Dec. 22, 1942. G. C. WOODRUFF 2,306,148

FREIGHT CONTAINER

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FIG. 1

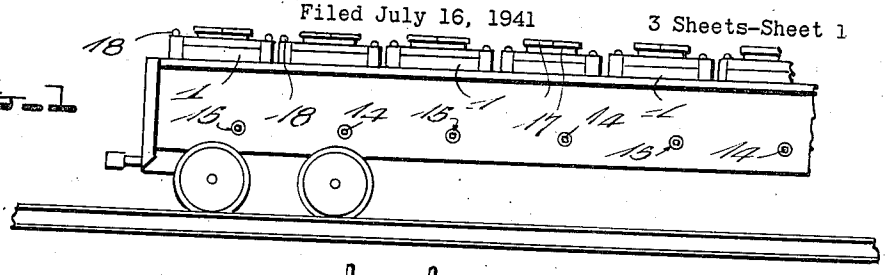
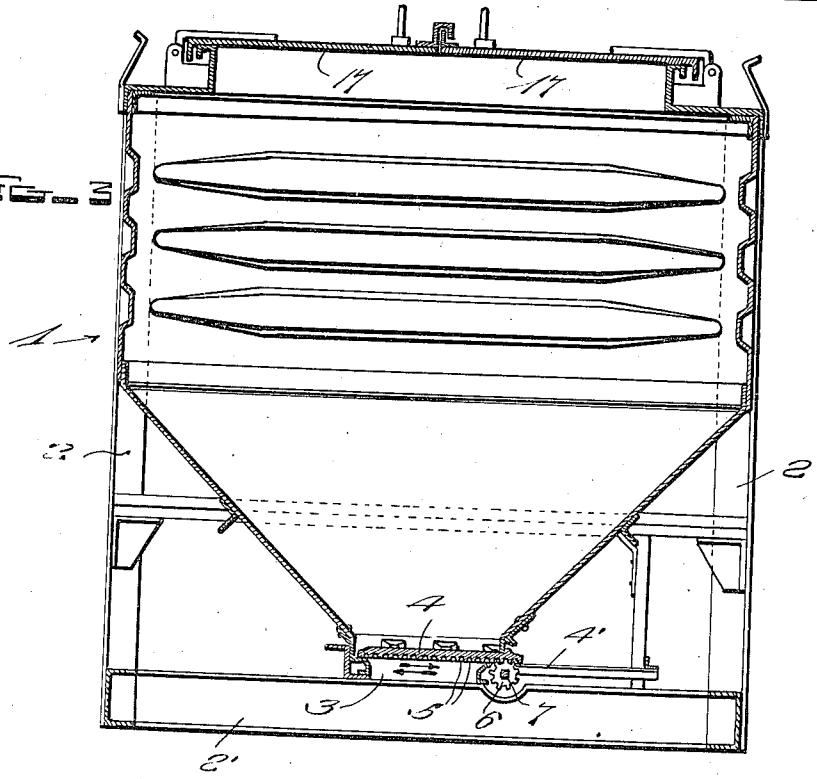


FIG. 3



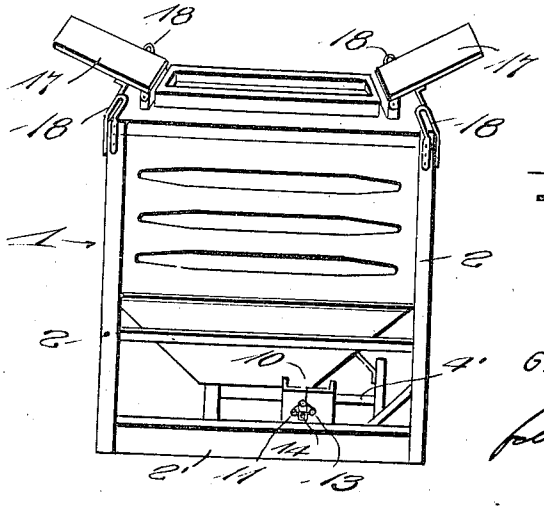


FIG. 2

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FIG. 4

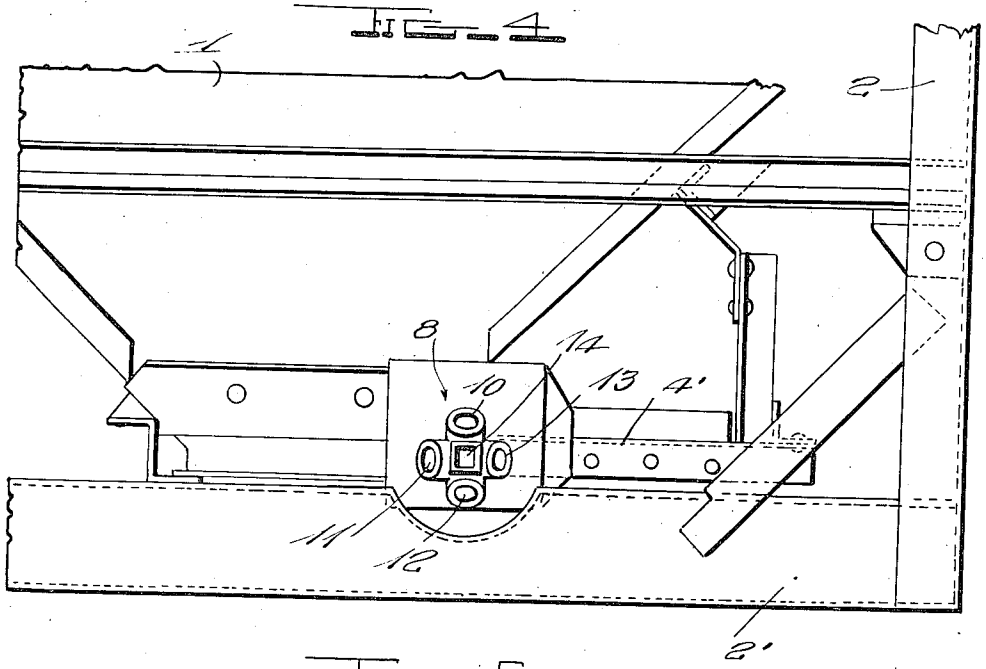
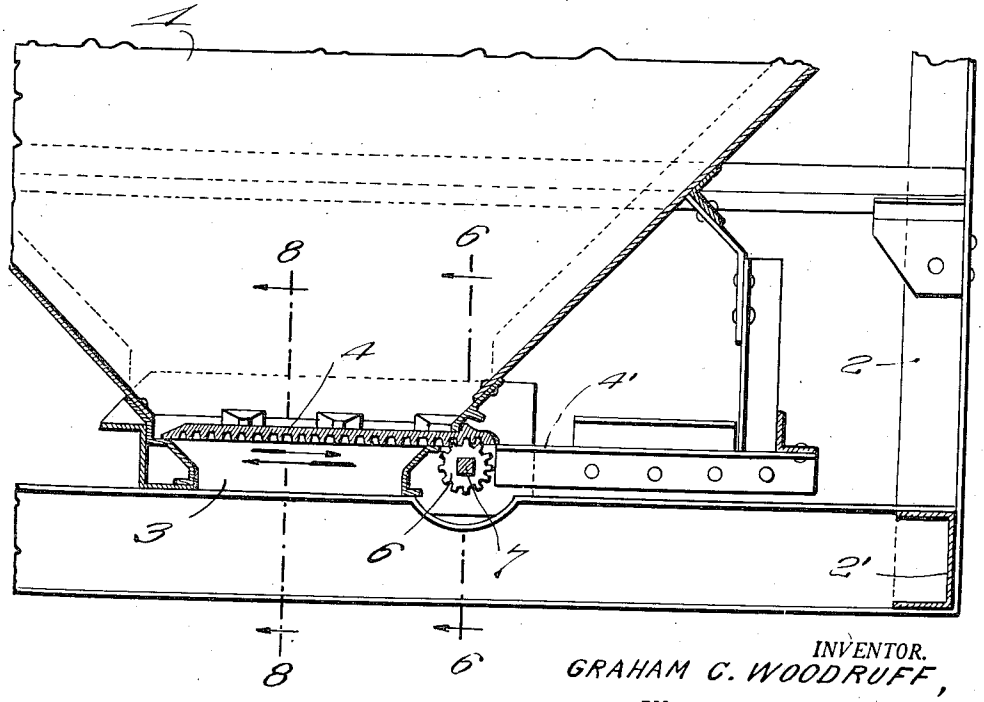


FIG. 5



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FIG. 6

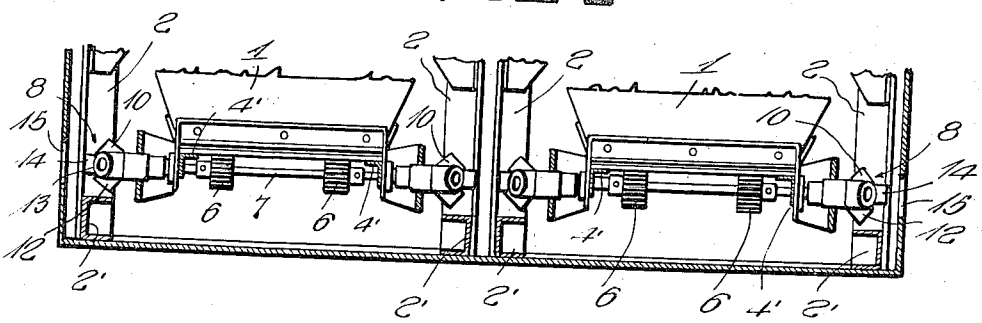


FIG. 7

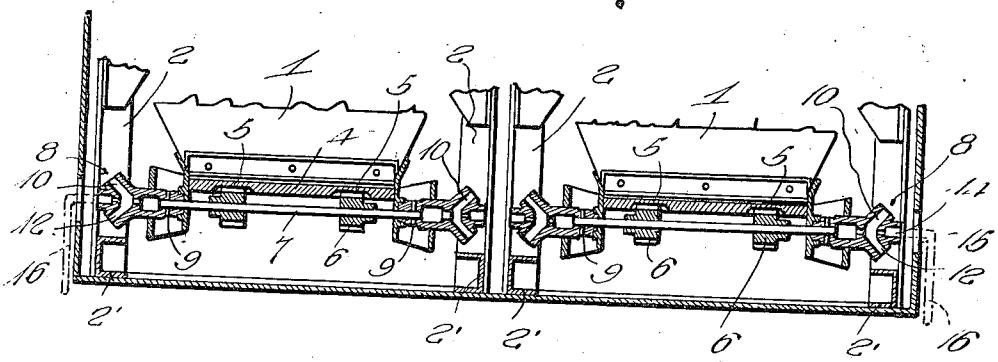


FIG. 10

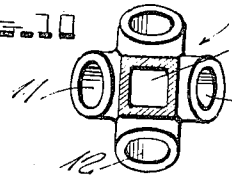


FIG. 8

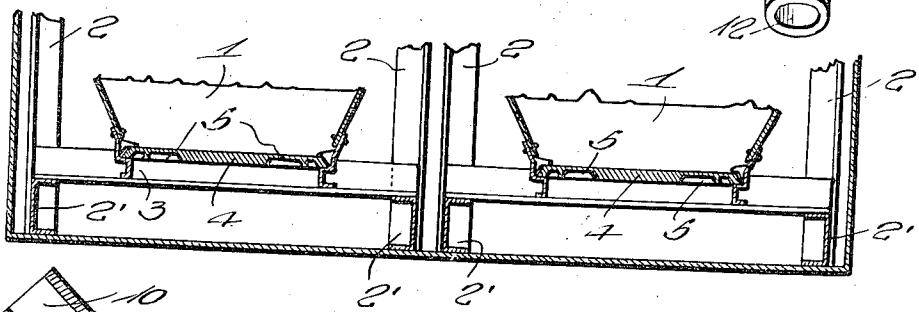
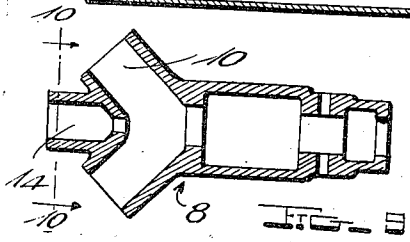


FIG. 9



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Patented Dec. 22, 1942 2,306,148

UNITED STATES PATENT OFFICE

2,306,148

FREIGHT CONTAINER

Graham C. Woodruff, Bronxville, N. Y., assignor to The L. C. L. Corporation, a corporation of Delaware

Application July 16, 1941, Serial No. 402,665

1 Claim. (Cl. 105—366)

It has been found desirable to ship material in bulk thereby not only saving the packaging of the material in bags, et cetera, which have to be handled individually and which sometimes become torn, resulting in a loss of the material in transit.

These containers must be provided at the bottom with a discharge opening and with means to control the volume of flow of the material through said opening.

Certain industries, using L. C. L. containers for handling shipments of bulk materials, find it necessary to restrict or control the flow of the lading from the container, to the extent of depositing the lading in comparatively small quantities at various predetermined locations. The drop door arrangement used with the usual type of drop bottom bulk container is designed to discharge the entire contents of container at one time, as required for certain bulk materials and does not incorporate the "flow control" feature referred to. To meet these requirements, a hopper bottom container has been designed, with the hopper sheets converging at a bottom opening, through which the lading is discharged. This opening is normally closed by a metal gate, operating in a horizontal plane, which can be opened as desired to permit a portion of the lading to run out, and then closed against the flow of lading, so as to tightly seal the discharge opening.

Prior to my invention it has been found that the operators frequently leave the discharge opening gate open and load the containers on a railroad car in that condition. When the car reaches the plant it is estimated that the gate is closed and the material is dumped into the container and flows freely out through the discharge opening. This contingency cannot be ascertained by mere casual glance on which the containers are loaded, because these cars have vertical side walls which hold the containers in place on the cars in transit.

Means may be provided when such a contingency arises to close the gates, but this is not practical with the usual means provided for this purpose, while the container is in position on the car, because of the proximity of the car side and of adjacent containers.

Additional objects of my invention are to provide modifications of the usual operating means, whereby the flow control gate may be operated from the exterior of the car, while container is in position on the car, or from between adjacent containers, and with this, and other objects in view, my invention consists of the parts and combination of parts hereinafter set forth.

In the drawings:

Figure 1 is a fragmentary side elevation of a portion of a freight car equipped to carry a plurality of removable metal containers.

Figure 2 is a perspective view of one of the containers.

Figure 3 is a central vertical longitudinal section through one of the removable containers, the discharge gate being closed.

Figure 4 is a fragmentary side elevation of the lower portion of the container on an enlarged scale.

Figure 5 is a fragmentary central vertical longitudinal section.

Figure 6 is a transverse vertical section, taken substantially on the line 6—6 of Figure 5, with the gate operating mechanism in elevation.

Figure 7 is a view similar to Figure 6, but in true vertical section.

Figure 8 is a detail transverse section taken on the line 8—8 of Figure 5.

Figure 9 is a detail central vertical longitudinal section through one of the operating heads.

Figure 10 is a detail transverse vertical section taken on the line 10—10 of Figure 9.

As shown, the container body 1 is supported in a rectangular frame comprising uprights 2 and base 2'.

The container 1 is provided with a frustro-pyramidal bottom having a discharge opening 3 which is adapted to be closed by a sliding gate 4, or other suitable device, which gate is provided with teeth 5 on its under face that mesh with the pinions 6, said pinions being mounted on an operating shaft 7.

The operating shaft 7 is provided with an extension head 8 on each end thereof, which extension is secured to the shaft by rivets 9.

This extension head is provided with sockets 10, 11, 12 and 13, which, as shown in the drawings, are at an angle to the axis of the shaft. Beyond these sockets 10, 11, 12 and 13 is another square socket 14 in axial alignment with the operating shaft. When the car container is off of the car a rod, or other suitable instrument, may be inserted in the sockets 10, 11, 12 and 13 to open and close the gate 4, but when the container is loaded on the car its side walls are so close to the walls of the car and to adjacent containers that it is almost impossible to insert an operating instrument in these sockets to operate the gate of the container. Whereas, when the container is on the car a suitable handle such as the

crank may be inserted through the openings or ports 15 in the car side, or may be inserted downward between adjacent containers and engage the sockets 14 whereby without disturbing the position of the container upon the car the gate may be opened and closed as desired.

In Figure 7 I have shown an operating handle 16 in engagement with the socket 14 of the extension 8.

The gate 4 may be opened to any degree desired and thus control the flow of the lading through the bottom opening of the container.

The rails 4' function to support the gate while in any degree of its open position.

The top of the container is closed by suitable closures 17 whereby the material is maintained moisture proof within the container. The container is provided with lifting links 18 to permit it to be lifted by crane or other suitable means, when placing on or removing from car.

After the material is unloaded from the containers the containers are lifted and placed back upon the car, and an inspection will show whether or not the gates 4 are in closed position. If after placing the container back on the car it is discovered that the discharge gate has not been properly closed, this condition can be rectified by placing the operating handle 16 in operative connection with extension head 8 of the shaft 7, permitting the gate to be readily closed without the loss of further material.

It, of course, will be understood that the openings 15 in the sides of the car are so located as to be directly opposite the location of shaft 7 and extension 8 on each container, when in proper position thereon.

It is obvious that changes may be made in the details of construction within the scope of the appended claim.

What I claim is:

The combination of a transporting vehicle having upwardly extending side walls, ports in said side walls, of a removable less than carload lots bulk container positioned thereon having a discharge opening at its bottom, a gate to control the size of said opening to control the volume of flow of lading from said container, means to control the movement of said gate, and suitable means to be positioned in said ports for operating the gate controlling means from the exterior of the vehicle.

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