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(54) Title: CONTAINER DISCHARGE SYSTEM, CONTAINER AND METHOD OF DISCHARGING SUCH CONTAINER

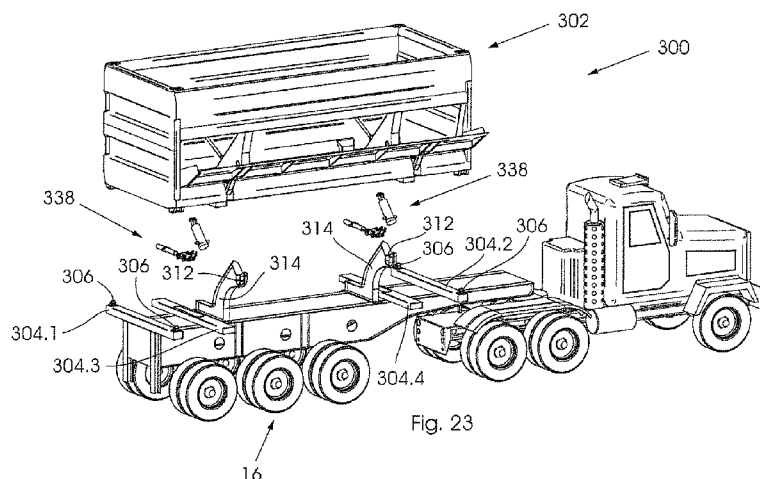


Fig. 23

(57) Abstract: This invention concerns a container handling system which allows containers (12, 302) to be freely moved from road trailers (16) to rail wagons (102), and vice versa. The system includes a sub-system (10, 300) for handling containers (12, 302) by road and a sub-system (100, 400) for transporting the containers (12, 302) by rail. The system includes a side discharge container (12, 302) which has at least one door (18) through which the bulk material can be discharged. The container (12, 302) has a door mechanism (40, 322) which is operable between a first, locked position wherein the container door (18) is locked in its closed position and a second, unlocked position wherein the container door (18) is open to discharge the bulk material. The container (302) has pivot connectors (310) located on support structures (318) located inside the container (302) that engage complementally shaped pivot connectors (312) carried on a carriage, typically a trailer (16) or train wagon (102). The system further includes a container tilting device (406) and a door actuating mechanism (338) carried by the carriage (16) for engaging the door mechanism (40, 322) and tilting the container (12, 302) in order to discharge the bulk material by either using the container tilting device (406) or the door actuating mechanism (338).



INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER

INV. B60P1/16 B60P1/273 B60P1/26
ADD.

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)

B60P B61D B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 3 738 707 A (BIEBER G) 12 June 1973 (1973-06-12) the whole document -----	15-20, 23-25 1
X	EP 1 757 539 A2 (MWB INDUSTRIETECHNIK GMBH & CO [DE]) 28 February 2007 (2007-02-28) paragraph [0041] - paragraph [0042]; figures -----	57
X A A	WO 97/33768 A1 (UNITED OSTERMEYER ENGINEERING [AU]; OSTERMEYER BERND [AU]) 18 September 1997 (1997-09-18) page 6, line 16 - page 7, line 11; figures ----- US 3 799 612 A (NORTON M ET AL) 26 March 1974 (1974-03-26) abstract; figures ----- -/--	15 1 1



Further documents are listed in the continuation of Box C.



See patent family annex.

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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	EP 2 233 426 A1 (LAHTINEN PERTTI [FI]) 29 September 2010 (2010-09-29) abstract	1
A	----- US 2005/248208 A1 (BOON EDWIN L [CA] BOON EDWIN LYNN [CA]) 10 November 2005 (2005-11-10) abstract -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

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PCT/IB2014/063424

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 3738707	A	12-06-1973	CA 942230 A1 US 3738707 A	19-02-1974 12-06-1973
EP 1757539	A2	28-02-2007	DE 102005038701 A1 EP 1757539 A2	22-02-2007 28-02-2007
WO 9733768	A1	18-09-1997	AU 1916597 A CA 2249020 A1 CN 1216507 A EP 0885136 A1 ID 16231 A JP 2000507899 A NZ 332150 A WO 9733768 A1 ZA 9702108 A	01-10-1997 18-09-1997 12-05-1999 23-12-1998 11-09-1997 27-06-2000 29-07-1999 18-09-1997 17-09-1997
US 3799612	A	26-03-1974	NONE	
EP 2233426	A1	29-09-2010	DK 2233426 T3 EP 2233425 A2 EP 2233426 A1 ES 2400786 T3	04-03-2013 29-09-2010 29-09-2010 12-04-2013
US 2005248208	A1	10-11-2005	NONE	