

10617 U.S. PTO
09/39099
09/20/99

280	444	ISSUE CLASSIFICATION
Class	Subclass	

PATENT NUMBER

6176504



6176504

U.S. UTILITY PATENT APPLICATION

SCANNED <i>amul</i> O.I.P.E. <i>Q.A.</i> <i>KB</i>	PATENT DATE <i>1 JAN 23 2001</i>
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SECTOR	CLASS <i>280</i>	SUBCLASS <i>444</i>	ART UNIT <i>3613</i>	EXAMINER <i>Bart</i>
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FILED WITH: ☐ DISK (CRF) ☐ FICHE
(Attached in pocket on right inside flap)

PREPARED AND APPROVED FOR ISSUE

ISSUING CLASSIFICATION

ORIGINAL		CROSS REFERENCE(S)					
CLASS	SUBCLASS	CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
<i>280</i>	<i>444</i>						
INTERNATIONAL CLASSIFICATION							
<i>B62D</i>	<i>13/00</i>						

☐ Continued on Issue Slip Inside File Jacket

<input type="checkbox"/> TERMINAL DISCLAIMER	DRAWINGS			CLAIMS ALLOWED	
	Sheets Drwg. <i>3</i>	Figs. Drwg. <i>4</i>	Print Fig. <i>4</i>	Total Claims <i>8</i>	Print Claim for O.G. <i>1</i>
<input type="checkbox"/> a) The term of this patent subsequent to _____ (date) has been disclaimed.				NOTICE OF ALLOWANCE MAILED <i>9-22-00</i>	
<input type="checkbox"/> b) The term of this patent shall not extend beyond the expiration date of U.S. Patent, No. _____	CHRISTOPHER P. SCHWARTZ PRIMARY EXAMINER <i>Christopher P. Schwartz</i> (Primary Examiner)			ISSUE FEE <i>1210</i>	
				Amount Due <i>1210</i>	Date Paid <i>11/22/00</i>
<input type="checkbox"/> c) The terminal _____ months of this patent have been disclaimed.	<i>Williams</i> (Legal Instruments Examiner)			ISSUE BATCH NUMBER <i>560</i>	
WARNING: The information disclosed herein may be restricted. Unauthorized disclosure may be prohibited by the United States Code Title 35, Sections 122, 181 and 368. Possession outside the U.S. Patent & Trademark Office is restricted to authorized employees and contractors only.					

Form PTO-436A
(Rev. 5/99)

(LABEL AREA)

(FACE)

EXHIBIT 1013

1 IPR Petition for U.S. Patent No. 6,176,504

SERIAL NUMBER	FILING DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
09/399,099	09/20/99	280	3611	1994-155

APPLICANT	MICHAEL D. VAN MILL, SHELL ROCK, IA; PHILIP J. KENKEL, CEDAR FALLS, IA.			
	<p>**CONTINUING DOMESTIC DATA*****</p> <p>VERIFIED PROVISIONAL APPLICATION NO. 60/101,950 09/25/98</p> <p><u>CTB</u></p> <p>**371 (NAT'L STAGE) DATA*****</p> <p>VERIFIED</p> <p>_____</p>			
ADDRESS	<p>**FOREIGN APPLICATIONS***** <u>NONE</u></p> <p>VERIFIED</p> <p><u>CTB</u></p>			
	<p>IF REQUIRED, FOREIGN FILING LICENSE GRANTED 10/08/99</p>			
TITLE	<p>Foreign Priority claimed <input type="checkbox"/> yes <input checked="" type="checkbox"/> no</p> <p>35 USC 119 (a-d) conditions met <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> Met after Allowance</p> <p>Verified and Acknowledged <u>Examiner's Initials</u> _____ <u>Initials</u> _____</p>			
	<p>STATE OR COUNTRY: IA</p> <p>SHEETS DRAWING: 3</p> <p>TOTAL CLAIMS: 8</p> <p>INDEPENDENT CLAIMS: 1</p>			
<p>GEORGE R REPPER</p> <p>ROTHWELL FIGG ERNST & KURZ</p> <p>SUITE 701-EAST</p> <p>555 13TH STREET NW</p> <p>WASHINGTON DC 20004</p>				
<p>SHORT STEER WAGON</p>				
<p>FILING FEE RECEIVED</p> <p>\$760</p>		<p>FEES: Authority has been given in Paper</p> <p>No. _____ to charge/credit DEPOSIT ACCOUNT</p> <p>NO. _____ for the following:</p>		
		<p><input type="checkbox"/> All Fees</p> <p><input type="checkbox"/> 1.16 Fees (Filing)</p> <p><input type="checkbox"/> 1.17 Fees (Processing Ext. of time)</p> <p><input type="checkbox"/> 1.18 Fees (Issue)</p> <p><input type="checkbox"/> Other _____</p> <p><input type="checkbox"/> Credit _____</p>		

PATENT APPLICATION



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INITIALS

CONTENTS

	Date received (Incl. C. of M.) or Date Mailed		Date received (Incl. C. of M.) or Date Mailed
1. Application <u>3 PRTS</u> papers.		42.	
2. <u>IDS</u>	<u>11-29-99</u>	43.	
3. <u>IDS</u>	<u>2-23-00</u>	44.	
4. <u>Exemdt/a</u>	<u>9/24/00</u>	45.	
5. <u>2-20-00</u> <u>Original Drawings (3 sets) set</u>	<u>10-26-00</u>	46.	
6.		47.	
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EXHIBIT 1013



US006176504B1

(12) **United States Patent**
Van Mill et al.

(10) **Patent No.:** **US 6,176,504 B1**
(45) **Date of Patent:** **Jan. 23, 2001**

(54) **SHORT STEER WAGON**

FOREIGN PATENT DOCUMENTS

2300839 11/1996 (GB) .

(75) Inventors: **Michael D. Van Mill**, Shell Rock;
Philip J. Kenkel, Cedar Falls, both of
IA (US)

* cited by examiner

(73) Assignee: **Unverferth Manufacturing Company,**
Inc., Kalida, OH (US)

Primary Examiner—Christopher P. Schwartz
(74) *Attorney, Agent, or Firm*—Rothwell, Figg, Ernst &
Manbeck

(57) **ABSTRACT**

(*) Notice: Under 35 U.S.C. 154(b), the term of this
patent shall be extended for 0 days.

(21) Appl. No.: **09/399,099**

(22) Filed: **Sep. 20, 1999**

Related U.S. Application Data

(60) Provisional application No. 60/101,950, filed on Sep. 25,
1998.

(51) **Int. Cl.**⁷ **B62D 13/00**

(52) **U.S. Cl.** **280/444**

(58) **Field of Search** 180/24.01, 265;
280/81.6, 408, 444

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,453,311	11/1948	Fedevich .	
2,918,982	12/1959	Vlachos .	
3,455,572	* 7/1969	Wolf	280/444
3,695,628	* 10/1972	Fisher	280/103
5,090,719	2/1992	Hanaoka .	
5,477,937	12/1995	Chagnon .	

A short steer wagon having an improved turning capability, including a pair of wheels at each of opposed ends, a tongue having a rear portion connected to a frame of the wagon and having a front portion adapted for connection to a vehicle, at least one of the pair of wheels being steerable to right and left sides and connected to a rear portion of a corresponding tongue for steering, with a wheel having a leading edge facing toward an end of the wagon and a trailing edge facing toward a central portion of the wagon, the wagon having a longitudinal frame member on each side, each longitudinal frame member having an outer edge portion on an intermediate portion of the longitudinal member, the steerable wheels being completely outside the longitudinal frame members when the steerable wheels are oriented in a straight running direction, and each longitudinal frame member including an inwardly oriented indentation adjacent the trailing edge of each corresponding steerable wheel, each of the indentations allowing the corresponding steerable wheel to be turned so that the trailing edge of the corresponding steerable wheel is positioned inwardly with respect to the outer edge portion of a corresponding longitudinal frame member.

8 Claims, 3 Drawing Sheets

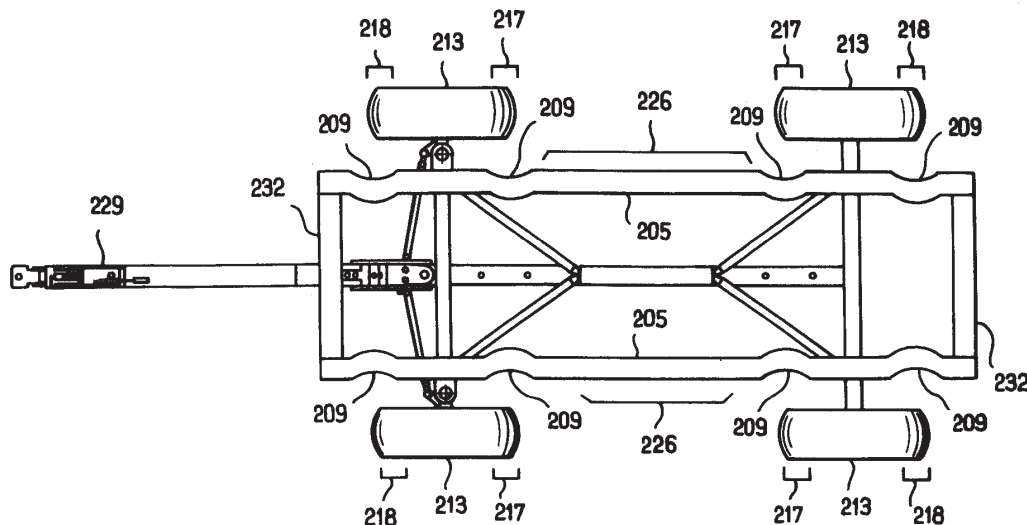


EXHIBIT 1013

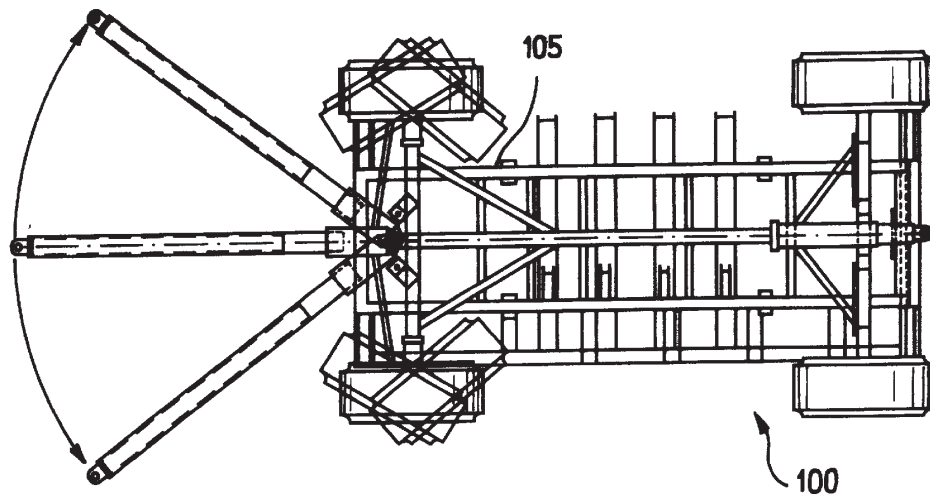


FIG. 1

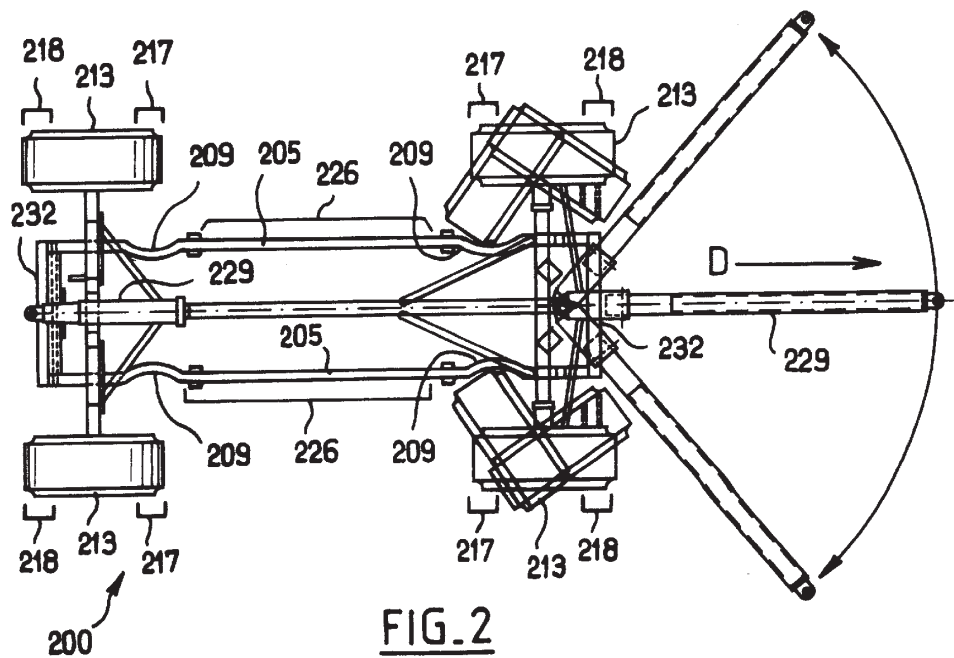
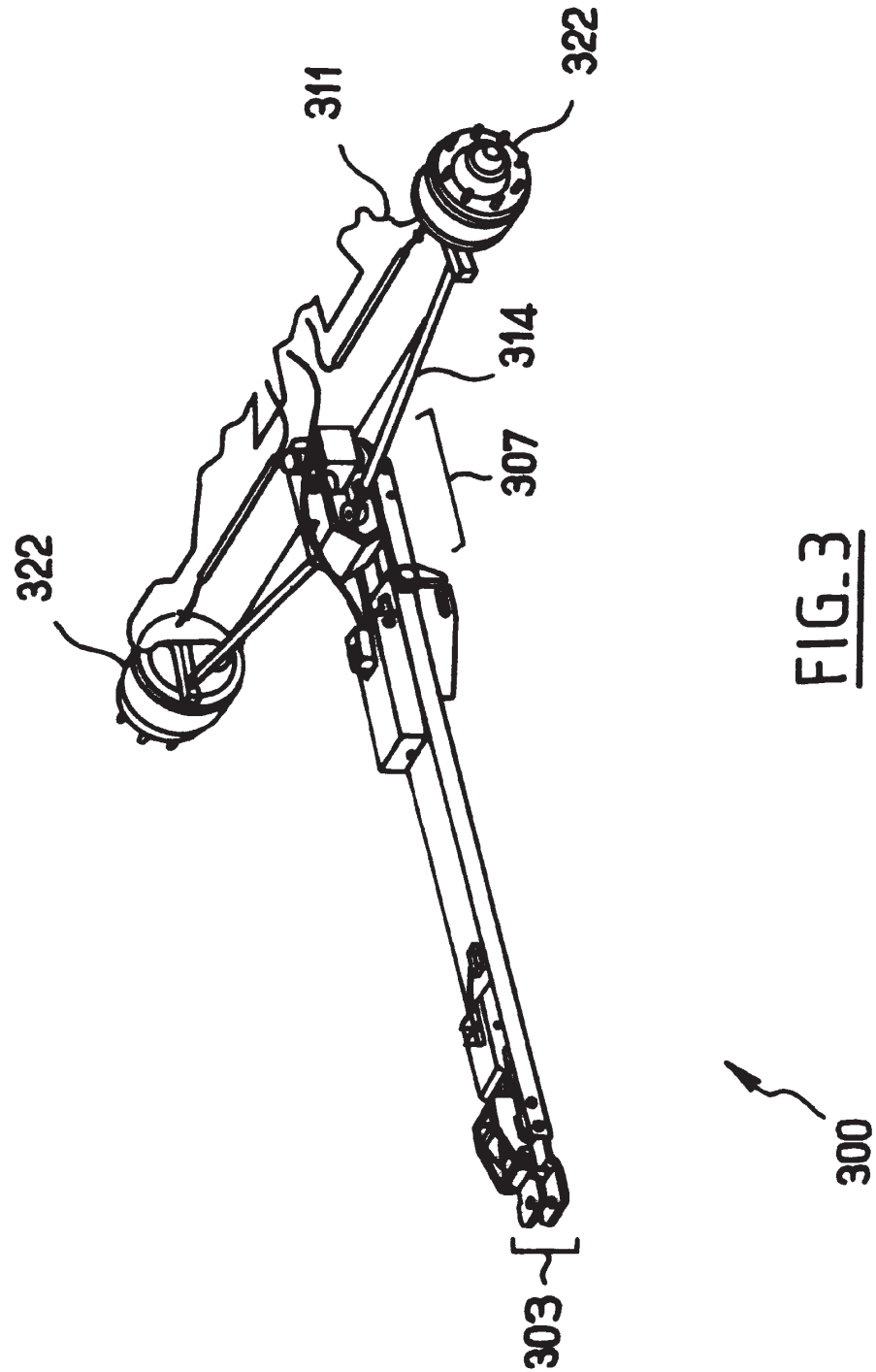


FIG. 2



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SHORT STEER WAGON

CROSS-REFERENCE TO RELATED APPLICATION

The present application claims priority from, and the benefit of the filing date of, U.S. Provisional Patent Application Ser. No. 60/101,950, filed Sep. 25, 1998.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to the field of wagon technology.

2. Description of the Background Art

Wagons are a traditionally and widely used form of transportation. Wagons are used to carry a wide variety of goods, including grains, livestock, dry goods, persons, liquids, machinery, etc.

Wagons in their most basic form include a tongue, a frame, at least one pair of wheels, and a bed, box, or tank for hauling cargo. The tongue of the wagon may be connected to a vehicle, such as, for example, a tractor, truck, pickup harvester, or other self-propelled machine. A variety of wheels may be used, depending on the intended use.

A common variation is the four-wheeled wagon, having pairs of wheels at either end of the wagon. The extra pair of wheels contribute to stability of the wagon and may also increase the load-carrying capacity. In a four-wheeled wagon, generally one pair of steerable wheels is capable of being pivoted in unison so that the wagon may be turned. The turning action is controlled by the tongue, which pivots the steerable wheels (i.e., the front wheels) by means of a steering rod or rods which connect the tongue to each steerable wheel. As the tongue is displaced to either side of a center position, both steerable wheels are therefore pivoted.

In a conventional wagon construction, a frame is employed upon which the pairs of wheels are mounted. The tongue is pivotally attached to the front of the frame and connected to the steerable wheels through a steering linkage. The wheels and corresponding axles extend beyond the frame, but are positioned relatively near to the frame. This is because if the wheels extended far beyond the frame, excessive bending loads would be imposed on the axles, with possible breakage occurring as a result of heavy loads or due to traveling over rough roads or rough ground. Conventional wagon designs therefore have a frame positioned generally within about one-half of the wheel diameter from the wheel.

A steerable wheel mounted close to the wagon frame has a drawback. The proximity of the frame limits the ability of the steerable wheels to pivot, and thereby limits the turning radius of the wagon. Turning ability is therefore limited in either direction.

What is needed therefore is a wagon having improved turning ability without positioning the steerable wheels farther from the wagon frame.

SUMMARY OF THE INVENTION

A short steer wagon having an improved turning capability is provided according to the invention. The wagon comprises a pair of wheels at each of opposed ends, a tongue having a rear portion connected to a frame of the wagon and having a front portion adapted for connection to a vehicle, at least one of the pair of wheels being steerable to right and

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left sides and connected to a rear portion of a corresponding tongue for steering, with a wheel having a leading edge facing toward an end of the wagon and a trailing edge facing toward a central portion of the wagon, the wagon having a longitudinal frame member on each side, each longitudinal frame member having an outer edge portion on an intermediate portion of the longitudinal member, the steerable wheels being completely outside the longitudinal frame members when the steerable wheels are oriented in a straight running direction, and each longitudinal frame member including an inwardly oriented indentation adjacent the trailing edge of each corresponding steerable wheel, each of the indentations allowing the corresponding steerable wheel to be turned so that the trailing edge of the corresponding steerable wheel is positioned inwardly with respect to the outer edge portion of a corresponding longitudinal frame member.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top elevational view of a wagon configuration of the related art;

FIG. 2 is a top elevational view of a short steer wagon configuration in accordance with one embodiment of the present invention;

FIG. 3 is a perspective view of a tongue for use with the present invention; and

FIG. 4 is a top elevational view of a short steer wagon having longitudinal frame members that extend beyond the leading edges of the steerable wheels.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 shows a wagon **100** configuration of the related art, illustrating the turning limitation imposed on the related art wagon **100** by the frame member **105**. The related art wagon **100** is generally limited to a tongue pivot displacement of about thirty-six degrees.

FIG. 2 shows a wagon **200** in accordance with one embodiment of the present invention. The longitudinal frame members **205** include outer edge portions **226** and pairs of inwardly oriented indentations **209**. The pairs of inwardly oriented indentations **209** are located adjacent trailing edges **217** of corresponding pairs of steerable wheels **213**. An inwardly oriented indentation **209** allows a corresponding steerable wheel **213** to pivot to a point that is inward of the outer edge portion **226** of the longitudinal frame member **205**. A tongue **229** is connected to a pair of steerable wheels **213**, with the pair of steerable wheels **213** being displaced to either side as the tongue **229** is displaced from a center position. In the center position, the tongue **229** steers the wagon **200** in a straight running direction, as shown by the arrow D.

In a first embodiment, one pair of inwardly oriented indentations **209** are formed on the wagon **200**. In a second embodiment, both pairs of wheels **213** are steerable and therefore pairs of inwardly oriented indentations **209** are formed adjacent to trailing edges **217** of both pairs of steerable wheels **213**. When the wagon **200** has two pairs of steerable wheels **213**, the wagon **200** must also have two tongues **229** with which to steer the two pairs of steerable wheels **213**.

In order to make the steerable wheels **213** unobstructed along their leading edges **218**, lateral frame members **232** extend across each end of the wagon **200**, and may be positioned adjacent to a leading edge **218** of a steerable

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wheel 213. Therefore, the leading edge 218 of a steerable wheel 213 may be positioned inwardly with respect to the outer edge portion 226 of a longitudinal frame member 205.

FIG. 3 shows a wagon tongue 229 for use with an embodiment of the present invention. The tongue 229 has a front portion 303 for connecting the wagon 200 to a propulsion vehicle (not shown), and a rear portion 307 for connecting the tongue 229 to a wagon frame 311. A steering linkage 314 is pivotally attached to the tongue 229 and to the wheel hubs 322, while the wheel hubs 322 are pivotally attached to the frame 311. Therefore, as the tongue 229 is displaced to either side of a center position, both wheel hubs 322 are pivoted in order to steer the wagon 200.

FIG. 4 shows yet another embodiment wherein the longitudinal frame members 205 extend beyond the leading edges 218 of the steerable wheels 213. The extended longitudinal frame members 205 therefore include indentations 209 corresponding to both the leading edges 218 and trailing edges 217 of a steerable wheel 213, allowing greater turning ability despite the extension of the longitudinal frame members 205 past the leading edges 218.

While the invention has been described in detail above, the invention is not intended to be limited to the specific embodiments as described. It is evident that those skilled in the art may now make numerous uses and modifications of and departures from the specific embodiments described herein without departing from the inventive concepts.

What is claimed is:

1. A wagon having two opposed ends and two opposed sides extending between the opposed ends, the wagon further comprising:

- a pair of wheels at each of said opposed ends;
- a frame having at least one longitudinal frame member
- a tongue having a rear portion connected to a frame of said wagon and having a front portion adapted for connection to a vehicle;
- at least one said pair of wheels being steerable to right and left sides and connected to a rear portion of said tongue for steering with said tongue, with a wheel having a leading edge facing toward an end of said wagon and a trailing edge facing toward a central portion of said wagon;
- said wagon having a longitudinal frame member on each side, each longitudinal frame member having an outer edge portion on an intermediate portion of said longitudinal frame member;

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said steerable wheels being completely outside said longitudinal frame members when said steerable wheels are oriented in a straight running direction; and

each longitudinal frame member including an inwardly oriented indentation adjacent said trailing edge of each corresponding steerable wheel, each said indentation allowing said corresponding steerable wheel to be turned so that said trailing edge of said corresponding steerable wheel is positioned inwardly with respect to said outer edge portion of a corresponding longitudinal frame member.

2. The wagon of claim 1, wherein a lateral frame member extends across each end of said wagon, with said lateral frame member being positioned adjacent to said leading edge of said steerable wheel wherein said steerable wheel can be turned so that said leading edge of said steerable wheel is positioned inwardly with respect to said outer edge portion of a corresponding longitudinal frame member.

3. The wagon of claim 1 wherein both pairs of said wheels are steerable to right and left sides, with said longitudinal frame members having corresponding indentations for each of said steerable wheels.

4. The wagon of claim 3, wherein a lateral frame member extends across each end of said wagon, with said lateral frame member being positioned adjacent to said leading edge of said steerable wheel wherein each said steerable wheel can be turned so that said leading edge of said steerable wheel is positioned inwardly with respect to said outer edge portion of a corresponding longitudinal frame member.

5. The wagon of claim 1, wherein said indentations permit a greater turning angle for said pair of wheels than would be obtainable without said indentations.

6. The wagon of claim 1, wherein each said longitudinal frame member extends beyond said leading edge of said corresponding steerable wheel, and each said longitudinal frame member has a pair of inwardly oriented indentations adjacent to said leading edge and said trailing edge of said steerable wheel.

7. The wagon of claim 1, wherein said wagon has a tongue at each of said opposed ends, with each pair of steerable wheels of said wagon being connected to a corresponding tongue for steering said steerable wheels.

8. The wagon of claim 7, wherein a direction of travel of said wagon may be reversed by utilizing an opposite tongue.

* * * * *

UTILITY PATENT APPLICATION TRANSMITTAL <small>(See nonprovisional applications under 37 CFR 1.53(b))</small>		Attorney Docket No. 1994-155		Total Pages	
First Named Inventor or Application Identifier					
Michael D. VAN MILL et al.					
Express Mail Label No.				09/20/99	

APPLICATION ELEMENTS See MPEP chapter 600 concerning utility patent application contents.	ADDRESS TO: Assistant Commissioner of Patents Box Patent Application Washington, D.C. 20231				
1. <input checked="" type="checkbox"/> Fee Transmittal Form <i>(Submit an original, and a duplicate for fee processing)</i> 2. <input checked="" type="checkbox"/> Specification Total pages [10] <i>(preferred arrangement set forth below)</i> - Descriptive title of the invention - Cross references to Related Applications - Statement Regarding Fed sponsored R&D - Reference to Microfiche Appendix - Background of the Invention - Brief Summary of the Invention - Brief Description of the Drawings - Detailed Description - Claims - Abstract of the Disclosure 3. <input checked="" type="checkbox"/> Drawing(s) (35 USC 113) (Total Sheets) [3] 4. <input checked="" type="checkbox"/> Oath or Declaration (Total Pages) [3] a. <input checked="" type="checkbox"/> Newly executed (original or copy) b. <input type="checkbox"/> Copy from a prior application (37 CFR 1.63(d)) <i>(for continuation/divisional with Box 17 completed)</i> [Note Box 5 below] i <input type="checkbox"/> DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b) 5. <input type="checkbox"/> Incorporation by Reference (useable if Box 4b is checked) The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.	6. <input type="checkbox"/> Microfiche Computer Program (Appendix) 7. Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary) a. <input type="checkbox"/> Computer Readable Copy b. <input type="checkbox"/> Paper Copy (identical to computer copy) c. <input type="checkbox"/> Statement verifying identity of above copies ACCOMPANYING APPLICATION PARTS 8. <input checked="" type="checkbox"/> Assignment Papers (cover sheet & document(s)) 9. <input type="checkbox"/> 37 CFR 3.73(b) Statement <i>(when there is an assignee)</i> <input type="checkbox"/> Power of Attorney 10. <input type="checkbox"/> English Translation Document <i>(if applicable)</i> 11. <input type="checkbox"/> Information Disclosure Statement /PTO 1449 <input type="checkbox"/> Copies of IDS Citations 12. <input type="checkbox"/> Preliminary Amendment 13. <input checked="" type="checkbox"/> Return Receipt Postcard (MPEP 503) <i>(Should be specifically itemized)</i> 14. <input type="checkbox"/> Small Entity Statement(s) <input type="checkbox"/> Statement Filed in prior application, Status still proper and desired 15. <input type="checkbox"/> Certified Copy of Priority Document(s). <i>(if foreign priority is claimed)</i> 16. <input type="checkbox"/> Other:				
17. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information: <input type="checkbox"/> Continuation <input type="checkbox"/> Divisional <input type="checkbox"/> Continuation-in-part (CIP) of prior application No.:					
18. CORRESPONDENCE ADDRESS					
<input type="checkbox"/> Customer Number or Bar Code Label or <input checked="" type="checkbox"/> Correspondence address below <i>(Insert Customer No. or Attach bar code label here)</i>					
Name	George R. Repper, Reg. No. 31,414				
Address	Rothwell, Figg, Ernst & Kurz Suite 701-East, 555 43th Street, N.W.				
City	Washington	State	D.C.	Zip Code	20004
Country	U.S.A.	Telephone	202-783-6040	Fax	202-783-6031

FEE TRANSMITTAL (Large Entity)		Complete if Known	
		Application Number	
		Filing Date	even date herewith
		First Named Inventor	Michael D. VAN MILL et al.
		Group Art Unit	
Examiner Name			
Total Amount of Payment	(\$) 800.00	Attorney Docket Number	1994-155

METHOD OF PAYMENT (check one)

1. ☒ The Commissioner is hereby authorized to charge indicated fees and credit any overpayment to Deposit Account Number 02-2135 in the name of Rothwell, Figg, Ernst & Kurz

☐ Charge any Additional Fee Required Under 37 CFR 1.16 and 1.17

☐ Charge for the Issue Fee Set in 37 CFR 1.18 at the Mailing of the Notice of Allowance

2. ☒ Payment Enclosed: Check

FEE CALCULATION
1. FILING FEE

Fee Description	Fee Code	Fee Paid
<input checked="" type="checkbox"/> Utility Filing Fee	101	760
<input type="checkbox"/> Design Filing Fee	106	310
<input type="checkbox"/> Plant Filing Fee	107	480
<input type="checkbox"/> Reissue Filing Fee	108	760
<input type="checkbox"/> Provisional Filing Fee	114	150

SUBTOTAL \$760

2. CLAIMS

	Fee from				Fee Paid
	Extra	below			
Total Claims	8 - 20 =	x	\$18	=	
Independent Claims	1 - 3 =	x	78	=	
Multiple Dependent Claims		+	260	=	

SUBTOTAL \$

FEE CALCULATION (continued)
3. ADDITIONAL FEES


Fee Description	Fee Code	Fee Paid
<input type="checkbox"/> Surcharge - late filing fee or oath	105	130
<input type="checkbox"/> Surcharge - late provisional filing fee or cover sheet	127	50
<input type="checkbox"/> Non-English specification	139	130
<input type="checkbox"/> For filing a request for reexamination	147	2,520
<input type="checkbox"/> Requesting publication of SIR prior to Examiner action	112	920
<input type="checkbox"/> Requesting publication of SIR after Examiner action	113	1,840*
<input type="checkbox"/> Extension for reply within first month	115	110
<input type="checkbox"/> Extension for reply within second month	116	380
<input type="checkbox"/> Extension for reply within third month	117	870
<input type="checkbox"/> Extension for reply within fourth month	118	1,360
<input type="checkbox"/> Extension for reply within fifth month	128	1,850
<input type="checkbox"/> Notice of Appeal	119	300
<input type="checkbox"/> Filing a brief in support of an appeal	120	300
<input type="checkbox"/> Request for Oral Hearing	121	260
<input type="checkbox"/> Petition to institute a public use proceeding	138	1,510
<input type="checkbox"/> Petition to revive -unavoidable	140	110
<input type="checkbox"/> Petition to revive -unintentional	141	1,210
<input type="checkbox"/> Utility issue fee (or reissue)	142	1,210
<input type="checkbox"/> Design issue fee	143	430
<input type="checkbox"/> Plant issue fee	144	580
<input type="checkbox"/> Petitions to the Commissioner	122	130
<input type="checkbox"/> Petitions related to provisional applications	123	50
<input type="checkbox"/> Submission of Information Disclosure Statement	126	240
<input checked="" type="checkbox"/> Recording each patent assignment per property (times number of properties)	581	40
<input type="checkbox"/> Filing a submission after final rejection (37 CFR .129(a))	146	760
<input type="checkbox"/> For each additional invention to be examined (37 CFR 1.129(b))	149	760

Other fee (specify)

☐

* Reduced by Basic Filing Fee Paid

SUBTOTAL \$40

SUBMITTED BY		Complete (if applicable)	
NAME AND REG. NUMBER	George R. Repper, Reg. No. 31,414		
SIGNATURE		DATE	9-20-99
		DEPOSIT ACCOUNT USER ID	

1994-155
GRR:glj

09/399099
ASW 11/2/99

SHORT STEER WAGON

BACKGROUND OF THE INVENTION

CROSS-REFERENCE TO RELATED APPLICATION

The present application claims priority from, and the
5 benefit of the filing date of, U.S. Provisional Patent
Application Serial No. 60/101,950, filed September 25, 1998.

FIELD OF THE INVENTION

The present invention relates to the field of wagon
technology.

DESCRIPTION OF THE BACKGROUND ART

Wagons are a traditionally and widely used form of
transportation. Wagons are used to carry a wide variety of
goods, including grains, livestock, dry goods, persons, liquids,
machinery, etc.

Wagons in their most basic form include a tongue, a frame,
at least one pair of wheels, and a bed, box, or tank for hauling
cargo. The tongue of the wagon may be connected to a vehicle,
such as, for example, a tractor, truck, pickup harvester, or
other self-propelled machine. A variety of wheels may be used,
20 depending on the intended use.

A common variation is the four-wheeled wagon, having pairs
of wheels at either end of the wagon. The extra pair of wheels
contribute to stability of the wagon and may also increase the
load-carrying capacity. In a four-wheeled wagon, generally one
25 pair of steerable wheels is capable of being pivoted in unison so

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that the wagon may be turned. The turning action is controlled by the tongue, which pivots the steerable wheels (i.e., the front wheels) by means of a steering rod or rods which connect the tongue to each steerable wheel. As the tongue is displaced to either side of a center position, both steerable wheels are therefore pivoted.

In a conventional wagon construction, a frame is employed upon which the pairs of wheels are mounted. The tongue is pivotally attached to the front of the frame and connected to the steerable wheels through a steering linkage. The wheels and corresponding axles extend beyond the frame, but are positioned relatively near to the frame. This is because if the wheels extended far beyond the frame, excessive bending loads would be imposed on the axles, with possible breakage occurring as a result of heavy loads or due to traveling over rough roads or rough ground. Conventional wagon designs therefore have a frame positioned generally within about one-half of the wheel diameter from the wheel.

A steerable wheel mounted close to the wagon frame has a drawback. The proximity of the frame limits the ability of the steerable wheels to pivot, and thereby limits the turning radius of the wagon. Turning ability is therefore limited in either direction.

What is needed therefore is a wagon having improved turning ability without positioning the steerable wheels farther from the wagon frame.

SUMMARY OF THE INVENTION

A short steer wagon having an improved turning capability is provided according to the invention. The wagon comprises a pair of wheels at each of opposed ends, a tongue having a rear portion connected to a frame of the wagon and having a front portion adapted for connection to a vehicle, at least one of the pair of wheels being steerable to right and left sides and connected to a rear portion of a corresponding tongue for steering, with a wheel having a leading edge facing toward an end of the wagon and a trailing edge facing toward a central portion of the wagon, the wagon having a longitudinal frame member on each side, each longitudinal frame member having an outer edge portion on an intermediate portion of the longitudinal member, the steerable wheels being completely outside the longitudinal frame members when the steerable wheels are oriented in a straight running direction, and each longitudinal frame member including an inwardly oriented indentation adjacent the trailing edge of each corresponding steerable wheel, each of the indentations allowing the corresponding steerable wheel to be turned so that the trailing edge of the corresponding steerable wheel is positioned inwardly with respect to the outer edge portion of a corresponding longitudinal frame member.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top elevational view of a wagon configuration of the related art;

FIG. 2 is a top elevational view of a short steer wagon configuration in accordance with one embodiment of the present invention;

FIG. 3 is a perspective view of a tongue for use with the present invention; and

FIG. 4 is a top elevational view of a short steer wagon having longitudinal frame members that extend beyond the leading edges of the steerable wheels.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 shows a wagon 100 configuration of the related art, illustrating the turning limitation imposed on the related art wagon 100 by the frame member 105. The related art wagon 100 is generally limited to a tongue pivot displacement of about thirty-six degrees.

FIG. 2 shows a wagon 200 in accordance with one embodiment of the present invention. The longitudinal frame members 205 include outer edge portions 226 and pairs of inwardly oriented indentations 209. The pairs of inwardly oriented indentations 209 are located adjacent trailing edges 217 of corresponding pairs of steerable wheels 213. An inwardly oriented indentation 209 allows a corresponding steerable wheel 213 to pivot to a point that is inward of the outer edge portion 226 of the longitudinal

frame member 205. A tongue 229 is connected to a pair of steerable wheels 213, with the pair of steerable wheels 213 being displaced to either side as the tongue 229 is displaced from a center position. In the center position, the tongue 229 steers the wagon 200 in a straight running direction, as shown by the arrow D.

In a first embodiment, one pair of inwardly oriented indentations 209 are formed on the wagon 200. In a second embodiment, both pairs of wheels 213 are steerable and therefore pairs of inwardly oriented indentations 209 are formed adjacent to trailing edges 217 of both pairs of steerable wheels 213. When the wagon 200 has two pairs of steerable wheels 213, the wagon 200 must also have two tongues 229 with which to steer the two pairs of steerable wheels 213.

In order to make the steerable wheels 213 unobstructed along their leading edges 218, lateral frame members 232 extend across each end of the wagon 200, and may be positioned adjacent to a leading edge 218 of a steerable wheel 213. Therefore, the leading edge 218 of a steerable wheel 213 may be positioned inwardly with respect to the outer edge portion 226 of a longitudinal frame member 205.

FIG. 3 shows a wagon tongue 229 for use with an embodiment of the present invention. The tongue 229 has a front portion 303 for connecting the wagon 200 to a propulsion vehicle (not shown),

and a rear portion 307 for connecting the tongue 229 to a wagon
frame 311. A steering linkage 314 is pivotally attached to the
tongue 229 and to the wheel hubs 322, while the wheel hubs 322
are pivotally attached to the frame 311. Therefore, as the
5 tongue 229 is displaced to either side of a center position, both
wheel hubs 322 are pivoted in order to steer the wagon 200.

FIG. 4 shows yet another embodiment wherein the longitudinal
frame members 205 extend beyond the leading edges 218 of the
steerable wheels 213. The extended longitudinal frame members
10 205 therefore include indentations 209 corresponding to both the
leading edges 218 and trailing edges 217 of a steerable wheel
213, allowing greater turning ability despite the extension of
the longitudinal frame members 205 past the leading edges 218.

While the invention has been described in detail above, the
15 invention is not intended to be limited to the specific
embodiments as described. It is evident that those skilled in
the art may now make numerous uses and modifications of and
departures from the specific embodiments described herein without
departing from the inventive concepts.

What is claimed is:

- 1 1. A wagon having two opposed ends and two opposed sides
2 extending between the opposed ends, the wagon further comprising:
3 a pair of wheels at each of said opposed ends;
4 a tongue having a rear portion connected to a frame of said
5 wagon and having a front portion adapted for connection to a
6 vehicle;
7 at least one said pair of wheels being steerable to right
2 8 and left sides and connected to a rear portion of a ~~corresponding~~ ^{said}
2 9 tongue for steering, ^{with said tongue} with a wheel having a leading edge facing
10 toward an end of said wagon and a trailing edge facing toward a
11 central portion of said wagon;
12 said wagon having a longitudinal frame member on each side,
13 each longitudinal frame member having an outer edge portion on an
2 14 intermediate portion of said longitudinal ^{frame} member;
15 said steerable wheels being completely outside said
16 longitudinal frame members when said steerable wheels are
17 oriented in a straight running direction; and
18 each longitudinal frame member including an inwardly
19 oriented indentation adjacent said trailing edge of each
20 corresponding steerable wheel, each said indentation allowing
21 said corresponding steerable wheel to be turned so that said
22 trailing edge of said corresponding steerable wheel is positioned
23 inwardly with respect to said outer edge portion of a
24 corresponding longitudinal frame member.

1 2. The wagon of claim 1, wherein a lateral frame member
2 extends across each end of said wagon, with said lateral frame
3 member being positioned adjacent to said leading edge of said
4 steerable wheel wherein said steerable wheel can be turned so
5 that said leading edge of said steerable wheel is positioned
6 inwardly with respect to said outer edge portion of a
7 corresponding longitudinal frame member.

1 3. The wagon of claim 1 wherein both pairs of said wheels
2 are steerable to right and left sides, with said longitudinal
3 frame members having corresponding indentations for each of said
4 steerable wheels.

1 4. The wagon of claim 3, wherein a lateral frame member
2 extends across each end of said wagon, with said lateral frame
3 member being positioned adjacent to said leading edge of said
4 steerable wheel wherein each said steerable wheel can be turned
5 so that said leading edge of said steerable wheel is positioned
6 inwardly with respect to said outer edge portion of a
7 corresponding longitudinal frame member.

1 5. The wagon of claim 1, wherein said indentations permit a
2 greater turning angle for said pair of wheels than would be
3 obtainable without said indentations.

1 6. The wagon of claim 1, wherein each said longitudinal
2 frame member extends beyond said leading edge of said
3 corresponding steerable wheel, and each said longitudinal frame
4 member has a pair of inwardly oriented indentations adjacent to
5 said leading edge and said trailing edge of said steerable wheel.

1 7. The wagon of claim 1, wherein said wagon has a tongue at
2 each of said opposed ends, with each pair of steerable wheels of
3 said wagon being connected to a corresponding tongue for steering
4 said steerable wheels.

1 8. The wagon of claim 7, wherein a direction of travel of
2 said wagon may be reversed by utilizing an opposite tongue.

09/39909

ABSTRACT OF THE DISCLOSURE

A short steer wagon having an improved turning capability, including a pair of wheels at each of opposed ends, a tongue having a rear portion connected to a frame of the wagon and having a front portion adapted for connection to a vehicle, at least one of the pair of wheels being steerable to right and left sides and connected to a rear portion of a corresponding tongue for steering, with a wheel having a leading edge facing toward an end of the wagon and a trailing edge facing toward a central portion of the wagon, the wagon having a longitudinal frame member on each side, each longitudinal frame member having an outer edge portion on an intermediate portion of the longitudinal member, the steerable wheels being completely outside the longitudinal frame members when the steerable wheels are oriented in a straight running direction, and each longitudinal frame member including an inwardly oriented indentation adjacent the trailing edge of each corresponding steerable wheel, each of the indentations allowing the corresponding steerable wheel to be turned so that the trailing edge of the corresponding steerable wheel is positioned inwardly with respect to the outer edge portion of a corresponding longitudinal frame member.

1994-155.APN

Docket No. 1994-155A

Declaration and Power of Attorney for Patent Application

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought, on the invention entitled SHORT STEER WAGON, the specification of which:

☒ [X] is attached hereto as Attorney Docket No. 1194-155.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability in accordance with Title 37, Code of Federal Regulations, § 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)

			Priority Claimed	
			<input type="checkbox"/> []	<input type="checkbox"/> []
(Number)	(Country)	(Day/Month/Year)	Yes	No

Prior Foreign Application(s)

			Priority Claimed	
			<input type="checkbox"/> []	<input type="checkbox"/> []
(Number)	(Country)	(Day/Month/Year)	Yes	No

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below.

<u>60/101,950</u>	<u>September 25, 1998</u>
(Application Serial No.)	(Filing Date)

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)	(Filing Date)	(Status)
(Application Serial No.)	(Filing Date)	(Status)

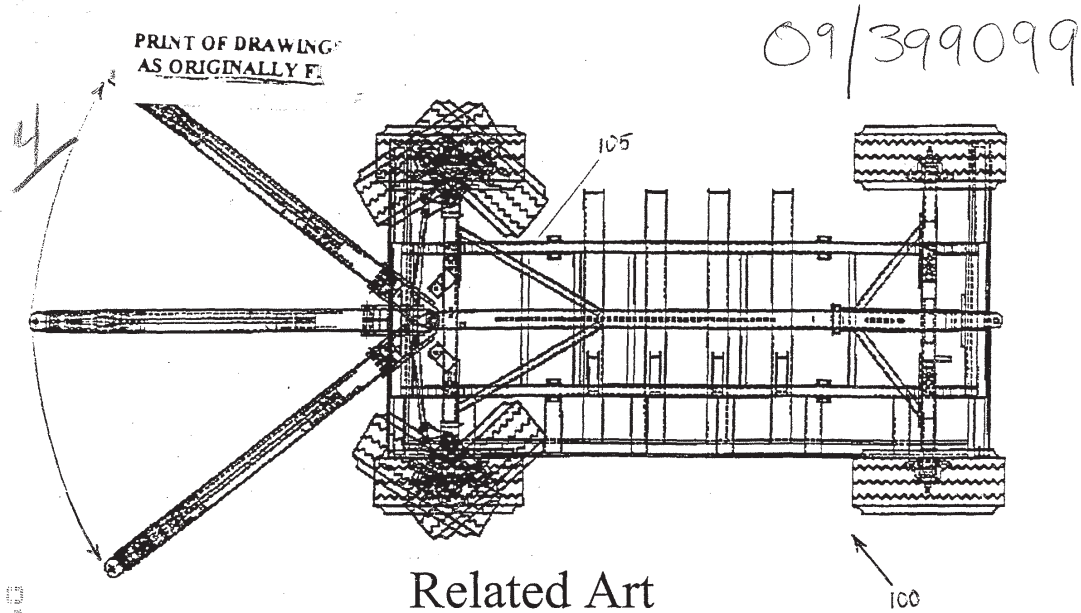
I or we hereby appoint the following attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith, and request that all correspondence about the application be addressed to ROTHWELL, FIGG, ERNST & KURZ, p.c., Suite 701-E, 555 13th Street, N.W., Washington, D.C 20004

G. Franklin Rothwell, Reg. No. 18,125
 E. Anthony Figg, Reg. No. 27,195
 Barbara G. Ernst, Reg. No. 30,377
 George R. Repper, Reg. No. 31,414
 Bart G. Newland, Reg. No. 31,282
 Vincent M. DeLuca, Reg. No. 32,408
 Celine Jimenez Crowson, Reg. No. 40,357
 Joseph A. Hynds, Reg. No. 34,627
 Mark I. Bowditch, Reg. No. 40,315
 Robert J. Jondle, Reg. No. 33,915
 Kenneth M. Fagin, Reg. No. 37,615
 Stephen B. Parker, Reg. No. 36,631
 Don M. Kerr, Reg. No. 22,720
 Jeffrey L. Ihnen, Reg. No. 28,957
 Stephen A. Saxe, Reg. No. 38,609
 Glenn E. Karta, Reg. No. 30,649
 Martha Cassidy, Reg. No. 44,066

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine

or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

FIRST NAMED INVENTOR Michael D. VAN MILL	SIGNATURE <i>Michael D. Van Mill</i>	DATE 9-17-99
RESIDENCE Shell Rock, IA	CITIZENSHIP USA	
POST OFFICE ADDRESS 27754 Temple Avenue, Shell Rock, IA 50670		
SECOND NAMED INVENTOR Philip J. KENKEL	SIGNATURE <i>Philip J. Kenkel</i>	DATE 9/17/99
RESIDENCE Cedar Falls, IA	CITIZENSHIP USA	
POST OFFICE ADDRESS 2203 Thunder Ridge Blvd., Apt. 12A, Cedar Falls, IA 50613		
THIRD NAMED INVENTOR	SIGNATURE	DATE
RESIDENCE	CITIZENSHIP	
POST OFFICE ADDRESS		



Related Art

FIG. 1

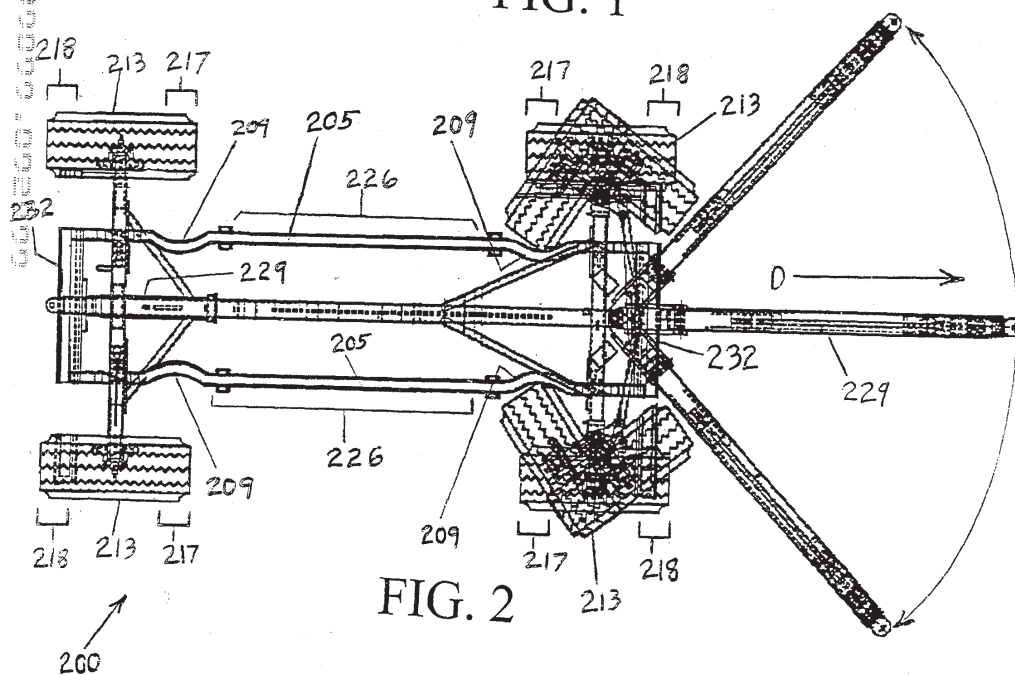


FIG. 2

[illegible]

FIG. 3

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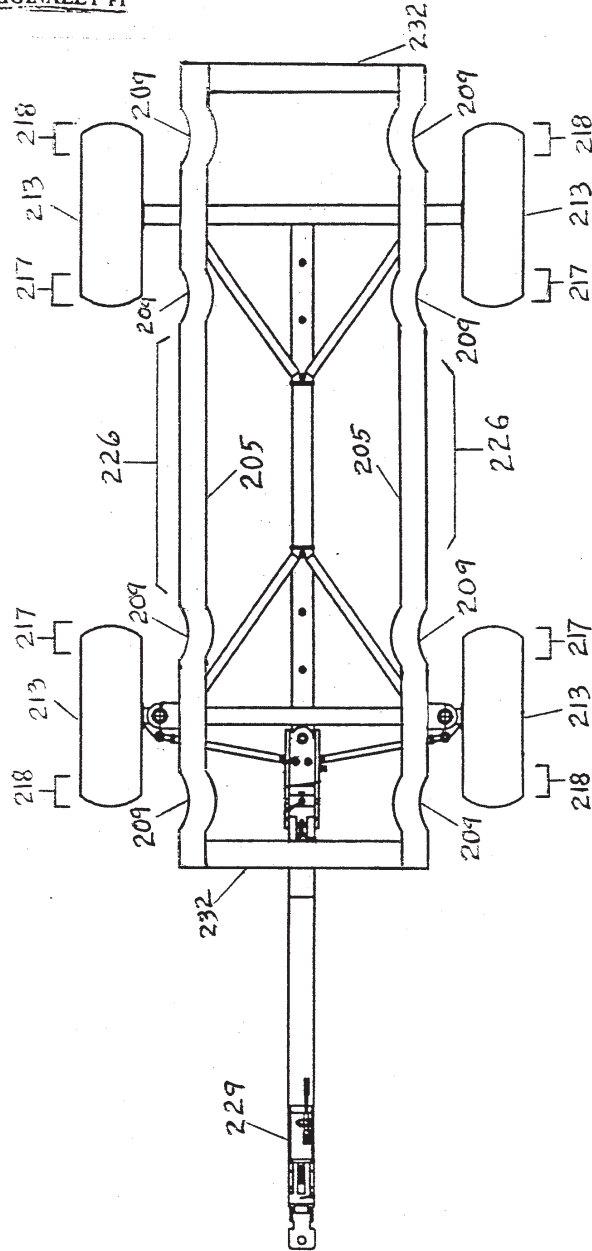


FIG. 4

1994-155
GRR: ymp

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of)
Michael D. Van Mill et al.)
Serial No. 09/399,099)
Filed: September 20, 1999) Group Art Unit: 3611
For: SHORT STEER WAGON)



INFORMATION DISCLOSURE STATEMENT

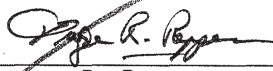
Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Under the provisions of 37 C.F.R. §§ 1.56, 1.97 and 1.98,
Applicants submit herewith copies of publications that the Office
may wish to consider in examination of the subject application.
The publications are listed on the attached form PTO-1449.

Respectfully submitted,

By


George R. Repper
Attorney for Applicants
Registration No. 31,414
ROTHWELL, FIGG, ERNST & KURZ, p.c.
Suite 701-E, 555 13th Street, N.W.
Washington, D.C. 20004
Telephone: (202) 783-6040

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1994-155
GRR: ymp

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of
Michael D. Van Mill et al.

Serial No. 09/399,099

Filed: September 20, 1999

For: SHORT STEER WAGON



Group Art Unit: 3611

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INFORMATION DISCLOSURE STATEMENT

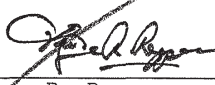
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Respectfully submitted,

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George R. Repper
Attorney for Applicants
Registration No. 31,414
ROTHWELL, FIGG, ERNST & KURZ, p.c.
Suite 701-E, 555 13th Street, N.W.
Washington, D.C. 20004
Telephone: (202) 783-6040

Interview Summary	Application No. 09/399,099	Applicant(s) VAN MILL	
	Examiner C. Bartz	Group Art Unit 3613	

All participants (applicant, applicant's representative, PTO personnel):

(1) C. Bartz (3) _____

(2) REPPER (4) _____

Date of Interview 9/19/00

Type: ☒ Telephonic ☐ Personal (copy is given to applicant applicant's representative).

Exhibit shown or demonstration conducted: ☐ Yes ☒ No. If yes, brief description:

Agreement ☒ was reached. ☐ was not reached.

Claim(s) discussed: 1

Identification of prior art discussed:
APPLICANTS CITED BRITISH 2,300,839

Description of the general nature of what was agreed to if an agreement was reached, or any other comments:
CHANGES WERE AGREED UPON AS DETAILED IN THE EXAM. AMENDMENT

(A fuller description, if necessary, and a copy of the amendments, if available, which the examiner agreed would render the claims allowable must be attached. Also, where no copy of the amendments which would render the claims allowable is available, a summary thereof must be attached.)

1. ☒ It is not necessary for applicant to provide a separate record of the substance of the interview.

Unless the paragraph above has been checked to indicate to the contrary, A FORMAL WRITTEN RESPONSE TO THE LAST OFFICE ACTION IS NOT WAIVED AND MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a response to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW.

2. ☐ Since the Examiner's interview summary above (including any attachments) reflects a complete response to each of the objections, rejections and requirements that may be present in the last Office action, and since the claims are now allowable, this completed form is considered to fulfill the response requirements of the last Office action. Applicant is not relieved from providing a separate record of the interview unless box 1 above is also checked.

Examiner Note: You must sign and stamp this form unless it is an attachment to a signed Office action.

Notice of Allowability	Application No. 09/397,078	Applicant(s) VAN MILL
	Examiner C. Bartz	Group Art Unit 3613

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance and Issue Fee Due or other appropriate communication will be mailed in due course.

☒ This communication is responsive to PAPERS FILED 2/23/00

☒ The allowed claim(s) is/are 1-8

☐ The drawings filed on _____ are acceptable.

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.
☐ received in Application No. (Series Code/Serial Number) _____
☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE THREE MONTHS FROM THE "DATE MAILED" of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.

☒ Applicant MUST submit NEW FORMAL DRAWINGS ~~ATTACH TO BE~~

☒ because the originally filed drawings were declared by applicant to be informal.

☒ including changes required by the Notice of Draftsperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. 5

☐ including changes required by the proposed drawing correction filed on _____, which has been approved by the examiner.

☐ including changes required by the attached Examiner's Amendment/Comment.

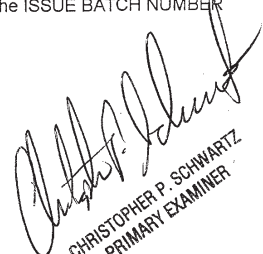
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any response to this letter should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

Attachment(s)

☒ Notice of References Cited, PTO-892
☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2, 3
☒ Notice of Draftsperson's Patent Drawing Review, PTO-948
☐ Notice of Informal Patent Application, PTO-152
☒ Interview Summary, PTO-413
☒ Examiner's Amendment/Comment
☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
☒ Examiner's Statement of Reasons for Allowance


 CHRISTOPHER P. SCHWARTZ
 PRIMARY EXAMINER

Serial Number 09/399,099

AU 3613

Part III EXAMINER'S AMENDMENT

1. An Examiner's Amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 C.F.R. § 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the Issue Fee.
2. Authorization for this Examiner's Amendment was given in a telephone interview with Repper on September 19, 2000
3. Claim 1 has been amended as follows:

Between lines 3 and 4; the phrase -- a frame having at

least one longitudinal frame member -- has been added.

In line 8; the last two words have been replaced by the word

-- said --

In line 9; after the word << steering >> and before the comma; the phrase -- with said tongue -- has been added.

In line 14; after the word << longitudinal >>, the word -- frame -- has been added.

4. The following is an Examiner's Statement of Reasons for Allowance: The limitation of a << wheels...connected to a... tongue for steering with said tongue >> of lines 7 - 9, together with the remaining limitations in claim 1; has not been found in the art.

Serial Number 09/399,099

AU 3613

Any comments considered necessary by applicant must be submitted no later than the payment of the Issue Fee and, to avoid processing delays, should preferably **accompany** the Issue Fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

5. Papers relating to this application may be submitted to Group 3100 by facsimile transmission. Papers should be faxed to Group 3100 via the PTO Fax Center located in Crystal Plaza Building 4; Arlington, Virginia. The submission of such papers by facsimile transmission must comply with the Notice published in the Official Gazette, **1096 OG 30** (November 15, 1889). The CP - 4 Fax Center number is (703) 305 - 7687.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Bartz whose telephone number is (703) 308 - 2564. The examiner can normally be reached on Mondays thru Fridays from 8:30 am to 3:30 pm.

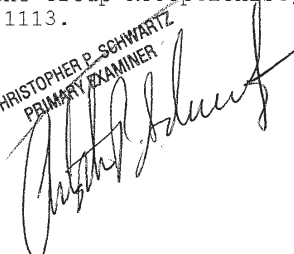
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Oberleitner, can be reached on (703) 308 - 2569.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist, whose telephone number is (703) 308 - 1113.

Clifford T. Bartz
Examiner
Art Unit 3613
September 20, 2000

CIB
9/20/00

CHRISTOPHER P. SCHWARTZ
PRIMARY EXAMINER





UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

NOTICE OF ALLOWANCE AND ISSUE FEE DUE

PM82/0922

GEORGE R REPPER
ROTHWELL FIGG ERNST & KURZ
SUITE 701-EAST
555 13TH STREET NW
WASHINGTON DC 20004

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
09/399,099	09/20/99	008	BARTZ, C 3613	09/22/00
First Named Applicant	VAN MILL, 35 USC 154(b) term ext. = 0 Days.			

TITLE OF SHORT STEER WAGON
INVENTION

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
3 1994-155	280-444.000	S60	UTILITY	NO	\$1210.00	12/22/00

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED.

THE ISSUE FEE MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED.

HOW TO RESPOND TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

- A. If the status is changed, pay twice the amount of the FEE DUE shown above and notify the Patent and Trademark Office of the change in status, or
- B. If the status is the same, pay the FEE DUE shown above.

If the SMALL ENTITY is shown as NO:

- A. Pay FEE DUE shown above, or
- B. File verified statement of Small Entity Status before, or with, payment of 1/2 the FEE DUE shown above.

II. Part B-Issue Fee Transmittal should be completed and returned to the Patent and Trademark Office (PTO) with your ISSUE FEE. Even if the ISSUE FEE has already been paid by charge to deposit account, Part B Issue Fee Transmittal should be completed and returned. If you are charging the ISSUE FEE to your deposit account, section "4b" of Part B-Issue Fee Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give application number and batch number. Please direct all communications prior to issuance to Box ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PATENT AND TRADEMARK OFFICE COPY

PTOL-85 (REV. 10-96) Approved for use through 06/30/99. (0651-0033)

EXHIBIT 1013



Sheet 1 of 1

Form 1449		U.S. Department of Commerce Patent and Trademark Office		ATTY. DOCKET NO. 1994-155		SERIAL NO. 09/399,099							
LIST OF MATERIALS CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT Michael D. Van Mill et al.									
				FILING DATE September 20, 1999		GROUP 3611 3613							
U.S. PATENT DOCUMENTS													
EXAMINER INITIAL		DOCUMENT NUMBER							DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
<i>CTB</i>	AA	2	4	5	3	3	1	1	11/1948	Fedevich	—	—	
<i>CTB</i>	AB	2	9	1	8	9	8	2	12/1959 08/1956	Vlachos	—	—	
<i>CTB</i>	AC	5	4	7	7	9	3	7	12/1995	Chagnon	—	—	
EXAMINER <i>RXT</i>									DATE CONSIDERED <i>9/19/00</i>				
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.													

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Sheet 1 of 1

Form 1449		U.S. Department of Commerce Patent and Trademark Office		ATTY. DOCKET NO. 1994-155		SERIAL NO. 09/399,099								
LIST OF MATERIALS CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT Michael D. Van Mill et al.										
				FILING DATE September 20, 1999		GROUP 3611 3613								
U.S. PATENT DOCUMENTS														
EXAMINER INITIAL		DOCUMENT NUMBER			DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE					
CTB	AA	5	0	9	0	7	1	9	02/1992	HANAOKA	-	-		
FOREIGN PATENT DOCUMENTS														
		DOCUMENT NUMBER			DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION					
									YES	NO				
CTB	AB	2	3	0	0	8	3	9	11/1996	Great Britain	-	-		X
EXAMINER CTB. BTA						DATE CONSIDERED 9/19/00								
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.														

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FEB 24 2000
TC 3600 MAIL ROOM

Notice of References Cited			Application No. 09/399,099		Applicant(s) VAN MILL	
			Examiner C. Bartz	Group Art Unit 3613		
U.S. PATENT DOCUMENTS						
*	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	
*	A 3,455,572	7/15/69	WOLF	280	44A	
*	B 3,695,628	10/3/72	FISHER	280	143	
C						
D						
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FOREIGN PATENT DOCUMENTS						
*	DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUBCLASS
N						
O						
P						
Q						
R						
S						
T						
NON-PATENT DOCUMENTS						
*	DOCUMENT (Including Author, Title, Source, and Pertinent Pages)				DATE	
U						
V						
W						
X						

* A copy of this reference is not being furnished with this Office action.
(See Manual of Patent Examining Procedure, Section 707.05(a).)

09/399099

NOTICE OF DRAFTSPERSON'S
PATENT DRAWING REVIEWThe drawing(s) filed (insert date) 9/20/99 are:A. ☐ approved by the Draftsperson under 37 CFR 1.84 or 1.152.B. ☒ objected to by the Draftsperson under 37 CFR 1.84 or 1.152 for the reasons indicated below. The Examiner will require submission of new, corrected drawings when necessary. Corrected drawing must be submitted according to the instructions on the back of this notice.

<p>1. DRAWINGS. 37 CFR 1.84(a): Acceptable categories of drawings: Black ink. Color. ____ Color drawings are not acceptable until petition is granted. Fig(s) _____ ____ Pencil and non black ink not permitted. Fig(s) _____</p> <p>2. PHOTOGRAPHS. 37 CFR 1.84(b) ____ 1 full-tone set is required. Fig(s) _____ ____ Photographs not properly mounted (must use bristol board or photographic double-weight paper). Fig(s) _____ ____ Poor quality (half-tone). Fig(s) _____</p> <p>3. TYPE OF PAPER. 37 CFR 1.84(e) ____ Paper not flexible, strong, white, and durable. Fig(s) _____ ____ Erasures, alterations, overwritings, interlineations, folds, copy machine marks not accepted. Fig(s) _____ ____ Mylar, velum paper is not acceptable (too thin). Fig(s) _____</p> <p>4. SIZE OF PAPER. 37 CFR 1.84(f): Acceptable sizes: ____ 21.0 cm by 29.7 cm (DIN size A4) ____ 21.6 cm by 27.9 cm (8 1/2 x 11 inches) ____ All drawing sheets not the same size. Sheet(s) _____ ____ Drawings sheets not an acceptable size. Fig(s) _____</p> <p>5. MARGINS. 37 CFR 1.84(g): Acceptable margins: Top 2.5 cm Left 2.5cm Right 1.5 cm Bottom 1.0 cm SIZE: A4 Size Top 2.5 cm Left 2.5 cm Right 1.5 cm Bottom 1.0 cm SIZE: 8 1/2 x 11 Margins not acceptable. Fig(s) <u>1, 2, 4</u> ____ Top (T) _____ Left (L) ____ Right (R) _____ Bottom (B)</p> <p>6. VIEWS. 37 CFR 1.84(h) REMINDER: Specification may require revision to correspond to drawing changes. Partial views. 37 CFR 1.84(h)(2) ____ Brackets needed to show figure as one entity. Fig(s) _____ ____ Views not labeled separately or properly. Fig(s) _____ ____ Enlarged view not labeled separately or properly. Fig(s) _____</p> <p>7. SECTIONAL VIEWS. 37 CFR 1.84(h)(3) ____ Hatching not indicated for sectional portions of an object. Fig(s) _____ ____ Sectional designation should be noted with Arabic or Roman numbers. Fig(s) _____</p>	<p>8. ARRANGEMENT OF VIEWS. 37 CFR 1.84(i) ____ Words do not appear on a horizontal, left-to-right fashion when page is either upright or turned so that the top becomes the right side, except for graphs. Fig(s) _____</p> <p>9. SCALE. 37 CFR 1.84(k) ____ Scale not large enough to show mechanism without crowding when drawing is reduced in size to two-thirds in reproduction. Fig(s) _____</p> <p>10. CHARACTER OF LINES, NUMBERS, & LETTERS. 37 CFR 1.84(i) ____ Lines, numbers & letters not uniformly thick and well defined, clean, durable, and black (poor line quality). Fig(s) <u>F-4</u></p> <p>11. SHADING. 37 CFR 1.84(m) ____ Solid black areas pale. Fig(s) _____ ____ Solid black shading not permitted. Fig(s) _____ ____ Shade lines, pale, rough and blurred. Fig(s) _____</p> <p>12. NUMBERS, LETTERS, & REFERENCE CHARACTERS. 37 CFR 1.84(p) ____ Numbers and reference characters not plain and legible. Fig(s) <u>F-4</u> ____ Figure legends are poor. Fig(s) _____ ____ Numbers and reference characters not oriented in the same direction as the view. 37 CFR 1.84(p)(1) Fig(s) _____ ____ English alphabet not used. 37 CFR 1.84(p)(2) Figs _____ ____ Numbers, letters and reference characters must be at least .32 cm (1/8 inch) in height. 37 CFR 1.84(p)(3) Fig(s) _____</p> <p>13. LEAD LINES. 37 CFR 1.84(q) ____ Lead lines cross each other. Fig(s) _____ ____ Lead lines missing. Fig(s) _____</p> <p>14. NUMBERING OF SHEETS OF DRAWINGS. 37 CFR 1.84(i) ____ Sheets not numbered consecutively, and in Arabic numerals beginning with number 1. Sheet(s) _____</p> <p>15. NUMBERING OF VIEWS. 37 CFR 1.84(u) ____ Views not numbered consecutively, and in Arabic numerals, beginning with number 1. Fig(s) _____</p> <p>16. CORRECTIONS. 37 CFR 1.84(w) ____ Corrections not made from prior PTO-948 dated _____</p> <p>17. DESIGN DRAWINGS. 37 CFR 1.152 ____ Surface shading shown not appropriate. Fig(s) _____ ____ Solid black shading not used for color contrast. Fig(s) _____</p>
COMMENTS	

REVIEWER

Tang

DATE

10/21/99

TELEPHONE NO.

ATTACHMENT TO PAPER NO.

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1994-155
RR:mys

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of)
Michael D. Van Mill et al.)
Serial No. 09/399,099)
Filed: September 20, 1999)
For: SHORT STEER WAGON)



Batch No. S60
Examiner: C. Bartz
Group Art Unit: 3613

SUBMISSION OF FORMAL DRAWINGS

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Attached hereto are three (3) sheets of formal drawings, Figs. 1-4, to replace the three sheets of informal drawings filed with the subject application.

Respectfully submitted,

By

George R. Repper, Registration No. 31,414
Attorney for Applicants
ROTHWELL, FIGG, ERNST & MANBECK p.c.
Suite 701-E, 555 13th Street, N.W.
Washington, D.C. 20004
Telephone: (202)783-6040

1994-155.FD

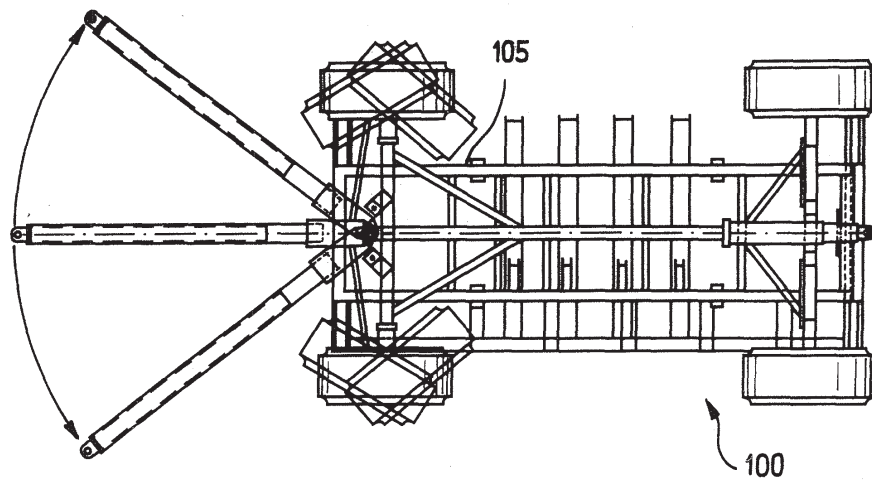


FIG. 1

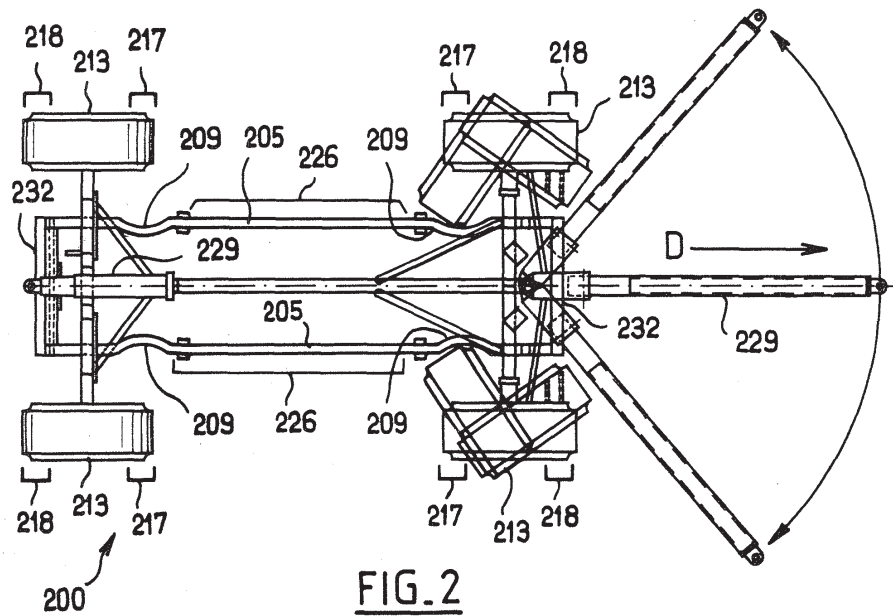
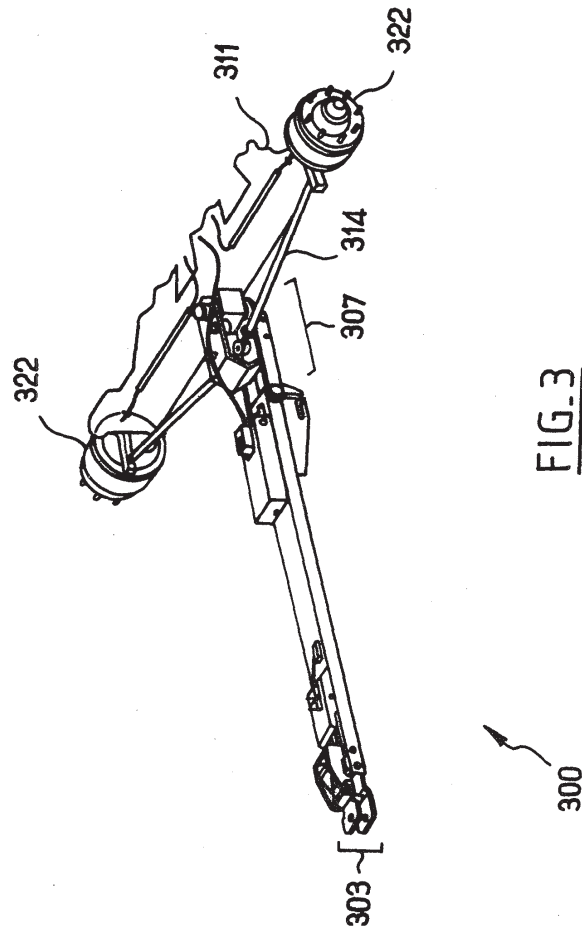


FIG. 2

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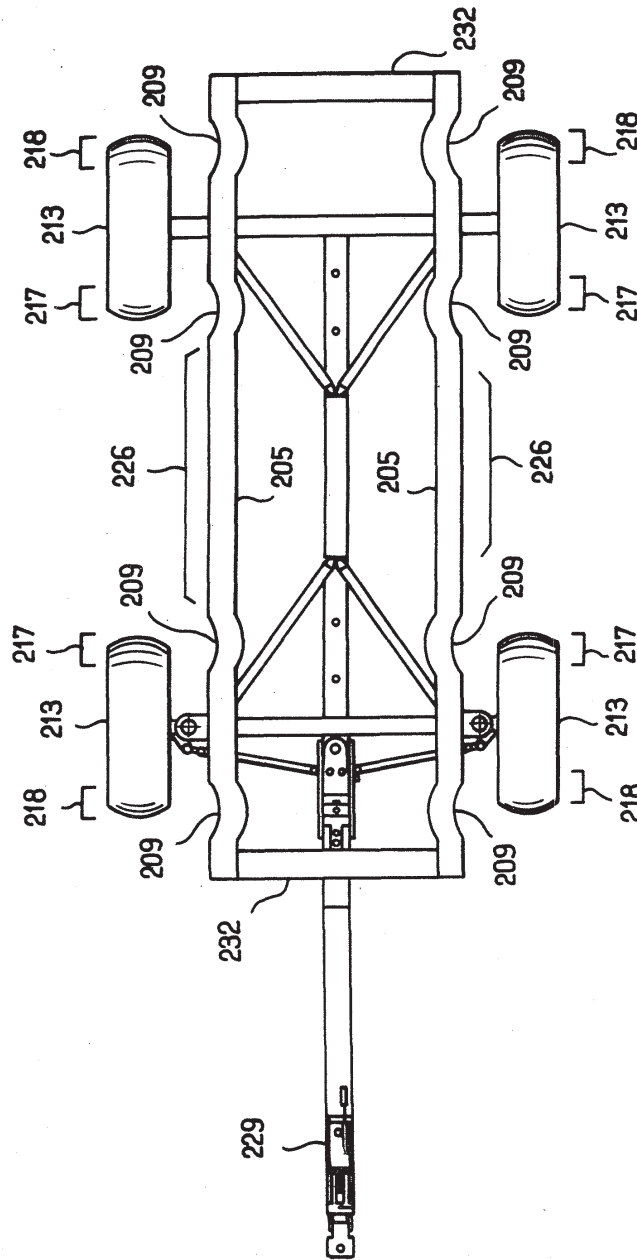


FIG. 4

PART B—ISSUE FEE TRANSMITTAL

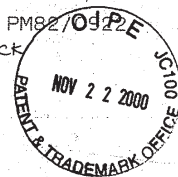
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ROTHWELL FIGG ERNST &
SUITE 701-EAST
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MANBECK
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(Signature)

(Date)

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
09/399,099	09/20/99	008	BARTZ, C	3613 09/22/00
First Named Applicant	VAN MILL, 35 USC 154(b) term ext. = 0 Days.			

TITLE OF SHORT STEER WAGON INVENTION

ATTYS DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
3 1994-155	280-444.000	S60	UTILITY	NO	\$1240.00 \$1240.00	12/22/00

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). Use of PTO form(s) and Customer Number are recommended, but not required.

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47) attached.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

- 1 Rothwell, Figg, Ernst
2 & Manbeck
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)
PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the PTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE **UNVERFERTH MANUFACTURING COMPANY, INC.**

(B) RESIDENCE: (CITY & STATE OR COUNTRY) **KALIDA, OHIO**

Please check the appropriate assignee category indicated below (will not be printed on the patent)

- ☐ individual ☒ corporation or other private group entity ☐ government

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☒ Advance Order - # of Copies **10**

The COMMISSIONER OF PATENTS AND TRADEMARKS IS requested to apply the Issue Fee to the application identified above.

(Authorized Signature) *[Signature]*

(Date) **11-22-00**

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11/24/2000 AZERGAW2 00000100 09399099

01 FC:142
02 FC:561

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1425 K STREET, N.W.
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WASHINGTON DC 20005

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17348	18125	22720	27195	28957	30377	30649	31414	32408	33915
34627	35377	35447	35745	37889	38875	39881	40315	41276	42013
42017	44066	44122	44492	46799	47948	51613			

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AND THE PRACTITIONERS OF RECORD FOR CUSTOMER NUMBER 6449 ARE:

17348	18125	22720	22980	27195	28957	30377	30649	31414	32408
34627	35377	35447	35745	36105	36631	37889	39881	40315	41276
42013	44066	44122	44492	47948	51613				

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ADDRESS ON THE FILE JACKET LABEL AND ENTER ONLY THE 'CUSTOMER
NUMBER' AS THE NEW ADDRESS. FILE THIS LETTER IN THE FILE JACKET.
WHEN ABOVE CHANGES ARE ONLY TO FEE ADDRESS AND/OR PRACTITIONERS
OF RECORD, FILE LETTER IN THE FILE JACKET.
THIS FILE IS ASSIGNED TO GAU 3613.



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APPLICATION NUMBER	PATENT NUMBER	GROUP ART UNIT	FILE WRAPPER LOCATION
09/399,099	6176504	3613	9200

Change of Address/Power of Attorney

The following fields have been set to Customer Number 06449 on

- Correspondence Address
- Maintenance Fee Address

The address of record for Customer Number 06449 is:

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1425 K STREET, N.W.
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WASHINGTON, DC 20005

The Practitioners of record for Customer Number 06449 are:

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PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

09/28/1999 BALEXAND 00000012 09399099

01 FC:101

760.00 DP

PTO-1556

(5/87)

*U.S. GPO: 1998-433-214/80404

EXHIBIT 1013

PATENT APPLICATION FEE DETERMINATION RECORD Effective November 10, 1998					Application or Docket Number <div style="font-size: 1.5em; margin-top: 5px;">09/399099</div>	
CLAIMS AS FILED - PART I						
		(Column 1)	(Column 2)			
FOR	NUMBER FILED	NUMBER EXTRA				
BASIC FEE						
TOTAL CLAIMS	8	minus 20=	*			
INDEPENDENT CLAIMS	1	minus 3=	*			
MULTIPLE DEPENDENT CLAIM PRESENT						
* If the difference in column 1 is less than zero, enter "0" in column 2						
CLAIMS AS AMENDED - PART II						
		(Column 1)	(Column 2)	(Column 3)		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	
	Total	*	Minus	**	=	
	Independent	*	Minus	***	=	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM					
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	
	Total	*	Minus	**	=	
	Independent	*	Minus	***	=	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM					
AMENDMENT C		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	
	Total	*	Minus	**	=	
	Independent	*	Minus	***	=	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM					
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20." *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3." The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.						

SMALL ENTITY TYPE <input type="checkbox"/>		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
	380.00	OR		760.00
X\$ 9=		OR	X\$18=	
X39=		OR	X78=	
+130=		OR	+260=	
TOTAL		OR	TOTAL	1400

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDI- TIONAL FEE		RATE	ADDI- TIONAL FEE
X\$ 9=		OR	X\$18=	
X39=		OR	X78=	
+130=		OR	+260=	
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RATE	ADDI- TIONAL FEE		RATE	ADDI- TIONAL FEE
X\$ 9=		OR	X\$18=	
X39=		OR	X78=	
+130=		OR	+260=	
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SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDI- TIONAL FEE		RATE	ADDI- TIONAL FEE
X\$ 9=		OR	X\$18=	
X39=		OR	X78=	
+130=		OR	+260=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

ISSUE SLIP STAPLE AREA (for additional cross references)

POSITION	INITIALS	ID NO.	DATE
FEE DETERMINATION	BA	20385	
O.I.P.E. CLASSIFIER		43	10-1-99
FORMALITY REVIEW	CH	69916	10-8-99

INDEX OF CLAIMS

✓ Rejected N Non-elected
 = Allowed I Interference
 - (Through numeral)... Canceled A Appeal
 + Restricted O Objected

Claim	Final	Original	Date
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If more than 150 claims or 10 actions
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EXHIBIT 1013

