E. W. TEST.

DETACHABLE ROOF.

APPLICATION FILED OCT. 22, 1919.

1,343,291.

Patented June 15, 1920.

2 SHEETS—SHEET 1.

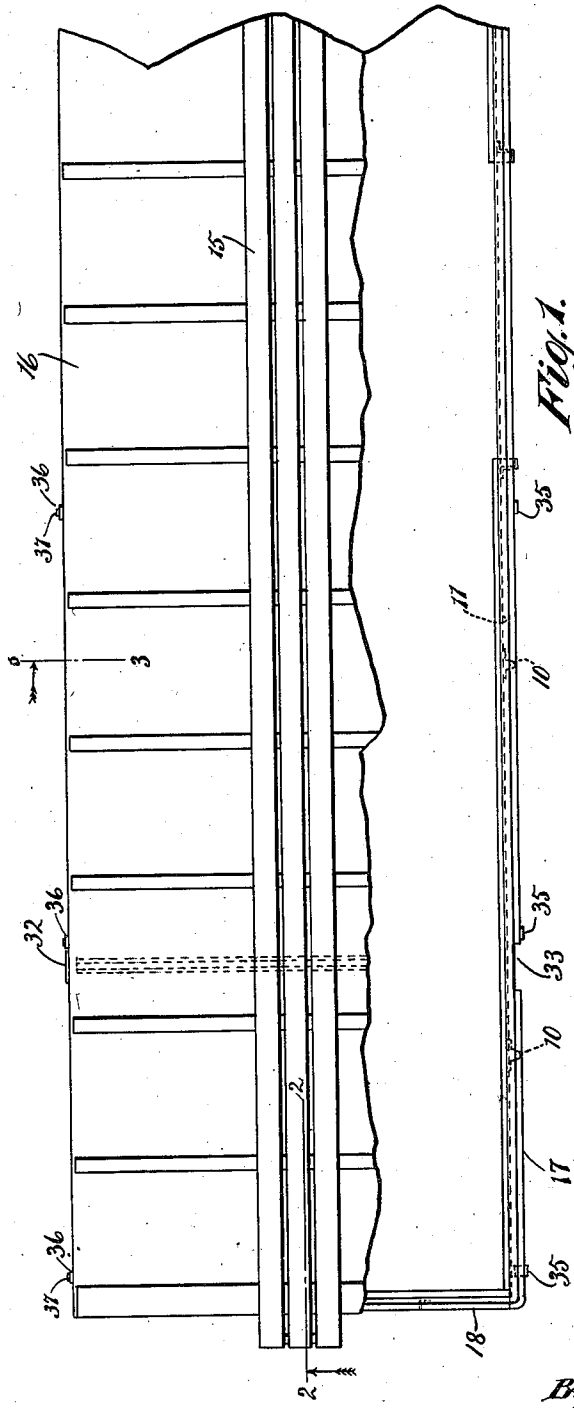


Fig. 1.

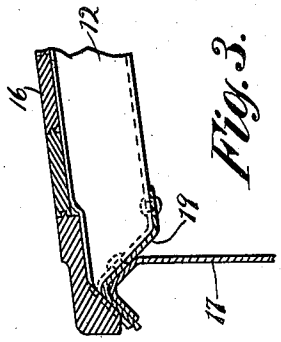


Fig. 3.

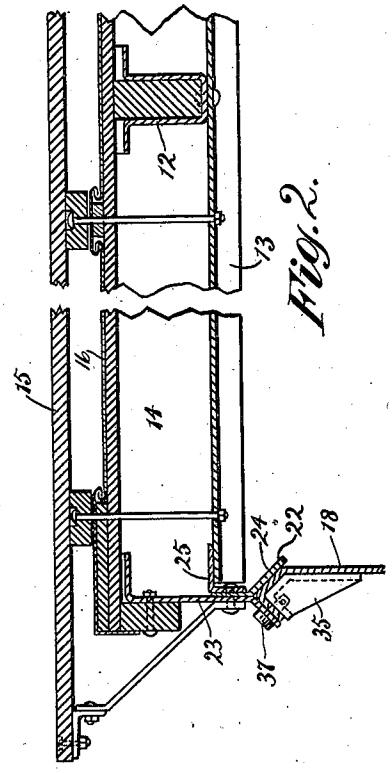


Fig. 2.

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2 SHEETS—SHEET 2.

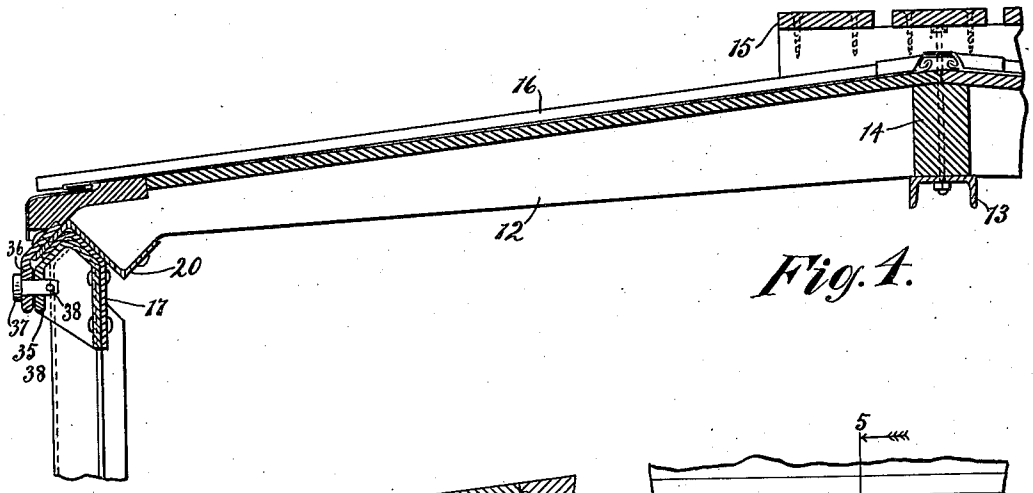


Fig. 4.

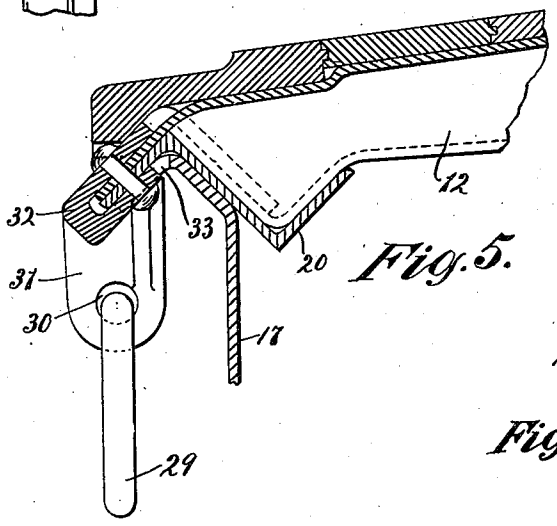


Fig. 5.

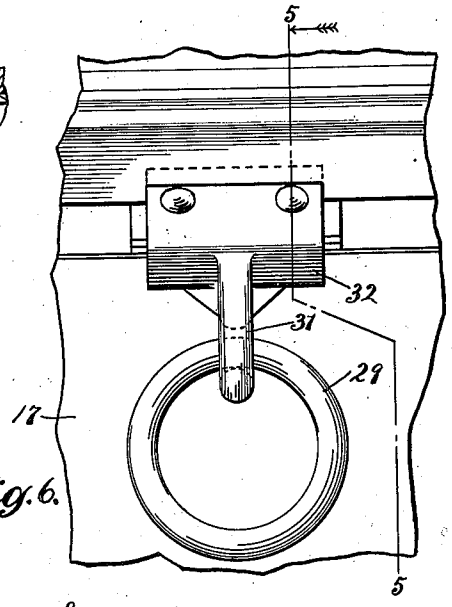


Fig. 6.

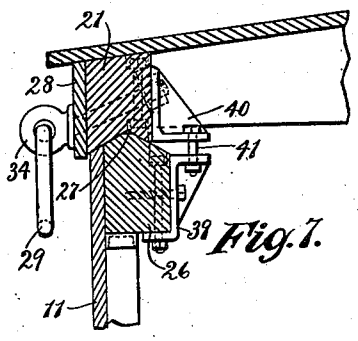


Fig. 7.

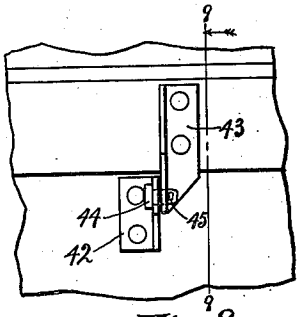


Fig. 8.

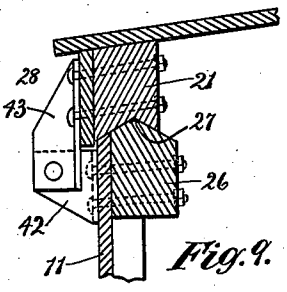


Fig. 9.

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UNITED STATES PATENT OFFICE.

ELLIS W. TEST, OF MICHIGAN CITY, INDIANA.

DETACHABLE ROOF.

1,343,291. Specification of Letters Patent. Patented June 15, 1920.

Application filed October 22, 1919. Serial No. 332,467.

To all whom it may concern:

Be it known that I, ELLIS W. TEST, a citizen of the United States, and resident of Michigan City, county of Laporte, and State of Indiana, have invented certain new and useful Improvements in Detachable Roofs, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

This invention relates to roofs of railway cars or other vehicles, and has for an object the provision of a roof that may be bodily removed from the vehicle.

According to the present practice railway box cars are loaded and unloaded through doors in their sides or ends. In practically all cases the doors are in the sides of the cars, since the ends are difficult of access. The result is a very awkward action of loading and unloading, especially at docks where the material must be moved laterally out of the car, then vertically to the ship's deck where it is to be lowered into the hold through hatches. Moreover, the length of an article that can be thus placed in a car is much less than the length of a car. If material can be lowered into or hoisted out of a car body by means of a crane substantially an entire carload of some commodities may be handled at a single operation.

It is an object of the present invention to remove some or all of these inconveniences and objections.

An illustrative embodiment of the invention is shown in the accompanying drawings, in which—

Figure 1 is a plan view of a car roof, partly broken away to show the body plates;

Figs. 2 and 3 are detail vertical sections on lines 2—2 and 3—3, respectively, of Fig. 1, drawn to an enlarged scale;

Fig. 4 is a vertical transverse section of substantially one-half of a modified form of car roof and a portion of one side of a car;

Fig. 5 is a detail section partly in elevation, the section taken on line 5—5 of Fig. 6;

Fig. 6 is a detail elevation of a lifting ring and its attachment;

Fig. 7 is a detail vertical section through a wooden plate showing one form of securing means to hold a roof in place on such a plate;

Fig. 8 is a detail elevation of a different form of means for holding a roof in place;

Fig. 9 is a detail section on line 9—9 of Fig. 8.

The car body chosen for purposes of illustration is shown as having posts 10 and sheathing 11 of usual construction. Also the roof illustrated has carlines 12, ridge pole 13, ridge pole fillers 14, running board 15, and covering 16, of usual types.

The principal modification of usual structures is found in the plates of which there are two complete sets, side body plates, as 17 and 26, and end body plates, as 18, and side roof plates, as 19, 20, 21, and end roof plates, as 22.

To exclude water most efficiently and to assist in bringing the roof plates to a bearing when placed thereon, all illustrated modifications of the body plates are shown as providing an upwardly projecting angular ridge and each form of roof plate shown is formed to fit over this ridge. In the modification of Fig. 3, the roof plate is shown as formed of pressed steel and as being of substantially a Z form, with the carline 12 shaped at its end to fit and be secured to the plate. The end roof plate 22 of Fig. 2 is shown as made up of two plates 23 and 24, riveted together, so as to provide two downwardly diverging portions to fit over the ridge of the end body plate 18. For connection of the ridge pole 13 and ridge pole filler 14 to the end roof plate, an angle is shown at 25 attached to the end roof plate.

In the modification of Fig. 4 the roof plate 20 is shown comprising a commercial Z-bar so placed that its web and outer flange shall make equal angles of 45° with a perpendicular and with a carline 12 having its end fitted to the members of the thus placed bar. An upper flange of the carline is shown as extended beyond the body of the carline and as bent over and secured to the outer flange of the Z-bar.

The modification of Figs. 7, 8 and 9 show details of the invention as it may be embodied in a wooden construction. Under these circumstances the body plate, indicated at 26, may be so formed as to present the upwardly directed angle, as at 27, for the same purposes as above set forth. The wooden roof plate 21 is shown as made of timber of the same dimensions as the body plate, and is shown as unsymmetrical, having a longer side at the outside of its channel than at the inner side whereby the out-

side of the roof plate may come substantially flush with the surface of the sheathing 11 of the car. When the plates are so arranged the fascia 28 may be made slightly wider than the face of the roof plate 21, and hence serve as an additional protection for the joint against the weather.

Provision is made for lifting the roof bodily by means of a crane. The lifting power might be applied to means secured to the ridge. However, since the roof structure is constructed normally to support its own weight when supported at its edges, it is preferred to apply the lifting stress at the same portion. For this purpose there are shown lifting rings, as 29. In the form illustrated in Figs. 5 and 6, the ring is shown as passed through an eye 30 in an ear 31 formed integral with a clip 32, which may be secured to the edge of the roof plate 20. To accommodate the clip 32 the flange of the body plate 17 is shown as cut away, as at 33. Provision for two lifting rings is shown on the half car represented in Fig. 1. In the form illustrated in Fig. 7, the ring 29 is shown as passed through an eye bolt 34 for application of the lifting power to the roof.

To prevent the accidental displacement of the roof by heavy winds or by jar of switching, an eye may be provided in a bracket, as 35, which is shown in Fig. 4 as secured to the body plate 17. A downwardly projecting ear, as 36, may be secured to the roof plate 20, having an eye adapted to register with the eye in bracket 35, and a pin, as 37, may be passed through the eyes. To seal the pin against unauthorized removal a perforation, as 38, is shown in the end thereof through which sealing or locking means may be passed.

To draw the roof forcibly to its seat, in case of an obstruction in the nature of a lump of foreign matter should become lodged on the plate, the end of the pin 37 may be given a taper which will act as a drift bolt when driven through the eyes, and hence wedge the roof down to place. Other well known clamping means might be utilized for the purpose.

A form of securing means is shown in Fig. 7 that is accessible only from the interior of the car, comprising a pair of brackets 39 and 40, having adjacent perforations through which a bolt, as 41, may be passed, when if the nut be tightened on the bolt the roof will be firmly pressed down upon the body plate 26. For a wooden construction a securing means accessible from the outside of the car is shown in Figs. 8 and 9, comprising a pair of angles 42 and 43, having registering eyes through which a pin, as 44, may be passed, a sealing perforation, as 45, being provided in the pin, if desired.

The invention provides a structure which makes possible the quick unloading of a car by power, and if the side doors be omitted, as they may, the car body will be stronger and practically inaccessible to thieves and tramps.

I claim as my invention—

1. In a railway car, in combination, a car body, a plate on said body having a ridge on its upper portion comprising downwardly sloping surfaces, a roof structure comprising a separate entity freely removable from said body and having a plate at its margin, said plate having downwardly diverging portions adapted to seat on each side of said ridge in contact with said surfaces.

2. In a railway car, in combination, a car body, a side plate on said body having a ridge and downwardly sloping surfaces flanking said ridge, a roof portion freely detachable from said body, a plate on said roof having upwardly and inwardly sloping surfaces complementary to said side plate surfaces, whereby said roof portion will tend to return to place if jarred therefrom.

3. In a railway car, in combination, a car body, side and end plates on said body, said plates having angular upper surfaces providing ridges, a car roof comprising a separate entity, side and end roof plates on said roof having downwardly facing surfaces complementary to those on said body plates and adapted to seat thereon.

4. In a railway car, in combination, a car body, plates on said body each having an upwardly directed angular ridge, a roof entity freely removable from said body, plates at margins of said roof structure comprising Z-bars having their webs inclined at on angle of substantially 45° to the vertical, said bars secured to the ends of the carlines of the roof and adapted to seat upon the body plates.

5. In a railway car, in combination, a car body, a plate on said body having a ridge on its upper portion, a roof structure comprising a separate entity freely removable from said body and having a plate at its margin, said plate having downwardly diverging portions adapted to seat on each side of said ridge, and wedging means to secure said roof to said body adapted to wedge said roof plate downward on to said ridge.

ELLIS W. TEST.