Dec. 17, 1940. L. V. MOSHER 2,225,076

MATERIAL HANDLING APPARATUS

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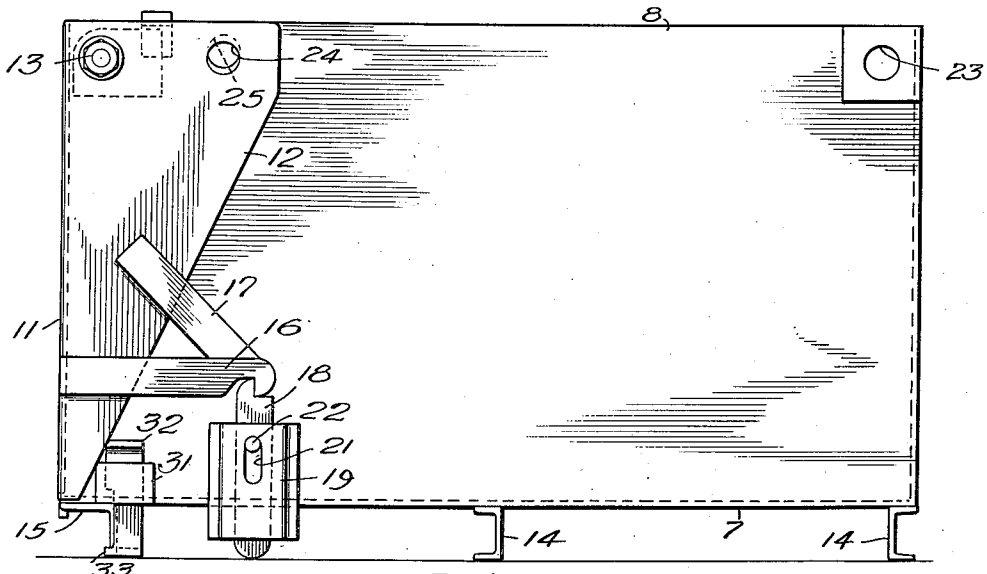

Fig. 1.

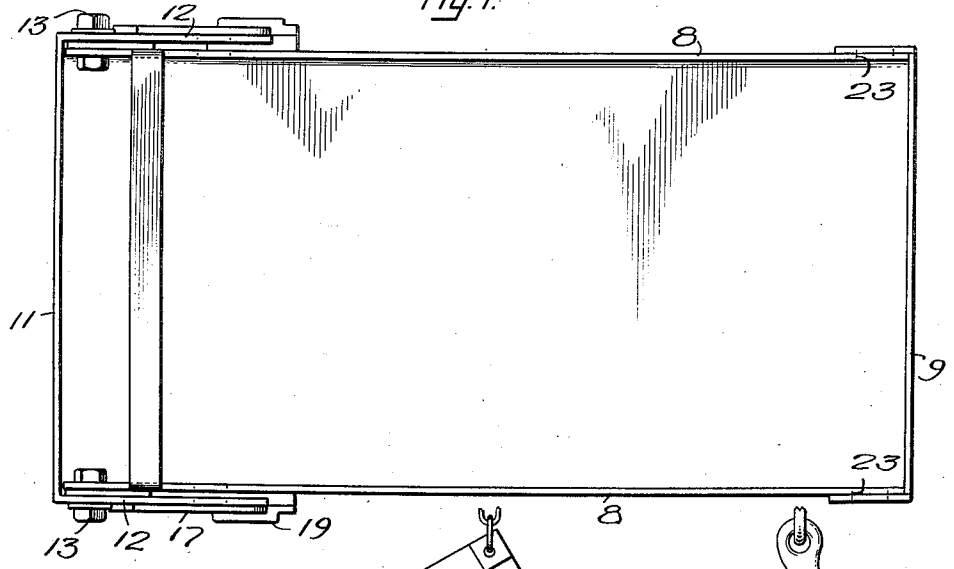

Fig. 2.

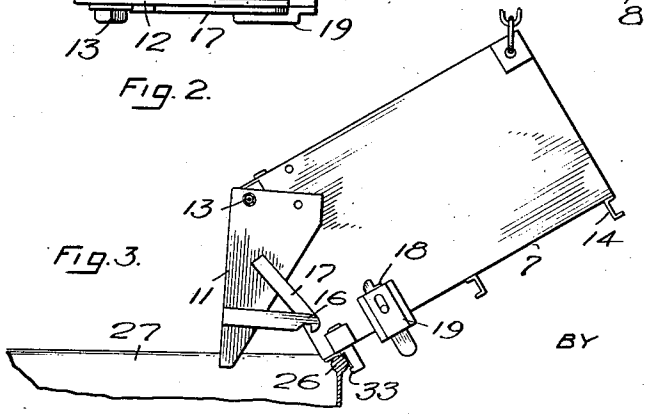

Fig. 3.

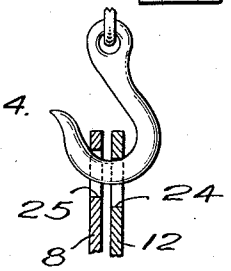

Fig. 4.

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MATERIAL HANDLING APPARATUS

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6 Claims. (Cl. 294—69)

This invention relates to a material handling apparatus and more particularly to a container for handling material.

An object of the invention is to provide a simple and effective material handling apparatus.

In accordance with one embodiment of the invention a container for a material handling apparatus is provided having a discharge gate which is automatically locked and unlocked for loading and unloading of the container.

Other objects and advantages will appear from the following description taken in conjunction with the accompanying drawing, in which

Fig. 1 is a side elevation of a material handling conveyor embodying the invention;

Fig. 2 is a plan view of the conveyor shown in Fig. 1;

Fig. 3 is a side elevation showing the container being discharged; and

Fig. 4 is a detail view of a conveyor hook engaging the side wall and gate of the container.

The apparatus of this invention may be used for various purposes, although it will be described particularly in connection with the collection of scrap lead to be transferred to a lead melting kettle.

The container for transferring the material has a bottom 7, side walls 8 and an end wall 9. The opposite end of the container is provided with a gate 11 having tapering portions 12 which are bent out on angles to the gate 11 and extend along the outside of the side walls 8. The gate is hinged at its upper end on pivot bolts 13 and the lower end of the gate may swing outwardly from the container to discharge material when the container is tilted. The container preferably rests upon a pair of channel members 14 which are welded or otherwise secured to the container, and the front end of the container is provided with an angle bar 15 which is adapted to engage the rim of a kettle or bin when the container is being discharged. In order to lock the gate a rearwardly extending notched arm 16 is secured to the gate reinforced by a brace 17. The notch of arm 16 may be engaged by a pawl 18 which is slidably mounted in a channel shaped support or guide 19 secured to the side wall of the container. The guide is provided with a slot 21 in which a pin 22 secured to the pawl may move to limit the movement of the pawl. When the container is to be loaded it is placed upon the floor and the pawl 18 is of such length that its lower end will be engaged by the floor, moving the pawl upwardly into locking engagement with the notch in arm 16. The container may then be filled with material and in order to transfer the loaded container hooks from a crane or hoist may be engaged in the reinforced apertures 23 at the rear end of the container at the same time hooks are engaged in apertures 24 in the portions 12 of the gate, and the hooks also extend through apertures 25 in the side walls 8 of the container.

Upon lifting the container the gate will be urged more firmly to its closed position due to the fact that the apertures 24 in the gate are positioned slightly lower than the apertures 25 in the side wall. This allows the pawl 18 to drop by gravity out of locking engagement with the arm 16 and the gate will be held in closed position by the hoisting means. The container is then transferred to a bin or melting kettle resting the angle iron 15 on the rim 26 of kettle 27. The hoisting hooks are then disengaged from the apertures 24 and 25 and the rear end of the container is lifted to discharge the material as shown in Fig. 3 of the drawing. When the container is elevated to almost its vertical position, there is danger that it might slip over the melting kettle. In order to prevent this a pair of guides 31 are secured to the side walls 8 and have a sliding member 32 movable therein. The sliding member 32 has a forward projection 33 at its lower end which extends forwardly of the lower end of the channel iron 15. When the container is first lifted from the floor the member 32 drops down by gravity to the position shown in Fig. 3 to a position below the lower end of angle bar 15 and forwardly thereof, thus insuring that the angle bar 15 will remain in engagement with the rim of the melting kettle until the container is fully discharged.

After the container is discharged the rear end of the container is again lowered, thus tending to close the gate, and the hoisting hooks are reinserted in apertures 24 and 25, thereby firmly closing the gate so that when the container is again placed on the floor the pawl 18 will be elevated in position to engage the notch in arm 16 to hold the gate in locked position. The hoisting hooks may then be removed to release the hoist or crane for other work while the container is again being loaded.

It will be understood that the nature and embodiment of the invention herein described is merely illustrative and that many changes and modifications may be made therein without departing from the spirit and scope of the invention.

What is claimed is:

1. A material handling apparatus comprising a container, a gate therefor, a latching mechanism for the gate, said latching mechanism having a member engaging a floor to lock the gate and operable by gravity to unlock the gate when the container is lifted from the floor.

2. A material handling apparatus comprising a container, a gate therefor, a latching mechanism for the gate having a locking member secured to the gate, and a gravity actuated pawl cooperating with said member, said pawl being positioned to be actuated by a floor to lock the gate when the container rests on the floor.

3. A material handling apparatus comprising a container having side walls, a hinged gate for one end of the container, said gate having a portion at an angle to the gate and extending along a side wall of the container, the side wall of the gate and said portion having apertures to receive a hoisting member whereby the gate is held in closed position while the container is being hoisted.

4. A material handling apparatus comprising a container, a gate therefor, latching means for locking the gate while the container rests on a floor, said latching means being gravity actuated to unlatch the gate when the container is hoisted, and hoisting means for holding the gate closed while the container is being hoisted.

5. A material handling apparatus comprising a container having side walls, a hinged gate for the container, a latching arm extending from the gate along a side of the container, and a movable pawl secured to the side of the container and adapted to engage said arm to lock the gate, said pawl being actuated by a floor to lock the gate when the container rests on the floor.

6. A material handling apparatus comprising a container having side walls, a hinged gate for the container, a latching arm extending from the gate along a side of the container, a movable pawl secured to the side of the container and adapted to engage said arm to lock the gate, said pawl being actuated by a floor to lock the gate when the container rests on the floor, said gate having a portion extending along a side wall of the container, and hoisting means engaging said portion to hold the gate closed when the container is being hoisted.

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