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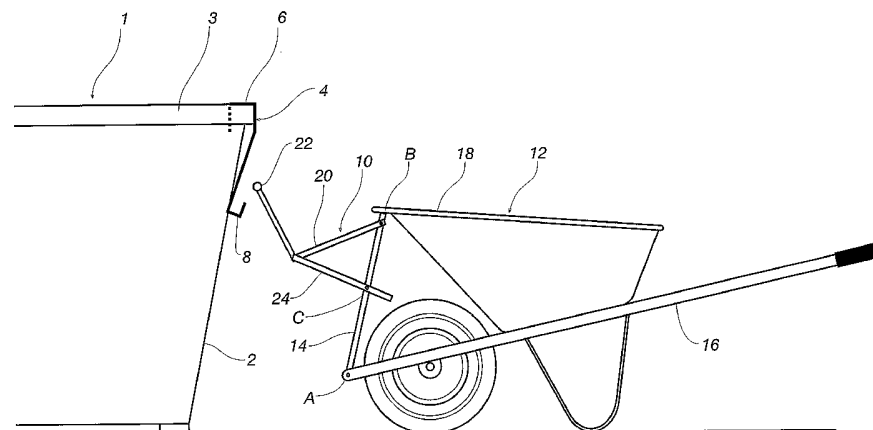
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ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: WHEELBARROW TIPPER/LIFTER



(57) Abstract: An apparatus to facilitate the tipping of the contents of a wheelbarrow (12) into a bin (1) including a frame (10) having a forwardly extending horizontal rod (22) attached to the forward end of the wheelbarrow (12), a bracket (4) hooked at its upper end over the edge (3) of the bin (1) and having hooks (8) at its lower end whereby the rod (22) is engaged in the hooks (8) and the wheelbarrow (12) tips about the rod (22) in the hooks (8) to discharge the contents of the wheelbarrow (12).

TITLE

WHEELBARROW TIPPER/LIFTER

The present invention relates to an apparatus to facilitate the upending of a wheelbarrow into a bin.

5 TECHNICAL FIELD

It is well known that the easiest way to empty a wheelbarrow is to upend the wheelbarrow forward over its wheel.

It is often necessary to deposit material carried in a wheelbarrow into a large, industrial type bin, or skip. Generally the sidewalls of these bins are so high
10 however, that it is not possible to upend a wheelbarrow into such an industrial bin in the conventional fashion; instead the contents of the bin must be shoveled from the wheelbarrow into the bin.

It is an object of the present invention therefore to provide an apparatus to facilitate the upending of a wheelbarrow into a bin that allows the wheelbarrow
15 to be upended into the bin in what is essentially the conventional fashion.

It is a further object of the invention to provide means to raise the wheelbarrow to facilitate the wheelbarrow engaging the apparatus on bins of greater height.

Other objects and advantages of the present invention will become apparent
20 from the following description, taken in connection with the accompanying drawings, wherein, by way of illustration and example, an embodiment of the present invention is disclosed.

DISCLOSURE OF THE INVENTION

In one form of this invention although this may not necessarily be the only or
25 indeed the broadest form of this there is proposed an apparatus to facilitate the upending of a wheelbarrow into a bin, including a first portion attached to a bin, a second portion fixed to the front of a wheelbarrow, wherein in use the

first portion and second portion can engage so as to create a pivotal connection that permits the wheelbarrow to be rotated in a forward direction about the pivotal connection point so as to facilitate the upending of the wheelbarrow.

- 5 In a further form, the invention may be said to lie in a method of using an apparatus that will facilitate the upending of a wheelbarrow into a bin, including the steps of fixing a bracket of the apparatus to the bin, fixing the frame of the apparatus to the wheelbarrow, inter-engaging the bracket and frame so as to create a pivotal connection between them, and then rotating the wheelbarrow
10 forward about the pivotal connection point so as to upend of the wheelbarrow.

Preferably, the bracket can be removably attached to the bin.

Preferably, the frame can be removably attached to the front of the wheelbarrow.

- 15 Preferably the bracket is adapted to hang from the uppermost edge of a side of the bin.

Preferably, the bracket includes at least one upwardly turned hook, which is adapted to accept the frame.

- 20 Preferably, the frame includes at least one steel rod that is adapted to pivotally engage in the upwardly turned hook on the bracket.

Preferably, the steel rod is connected to the wheelbarrow via a retractable frame.

- 25 In addition there is provided according to the invention means to raise the wheelbarrow to facilitate the hooking of the frame to the bracket on bins and other receptacles of greater height.

Preferably the means to raise the wheelbarrow include a ramp on a stabilizing leg between the ground and a side of the bin or other receptacle, whereby the wheelbarrow can be wheeled up the ramp.

BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding of this invention it will now be described with respect to the preferred embodiment which shall be described herein with the assistance of drawings wherein;

- 5 Figure 1 is a side view of a bin with a bracket of the apparatus attached, and a wheelbarrow with a frame of the apparatus attached;

Figure 2 is a side view of the bracket and frame of the apparatus in Figure 1, showing them pivotally attached;

Figure 3 is a side view of the wheelbarrow being upended into a bin;

- 10 Figure 4 is a side view of the wheelbarrow in Figure 1 showing the frame of the apparatus in the retracted position;

Figure 5 shows the stabilizer leg and ramp to assist in raising the barrow;

Figure 6 shows the leg and ramp in a folded position; and

Figure 7 shows the stabilizer leg and ramp in use.

15 BEST MODE FOR CARRYING OUT THE INVENTION

- Now referring to the illustrations, and in particular to Figure 1, there is an industrial bin 1, with a sidewall 2, and a lip 3 around the upper edge of the sidewall. Hanging from this lip 3 is a bracket 4 of the apparatus. This bracket has a pair of downwardly facing hooks 6 at a first end that engage the lip 3 of
20 the bin.

At a second end of the bracket there is a pair of upwardly facing hooks 8, which are adapted to accept the frame 10 of the apparatus. This second end of the bracket 4 angles back toward the side 2 of the bin so as to rest against the side of the bin.

- 25 The frame 10 of the apparatus is attached to the front of a wheelbarrow 12 via a frame 14 that is securely, but removably attached to the frame 16 of the

wheelbarrow at point A, and to the bucket 18 of the wheelbarrow 12 at point B. Attached to this frame 14 is a pair of retractable arms 20, and at the end of each of these arms there is a steel rod 22 that interconnects the arms. This rod is adapted to nest in the upwardly facing hooks 8 on the bracket 4 of the apparatus, thereby creating a pivotal connection between the bin 1 and the wheelbarrow 12 that allows the wheelbarrow to be upended into the bin in what is essentially the conventional fashion.

The retractable arms 20 are L-shaped; at a first end these arms connect to the frame 14 proximate to the end of the frame that connects to the bucket 18 of the wheelbarrow 12. There are a pair of bracing elements 24, at a first end these bracing elements pivotally connect to their respective retractable arms 20 proximate to the right angle bend in the arms. At a second end the bracing elements bolt C to the frame members 14 so as to support the retractable arms 20 in an extended position.

When the apparatus is not in use, the retractable arms 20 can be retracted such that the steel rod 22 and the arms are withdrawn into the region between the bucket 18 of the wheelbarrow and its frame 16. This is done by undoing the bolts C, at the second end of the bracing elements. This feature protects the frame from damage when it is not in use. Furthermore, a high degree of adjustability can be built into this frame of the apparatus by providing a plurality of alternate hole positions in both the frame elements 14, and the bracing elements 24.

Additional adjustment can be provided by equipping the bracket 4 of the apparatus with two or more pairs of upwardly facing hooks. This adjustability in both the bracket and frame means that the apparatus can be adapted to a variety of wheelbarrows and bins alike.

When the apparatus is adjusted correctly, the upending operation finishes with the bracing elements resting upon the edge 3 of the bin 1, this stops the wheelbarrow falling over forwards into the bin. In this position the centre of gravity of the wheelbarrow should have passed beyond the point of contact between the bracing elements 24 and the edge 3 of the bin. This ensures that the wheelbarrow is emptied correctly, but also allows a user a moment to rest after lifting the wheelbarrow into this position.

5

Reference is now made to Figures 5, 6 and 7 showing an additional apparatus to facilitate the raising of the barrow on bins or other receptacles of greater height. The apparatus includes a stabilizer leg 26 with a foot 28 to rest on the ground and a cross piece 30 to engage the side of the bin underneath the hooks 8. A ramp 32 as attached to the stabilizing leg 26 by pivots 34 to a U-shaped bracket 46 on the stabilizing leg 26.

The stabilizing leg is adjustable in length being telescopic with locking screws 38 to lock the stabilizing leg at the required length depending upon the height of the bin or other receptacle. The ramp is pivoted to the bracket 36 so that as the angle of the stabilizing leg changes for various heights of bins the ramp angle also changes. As shown in Figure 7 the wheelbarrow is wheeled up the ramp so that on slight tipping of the wheel barrow the rod is engaged in the hooks and further tipping will empty the barrow into the bin.

While the above description has been primarily directed to the tipping of the contents of the wheelbarrow into a bin, the invention is not to be limited thereto. The invention can also be applied to the depositing of the contents of the wheelbarrow into other receptacles or even onto the tray of a motor vehicle such as a utility, flat top tray truck or the like. The hooks 6 of the bracket 4 are thus suitably modified to suit the particular use. As shown in Figure 6 the ramp can be folded onto stabilizing leg when not required for storage purposes.

It is considered that this invention will be of particular advantage to those who wish to transfer material from a wheelbarrow to an industrial style bin or other carriers for the disposal of the contents of the wheelbarrow.

Although the invention has been herein shown and described in what is conceived to be the most practical and preferred embodiment, it is recognised that departures can be made within the scope of the invention, which is not to be limited to the details described herein but is to be accorded the full scope of the specification so as to embrace any and all equivalent devices and apparatus.

CLAIMS

- 1 An apparatus to facilitate the upending of a wheelbarrow into a bin or
other receptacle, including a first portion attached to a bin or other receptacle
to receive the contents of the wheelbarrow, a second portion fixed to the front
5 of a wheelbarrow, wherein in use the first portion and second portion can
engage so as to create a pivotal connection that permits the wheelbarrow to
be rotated in a forward direction about the pivotal connection point so as to
facilitate the upending of the wheelbarrow.
- 2 An apparatus as defined in claim 1 wherein the first portion is a bracket
10 removably attached to the bin or receptacle.
- 3 An apparatus as defined in either claim 1 or claim 2 wherein the second
portion is a frame removably attached to the front of the wheelbarrow.
- 4 An apparatus as defined in claim 3 wherein the bracket has engaging
means such as a hook portion to engage the edge of the bin, and lower
15 upwardly opening hook means to engage the frame.
- 5 An apparatus as defined in claim 4 wherein the frame has a rod to
engage in the hooks of the bracket.
- 6 An apparatus as defined in any one of claims 3 to 5 wherein the frame
is retractable wherein frame portion having the rod is retractable when not
20 required.
- 7 An apparatus as defined in claim 6 wherein the frame includes a pair of
struts extending from a front edge of a bucket of the wheelbarrow to a
forward extension of each of a handle of the barrow, and retractable arms
pivotaly attached to the upper portion of each of the struts.
- 8 An apparatus as defined in claim 7 wherein the retractable arms are L-
25 shaped with the rod positioned between ends of the L-shaped arms.
- 9 An apparatus as defined in claim 8 including bracing elements
extending from the elbow portion of the retractable arms rearwardly to be

releasably attached to the pair of struts whereby the retractable arms can be positioned in a forward position or in a stowed position with the rod engaging a lower portion of the struts.

10 Apparatus as defined in claim 1 including a ramp to raise the
5 wheelbarrow to permit the frame on the wheelbarrow to more readily engage the bracket on the bin or other receptacle.

11 Apparatus as defined in claim 10 wherein the ramp is pivoted to a lower end of a stabilizing leg whose upper end engages a side of the bin.

12 Apparatus as defined in claim 11 wherein the stabilizing leg is
10 adjustable in length, the said upper end engaging the side of the bin between the side of the bin and the bracket.

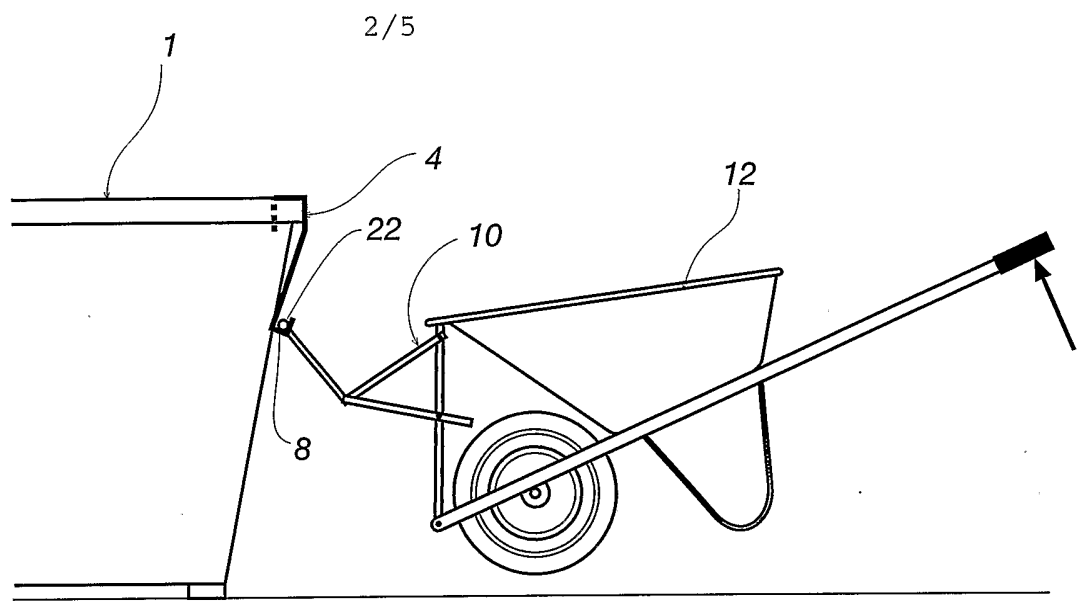


Fig 2

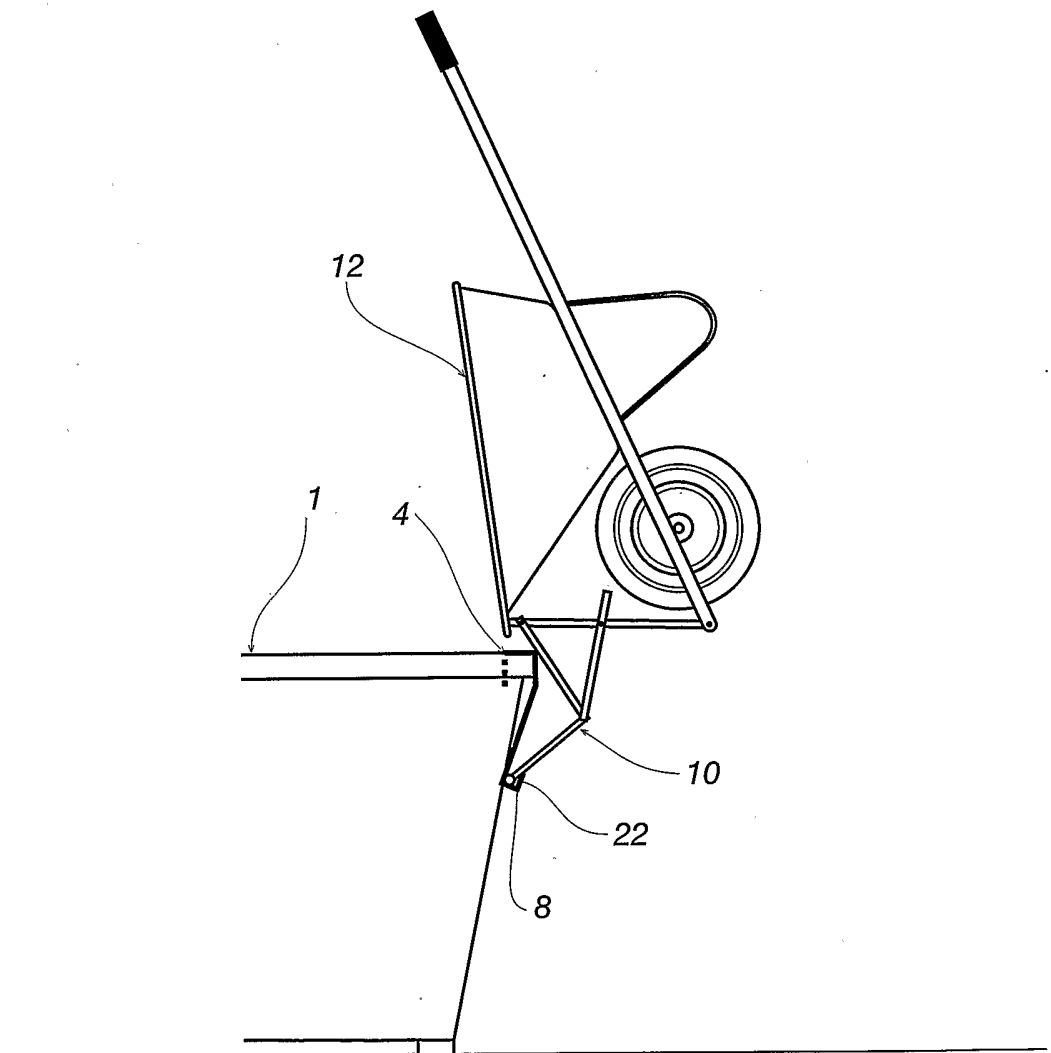


Fig 3

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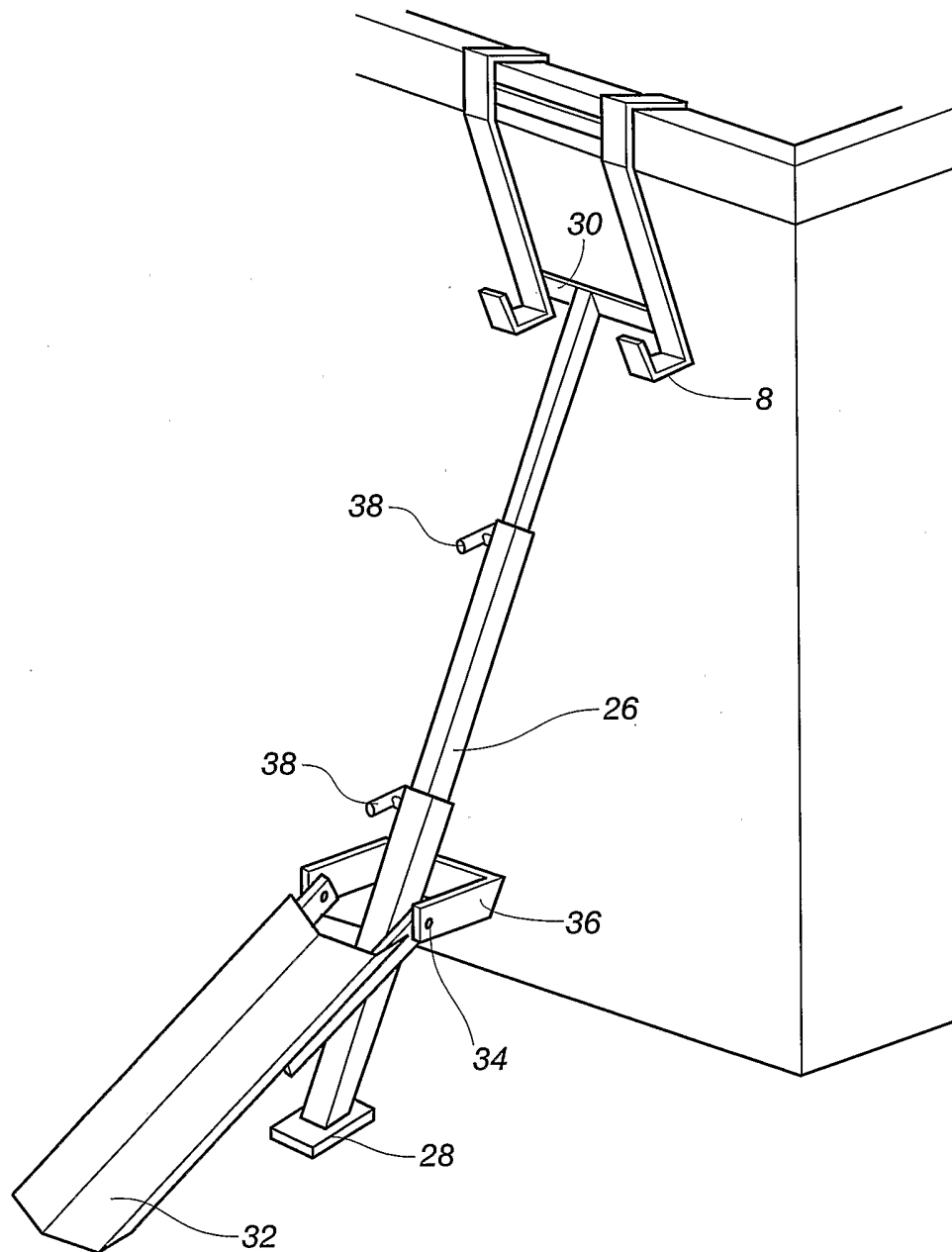


Fig 5

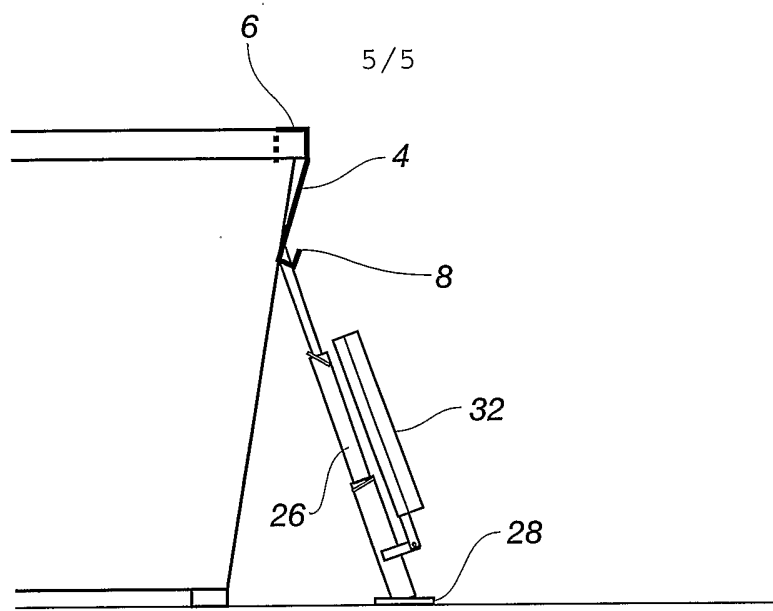


Fig 6

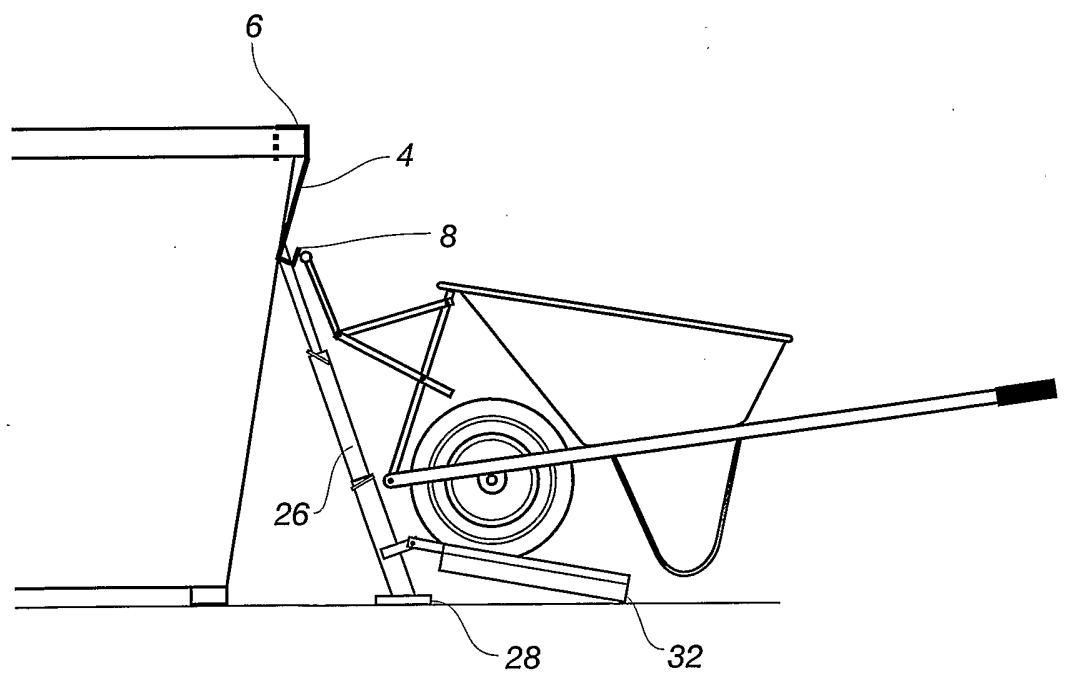


Fig 7

INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. ⁷: B62B 1/18, 1/22, 5/00; B65F 1/00; B65G 65/32, 69/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
AU: IPC B62B 1/18, 1/22, 5/00; B65F 1/00; B65G 65/32, 69/00

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DWPI: 1. (B62B-001/ic or B62B-005/ic) & (UPEND or EMPTY or TIP etc)

2. B62B-001/18/ic or B62B-001/22/ic

3. WHEELBARROW etc & (UPEND or EMPTY or TIP etc) & BIN etc

4. (B65F-001/ic or B65G-065/ic or B65G-069/ic) & WHEELBARROW etc & BIN etc

USPTO: Classes 298/2, 298/3

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5026079 A (DONZE et al) 25 June 1991	
A	GB 2322340 A (GOOD et al) 26 August 1998	
A	DE 20104155 U (MUELLER & BAUM GmbH & Co KG) 31 October 2001	
A	WO 1997/045361 A (BLOM et al) 4 December 1997	

☒ Further documents are listed in the continuation of Box C☒ See patent family annex

* Special categories of cited documents:	
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"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
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12 MAY 2005

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INTERNATIONAL SEARCH REPORT

International application No.

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5242177 A (MORRIS) 7 September 1993	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU2005/000570

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member			
US	5026079	AP	19	AU	63114/86	BR	8604640
		CN	86106941	DK	454886	EG	17815
		EP	0218520	ES	2002144	FI	863865
		FR	2587668	GR	862433	HU	41686
		IL	80069	IN	169255	JP	62110563
		MA	20775	MX	160745	NO	863775
		NZ	217673	OA	8395	PT	83432
		US	5149116	YU	165186	ZA	8607321
GB	2322340	NONE					
DE	20104155	DE	10058668				
WO	9745361	AU	31119/97	EP	0906242	NO	985586
		SE	9602137	SE	9703797		
US	5242177	CA	2101587				
Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.							
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