

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

KUBOTA NORTH AMERICA CORPORATION,
Petitioner,

v.

VERMEER MANUFACTURING COMPANY,
Patent Owner.

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

Filed: September 3, 2025

**PATENT OWNER'S RESPONSE TO PETITION
FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 9,321,386**

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EXHIBITS

Exhibit*	Description
2001	February 28, 2025 Patent Office Announcement
2002	U.S. Patent No. 7,695,236 (“Green”)
2003	U.S. Patent No. 8,821,104 (“Yasuda”)
2004	U.S. Patent Pub. 2016/0244937A1
2005	U.S. Patent No. 5,542,814
2006	Summary: Problems with the Disclosure in KR996
2007	Excerpts from Oxford Dictionary
2008	Dingo Operators Manual
2009	Dingo Parts Catalog
2010	Scheduling Order from Parallel Litigation (ECF No. 34)
2011	Kubota’s Amended Answer and Counterclaims from Parallel Litigation (ECF No. 39)
2012	Amended Scheduling Order from Parallel Litigation (ECF No. 41)
2013	Judge Pittman’s Specific Requirements from Parallel Litigation
2014	Excerpt of Kubota’s Invalidity Contentions from Parallel Litigation
2015	<i>RESERVED</i>
2016	Declaration of Mark Fleming
2017	U.S. Patent No. 5,004,398
2018	U.S. Patent No. 5,666,794
2019	U.S. Patent No. 8,160,785
2020	U.S. Patent No. 9,039,344
2021	August 19, 2025 Deposition Transcript of Steven Alan Velinsky
2022	Exhibit 2 to August 19, 2025 Deposition Transcript of Steven Alan Velinsky
2023	TX1000 Infringement Contentions
2024	CTX50 Claim Charts
2025	CTX100 Claim Charts
2026	“Innovative Iron Awards: Toro and Vermeer Compact Tool Carriers”, Compact Equipment Magazine, December 22, 2015.
2027	Petitioner’s Confidential Document Production
2028	“Kubota enters stand-on track-loader segment with new SCL1000”, SAE, March 12, 2020.
2029	Transcript for “Kubota’s New SCL 1000 Stand-on Skid Steer” Video, ForConstructionPros, March 11, 2020

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2030	Transcript for “Kubota Gets into the Stand-on Track Loader Market” Podcast, ForConstructionPros, March 11, 2020
2031	Transcript for “Kubota Expert Breaks Down the SCL1000” Video, EquipmentWorld, September 30, 2020
2032	“Kubota unveils its first mini skid steer, the SCL1000”, Equipment World, March 12, 2020 (updated March 14, 2020)
2033	<i>RESERVED</i>
2034	<i>RESERVED</i>
2035	<i>RESERVED</i>
2036	Animation of Petitioner's Proposed Modified Version of KR996 with Lowered Pivot Points
2037	Declaration of Richard L. Brophy
2038	Stipulated Protective Order

CLAIM APPENDIX

Claim No.¹	Description
31.0	A compact tool carrier configured for standing or walk-behind operator control and having a longitudinal axis and a mass of less than about 1500 kg, the compact tool carrier comprising:
31.1	a loader adapted to carry a tool, the loader being moveable between a down position and a vertically raised position, the loader comprising: a first loader arm; a second loader arm; and at least one cross-member that extends from the first loader arm to the second loader arm;
31.2a	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,
31.2b	the mainframe comprising an engine bracket that extends from the first side toward the second side for mounting an engine to the mainframe, the engine bracket being spaced from the rear end of the mainframe,
31.2c	the first loader arm not being directly attached to the mainframe;
31.3	a linkage pivotally attached to the first side of the mainframe and pivotally attached to the first loader arm;
31.4	an actuator pivotally attached to the first side of the mainframe and pivotally attached to the first loader arm;
31.5a	a control station having operator controls for propelling the compact tool carrier forward and for raising and lowering the loader, the control station being mounted toward the rear of the compact tool carrier and adapted to allow for standing operation,
31.5b	each cross-member being disposed forward of the control station in the vertically raised position of the loader; and
31.6	an operator platform for standing operation of the operator controls of the control station.

¹ For purposes of this Preliminary Response, and for ease of reference, Patent Owner uses the same claim limitation numbering as the Petition.

Claim No. ¹	Description
32	The compact tool carrier as set forth in claim 31 wherein the linkage is a first linkage, the compact tool carrier further comprising a second linkage pivotally attached to the first side of the mainframe and pivotally attached to the first loader arm.
33	The compact tool carrier as set forth in claim 31 wherein the mainframe incorporates a single weldment.
34	The compact tool carrier as set forth in claim 31 wherein each cross-member is disposed forward of the operator platform and forward of the control station in the down position of the loader.
35	The compact tool carrier as set forth in claim 31 further comprising an attachment plate for removably attaching a tool to the compact tool carrier, the cross- member being spaced from the attachment plate.
36	The compact tool carrier as set forth in claim 35 further comprising an actuator for tilting of tools connected to the attachment plate, the actuator being connected to the cross-member and the attachment plate.
37	The compact tool carrier as set forth in claim 31 further comprising a drive mechanism for propelling the compact tool carrier over a supporting surface, the drive mechanism having a drive sprocket, the cross-member being disposed forward of the drive sprocket in the vertically raised position and the down position.
38.0	A compact tool carrier configured for standing or walk-behind operator control and having a longitudinal axis and a mass of less than about 1500 kg, the compact tool carrier comprising:
38.1	a loader being adapted to carry a tool, the loader comprising: a first loader arm; a second loader arm; and a single cross-member that extends from the first loader arm to the second loader arm;
38.2a	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,
38.2b	the mainframe comprising an engine bracket that extends from the first side toward the second side for mounting an engine to the mainframe, the engine bracket being spaced from the rear of the mainframe,
38.2c	the first loader arm not being directly attached to the mainframe;

Claim No. ¹	Description
38.3	a linkage pivotally attached to the first side of the mainframe and pivotally attached to the first loader arm; an actuator pivotally attached to the first side of the mainframe and pivotally attached to the first loader arm;
38.5	a control station having operator controls for propelling the compact tool carrier forward and for raising and lowering the loader, the control station being mounted toward the rear of the compact tool carrier and adapted to allow for standing operation; and
38.6	an operator platform for standing operation of the operator controls of the control station.
39	The compact tool carrier as set forth in claim 38 wherein the loader is moveable between a down position and a vertically raised position, the cross-member being disposed forward of the operator platform in the down position and the vertically raised position of the loader.
40	The compact tool carrier as set forth in claim 38 wherein the loader is moveable between a down position and a vertically raised position, the compact tool carrier further comprising a drive mechanism for propelling the compact tool carrier over a supporting surface, the drive mechanism having a drive sprocket, the cross-member being disposed forward of the drive sprocket in the down position and the vertically raised position of the loader.
41	The compact tool carrier as set forth in claim 38 wherein the linkage is a first linkage, the compact tool carrier further comprising a second linkage pivotally attached to the first side of the mainframe and pivotally attached to the first loader arm.
42	The compact tool carrier as set forth in claim 38 wherein the mainframe incorporates a single weldment.
43	The compact tool carrier as set forth in claim 38 further comprising an attachment plate for removably attaching a tool to the compact tool carrier, the cross- member being spaced from the attachment plate.
44	The compact tool carrier as set forth in claim 43 further comprising an actuator for tilting of tools connected to the attachment plate, the actuator being connected to the cross-member and the attachment plate.

Claim No. ¹	Description
45.0	A compact tool carrier configured for standing or walk-behind operator control and having a longitudinal axis and a mass of less than about 1500 kg, the compact tool carrier comprising:
45.1	a loader having an arm, the loader being adapted to carry a tool;
45.2a	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,
45.2b	the mainframe comprising an engine bracket that extends from the first side toward the second side for mounting an engine to the mainframe, the engine bracket being spaced from the rear of the mainframe,
45.2c	the loader arm not being directly attached to the mainframe;
45.3	a first linkage pivotally attached to the first side of the mainframe and pivotally attached to the loader arm at a first linkage pivot point;
45.4	a second linkage pivotally attached to the first side of the mainframe and pivotally attached to the loader arm at a second linkage pivot point,
45.5	the loader being free of cross-members between the first linkage pivot point and the second linkage pivot point;
45.6	an actuator pivotally attached to the first side of the mainframe and pivotally attached to the loader arm at an actuator pivot point;
45.7	a control station having operator controls for propelling the compact tool carrier forward and for raising and lowering the loader, the control station being mounted toward the rear of the compact tool carrier and adapted to allow for standing or walk-behind operation; and
45.8	an operator platform for standing operation of the operator controls of the control station.
46	The compact tool carrier as set forth in claim 45 wherein the loader comprises: a first arm; a second arm; and a cross-member that extends from the first arm to the second arm, the cross-member being fully disposed forward of the first linkage pivot point, the second linkage pivot point, and the actuator pivot point.
47	The compact tool carrier as set forth in claim 46 further comprising an attachment plate for removably attaching a tool to the compact tool carrier, the cross- member being spaced from the attachment plate.

Claim No. ¹	Description
48	The compact tool carrier as set forth in claim 47 further comprising an actuator for tilting of tools connected to the attachment plate, the actuator being connected to the cross-member and the attachment plate.
49	The compact tool carrier as set forth in claim 45 wherein the mainframe incorporates a single weldment.
70.0	A compact tool carrier configured for standing or walk-behind operator control and having a longitudinal axis and a mass of less than about 1500 kg, the compact tool carrier comprising:
70.1	a loader having an arm, the loader being adapted to carry a tool;
70.2a	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,
70.2b	the mainframe comprising an engine bracket that extends from the first side toward the second side for mounting an engine to the mainframe, the engine bracket being spaced from the rear end of the mainframe,
70.2c	the loader arm not being directly attached to the mainframe;
70.3	a linkage pivotally attached to the first side of the mainframe at a linkage pivot point and pivotally attached to the loader arm;
70.4	an actuator pivotally attached to the first side of the mainframe at an actuator pivot point and pivotally attached to the loader arm;
70.5a	a drive mechanism comprising a drive sprocket and tracks for propelling the compact tool carrier over a supporting surface,
70.5b	at least a portion of the tracks angling downward from the drive sprocket toward the front end of the mainframe, the linkage pivot point being disposed above the portion of the tracks that angles downward from the drive sprocket toward the front end of the mainframe; and
70.6	a control station having operator controls for propelling the compact tool carrier forward and for raising and lowering the loader, the control station being mounted toward the rear of the compact tool carrier and adapted to allow for standing or walk-behind operation.

Claim No. ¹	Description
71	The compact tool carrier as set forth in claim 70 wherein the linkage is a first linkage and the linkage pivot point is a first linkage pivot point, the compact tool carrier further comprising a second linkage pivotally attached to the first side of the mainframe at a second linkage pivot point and pivotally attached to the loader arm, the first linkage being forward of the second linkage.
72	The compact tool carrier as set forth in claim 70 further comprising an operator platform for standing operation of the operator controls of the control station, the operator platform extending from the mainframe, at least a portion of the operator platform being forward of the rear end of the mainframe.
73	The compact tool carrier as set forth in claim 70 wherein the mainframe incorporates a single weldment.
74.0	A compact tool carrier configured for standing or walk-behind operator control and having a longitudinal axis and a mass of less than about 1500 kg, the compact tool carrier comprising:
74.1	a loader having an arm, the loader being adapted to carry a tool;
74.2a	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,
74.2b	the mainframe comprising an engine bracket that extends from the first side toward the second side for mounting an engine to the mainframe, the engine bracket being spaced from the rear end of the mainframe,
74.2c	the loader arm not being directly attached to the mainframe;
74.3	a first linkage pivotally attached to the first side of the mainframe at a first linkage pivot point and pivotally attached to the loader arm;
74.4	a second linkage pivotally attached to the first side of the mainframe at an second linkage pivot point and pivotally attached to the loader arm;
74.5	an actuator pivotally attached to the first side of the mainframe at an actuator pivot point and pivotally attached to the loader arm;
74.6a	a drive mechanism comprising a drive sprocket and tracks for propelling the compact tool carrier over a supporting surface,
74.6b	the tracks being spaced from the rear end of the mainframe,
74.6c	at least a portion of the tracks angling downward from the drive sprocket toward the front end of the mainframe,

Claim No. ¹	Description
74.6d	each of the first linkage pivot point, second linkage pivot point, and actuator pivot point being (1) disposed above at least part of the portion of the tracks that angles downward from the drive sprocket toward the front end of the mainframe or (2) disposed between the tracks and the rear end of the mainframe; and
74.7	a control station having operator controls for propelling the compact tool carrier forward and for raising and lowering the loader, the control station being mounted toward the rear of the compact tool carrier and adapted to allow for standing or walk-behind operation; and
74.8	an operator platform for standing operation of the operator controls of the control station.
75	The compact tool carrier as set forth in claim 74 wherein the first linkage is forward of the second linkage, the first linkage being disposed above the portion of the tracks that angles downward from the drive sprocket toward the front end of the mainframe.
76	The compact tool carrier as set forth in claim 74 wherein the operator platform extends from the mainframe, at least a portion of the operator platform being forward of the rear end of the mainframe.
77	The compact tool carrier as set forth in claim 74 wherein the mainframe incorporates a single weldment.
78.0	A compact tool carrier configured for standing or walk-behind operator control and having a longitudinal axis and a mass of less than about 1500 kg, the compact tool carrier comprising:
78.1	a loader having an arm, the loader being adapted to carry a tool;
78.2a	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,
78.2b	the mainframe comprising an engine bracket that extends from the first side toward the second side for mounting an engine to the mainframe, the engine bracket being spaced from the rear end of the mainframe,
78.2c	the loader arm not being directly attached to the mainframe;
78.3	a linkage pivotally attached to the first side of the mainframe at a linkage pivot point and pivotally attached to the loader arm;

Claim No.¹	Description
78.4	an actuator pivotally attached to the first side of the mainframe at an actuator pivot point and pivotally attached to the loader arm;
78.5	a drive mechanism comprising a drive sprocket and tracks for propelling the compact tool carrier over a supporting surface, the tracks being spaced from the rear end of the mainframe; and
78.6	a control station having operator controls for propelling the compact tool carrier forward and for raising and lowering the loader, the control station being mounted toward the rear of the compact tool carrier and adapted to allow for standing or walk-behind operation; and
78.7a	an operator platform for standing operation of the operator controls of the control station that extends from the mainframe,
78.7b	at least a portion of the operator platform being forward of the rear end of the mainframe.
79	The compact tool carrier as set forth in claim 78 wherein the mainframe incorporates a single weldment.
86.0	A compact tool carrier configured for standing or walk-behind operator control and having a longitudinal axis and a mass of less than about 1500 kg, the compact tool carrier comprising:
86.1	a loader having an arm, the loader being adapted to carry a tool, the loader being moveable between a down position and a vertically raised position;
86.2a	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,
86.2b	the mainframe comprising an engine bracket that extends from the first side toward the second side for mounting an engine to the mainframe, the engine bracket being spaced from the rear end of the mainframe,
86.2c	the loader arm not being directly attached to the mainframe;
86.3	a first linkage pivotally attached to the first side of the mainframe at a first linkage pivot point and pivotally attached to the loader arm;
86.4	a second linkage pivotally attached to the first side of the mainframe at a second linkage pivot point and pivotally attached to the loader arm;
86.5	an actuator pivotally attached to the first side of the mainframe at an actuator pivot point and pivotally attached to the loader arm;

Claim No.¹	Description
86.6	a drive mechanism comprising tracks or wheels, the drive mechanism having a rotational axis, the pivot point at which the actuator is attached to the mainframe being above the rotational axis;
86.7	an attachment plate for removably attaching a tool to the compact tool carrier, at least a portion of the attachment plate being forward of the drive mechanism when the loader is in the vertically raised position;
86.8	a control station having operator controls for propelling the compact tool carrier forward and for raising and lowering the loader, the control station being mounted toward the rear of the compact tool carrier and adapted to allow for standing or walk-behind operation; and
86.9	an operator platform for standing operation of the operator controls of the control station.
87	The compact tool carrier as set forth in claim 86 wherein the mainframe incorporates a single weldment.

I. INTRODUCTION

Kubota challenges the validity of claims 31–49, 70–79, and 86–87 of Vermeer's U.S. Patent No. 9,321,386.² Kubota's obviousness arguments are all premised on Korean Patent No. 10-1041996 ("KR996"). Kubota fails to advance any legitimate basis to conclude that a person of ordinary skill in the art would modify KR996's specialized vehicle—with its hydraulically actuated mechanism for coupling various attachments—or otherwise combine the teachings of the prior art references in the manner Kubota imagines. In fact, Kubota's arguments also contradict (or ignore) clear evidence—including the express teaching of the references themselves—undermining its superficial, hindsight reconstruction of how a POSITA³ would view the KR996 machine and what modifications, if any, they would make to it.

Kubota and its expert, Dr. Velinsky attack the Challenged Claims by applying an improper construction of "mainframe." Under the Board's preliminary construction, Kubota's obviousness argument fails. The multiple discrete *and*

² As used herein, "the '386 Patent" means U.S. Patent No. 9,321,386 and "Challenged Claims" means claims 31–49, 70–79, and 86–87 of the '386 Patent.

³ As used herein, "POSITA" means a person having ordinary skill in the art as of the earliest effective filing date of the '386 Patent, February 20, 2015.

removable structures Kubota identifies in its petition are not the *primary* supporting structure of the machine.

At the institution stage, the Board deferred to Kubota's expert, Velinsky, as Vermeer had not yet presented expert testimony. As explained below, however, cross-examination revealed that Velinsky's testimony should be given little or no weight by the Board. Velinsky admitted he (1) does not know how the components of a compact utility loader machine ("CUL") are arranged (2) has never operated a CUL, (3) has almost no knowledge of the kinds of tools used on a CUL, (4) has never designed a CUL or full-size skid steer machine, (5) never bothered interviewing Kubota engineers to understand what common design constraints apply to CUL machines, and (6) does not have experience using the kinds of 3D modeling tools required to fully understand and assess Kubota's proposed modifications to KR996. Given the foregoing, Velinsky is not equipped to assist the Board in determining whether a POSITA would have been motivated to make the changes to the CUL disclosed in KR996 that Kubota asserts in its Petition.

The methodology Velinsky applied for conducting his validity assessment was also fundamentally flawed for at least the following reasons: (1) he delegated complete responsibility for determining how a POSITA would modify KR996 to Kubota's legal counsel, (2) he admits blindly adopting legal counsel's proposed

design without ever assessing *whether that design would function or could be adapted to the primary reference's machine*, (3) he applied an improperly expansive construction of “mainframe” that is inconsistent with the Board’s interpretation of that term; (5) he used mere hindsight implementation of the solution revealed in the ‘386 Patent as his test for obviousness; (6) he proposed modifications that removed a key inventive feature from the prior art on which he relies; (7) he cherry picked individual teachings from prior art references and ignored others that directly undermined any motivation to combine; and (7) he confirmed in deposition that he affirmatively refused to consider any objective evidence of non-obviousness.

Put simply, Velinsky lacks any relevant experience and his opinions and conclusions are severely tainted by a flawed methodology that consists of hindsight and *ipse dixit* aimed at achieving Kubota’s goal of invalidating Vermeer’s patent.

Vermeer’s Patent Owner Response is supported by the testimony of Dr. Fleming, a mechanical engineer with a Ph.D in Theoretical and Applied Mechanics. In stark contrast to Kubota’s expert, Fleming has years of hands-on industry experience as a design and manufacturing engineer participating in the development of full-size skid steer loaders, including the overall structure and configuration, loader arms, bucket assemblies, and controls of those machines. Ex. 2016 at ¶¶1–6. Fleming has operated and inspected compact utility loaders,

including the commercial embodiment of the '386 Patent. He also conducted a detailed analysis of the specialized KR996 machine, including by creating detailed CAD models of it to assist his analysis. Based on his thorough analysis, Fleming explains why a POSITA (a) would not have considered removable portions of the KR996 machine to be part of the *primary* supporting structure or “mainframe,” (b) would not been motivated to make the modifications to the KR996 machine, (c) would not have had a reasonable expectation of success in making those modifications, and (d) would not have considered the Vermeer invention described in the Challenged Claims obvious.

II. LEGAL BACKGROUND

A. Petitions Based on Obviousness

A petition based on obviousness under 35 U.S.C. § 103 must address (1) “the scope and content of the prior art;” (2) “differences between the prior art and the claims at issue;” (3) “the level of ordinary skill in the pertinent art;” and (4) “secondary considerations [such] as commercial success, long felt but unsolved needs, failure of others, etc.” *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966); *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). “An obviousness determination requires finding both that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable

expectation of success in doing so.” *CRFD Rsch., Inc. v. Matal*, 876 F.3d 1330, 1340 (Fed. Cir. 2017) (internal quotation marks and citation omitted). “A prior patent must be considered in its entirety, i.e., as a whole, including portions that would lead away from the invention in suit.” *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1568 (Fed. Cir. 1987); *In re Enhanced Sec. Research, LLC*, 739 F.3d 1347, 1355 (Fed. Cir. 2014) (“§ 103 does not permit a court to stitch together an obviousness finding from discrete portions of prior art references without considering the references as a whole”).

“[W]here the motivation to combine rests on a modification alleged to improve the primary reference . . . the Board may consider whether the modification renders the reference inoperable for its intended function in deciding whether a POSA would have a motivation to combine the references, even if that function is not a feature of the claimed device at issue.” *Cook Grp. Inc. v. Bos. Sci. Scimed, Inc.*, 809 F. App'x 990, 1000 (Fed. Cir. 2020) (the Board did not err in finding a POSITA would not have been motivated to combine the presented references when “the loss of key functions in the primary reference...supports a finding of no motivation to combine.”); *see also In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984) (no motivation to combine where the proposed modification to the prior art “would be rendered inoperable for its intended purpose”); *Chemours Co. FC, LLC v. Daikin Indus., Ltd.*, 4 F.4th 1370, 1376 (Fed. Cir. 2021) (proposed

modification of the prior art not obvious where the Board “ignored the express disclosure [in the prior art] that teaches away from the claimed invention and relied on teachings from other references that were not concerned with the particular problems [the prior art] sought to solve”). In determining whether a motivation to combine exists, “the benefits, both lost and gained, should be weighed against one another.” *Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1332 (Fed. Cir. 2019) (noting that this is “consistent with the longstanding principle that the prior art must be considered for all its teachings, not selectively”). Therefore, a motivation to combine is absent when the proposed modification would make a more complex and less efficient product, or “yield an unappetizing combination.” *Id.*

“There is no suggestion to combine . . . if a reference teaches away from its combination with another source.” *Tec Air, Inc. v. Denso Mfg. Michigan Inc.*, 192 F.3d 1353, 1360 (Fed. Cir. 1999). “A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant . . . [or] if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant.” *Id.* (citing *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994). “If when combined, the references ‘would produce a seemingly

inoperative device,' then they teach away from their combination.” *Id.*; *see also Chemours Co. FC, LLC*, 4 F.4th at 1376.

A motivation to combine cannot be based on hindsight. “To draw on hindsight knowledge of the patented invention, when the prior art does not contain or suggest that knowledge, is to use the invention as a template for its own reconstruction—an illogical and inappropriate process by which to determine patentability.” *Sensonic Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1570 (Fed. Cir. 1996) (citing *W.L. Gore & Assoc. v. Garlock, Inc.*, 721 F.2d 1540, 1553 (Fed. Cir. 1983)). The invention instead “must be viewed not after the blueprint has been drawn by the inventor, but as it would have been perceived in the state of the art that existed at the time the invention was made.” *Id.* (citing *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138 (Fed. Cir. 1985)).

B. Objective Indicia of Non-Obviousness

Objective indicia of nonobviousness includes unexpected results, skepticism, copying, commercial success, praise by others, failure by others, and long-felt need. *Mintz v. Dietz & Watson, Inc.*, 679 F.3d 1372, 1379 (Fed. Cir. 2012). “[O]bjective indicia ‘may often be the most probative and cogent evidence of nonobviousness in the record,’” and “help turn back the clock and place the claims in the context that led to their invention.” *Id.* at 1378. Objective indicia of nonobviousness “must always when present be considered en route to a

determination of obviousness.” *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1349 (Fed. Cir. 2012); *see also Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1048 (Fed. Cir. 2016) (en banc).

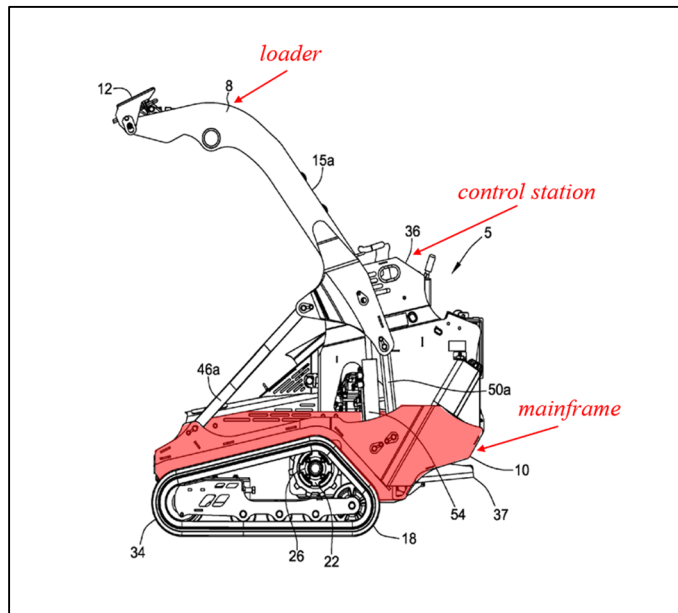
Objective indicia of nonobviousness are “relevant to the obviousness inquiry ‘if there is a nexus between the claimed invention and the [objective indicia of nonobviousness].’” *In re Affinity Labs of Tex., LLC*, 856 F.3d 883, 901 (Fed. Cir. 2017) (quoting *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1312 (Fed. Cir. 2006)). The Federal Circuit has explained that “there is a presumption of nexus for objective considerations when the patentee shows that the asserted objective evidence is tied to a specific product and that product is the invention disclosed and claimed in the patent.” (internal citations omitted). *Immunex Corp. v. Sandoz Inc.*, 964 F.3d 1049, 1067 (Fed. Cir. 2020).

III. U.S. PATENT NO. 9,321,386

A. Overview of the ‘386 Patent

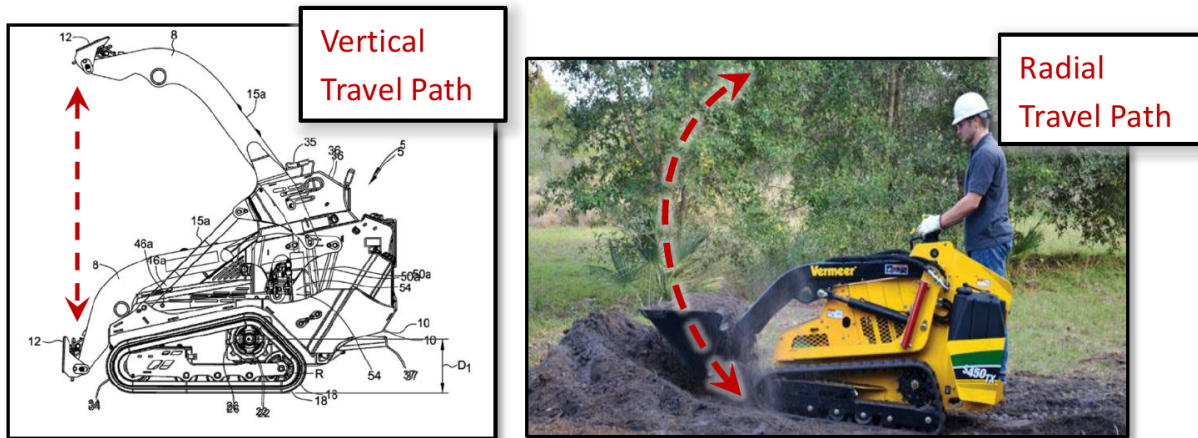
The ‘386 Patent, titled “Low Profile Compact Tool Carriers,” issued on April 26, 2016. Ex. 1001 at Cover Page. It claims priority to Provisional Application No. 62/118,860, which was filed on February 20, 2015. *Id.* The ‘386 Patent is directed to “[c]ompact tool carriers having a loader mounted to a low-profile mainframe.” *Id.* at Abstract, 1:12–13.

Compact tool carriers—also known as mini skid steers, mini track loaders, or compact utility loaders—are distinguishable from full-size skid steers in weight, size, and complexity. *Id.* at 1:34–36. As the name suggests, they are smaller than full-size skid steers, resulting in the need for a different method of operation. *Id.* at 1:32–36. The operator controls the compact tool carrier using the control station, generally while standing or walking behind the machine. *Id.* at 1:59–61, 3:34–45. The controls are used “for propelling the compact tool carrier forward and for raising and lowering the loader.” *Id.* at 1:56–58.



Ex. 1001 at Fig. 3 (shading and annotations added). This method of operation differs from conventional or full-size skid steers, in which the user typically operates the machine from a seated position near the front of the machine. *Id.* at 1:32–34.

Because compact tool carriers are smaller, lighter, and configured differently than full-size skid steers, designing them requires overcoming myriad unique engineering challenges. One main challenge is maximizing lift capacity without significantly increasing the size and weight of the machines. The '386 Patent's solution involves, *inter alia*, a compact tool carrier having loader arms attached via linkages to a low-profile mainframe to achieve a substantially vertical-lift path as the loader is raised and lowered—rather than a radial path. Ex. 1001 at 6:2–6.



The vertical-lift mechanism results in an increased lift capacity, largely because it keeps the load as close to the machine as possible throughout the travel path of the loader arm. *Id.* at 6:6–8 (“The vertical travel path of the loader 8 is more effective relative to conventional travel paths for compact tool carriers 5 as the carrier 5 may operate closer to other structures.”). This is particularly advantageous for users of compact tool carriers that are working in tight spaces and need to lift heavy loads. *Id.* at 1:17–19.

The compact tool carrier in the '386 Patent also has a low-profile mainframe. *Id.* at 1:12–13, 5:64–67. This means that “the pivot points [attaching the linkages and actuators to the mainframe] are positioned relatively low on the mainframe[,] allowing its height to be reduced.” *Id.* at 5:4–7. This results in several benefits. For example, “the mass of the mainframe 10 and the resulting cost of the carrier 5 may be reduced.” *Id.* at 5:62–64. “Further, such a low-profile mainframe 10 improves visibility for the operator and allows the center of gravity in the carrier 5 to be lowered[,] which improves stability.” *Id.* at 5:64–67.

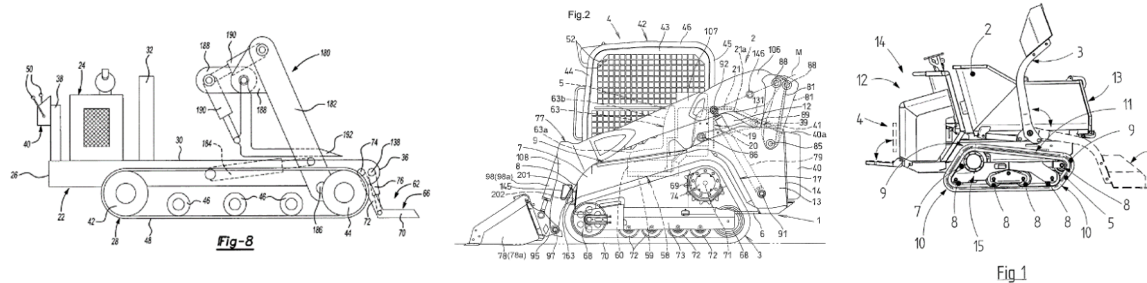
The foregoing components of the compact tool carrier, along with other limitations disclosed in the '386 Patent, result in a small and powerful machine that is well-suited for a variety of projects.

B. Prosecution History

The '386 Patent was the first patent issued to Vermeer in connection with its vertical-lift compact utility loader invention. After the '386 Patent issued in 2016, the Patent Office issued several related patents on Vermeer's invention, including U.S. Patent Nos. 9,975,750, 10,202,266, 11,465,891, and 12,098,063. In the nine years since the '386 Patent issued, Vermeer's patents have survived multiple *ex parte* reexaminations. As briefly summarized below, the Patent Office's prior vetting of the validity of the '386 Patent has been very thorough—generating thousands of pages of file histories. *See* Exs. 1002; 1029; 1030; 1031. The

consistent result from the Patent Office's prior scrutiny has been to confirm the patentability of the Challenged Claims.

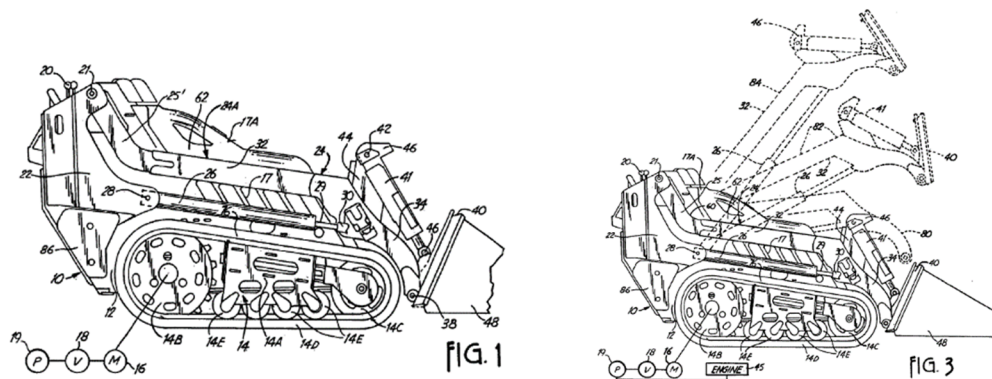
The '386 Patent issued from U.S. Patent Application No. 14/691,649 ("the '649 Application"), which was filed on April 21, 2015. Ex. 1001 at Cover Page. The '649 Application claims priority to Provisional Application No. 62/118,860 ("the '860 Application"), filed on February 20, 2015. *Id.* During the original examination, the examiner rejected certain claims based on various prior-art references, including full-size loaders with vertical-lift loader arms and various small machines, shown below:



Ex. 1002 at 76–78; Ex. 2002 (U.S. Patent No. 7,695,236, “Green”) at Fig. 8; Ex. 2003 (U.S. Patent No. 8,821,104, “Yasuda”) at Fig. 2; Ex. 1033 (U.S. Patent Pub. US2009/0116943, “Valere”) at Fig. 1. Vermeer responded by amending its claims to add limitations that focused on key aspects of the invention, including the location of the pivotal connections between the mainframe and the linkage and actuator. Ex. 1002 at 57 (adding requirement that the linkage and actuator be “pivotally attached to the first side of the mainframe”). These important claim

limitations distinguished Vermeer's invention from the cited prior art. *Id.* at 66–68.

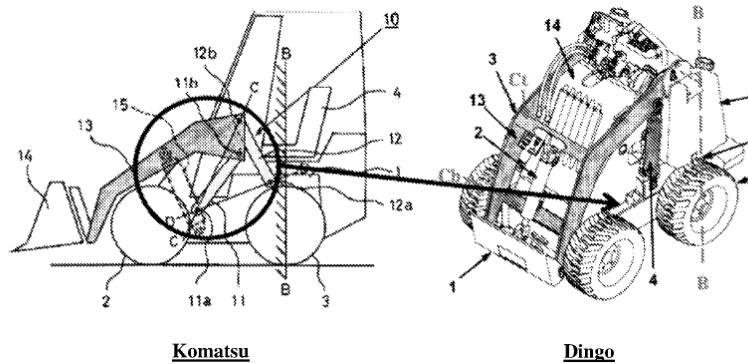
The examiner also rejected various claims based on a combination of Yasuda with U.S. Patent No. 6,695,568 (Ex. 1009, “Bares ‘568”). Ex. 1002 at 52–54. Bares ‘568 disclosed a radial-lift mini skid steer:



Ex. 1009 at Figs. 1, 3. Vermeer explained why it would not have been obvious to use the vertical-lift style loader arms of Yasuda's full-size machine on a mini skid steer frame, like Bares ‘568—including by adding limitations to distinguish the specific Yasuda/Bares ‘568 combination asserted by the examiner. Ex. 1002 at 42–48, 12–25. The Patent Office allowed Vermeer's amended claims and the ‘386 Patent issued on April 26, 2016.

The ‘386 Patent has also survived two rounds of *ex parte* reexaminations initiated by a third party, the Toro Company. *See* Exs. 1029; 1030; 1031. Toro submitted numerous *ex parte* reexamination requests, arguing that it would have been obvious to implement a vertical-lift loader arm configuration on a compact

utility loader. *See* Ex. 1029 at 233–275, Ex. 1031 at 447–529. In support of these assertions, Toro presented a number of hypothetical combinations of compact utility loaders with vertical-lift loader arm configurations (taken from full-size machines):



Ex. 1031 at 483 (proposing replacing the radial-lift loader arms of the Dingo compact utility loader with the vertical-lift loader arms of the Komatsu full-size loader); Ex. 1029 at 252, 256 (proposing replacing the radial-lift loader arms of the Vermeer S450TX compact utility loader with the vertical-lift loader arms of the Mustang full-size loader).

Toro pursued invalidation of Vermeer's patent, despite having filed its own application to protect its vertical-lift mini skid steer machine design. In its application, Toro described the challenge of implementing high-reach, vertical-lift loader arms on a compact machine as "difficult if not impossible due to size and

durability constraints.” Ex. 2004 (Toro’s U.S. Patent Pub. 2016/0244937A1).⁴ As part of its response to Toro’s reexamination challenges, Vermeer presented the Patent Office with various evidence of objective indicia of non-obviousness—much of it obtained from Toro’s internal files. For example, during its litigation against Toro, Vermeer discovered that Toro engineers had struggled for years with the challenge of increasing lift capacity on a mini-skid steer machine. Toro invested more than a decade of work and large sums of money into the design and prototyping of various alternative machines (none of them incorporating vertical lift) in an effort to solve this problem. *See* Ex. 1031 at 30–56.

After a lengthy reexamination process, including a detailed review of Toro’s efforts to solve the problem ultimately resolved by Vermeer’s invention disclosed in the ‘386 Patent, Vermeer overcame all of the validity challenges and the Patent Office confirmed the patentability of the ‘386 Patent’s Challenged Claims. Ex. 1001 at April 12, 2018 Ex Parte Reexamination Certificate and January 24, 2020 Ex Parte Reexamination Certificate.

⁴ Toro attempted to walk back this representation to avoid an inconsistency with its obviousness assertions.

IV. SUMMARY OF THE PETITION

A. Grounds

The Petition includes two alleged obviousness grounds in support of its request to cancel the Challenged Claims. Petition at 19–20. Both grounds depend on KR996. *Id.* at 20. Kubota argues that a POSITA would have been motivated to modify the machine disclosed in KR996 to yield the compact utility loaders defined in the Challenged Claims. First, the Petition argues Claims 31–36, 38–39, 41–44, 45–49, and 86–87 are obvious based on proposed modifications of KR996's machine in light of Japanese Publication of Unexamined Patent Application No. 2004-17705 (“JP705”). *Id.* at 21–69. Second, the Petition argues that Claims 37, 40, and 70–79 are obvious based on proposed modifications of KR996's machine in light of JP705 and U.S. Patent No. 6,832,659 (“Bares”). *Id.* at 20, 70–100.

B. The Prior Art References Relied on by Kubota

1. KR996

Korean Patent No. 10-1041996, titled “Environmentally Friendly Construction Equipment for Building Deconstruction Work,” was published on

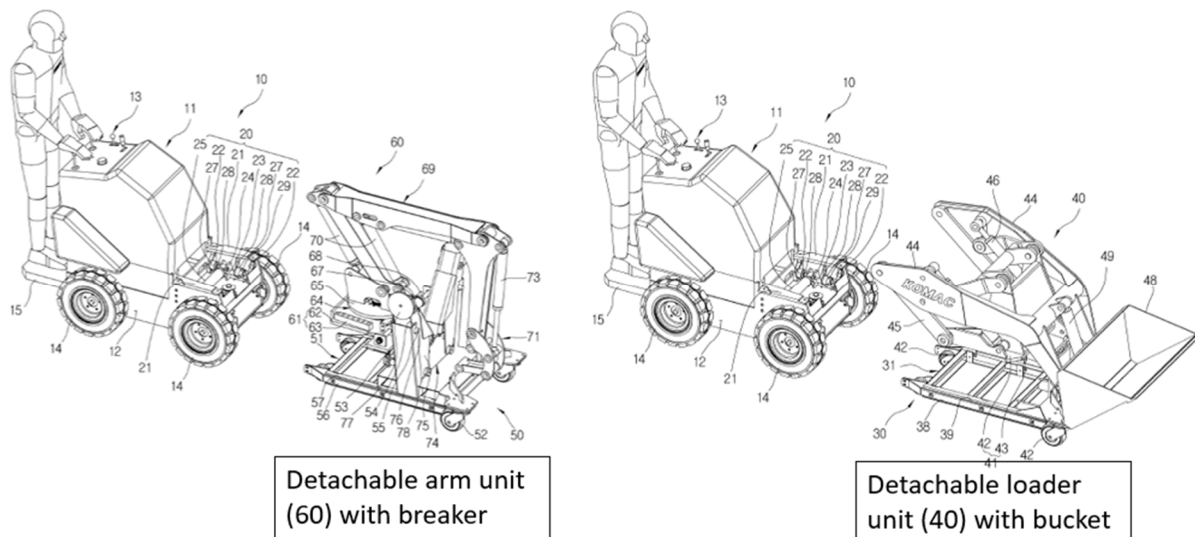
June 16, 2011. Ex. 1005.⁵ KR996 “relates to construction equipment for green building deconstruction work” that “can easily attach and detach various dismantling equipment to the vehicle according to the form of the deconstruction work.” Ex. 1005 at [0001].

The problem that KR996 set out to solve was specific to demolition work conducted inside buildings. In the conventional arrangement, an urban demolition team would use two separate machines in pairs: a mini excavator with a concrete breaker or crusher for demolition work and a mini loader with a bucket for hauling

⁵ Kubota relies on a number of foreign language documents, including KR996 and JP705. Under 37 C.F.R. 42.63, Kubota was required to file “a translation of the document into English and an affidavit attesting to the accuracy of the translation.” For KR996 (Ex. 1005), JP705 (Ex. 1006), and Ex. 1014. Kubota failed to submit an affidavit from the person who prepared the translation, violating the requirements of Federal Rule of Evidence 602, 604, 702, and 802 and 37 C.F.R. §§ 1.68, 42.73(b). Therefore, on June 25, 2025, Patent Owner served objections, noting these failures. Paper 19. The deadline for Kubota to serve Supplemental Evidence in response to these objections has passed and Kubota opted not to do so. Vermeer will address this in a separate motion to exclude under 37 C.F.R. 42.64(c).

away the debris. *Id.* at [0003]–[0006]. The problem with this conventional arrangement, according to KR996, was that “the skid loader is idle while the mini excavator is crushing, and vice versa, the mini excavator is idle while the skid loader is bucketing,” resulting in inefficiencies and extra expense associated with owning and maintaining two separate machines—each used only half of the time. *Id.* at [0007]–[0008].

To solve this purported problem, KR996 discloses a modular construction vehicle with a quickly detachable loader assembly and a quickly detachable breaker assembly:



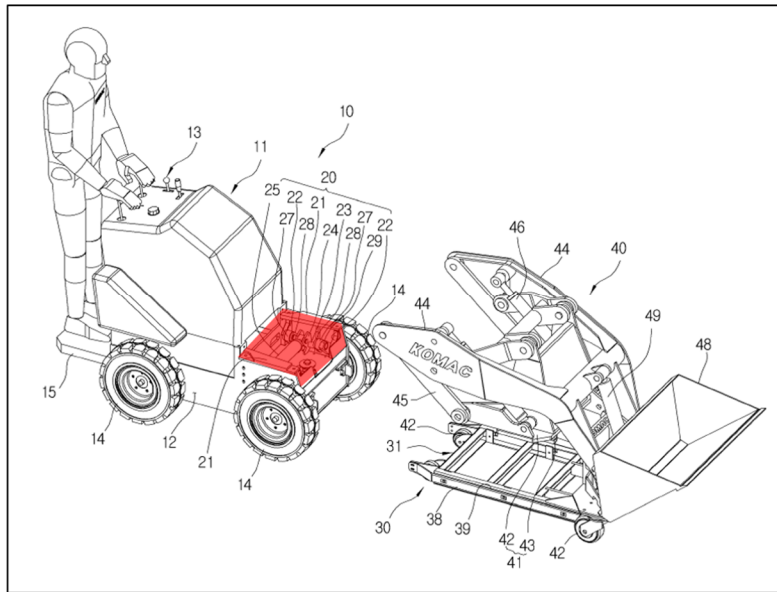
Ex. 1005 at Fig. 14, Fig. 1.

As Figures 1 and 14 illustrate, KR996 discloses three unique pieces of equipment: the vehicle itself (10), a loader unit (40), and an arm unit (60). The vehicle (10), which appears on the left side of Figures 1 and 14 above, includes a

main body (11), control unit (13), the attachment mechanism or “detachable part” (20), and four wheels (14). Ex. 1005 at Figs. 1, 14, [0116]–[0145]. The two detachable components—the loader unit (40) and the arm unit (60)—are separate from the vehicle (10), as illustrated on the right side of Figures 1 and 14.

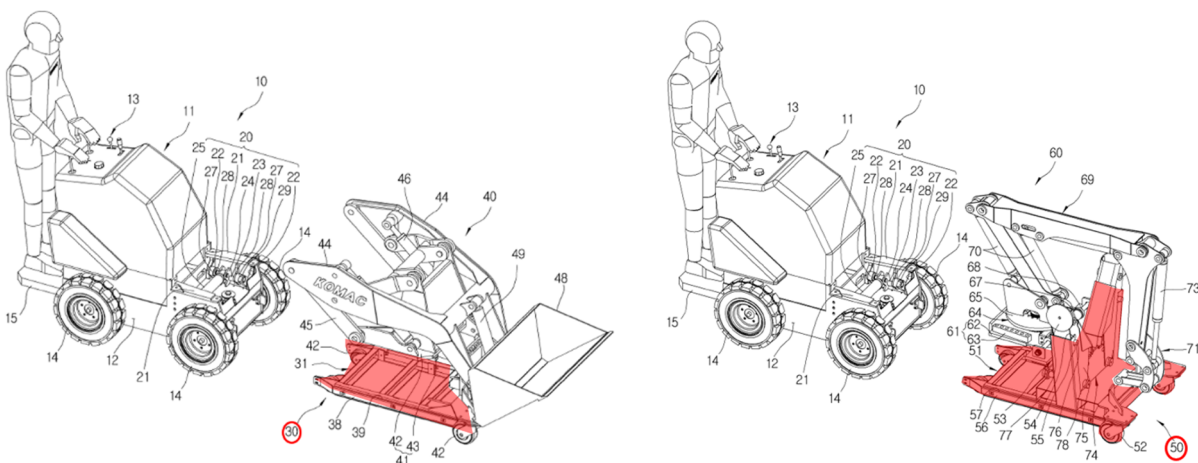
KR996 touts this easy and quick attachable/detachable feature throughout the disclosure as the key purpose and inventive concept of this machine. *See, id.*, e.g., Abstract (“the present invention can easily and quickly detach the loader unit”), [0012] (“The purpose of the present invention is to provide construction equipment for green building deconstruction work, which enables the easy and quick attachment and detachment of a bucket and a breaker with a single vehicle, to solve the aforementioned problems.”), [0013] (“Another object of the present invention is to provide construction equipment for green building deconstruction work, which allows the boom assembly, bucket attachment, and bucket combined loader unit as a whole, and the boom assembly, breaker attachment, and breaker combined arm unit as a whole to be selectively detachable....”); [0088], [0069].

KR996 discloses a complex, hydraulically actuated attachment mechanism that purports to enable the quick and easy detachment functionality. This quick attachment mechanism is highlighted in red below:



Ex. 1005 at Fig. 1.

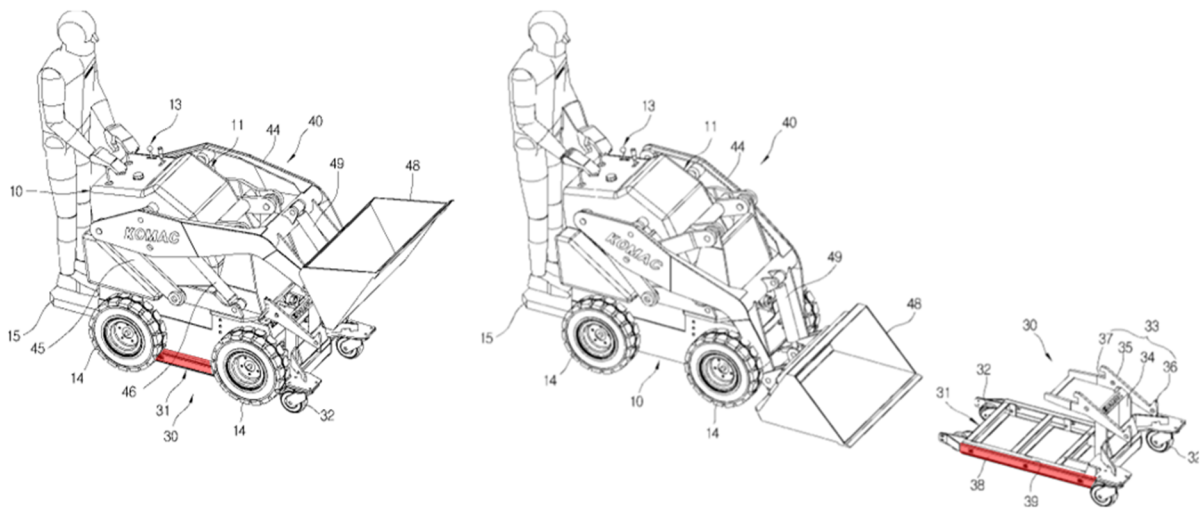
To enable the quick and easy detachment of the loader unit (40) and arm unit (60), KR996 describes wheeled “bogie” units (30 and 50) on which the loader unit (40) and arm unit (60) are stored when the other attachment is in use. Those “bogies” are highlighted in red in the figures below:



Ex. 1005 at Fig. 1, Fig. 14, [0041].

KR996 explains how the design of the bogie unit specifically interacts with the machine to achieve the quick-and-easy detachability of the loader unit and arm unit. Ex. 1005 at [0036]. Specifically, the bogies of KR996 include guide plates (38, 56) that are designed to engage with the lower inner surface of the tires of the machine. When the vehicle is propelled forward, the rotation of the wheels—and specifically the tire sidewalls—pull the guide plates towards the machine to enable connection of the loader unit or arm unit to the machine. Once the loader unit or arm unit is attached, the operator reverses the machine to propel it backwards, away from the bogie. The sidewall of the wheel then pushes the guide plate of the bogie away from the machine. Ex. 2016 at ¶¶72–73.

KR996 also teaches that “shims” (liner 39) are inserted between the bogie and guide plates to fine tune the positioning of the guide plates to ensure they interface properly with the interior sidewalls of the machine’s tires. Ex. 1005 at [0053]; Ex. 2016 at ¶¶72–73. This interaction between the inner surface of the tires and the guide plates of the bogies is a critical feature of the invention disclosed in KR996 that enables the quick-and-easy detachability feature. Ex. 1005 at [0052], [0060], [0069], [0071], [0074], [0078], [0080], [0083], [0086]–[0087]. Figures depicting this critical operation of the KR996 invention are presented below with the guide plates highlighted in red:

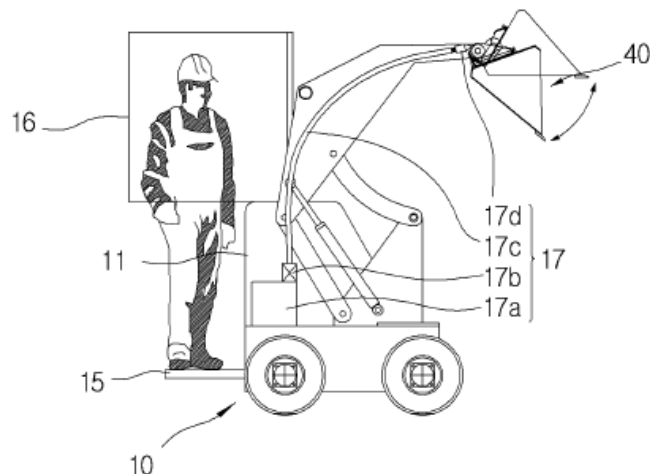


Ex. 1005 at Figs. 7, 8 (highlights added).

It is important to note that the invention described in KR996 operates in a variety of different modes. In one of these modes, the machine is operated *without any attachment* so that it can be transported to the construction site and maneuvered between various attachment bogies. In a second mode, the machine is brought into contact with the breaker attachment bogie so that the attachment mechanism can be manipulated to cause the breaker to attach to the machine or be deposited onto the bogie. In a third mode, the machine is operated with the breaker attached to, for example, break up construction debris. In a fourth mode, the machine is brought into contact with the loader attachment bogie and the attachment mechanism manipulated to attach the loader to the machine or to deposit it onto the bogie. And in a fifth mode, the machine is operated with the loader attached to, for example, clear construction debris from the site.

Importantly, the key improvement of KR996 is a *single machine* that is capable of performing in *all* of these various modes of operation. Ex. 2016 at ¶¶74.

KR996 also teaches including a safety fence (16) to protect the operator from flying debris and a watering device (17) to suppress dust generation. *Id.* at [0089]–[0092]. These two features are depicted in Figures 21 and 22. These high-level schematics depict the safety fence simply as a box (16) surrounding the operator, with no further details:



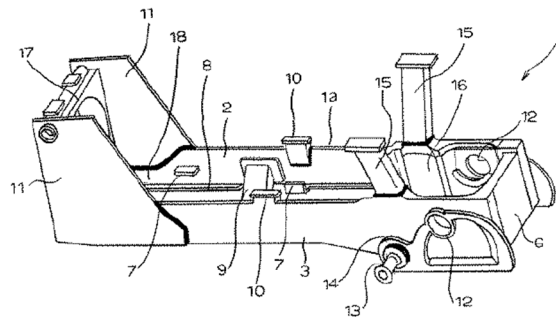
Although these features (safety fence and watering device) depicted in Figures 21 and 22 are not relevant to the issues before the Board, the lack of specific detail in these figures is representative of the overall lack of disclosure in KR996 regarding how to actually implement the ideas set forth therein. Attached as Exhibit 2006 is a summary of some of the inconsistencies and significant problems with the machine depicted in KR996. In addition to these problems, Fleming has also identified a number of reasons why the quick attachment mechanism and bogie

concepts described in KR996 would not work in a real-world construction environment. Ex. 2016 at ¶¶75–79.

There is no evidence that the machine described in KR996 has ever been built—either in prototype form or as a commercial product.

2. *JP705*

JP705 is directed to large construction vehicles, “such as a bulldozer, hydraulic excavator, and the like.” Ex. 1006 at Abstract, [0001]. JP705 discloses a simplified mainframe having short attachment points to mount various components like the engine. *Id.* at Abstract, [0012]. These short attachment points “eliminate interference with various on-board devices.” *Id.* at [0012]. This mainframe, which is designed and configured for use with a full-size bulldozer or excavator is illustrated in Figure 1:

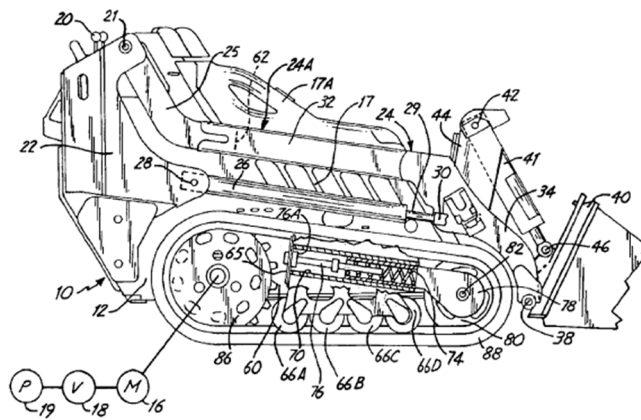


Id. at Fig. 1; Ex. 2016 at ¶¶82–83.

3. *Bares*

The Bares reference was filed October 30, 2002, and is titled “LOADER FRAME AND BOLT-ON TRACK DRIVE.” Ex. 1010 at Cover Page. Bares

discloses “a small loader that has a unitized central body forming a frame, and which has drive units on the body for propelling the loader.” Ex. 1010 at 1:9–11. Bares has “upright supports **22** at the rear portions of the body,” which “in turn pivotally support ends of a lift arm assembly **24** on pivots **21**” that “are at or near the uppermost part of the loader.” Ex. 1010 at 2:48–54.



Ex. 1010 at Fig. 1.

V. LEVEL OF ORDINARY SKILL IN THE ART

Kubota asserts that a POSITA in February of 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.” Ex. 1003 at ¶19. Kubota also argues that “[l]ack of professional experience can be remedied by additional education, and vice versa.”

Id.

For purposes of this Response, Vermeer does not dispute the definition of level of skill possessed by a POSITA set forth in the Petition and notes that it substantially tracks Vermeer's definition.⁶

VI. CLAIM CONSTRUCTION

A. Construction of "Mainframe"

As discussed in detail below, Kubota's obviousness challenge is based entirely on an incorrect view of what constitutes the "mainframe" of the compact tool carrier defined in the Challenged Claims. All the Challenged Claims require that the linkages and actuators that support the loader arms be "pivotally attached" or "pivotally connected" to the "mainframe" of the compact tool carrier. Under a proper construction of the "mainframe" term, Kubota's prior art fails to teach that requirement.

As the Board noted in the Institution Decision, the plain and ordinary meaning of "mainframe" to a POSITA is "primary supporting structure." Paper 16

⁶ Vermeer asserts that a POSITA, as of the earliest effective filing date claimed in the '386 Patent, would have had at least a Bachelor of Science degree in Mechanical or Agricultural Engineering and two years of experience in the design of machines, or have had equivalent knowledge and experience.

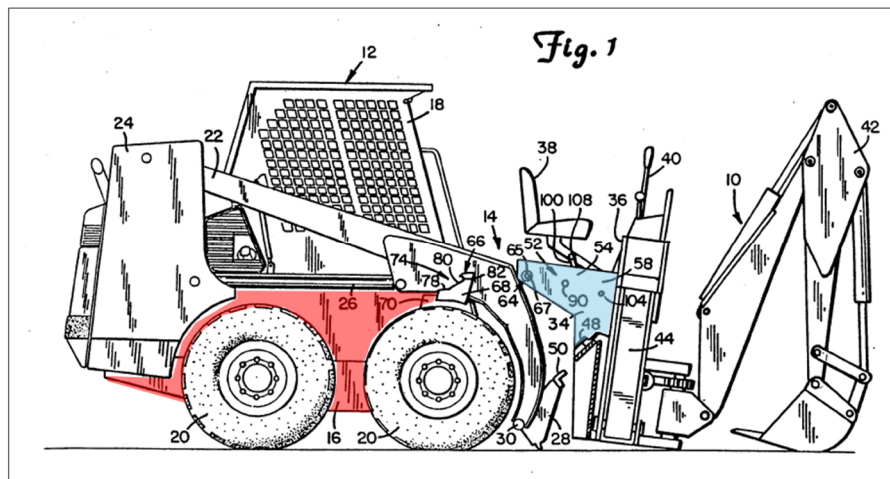
at 18–24. Dr. Fleming agrees that this is consistent with how a POSITA would interpret the term “mainframe.” Ex. 2016 at ¶¶88–92.

This construction is consistent with the plain meaning of the words “main” and “frame.” “Frame” simply means a rigid supporting structure. Ex. 2007 (defining the noun “frame” as “the rigid supporting structure of a vehicle, aircraft, or other object”). And the addition of “main” to “frame” simply indicates that this frame is the primary—or most important—frame of the vehicle. *Id.* (defining the adjective “main” as “chief in size or importance”).

As the *primary* frame of the compact utility loader, the “mainframe” represents the core structure of the machine to which the other components attach. This is borne out in the ‘386 Patent specification. Ex. 1001 at 2:2–3 (“The drive mechanism is attached to the mainframe.”), 3:20–24 (same), 3:62–64 (upper frame supporting the control station is attached to mainframe), 4:10–12 (engine and drive mechanism including tracks or wheels are connected to the mainframe), 4:13–18 (loader arms connected to mainframe), 4:35–42 (actuators connected to mainframe), 5:52–55 (mainframe includes an engine bracket for connecting and supporting the engine); Ex. 2016 at ¶¶88–92.

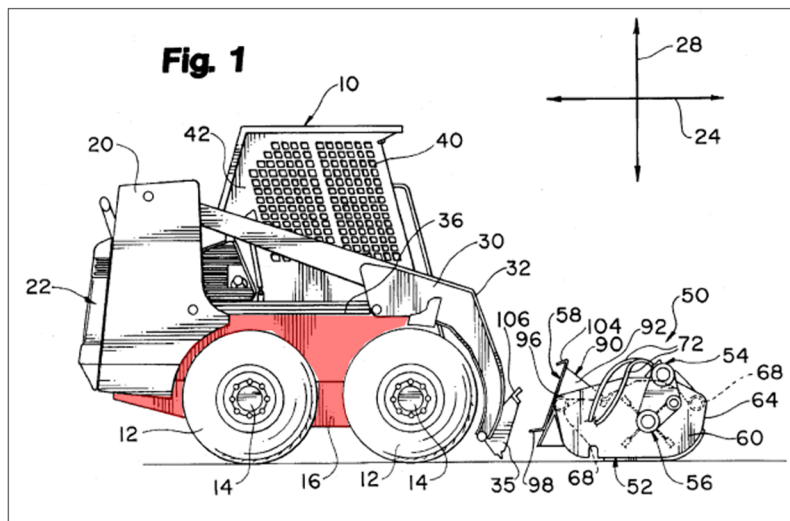
Other patent references in this art use mainframe in the same manner, further demonstrating the plain and ordinary meaning of this term as of February 2015. A prime example of the art’s treatment of the “mainframe” term in configuration

similar to that found in KR996 is present in the below reference which distinguishes the “main frame 16” (red) of the machine from the “carrier frame 34” (blue) of the *selectively removable* backhoe attachment 10:



Ex. 2017 at Fig. 1, 3:22–62.

Another prime example is U.S. Patent No. 5,666,794, which distinguishes the “main frame assembly” (16), which is the primary supporting structure of the machine, from various secondary supporting structures, including “upright members” (20) and the supporting structure of the selectively removable mower attachment (50) (e.g., the case (52) and its components, including the front and rear structural tubes (68), the quick attachment receiver (58) and its gussets (90), side plates (92), and top plate (94)):



Ex. 2018 at Fig. 1, 3:45–50, 4:45–61, 5:40–55; *see also* Ex. 1006 (JP705 prior art relied on by Kubota), at [0002] (“main frames...constitute a main part of a chassis in various types of work vehicles”).

Construction machines with selectively removable equipment or attachments were well known in the art before the earliest effective filing date of the ‘386 Patent. *See, e.g.*, Ex. 1001 at 1:21–28 (“Compact tool carriers are generally defined (e.g., ISO 6165 (2012) and SAE J2752) as ‘a self-propelled crawler or wheeled machine having...either front-mounted interchangeable equipment or lift arms with an attachment bracket capable of coupling to the interchangeable, front-mounted attachments.’ The tool carriers may be attached to a variety of interchangeable tools such as buckets, augers, forks, stump grinders, tillers, rollers and the like.”); Ex. 2018 at 1:38–41 (“Attachments such as an auger, a grapple, sweeper, landscape rake, snowblower or backhoe, some of which may include their

own hydraulic motor, are sometimes mounted to a boom assembly on the front of the skid steer loader.”); Ex. 2019 at 1:45–53; Ex. 2020 at 1:61–62 (“Different types of work tool accessories are interchangeably attached and released from the machine 10”). For this reason, a functional appeal of skid steer loaders is the ability to use a wide variety of work tool accessories or attachments for a variety of different uses. These work tool accessories or attachments are often powered by the loader's hydraulic system and include, for example, excavators, earth augers, specialized buckets, hydraulic breakers, snow blowers, trenchers, cement mixers, rippers, backhoes, pallet forks, wheel saws, etc.”). Ex. 2016 at ¶¶91.

A POSITA would have understood that the mainframe of the machine encompasses *only* the primary supporting structure of the machine, and not any supporting structure that is selectively removable during various operations of the machine—only components that are a fundamental part of the machine and *always present* during all aspects of its operation are the “mainframe.” Ex. 2016 at ¶¶88–90, 92. The term “mainframe” does not apply to attachments that are routinely disconnected and left aside while the machine continues to perform other work. *Id.* at ¶¶90 n.2, 91.

Proper interpretation of the term “mainframe” excludes the removable fixture 41 of KR996 which, in turn, disposes of Kubota’s Petition.

VII. ARGUMENT

A. Velinsky's Testimony Should Be Given Little or No Weight.

Kubota relies on the testimony of its hired expert, Velinsky, to support its obviousness allegations regarding the Challenged Claims. Because Velinsky lacks necessary experience and employed a flawed methodology for assessing obviousness, his testimony should be disregarded.

Velinsky is a retired professor who has been in academia since 1983. Ex. 1036 at 1; Ex. 2021 at 7:16–8:10, 17:23–25. He has no experience designing machines like the compact tool carriers at issue in this proceeding. *Id.* at 18:4–24:15 (categorizing design work done in connection with a tethered robot as “mini skid steer” work—even though that robot did not carry an operator, did not have hydraulically actuated arms or booms, was incapable of changing attachments, and only weighed “a few hundred pounds”). Velinsky also lacks any familiarity with how the components of these machines are typically configured or packaged within a machine. He struggled to describe how even the simplest of components (*e.g.*, the engine, hydraulic pump, and cooling radiators) were positioned within a machine. *Id.* at 24:16–28:7. He also knows nothing about the kinds of attachments these machines accept. Other than the jackhammer specifically addressed in the KR996 reference, *he could not name a single other hydraulically powered attachment that can be used with a compact tool carrier.* *Id.* at 29:2–30:16.

Velinsky also conceded that he did nothing to investigate the performance characteristics that drive demand for these machines, has never operated a compact tool carrier, did not operate or even inspect any of the physical machines sold by the parties to this dispute, and did not ask to speak with a single engineer at Kubota about the challenges they face when designing these machines. *Id.* at 12:6–13:1; 33:19–34:5; 35:8–36:1.

Velinsky also admitted that he has no experience or capabilities with CAD or finite element analysis software—basic tools that would be known to a POSITA and used for designing machines in the industry during the critical timeframe at issue in this proceeding. *Id.* at 13:2–14:11. Because he lacked the necessary skills, Velinsky relied on Kubota's attorneys to create the CAD drawings that appear in his declaration. *Id.* at 14:12–17:11. Velinsky also admitted that he did not determine the locations for the various pivot points that he proffers for his hypothetical modified machine, instead leaving those critical decisions to Kubota's attorney. *Id.* at 15:1–17:2. Kubota's attorneys then handled the work of designing the configuration (pivot points, actuator length, linkage lengths, etc.) that appears in Velinsky's declaration. *Id.* at 15:1–17:11. Having delegated this effort entirely to Kubota's attorneys, Velinsky is unaware of the analysis or considerations that went into the hypothetical modified KR996 machine. Velinsky admitted that there likely would have been interfering components in the KR996 that could cause

problems with the proposed redesign appearing in his declaration, but he chose not to deal with those complications and simply assumed Kubota's attorney would handle it. *Id.* at 17:5–7 (“You know, clearly there were parts that would need to be avoided, but I was gonna leave the specifics to the person that was moving the links run [sic]—the pivots run [sic].”). Velinsky's analysis was so superficial that he failed to even consider whether the key inventive aspect of the device taught in KR996—the hydraulic mechanism for coupling attachments—still exists in “his” hypothetical redesign. *Id.* at 108:7–109:8; 135:22–136:2. In fact, he failed to consider whether or where *any* of the components of the machine disclosed in KR996 would be located in the modified machine, or whether those components would be compatible with the modifications he proposes. *Id.* at 130:14–132:6; 134:25–135:21.

In essence, Velinsky treated KR996 like a Mr. Potato Head doll and stuck whatever he wanted wherever he wanted—without performing any engineering analysis or assessment whatsoever. For this reason alone, his opinions are pure *ipse dixit* and should be disregarded.

Velinsky also failed to consider any objective indicia of non-obviousness—including the evidence that was an express part of the reexamination prosecution histories. *Id.* at 56:10–62:2, 58:12–13 (“I...didn't use that in any way in establishing my opinions in the case.”). In fact, he admitted that no amount of

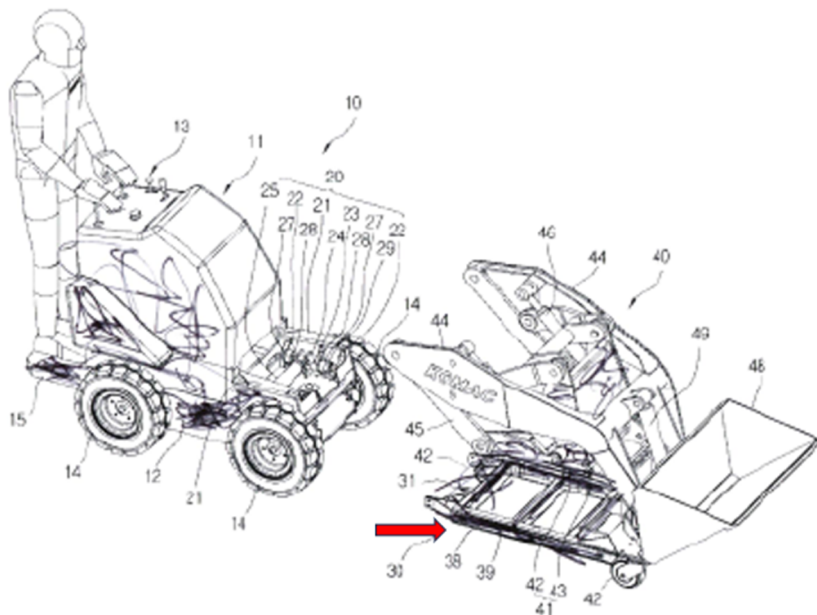
objective indicia evidence would have caused him to find Vermeer's patent non-obvious. *Id.* at 61:11–62:2.

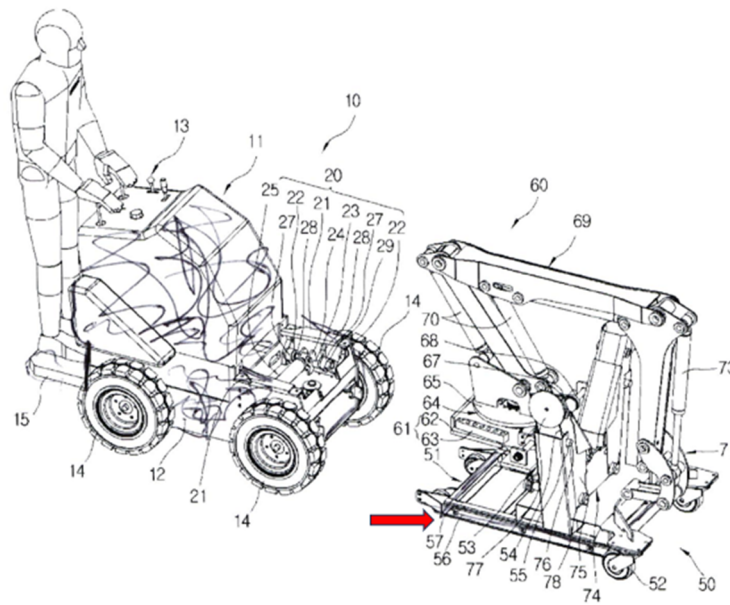
Velinsky also freely admitted to conducting his analysis using impermissible hindsight. Ex. 2021 at 52:21–56:9, 54:7-10 (“Q. And so this is the approach that you take throughout your declaration, you list a limitation and then you find where it is in the prior art, right? A. Yes, that’s correct.”). He explained that the question he asked himself when assessing obviousness was: “would it have been obvious for a skilled artisan to incorporate a vertical lift path on a mini skid steer machine.” *Id.* at 64:18–25; *see also* Ex. 1003 at ¶117. This is *the wrong question*, because it uses the solution taught in Vermeer’s patent as a blueprint. *Sensonics Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1570 (Fed. Cir. 1996) (citing *W.L. Gore & Assoc. v. Garlock, Inc.*, 721 F.2d 1540, 1553 (Fed. Cir. 1983) (“To draw on hindsight knowledge of the patented invention, when the prior art does not contain or suggest that knowledge, is to use the invention as a template for its own reconstruction—an illogical and inappropriate process by which to determine patentability.”).

Velinsky’s testimony regarding the key “mainframe” limitations in the claims of the ‘386 Patent should also be given no weight. In addressing the “mainframe” requirements, Velinsky applied a claim construction that was

expressly rejected by the Board in the Institution Decision. Ex. 1003 at ¶74; Ex. 2021 at 65:10–66:17; Paper 16 at 18–24, 33.

Velinsky was unable to provide any cogent articulation of the meaning of “mainframe” that guided his analysis. Ex. 2021 at 65:10–73:13. Further, cross examination revealed that Velinsky applied an improper and overly expansive view of “mainframe,” which was not limited to elements constituting the “primary” supporting structure of the vehicle. For example, during cross examination Velinsky was asked to use a pen to shade in those portions of KR996 that he considered part of the “mainframe” of the machine. *Id.* at 118:20–120:25. This exercise revealed that Velinsky considered even the *frame* of both of the “bogies” (30 and 50), used exclusively to store the attachments for the machine, a part of the “mainframe”:





Ex. 2022 at Figs. 1 and 14 (red arrows added).

Put simply, cross examination revealed that Velinsky's proposed modified KR996 machine—and Kubota's IPR based on that machine—is not the result of an intellectually rigorous analysis and does not reflect the legitimate perspective of a skilled artisan prior to the '386 Patent. Velinsky's hypothetical modifications are unencumbered by any of the litany of real-world challenges that design engineers in this space grapple with when engineering a compact utility loader.

Given these significant flaws in Velinsky's qualifications and analysis, the Board should disregard his opinions when assessing the patentability of the Challenged Claims.

B. Kubota's Ground I Arguments Fail.

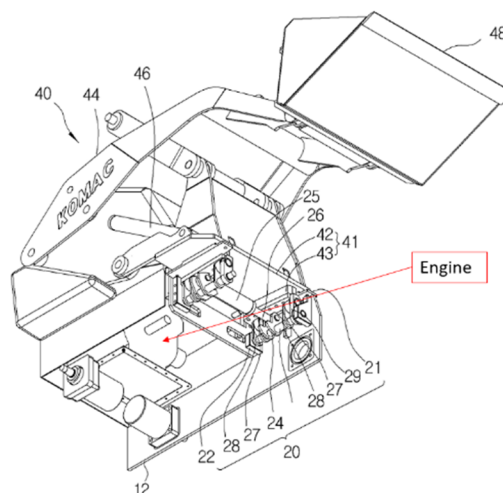
Kubota's Ground I arguments have a fatal flaw: KR996 fails to disclose the limitations requiring that the linkage and actuator be pivotally attached *to the*

mainframe. This was a key limitation added by Vermeer during prosecution that reflects the claimed invention. The detachable-loader disclosed in KR996 has a fundamentally different configuration. Kubota fails to grapple with this important difference, much less demonstrate a legitimate basis for the Board to bridge this chasm.

1. Kubota's purported rationale for combining KR996 with JP705 lacks merit.

Kubota asks the Board to conclude that a POSITA would modify KR996 by incorporating the engine bracket taught in JP705 into the design of the construction vehicle disclosed in KR996. Kubota asserts that a POSITA would use both the type of engine bracket taught in JP705 and its location to modify the KR996 machine. There are several fundamental problems with this argument.

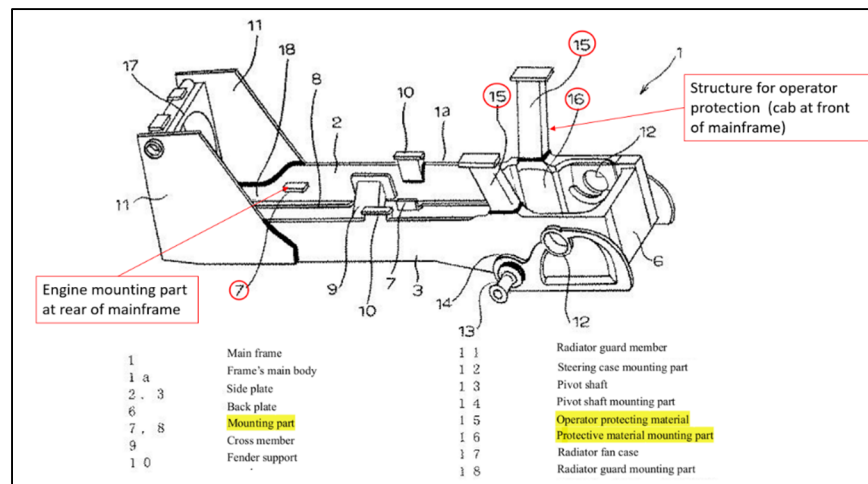
First, as shown below, KR996 discloses an engine and, necessarily, a mechanism for securing the engine:



Ex. 1005 at Fig. 12 (annotation added). By failing to recognize this fact, Kubota's rationale for modifying KR996 to include the engine bracket in JP705 fails. A POSITA would not be motivated to combine JP705 when the engine of KR996 is already secured to the machine. Ex. 2016 at ¶¶93–96.

Second, Kubota incorrectly asserts that KR996 and JP705 disclose “substantially similar” vehicles. These references relate to two completely different categories of machines, with disparate sizes and engine types/sizes. Unlike KR996, JP705 describes a mainframe used for large work vehicles such as bulldozers and hydraulic excavators. Ex. 1006 at [0001]. Given this incompatibility, a POSITA would not be motivated to incorporate JP705's mainframe or brackets into the KR996 machine. Ex. 2016 at ¶¶93–96.

The location of the engine bracket in JP705 is also problematic. Ex. 2016 at ¶¶93–96. Unlike KR996, JP705's engine is located *behind the operator's cab* of the full-size machine:



Ex. 1006 at Fig. 1 (annotations added); Ex. 2016 at ¶95.

2. *Kubota's proposed combination fails to satisfy all the limitations of the Challenged Claims.*

Even assuming Kubota's combination, the invalidity argument still fails because the Challenged Claims require linkages and an actuator that pivotally attach to the side *of the mainframe*. Ex. 2016 at ¶¶120–121. These attachments are depicted in Figures 1 and 5 from Vermeer's patent:

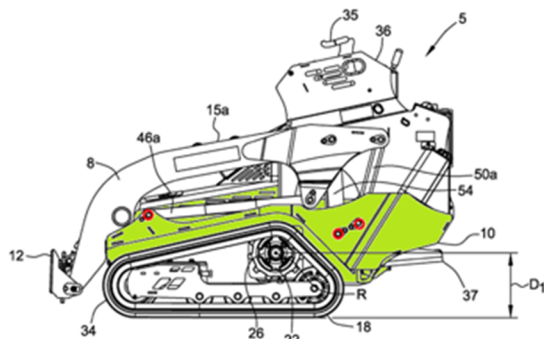


FIG. 2

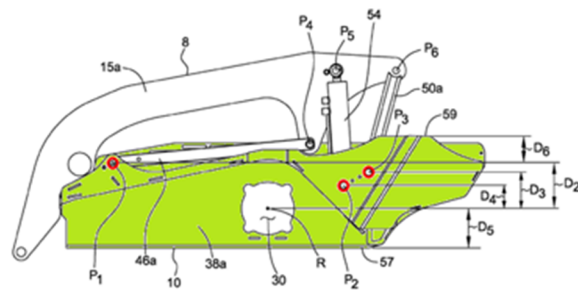


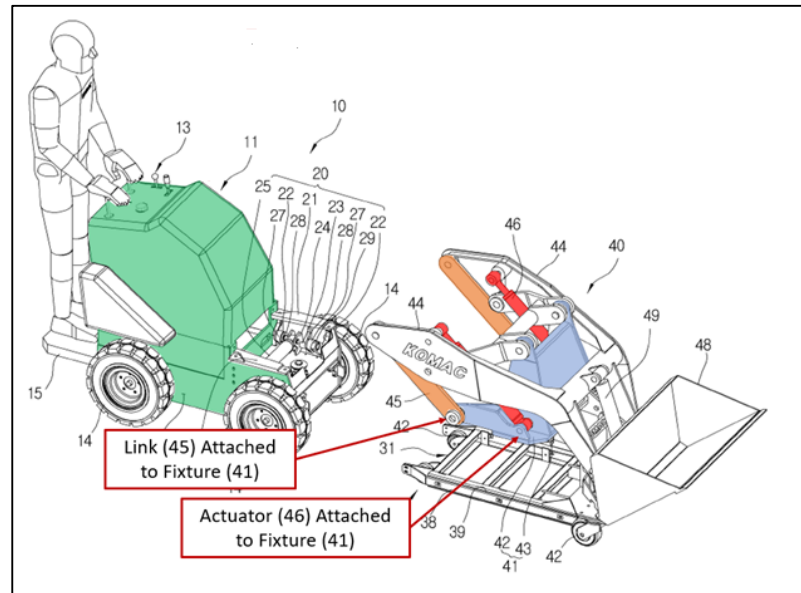
FIG. 5

Ex. 1001 at Figs. 1, 5 (mainframe shaded green, pivotal connections circled in red);
Ex. 2016 at ¶¶120–121.

When applying the term “mainframe” to the KR996 reference, Velinsky applied the following definition: “body of the compact tool carrier that supports the loader.” Ex. 1003 at ¶74. But, this construction has already been rejected by the Board in its Institution Decision at 18–24, 33.

Velinsky and Kubota argue that multiple discrete components disclosed in KR996, when combined, constitute a “mainframe.” Petition at 32–36, n. 5; Ex.

1003 at ¶74. Similarly, to satisfy the pivotal-attachment limitations appearing in claims 31–36, 38–39, 41–44, 45–49, and 86–87, Kubota and Velinsky are forced to assert that the removable fixture (41) of the loader arm *attachment* constitutes a part of the “mainframe” of the machine. *See* Petition at 37–40, 44–45, 51–53, 56–57, 58–61, 65–69; Ex. 1003 at ¶¶89–98, 109–114, 129–130, 134–138, 142–144, 150–152. The removable attachment Kubota and Velinsky rely on is depicted below in blue:



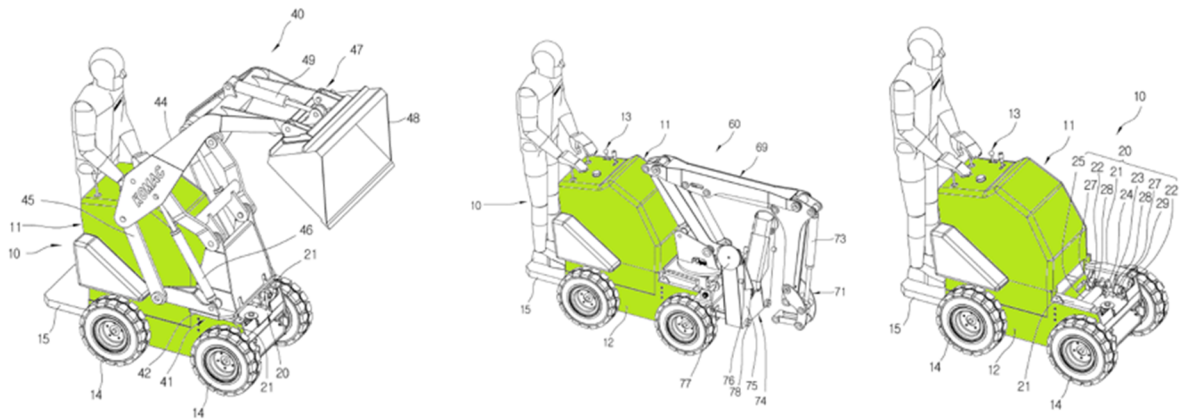
Ex. 2016 at ¶126.

A POSITA would not consider the detachable fixture (41) to be a part of the mainframe (i.e., primary supporting structure) of KR996's machine. Ex. 2016 at ¶¶127–133.

As discussed above, the machine described in KR996 operates in a number of different modes. During many of those modes (e.g., when (1) neither attachment is mounted, (2) the breaker unit attachment is mounted or (3) when the machine is performing its attaching or detaching function) the machine is operated with the structure Kubota and Velinsky call the “mainframe” *completely disconnected from the machine*. Ex. 2016 at ¶¶74, 129–130.

KR996 expressly teaches that fixture (41) is routinely detached from the machine and left aside while the machine performs other work. Ex. 1005 at Abstract (“Therefore, *the present invention can easily and quickly detach the loader unit with a bucket and the arm unit with a breaker installed on a vehicle*, thereby greatly reducing the economic burden of purchasing expensive heavy equipment, and significantly saving time and expenses for the maintenance of heavy equipment.” (emphasis added)), [0001], [0011], [0012], [0013]; Ex. 2016 at ¶131.

Given this disclosure, a POSITA would consider fixture (41) to be a *secondary* structure, in contrast to the true “mainframe,” main body (11), which is present during all modes of operation (shown in green highlight below):



Ex. 1005, Figs. 1, 9, 19 (shading added); Ex. 2016 at ¶132.

KR996 expressly corroborates this perspective by distinguishing fixture (41) from the “main body (11)” in descriptions of the invention. Ex. 1005 at [0018], [0043], [0054], Fig. 1; Ex. 2016 at ¶133.

For the reasons set forth above, the combination of KR996 and JP705 does not satisfy all of the limitations of claims 31–36, 38–39, 41–44, 45–49, and 86–87, and does not therefore render those claims obvious. Ex. 2016 at ¶¶118–134.

3. *The combination of KR996 and JP705 fails to disclose the linkages and actuator attached to a single-weldment mainframe, as required by claims 33, 42, 49, and 87.*

Dependent claims 33, 42, 49, and 87 further require that the “mainframe incorporates a single weldment.” This additional claim limitation requires that all of the portions of the mainframe constitute a single, unitary weldment, as shown, for example, in the embodiment shown in Figure 4 of the ‘386 patent. For claims 33, 42, 49, and 87, Kubota and Velinsky argue a POSITA would have been

motivated to weld the main body (11) and fixture (41) together to create a single weldment mainframe.

In support of this position, Kubota relies on the fact that welding is “a well-known method of attachment” and that JP705 teaches the use of a welded mainframe. *See* Petition at 46–47; Ex. 1003 at ¶¶115–120. But Kubota fails to provide any motivation for a POSITA to weld the fixture (41) to the main body (11) of the KR996 machine.

In fact, KR996 teaches away from fusing fixture (41) to the main body (11) of the machine, because doing so would destroy the key detachability feature that characterizes the KR996 invention. Ex. 1005 at Abstract, *see also id.* at [0001], [0011]–[0015]; Ex. 2016 at ¶137. Accordingly, a POSITA would not have been motivated to create the weldment that Kubota and Velinsky suggest. Ex. 2016 at ¶¶137–138. “A prior patent must be considered in its entirety, i.e., as a whole, including portions that would lead away from the invention in suit.” *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1568 (Fed. Cir. 1987); *see also In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984) (no motivation to combine where the proposed modification to the prior art “would be rendered inoperable for its intended purpose”); *Chemours Co. FC, LLC v. Daikin Indus., Ltd.*, 4 F.4th 1370, 1376 (Fed. Cir. 2021) (proposed modification of the prior art not obvious where the Board “ignored the express disclosure [in the prior art] that teaches away from

the claimed invention and relied on teachings from other references that were not concerned with the particular problems [the prior art] sought to solve”); *Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1332 (Fed. Cir. 2019) (affirming finding of no motivation to combine where modification would “yield an unappetizing combination”).

C. Kubota's Ground II Arguments Fail.

In Ground II, Kubota asserts obviousness based on a purported combination of the teachings of KR996, JP705, and Bares. Specifically, Kubota argues that a POSITA would redesign the construction vehicle disclosed in KR996 to replace the wheels of the KR996 machine with tracks, like those disclosed in Bares. Ex. 1003 at ¶¶157–162. As explained below, Kubota fails to show that a POSITA would be motivated to make these drastic changes to the construction vehicle, that a POSITA would have a reasonable expectation of succeeding in making those changes, or that such changes would yield the subject matter required by the Challenged Claims.

1. *A Person of Ordinary Skill in the Art Would Not have been Motivated to Alter the KR996 Machine based on Bares.*

Velinsky asserts that a POSITA would have been motivated to replace the wheels of the KR996 machine with tracks, like those disclosed in Bares. Ex. 1003 at ¶¶155–162. This is *wrong*.

KR996 explains that the wheels and tires of the machine play a critical role in achieving the quick-and-easy detachability of the loader unit and arm unit. Ex. 2016 at ¶¶100–101. Specifically, KR996 teaches that the inner sidewall of the front tires must be able to precisely interface with the guide plates of the bogies that carry the loader arm attachment unit and the breaker arm attachment unit. *Id.* at ¶100.

When the wheels rotate forward, the inner sidewall of the tires flex and grip the guide plates and pull those plates (and the bogie) towards the machine. *Id.* This allows the bogie to cooperate with the machine to attach or detach the loader arm attachment unit or breaker arm attachment unit. *Id.* When the wheels of the machine are rotated in the opposite direction, the inner sidewall of the front tires push the guide plates of the bogie away from the machine. *Id.* In deposition, Velinsky agreed with this interpretation of KR996's functionality. Ex. 2021 at 84:9–15.

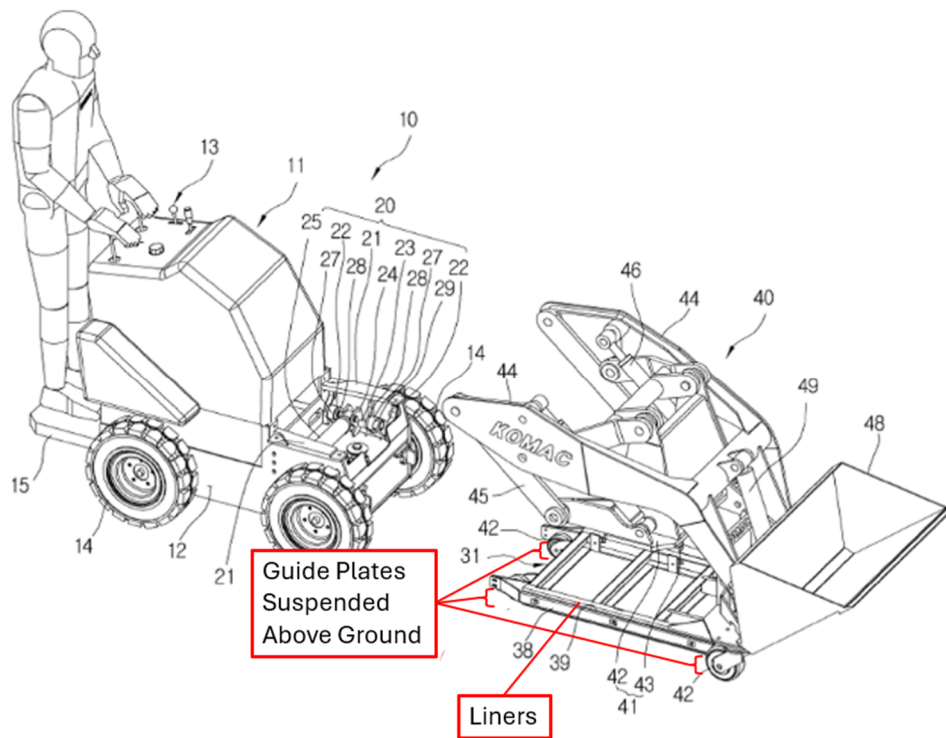
This interaction between the tires and the bogie is repeatedly identified as enabling the quick and easy attachment and detachment of the loader and arm units. Ex. 1005 at [0052], [0060], [0069] [0071], [0074], [0078], [0080], [0083], [0086]–[0087]. Ex. 2016 at ¶101.

KR996 teaches that the relative spacing of the guide plates and tire sidewalls is critical to this functionality. For example, the reference teaches the use of

“liners (39)” which act as shims and allow the operator to precisely adjust the distance between the guide plates so that the tire flexion can properly grip the guide plates. Ex. 1005 at [0053]; Ex. 2021 at 95:16–96:1; 97:16–21; Ex. 2016 at ¶¶101–102.

A POSITA would recognize that, unlike tires, tracks are relatively stiff and inflexible in the lateral direction. Ex. 2016 at ¶103. Whereas tires have sidewalls that are flexible and bow out under the load of the machine, tracks are rigid. *Id.* This rigidity prevents a track from being capable of gripping the guide plates of the bogie like a tire would. *Id.*

Moreover, unlike the tires taught in KR996, the tread of a tracked system does not extend a significant height above the ground. As such, that tread would not have the height necessary to grip the guide plates, which themselves are suspended above the ground on the wheels of the bogie:



Ex. 2016 at ¶104.

Removing the tires and wheels of KR996 would also remove the key alignment feature those components provide. That alignment feature is necessary to ensure the bogie aligns properly as it slides underneath the machine. *Id.* at ¶105.

A POSITA would realize that replacing the wheels and tires with a track system would remove the alignment feature and introduce a significant risk that the machine runs over the forks or tines of the bogie (the elongated structures that include the guide plates) or that they enter the track system and become jammed. Ex. 2016 at ¶105. This could result in damage to the bogie and/or track system, and could cause the bogie to tip over which could damage the attachment or cause harm to the operator or other workers. *Id.*

For all the reasons set forth above, a POSITA would recognize the important role that the wheels and tires of the KR996 machine play and that tracks would not be an acceptable alternative solution because they are rigid and do not extend above the operating surface sufficiently to grip the guide plates. In view of these recognitions, a POSITA would not be motivated to replace the tires of KR996 with tracks and would not have a reasonable expectation of succeeding with such a modification. Ex. 2016 at ¶106.

Velinsky does not address this issue, much less provide a reasonable explanation as to why a POSITA would be motivated to sacrifice this key functionality performed by the tires of the KR996 machine. During his deposition, it was unclear whether Velinsky was even aware that the sidewall of the tires performed this important role in the operation of the machine. Ex. 2021 at 79:24–84:8; Ex. 2016 at ¶107.

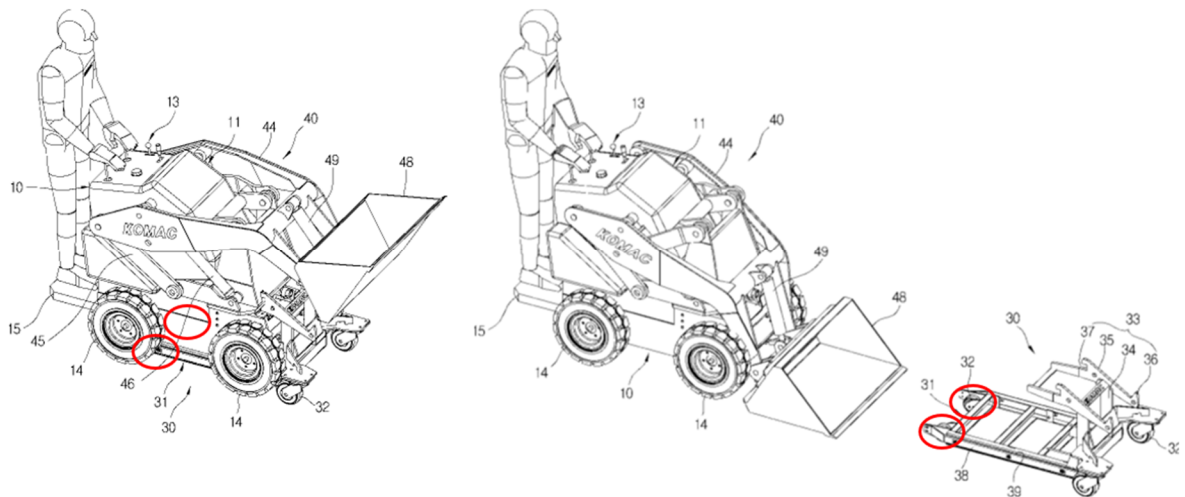
Instead, Velinsky primarily relies on the unremarkable fact that—generally speaking—wheels and tracks were known alternatives. Ex. 1003 at ¶¶157–160; Ex. 2016 at ¶108. But this generalized conclusion does not address the specific operation of KR996 and how that operation would be adversely impacted by replacing the wheels and tires of the machine with tracks. Ex. 2016 at ¶108.

Velinsky also asserts that a POSITA would switch KR996's wheels for tracks to accommodate uneven, rocky terrain and to lower ground pressure to avoid

sinking or slipping on soft/muddy surfaces. Ex. 1003 at ¶¶159–161; Ex. 2016 at ¶109. This assertion lacks merit because KR996 is specifically designed for indoor deconstruction work and would not be operable on uneven, rocky terrain. *See* Ex. 1005 at [0001] (“The present invention relates to construction equipment for green building deconstruction work, particularly to construction equipment for green building deconstruction work that can enter narrow buildings and carry out dismantling work inside the building....”); Ex. 2016 at ¶109. Velinsky admitted this in deposition. Ex. 2021 at 94:3–95:3; 100:16–102:1.

It is worth noting that Velinsky does not suggest that a similar change would be performed for the bogie's much smaller wheels, which certainly could not operate on rocky terrain or on soft/muddy surfaces. Ex. 1003 at ¶¶159–161.

From the disclosure of KR996, a POSITA would recognize that the attachment/detachment feature can only function—if at all—indoors and on a level, clean surface (such as a concrete floor). Ex. 2016 at ¶110; Ex. 2021 at 100:16–101:13. The bogie's wheels, designated by reference numeral (32) in the figure below, must be small to slide far underneath the machine during attachment and detachment operations:



Ex. 1005 at Fig. 7, Fig. 8.

This functionality requires ensuring (1) the wheels are small enough to fit under the machine, (2) the wheels roll properly on the surface (which, given the necessary small diameter of the wheels, must be clear of debris), (3) a clean work area so that mud or dirt does not collect on the inside of the wheels and upset the precise spacing required between the guide plates of the bogie and inner sidewalls of the tires, and (4) the terrain allows for proper three dimensional alignment of the bogie with the machine, and (5) the terrain is not muddy or soft, which would cause the wheels of the bogie to sink into the ground, fail to roll, and fail to align in properly with the machine during attempts to install or remove attachments. Ex. 2016 at ¶111.

Velinsky agrees with this aspect of KR996. Ex. 2021, 93:16–94:16 (admitting that if the bogie rolls over rubble, the machine would have trouble

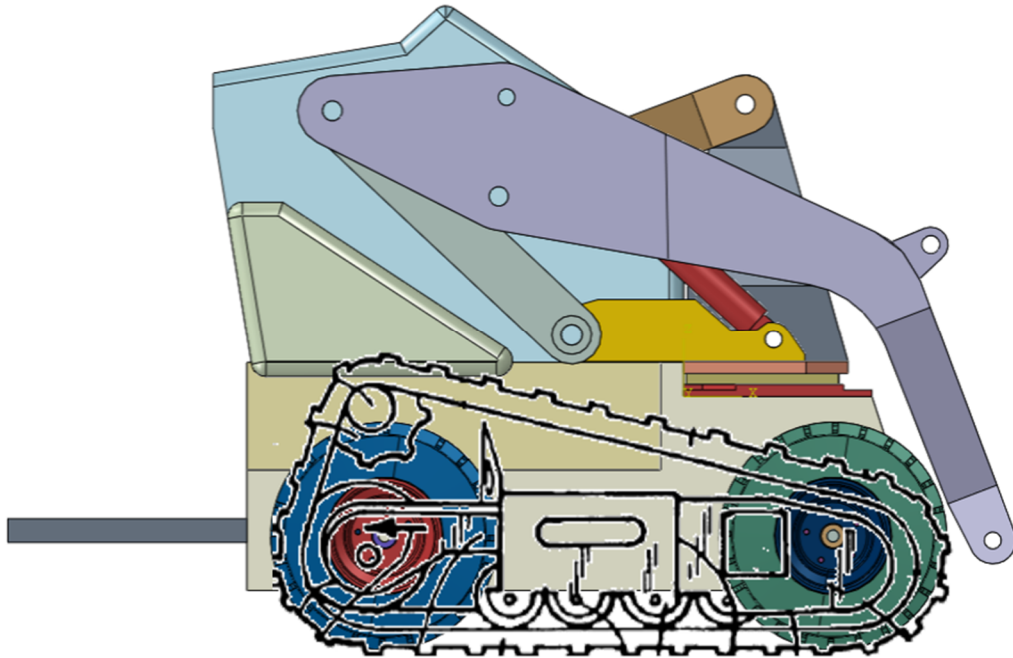
coupling with the bogie); 94:17–95:3 (admitting that on a bumpy grass surface, the machine would have trouble coupling with the bogie); 99:22–100:24 (admitting that mud, snow and ice conditions would cause the bogie to be misaligned); 101:21–102:1 (admitting that on uneven terrain the bogie would be unable to couple with the machine).

Despite recognizing these significant limitations of the KR996 machine, Velinsky admitted that he did not consider the machine's coupling and uncoupling feature when assessing motivation to combine. Ex. 2021 at 103:3–18 (“I wasn’t concerned about the coupling, uncoupling in that manner.”).

Given the foregoing restrictions, and the need for the KR996 machine to fulfill its intended purpose, which is to provide a platform for quickly interchanging attachments, a POSITA would not be motivated to add tracks to the KR996 machine for operation in uneven, rocky or muddy terrain, because the machine is otherwise incapable of being operated in such environments and making that change would render KR996 inoperable. Ex. 2016 at ¶114.

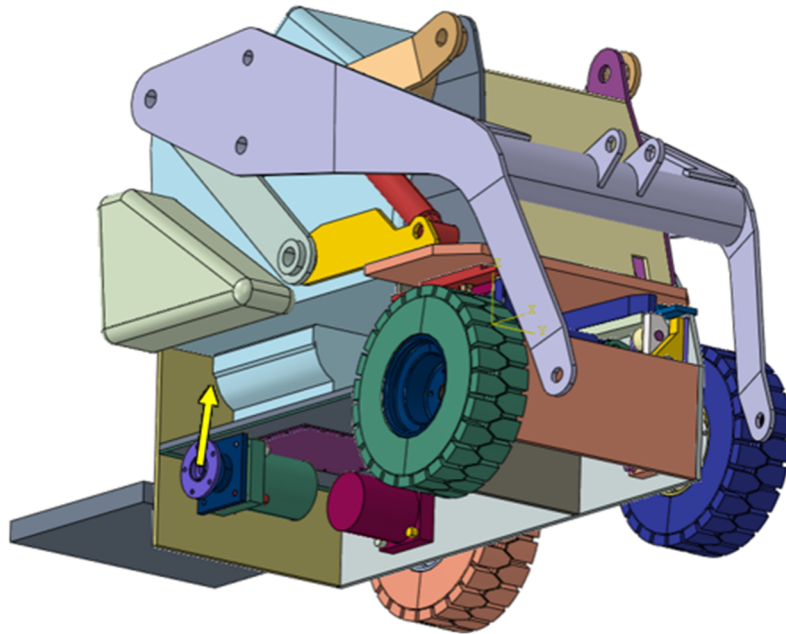
Notwithstanding the foregoing, Fleming evaluated the feasibility of replacing the wheels of the KR996 patent with the track system taught in Bares. As shown in the image below, the replacement Kubota suggests—which is yet another example of Kubota using KR996 as a Mr. Potato Head doll—causes

significant interference between the track system and the tank structures on the mainframe:

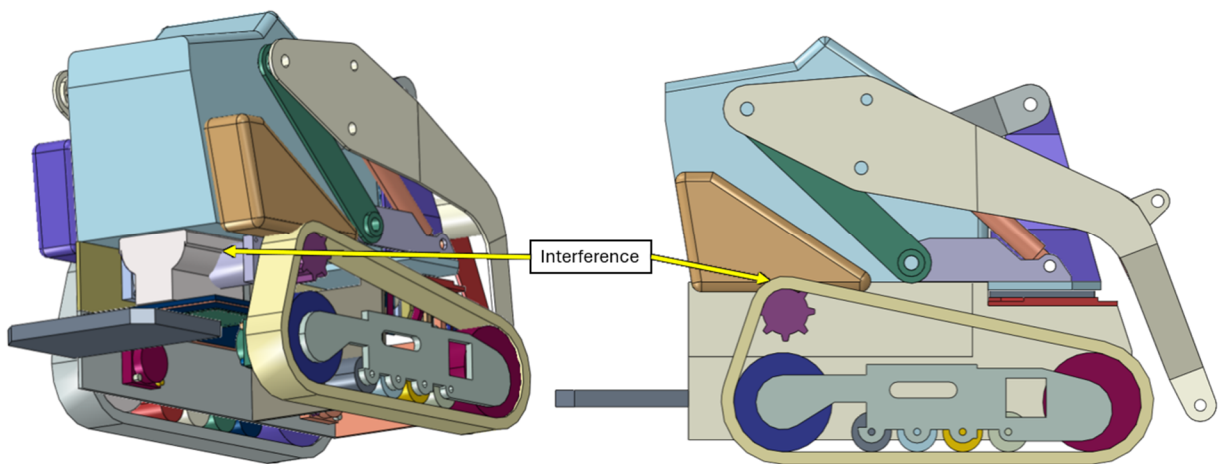


KR996 CAD model with Bares track superimposed. Ex. 2016 at ¶115.

Additionally, this configuration would require a redesign of the fundamental structure and drivetrain of the KR996 patent. As shown in the following figure, the drive motor and sprocket of Bares would directly interfere with the engine and support structure of the machine.



KR996 CAD model showing limited room to move rear wheel drive motor. Ex. 2016 at ¶116.



Given these issues, a POSITA would not be motivated to combine the track system of Bares with KR996 and would not have a reasonable expectation of success in doing so. Ex. 2016 at ¶116.

2. *Kubota's proposed combination fails to satisfy all the limitations of the Challenged Claims.*

In Ground II, Kubota primarily relies on many of the same arguments relating to KR996 discussed above for Ground I. In fact, for most of the claim limitations of independent claims, Kubota incorporates by reference its arguments from Ground I. *See, e.g.*, Petition at 80–82, 91–100. Importantly, this includes the key limitations discussed above relating to the linkage and actuator being pivotally attached to the first side of the mainframe. For the same reasons set forth above, Kubota's arguments fail in Ground II. Even if a POSITA would have modified KR996 with JP705 and Bares, this modified machine would still fail to satisfy the claim limitations requiring the linkages and actuator to be pivotally connected to the “mainframe” as explained in Vermeer's response to Ground I. Ex. 2016 at ¶¶139–143.

3. *The combination of KR996 and JP705 fails to disclose the linkages and actuator attached to a single-weldment mainframe, as required by claims 73, 77, and 79.*

Dependent claims 73, 77, and 79 further require that the “mainframe incorporates a single weldment.” This additional claim limitation requires that all

of the portions of the mainframe constitute a single, unitary weldment, as shown, for example, in the embodiment shown in Figure 4 of the '386 patent. For claims 73, 77, and 79, Kubota and Velinsky argue a POSITA would have been motivated to weld the main body (11) and fixture (41) together to create a single weldment mainframe for the same reasons discussed in claim 33. Petition at 90, 96, 100; Ex. 1003 at ¶¶181, 190, 192.

In support of this position, Kubota relies on the fact that welding is “a well-known method of attachment” and that JP705 teaches the use of a welded mainframe. *See* Petition at 46–47; Ex. 1003 at ¶¶115–120. But Kubota fails to provide any motivation for a POSITA to weld the fixture (41) to the main body (11) of the KR996 machine. Ex. 2016 at ¶ 145.

In fact, KR996 teaches away from fusing fixture (41) to the main body (11) of the machine, because doing so would destroy the key detachability feature that characterizes the KR996 invention. Ex. 1005 at Abstract, *see also id.* at [0001], [0011]–[0015]; Ex. 2016 at ¶146. Accordingly, a POSITA would not have been motivated to create the weldment that Kubota and Velinsky suggest. Ex. 2016 at ¶145–146. “A prior patent must be considered in its entirety, i.e., as a whole, including portions that would lead away from the invention in suit.” *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1568 (Fed. Cir. 1987); *see also In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984) (no motivation to combine where the

proposed modification to the prior art “would be rendered inoperable for its intended purpose”); *Chemours Co. FC, LLC v. Daikin Indus., Ltd.*, 4 F.4th 1370, 1376 (Fed. Cir. 2021) (proposed modification of the prior art not obvious where the Board “ignored the express disclosure [in the prior art] that teaches away from the claimed invention and relied on teachings from other references that were not concerned with the particular problems [the prior art] sought to solve”); *Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1332 (Fed. Cir. 2019) (affirming finding of no motivation to combine where modification would “yield an unappetizing combination”).

VIII. SECONDARY INDICIA OF NON-OBVIOUSNESS

The obviousness inquiry requires the consideration of any evidence relating to the various secondary indicia of non-obviousness. *See Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1349 (Fed. Cir. 2012) (“As we have repeatedly held, ‘evidence rising out of the so-called ‘secondary considerations’ must always when present be considered en route to a determination of obviousness.’”). The Federal Circuit has recognized that this objective evidence is a critical part of the obviousness inquiry because “evidence of secondary considerations may often be the most probative and cogent evidence in the record.” *Id.* “It may often establish that an invention appearing to have been obvious in light of the prior art was not.” *Id.* This objective evidence must be

“considered as part of all the evidence, not just when the decisionmaker remains in doubt after reviewing the art.” *Id.*

Disregarding this clear mandate, Kubota's expert reached his conclusions regarding obviousness without considering any of the evidence of secondary indicia of non-obviousness—even though he was aware of this evidence, which was presented during the prior reexaminations and part of the prosecution history record that he reviewed. Ex. 2021 at 56:10–62:2, 58:12–13 (“I...didn’t use that in any way in establishing my opinions in the case.”). Velinsky asserted that he need not consider this evidence because it was presented to the Patent Office in connection with a different obviousness challenge. Ex. 1003 at ¶26. There is no legal support for this proposition, and it does not justify Velinsky's head-in-the-sand approach to analyzing obviousness. Regardless, he testified that even if he were confronted with significant objective indicia evidence, he would not have considered it relevant to his obviousness assessment. Ex. 2021 at 61:11–62:2.

Kubota also refused to engage with Vermeer's objective indicia evidence in its Petition. Although Kubota takes vague pot shots at the indicia evidence previously presented to the Patent Office, it purposefully avoids specifically engaging with that potent evidence. *See* Petition at 15–17. This is not a typical proceeding where Kubota is unaware of secondary indicia evidence until a Patent Owner injects it into the proceeding. Substantial objective indicia evidence was

previously presented to the Patent Office during the reexaminations which repeatedly confirmed the patentability of the '386 Patent's claims. In light of the Federal Circuit's clear mandate that this evidence "must be considered," when present, Kubota was obligated to address this evidence as part of its Petition.

Transocean, 699 F.3d at 1349; *see, e.g., Coalition for Affordable Drugs V LLC v. Hoffman-LaRoche, Inc.*, IPR2015-01792, Paper 14 at 18 (PTAB, Mar. 11, 2016) (denying institution where petitioner failed to address secondary indicia evidence submitted during prosecution); *Merial Ltd. v. Virbac*, IPR2014-01279, Paper 13 at 27 (PTAB, Jan. 22, 2015) (same); *Omron Oilfield & Marine Inc. v. MD/TOTCO*, IPR2013-00265, Paper 11 at 11, 12–13, 16 (PTAB, Oct. 31, 2013) (denying institution where petitioner failed to address objective indicia successfully argued in prior reexamination). Kubota's failure to address Vermeer's substantial objective indicia evidence should weigh in favor of the validity of Vermeer's patent.

For purposes of the discussion that follows, Fleming has reviewed the configuration of Vermeer and Toro's vertical-lift compact tool carrier machines and confirmed that they practice claims of Vermeer's patent. Ex. 2016 at ¶152.

A. Commercial Success and Industry Praise

A product's commercial success and industry praise is evidence of non-obviousness when "the product that is commercially successful is the invention

disclosed and claimed in the patent.” *Crocs, Inc. v. Int’l Trade Comm’n*, 598 F.3d 1294, 1310–11 (Fed. Cir. 2010); *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1367–68 (Fed. Cir. 2012) (reversing obviousness decision based on evidence of commercial success and industry praise). The prosecution histories included evidence of commercial success and praise of products that practice the ‘386 Patent.

Vermeer and Toro were the first companies to launch vertical-lift compact utility loaders. The earliest models of these vertical-lift machines were Vermeer’s CTX50, Vermeer’s CTX100, and Toro’s TX1000.



Vermeer’s CTX50



Vermeer’s CTX100



Toro’s TX1000

These vertical-lift compact utility loaders are covered by the ‘386 Patent. Ex. 2016 at ¶152; Ex. 2024; Ex. 2025. These commercial embodiments of the claimed compact utility loader received significant praise in the industry after they were released. For example, after the release of the CTX50, Vermeer received an “Innovative Iron Award” from Compact Equipment Magazine. Ex. 2026 at 1–2; Ex. 1029 at 183. This award is given to companies “that have changed the commercial equipment market...with their unique, interesting, and innovative

machines, engines, and technologies.” Ex. 2026 at 1; Ex. 1029 at 183. Compact Equipment Magazine also celebrated Toro’s TX1000 and noted that “Toro and Vermeer were the first manufacturers to introduce vertical lift to the compact tool carrier market.” Ex. 2026 at 1–2; Ex. 1029 at 186. Compact Equipment Magazine specifically cited the vertical-lift path (responsible for its increased lift capacity and higher lift height) as an enhancement that made Vermeer’s CTX50 a “game-changer.” Ex. 2026 at 2; Ex. 1029 at 183.

This industry praise was consistent with the machine’s commercial success. During the Toro reexaminations, Vermeer’s Product Manager for compact utility loaders testified that the popularity of vertical-lift machines caused its total sales of compact utility loaders to double, and that the percentage of those sales comprising vertical-lift machines increased from 11% to 37% within the first three years. Ex. 1030 at 128, 302. Toro’s 2015 Annual Statement similarly boasted a significant increase in compact utility loader sales following the launch of its TX1000 machine. Ex. 1029 at 185. Because these commercial embodiments are covered by the ‘386 Patent claims, the commercial success and industry praise is fairly attributed to the patented invention.

B. Skepticism at the Time of Invention

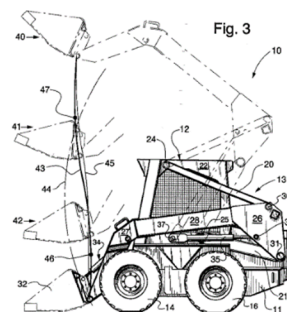
“Evidence of industry skepticism . . . weighs in favor of non-obviousness.”

Neptune Generics, LLC v. Eli Lilly & Co., 921 F.3d 1372, 1377–78 (Fed. Cir.

2019) (affirming Board's reliance on evidence of skepticism and noting that "our caselaw...recognizes a range of third-party opinion that can constitute skepticism"). The evidence submitted to the Patent Office during the reexaminations further demonstrated that at the time of Vermeer's invention, there was skepticism within the industry that vertical lift was a viable option for compact utility loaders due to their small size and complexity.

For example, before Toro developed its first vertical lift compact utility loader, its engineers identified significant challenges inhibiting the development of a vertical-lift mechanism, including "failures" caused by "[l]oader arm complexity and durability," as well as the "[i]ncreased weight, cost, and time" required "to develop the arm." Ex. 1030 at 54. When Toro finally developed a viable solution, it filed a patent application for its vertical-lift compact utility loader. In that application it noted that the industry considered this loader arm configuration "difficult if not impossible due to size and durability constraints."

[0007] Finally, the vertical reach of the loader arms on compact utility loaders is somewhat limited. While high lift loader arms are known on full size skid steer loaders as disclosed in U.S. Pat. No. 5,542,814, the use of such high lift loader arms on a compact utility loader has been considered difficult if not impossible due to size and durability constraints. Accordingly, it would be a further advance in the art to provide a way of safely and durably providing high lift loader arms on compact utility loaders to extend the vertical reach of such loaders. For example, this would allow a compact utility loader to dump debris or materials at higher elevations than previously, thus allowing the use of larger trucks to accept such debris or materials for transport.



Ex. 2004 (Toro's U.S. Patent Pub. 2016/0244937A1); Ex. 2005 (U.S. Patent No. 5,542,814) at Fig. 3. This evidence further undermines Kubota's obviousness assertions. *Neptune*, 921 F.3d at 1377–78. The Patent Office previously credited this evidence in affirming the patentability of the '386 Patent claims. *See, e.g.*, Ex. 1029 at 34.

C. Unexpected Results

The prosecution histories relating to the '386 Patent also contained evidence showing that the claimed invention surpassed expectations. For example, this evidence showed that the machine claimed in the '386 Patent achieved 32% *greater* lift capacity than its radial-lift counterpart of similar size and weight. Ex. 1029 at 142. During reexamination of the '386 Patent, the Patent Office recognized that Vermeer's 32% increase in lift capacity without increasing the machine's weight "was unexpected." Ex. 1029 at 34, 74.

D. Long-felt but Unresolved Need

The prosecution histories also contain significant evidence of a long-felt need for a solution to the problem of low lift capacity on compact tool carriers. Since the first machine was released more than three decades ago (Ex. 1029 at 121, 173), customers have desired greater lift capacity for these nimble machines—but "not at the expense" of a heavier machine or wider footprint. Ex. 1030 at 39–41.

The evidence of record demonstrates that skilled engineers—including those working for some of the industry's leading manufacturers—struggled for many years to find ways to meaningfully increase the lift capacity and lift height of compact tool carriers without increasing their size and weight. Ex. 1030 at 39–41.

During prior litigation against The Toro Company involving the '386 Patent, Vermeer acquired internal documents and deposition testimony that shed light on Toro's decade-long pursuit of a solution to the problem of compact tool carrier lift capacity. Those documents show that Toro's engineers tried for years—and repeatedly failed—to meaningfully increase the lift capacity of their compact tool carrier machines. Ex. 1030 at 36–50.

Toro's development story, presented in detail in Vermeer's prior reexamination history (*e.g.*, Ex. 1030 at 36–57), provides cogent and unbiased evidence of the significant long felt need for a solution to increased lift capacity and the true inventive nature of the machine disclosed in Vermeer's patent.

Since at least 2000, Toro recognized the need to increase the lift capacity of its compact tool carrier machines. *Id.* at 41–42. For more than a decade thereafter—from 2000 until 2015—Toro devoted its significant research and development resources to solving that problem. *Id.*

Despite the fact that a wide variety of full-size skid steer machines with vertical lift systems were available on the market during that period (*Id.* at 47), not

a single Toro engineer proposed adapting that technology for use on their compact tool carrier machines. *Id.* at 45–46. During this period, Toro was acutely aware of the need to increase lift capacity, but never designed a single prototype *or even made a single sketch of a compact tool carrier with vertical lift.* *Id.* This fact directly undermines Kubota's hindsight argument in the present Petition that a POSITA would have been motivated to turn to materials regarding full-size machines to modify a compact tool carrier machine. There are too many differences between the two categories of machine for teachings relating to one to apply to the other.

Instead of conceiving of a vertical lift device, Toro's engineers obtained incremental lift capacity improvements through the usual strategy of making their machines bigger and heavier. *Id.* at 42, 48–49. While Toro's engineers attempted to conceive new designs to address lift capacity, including a prototype that would shift weights backward during operation to increase lift capacity, those designs were determined not to be viable and were mothballed. *Id.* at 50.

Even once Toro conceived of the idea of implementing vertical lift on a compact tool carrier, it was unsure whether the concept was viable. Toro conducted feasibility studies to investigate whether implementing vertical lift would even be possible. *Id.* at 51. Toro's feasibility study kicked off a multi-year

effort to design a custom vertical-lift linkage for a compact tool carrier. *Id.* at 51–54.

Notably, Toro's engineers recognized that they could not simply "adapt" the vertical lift system from a full-size machine. Instead, Toro's engineers recognized that a unique linkage system would need to be designed from scratch so that it could be specifically tailored to the unique challenges presented by a compact tool carrier. The diagram Toro created for its feasibility study—like Kubota's proposed modification to KR996—was "crude," and Toro's lead designer admitted in deposition it "was not an acceptable design." *Id.* at 53.

Toro's internal documents show that its custom vertical lift linkage was difficult to design, required serial redesign, and introduced significant risks to the project. *Id.* at 53–54. For example, Toro's Project Risk and Risk Management Plan identified loader arm failure as a "high" likelihood due to the design's complexity and related concerns regarding durability. *Id.* at 54. That same document shows that Toro's engineers were running iterative rounds of finite element analysis to assess problem areas in the design and recognized the potential need to reengineer the design altogether. *Id.* These documents, generated in 2014—shortly before Vermeer filed the application for its '386 patent—*by a team of highly competent engineers with many years of experience designing compact tool carriers* contradict Kubota's baseless assertion that it would be a routine

matter for a POSITA (an engineer with only two years of design experience) to use the vague teachings of a full-size machine to modify the KR996 machine.

Toro devoted a team of engineers to the same design project, and it took them years of development, complex finite element analysis, and millions of dollars to finally arrive at a solution. *Id.* at 51. Even then, Toro considered the project high risk. *Id.* at 54. Given this evidence, Kubota's assertion that it would have been obvious for a POSITA *with only two years of design experience* to modify KR996 using the teachings of full size machines rings particularly hollow.

Indeed, the Patent Office found this direct record of Toro's actual research and development efforts to be "*substantial and direct evidence* that those of ordinary skill in the art (the engineers, developers, managers, etc. at Toro), over the course of several years and through multiple modifications of the Dingo series of CULs, did not find it obvious to employ a vertical lift loader arm arrangement on a CUL." Ex. 1031 at 16; Ex. 1030 at 16. If it would not have been obvious for Toro to design a vertical lift loader on its compact tool carrier, it also would not be obvious for a POSITA (with far less experience than Toro's engineering team) to completely redesign the mainframe and loader linkages of KR996.

E. Copying

Kubota produced internal documents in this proceeding⁷ from the time period shortly after Vermeer and Toro launched their “game changer” vertical-lift compact utility loaders. Ex. 2026; Ex. 1029 at 183. These internal Kubota documents show that when Kubota designed its first compact utility loader it

[REDACTED]

[REDACTED]

1. Results from Kubota's Dealer Surveys

Vermeer and Toro were the first companies to launch vertical-lift compact utility carriers in 2015. Ex. 2026 at 1; Ex. 1029 at 186. At that time, Kubota had no compact utility loader on the market or in development. I [REDACTED]

[REDACTED]

Ex. 2027 at 130–131. The questions primarily focused on [REDACTED]

⁷ Kubota agreed to produce sixteen documents in this proceeding. The Bates numbering on these documents is from the co-pending litigation. Kubota rejected Vermeer's attempt to seek additional discovery on this topic and the parties agreed to this small production as a compromise to resolve the discovery dispute. Kubota contends that these documents contain sensitive business information and have marked them Confidential under the Board's Protective Order.

[REDACTED]

[REDACTED] *Id.*

These surveys showed that [REDACTED]

[REDACTED] This is evidenced by several survey responses. *See, e.g.,* Ex. 2027 at 24, 31, 37, 38, 40, 42, 44, 53, 54, 59, 62, 64, 66, 68, 71, 77, 79, 103; *see also* Ex. 2028 at 1–2. For example, [REDACTED]

[REDACTED] Ex. 2027 at 31. A different company echoed this sentiment, advising Kubota t [REDACTED]

[REDACTED] *Id.* at 53 (emphasis in original). In addition, a contractor said “[REDACTED]

[REDACTED] *Id.* at 44. A distributor expressed a desire for [REDACTED]

[REDACTED] *Id.* at 62. One business owner even mentioned that he [REDACTED] *Id.* at 79.

Second, consumers [REDACTED] *See, e.g.,* Ex. 2027 at 39, 53–55, 70, 77, 79. For example, one respondent emphasized

[REDACTED] *Id.* at 53. A different company said that [REDACTED]

[REDACTED] *Id.* at 54.

Third, consumers frequently recognized [REDACTED]
[REDACTED]. *See, e.g.*, Ex. 2027 at 24, 34, 64, 68, 74, 103, 105. One dealership said
that [REDACTED]
[REDACTED]' *Id.* at 74.

Kubota admits that it heavily relied on the results of its industry surveys to
develop its first compact utility loader, the SCL1000. For example, when debuting
the SCL1000 at a 2020 trade show, Kubota explained that it decided to launch a
vertical-lift compact utility loader after it “did several surveys, took the machine
out as a prototype, got feedback, [and] made changes” based on that feedback. Ex.
2029 at 6; Ex. 2030 at 2–4, 15, 27–30; Ex. 2031 at 6, 15, 35; Ex. 2032 at 2; Ex.
2028 at 1 (“The SCL1000...specifically fill[s] the requests from contractors in the
marketplace.”).

2. Kubota's Competitor Research

As part of its efforts to design its first-ever compact utility loader, Kubota's
internal documents show that [REDACTED]
[REDACTED] Ex. 2027 at 1, 5, 12, 14–22; *see also* Ex. 2030 at 2–4, 15 and Ex.
2031 at 35. This research focused on [REDACTED]
[REDACTED] Ex.
2027 at 1, 5, 12, 14–22, 110.

By 2017, Kubota [REDACTED]

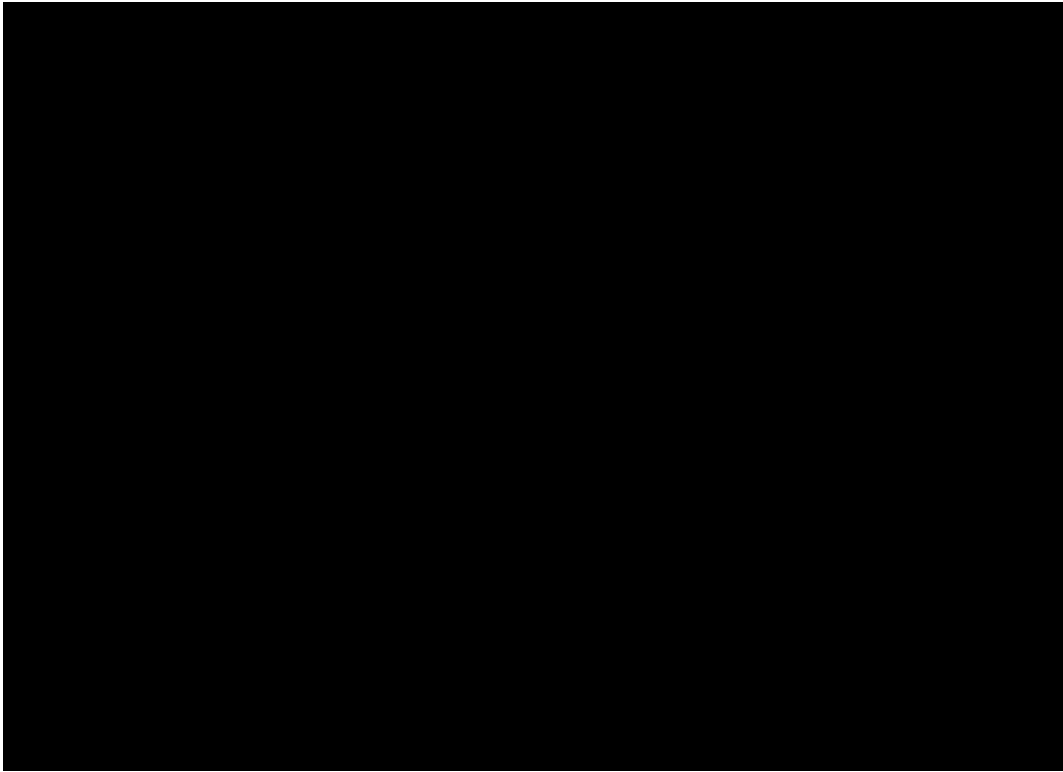
[REDACTED]

[REDACTED]

[REDACTED]

Kubota further analyzed [REDACTED]

[REDACTED]



Ex. 2027 at 12 (shading added); *see also* Ex. 2027 at 15, 20.

In fact, Kubota specifically researched

[REDACTED]

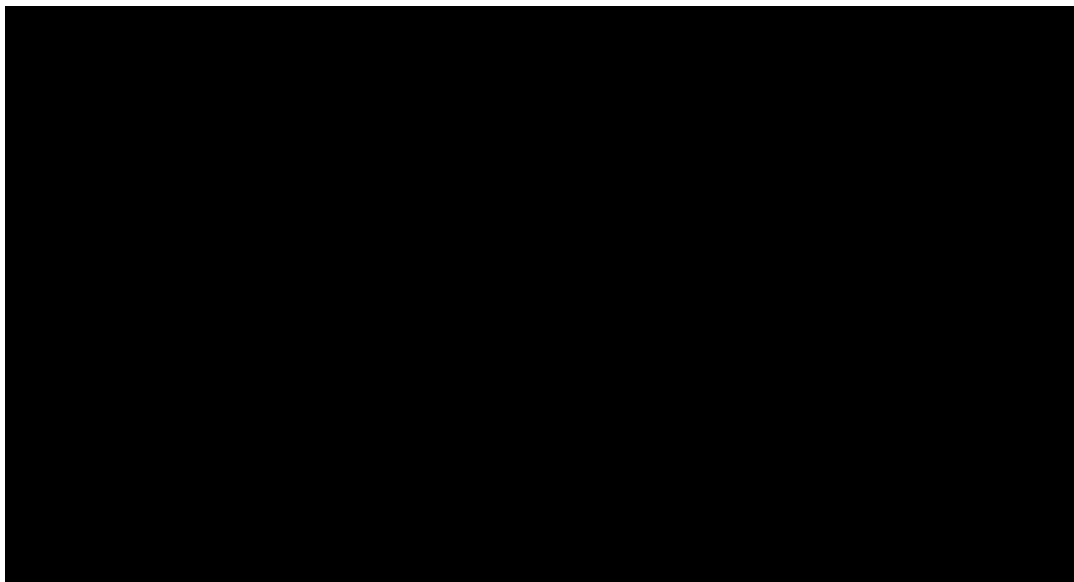
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

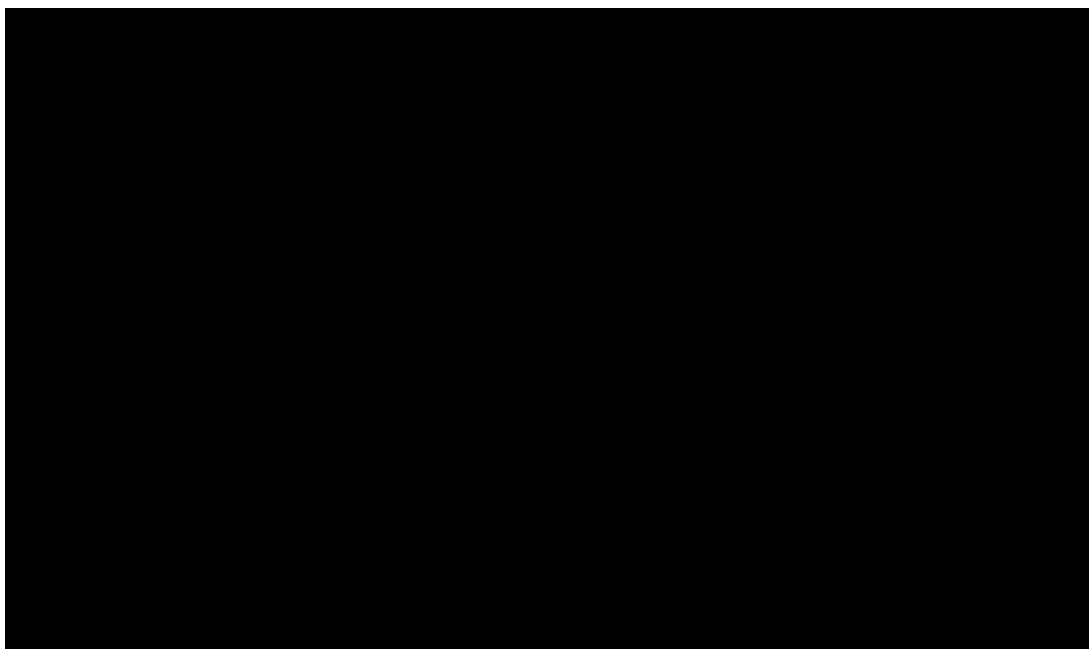


Ex. 2027 at 89.

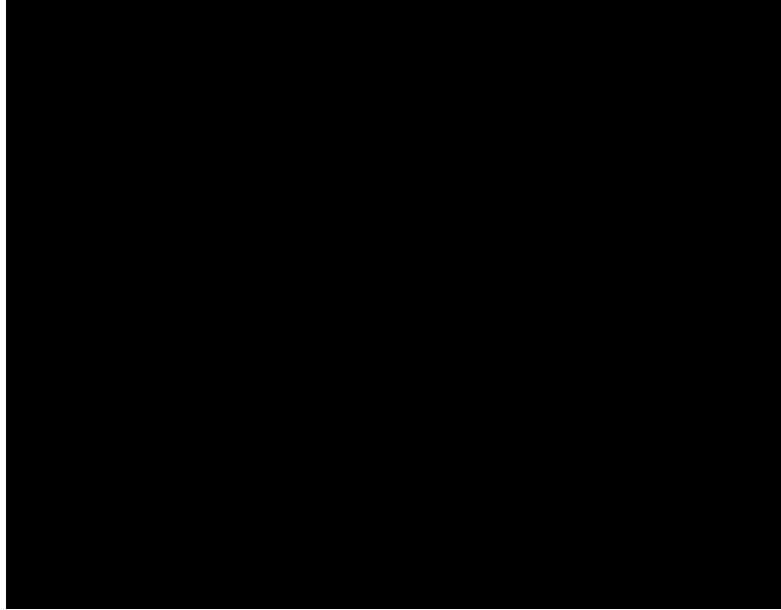
Kubota concluded that



Ex. 2027 at 12–13.



Ex. 2027 at 48; *see also* Ex. 2027 at 50.



Ex. 2027 at 13.

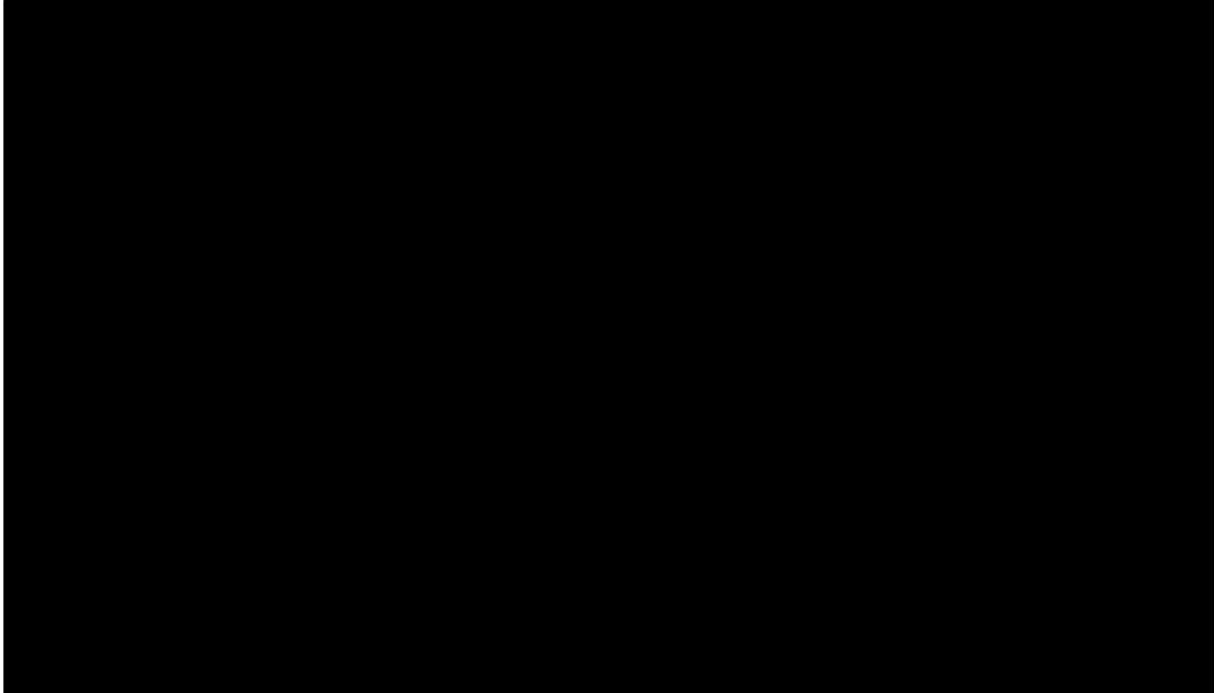
3. *Kubota's Proposed Specifications for its Compact Utility Loader*

[Redacted]

[Redacted]

Ex. 2027 at 50–52, 114.

Kubota vs. Competition Idea



Ex. 2027 at 52 (annotations added).

Kubota and Velinsky opted not to engage with any of this objective evidence of non-obviousness. This evidence further confirms that the invention claimed in the '386 Patent would not have been obvious to a person of ordinary skill in the art.

IX. CONCLUSION

Based on the arguments presented in this Response, Kubota has failed to demonstrate that any of the Challenged Claims of the '386 Patent are obvious.

Patent Owner's Response
IPR2025-00168 to U.S. Patent No. 9,321,386

Date: September 3, 2025

Respectfully submitted,

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CERTIFICATE OF SERVICE

Under 37 C.F.R. § 42.6(e), the undersigned certified that on September 3, 2025, a copy of Patent Owner's Response was served via electronic mail on the following attorneys of record:

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**CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME
REQUIREMENTS UNDER 37 C.F.R. § 42.24**

Under 37 C.F.R. § 42.24(d), the undersigned certifies that the Patent Owner's Response complies with the type-volume requirements of 37 C.F.R. § 42.24(a)(1)(i) because it contains 13,555 words, excluding the parts of the Response exempted by 37 C.F.R. § 42.24(a).

This Response also complies with the typeface requirements of 37 C.F.R. § 42.6(a)(2)(ii) and the type style requirements of 37 C.F.R. § 42.6(a)(2)(iii) and (iv).

Dated: September 3, 2025

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