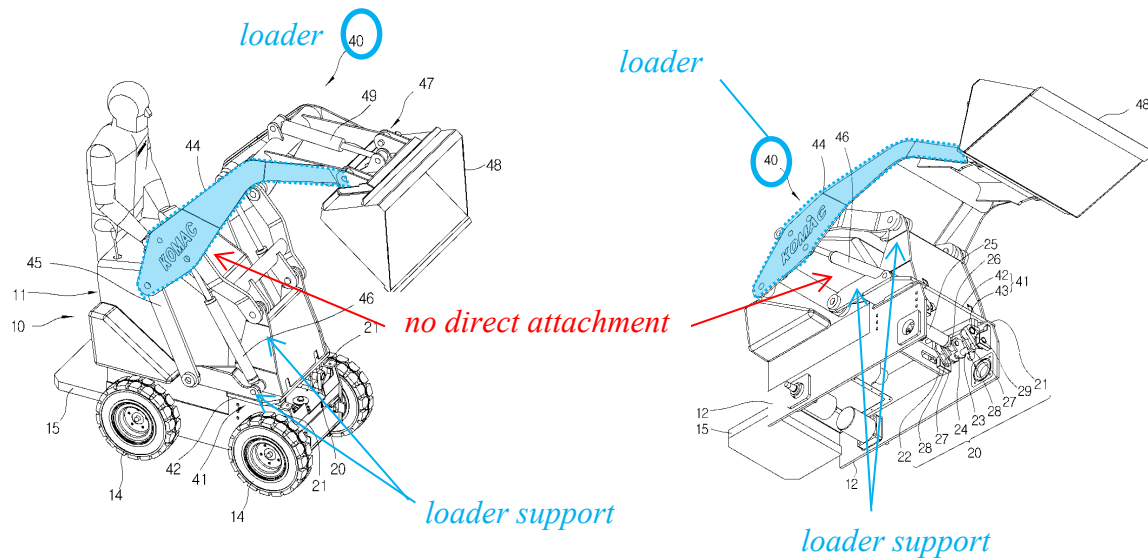
See also, EX1005, Figs. 8-10, 21.

This is consistent with the '891 patent. EX1003, ¶74. The '891 patent does not use the term *loader support* outside of the claims or Abstract, it does discuss a “mainframe” that similarly includes a bracket where pivot point connections to intermediary parts are provided. See EX1001, 4:18-20 (“mainframe 10 includes bracket[s]...through which various pivot linkages are attached”).

To the extent the Patent Owner argues or the dependent claims further require (see [3]) that the *loader support* includes additional components than those

providing direct attachment, KR996's *loader support* also includes its other frame portions including main body 11 and side plates 12. EX1005, [0044], [0049], Figs. 1, 7-9. These portions are part of a frame or body of the KR996 vehicle and also provide structural and weight-bearing support for the loader unit 40, when in operation, in addition to support for other features such as the control station and drive mechanism. EX1003, ¶76. This is consistent with the '891 patent. EX1003, ¶75 discussing the drive mechanism and control station of the '891 patent supported by its frame, which is also provided in multiple pieces (EX1001, FIG. 7).

Second, KR996 also illustrates the *loader being free from direct attachment to the loader support* as the loader arms provided by booms 44 of the loader unit 40 are attached to the frame or body of the vehicle (including the *loader support*) only by a connection through intermediary parts of the boom cylinder 46, link 45, and a forward link, which are discussed in [1.5]-[1.7]. Dr. Velinsky explains this is a feature of a four-bar mechanism. EX1003, ¶¶77-79.



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

Note, one boom 44 (arm) of the loader 40 is highlighted above to illustrate the lack of direct attachment between the loader and the loader support. The same configuration is provided on the opposing side. EX1003, ¶¶78-79.

To the extent the Patent Owner argues its *loader support* is a contiguous piece, requires certain aspects to be a contiguous piece, or requires certain configuration of those pieces, each is an obvious configuration of a support frame in view of POSITA's knowledge. EX1003, ¶80. See, *In re Larson*, 340 F.2d 965, 968 (CCPA 1965) ("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.") POSITA generally recognize design choices in forming a frame of a vehicle including the separability, arrangement, and shape of frame portions such as brackets and other

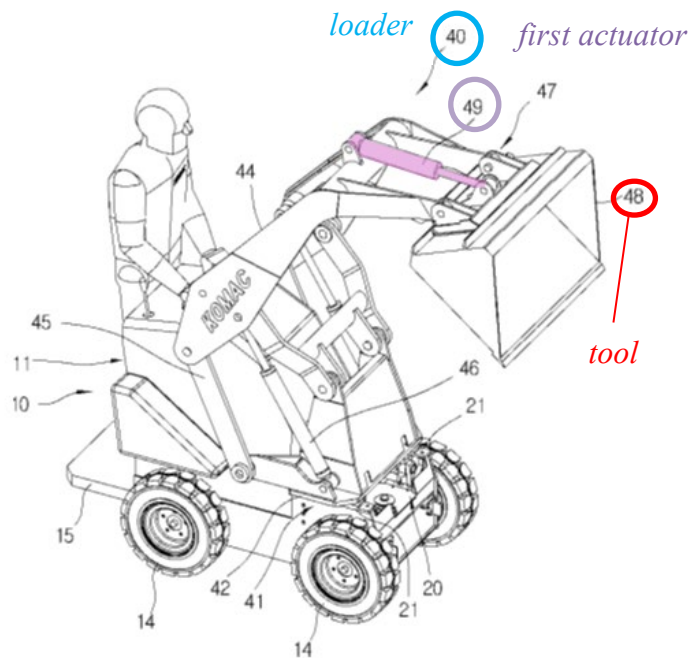
frame features. EX1003, ¶80; see, the analysis of Claim 2.⁵ *See also*, KR996, Fig. 21, which illustrates a first side of the loader support and the connections thereto, the outline suggesting a contiguous, planar *first side* of the *loader support*.

Thus, element [1.3] is disclosed or rendered obvious by KR996. EX1003, ¶¶70-81.

[1.4] *a first actuator for tilting of a tool connected to the loader;*

KR996 illustrates a bucket cylinder 49 that is *a first actuator*. EX1005, [0054] (“A boom (44) and a bucket attachment (47) are equipped with **a bucket cylinder (49)** that rotates the bucket (48)”), claim 1, Figs. 1, 4, 5, 7-9. A cylinder is another term for an actuator. EX1003, ¶82. The bucket 48 is *a tool connected to* the bucket attachment 47 of the loader unit 40, *the loader*. EX1005, claim 1, [0054], [0074]-[0075], Figs. 8-9; *see also*, EX1001, 1:40-41 (“tools such as buckets, augers...and the like.”).

⁵ As indicated above and in light of claim 2, this is not what is required by this claim 1 nor what is shown in the '891 patent.



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

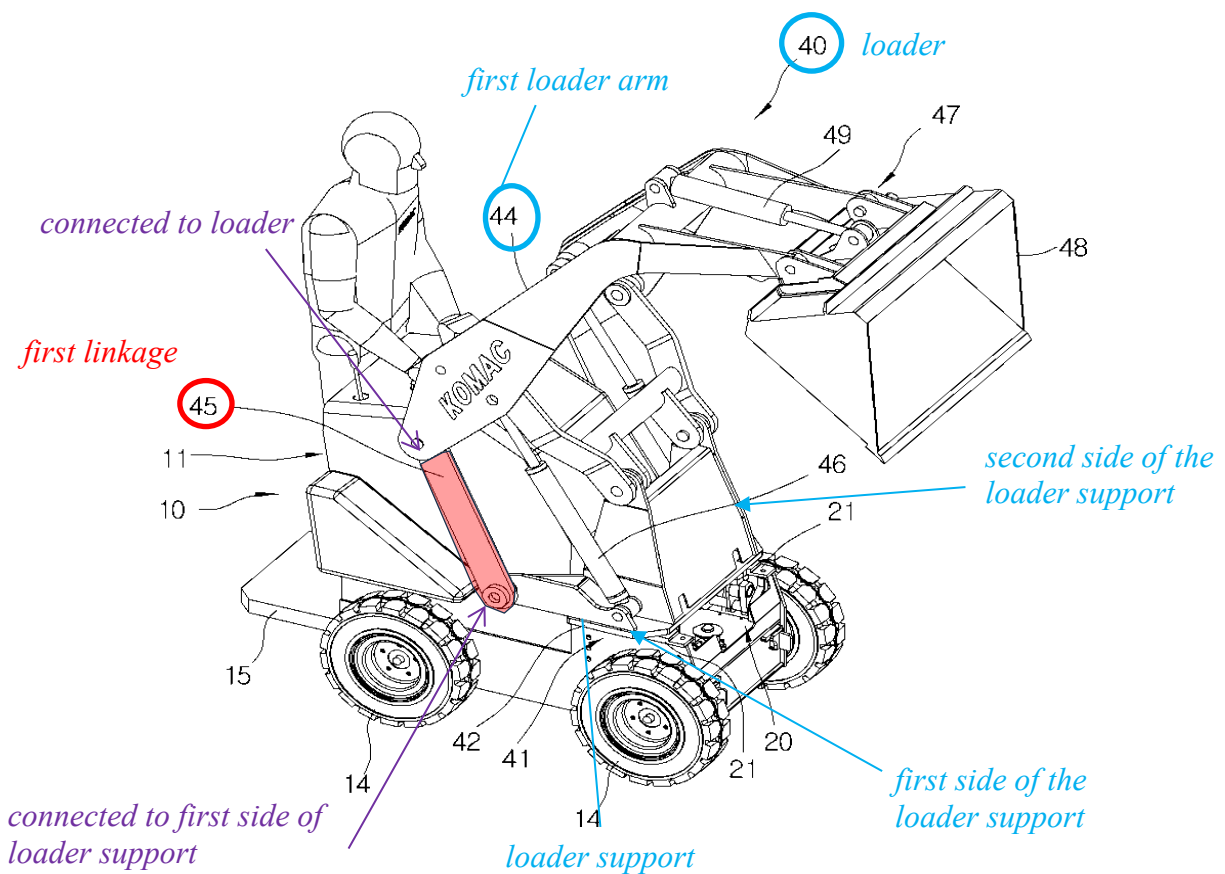
KR996 describes that the operation of the bucket cylinder 49, *first actuator*, is for “rotat[ing]” the bucket 48, *a tool*. EX1005, [0054], claim 1, [0003]. POSITA would understand, and the KR996 figures, illustrate rotating includes *tilting of*, the bucket 48, *the tool*. EX1003, ¶84 describing the function of the bucket for releasing a load includes tilting the bucket, using an actuator connected to the attachment plate is a common technique citing EX1009, EX1008. EX1013, EX1010, and Figs. 8 and 9 of KR996 illustrating the cylinder 49 extended/compressed providing the angle of inclination of the bucket.

Thus, KR996 discloses this element. EX1003, ¶¶82-85.

[1.5] *a first linkage connected to the first side of the loader support and*

connected to the loader, the first linkage being pivotal relative to the first side of the loader support;

KR996 illustrates a link 45 that is *a first linkage connected to the first side of the loader support and connected to the boom 44 of the loader unit 40 (loader).*
EX1005, Figs. 5, 8-10, 21, [0054] (“A boom (44) connected by a link (45)...”), [0134].



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

The link 45, a first linkage, is pivotal relative to the first side of the loader support.

EX1003, ¶88. This is because the attachment at each end of the link 45 is pivotable as each is a joint that allows for rotary motion, which is shown by a comparison of KR996's Figs. 8-9. Dr. Velinsky confirms the nature of the attachment is pivotable to effectuate the raising and lowering of the boom 44 when operating the loader 40. EX1003, ¶¶33-39, 88 citing EX1008, EX1023, EX1028 each discussing four-bar mechanism pivot attachments. This is consistent with '891 patent's disclosure of a linkage (46a/50a) pivotally attached to a bracket portion 40 on the first side of the mainframe 10. *See* EX1001, FIG. 3, 4:14-20. As discussed in [1.3], the KR996 bracket to which the link 45 is directly pivotally attached is part of the *loader support* as it supports the loader unit 40.

Thus, [1.5] is disclosed by KR996. EX1003, ¶¶86-91.

[1.6] *a second linkage connected to the first side of the loader support and connected to the loader, the second linkage being pivotal relative to the first side of the loader support;*

KR996 also illustrates another link that is a *second linkage connected to the first side of the loader support and connected to the boom 44 of the loader unit 40 (loader)*. EX1005, claim 1, [0054], [0134], Figs. 1-10.

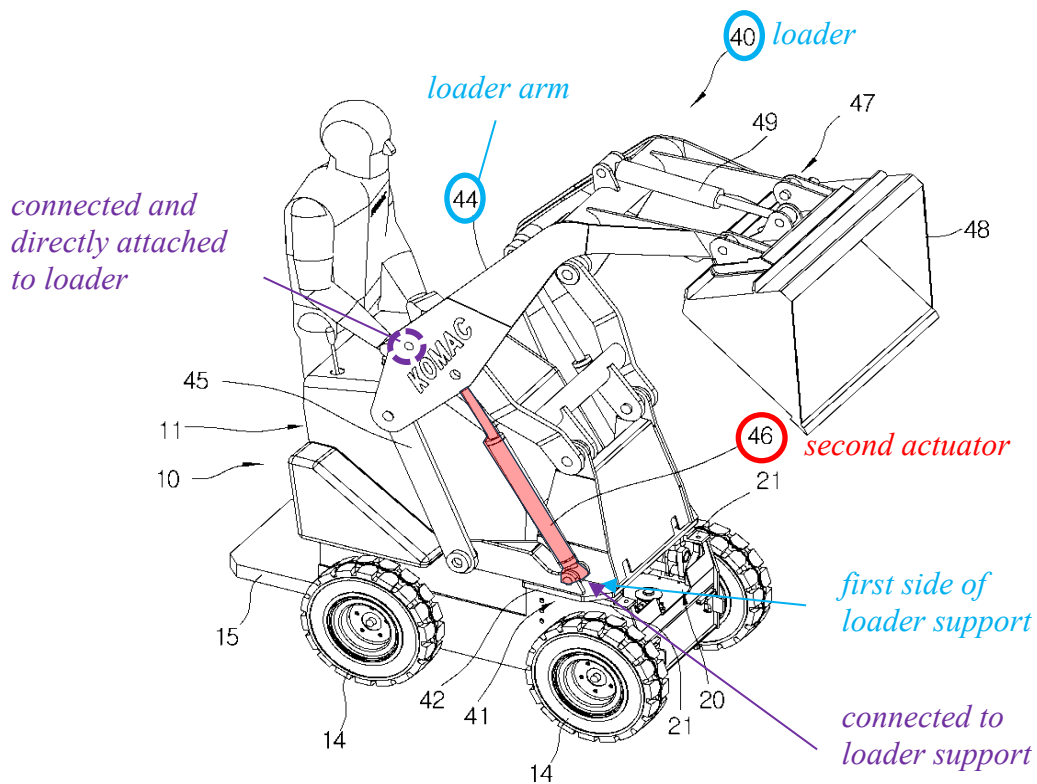
EX1001, FIG. 3, 4:18-20.

Thus, [1.6] is disclosed by KR996. EX1003, ¶¶92-98.

[1.7] *a second actuator for raising the loader, the second actuator being connected to the loader support and connected to the loader, the second actuator being directly attached to the loader, the second actuator being pivotal relative to at least the first side of the loader support;*

KR996 discloses a boom cylinder 46 that is a *second actuator* with a function of “driv[ing] the boom” 44 of the loader unit 40. EX1005, [0054]; *see also*, EX1005, claim 1, [0134], Figs. 7-9, 21. Another word for actuator is cylinder. EX1003, ¶99. And KR996’s description of the cylinder driving the boom 44 means it is *for raising* (and lowering) *the loader*. EX1003, ¶99 citing Figs. 8, 9 of the raised and lower boom 44 respectively, and describing the raising and lowering is effectuating the purpose of the loader such as to “load the waste onto the dump truck” ([0006]).

One end of *the second actuator* provided by boom cylinder 46 is *connected to the loader support* at a pivot connection of the *loader support* as discussed in [1.3]; and the opposite end of *the second actuator* provided by boom cylinder 46 is *directly attached to the boom 44*, the loader arm of the loader unit 40, *the loader* discussed in [1.1]. EX1005, Figs. 7-9. Fig. 9 is illustrative:



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

The boom cylinder 46 is *directly attached* to the boom 44 because there are no intervening components, rather the boom cylinder 46 is fastened to the boom 44 at a rotational joint just like the '891 patent. EX1005, Fig. 8-9, 21, [0054]; EX1001, FIG. 3, 4:44-47. EX1003, ¶¶102-103.

The *second actuator* provided by the boom cylinder 46 is *pivotal relative to at least the first side of the loader support*. EX1003, ¶100. This is because the attachment at each end of the boom cylinder 46 is pivotable as each is a joint that allows for rotary motion, which is shown by a comparison of KR996's Figs. 8-9. Dr.

Velinsky confirms the nature of the attachment is pivotable to effectuate the raising and lowering of the boom 44 when operating the loader 40. EX1003, ¶¶100-101 citing EX1008, EX1023-EX1028 each discussing four-bar mechanism pivot attachments.

Thus, KR996 discloses this element. EX1003, ¶¶99-104.

[1.8] *a control station having operator controls for propelling the loader apparatus forward and for raising and lowering the loader; and*

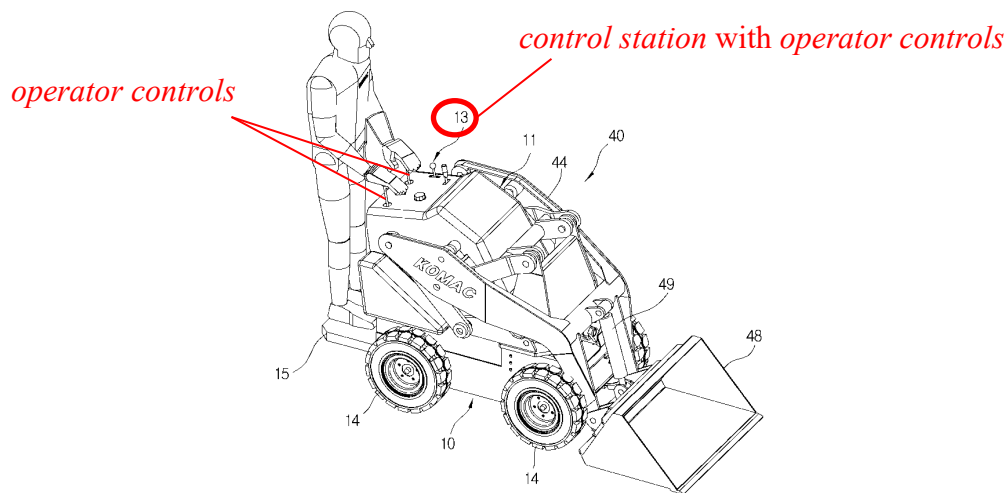
KR996 discloses a control unit 13 that is *a control station having operator controls*. The control unit is to “operate the equipment while the worker is on board at the rear.” EX1005, [0042], Figs. 1, 8-9.

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

The control station 13 also controls the operation of the loader unit 40. “When the loader unit (40) is coupled to the vehicle (10)...the **control unit (13)** of the vehicle (10) can be operated to **operate the loader unit (40)**.” EX1005, [0072]. Operating the loader means performing its function of *raising and lowering the loader*. EX1003, ¶107 citing Figs. 8, 9 of the raised and lower boom 44, respectively,

and describing the raising and lowering is effectuating the purpose of the loader such as to “load the waste onto the dump truck” EX1005, [0006]. Thus, the control 13 provides *operator controls for raising and lowering the loader*.

KR996’s Fig. 8 is illustrative of the lowered position of the loader.



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

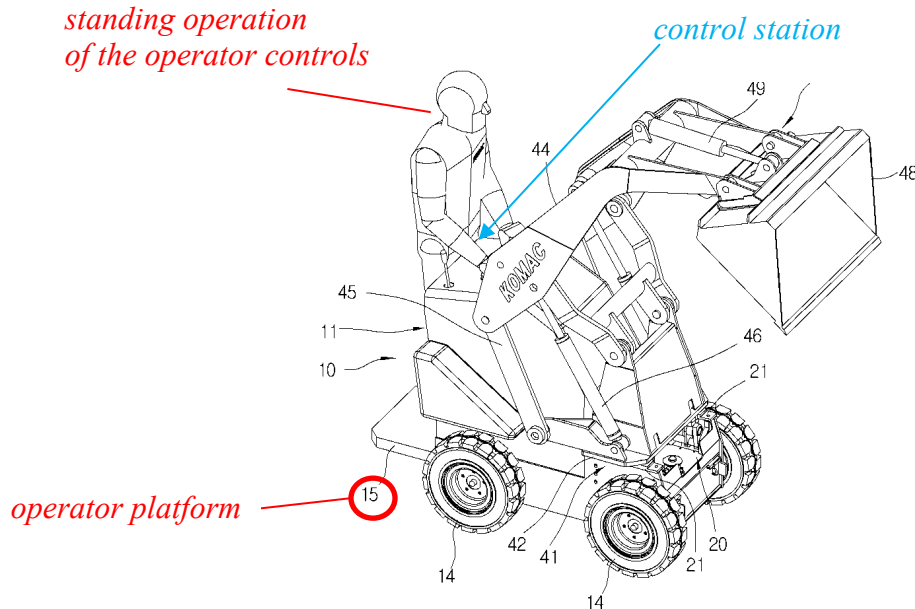
Figs. 7 and 9 are illustrative of raised positions of the loader.

Thus, [1.8] is disclosed by KR996. EX1003, ¶¶105-109.

[1.9] *an operator platform for standing operation of the operator controls of the control station;*

KR996 describes a safety step 15 that is an *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], [0090]
(“the driver, who is standing upright...during operation”), [0118].



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

Thus, [1.9] is disclosed by KR996. EX1003, ¶¶110-111.

[1.10] a drive mechanism for propelling the loader apparatus over a supporting surface, at least a portion of the operator platform being disposed rearward of the drive mechanism relative to a longitudinal axis of the loader apparatus; and

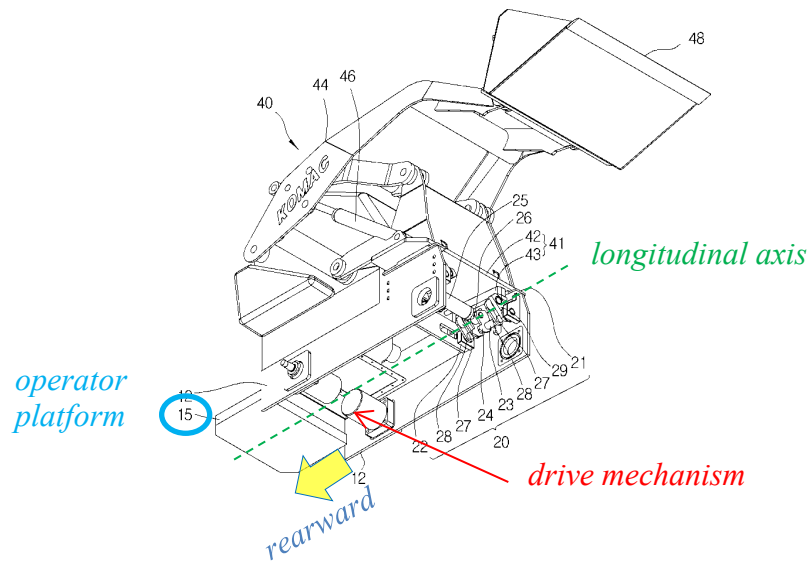
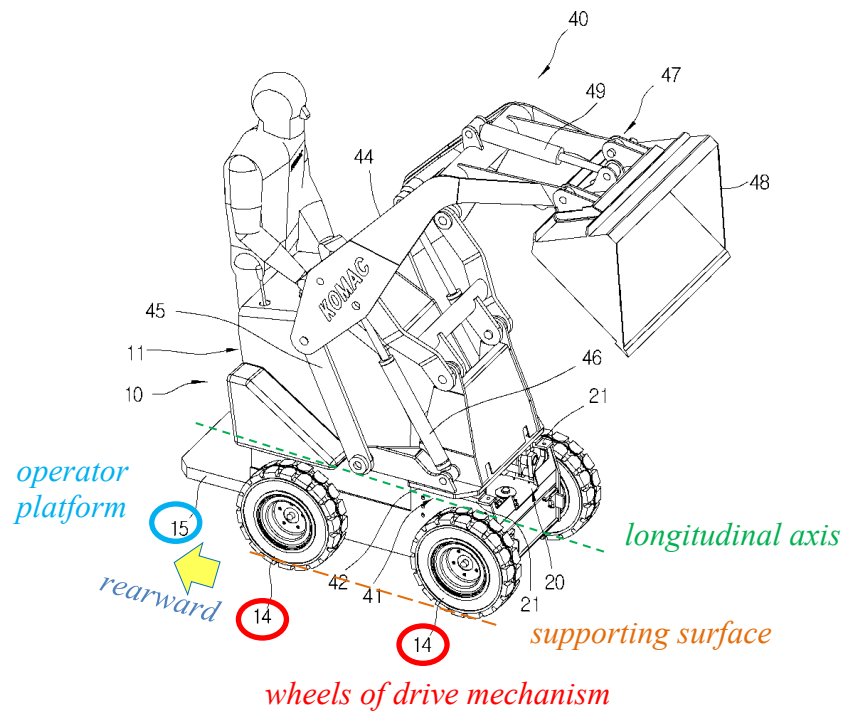
KR996 discloses this element. EX1003, ¶¶112-116.

First, KR996 describes *a drive mechanism* including “wheels (14).” EX1005, [0042], [0052], [0060], [0118], Figs. 1, 8-10.

Second, KR996’s drive mechanism including wheels 14 is *for propelling the loader apparatus over a supporting surface*. This is the standard function of a drive mechanism and wheels on self-propelled equipment such as KR996’s vehicle.

EX1003, ¶¶113-115. KR996's vehicle operates on a *supporting surface* such as terrain or a floor when performing its tasks. EX1005, [0002] ("operations such as building interior demolition, road maintenance, snow removal, and towing, as well as quick and effective operations for fruit farming, gardening, and landscaping."). And KR996's vehicle is *propel[led]* to move forward/backward over this supporting surface. EX1005, [0016] ("The construction equipment for green building deconstruction work of the present invention to achieve the above object includes a vehicle with a control unit installed to **operate the equipment** while a worker is on board at the rear."), ("when the vehicle moves forward [backward]"), [0036], [0050].

Third, *at least a portion of* a safety step 15, which provides an *operator platform* in the KR996's vehicle as discussed in element [1.9], is disposed *rearward of the drive mechanism* including wheels 14 *relative to a longitudinal axis of the loader apparatus*. KR996 describes that its operator platform is at the rear of the vehicle. EX1005, [0049] ("At the **rear lower part** of the vehicle (10), a **folding safety step (15)** is installed.") Figs. 9 and 10 are also illustrative of the platform being *rearward of the drive mechanism*.



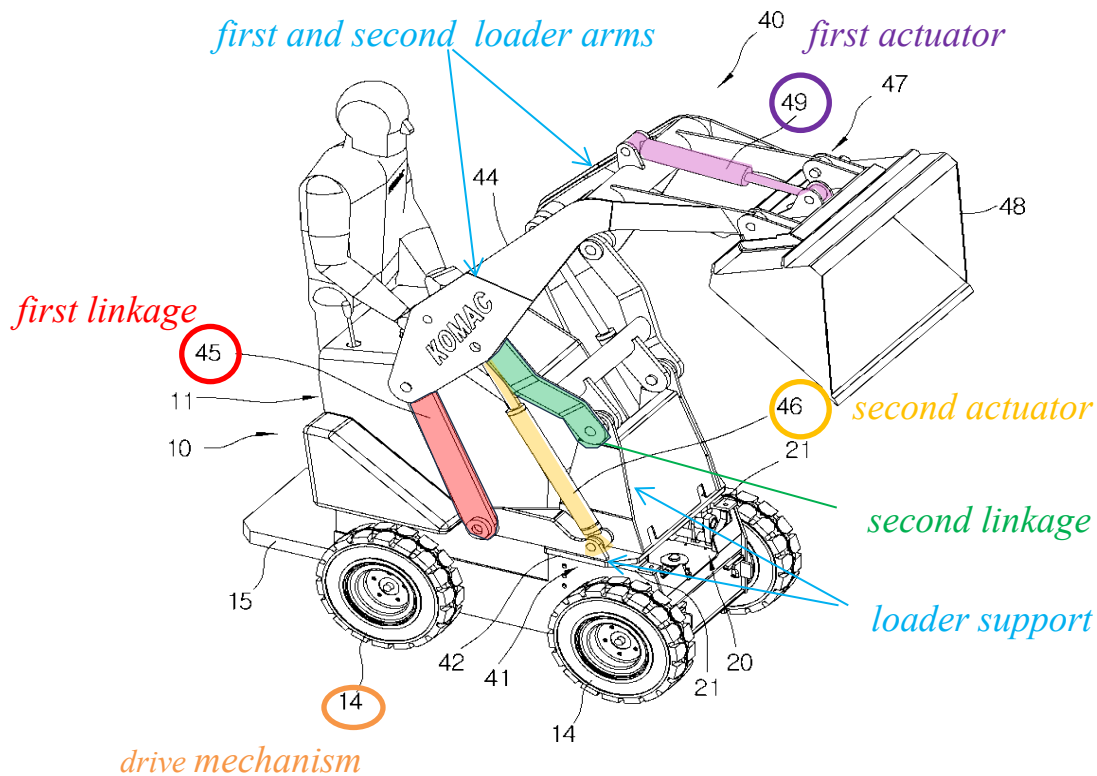
**EX1005, Figs. 9, 10
(annotated)**

Thus, KR996 discloses this element. EX1003, ¶¶112-116.

[1.11] wherein the loader apparatus does not include an operator's seat.

The vehicle of KR996 *does not include an operator's seat*. Rather, as discussed above, the operator is in a standing position on the safety step 15 during the vehicle's operation. EX1005, [0090] (“... the driver, who is **standing upright**, ... during operation.”); [0049]; [0033]; Figs. 1, 8-9, 21, claim 19. Thus, KR996 discloses this element. EX1003, ¶¶117-120.

Therefore, KR996's vehicle providing stand-behind operation from a step 15 (*operator platform*) with two booms 44 (*first and second loader arm[s]*) of a loader unit 40 (*loader*) attached by links 45/unlabeled (*first and second linkage[s]*) and boom cylinder 46 (*actuator*) discloses or renders obvious claim 1.



EX1005, Fig. 9
(annotated)

EX1003, ¶¶119-120.

Thus, claim 1 is anticipated or rendered obvious by KR996. EX1003, ¶¶29-39, 53-120.

3. Claim 2

[2] The loader apparatus as set forth in claim 1 wherein the loader support incorporates a single weldment.

KR996 discloses or renders obvious claim 1 and further discloses or renders

obvious this limitation.⁶ EX1005, ¶¶121-126.

KR996 describes a loader support that would be recognized as incorporating a single weldment as it is a common technique for forming a frame such as illustrated in KR996. EX1003, ¶122. Further, POSITA would have found it obvious to form one or more portions of the *loader support* of KR996, discussed above at [1.3], 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, ¶123 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, ¶124 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, ¶124 citing EX1006, [0016] (“enabling welding work to be stably performed, easily and efficiently”), [0031] (“attaching means such as welding...to form a smooth, continuous surface.”).

⁶ The '891 patent does not define a “single weldment,” but does, with respect to a different component, contrast a “single weldment” with use of “fasteners (e.g., nuts and bolts).” See EX1001, 2:66-3:1.

This is confirmed by the prosecution leading to the '891 patent where the Examiner found this an obvious design choice, a determination not disputed by the Applicant. EX1002, p. 144. And case law affords similar construction design choices are *prima facie* obvious. *In re Larson*, 340 F.2d 965, 968 (CCPA 1965).

To the extent Patent Owner argues certain components of the *loader support* are required to be coupled by a weldment, POSITA would have been motivated to form KR996's loader support 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, ¶125 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 disclosed or rendered obvious by KR996. EX1003, ¶¶121-126.

4. Claim 3

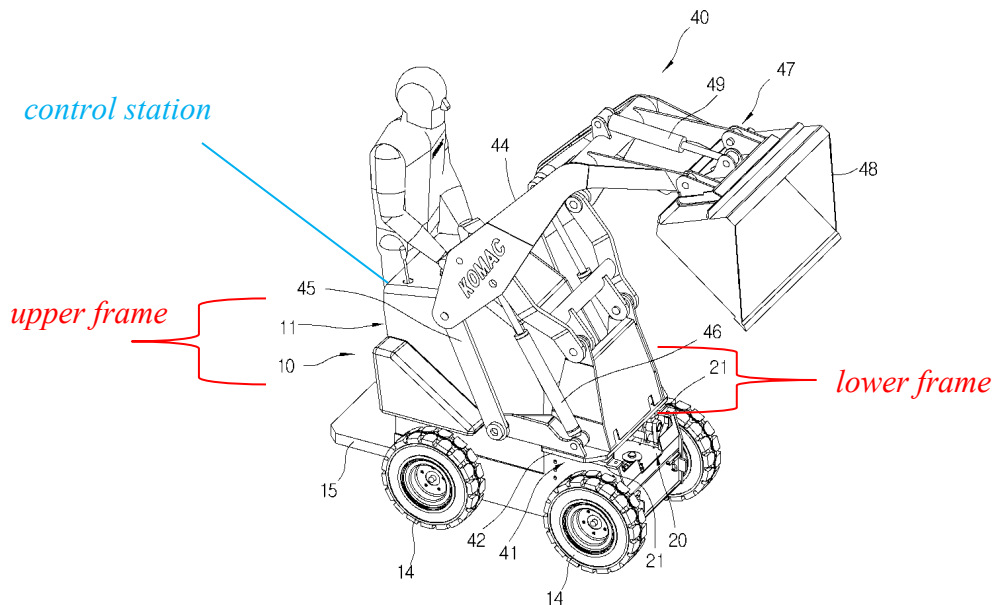
[3] *The loader apparatus as set forth in claim 1 wherein the loader support comprises a lower frame and an upper frame, the control station being mounted to the upper frame.*

KR996 discloses or renders obvious claim 1, and KR996 also discloses this element. EX1003, ¶¶127-130.

KR996's *loader support* includes a *lower frame* and an *upper frame*. EX1005, Figs. 1, 7-9, 21. To the extent these terms are merely relative designations of portions

of the body forming the equipment, the body of the equipment of KR996 similarly includes an *upper frame* and a *lower frame*, each being portions of the frame providing support for the loader unit 40 when the vehicle is in operation.

KR996's control unit 13 (*control station*) is *mounted* on the main body 11, which forms at least part of the *upper frame*. EX1005, [0017] (“a control unit installed...”), Fig. 1. The *lower frame* includes portions of the loader support where the linkages/actuator attach as discussed in [1.5]-[1.7].

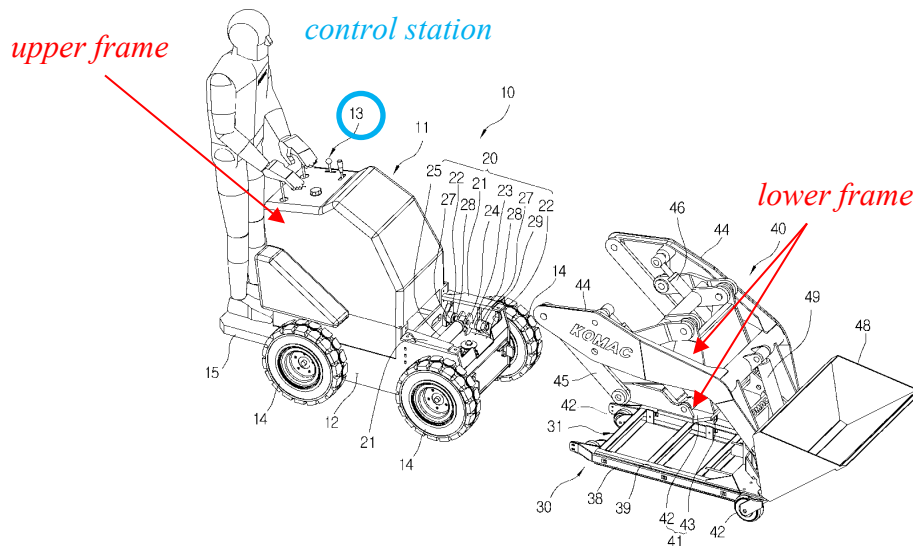


**EX1005, Fig. 9
(annotated)**

This is consistent with the vehicle of '891 patent. EX1003, ¶129. The '891 patent does not use the term “lower frame” in the specification and merely illustrates in FIG. 7, an upper frame 39. *See* EX1001, 4:5-7. In '891 patent at Fig. 7, the upper

frame 39 has the control station attached and a portion of mainframe 10, extending lower, includes the pivot connections with the intermediary parts (actuator, linkages). EX1001, Fig. 7, 4:5-20.

To the extent Patent Owner asserts the *upper frame* and *lower frame* must be separable when not in operation as in FIG. 7 of the '891 patent, KR996 also illustrates this. KR996's Fig. 1 illustrates its *loader support* includes a first portion (*upper frame*) including main body 11 where the control unit 13 (*control station*) is mounted. And this portion is separable from another portion of KR996's loader support (*lower frame*) where the linkages/actuator are pivotally attached. Like the '891 patent, these parts are combined in operation of the vehicle.



**EX1005, Fig. 1
(annotated)**

As discussed above, to any extent that the Patent Owner argues that certain of its claim terms require integral formation despite the silence of its specification, it would have been obvious. EX1003, ¶129. *See* claim 2.

Thus, KR996 discloses or renders obvious claim 3. EX1003, ¶¶127-130.

5. Claim 4

[4] *The loader apparatus as set forth in claim 1 wherein the second actuator is connected to the first side of the loader support.*

KR996 discloses or renders obvious claim 1, and KR996 also discloses its boom cylinder 46 that provides the *second actuator* as discussed in element [1.7] is connected to *the first side of the loader support*. EX1005, [0054], Figs. 1, 7, 9, 10,

of the loader support;

a fourth linkage connected to the second side of the loader support and connected to the loader, the fourth linkage being pivotal relative to the second side of the loader support; and

a third actuator for raising the loader, the third actuator being connected to the loader support and connected to the loader, the third actuator being pivotal relative to at least the second side of the loader support.

Claim 1 is disclosed or rendered obvious by KR996, and this claim is similarly disclosed or rendered obvious by KR996. EX1003, ¶134. This is because claim 5 recites the same configuration of the loader apparatus, but with respect to the second side of the loader support. The second side of KR996's loader is symmetrical with the first. EX1003, ¶¶134-135 discussing symmetric configuration of the loader and four-bar mechanisms. Specifically, the loader unit 40, *loader*, includes a second loader arm (boom 44) (see element [1.2]) that is attached to the *second side of the loader support* (opposing side of KR996's frame/body) (see [1.3]). The opposing side of the loader unit 40 is connected in the same manner as the first side of the loader support. EX1003, ¶135 discussing the same vertical lift mechanism on each side citing EX1005, Figs. 1, 3, 5, 9, 11 illustrating each side has the same function and recognizing advantages of a balanced loader.

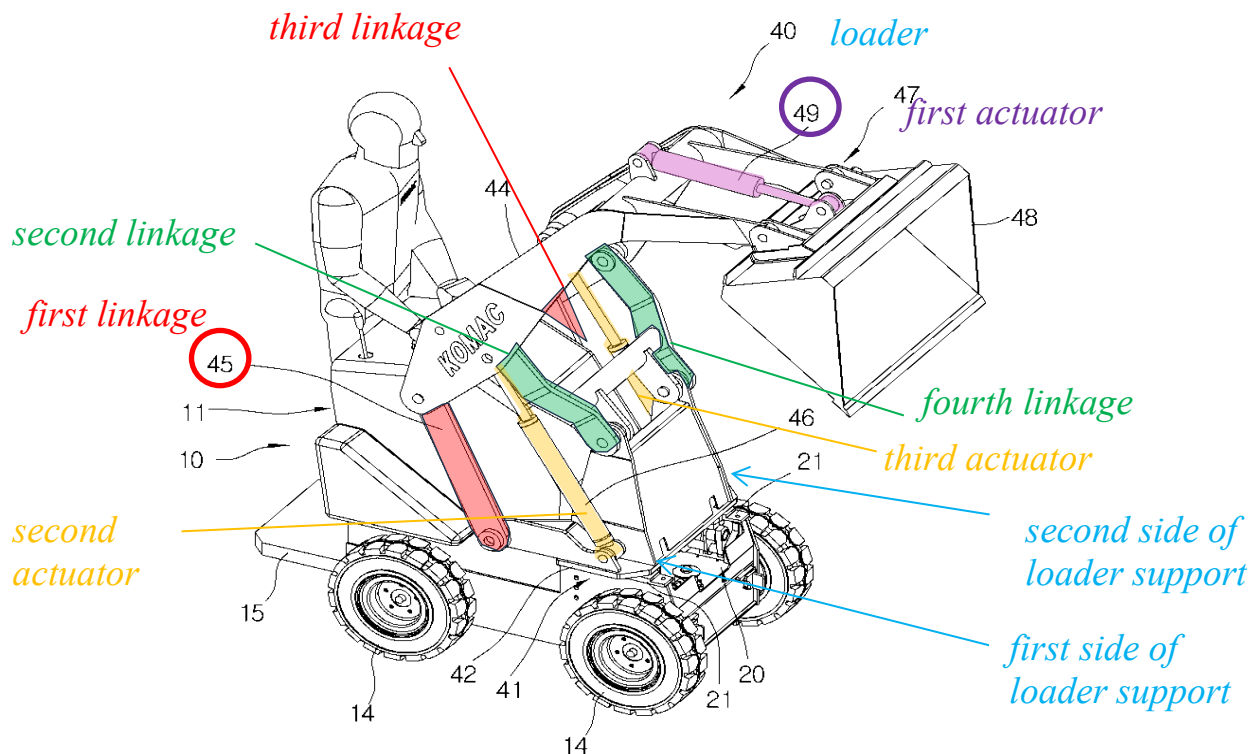
Thus, KR996's second link 45 on the opposing side of the loader from that discussed in element [1.5] is *a third linkage connected to the second side of the loader support and connected to the loader, the third linkage being pivotal relative to the second side of the loader support* for the same reasons as discussed above. See

also, KR996, Fig. 2, which illustrates the link 45 attached to the boom 44 and loader support on relative to the *second side*.

And KR996's forward link on the opposing side of the loader from that discussed in element [1.6] is *a fourth linkage connected to the second side of the loader support and connected to the loader, the fourth linkage being pivotal relative to the second side of the loader support* for the same reasons as discussed above. See also, KR996, Figs. 1, 9, which illustrate the forward link attached to the boom 44 and loader support on relative to the *second side*.

Similarly, KR996's boom cylinder 46 on the opposing side of the loader from that discussed in element [1.7] is *a third actuator for raising the loader, the third actuator being connected to the loader support and connected to the loader, the third actuator being pivotal relative to at least the second side of the loader support* for the same reasons as discussed above. See also, EX1005, Figs. 1, 9, 11, which illustrate the boom cylinder 46 relative to the *second side*.

Fig. 9 is annotated for illustration.



EX1005, Fig. 9
(annotated)

Thus, KR996 discloses or renders obvious claim 5. EX1003, ¶¶134-139.

7. Claim 6

[6] The loader apparatus as set forth in claim 5 wherein the second actuator is connected to the first side of the loader support and the third actuator is connected to the second side of the loader support.

KR996 discloses or renders obvious claim 5 and further describes boom cylinder 46 that provides the *second actuator* of element [1.5] is connected to the *first side of the loader support* as shown in claim 4. And another boom cylinder 46 that provides *third actuator* driving the boom 44 on the opposing side of the loader

apparatus as discussed in claim 5 is attached to a *second side of the loader support*. EX1005, Figs. 1, 8-11. As discussed above, the two sides of the vehicle have the same loader mechanism configuration. EX1003, ¶¶134-135, 140. Thus, POSITA would recognize that boom cylinder 46 (*third actuator*) *connected to the second side of the loader support* in the same way as illustrated for the opposing side and boom cylinder 46. *See* EX1005, Figs. 9, 11.

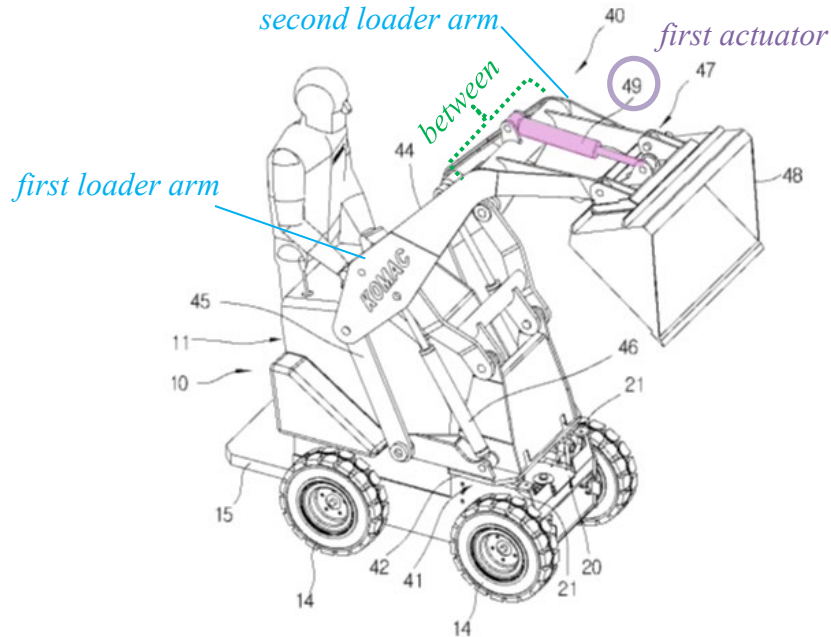
Thus, KR996 renders obvious claim 6. EX1003, ¶¶140-141.

8. Claim 7

[7] *The loader apparatus as set forth in claim 1 wherein: the first actuator is at least partially disposed between the first loader arm and the second loader arm; and each cross-member is disposed forward of the operator platform relative to a longitudinal axis of the loader apparatus in the vertically raised position of the loader.*

KR996 discloses or renders obvious claim 1 and further discloses this claim. EX1003, ¶¶142-145.

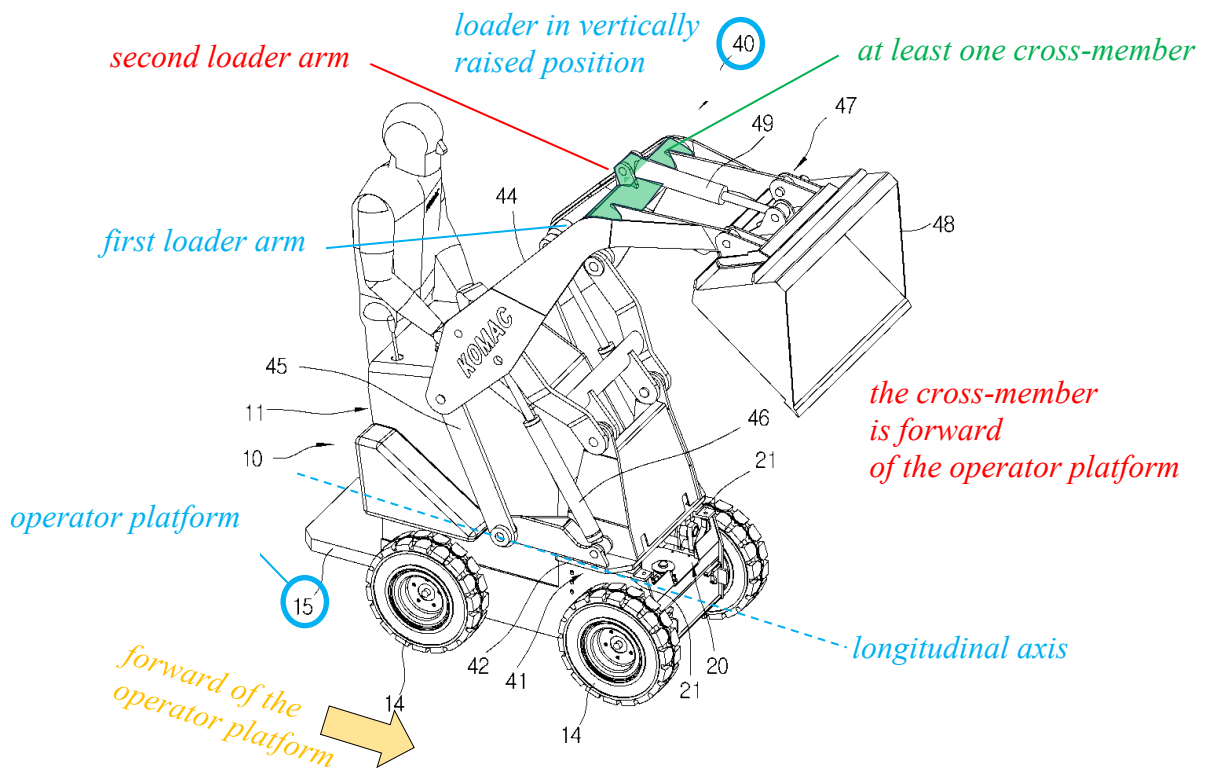
First, the bucket cylinder 49, a *first actuator* as discussed in element [1.4], is *at least partially disposed between the first and second booms 44, the first loader arm and the second loader arm*.



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

EX1003, ¶143.

Second, KR996 illustrates a cross-member (*at least one cross-member*) that extends between arms of the loader unit 40 as annotated below and discussed in [1.2] above. EX1005, [0054], Figs. 1, 5, 7-9. And KR996 shows this cross-member (*each cross-member of the at least one cross-member*) is *disposed forward of the* safety step 15, an *operator platform*, *relative to the longitudinal axis* when the loader unit 40 is *in the vertically raised position* (e.g., Fig. 9, [0101]).



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

Thus, claim 7 is disclosed or rendered obvious by KR996. EX1003, ¶¶142-145.

9. Claim 8

[8] The loader apparatus as set forth in claim 1 wherein the loader apparatus has a mass of less than 1500 kg.

Claim 1 is disclosed or rendered obvious by KR996, and KR996 also discloses or renders obvious this element. EX1003, ¶¶146-150.

First, 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, ¶147 citing EX1005, [0002]. This is confirmed by standards addressing the KR996 vehicle that define a weight of *less than about 1500 kg*. EX1003, ¶148 citing EX1016, p. 7; EX1015, p. 2; EX1001, 1:19-30.

Second, to the extent it is that Patent Owner argues that claim 8 is not anticipated by KR996, 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, ¶149. 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.* This is confirmed by the prosecution leading to the '891 patent where the Office stated “that small loaders that are designed for standing or walk behind operation...are **typically constructed to be relatively light in weight**” and as such it would have also been an obvious mechanical design to design the loader to be below 1500 kg. EX1002, p. 144 (emphasis added). The Applicant did not dispute this.

Thus, claim 8 is disclosed or rendered obvious by KR996. EX1003, ¶¶146-150.

10. Claim 10

[10] *The loader apparatus as set forth in claim 1 wherein the loader apparatus comprises a single actuator for tilting of a tool connected to the loader, the first actuator being the single actuator.*

KR996 discloses or renders obvious claim 1 and further discloses this element. EX1003, ¶¶151-153.

As discussed in [1.4] above, KR996 illustrates a bucket cylinder 49 that is a *first actuator* that *tilt[s]* a bucket 48, *a tool*, that is *connected to* the loader unit 40, *loader*. EX1005, Fig. 1, 7-0, [0054], claim 1. The bucket cylinder 49 is a *single actuator*. Thus, KR996 shows the *loader apparatus comprises a single actuator for tilting a tool*, wherein *the first actuator* is the *single actuator*. This is the same configuration as the '891 patent, which illustrates in its Fig. 1, one, generally centrally located, actuator extending from the cross-member to the attachment plate. EX1003, ¶152.

Thus, claim 10 is disclosed or rendered obvious by KR996. EX1003, ¶¶151-153.

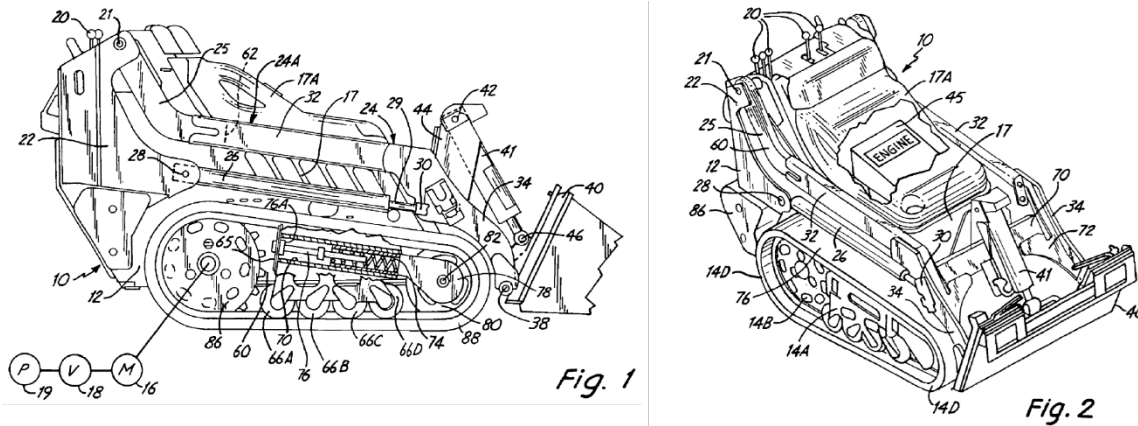
D. Ground 3 : KR996 and Bares

1. KR996

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

2. Bares (EX1010)

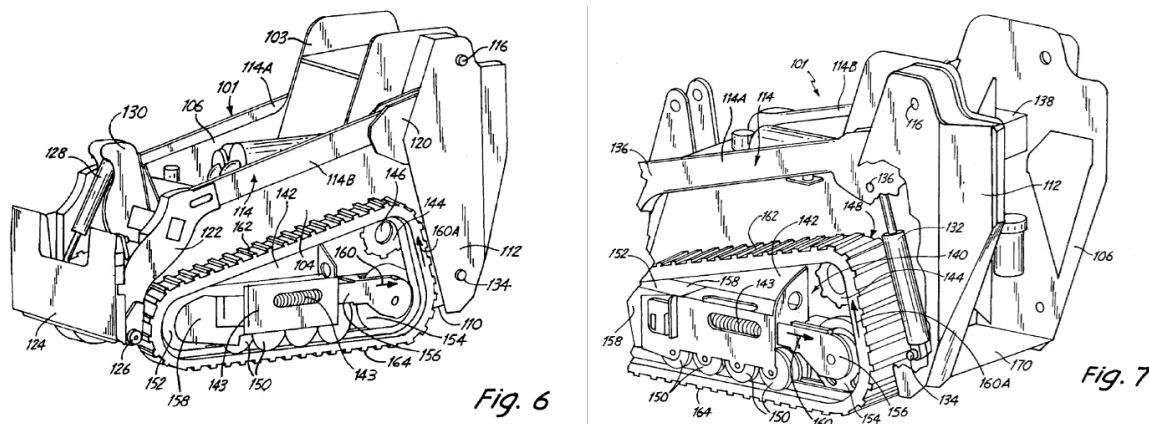
Bares “relates to a small...walk behind loader that is...track propelled.” EX1010, 1:33-36. Bares illustrates side and perspective views in FIGS. 1-2. EX1010, 2:14-16.



EX1010, FIGS. 1, 2

A track assembly 14 is on each side of the loader for propelling the loader in a forward or reverse direction through use of drive hydraulic motors indicated generally at 16, which are operated through a pump 19 “driven by an internal combustion engine 45 mounted on the [frame 12].” EX1010, 2:35-47. Bares also describes modified carrier with a drive motor 146 and a drive sprocket 144 raised

above a tensioner idler wheel. EX1010, 1:59-63, 5:24-29, FIGS. 6-8.



EX1010, FIGS. 6, 7

Bares 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.

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

Bares, like KR996, is in the same field of endeavor as the '891 patent, pertaining to working vehicles (*e.g.*, earth-moving equipment) and in particular, vehicles with a stand behind operation and a loader arm. EX1003, ¶¶154-157; EX1005, Abstract, [0001], FIG. 21; EX1010, 5:55-57, FIGS. 1-8; EX1001, 1:27-41, 2:54-3:15, FIG. 1. KR996, Bares, and '891 patent are also each reasonably pertinent to a same problem faced by the inventor of configuration of loader arms attached to

the vehicle³ having a drive mechanism to provide efficient lifting of a tool. EX1005, [0011], [0016], FIG. 21; EX1001, 1:47-49; 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, ¶¶158-162. 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, ¶159 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, ¶¶ 159-161 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, ¶160.

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, ¶161. 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, ¶162. Further, implementing Bares' track assembly is an easy installation. EX1010, 1:33-45.

4. Claim 9

[9] *The loader apparatus as set forth in claim 1 wherein the loader apparatus comprises a drive mechanism for propelling the loader apparatus over a supporting surface, the drive mechanism having a drive sprocket defining a rotational axis R, at least a portion of the operator platform being disposed rearward to the rotational axis R relative to a longitudinal axis of the loader apparatus.*

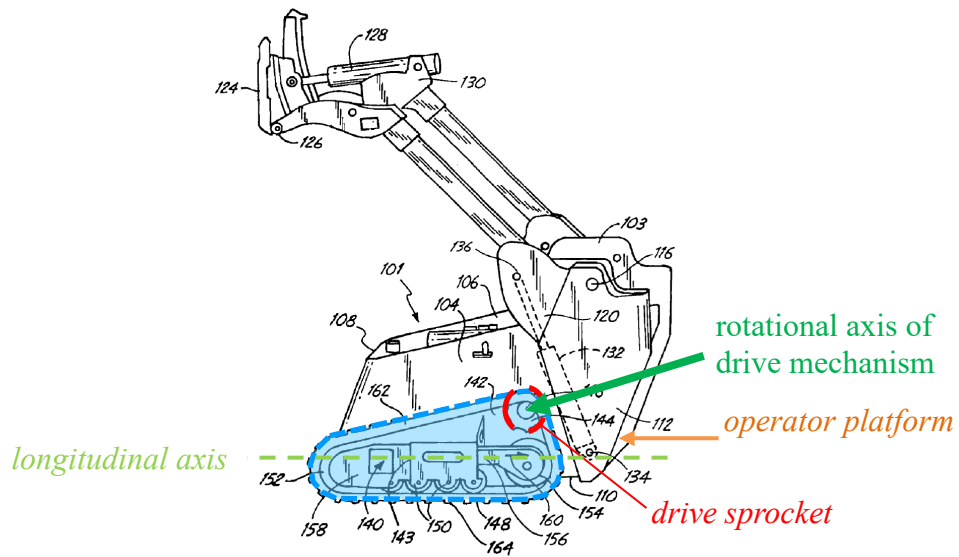
KR996 discloses or renders obvious claim 1 and in combination with Bares renders obvious this element. EX1003, ¶¶163-169.

As discussed in [1.10], KR996 describes a drive mechanism including “wheels (14)” for *propelling its loader apparatus over a supporting surface (e.g., ground)*. EX1005, [0002]-[0006], [0042], [0052], Figs. 1, 8-10. For purposes of this Petition, Petitioner has assumed that the drive mechanism of claim 9 is the same drive mechanism introduced in claim 1. EX1003, ¶163. It would have been obvious, as a simple substitution for the wheeled assembly of KR996, to provide Bares' track assembly as the vehicle's 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 (*drive sprocket*) and wheels 150, 154 over which a track 148 is mounted. EX1010, 5:18-42, FIGS. 6-8. Bares' drive sprocket 144 (*drive sprocket*) is driven by motor 146 and rotates around *a rotational axis*, just like in the '891 patent. EX1003, ¶165. Bares also 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 also discloses providing its drive mechanism such that *at least a portion* of an operator platform of a compact tool carrier is *disposed rearward to the rotational axis R relative to a longitudinal axis of the loader apparatus*. Bares' apparatus “can be used as a walk behind unit, or can have a support platform 170 for supporting an operator, if that is desired.” EX1010, 5:55-57, Fig. 7.



EX1010, FIG. 8
(annotated)

These same configurations would remain when applied to the similarly configured (e.g., rear-operated compact tool carrier from a standing platform) KR996's vehicle for the reasons discussed above. EX1003, ¶167. Annotated Fig. 21 of KR996 having Bares' track assembly drive mechanism is illustrative.

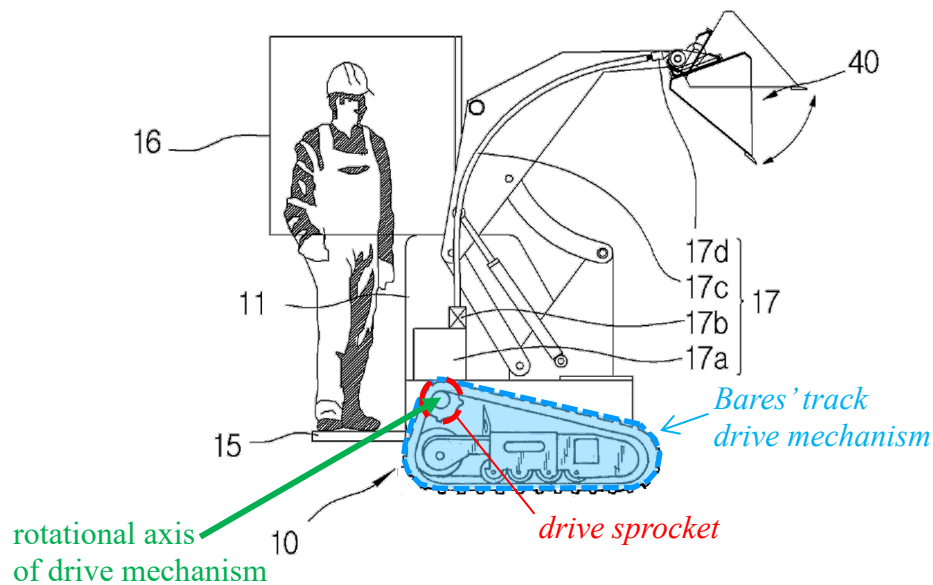
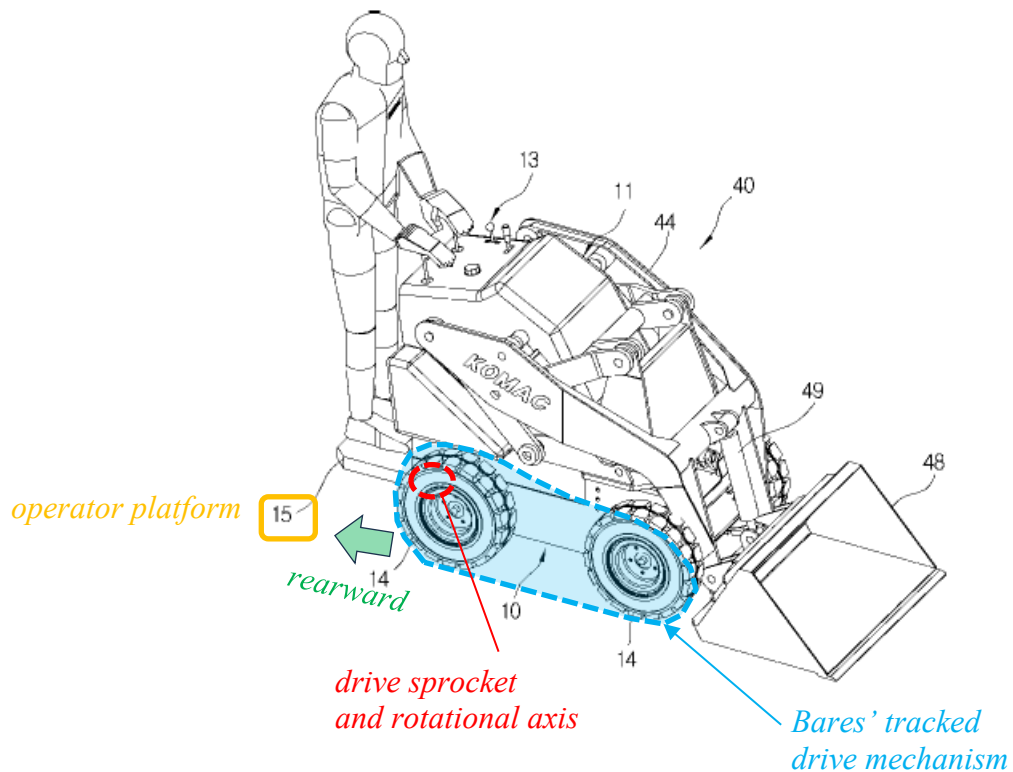


FIGURE A
KR996's Fig. 21 (annotated)
and modified with Bares' FIG. 8 track assembly

EX1003, ¶167, 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 *at least a portion of the operator platform being disposed rearward to the rotational axis R relative to a longitudinal axis of the loader apparatus*. This is because KR996's safety step 15 (*operator platform*) is *disposed rearward to the rotational axis* of the rear of its own drive mechanism. And thus, the safety step 15 (*operator platform*) is also *disposed rearward of the rotational axis* when provided by the *drive sprocket* in the track assembly of KR996-

Bares.



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

EX1003, ¶168.

Thus, claim 9 is rendered obvious by KR996 and Bares. EX1003, ¶¶163-169.

E. Ground 4 : KR996 and SAE

1. KR996

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

2. SAE (EX1015)

SAE International provides standards that are internationally recognized for

their role in the safety, quality and effectiveness of products and services in the mobility engineering industry. SAE is a Surface Vehicle Recommended Practice published in June 2010. EX1015. Dr. Velinsky confirms that SAE published practices would be commonly accessed by POSITA. EX1003, ¶¶172, 174. This is confirmed by the '891 patent itself, which discusses the SAE J2752 standard in its Background (1:29-39) and again at column 3, lines 11-15.

3. Reasons to Combine KR996 and SAE

SAE, like KR996, is in the same field of endeavor as the '891 patent, pertaining to working vehicles (*e.g.*, earth-moving equipment) and in particular, vehicles with a stand behind operation and a loader arm. EX1003, ¶¶170-173; EX1005, Abstract, [0001], FIG. 21; EX1015, SCOPE, p. 1, FIGS. 1-8; EX1001, 1:27-41, 2:54-3:15, FIG. 1. POSITA would have been motivated to combine the teachings of SAE with KR996 to produce a predictable and beneficial configuration of a self-propelled machine having an operating mass of less than 1500 kg, to the extent PO argues that it is not apparent or obvious in light of KR996 alone. EX1003, ¶173.

First, compliance with industry practices and standards such as SAE provides benefits recognized by POSITA. EX1003, ¶174. For example, compliance may mitigate legal risks regarding product safety and protect consumers. Compliance with standards is also a beneficial marketing practice. Further, compliance with an

industry standard such as SAE confirms that the product produced implements accepted engineering practices that have been proved to the extent of supporting a standard. Dr. Velinsky confirms that it was a known practice to consult with industry publications such as SAE and ISO when developing vehicles such as KR996 to ensure compliance with industry practices and developments. EX1003, ¶172, 174.

Further, in at least some desired applications for the vehicle, POSITA would have had reason to minimize the weight to under 1,500 kg, to the extent it is not apparent in KR996 itself, to allow for better function of the KR996 vehicle and/or mitigated impact on the surroundings. EX1003, ¶175 citing EX1005, [0001]-[0008]. POSITA would recognize maneuverability can be improved with a vehicle less than 1,500 kg, which allows for “people to move smoothly in confirmed spaces...to carry out demolition work for the renovation of urban buildings.” EX1005, [0005]. Implementing SAE’s weight of less than 1,500 kg would also provide for reduced impact on the supporting surface, such as when gardening or working within a building. EX1005, [0002], [0005].

POSITA would have recognized a reasonable expectation of success in providing equipment less than 1,500 kg as the limit was recognized not only in SAE but also other industry standards. *See* EX1016. EX1003, ¶176.

4. Claim 8

[8] *The loader apparatus as set forth in claim 1 wherein the loader apparatus*

has a mass of less than 1500 kg.

KR996 discloses or renders obvious claim 1 and, to the extent the Patent Owner argues this further element is not obvious in light of KR996's disclosure and a POSITA's knowledge alone, it is obvious in combination with SAE renders obvious this claim. EX1003, ¶¶177-180.

As discussed above, 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, ¶178. To the extent that the Patent Owner argues this dependent claim that affirmatively recites the weight in the body of the dependent claim is not provided by KR996 and the general motivation of POSITA to make equipment light-weight for quick and efficient operations, POSITA would have provided KR996's vehicle is less than 1,500 kg as suggested by SAE. EX1003, ¶¶147-149, 173-180.

SAE discloses "self-propelled [] wheeled machine...having...standing operator platform at the rear of the machine" and lift arms with an attachment bracket or otherwise interchangeable equipment have "an operating mass of less than 1500 kg." EX1015, p. 2. It would have been obvious to provide KR996's vehicle, which shares these same features, less than 1,500 kg as discussed above in the reasons to combine KR996 and SAE. This is confirmed by the prosecution leading to the '891 patent where the Office stated that "small loaders that are designed for standing or

walk behind operation...are typically constructed to be relatively light in weight” and as such it would have also been an obvious mechanical design to design the loader to be below 1500 kg. EX1002, p. 144 (emphasis added). The Applicant did not dispute this.

Thus, claim 8 is rendered obvious by KR996 in view of SAE. EX1003, ¶¶177-180.

XI. DISCRETIONARY DENIAL IS INAPPROPRIATE

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

The combinations of references presented in the grounds above have not previously been presented to the Office. KR996, the primary reference, was not cited or considered by the Examiner during prosecution of the '891 patent. As discussed above, a patent, EX1009, sharing an inventor and some disclosure with Bares was considered and relied upon during the original prosecution. Bares relied upon here has different scope and figures. Further, Bares is relied upon here to provide for the common configuration for a drive mechanism of a tracked assembly. Evidence shows that EX1009 was considered only as a secondary reference with respect to aspects of a loader (i.e., a cross-member) during the original prosecution, which are all shown in the primary reference (KR996) here. Moreover, the Examiner did not consider EX1009 in combination with KR996 as presented in Ground 3.

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

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

The Board balances six factors in considering denial under § 314. *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (Mar. 20, 2020) (precedential). These factors strongly favor institution as this Petition presents compelling evidence of unpatentability of all Challenged Claims. And moreover, the district court case is in its very early stages. Patent Owner just added the '891 patent to an Amended Complaint filed December 4, 2024. *See* EX1019. Petitioner has diligently worked to prepare this petition.

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

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

The '891 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: January 7, 2025
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XIII. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8

A. Real party-in-interest

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

B. Related matters

Pursuant to 37 C.F.R. § 42.8(b)(2), to the best knowledge of the Petitioner, the '891 patent is or was involved in the following cases:

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

Petitioner has also filed petitions for *inter partes* review (“IPR”) of patents related to the ’891 patent.

Patent Number	Challenged Claims	Proceeding No.	Filing Date
9,321,386 Petition A	1-13, 15, 17, 19-30, 64-67	IPR2025-00167	November 14, 2024
9,321,386 Petition B	31-49, 70-79, and 86-87	IPR2025-00168	November 14, 2024
9,321,386 Petition C	50-63, 68-69, and 80-85	IPR2025-00169	November 14, 2024
9,975,750	1-36 (all claims)	IPR2025-00170	November 14, 2024
10,202,266	1-16 and 19-28 (all claims)	IPR2025-00171	November 14, 2024
12,098,063	4-14	PGR2025-00016	January 7, 2024

C. Lead and back-up counsel and service information

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

CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), Petitioner hereby certifies, in accordance with and reliance on the word count provided by the word-processing system used to prepare this Petition, that the number of words in this paper is 10,445. Pursuant to 37 C.F.R. § 42.24(d), this word count excludes the table of contents, table of authorities, mandatory notices under § 42.8, certificate of service, certificate of word count, appendix of exhibits, and any claim listing.

Dated: January 7, 2025

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

CERTIFICATE OF SERVICE

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

Date of service January 7, 2025

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. 11,465,891;
Petitioner's Power of Attorney;
Petitioner's Exhibit List;
Exhibits EX1001-EX1003; EX1005-EX1010;
EX1013-EX1016; EX1019-EX1020; EX1022-EX1028;
EX1032; EX1034; and EX1036-EX1037.

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