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FREIGHT CONTAINER

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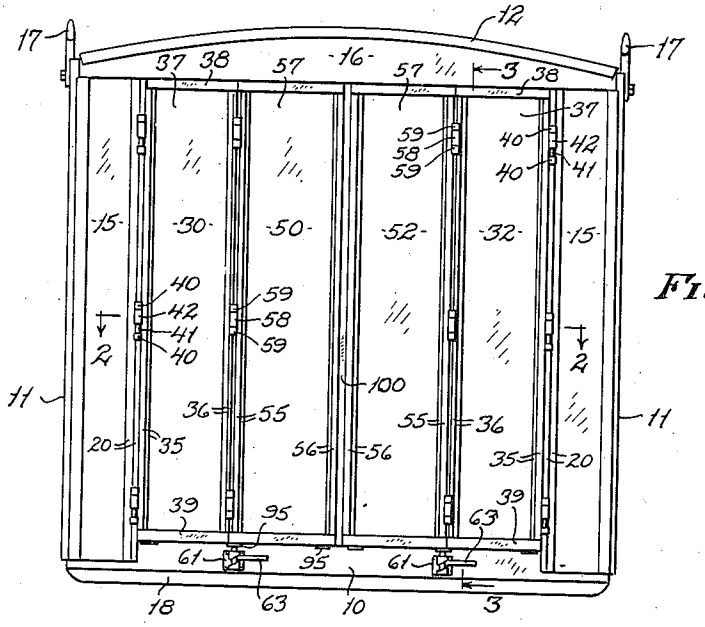


Fig. 1

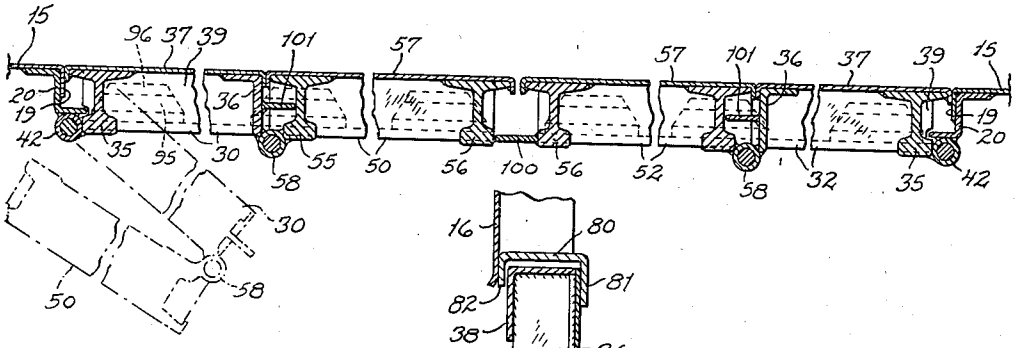


Fig. 2

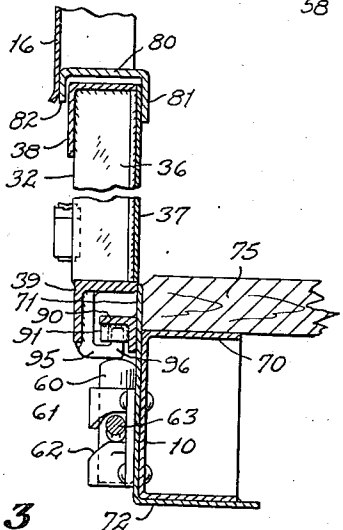


Fig. 3

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FREIGHT CONTAINER

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2 Claims. (Cl. 189—46)

This application is a division of our copending application, Serial No. 299,327 for a Freight container.

Systems of transferring freight embodying demountable containers which may be lifted or transferred horizontally with their loads from a highway truck to a railway car, and at the end of the rail haul placed on motor trucks, for delivery to destination, have been found very satisfactory in reducing the time and cost of transportation.

It is desirable that containers or bodies carrying package freight be comparatively large, so that less proportion of space is wasted in packing a container, and greater speed obtained in transferring the load from one vehicle to another. With such large bodies and heavy loads a troublesome factor is introduced by the doors, which should be wide and high to enable efficient loading and at the same time must be prevented from distortion by the impact of the contained loads against them.

Bodies of the desired length can be mounted on a truck only lengthwise thereof, and as end doors are necessary for highway trucking, since the truck must frequently be loaded or unloaded at the rear, it results that end doors must be present when the containers are mounted on a railway car, and such doors are especially susceptible to impact of the load due to the buffing and tugging stresses on the train.

The primary object of our invention is to provide a demountable body having a large door-opening associated with doors which are effectively braced against interior impact, and at the same time are not unduly heavy. A pair of doors, each composed of a plurality of panels hinged together, is preferable in enabling the wide doorway desired and enabling opening of the doors without undue lateral projection of the doors themselves.

Another object of our invention is to so construct the panelled doors that each panel makes a comparatively tight connection with the adjacent panel, or with the edge of the body, so as to prevent access of snow or water when the doors are closed.

Still another feature is to provide such inner surface of the doors that they shall be flush with the inner surface of the body in the sides of the doors, and the panels flush with each other, thus making a smooth interior.

The above and other features of our invention will be more apparent from the following description of a preferred embodiment thereof, illustrated in the drawing.

In the drawing, Fig. 1 is an end elevation of a freight container having our door construction; Fig. 2 is a horizontal section in the plane indicated by line 2—2 in Fig. 1, but on a larger scale than that figure; Fig. 3 is a vertical section on the plane indicated by the line 3—3 in Fig. 1.

Fig. 1 indicates, in end view, a container rectangular in plan having a floor frame 10, sides 11, a roof 12 of any suitable construction, and ends comprising narrow upright portions 15 connected to the sides, and a shallow top portion 16, thus providing a doorway only slightly smaller than the internal cross-section of the container. For handling by means of cranes or surface interchange the body may be provided with eave hooks 17 and with skid rails 18 at the bottom, which in this instance are shown as extending transversely of the container.

As shown in Fig. 2, the narrow upright fixed panels 15 of the ends are sheet metal plates reinforced at their inner edges by Z-bars 20. The plate 15 is shown as flanged around the corner onto the intermediate webs of the Z-bar, as shown at 19. The Z-bar and plate are effectively welded together and the plate and the pair of Z-bars welded below to the floor frame and above to the transverse member 16. The Z-bar 20 carries the hinges for the door, as about to be described.

We have shown at the end of the container two doors each composed of two panels hinged together, indicated respectively at 30, 32, 50 and 52. That is to say, the panels 30 and 32 are hinged to the Z-bar supports 20 of the container, and the panels 50 and 52 are hinged respectively to the panels 30 and 32.

Welded, or otherwise secured to the Z-bars 20, are sets of vertically aligned hinge eyes 40. Occupying these eyes are pintles 41, and embracing the pintles are intermediate hinge eyes 42, welded or otherwise secured to the adjacent door panels 30 and 32. The hinge pintle may be carried by either the extreme eyes 40 or the intermediate eyes 42.

Each door panel is made of upright edge rails (preferably rolled structure shapes) cross members at the top and bottom and a plate along their inner surfaces. We have shown, particularly in Fig. 2, the doors 30 and 32 as having vertical railroad rails 35 at the outer edge of the panels, and vertical angle bars 36 at the inner edges, and plates 37 along the inner face flanged at their edges abut the rails and angle bars and welded to them. At the top the panel has a plate 38 which is a vertical portion welded to the front of the T-rail and angle bar, and a horizontal portion extending over the tops of the rail and angle bar and welded to them, as shown in Fig. 3. At the bottom of the panel is a transverse angle bar 39.

The intermediate panels 50 and 52 are preferably made of two vertical railroad rails 55 and 56, an inner plate 57 flanged across the inner faces of the rails and welded to them, and top

and bottom members similar to those of the panels 30 and 32.

The panel 50 is hinged to the panel 30 and the panel 52 to the panel 32, by hinges with fixed pintles; that is to say, we provide an ear 58 which may be secured to one of the panels and be snugly embraced by ears 59 secured to the other panel and pintles carried by these ears. In other words, the panel 50 is hinged to the panel 30 and the panel 52 is hinged to the panel 32, each in a manner to allow swinging, but no independent vertical movement.

In our parent application referred to, we lock the closed doors by raising them in their own planes to cause them to engage suitable keepers at the top and bottom. When this feature is employed, we provide for the up-and-down movement by hinging the panels 30 and 32 to the container in a manner to allow both swinging and vertical movement. This is readily effected by making the ear 42 of the panel 32 materially shorter than the space between the two ears 40 on the container frame, and making the hinged pintle 41 loose in respect to either the ear 42 or the two ears 40.

To raise the closed doors in their own plane, our parent application provides two camming mechanisms carried by the floor frame and operating upwardly against the bottoms of the doors. That is to say, one of the raising mechanisms operates the panels 30 and 50 as a unit, and the other, the panels 32 and 52 as a unit.

The raising mechanism is illustrated in Figs. 1 and 3, where we have shown two vertical movable plungers 60, each mounted in a bracket 61 secured to the floor beam 10. This bracket has a helical slot 62 through which projects a lever 63 secured to the plunger. When the lever is at the bottom of the slot the doors are in their normal or lowered position ready for opening. When, however, the lever is swung to turn the plunger 180°, to bring the lever into position shown in Fig. 1, this causes the plunger to shove upwardly against the lower ends of the two panels of the door with which it is associated, thus raising that door as a unit.

The floor frame illustrated in Fig. 3 comprises at the end of the container a transverse channel beam 70 with its web vertical, and a plate welded to the channel beam and having a vertical portion 71, and a horizontal portion 72. The plate 71 extends above the top horizontal flange of the channel 70 and this provides a stop for the planking 75 of the floor.

When the doors are closed, the inner plates 37 and 57 thereof, and the horizontal flange of the angle beam 39 forming the bottom of the doors abut the outer face of the plate 71. At such time, the door stands directly beneath the open space in a downwardly facing channel beam 80 which is welded to the inner face of the cross-member 16 of the container. The inner leg 81 of this channel beam extends downwardly lower than the leg 82. Accordingly, when the door swings into closed position, it passes beneath the leg 82 and comes into abutting engagement with the leg 81. Now if the doors are raised in their own plane, the engagement with the plate 71 and the channel leg 81 is maintained, and also the door passes behind the channel leg 82 into the position shown in Fig. 3, and is thereby locked at the top.

To lock the doors at the bottom when they are raised, suitable keepers may be provided on the floor frame. As shown, these keepers comprise a long horizontal angle bar 90 welded to the floor plate 71, and stirrups 91 welded to both the horizontal and vertical flanges of the angle bar 90. Welded to the inner faces of the downward flange of the door bottom 39 are upwardly facing hook members 95. The free ends 96 of these members stand, when the doors are closed, beneath the space back of the stirrups 91 and in front of the vertical flanges of the angle bar 90. However, when the closed doors are raised, the hook portions 96 come behind the keepers 91, as shown in Fig. 3, thus locking the door at the bottom.

To make a tight connection between the various door panels when closed, we provide one of the rails at the edge of the panels 50 and 52, with a projecting strip 100 welded to the head of one of these rails and standing close to the head of the other when the doors are closed, and thus shielding the passageway between the meeting edges of the two panelled doors. Likewise, we may provide each of the outermost panels 30 and 32 with projecting strips 101, welded to the back of the angle bars 36, and thus forming a closure behind the hinges 58. The outer flanges of the Z-bars 20 project behind the rails 35 of the edgemost panels 30 and 32 to make a tight connection therewith, the bottom plate 39 of the door being notched to receive the Z-bar frame, as shown in Fig. 2.

When the doors are closed, a weather-tight connection is made by the construction described clear across the various panels of the door, and when the doors are raised, the connection is weather-tight at the top and bottom. It will be seen from Fig. 2 that the plates 37 and 57 along the inner faces of the doors, are flush with the vertical container plates 15 at the end of the body. Accordingly, a smooth, uninterrupted, substantially continuous wall is provided clear across the end of the body when the doors are closed.

The doors provided by this invention are very strong and stiff. They are not liable to be distorted or bowed outwardly, by impact of the load carried, even though such load shifts violently against the door during transportation. The doors are adapted to be readily raised into locking position, or lowered so as to be readily swung, if that feature is desired.

We claim:

1. The combination of a doorway, a door within the doorway composed of panels, the edgemost panels being hinged to the doorway and the intermediate panels hinged to the panels first mentioned, one of the panels having at its edge an upright rail with an enlarged head and the adjacent panel having at its edge an upright rail carrying a projecting strip extending behind the hinge connecting it with the other panel and behind said head when the door is closed.

2. A panelled door comprising one panel adapted to be hinged to a support, and a second panel hinged to the first mentioned panel, each panel being made of two vertical edge rails and a sheet extending across the inner faces of such rails, the adjacent rails of the two panels which are hinged together being a railroad rail on one panel and an angle bar on the other, and a projecting strip carried by the angle bar and adapted to project behind the head of the railroad rail.

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