

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Kubota North America Corporation,
Petitioner

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

DECLARATION OF STEVEN ALAN VELINSKY, PHD, PE
UNDER 37 C.F.R. § 1.68 IN SUPPORT OF PETITION FOR
POST GRANT REVIEW

TABLE OF CONTENTS

I.	Introduction.....	4
II.	Qualifications and Professional Experience	7
III.	Level of Ordinary Skill in the Art	11
IV.	Relevant Legal Standards	12
V.	Background Technology.....	15
VI.	Overview of the '063 Patent.....	26
VII.	Prosecution history of the '063 Patent.....	29
VIII.	Effective priority date of the '063 patent	31
IX.	Claim construction.....	31
X.	Identification of how the claims are unpatentable.....	32
A.	Challenged Claims	32
B.	Statutory grounds for challenges.....	32
C.	Grounds 1 and 2 : KR996.....	32
1.	KR996 (EX1005)	32
2.	Claim 4	34
3.	Claim 7	53
4.	Claim 8	56
5.	Claim 9	60
6.	Claim 10	62
7.	Claim 11	63

8.	Claim 12	64
D.	Ground 3 : KR996 and JP705	65
1.	KR996 (EX1005)	65
2.	JP705 (EX1006)	65
3.	Reasons to combine KR996 and JP705	66
4.	Claim 5	71
5.	Claim 6	75
E.	Ground 4 : KR996 and Bares	77
1.	KR996.....	77
2.	Bares (EX1010).....	77
3.	Reasons to Combine KR996 and Bares (KR996-Bares)	79
4.	Claim 13	82
5.	Claim 14	84
XI.	Conclusion	86

I, Steven Velinsky, do hereby declare as follows:

I. INTRODUCTION

1. I make this declaration based upon my own personal knowledge and, if called upon to testify, would testify competently to the matters stated herein.

2. I have been asked by Kubota North America Corporation (“Kubota”) to provide my expert opinion in connection with the Post Grant Review of U.S. Patent No. **12,093,063** (“’063 Patent”) concerning whether the ’063 Patent is unpatentable over certain prior art. This declaration is a statement of my opinions on issues relating to the patentability of Claims 4-14 of the ’063 Patent (“the Challenged Claims”). As I explain more fully below, it is my opinion that all the Challenged Claims would have been taught by the prior art or obvious to a person of ordinary skill in the art (“POSITA”) at the time of the alleged invention. I note that I have not been asked nor have I provided by opinion as the patentability of claims 1-3 of the ’063 Patent.

3. I am being compensated for my work in this matter at my standard hourly rate. I am also being reimbursed for reasonable and customary expenses associated with my work and testimony in this investigation. My compensation is not contingent on the outcome of this matter or the specifics of my testimony. I have no other financial interest in this proceeding.

4. I have reviewed and considered the following documents in connection with my analysis of the '063 Patent:

- a) U.S. Patent No. **12,098,063** (the '063 Patent) (EX1001);
- b) relevant portions of the prosecution history of the '063 Patent (“’063 File History”) (EX1002)
- c) KR 10-1041996 (“KR996”) listing inventor Jo Bunggu (EX1005) stemming from Korean Application 10-2009-0033050, which was published as 10-1041996 on June 16, 2011;
- d) JP 2004 017705 (“JP705”) listing inventor Yoshitake Yamaguchi *et al.* (EX1006); filed June 13, 2002; published January 22, 2004.
- e) U.S. Patent No. 6,832,659 (“Bares”) (EX1010), filed October 30, 2002 and issued December 21, 2004.

5. In forming the opinions expressed below, I have considered:

- a) the documents listed above;
- b) the relevant legal standards, including the standard for obviousness, and any additional authoritative documents as cited in the body of this declaration; and

- c) my own knowledge and experience based upon my work in the

field of mechanical engineering and earth-moving equipment as described below, as well as the following materials including:

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”)
EX1013	U.S. Patent Application Publication No. 2008/0197588 to Azure (“Azure”)
EX1014	Korean Patent No. 10-1023528 including original Korean language document, certified translation, and certification
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)
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
--------	--

6. Unless otherwise noted, all emphasis in any quoted material has been added.

II. QUALIFICATIONS AND PROFESSIONAL EXPERIENCE

7. My Curriculum Vitae (CV) is attached as EX1036. This exhibit also includes a list of my publications.

8. I earned a Ph.D. in Theoretical & Applied Mechanics from the University of Illinois at Urbana-Champaign in 1981. I earned a Bachelor of Science degree in Mechanical Engineering, State University of New York at Buffalo in 1977, and a Master of Science degree, also in Mechanical Engineering from University of Illinois at Urbana-Champaign, in 1979. After finishing my Ph.D. degree, I worked as an engineer for approximately two years in a government laboratory and in industry. I am also a Registered Professional Engineer, State of California.

9. Since 1989, I have been Faculty Member (Associate Professor, Professor, Distinguished Professor, Distinguished Professor Emeritus) in the Department of Mechanical & Aerospace Engineering, University of California, Davis. Prior to UC Davis, I was a Faculty Member in the Department of

Mechanical Engineering at the University of Wisconsin-Madison.

10. I was the Director of the Advanced Highway Maintenance & Construction Technology Research Center of Department of Mechanical & Aerospace Engineering, at University of California, Davis from September 1991 to September 2016. In this research center, we applied advanced automation and mechatronics technologies to the design and development of automated highway maintenance and construction machines. These machines have been developed to address a wide variety of highway tasks including, for example, the dispensing and retrieval of highway cones, sealing of pavement cracks, collection of roadway debris, landscape maintenance, graffiti removal and plowing of snow, and involve the use of mechanisms to allow the tasks to be performed. Our typical projects involved detailed design, fabrication of the prototype equipment and qualification testing of the machines in actual highway operations.

11. I have received numerous awards and honors for my work in mechanical engineering. My recognition for the design of specific machines includes: the 1996 American Society of Mechanical Engineers' Leonardo DaVinci award, the 2001 California Transportation Foundation's Tranny Award, the 2001 California State Department of Transportation's Excellence in Transportation Award, and the 2002 California Transportation Foundation's Tranny Award.

Additional awards, honors and professional activities include: Fellow of the American Society of Mechanical Engineers (ASME), 2007 American Society of Mechanical Engineers' Machine Design Award for lifetime contributions to the mechanical design field, 2005 American Society of Mechanical Engineers' Robert E. Abbott Award for contributions to design engineering, Technical Editor of the international journal Mechanics Based Design of Structures and Machines, Chair of the Design Engineering Division of the American Society of Mechanical Engineers, and Vice President – Systems and Design of the American Society of Mechanical Engineers. I have also received the Society of Automotive Engineers' Ralph R. Teetor Award.

12. My areas of specialization are in the general area of mechanical systems analysis and design, and I have extensive experience in the design and development of devices and machinery for various applications including, but not limited to, vehicles, robots, and vehicle-based automated equipment. Moreover, I have been involved in the detailed analysis of many machines, machine elements, and mechanisms including, but not limited to, the ball screw mechanism, roller screw mechanism, and differential and planar mechanisms.

13. I taught courses in mechanical engineering in the general area of mechanical systems analysis and design at both the undergraduate and graduate

levels. For example, I taught a course on design and dynamics of machinery, which primarily involved the design and analysis of mechanisms. At the graduate level, I developed courses in advanced mechanical design and on the design and dynamics of road vehicles, both of which taught methods of mechanism analysis. I also taught the capstone mechanical engineering senior design project course for about 20 years and have thus advised well over 100 senior design projects, virtually all of which have involved the design and analysis of mechanisms.

14. I regularly advised students on research projects in my area of expertise. In this role, I regularly served as an advisor to Ph.D. and master's degree candidates, and postdoctoral researchers. I have also advised student groups involved in the design of vehicles for various Society of Automotive Engineers' competitions.

15. I note that the term "skid steer" means that the equipment or device changes direction by propelling the opposite sides of the machine at different rates, as opposed to actively turning the wheels for example. Another term for "skid steer" is "differential steer." I have expertise on these types of devices as my initial work on differentially steered, wheeled devices started in the early 1990's when we began developing differentially steered wheeled mobile robots for use in highway maintenance tasks.

16. I have also published extensively in the field of mechanical systems design and analysis including those articles listed in EX1036.

III. LEVEL OF ORDINARY SKILL IN THE ART

17. I understand there are multiple factors relevant to determining the level of ordinary skill in the pertinent art, including (1) the levels of education and experience of persons working in the field at the time of the invention; (2) the sophistication of the technology; (3) the types of problems encountered in the field; and (4) the prior art solutions to those problems.

18. I understand that the '063 Patent claims priority to February 20, 2015. My analysis reflects the views of a person of ordinary skill in the art ("POSITA") in the field of the '063 Patent as of February, 2015.

19. Here, a POSITA at the time of the claimed invention in February 2015 would have had a Bachelor of Science degree in Mechanical or Agricultural Engineering and two years of experience in the mechanical design of machines, or have had equivalent knowledge and experience. Lack of professional experience can be remedied by additional education, and vice versa. A person with less formal education but more experience, or more formal education but less experience, could have also met the relevant standard for POSITA. For purposes of this Declaration, in general, and unless otherwise noted, my statements and opinions,

such as those regarding my experience and the understanding of a POSITA generally (and specifically related to the references I consulted herein), reflect the knowledge that existed in the field as of the earliest proper priority date of the '063 Patent (*i.e.*, February 2015). Unless otherwise stated, when I provide my understanding and analysis below, it is consistent with the level of a POSITA prior to the earliest alleged priority date of the '063 Patent.

20. I met the definition of a POSITA in February 2015. I also had a greater knowledge and experience than a POSITA. In my work discussed above, including as a professor, I worked with graduate students and others who had the knowledge and experience of a POSITA in February 2015, and I am able to render opinions from the perspective of a POSITA based on my knowledge and experience.

IV. RELEVANT LEGAL STANDARDS

21. I am not an attorney. In preparing and expressing my opinions and considering the subject matter of the '063 Patent, I am relying on certain basic legal principles that counsel have explained to me. These principles are discussed below.

22. I understand that prior art to the '063 Patent includes patents and printed publications in the relevant art that predate the proper priority date of the

alleged invention recited in the '063 Patent.

23. I have been informed by counsel that a patent claim is unpatentable as anticipated under 35 U.S.C. § 102 if each element of that claim is present either explicitly or inherently in a single prior art reference. I have also been informed that, to be an inherent disclosure, the prior art reference must necessarily disclose the limitation, and the fact that the reference might possibly practice or contain a claimed limitation is insufficient to establish that the reference inherently teaches the limitation

24. I have been informed that a claimed invention is unpatentable under 35 U.S.C. § 103 if the differences between the invention and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. I have also been informed by counsel that the obviousness analysis takes into account factual inquiries including the level of ordinary skill in the art, the scope and content of the prior art, and the differences between the prior art and the claimed subject matter.

25. I have been informed by counsel that the Supreme Court has recognized several rationales for combining references or modifying a reference to show obviousness of claimed subject matter. Some of these rationales include the

following: (a) combining prior art elements according to known methods to yield predictable results; (b) simple substitution of one known element for another to obtain predictable results; (c) use of a known technique to improve a similar device (method, or product) in the same way; (d) applying a known technique to a known device (method, or product) ready for improvement to yield predictable results; (e) choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; and (f) some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

26. I further understand that certain factors may support or rebut the obviousness of a claim. I understand that such secondary considerations include, among other things, commercial success of the patented invention, skepticism of those having ordinary skill in the art at the time of invention, unexpected results of the invention, any long-felt but unsolved need in the art that was satisfied by the alleged invention, the failure of others to make the alleged invention, praise of the alleged invention by those having ordinary skill in the art, and copying of the alleged invention by others in the field. I understand that there must be a nexus—a connection—between any such secondary considerations and the alleged invention.

I also understand that contemporaneous and independent invention by others is a secondary consideration tending to show obviousness.

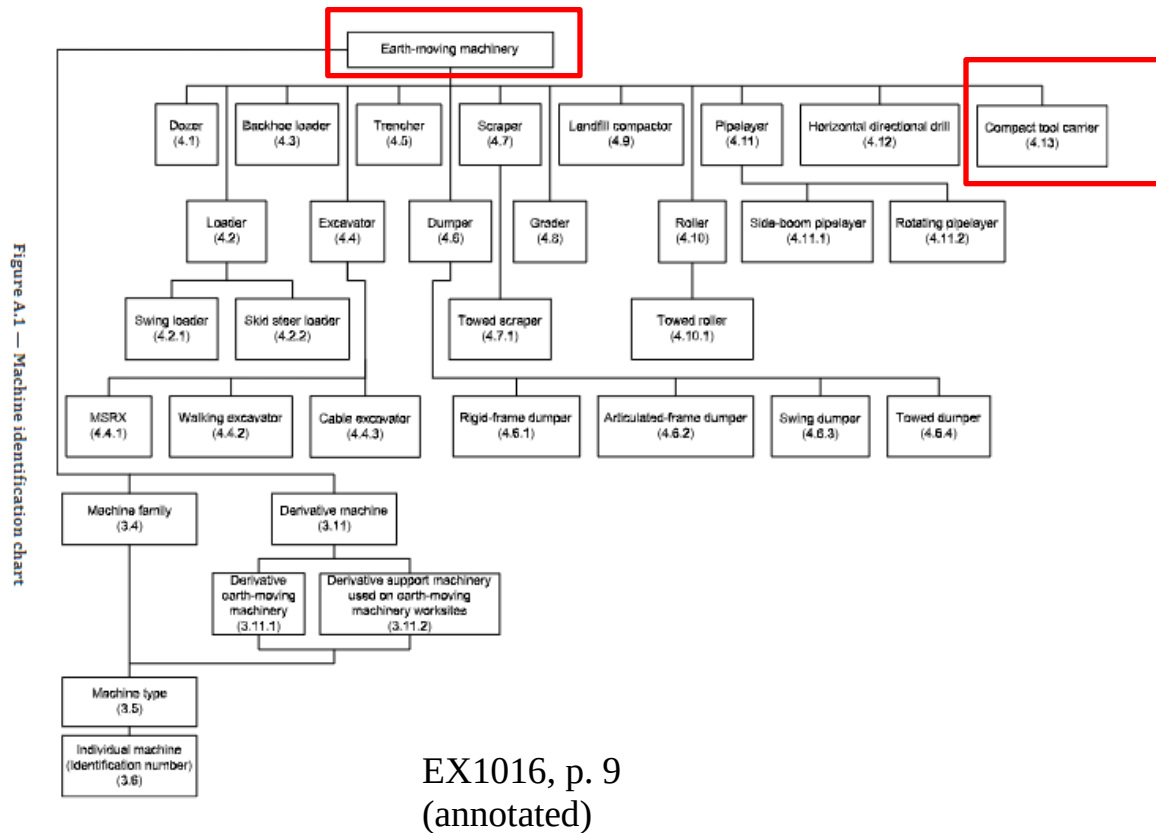
27. I am not aware of any allegations by the named inventor of the '063 Patent or any assignee of the '063 Patent that any secondary considerations are relevant to my obviousness analysis of any Challenged Claim of the '063 Patent. For declarations I prepared regarding patents related to the '063 Patent, I have briefly reviewed the allegations by the Patent Owner of certain secondary considerations during earlier proceedings of at the U.S. Patent Office set forth in those related patents and find those allegations were directed to the obviousness of an alleged improvement of placing a four-bar mechanism disclosed on larger equipment *replacing* a two-bar mechanism disclosed on smaller equipment. This is not the framework of my obviousness analysis.

V. BACKGROUND TECHNOLOGY

28. In this section, I provide some background information relating to vehicle design including mechanisms such as different types of linkages. The concepts embodied in claims of the '063 Patent are not new as of the priority date and do not represent the combination of known elements that resulted in an unexpected and unanticipated result.

Machinery Type

29. As explained in the summary of the patent below, the '063 Patent is directed to a “compact tool carrier.” A compact tool carrier, as illustrated in the '063 Patent, may also be referred to as a compact utility loader (CUL) or a mini-skid steer. These machines are smaller (e.g., in comparison with ride-on skid steers) equipment that are suitable for tight spaces and maneuverability. Exemplary uses include construction, landscaping, and the like. International Standard Organization (ISO), a well-known, recognized source for information for a POSITA, put forth ISO 6165 standard, which defines different types of equipment and is illustrative of compact tool carriers being one of those types:



30. The standard describes the class of machinery:

4.13

compact tool carrier

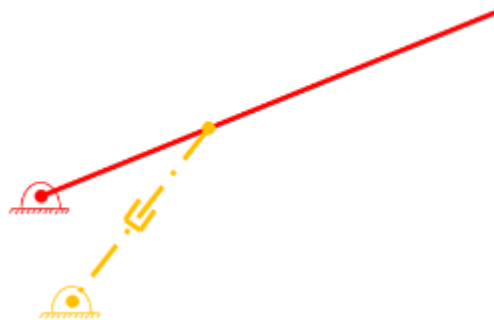
self-propelled crawler or wheeled machine having an *operating mass* (3.7) of less than 1 500 kg with a rigid frame, having either a pedestrian operating position or a standing operator platform at the rear of the machine and either front-mounted interchangeable *equipment* (3.9) or lift arms with an attachment bracket capable of coupling to interchangeable, front-mounted *attachments* (3.10)

EX1016, p. 7. A POSITA would recognize the '063 Patent, like at least KR996 (EX1005), McIlwraith (EX1007), Bares '568 (EX1009), Bares (EX1010), Azure (EX1013), and KR528 (EX1014) and others, are explicitly discussing this type of

machinery.¹

Loader Mechanism:

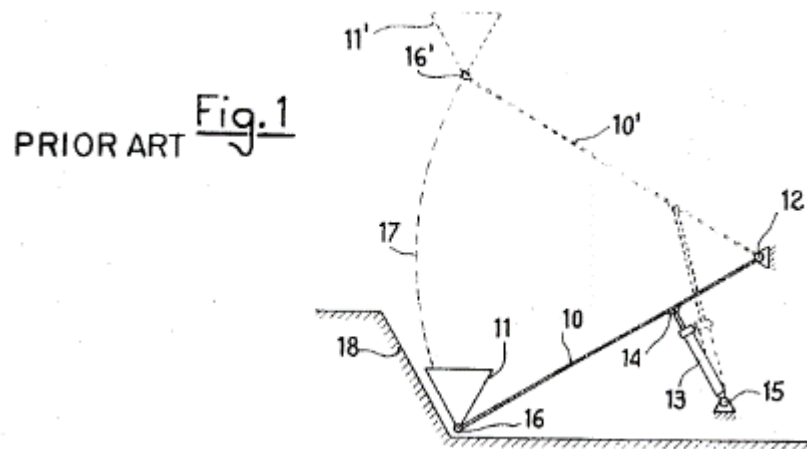
31. A loader or lift arm is attached to the carrier to provide for tools such as a bucket to perform the functionality of the equipment. One of the simplest well-known mechanisms providing motion for the loader arm is illustrated kinematically below. This may also be described as a two-bar or radial lift mechanism.



32. In the context of a loader, the orange illustrates an actuator (also referred to as a cylinder or jack) driving the mechanism and the red illustrates a lift arm. Beltrami at FIG. 1 describes such a system as prior art, which illustrates a

¹ JP705 (EX1006) and Beltrami (EX1008) are not limited to any type of machinery.

jack 13 pivotally connected at 14 to the arm 10 and at 15 to the tracked vehicle body. Beltrami (EX1008), 2:41-48.



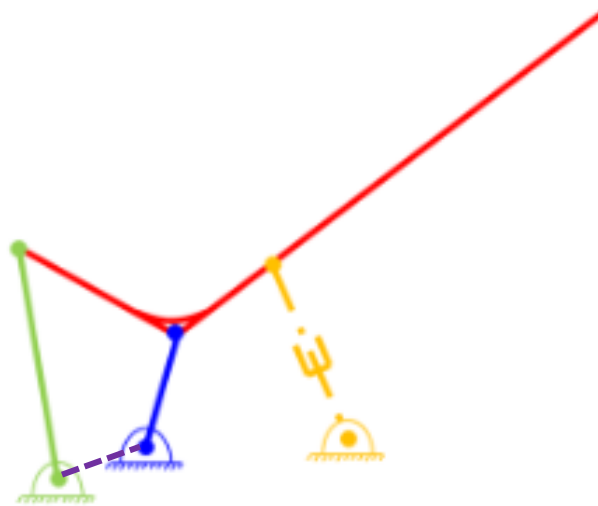
EX1008, FIG. 1

Bares '568 illustrates a similar system in its FIGS. 1, 3 with an assembly that includes an arm 24A attached at a pivot 21 to supports 22 with a cylinder 26 pivotally mounted the frame 12 and pivotally connected at pivot pins 30 to the arm 24. Bares '568 (EX1009), 2:49-2:15.

33. Another type of mechanism is a four-bar linkage, also called a four-bar mechanism or simply four-bar. Four-bars are, while slightly more complex than the two-bar mechanism, a very simple mechanism widely employed across various machines. Due to its wide use, this type of mechanism is introduced early

in undergraduate mechanical engineering courses in which detailed methods of design and analysis are taught. *See, e.g.*, EX1028, Theory of Machines and Mechanisms, Shigley, J.E. and Uicker, J.J. Jr., McGraw Hill, 1980; EX1023, Mechanisms and Mechanical Devices. One four-bar mechanism is illustrated schematically below. Such a mechanism is depicted by 3 moving bars or links (also referred to here as linkages), those illustrated in green, red, and blue, and 1 stationary bar, an imaginary link shown in purple connecting the fixed pivot points. Note that the fixed pivot points would have no relative motion with the machine that supports the four-bar. The red link is typically referred to as the coupler. Based on the design of the mechanism (e.g., the lengths of the 4 links), the green and blue links may make a full rotation, referred to as a crank, or move back and forth through an angle in which they are referred to as rockers. Also, the input to the mechanism is typically a motor, which is attached to either the green or blue link, and/or an actuator, illustrated in orange, which can be connected to any of the three moving links. Generally, the actuator may be attached at any location on a link to drive the mechanism. Note that the actuator position is a design choice based on the working load of the mechanism and the force that the selected actuator can generate. The four-bar mechanism has a mobility equal to one, which means that it has one-degree-of-freedom and that only one input parameter (e.g., the position

one of the moving links) is needed to place the mechanism in a particular position. Note that the figure below is a kinematic diagram of the mechanism for purposes of design and analysis. The pivot points connecting the adjacent links define the links' kinematic lengths, but the actual link shapes are determined by the specific application. Thus, as illustrated, in this implementation, the red link, or coupler, is pivoted at the points attached to the green and blue links respectively and is approximately L-shaped as shown.



34. The four-bar mechanism is used for 3 different types of design cases: function generation, motion generation and path generation. For function generation, one link (e.g., either the green or blue link illustrated above) is defined as the “crank” and the other link (e.g., the other one of the green or blue link

illustrated above) is defined as the “follower.” Function generation involves a prescribed relationship between the crank’s angular displacement and the follower’s angular displacement. Motion generation concerns the prescribed position and orientation of the coupler. Path generation concerns the prescribed path of a point on the coupler, which is referred to as the coupler point.

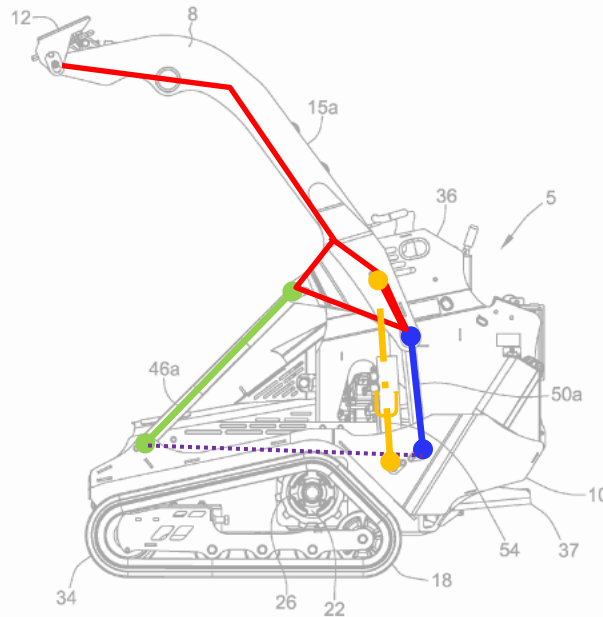
35. Four-bar mechanisms are found in a tremendous number of machines – large and small. For a function generation example, the windshield wipers of an automobile are a crank-rocker type of four-bar in which a continuously rotating motor drives the crank and the follower has the wiper attached and rocks back and forth. An automobile’s suspension is an example of a motion generation design in which the wheel and tire are prescribed to have a specific position and orientation through their motion relative to the vehicle’s frame to maintain a generally vertical orientation and a generally constant track. The four-bar of the loader such as discussed below can be considered a path generation example as the motion is prescribed of a specific coupler point, the pivot point of the tool attachment plate. The four-bar is perhaps the most widely studied mechanism in history. The initial formal design and analysis methods date back to the 1800’s and there have been hundreds of publications since the 1970’s on four-bar path and function generation. See, for example, EX1026, Linkage Coupler Curve Synthesis: A Historical

Review-II. Developments after 1875, Nolle, H., Mechanism and Machine Theory, Vol. 9 pp. 325-348 (1974); EX1027, Lee, W.-T. and Russell, K., Inverse Problems in Science and Engineering, Developments in quantitative dimensional synthesis (1970–present): four-bar path and function generation, 1280-1304.

36. When designing a mechanism such as a four-bar mechanism for an application, one may approach the design by providing known link dimensions and calculating the output motion, which is referred to as a kinematic analysis. Or conversely, in a dimensional synthesis, the link dimensions may be calculated to achieve a prescribed output motion. The link dimensions include link lengths, link positions and joint (pivot point) coordinates. *See, e.g.*, EX1024, Pareto optimal synthesis for four-bar mechanisms for path generation, 2008; EX1028, p. 4; EX1023, p. 117.

37. In the context of a loader, a four-bar mechanism is implemented by a cylinder (**orange**) driving the mechanism, a lift arm (**red**) provides a coupler, the links (**blue** and **green**) (also referred to as linkages) providing the bars (follower/crank), and the frame of the loader providing the stationary fourth bar (**purple**) extending between the links. The '063 Patent loader arm is an example of a four-bar mechanism. In this design, the actuator is connected to the coupler (lift arm). A kinematic diagram designating the four-bar mechanism is overlaid on '063

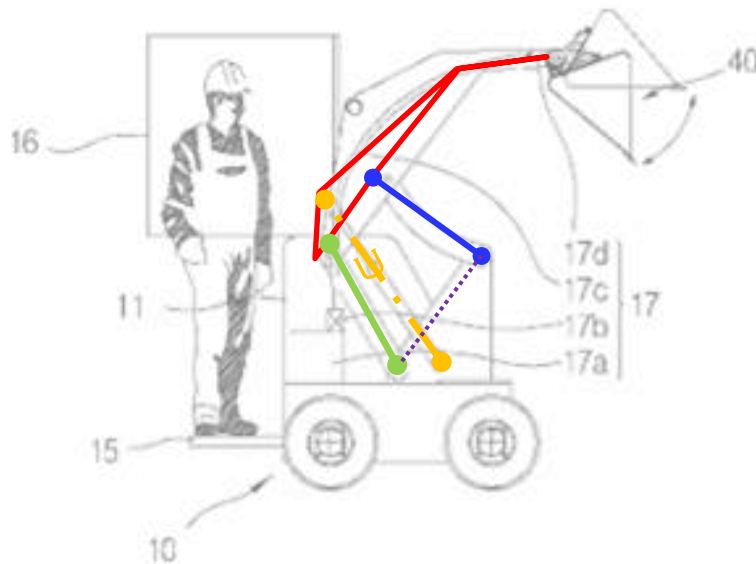
Patent's FIG. 3:



EX1001, FIG. 3
(annotated)

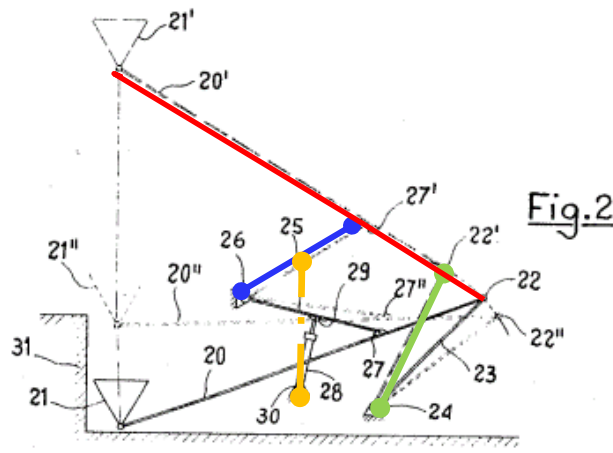
38. Similarly, the loader of KR996 (EX1005) is an example of a four-bar. Again, a kinematic diagram designating the four-bar is overlaid on KR996's Fig.

21



KR996 (EX1005), FIG. 21
(annotated)

39. Including in the context of its Fig. 2, Beltrami also illustrates a four-bar. In this case, the actuator is not directly connected to the coupler (lift arm), but is connected to one of the other links. Beltrami is an example of a Watt-style four-bar mechanism, which produces approximately straight-line motion. See, e.g., EX1025, p. 150; EX1023, p. 7.



EX1008, FIG. 2
(annotated)

See also, Beltrami (EX1008), FIG. 3.

VI. OVERVIEW OF THE '063 PATENT

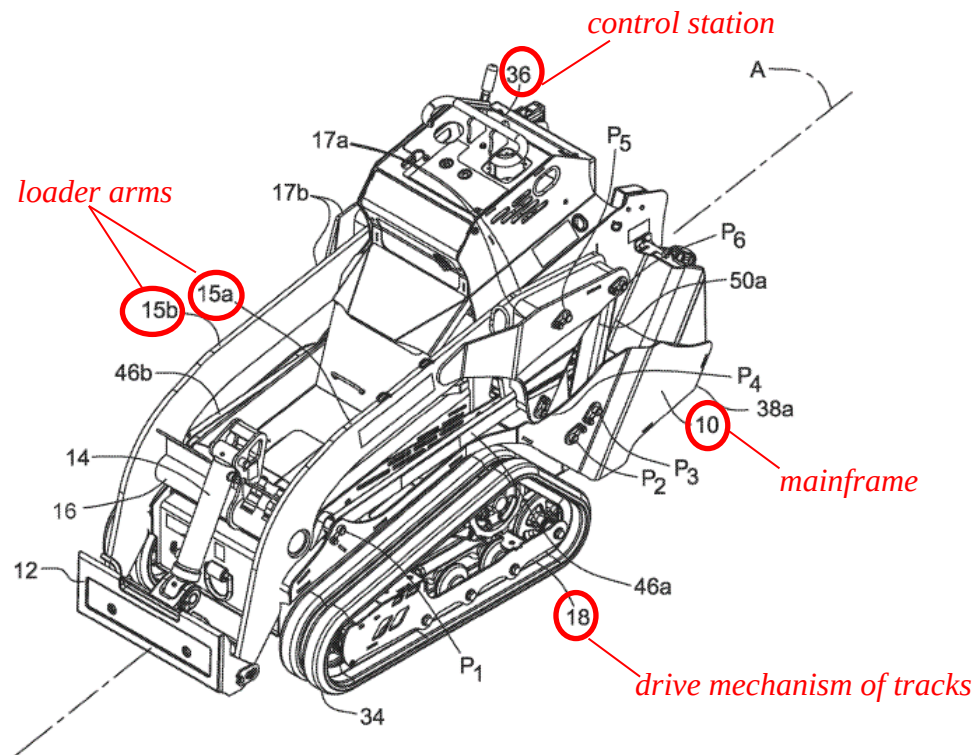
40. The '063 Patent issued September 24, 2024 with claims 1-14.

The '063 Patent claims priority through a chain of applications to U.S. Patent No. 9,321,386 (“’386 Patent”), which I have also provided a declaration regarding.

41. The '063 Patent relates to a compact tool carrier designed for standing operation and having a loader (with an arm). EX1001, 1:30-53, 2:8-17. In its background, the '063 Patent asserts compact tool carriers “may be distinguished from much larger conventional skid steers in which an operator is seated in the

operating position.” EX1001, 1:45-47. Tools such as buckets, augers, and the like may be provided as front-mounted attachments. EX1001, 1:42-44.

42. 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, 2:38-43, 56-66. A cross-member 16 extends from the first arm 15a to the second arm 15b. 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.

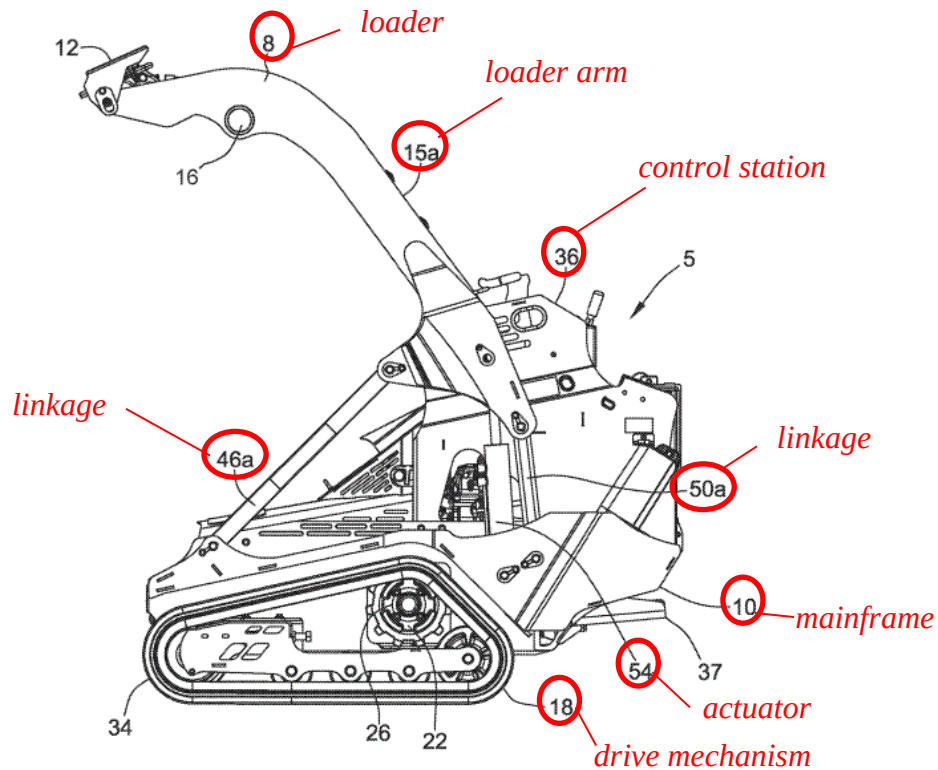


EX1001, FIG. 1
(annotated)

43. The first loader arm 15a is pivotally connected to a first side 38a of the

mainframe 10 and the second loader arm 15*b* 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 46*a*/50*a* and an actuator 54. EX1001, 4:26-47. This configuration is a four-bar mechanism, which I discuss above, providing a path generation of the motion of the tool attachment plate 12.

44. FIG. 1 above is illustrative of the carrier with the loader in a down position; FIG. 3 below is illustrative the loader in a raised position. EX1001, 2:38-43.



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

VII. PROSECUTION HISTORY OF THE '063 PATENT

45. Regarding the claim scope at issue in this declaration, I understand that these claims, including a prosecution claim 4 that issued as claim 4, were added in a response to a first office action. EX1002, pp. 178-179.

46. The Office in a second action rejected the then-pending claim 4 as being anticipated by U.S. Patent No. 3,074,572 to Ulinski (“Ulinski”). EX1002, p. 155. Applicant provided Ulinski’s Fig. 3 as representative:

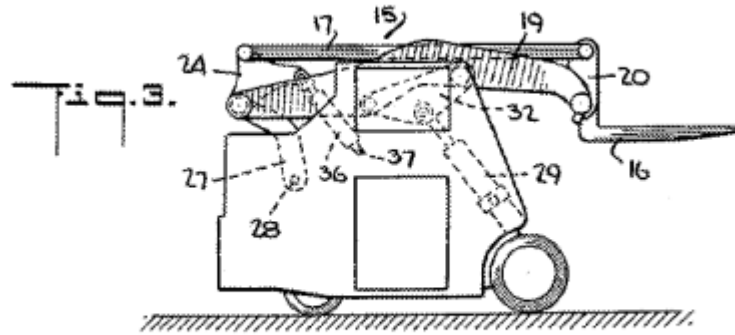


FIG. 3 of Ulinski

EX1002, p. 145

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

48. The Applicant again amended its prosecution claim 4 to include that the first and second linkages are also “directly pivotally attached to the loader arm” and argued that the claim required the first linkage, second linkage and actuator all be “attached to the *same* loader arm,” which is not the case in Ulinski. EX1002, pp.

89-98. The following action allowed prosecution claim 4 and the claims that depended therefrom. EX1002, pp. 58-60.

49. In contrast to those invalidity positions previously presented, I discuss a primary reference, KR996, that shows it was known in the art to provide, in a single embodiment, a compact tool carrier having a four-bar mechanism with direct attachment of each of the two linkages and an actuator with a loader arm.

VIII. EFFECTIVE PRIORITY DATE OF THE '063 PATENT

50. I have been told to assume that the '063 Patent is entitled to a priority date of February 20, 2015. I have not undertaken a priority date analysis for the purposes of this declaration.

IX. CLAIM CONSTRUCTION

51. It is my understanding that in order to properly evaluate the '063 Patent, the terms of the claims must first be interpreted. It is my understanding that for the purposes of this post grant review, the claims are to be construed under the so-called *Phillips* standard, under which claim terms are given their ordinary and customary meaning as would have been understood by one of ordinary skill in the art in light of the specification and prosecution history, unless the inventor has set forth a special meaning for a term. For the purposes of this declaration, it is my opinion that the claim terms should be given their plain and ordinary meaning.

X. IDENTIFICATION OF HOW THE CLAIMS ARE UNPATENTABLE**A. Challenged Claims**

52. This declaration is directed to claims 4-14 of the '063 Patent.

B. Statutory grounds for challenges

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

C. Grounds 1 and 2 : KR996

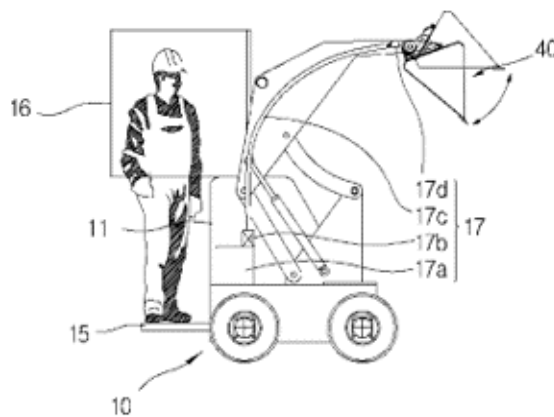
53. KR996 discloses all the elements of claims 4 and 7-12. KR996 also renders obvious claims 4 and 7-12. To the extent that Patent Owner argues that a single embodiment of KR996 does not disclose all the limitations of any of claims 4 and 7-12, a POSITA would have found claims 4 and 7-12 obvious, in view of the POSITA's own knowledge and/or the disclosures suggested by KR996 as explained herein.

1. KR996 (EX1005)

54. KR996 is entitled "Environmentally Friendly Construction Equipment for Building Deconstruction Work." KR996 (EX1005), (54).² KR996 describes

² Citations are to the English translation of KR996. EX1005.

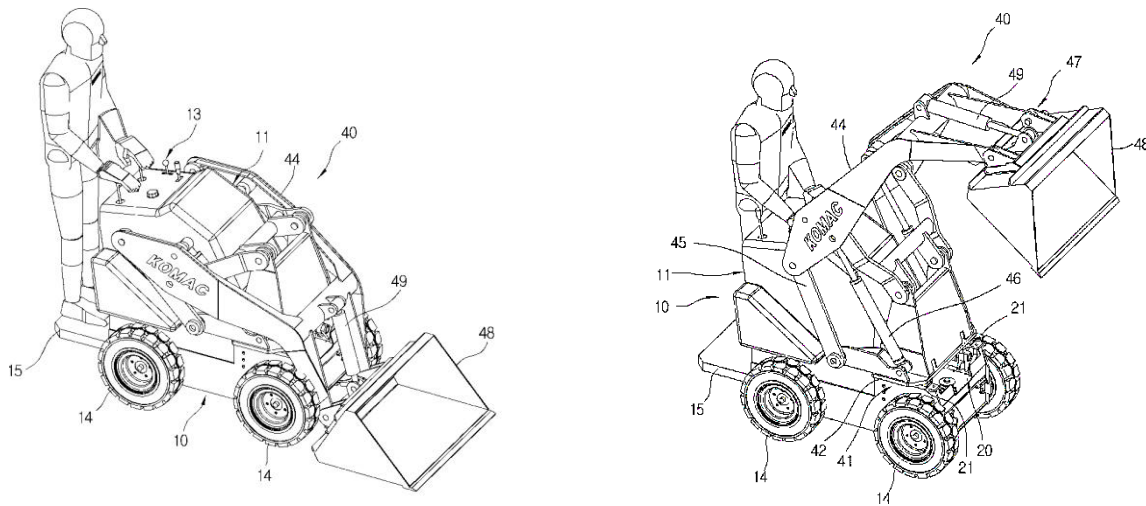
construction equipment that “can enter narrow buildings and carry out dismantling work inside the building” and “effectively perform difficult tasks in narrow spaces, allowing for efficient operations such as building interior demolition, road maintenance, snow removal, and towing.” KR996 (EX1005), [0001]-[0002].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



KR996 (EX1005), Fig. 21

55. The vehicle 10 includes a control unit 13 for operating of the vehicle including the installed unit (here the loader unit 40) by an operator positioned on a

folding safety step 15 at the rear of the vehicle. KR996 (EX1005), [0042], [0049], [0072], Figs. 8-9. The loader 40 includes a boom 44 connected to the mainframe of the vehicle by intermediary parts—a link 45, a link (unlabeled), and a boom cylinder 46. *Id.* Fig. 8 and Fig. 9 are illustrative of the loader in lowered and raised positions, respectively.



KR996 (EX1005), Fig. 8 (portion), Fig. 9

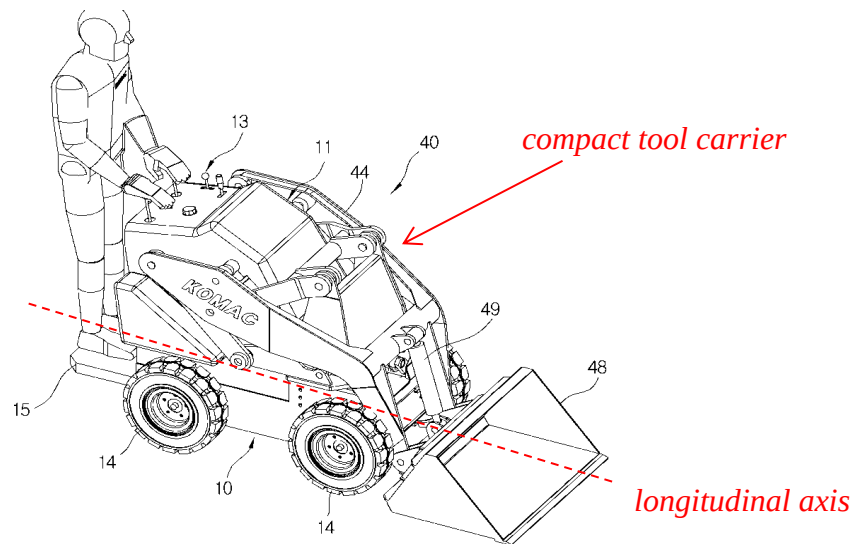
2. Claim 4

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

56. KR996 discloses this.

57. As discussed above, KR996 describes a self-propelled vehicle (*compact tool carrier*) capable of carrying equipment for building deconstruction work, providing maneuverability in small spaces, and having the functionality of a

mini skid loader when attaching a bucket. KR996 (EX1005), Abstract, [0001]-[0012]. KR996's compact tool carrier is configured for operator control from safety step 15, see Fig. 8 below, and has a *longitudinal axis*.



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

58. KR996's vehicle is a *compact tool carrier* of the same configuration as in '063 Patent (EX1001), 1:30-49, 3:4-15. *See also*, EX1015, EX1016.

59. As I discussed above with respect to the term compact tool carrier, POSITA would understand that KR996 vehicle is a *compact tool carrier*. This is also the same configuration as the equipment of the '063 Patent. *See* EX1001, Fig. 1, 1:56-2:15. For example, KR996's vehicle is a self-propelled machine with an

operating position from a platform at the rear of the machine having a loader with a tool of a bucket in a front-mounted attachment. EX1005, Figs. 1, 7-9. Further, to the extent that Patent Owner argues there is a limitation of weight inherent in this recitation of a compact tool carrier, POSITA would recognize it has a mass of less than about 1500 kg based on its illustrations, suitable tasks, and operator position. This is because KR996 describes its functions as “building interior demolition,” “effective operations for fruit farming, gardening, and landscaping,” “suitable for narrow spaces.” KR996 (EX1005), [0002]. And the standing operator platform suggests a light-weight carrier, illustrated with a scale with respect to a human.

60. Further, recognized standards covering the KR996 vehicle describe a weight of less than about 1500 kg, as recognized by the background of the '063 Patent. EX1016, Organization for Standardization (ISO) 6165 (2012), p. 7 states compact tool carriers having an operator standing platform are less than 1500 kg. EX1015, Society of Automotive Engineers (SAE), J2752 June 2010, p. 2 confirms “an operating mass of less than 1500 kg.” *See also*, '063 Patent ((EX1001)) in its Background Section (1:30-44) that states “tool-mounted machines that are capable of working in tight spaces for utility...[and are] walk-behind units of include a platform on which the operator may stand during use [] are **generally defined** [as]

having **an operating mass of less than 1500 kg.**³ To the extent Patent Owner argues that this is both required by its claims and is not explicit in KR996, POSITA would have found it obvious to ensure the KR996 vehicle is less than 1500 kg to better perform its functions requiring maneuverability for quick and efficient operations and meet industry standards.

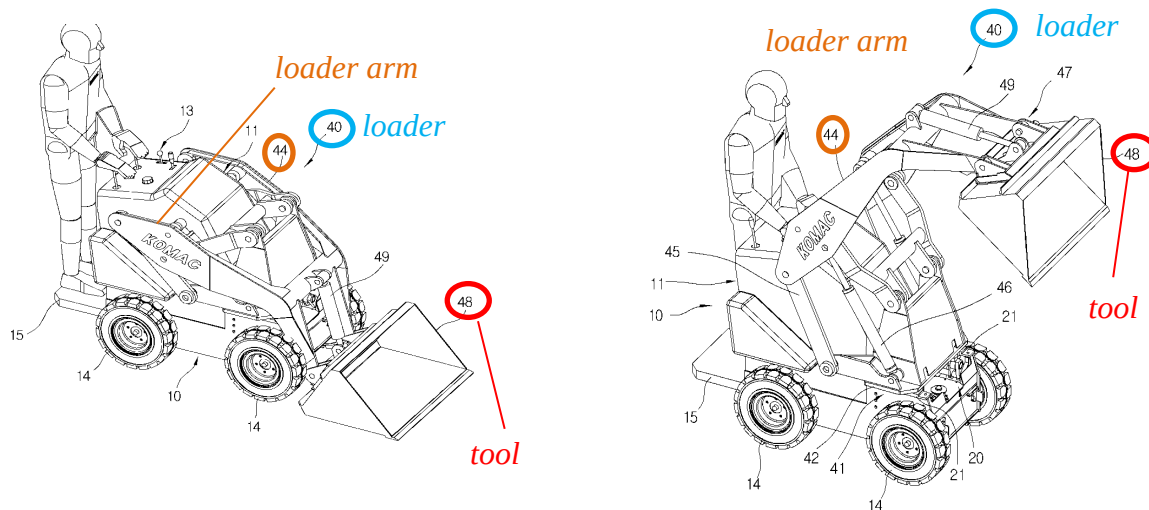
61. Thus, KR996 discloses or renders obvious [4.0].

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

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

63. 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's arm, boom 44. KR996 (EX1005), claim 1, [0054], [0074]-[0075], Figs. 8-9; *see also*, EX1001, 1:40-41 ("tools such as buckets, augers...and the like."). KR996 describes a "bucket attachment 47" that receives or carries the bucket 48. KR996 (EX1005), [0051].

³ All bold emphasis in quotations is added.

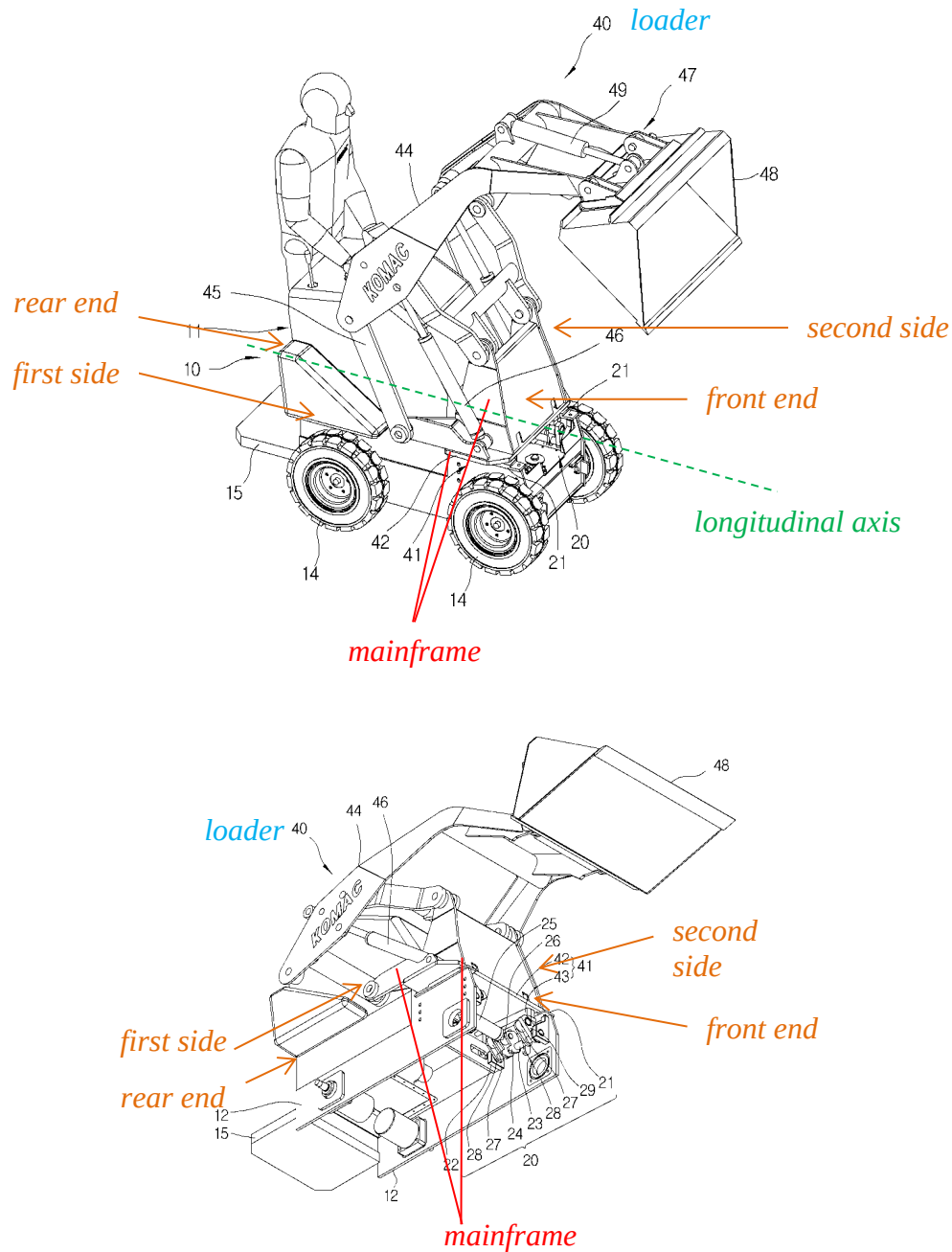


**EX1005, Fig. 8 (portion) and Fig. 9
(annotated)**

64. Thus, KR996 discloses [4.1].

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

65. The vehicle of KR996 includes a *mainframe for supporting the loader* unit 40 (*loader*) and having respective [*first/second*] *sides* and [*front/rear*] *end[s]* relative to the longitudinal axis. KR996 (EX1005), Figs. 8, 9, 10. KR996's *mainframe* includes the frame components of the KR996 vehicle that when in operation, support the attached loader unit 40 by providing structural or weight-bearing support. Annotated Figs. 9 and 10 are illustrative:



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

66. KR996's weight-bearing frame is *for supporting the loader* as the

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

67. KR996's *mainframe* also includes frame portions in addition to those providing direct attachment to the intermediary parts including the main body 11 and side plates 12. EX1005, [0044], [0049], Figs. 1, 7-9. These portions are part of a frame or body making up the KR996 vehicle when in operation providing structural and weight-bearing support for the loader unit 40, in addition to support for other features such as the control station and drive mechanism. While KR996

describes embodiments of its frame in two portions, when in operation the mainframe of the vehicle is in one piece providing support for the loader. *See also*, '063 Patent, FIG. 7. The inclusion of parts outside of those providing direct attachment to the intermediary parts in the *mainframe* is consistent with the '063 patent. The '063 patent discusses the drive mechanism and control station of the '063 patent supported by its frame, drive mechanism attached to mainframe (3:35-37), “control station 36 is...supported by the mainframe 10.” (4:5-7).

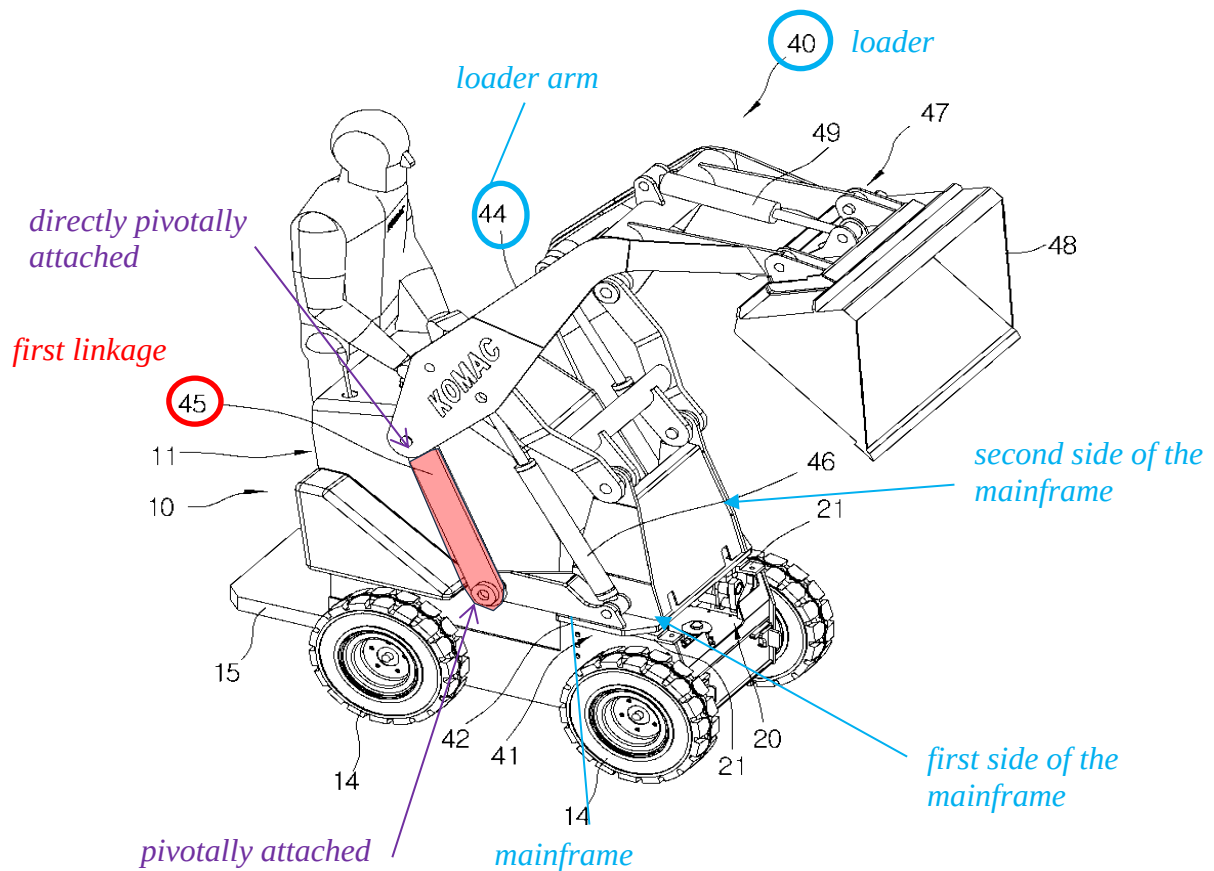
68. To the extent that Patent Owner argues that the term *mainframe* requires a single piece construction, requires certain aspects to be a contiguous piece, or requires certain configuration of those pieces, this is not what is shown in or required by the '063 patent. *See also*, EX1001, claim 7 further limiting the present element, and 4:15-17, which only refers to a “general” notion that a mainframe is a single weldment, which does not define the term nor amount to a disavowal of a frame of multiple pieces fastened together. Nonetheless, a POSITA would have found it obvious to provide the *mainframe* of KR996 as including or incorporating single piece construction (e.g., weldment) as I discuss in claim 7. And a POSITA generally recognizes design choices in forming a mainframe of a vehicle including the separability, arrangement, and shape of frame portions such as brackets and other frame features. KR996, Fig. 21, which illustrates a first side

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

69. Thus, KR996 discloses or renders obvious [4.2].

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

70. KR996 illustrates a link 45 (*a first linkage*) *pivotally attached to the first side of the mainframe and directly pivotally attached to the boom 44, the loader arm, of the loader 40. EX1005, Figs. 5, 8-10, 21, [0054] (“A boom (44) connected by a link (45)...”), [0134].*



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

71. There are pivot point connections, a point of relative rotation, between the linkage 45 and each of the boom 44 and the mainframe. The attachment at each end of the links and actuator discussed herein are pivotable as they are each a joint that allows for rotary motion. See KR996, Figs. 8, 9. The pivot point between the link 45 and the mainframe is a fixed or anchor pivot point; the pivot point between the link 45 and the boom 44 is a moving pivot point relative to the equipment as the loader 40 raises. These pivot point connections are standard in a four-bar

mechanism. *See, e.g.*, EX1023, p. 6, EX1028, p. 21. That is, as described beginning in paragraph 33, the four-bar mechanism contains two fixed pivot points and an imaginary fixed linkage between them, and the other 3 bars and 2 pivot points move relative to the fixed pivots.

72. This is also confirmed by Beltrami, which also describes a similar mechanism for raising an arm as discussed below and discusses the connection between the linkage, which it refers to as connecting rod 23, and the mainframe as being “pivot point 24.” Beltrami (EX1008), 3:12-22; FIG. 2; FIG. 3; 5:26-73

73. This is consistent with '063 Patent's disclosure of a loader linkage (e.g., a loader linkage 46a or 50a) pivotally attached to the first side of the mainframe and pivotally attached to the loader arm. *See, e.g.*, '063 Patent (EX1001), FIG. 3, 4:26-40. *See also*, KR996's Fig. 21, which illustrates a first side of the mainframe and the pivot connections thereto.

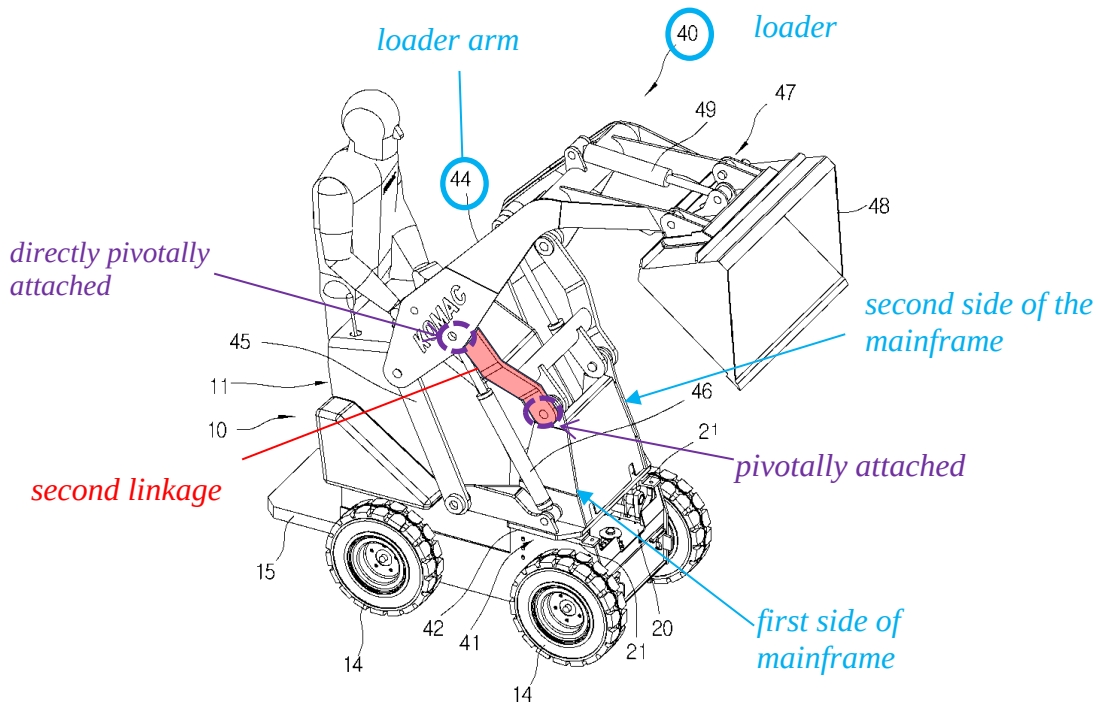
74. KR996's link 45 is *directly pivotally attached* to the boom 44, *loader arm*. There are no intervening components in the attachment. Rather, link 45 is fastened to the boom 44 at a rotational joint just like the '063 Patent. KR996 (EX1005), Fig. 8-9, 21, [0054]; EX1001, FIG. 3, 4:14-43. KR996 at Figs. 1-3 illustrate a direct attachment of one boom 44 and link 45 with no intervening components. And a POSITA would understand the same configuration to apply to

each side of the loader unit 40. KR996's link 45 is directly attached to the boom 44 at a rotational joint. The link 45 attachment to KR996's *mainframe* is also consistent with '063 patent's disclosure of a linkage (46a/50a) pivotally attached to a bracket portion 40 on the first side of the mainframe 10. See EX1001, FIG. 3, 4:14-20. As discussed in [4.2], the bracket to which the link 45 is directly attached is part of the *mainframe* that supports the loader unit 40.

75. Thus, [4.3] is disclosed by KR996.

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

76. KR996 also illustrates another link (*a second linkage*) pivotally attached to the first side of the mainframe and directly pivotally attached to the boom 44, *loader arm*, of the loader unit 40. KR996 (EX1005), claim 1, [0054], [0134], Figs. 1-10.



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

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

77. KR996's forward link is *directly pivotally attached* to the boom 44, loader arm. There are no intervening components between the attachment. Rather, the forward link is fastened to the boom 44 at a rotational joint just like the '063 Patent. KR996 (EX1005), Fig. 8-9, 21, [0054]; EX1001, FIG. 3, 4:14-43. KR996 at Figs. 1-5, 9 illustrate a direct attachment of one boom 44 and the forward link with no intervening components. And a POSITA would understand the same configuration to apply to each side of the loader unit 40.

78. There are pivot point connections, each a point of relative rotation between the linkage and each of the boom 44 and the mainframe as annotated above. The attachment at each end of the link and actuator discussed herein is pivotable as it is a joint that allows for rotary motion. See KR996, Figs. 8, 9. The pivot point between the linkage and the mainframe is a fixed or anchor pivot point; the pivot point between the link and the boom 44 is a moving pivot point relative to the equipment as the loader 40 raises. These pivot point connections are standard in a four-bar mechanism. See, e.g., EX1023, p. 6, EX1028, p. 21. That is, as described beginning in paragraph 33, the four-bar mechanism contains two fixed pivot points and an imaginary fixed linkage between them, and the other 3 bars and 2 pivot points move relative to the fixed pivots.

79. This is also confirmed by Beltrami, which also describes a similar mechanism for raising an arm as discussed below and discusses the connection between a linkage, which it refers to as connecting rod 25, and the mainframe as being “pivot point” 26. Beltrami (EX1008), 3:12-45; FIG. 2; FIG. 3; 5:26-73. This is consistent with '063 Patent's disclosure of a loader linkage (e.g., a loader linkage 46a, 50a) pivotally attached to the first side of the mainframe and pivotally attached to the loader arm.

80. This forward link of KR996's vehicle is also *directly attached* to the

boom 44, *loader arm*, because there are no intervening components. Rather, the boom cylinder 46 is fastened to the boom 44 at a rotational joint. KR996, Fig. 8-9, 21, [0054]. This is also just like the '063 patent. EX1001, FIG. 3, 4:14-43.

81. Thus, KR996 discloses this element.

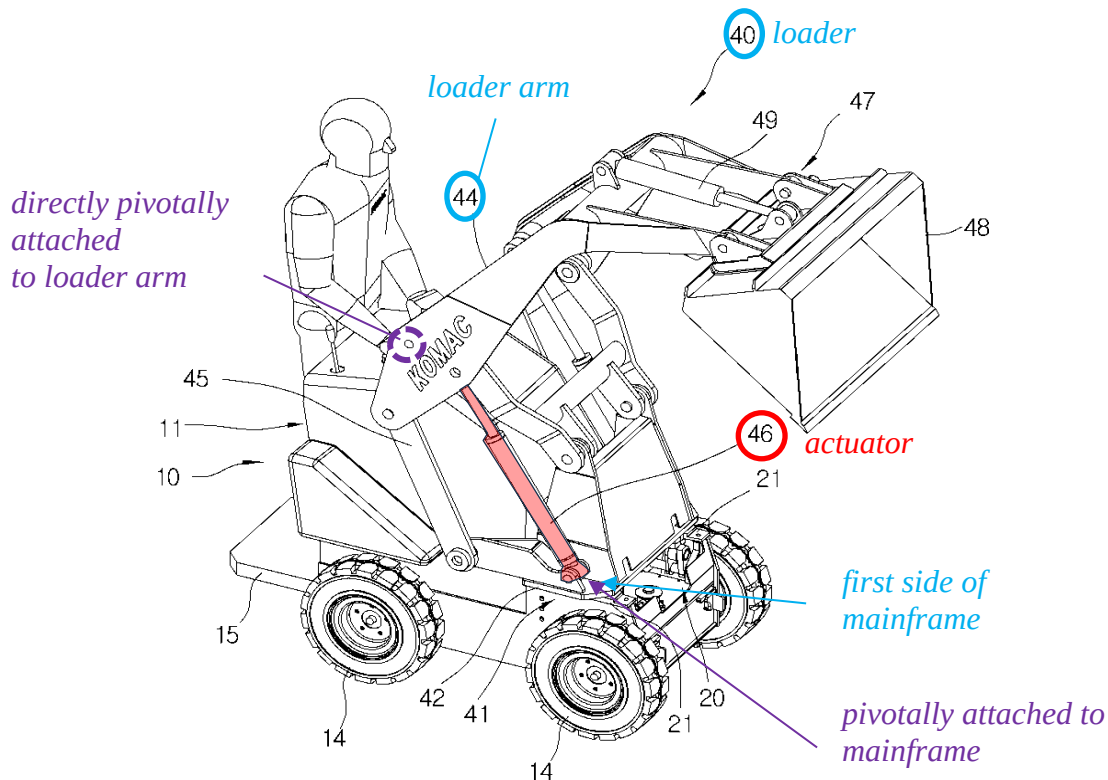
[4.5] *an actuator pivotally attached to the first side of the mainframe and directly pivotally attached to the loader arm; and*

82. KR996 describes a boom cylinder 46 (*actuator*) that drives the boom 44, which is the arm of the loader unit 40. KR996 (EX1005), [0054], *see also*, claim 1, [0134], Figs. 8-9, 21.

83. A POSITA would recognize a boom cylinder is an actuator cylinder, or simply actuator. See, e.g., Bares (EX1010) 2:66-3:1 (“The lift arm assembly 24 is raised and lowered with extendible and retractable double acting hydraulic cylinders or actuators”). An actuator cylinder may be pneumatic, hydraulic, or electric. For example, the '063 Patent at claim 11, describes the actuator as a “hydraulic cylinder”; KR996 similarly describes a “hydraulic cylinder” ([0003]).

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

KR996's Fig. 9 below is illustrative:



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

85. There are pivot point connections – points of rotation within mechanical systems - between the actuator and the boom 44 and the loader support. The attachment at each end of the actuator highlighted above is pivotable as it is a joint that allows for rotary motion, which is shown by KR996's Figs. 8-9. The pivot point between the boom cylinder 46 and the loader support is a fixed or anchor pivot point; the pivot point between the actuator and the boom 44 is a moving pivot point relative to the loader support as the loader 40 raises. The boom

cylinder drives the movement of the boom 44. *See* KR996 (EX1005), Figs. 8-9.

86. This is also confirmed by Beltrami, which also describes a similar mechanism for raising an arm as discussed below and discusses the connection between the actuator, which it refers to as, in one example, hydraulic jack 28, being “pivotally connected to the vehicle at 30.” Beltrami (EX1008), 3:16-21; FIG. 2; 4:20-25; FIG. 3; 5:25-50.

87. KR996’s boom cylinder 46 is *directly pivotally attached* to the boom 44, *loader arm*. There are no intervening components in the attachment. Rather, boom cylinder 46 is fastened to the boom 44 at a rotational joint just like the ’063 Patent. KR996 (EX1005), Fig. 8-9, 21, [0054]; EX1001, FIG. 3, 4:14-43. KR996 at Figs. 1, 9 and 21 illustrate a direct attachment of a boom cylinder 46 and boom 44 with no intervening components. And a POSITA would understand the same configuration to apply to each side of the loader unit 40. I discuss this below in claim 8.

88. Thus, KR996 teaches this element.

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

89. KR996 discloses this element.

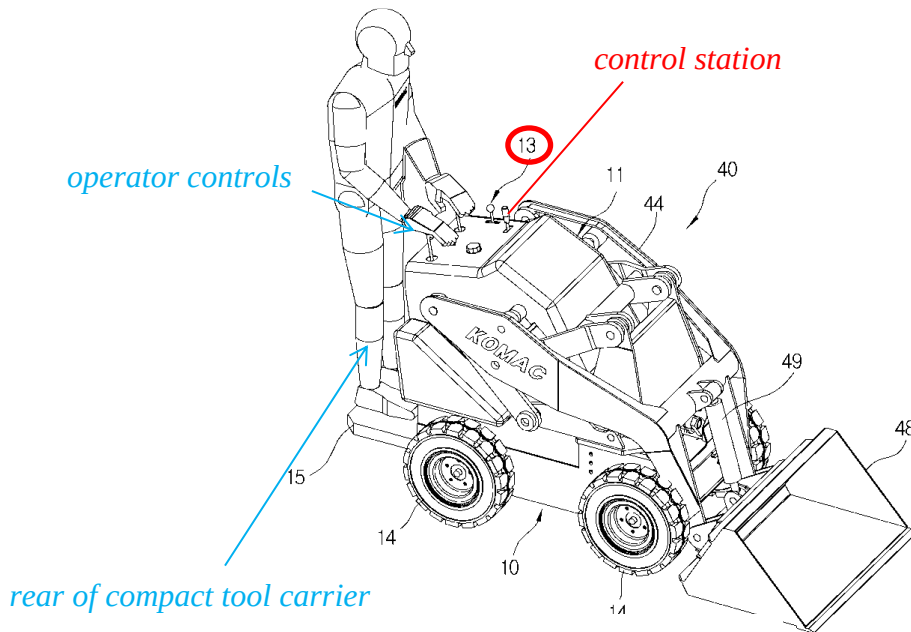
90. KR996 describes a control unit 13 (*a control station*) having operator

controls to “operate the equipment while the worker is on board at the rear” that is *mounted towards the rear* of the vehicle (*compact tool carrier*). KR996 (EX1005), [0042], Figs. 1, 8-9. The control unit 13 has *operator controls*. KR996 (EX1005), Figs. 1, 8-9, 21. The control unit 13 is *mounted*. KR996 (EX1005), [0017] (“a control unit **installed...**”).

91. The *operator controls* are for *propelling the compact tool carrier forward*, which is a standard movement of the equipment in operation. KR996 (EX1005), Abstract (“when the vehicle **moves forward...**when the vehicle **moves backward**”), [0016]-[0017], [0033] (“...allowing the **operator to board...when driving**”), [0072].

92. The control unit 13 is also for *raising and lowering* the loader unit 40 (*loader*) including the boom 44: “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).” KR996 (EX1005), [0072]. Operating the loader means raising and lowering it. *See also*, KR996, [0042] (“a control unit (13) to **operate the equipment while the worker** is on board at the rear”), claim 1. Fig. 8 and Fig. 9 illustrate the loader unit 40 being operated at a lowered and vertically raised position respectively. The lowered position may be used to gather a load, and the vertically raised position may be used to transport the load and provide it to a

target location (e.g., a dump truck as described in KR996, [0006]).

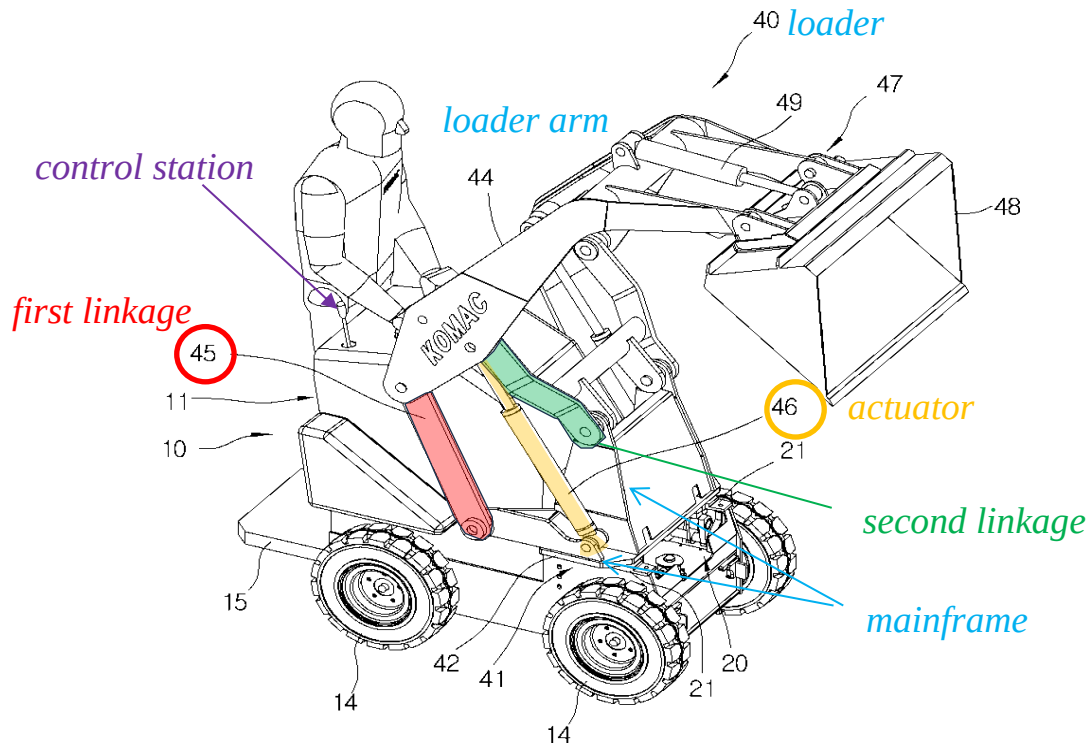


**EX1005, Fig. 8 (portion)
(annotated)**

KR996's Figs. 7 and 9 are illustrative of raised positions of the loader. Thus, KR996 discloses this element, which is confirmed by a POSITA's understanding of operator controls in a ride-on vehicle with a loader.

93. Thus, this element, [4.6] is disclosed by KR996.

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



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

95. Claim 4 is disclosed or obvious in light of KR996.

3. Claim 7

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

96. KR996 discloses or renders obvious claim 4 and further discloses or renders obvious this limitation.

97. The '063 Patent does not define a “single weldment,” but does, with respect to a different component, contrast a “single weldment” with use of

“fasteners (e.g., nuts and bolts).” See EX1001, 2:66-3:1.

98. KR996 describes a mainframe that would be recognized as incorporating a single weldment as it is a common technique for forming a frame such as illustrated in KR996. Further, a 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. There are numerous examples of implementing a welding technique in substantially similar compact tool carriers. Bares (EX1010), 4:8-34 (“The body or frame 12, as shown, is a unitized welded body that includes side walls 90A and 90B extending in fore and aft direction.... The body 12 is fully welded together with the components...”). And implementing welding in other earth-moving vehicles known to have vertical lift mechanisms was typical. See Yasuda (EX1022) 4:50-11:25 discussing “welding.” See also, JP705 (EX1006) discussing a suitable mainframe [0020] (“general mounting means such as welding or the like,”), [0016] (“enabling welding work to be stably performed, easily and efficiently,”)

99. A POSITA would recognize that there are known trade-offs in the engineering or design choice between a single weldment and attachment by, for example, nuts and bolts. These factors include aesthetics (e.g., a weld can provide

a smooth surface), ease of manufacturability of the component (*e.g.*, welding is a simple, easy to apply process), reliability of the attachment, positioning the surrounding components (*e.g.*, placement of the engine in the loader apparatus), replaceability of parts, structural rigidity, and/or costs. One benefit of connecting pieces by a weld allows for forming a smooth, continuous surface. See JP705 (EX1006), (“attaching means such as welding...to form a smooth, continuous surface.”) [0031]. And this reduction of parts allows for a reduction in component costs and weight. See JP705 (EX1006), [0008]. In addition to reducing the number of parts, welding connections can reduce the need for additional intermediate fasteners that could loosen over time thus reducing both the security of the attachment and the corresponding structural rigidity of the system. JP705 describes what a POSITA would recognize, welding work is stably performed, easily and efficiently. EX1006, [0016].

100. 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. See JP705 (EX1006), [0019] (“The main frame 1 is construed from case steel for welding construction); Bares

(EX1010), 4:8-10, 4:31-34 implementing a unitary frame on a compact loader (“The body or frame 12, as shown, is a unitized welded body that includes side walls 90A and 90B extending in fore and aft direction.... The body 12 is fully welded together with the components...”.) As I discussed above, a POSITA would clearly understand the benefits, and trade-offs, of unitary construction of a mainframe including limiting its separability.

101. Thus, claim 7 is disclosed or rendered obvious by KR996.

4. Claim 8

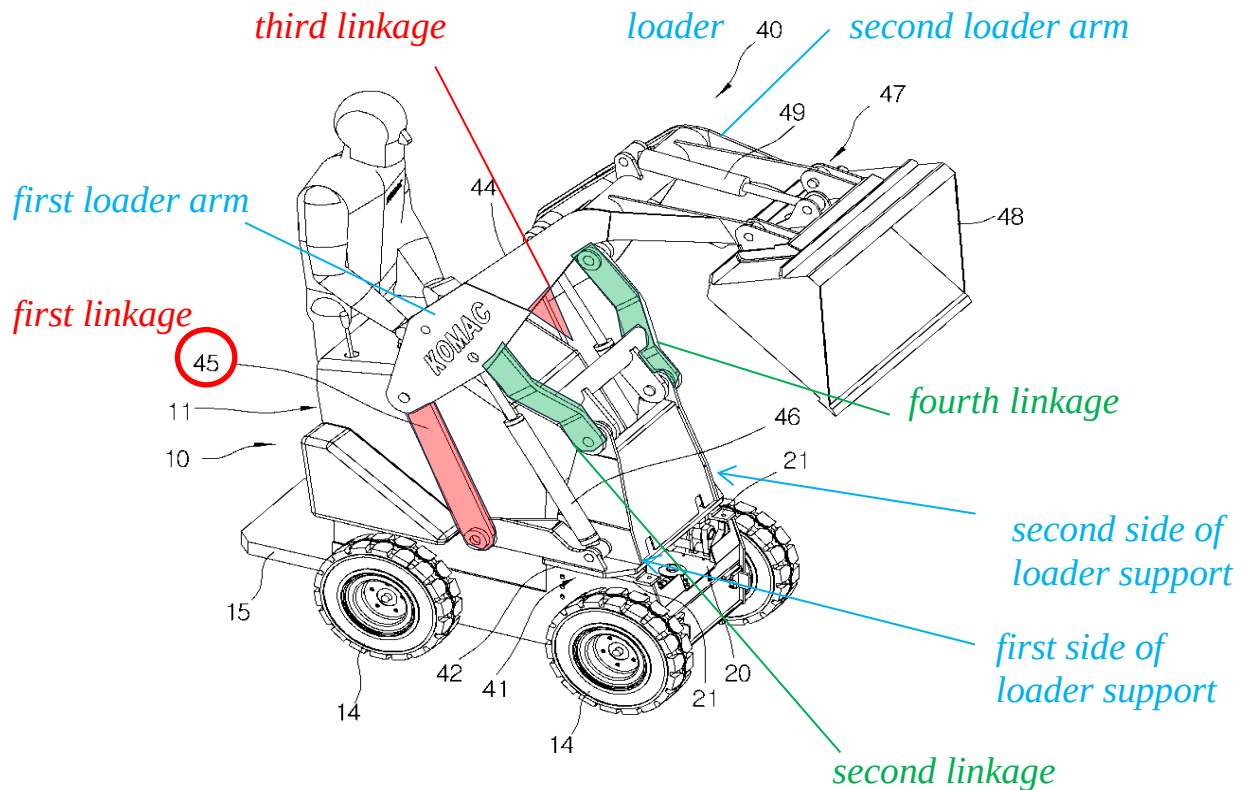
[8] *The compact tool carrier as set forth in claim 4, wherein the loader arm is a first loader arm, the loader comprising a second loader arm and the compact tool carrier comprising a third linkage pivotally attached to the second side of the mainframe and pivotally attached to the second loader arm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

102. Claim 4 is disclosed or rendered obvious by KR996, and this claim is similarly disclosed by KR996. This is because Claim 8 merely recites the configuration of the loader with respect to the second loader arm and the second side of the loader support.

103. In KR996, the loader unit 40, *loader*, includes a boom 44 that provides a *loader arm*, as I discussed in [4.1] above. This *loader arm is a first loader arm*. KR996 also includes a *second loader arm* (a second boom 44). KR996 (EX1005), Figs. 1-10. The second boom 44 is attached to the *second side of the*

mainframe, which is the opposing side of KR996's frame/body (see [4.2]).

104. As I discussed above in elements [4.3] and [4.4], KR996 provides a boom 44, providing a *first loader arm*, pivotally connected by a link 45 (*first linkage*) and forward link (*second linkage*) to a first side of the mainframe of its vehicle. KR996 also describes a second boom 44 (*a second loader arm*), which is connected to a *second side* of the vehicle through second set of intermediary parts including a link 45 (*third linkage*) and another forward link (*fourth linkage*) each also pivotally attached to the boom 44 (*second loader arm*). KR996 (EX1005), claim 1, [0054], [0133], Figs. 1-13, 21. In other words, the mechanism is also present on the opposing side of the KR996 vehicle. Fig. 9 is illustrative:



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

105. Figures, such as Figs. 1, 5, 11, confirm the two sides of the KR996 vehicle having the same mechanism for the loader. This also benefits weight distribution to the vehicle. Further, POSITA would have recognized advantages to providing the same configuration on each of two opposing sides of the vehicle and the loader unit. This allows for a balanced weight profile, important for mitigating the risk of tipping. Obviously, the 4-bar configuration needs to be identical on either side to allow for the system to move up and down. Also, the structural

rigidity of the two 4-bars (linkages) needs to be the same to ensure that they experience generally the same amount of deflection under load thus preventing the possibility of the mechanisms' binding. Furthermore, identical configuration of the 2 actuators allows for more even actuation load distribution. With symmetric 4-bar mechanisms, the working load is distributed along both sides of the machine. Also, an off-center working load has the potential to twist the arm of a system with a single mechanism; thus the loader arm would need to be much stiffer in torsion adding weight and dimension to the machine. A symmetric dual 4-bar system allows for 2 smaller actuators than a single mechanism system.

106. The third and fourth linkages are *pivotally attached to the second side of the mainframe and pivotally attached to the second loader arm (boom 44)*, just as I discussed above in [4.3] and [4.4] by respective pivot points.

107. Therefore, KR996 discloses *the loader comprising a second loader arm and the compact tool carrier comprising a third linkage pivotally attached to the second side of the mainframe and pivotally attached to the second loader arm and a fourth linkage pivotally attached to the second side of the mainframe and pivotally attached to the second loader arm.*

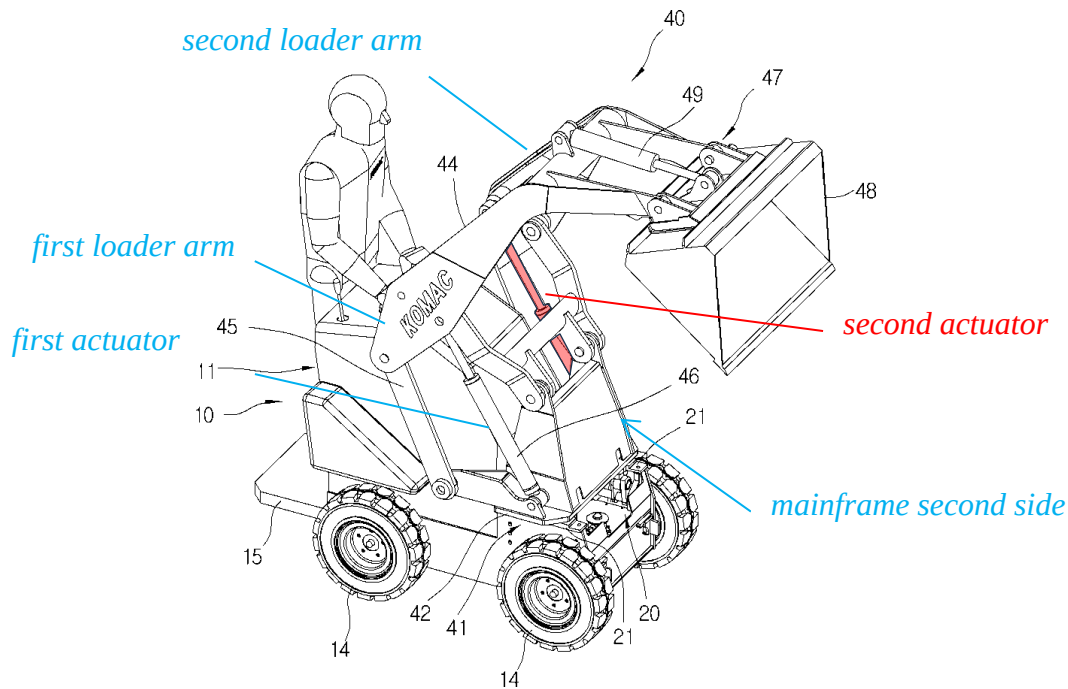
108. Thus, KR996 discloses or renders obvious claim 8.

5. Claim 9

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

109. KR996 discloses or renders obvious claim 8 and KR996 also discloses this element.

110. KR996 discloses boom cylinder 46 (*actuator*) of element [4.5] is a *first actuator*. KR996 also describes another boom cylinder 46 (*second actuator*) that drives a second boom 44 (*second loader arm*). KR996 (EX1005), [0054], claim 1, [0134], Figs. 1-13, 21. The second boom cylinder 46 is *pivotally attached to the second side of the mainframe and pivotally attached to the second boom 44, the second loader arm*. Fig. 9 is illustrative:



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

111. Figures, such as Figs. 1, 5, 11, confirm the two sides of the KR996 vehicle have the same loader mechanism configuration. And a POSITA would have reason to have the two sides of the loader unit having the same configuration as I discussed in claim 8. The boom cylinder (*second actuator*) is *pivotally attached* to the second side of the mainframe and *pivotally attached* to the second boom 44 substantially as discussed above [4.5].

112. Therefore, KR996 discloses *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.

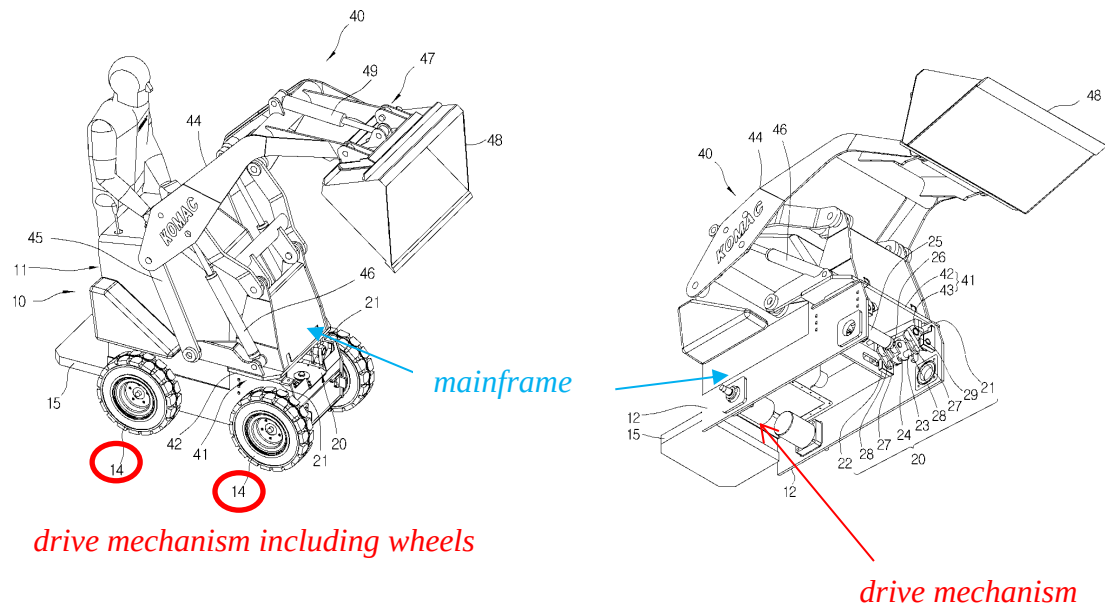
113. Thus, claim 9 is disclosed or rendered obvious by KR996.

6. Claim 10

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

114. KR996 discloses or renders obvious claim 4 and further discloses this claim element.

115. KR996 describes *a drive mechanism* including “wheels (14),” which are *wheels* as recited in the claim. KR996 (EX1005), [0042], [0052], [0060], [0118], Figs. 1, 8-10. The *drive mechanism* is *attached to the mainframe* at a rotational axis as illustrated in the representative KR996 figures below, just the same as described in the '063 Patent. See EX1001, 3:31-32.



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

116. Thus, claim 10 is disclosed or rendered obvious by KR996.

7. Claim 11

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

117. KR996 discloses or renders obvious claim 4 and the *actuator* described above in element [4.5] is a *hydraulic cylinder* according to KR996.

118. KR996 describes the feature as a “boom **cylinder** 46,” and uses the term “boom cylinder” interchangeably with a “hydraulic cylinder.” See KR996 (EX1005), [0003]. Thus, a POSITA would recognize that KR996 itself suggests a

hydraulic cylinder. Further, a POSITA would recognize a cylinder such as a boom cylinder 46 is commonly a *hydraulic cylinder*. See, e.g., EX1009, 1:44-46; EX1013, [0029]; EX1008 (Beltrami), 3:18-21. To the extent KR996 does not explicitly illustrate a hydraulic cylinder for boom cylinder 46, a *hydraulic* cylinder is one of only a few common choices for this structure and functionality (e.g., pneumatic, hydraulic, or electric) and a hydraulic cylinder would be an easily implemented choice. See, e.g., EX1009, 1:44-47; EX1013, [0029], EX1008, 3:16-22, 4:50-59 each discussing hydraulic cylinders for driving a lift arm.

119. Thus, KR996 discloses or renders obvious claim 11.

8. Claim 12

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

120. KR996 discloses or renders obvious claim 4 and as discussed in [4.1], provides a *loader arm*; KR996 also discloses or renders obvious this element.

121. KR996 discloses that its loader unit 40 includes boom 44 that is a *loader arm*. The drawings of KR996 suggest that the boom 44 is formed as a *single weldment* (e.g., without fasteners). KR996 (EX1005), Figs. 1, 4, 7-8, 21.

122. Further, a POSITA would have found it obvious to form a loader arm that *incorporates a single weldment* for substantially similar reasons as discussed above in claim 7 and the mainframe as this is merely a choice in the method of

forming the component. It was known in the art for a loader arm to incorporate a single weldment. EX1009, (Bares '568), 3:50-52 (“The lift arms 24A and 24B are joined together with a cross member 70 which is welded to the plates 34”). For example, forming by welding provides predictable benefits of reliable connection, reduction in fastening parts, and smooth surfaces as in [7].

123. Thus, KR996 discloses or renders obvious Claim 12.

D. Ground 3 : KR996 and JP705

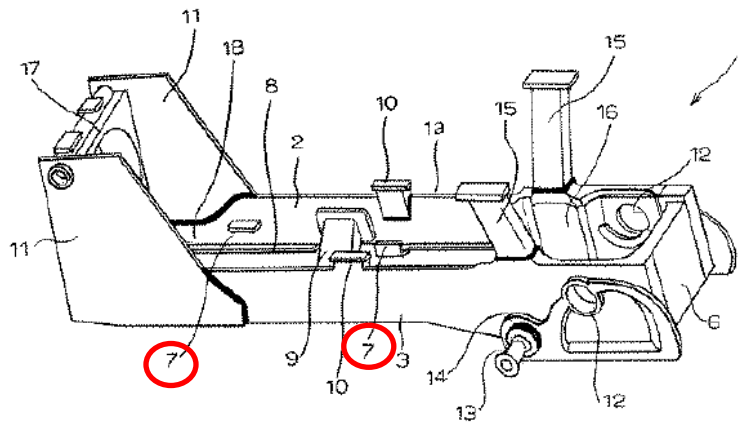
1. KR996 (EX1005)

124. KR996 is discussed above.

2. JP705 (EX1006)

125. JP705 discusses “a main frame for a work vehicle such as a bulldozer, hydraulic excavator, or other construction or civil engineering machine, and more particularly relates to a main frame for a work vehicle that enables easy and reliable installation of various on-board devices such as an engine, a transmission, and the like.” JP705 (EX1006), [0001]. A main frame 1 has a pair of parallelly extending left and right side plates 2, 3. JP705 (EX1006), [0019]. “A pair of left and right mounting parts 7 and 7 for mounting an engine, a steering device, and the like (not depicted) are provided near the upper surfaces of the side plates 2 and 3 and protrude from the inner side surfaces in the width direction of the frame.” *Id.* See also,

mounting parts 8.



EX1006, FIG. 1
(annotated)

3. Reasons to combine KR996 and JP705

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

analogous art to the '063 Patent because they are reasonably pertinent to a same problem faced by the inventor - securely mounting components onto a frame to effectuate the operation of a vehicle. KR996 (EX1005), Fig. 12; JP705 (EX1006), [0006]-[0008], FIG. 1; '063 Patent (EX1001), 5:63-66, FIG. 6.

127. A POSITA would have been motivated to combine the teachings of JP705 with KR996 to produce predictable and beneficial results as discussed below.

128. First, the vehicle of KR996 has an engine disposed within its frame to provide energy to propel the vehicle. A POSITA would understand that Figs. 10 and 12 illustrate a component that is a motor (engine). This is confirmed by EX1014, which is a Korean publication sharing the same inventor and affiliated company as KR996. KR528 (EX1014), FIG. 3. Moreover, certainly, power is provided to the KR996 vehicle to propel it forward. There are well-known choices to provide this power: (1) an engine with benefits of power, speed, well-established and widespread availability, (2) electric power, which needs a battery taking long to charge; (3) solar power, which is dependent upon the environment; (4) operator-powered (limited in speed and distance based on operator). KR996, with its ride-on platform, does not suggest operator (e.g., human)-power, nor suggest solar or electric power. Further, a POSITA would recognize an engine is a commonly

implemented power source for these types of vehicles. *See, e.g.*, ISO 6165 (EX1016), p. 7 (“self-propelled”), SAE J2752 (EX1015), p. 4 suggesting “engine” components; Azure (EX1013), [0003] “Walk-behind power machines such as wide-area lawn mowers and 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 such as a cutting deck or trencher as well.”); EX1009 (Bares ’568), 2:32-48 (“a small loader indicated generally at 10 is a walk behind powered loader ...driven by an internal combustion engine 45...”).

129. It is common practice to use a bracket to secure an engine to the mainframe of such a vehicle. There are only a few places on the mainframe to provide such as a bracket – e.g., front, back, two sides. A POSITA would have known to select a bracket extending from the sides of the mainframe as this positions the engine between the two parallel sides providing balance.

130. Second, JP705 teaches providing a mounting surface for such an engine in a substantially similar vehicle; these mounting surfaces are provided by mounting parts 7 (*engine bracket*) that extend from the frame – beneficially providing a mounting surface for receiving an engine to effectuate the vehicle’s operation. Again, in my experience, mounting an engine, such as in a compact

utility loader, is typically done using an engine bracket. The engine bracket serves to securely attach the engine. Moreover, the engine can serve as a structural member further increasing the stiffness of the connection between the two parallel frame elements. This would be especially important in instances in which the load is not uniformly distributed to both loading arms.

131. JP705 describes a main frame and aspects thereof that work generally with many types of vehicles, and it provides benefits that work particularly well with a compact vehicle. JP705 (EX1006), (57) (SOLUTION). As such, elements of the mainframe of JP705 that are described as being reduced in both size and weight, would work particularly well with KR996's compact vehicle. A POSITA would recognize aspects of the mainframe of JP705 would apply to KR996 including a desire for lightweight component.

132. Using JP705's mounting parts 7 (*engine bracket*) extending from a frame provides a benefit of avoiding use of additional parts to secure the engine in the vehicle. JP705 (EX1006), [0008]. JP705 itself suggests providing mounting parts extending from a frame reduces the number of fastening parts (such as a bolt, nut, collar, or the like) required. JP705 (EX1006), [0008] [0016]. And this reduction of parts allows for a reduction in component costs and weight. JP705 (EX1006), [0008]. Forming the mounting parts 7 integrally with the main frame

through conventional welding processes prepares the receiving surface, advantageously a “smooth, continuous surface,” early in the manufacturing process. *See* JP705 (EX1006), [0016], [0031]. In addition to reducing the number of parts, welding the engine bracket directly to the frame eliminates additional intermediate fasteners that could loosen over time thus reducing both the security of the attachment and the corresponding structural rigidity of the system. Further, integrating the mounting parts and a frame allows for efficient loading of an engine onto the available, previously prepared, designated mounting surface it provides. JP705 (EX1006), [0013], [0018], [0022]. A POSITA would recognize these same benefits would be gained by implementing JP705’s mounting parts 7 for mounting an engine in KR996’s compact vehicle.

133. Thus, this combination is merely applying a known technique to a known device (e.g., JP705’s technique of mounting an engine in a vehicle using an engine bracket, with KR996’s vehicle having a frame and engine) ready for improvement (e.g., providing an easily accessible mounting surface suitable to receive the engine extending from the frame) to yield predictable results.

134. The results of combining JP705’s technique would have been predictable and had a reasonable expectation of success given both JP705 and KR996 relate to similar vehicle types with an engine mounted between sides of a

and toward the rear of a frame. Modifying KR996's vehicle to provide mounting parts extending from the sides of the frame would have been a straightforward and simple matter of utilizing the engine mounting feature for its known function.

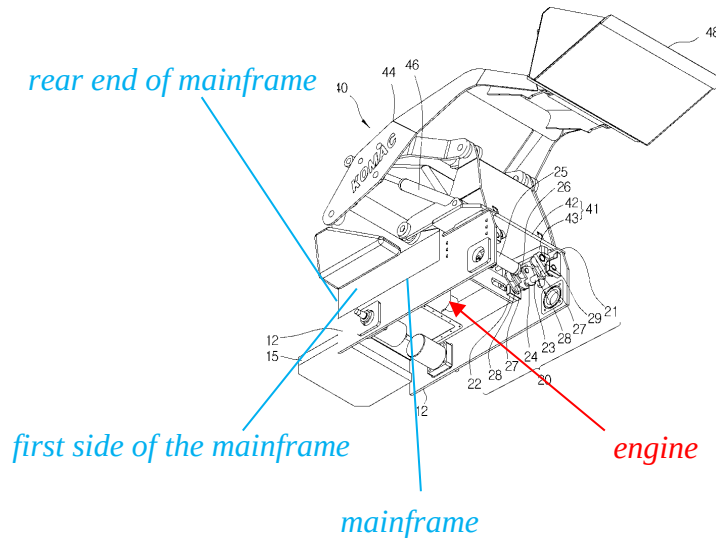
JP705 describes that welding operations to form the mounting parts extending from the frame can be performed "stably [], easily, and efficiently." JP705 (EX1006), [0016]. Further, in evaluating the suggested frame of KR996 (see Fig. 10), a POSITA would recognize that there is available space on the KR996 frame to provide JP705's mounting parts 7 extending therefrom.

4. Claim 5

[5] *The compact tool carrier as set forth in claim 4, wherein the mainframe comprises an engine bracket that extends from the first side toward the second side for mounting an engine to the mainframe, the engine bracket being spaced from the rear end of the mainframe.*

135. KR996 discloses or renders obvious claim 4 and in combination with JP705 renders obvious this element.

136. KR996's vehicle includes *an engine* for propelling the vehicle. I have annotated Fig. 10 below as illustrative of the engine.



EX1005, Fig. 10
(annotated)

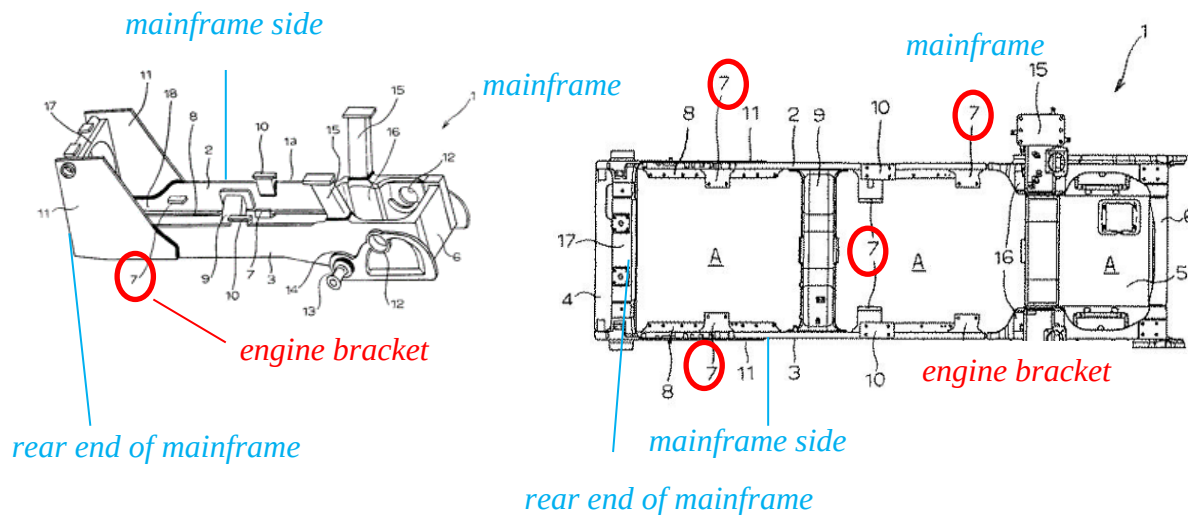
See also, KR996 (EX1005) Fig. 12, claims 1, 2, [0002]-[0005] showing the vehicle is self-propelling, which would be provided by an engine.

137. As I discussed above, the engine and its relative location in the vehicle, as illustrated by KR996 is confirmed by EX1014, a Korean patent publication having the same inventor, assignee, and directed to a substantially similar “green building deconstruction work” vehicle and further illustrating an engine. EX1014, (54), FIG. 3.

138. It was well-known in the art that a compact carrier such as KR996 typically uses an engine bracket to support and secure the engine in place. This is a standard practice. A POSITA would have been motivated to apply the teachings of

JP705 (EX1006) to provide a surface for mounting the engine of KR996's vehicle for the reasons discussed above.

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



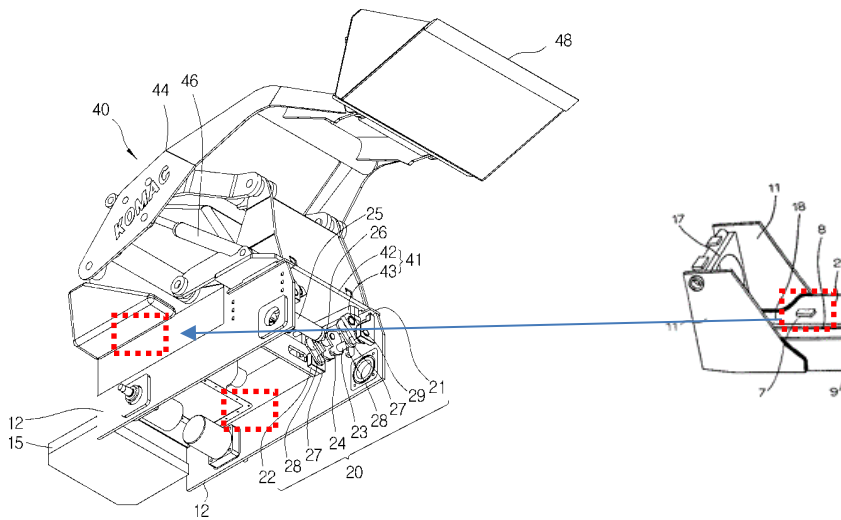
EX1006, FIGS. 1 and 3

140. The mounting parts 7 (*engine bracket*) extend[] from a respective side

2[3] of the frame *toward* an opposing side 2[3] and are *spaced from the rear end of the mainframe*. JP705 (EX1006), FIGS. 1, 3. It would have been obvious to implement the mounting parts 7 (*engine bracket*) of JP705 similarly *extend[ing] from the first side* of the mainframe of KR996 *toward the second side* for mounting the engine of KR996's vehicle. The mounting of the engine from the side would allow for engine maintenance such as oil change and such side mounting would not interfere with other engine components. Furthermore, as discussed above (paragraph 60), the engine will serve as a member increasing the stiffness of the structure.

141. As in KR996, an engine is spaced *from the rear end of mainframe*, and the JP705 engine bracket is similarly spaced *from the rear end of a mainframe*, a POSITA would have recognized to position the mounting parts 7 (*engine bracket*) similarly *from the rear end of the mainframe* of KR996. Further, a POSITA would recognize that drive sprockets on the tracked vehicle and drive wheels on the wheeled vehicle such as KR996 are driven hydraulically. As such, the drive sprockets/wheels have hydraulic motors attached and to couple this to the drive system hydraulic hoses are typically used to extend from the engine driven hydraulic pump. Accordingly, the engine can be easily located where there is adequate space, such as spaced from the rear end of the mainframe, and connection

to the drive sprockets is simply provided by suitable length hydraulic hoses.



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

142. Therefore, KR996 in view of JP705's engine bracket provides *the mainframe comprises an engine bracket that extends from the first side toward the second side for mounting an engine to the mainframe, the engine bracket being spaced from the rear end of the mainframe.*

143. Thus, claim 5 is rendered obvious by KR996 and JP705.

5. Claim 6

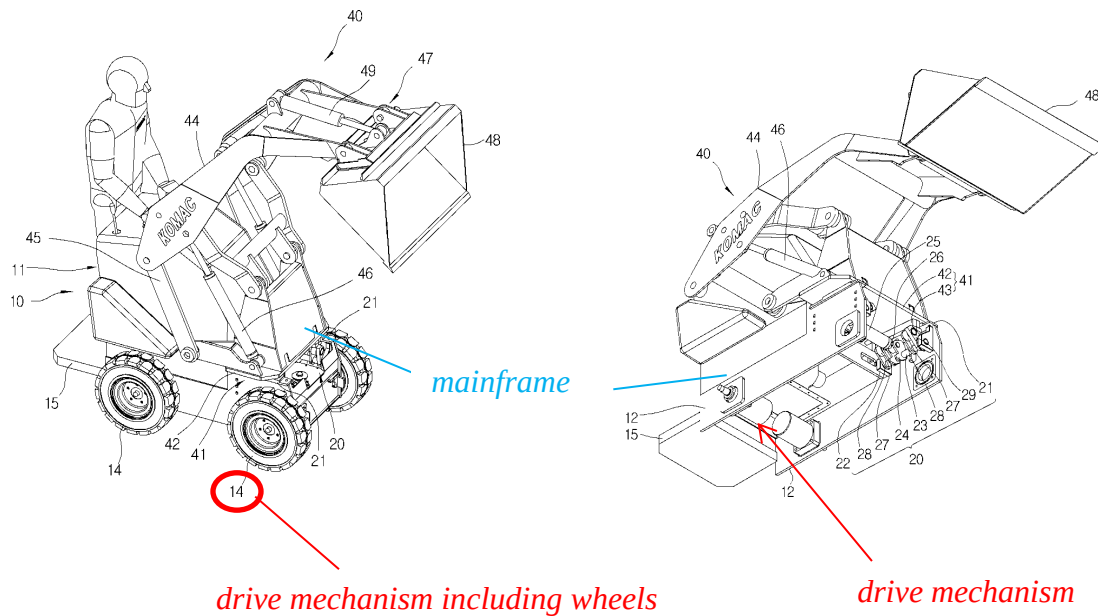
[6] *The compact tool carrier as set forth in claim 5 comprising an engine to propel a drive mechanism, the engine being attached to the engine bracket.*

144. KR996 in view of JP705 renders obvious claim 5 and also teaches this

claim.

145. First, KR996 discloses *a drive mechanism* including wheels 14 as discussed above with respect to [10].

146. Second, KR996 also discloses *an engine* as discussed above in claim 5. See, e.g., KR996, Fig. 10. In light of JP705, it would be obvious to *attach* the *engine* to the mounting parts 7 (*engine bracket*) of JP705 extending *from* the mainframe of the KR996 vehicle as this is merely effectuating the stated purpose of the mounting parts (“for mounting an engine”). See JP705 (EX1006), [0019], *see also*, JP705 (EX1006), [0001], EX1004, FIG. 3.



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

147. Third, a POSITA would understand that the *drive mechanism* is *propel[led]* by the *engine* as this is a standard vehicle operation. See, e.g., EX1009 (Bares '568), FIGS. 1-2, 2:34-47. EX1010 (Bares) 2:35-46.

148. Thus, claim 6 is rendered obvious by KR996 and JP705.

E. Ground 4 : KR996 and Bares

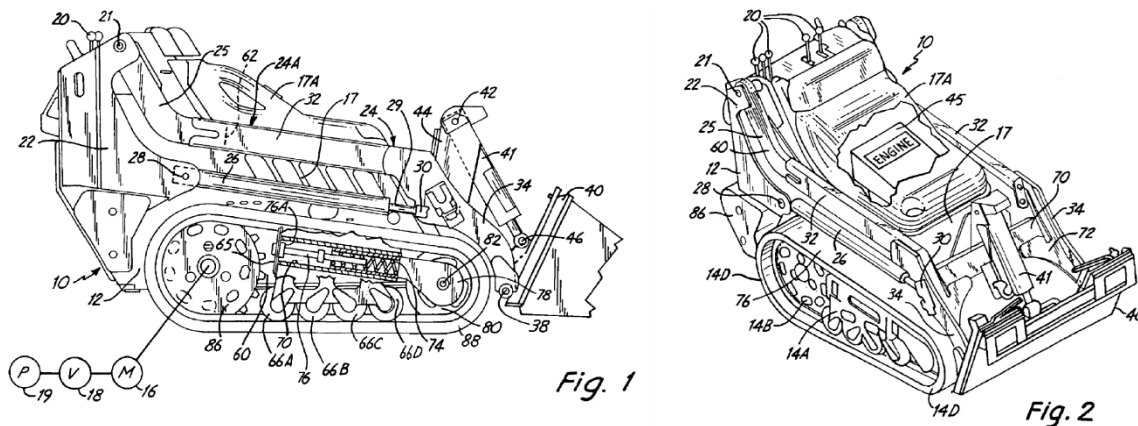
1. KR996

149. KR996 is discussed above.

2. Bares (EX1010)

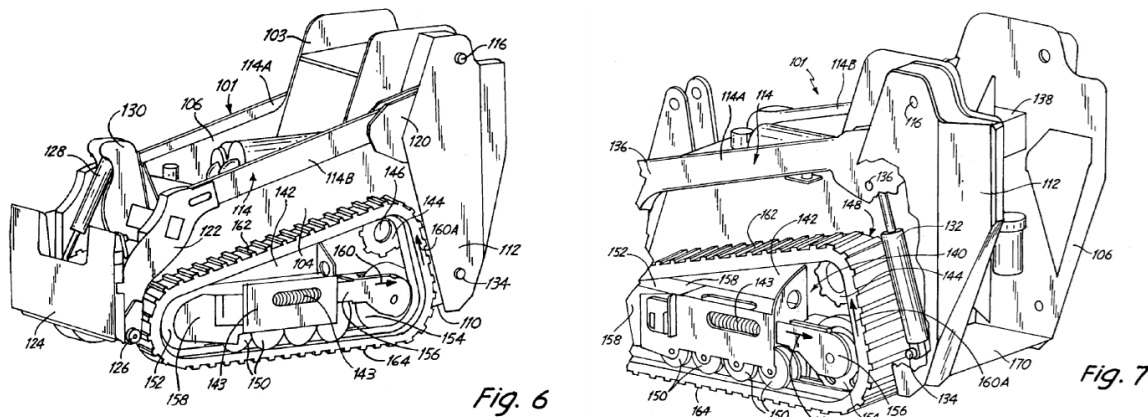
150. Bares “relates to a small...walk behind loader that is, in the form

shown, track propelled.” Bares (EX1010), 1:33-35. Bares provides a first embodiment illustrated by side and perspective views in FIGS. 1-2, reproduced below. Bares (EX1010), 2:14-16.



EX1010, FIGS. 1, 2

151. 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.” Bares (EX1010), 2:35-46. Bares also describes modified track assembly having a drive motor 146 and a drive sprocket 144 raised above a tensioner idler wheel. Bares (EX1010), 1:59-63, 5:24-29, FIGS. 6-8.



EX1010, FIGS. 6, 7

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

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

153. Bares, like KR996, is in the same field of endeavor as the '063 Patent, pertaining to working vehicles (*e.g.*, earth-moving equipment) and in particular, vehicles with a stand behind operation and a loader arm. EX1005, Abstract, [0001], FIG. 21; EX1010, 5:55-57, FIGS. 1-8; EX1001, 1:30-44, 2:56-3:15, FIG. 1. KR996, Bares and '063 Patent are also each reasonably pertinent to a same

problem faced by the inventor of operator safety for such a vehicle. EX1005, [0010]-[0011], [0034], FIG. 21; EX1001, 3:66-4:3; EX1010, FIG. 7.

154. A POSITA would have been motivated to combine the teachings of Bares with KR996 to produce a predictable and beneficial configuration of forming a pocket providing a barrier of protection for the operator when on KR996's safety step 15. The protection of the pocket is formed by a simple modification of KR996's frame (e.g., main portion 11) to provide an extension of the frame. This is predictable with a reasonable expectation of success as both KR996 and Bares relate to similar vehicle types with similar mainframes having an operator platform extending at the rear of the compact tool carrier and the drive mechanism attached to the frame. A POSITA would have recognized a benefit in Bares' configuration as it provides operator protection including as suggested by industry standards. ISO 3457 would have suggested to a POSITA to provide Bares' extension of the mainframe to provide a barrier between the KR996's operator and drive mechanism as should a hazard exist, a "guard that restricts the movement of a person's body or a part of it, in order to avoid its contact with a machine component or exposure to other, similar hazards" is required. EX1017, p. 1. By providing the extension of the frame of Bares to that of KR996, a barrier is provided between an operator and the equipment (e.g., drive mechanism and/or loader) avoiding contact with the drive mechanism/loader

and/or debris generated. KR996 itself recognizes the need to guard the operator from debris. EX1005, [0014] (“Another object of the present invention is to provide construction equipment for green building deconstruction work that can protect”). Applying Bares’ teaching furthers this goal of KR996.

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

156. A POSITA would have had a reasonable expectation of success in implementing the configuration as it merely extends a portion of the existing frame adjacent the safety step 15 of KR996 adjacent the operator. McIlraith (EX1007) provides one example illustrating that this configuration was easy to implement and a common technique. See EX007, 3:19-24, FIGS. 1-3. And implementing Bares’ frame extension is an easy installation. In cases when it is not necessary to remove a guard for purposes of maintenance, it is preferable to have a fixed guard to protect the operator of a machine. It is common practice to use the structure of the machine itself to provide such guarding; as such extension of the mainframe would be a

typical approach.

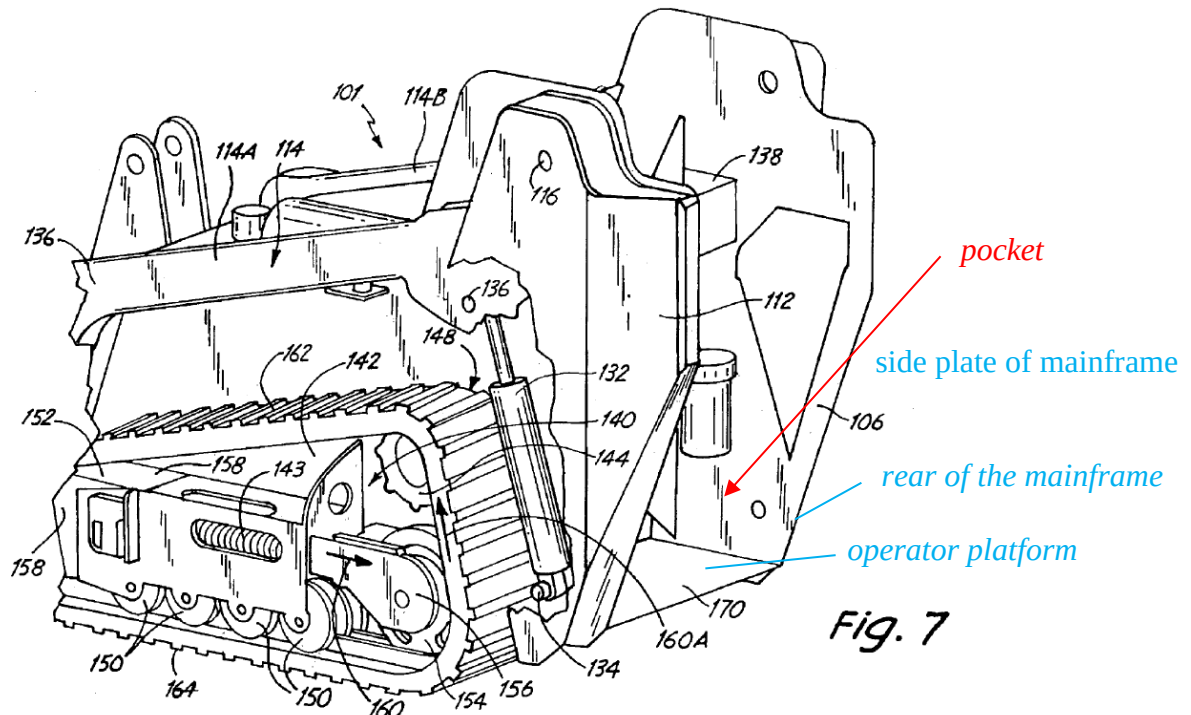
4. Claim 13

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

157. KR996 discloses or renders obvious claim 4 and in combination with Bares renders obvious this element. As discussed in [4.2], KR996 describes a *mainframe*. And as discussed above in the Reasons to Combine KR996 and Bares, it would have been obvious to provide the mainframe of KR996 such that it extends to *define[] a pocket toward a rear of the mainframe to partially surround an operator.*

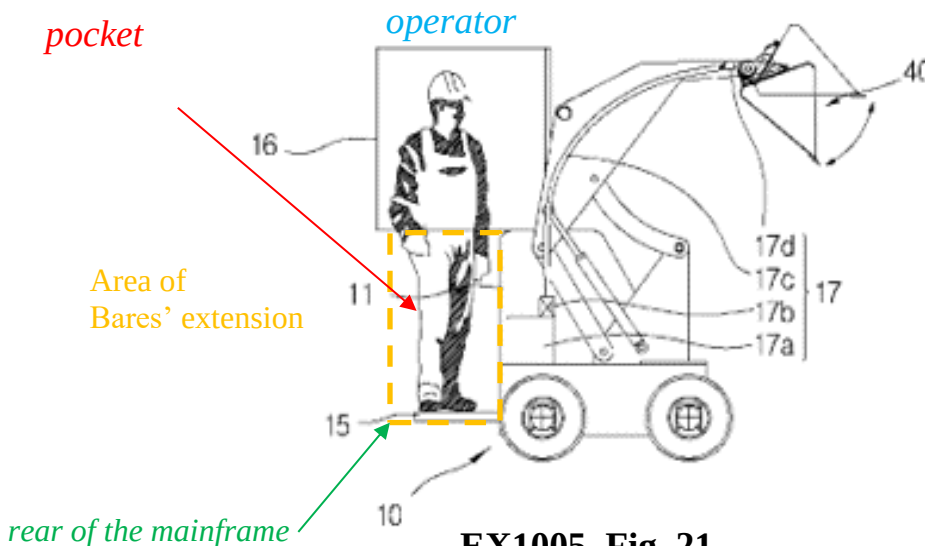
158. KR996 provides safety step 15 (operator platform) on which an operator stands while operating the vehicle. KR996 (EX1005), Figs. 7-9, 21, claim 18, [0033], [0042], [0049]. “At the rear lower part of the vehicle (10), a **folding safety step (15) is installed on the main body (11)** side of the vehicle (10) so that the **operator** can board the vehicle (10) when driving and fold it towards the side of the main body (11) of the vehicle (10) when stopped.” KR996 (EX1005), [0049]. Bares similarly describes a step at the rear of a compact loader on which the operator stands during operation, “platform 170.” Bares (EX1010), 5:55-57, FIG. 7. Bares illustrates a portion of a *mainframe*—side plates 104, 106—extends

such that platform 170, and thus *an operator* standing thereon, is at least *partially surround[ed]* by and within *a pocket* defined by the extension of the frame at the *rear of the mainframe*. FIG. 7 of Bares is illustrative:



EX1010, FIG. 7
(annotated)

159. Extending the mainframe as taught by Bares to KR996's frame provides least a portion of the step 15 (*operator platform*) which is toward the rear of the mainframe as the mainframe extension forms a pocket toward the rear of the mainframe that provides a barrier of protection for the operator when on safety step 15.



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

160. Thus, claim 13 is rendered obvious by KR996 and Bares

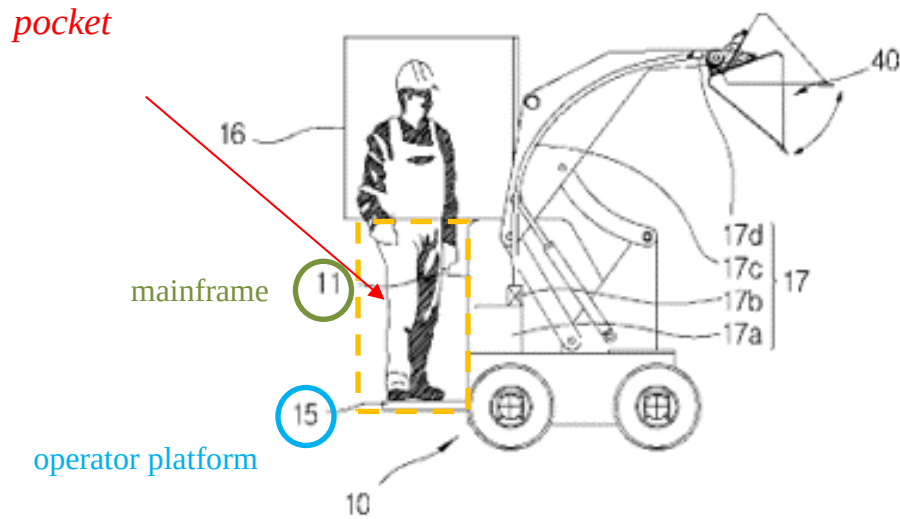
5. Claim 14

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

161. KR996 in view of Bares discloses or renders obvious claim 13 and also teaches this claim.

162. As discussed in [13], KR996 describes a safety step 15 that is an *operator platform*. KR996 (EX1005), Figs. 7-9, 21, claim 18, [0033], [0042], [0049]. Bares similarly describes a “platform 170” that provides an operator platform. Bares (EX1010), 5:55-57, FIG. 7. As illustrated and discussed above, applying Bares’ technique to KR996’s mainframe means a portion of a *mainframe* extend such that the safety step 15 (*operator platform*) is *at least partially within the pocket* provided

by the extension.



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

163. Thus, claim 14 is rendered obvious by KR996 and Bares.

XI. CONCLUSION

This declaration and my opinions herein are made to the best of my knowledge and understanding, and based on the material available to me, at the time of signing this declaration. I declare that all statements made herein on my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 or Title 18 of the United States Code.

Date: January 6, 2025

