

F. WARD & J. C. HOLLINGSWORTH.
CAR DOOR.

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970,147.

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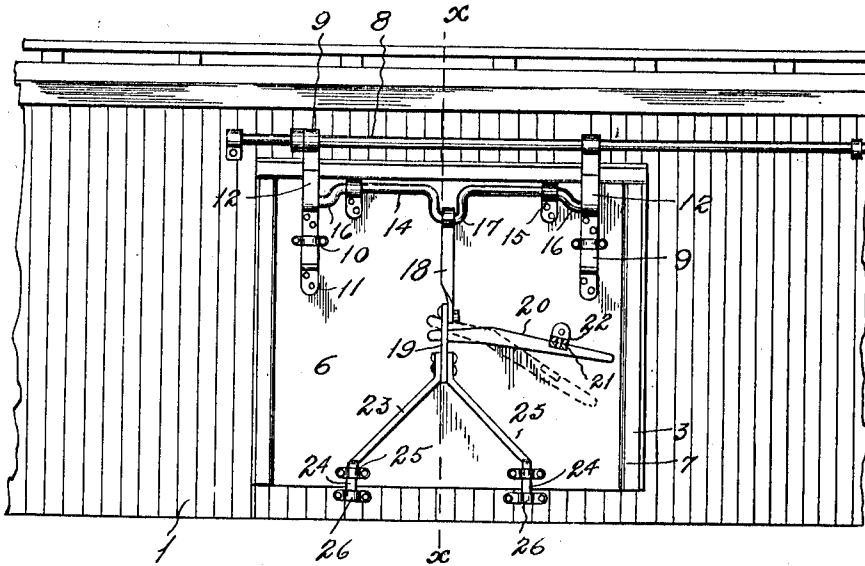


Fig. 1.

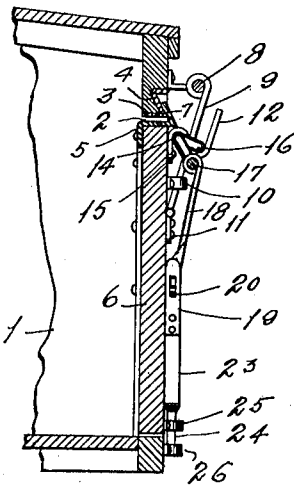


Fig. 2.

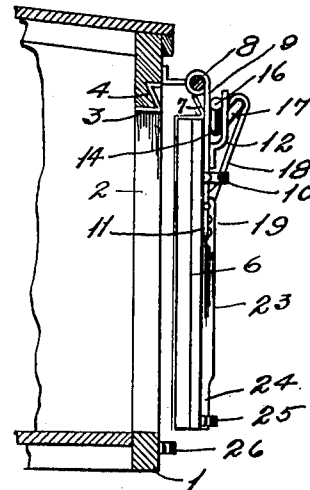


Fig. 3.

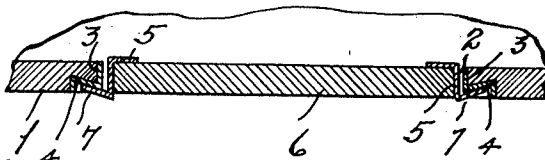


Fig. 4.

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UNITED STATES PATENT OFFICE.

FRANK WARD AND JOSEPH C. HOLLINGSWORTH, OF DALLAS, TEXAS.

CAR-DOOR.

970,147.

Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed October 28, 1909. Serial No. 525,203.

To all whom it may concern:

Be it known that we, FRANK WARD and JOSEPH C. HOLLINGSWORTH, citizens of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented certain new and useful Improvements in Car-Doors, of which the following is a specification.

This invention has relation to car doors.

The objects of the invention are the provision of coöperating locking and swinging means for the door; the provision of means whereby the usual water shed over the car door may be omitted; the provision of means for positively locking and sealing the door in the door-way; and the provision of a door construction which will not bind which often occurs where the door swells.

Finally the object of the invention is to provide means of the character described that will be strong, durable, efficient, and easy of operation, simple and comparatively inexpensive to construct, and also in which the several parts will not be likely to get out of working order.

With the above and other objects in view, the invention has relation to certain novel features of construction and operation, an example of which is described in this specification and illustrated in the accompanying drawings, wherein:

Figure 1. is a side elevation of a portion of a car showing our door in position thereon, Fig. 2. is a vertical section on the line *x-x* of Fig. 1 showing the door closed, Fig. 3. is a vertical section through the car showing the door open and in elevation, and Fig. 4. is a horizontal section through the door and a portion of the car, the fastening means being omitted.

In the drawings, the numeral 1, designates the side of an ordinary freight car and 2, the door-way. A thin metal casing 3 is fitted in the door-way covering the top and side edges. The casing is formed on its outer face with an inwardly inclined channel or pocket 4 fitted snugly into the body of the car so as not to project therefrom. A co-acting metal frame 5 is secured on the top and side edges of the door 6.

The door may be constructed of wood, metal or other suitable material and is made of such size as to provide a space between the frame 5 and the casing 3 thus allowing it to be easily swung into and out of the door-way. The frame 5 is provided with angu-

lar flanges 7 extending laterally and engaging in the inclined pockets 4 of the casing. It will be apparent that this construction makes the door weather-proof and provides an efficient closure.

Above the door-way, a track 8 extends longitudinally to one side and is suitably supported so as to project a short distance from the side of the car. Hangers 9 arranged to slide on the track, depend therefrom. The hangers near their lower ends extend through guard loops 10 secured on the upper portion of the door 6 near each end. At their extreme lower ends, the hangers are hinged to plates 11 secured on the door. On the face of each hanger a keeper 12 is secured just above the guard loop so as not to interfere therewith.

A horizontal crank shaft 14 is mounted in bearing brackets 15 near the upper edge of the door. These brackets are disposed in juxtaposition to the offset ends or cranks 16 of the shaft so as to prevent longitudinal displacement. The cranks 16 are normally directed outward and slightly downward to engage behind the keepers 12 and hold the door in its closed position as shown in Fig. 2. At the center the shaft is provided with a crank loop 17 which normally projects outward, and downward at a greater angle than the cranks 16 as shown also in Fig. 2.

A link 18 pivoted at its upper end to the crank 17 has pivoted connection at its lower end to a vertical slide bar 19 at the center portion of the door. This slide bar which lies substantially against the face of the door loosely receives the end of an operating lever 20 pivoted on the door and carrying a seal lug 21 adapted to engage an angular stop 22 secured on the door and limiting the upward movement of the lever. It is obvious that by passing the wire or band of the seal through the lug and stop, the car may be sealed. To each side of the lower end of the slide bar 19 an arm 23 is secured. These arms diverge and are formed at the lower ends with vertical plungers 24 passing through guide loops on the door near its lower end and entering keepers 26 secured on the side of the car. The lever being pivoted intermediate its ends and having one end in engagement with the slide bar and the other free, it is obvious that when the free end of the lever is swung up against the stop 22, the shaft 14 will be rocked downward and the plungers 24 driven into the

keepers 26 by the arms 23. When the free end of the lever is swung downward the shaft 14 is rocked upward and the plungers 24 withdrawn by the raising of the arms 23.

5 By observing Fig. 2 it will be noted that the track 8 is supported away from the side of the car door causing the hangers 9 to extend inward at an angle when the door is closed. Thus when the free end of the lever 10 20 is swung down to open the door and the shaft 14 rocked upward, the cranks 16 engaging with the hangers and swinging upward will draw the hangers and door together as shown in Fig. 3 thereby supporting the door in vertical alinement out of the door-way so that it may be freely moved on the track.

We wish to call particular attention to the easy movement obtained by using the crank shaft and end cranks 16. With this arrangement there is substantially no tendency of the parts to bind and there is very little friction such as would be present if the ends of the shaft were made to slide in slots 25 in the hangers. By this arrangement the door may be quickly opened and closed with very little effort on the part of the operator. It is also to be noted that the angular flanges 7 of the frame 5 are of a resilient nature 30 which permits the door to be swung into its closed position and at the same time provides a tight and water-proof joint. The door 6 being somewhat smaller than the door-way provides a space between the cas-

ing 3 and frame 5 so that even should the door swell it will not bind and may be easily opened.

What we claim is:

A car having a doorway, a metallic casing fitting in the doorway and comprising 40 an inwardly extending transverse portion closely engaging the transverse vertical sides of the doorway and a laterally extending channel portion embedded in the side of the car about the doorway, the bottom of the 45 channel inclining inward from the edge of the doorway, a flush door somewhat smaller than the casing and adapted to swing therein, and a metallic frame embracing the door and fitting the casing and comprising a 50 transverse portion engaging the ends and top of the door and a flange extending inward from the transverse portion and engaging in the channel of the casing and a flange extending oppositely to the channel 55 engaging flange and lying flat against the rear side of the door, there being a space between the casing and the frame whereby the door may expand.

In testimony whereof we have signed our 60 names to this specification in the presence of two subscribing witnesses.

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Witnesses:

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