

No. 649,810.

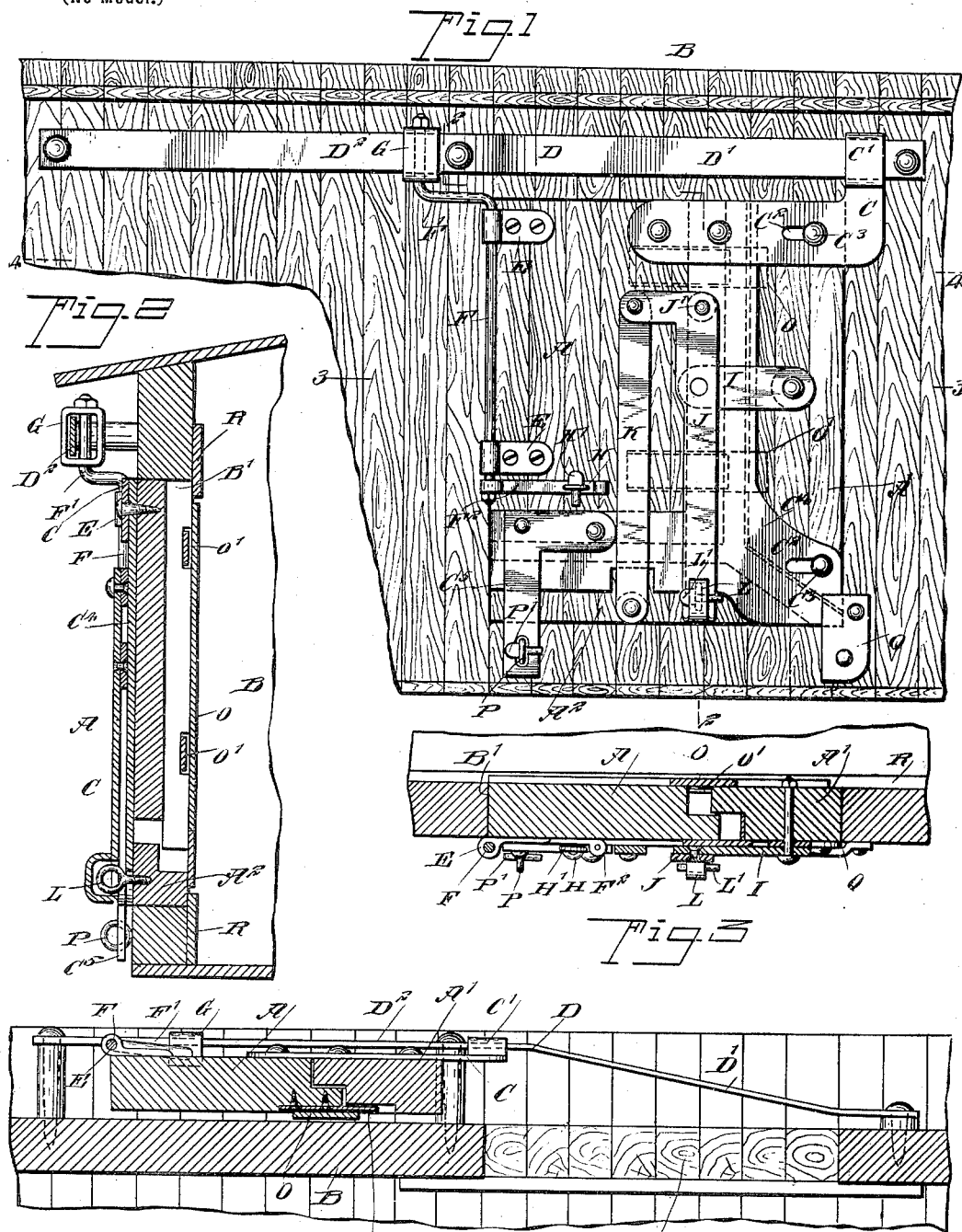
Patented May 15, 1900.

G. M. CARTER & A. W. DAVIDSON.

CAR DOOR.

(Application filed Feb. 6, 1900.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE MARION CARTER AND ALEXANDER WASHINGTON DAVIDSON,  
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## CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 649,810, dated May 15, 1900.

Application filed February 6, 1900. Serial No. 4,153. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE MARION CARTER and ALEXANDER WASHINGTON DAVIDSON, citizens of the United States, and residents of Poplar Bluff, in the county of Butler and State of Missouri, have invented certain new and useful Improvements in Car-Doors, of which the following is a full, clear, and exact description.

The invention relates to box freight-cars; and its object is to provide a new and improved car-door arranged to be flush with the side of the car when in a closed position and to render the car rain and dust proof at the door-opening and at the same time allow of conveniently opening and closing the car-door without requiring much physical exertion on the part of the operator.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement as applied and in a closed position. Fig. 2 is a transverse section of the same on the line 2 2 of Fig. 1. Fig. 3 is a sectional plan view of the same on the line 3 3 of Fig. 1, and Fig. 4 is an inverted sectional plan view of the same on the line 4 4 of Fig. 1.

The car-door A is adapted to fit into the opening in the side of a car B, so as to be flush with the outer face of the side of the car when the door is in a closed position, as illustrated in the drawings. On the right-hand side of the door A is secured a hanger C, having the usual bearing C' on the inclined end D' of the car-door-supporting rail D', secured to the side of the car at the upper portion thereof, as is plainly indicated in Figs. 1 and 2. On the left-hand side of the door A are secured bearings E, in which is mounted to turn a vertically-disposed crank-shaft F, provided at its upper end with a crank-arm F', engaging a slide G, mounted to move on the straight portion D<sup>2</sup> of the rail D. On the lower end of the crank-shaft F is secured a handle F<sup>2</sup>, adapted to engage an eyebolt H

on the car-door A, a locking-pin H' being arranged for insertion in the eyebolt in front of the handle F<sup>2</sup> to lock the latter in position at the time the door A is closed. When the door is in a closed position and the handle F<sup>2</sup> is unlocked and swung outward and the crank-shaft F is turned, then the crank-arm F' by turning in its bearing in the slide G imparts an outward motion to door A until the left-hand end is free from the wall of the door-opening B', so that the door can be slid to the left, the hanger C traveling on the inclined portion D' of the rail D, whereby the rear or right-hand side of the door is finally moved clear of the side of the car at the time the door has moved to the left of the door-opening. When it is desired to close the door-opening, the door A is moved to the right, whereby the hanger C gradually moves the right-hand end of the door A into the opening until the right-hand edge of the door abuts against the right-hand wall of the door-opening. When this position is reached, the left-hand end is moved transversely by the operator swinging the handle F<sup>2</sup> to the right upon the face of the door, so that the crank-arm F' swings the door A into a final closed position in the door-opening.

In order to render the door dust and rain proof, the right-hand side is provided with a movable member A', mounted to slide at its upper end longitudinally on the hanger C by providing the latter with a longitudinally-extending slot C<sup>2</sup>, engaged by a pin C<sup>3</sup>, carried by the member A'. The lower end of the member A' is mounted to slide in a similar means C<sup>2</sup> C<sup>3</sup> on a covering-plate C<sup>4</sup>, secured to the door and extending over the joint between the door and the movable member A', and also extending over a joint between a second movable member A<sup>2</sup> and the bottom of the door A. The member A' is connected by a link I with a bell-crank lever J, fulcrumed at J' on the plate C<sup>4</sup>, and a link K connects said bell-crank lever with the movable member A<sup>2</sup>. The lower end of the bell-crank lever J is adapted to engage an eyebolt L for receiving a pin L' in front of the lever J to lock the latter normally in position when the door is closed.

Previous to opening the door, as above ex-

plained, it is desirable to move the members A' A<sup>2</sup> inward and upward, respectively, and for this purpose the operator first unlocks the bell-crank lever J and then swings the same to the left, so that the link I draws the member A' inward and the link K pulls the member A<sup>2</sup> upward. By this arrangement the two members are moved out of firm contact with the corresponding side and bottom walls of the door-opening to allow an easy opening of the door A by manipulating the crank-shaft F, as above explained.

The members A' A<sup>2</sup> have groove-and-tongue connections with the corresponding side and bottom of the door A, and the outside joint between the members and the door is covered by the covering-plate C<sup>4</sup>, as previously mentioned, the inside joint being likewise covered by a separate strip O, secured to the door A, as indicated in Figs. 2 and 3. Longitudinal guides-plates O', secured to the door A, extend in the rear of the joint-covering strip O to project into cut-out guideways on the member A'. (See Figs. 1, 2, and 4.) An apertured tongue C<sup>5</sup> on the door A is adapted to be engaged by an eyebolt P for the reception of a pin P' for locking the door in place at the lower left-hand end when the door is closed. The right-hand lower corner of the door is adapted to fit under a keeper Q, secured to the side of the car. The inward movement of the door is limited by stops or beads R, secured to the inner face of the car around the door-opening. (See Fig. 2.)

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A door having one side and one end formed of movable members, and a lever and links connecting the lever with said members, to simultaneously move the same in the plane of the door in an inward or outward direction, substantially as shown and described.

2. A door having one side and one end formed of movable members, and a lever and links connecting the lever with said members, to simultaneously move the same in the plane of the door in an inward or outward direction, the said members having tongue-and-groove connections with the door, as set forth.

3. A door provided with slidable members, one at one side and the other at the end, a bell-crank lever pivoted to the door, a link

connecting the longer member of the lever with one of the movable members of the door, a second link connecting the shorter member of the lever with the other movable door member, and means for locking the lever, substantially as described.

4. A door provided with sliding members, one at one side and the other at the end of the door, the members having a tongue-and-groove connection with the door, a bell-crank lever, a link connecting the long member of the lever with the sliding member at the side of the door, and a long link connecting the short member of the lever with the sliding member at the end of the door, substantially as described.

5. In a car-door, the combination with the body of the door, of a transversely-extending and slotted hanger secured to the upper portion of the body of the door, and a slotted covering-plate secured to the door-body and extending vertically and transversely of the same, a sliding side member carrying pins working in the slots of the hanger and plate, a sliding end member, a lever, and links connecting the lever with the said sliding members, substantially as described.

6. A car-door provided with sliding members, one at one side and the other at the end of the door, a lever pivoted to the door, links pivoted to the lever and to the sliding door members, and means for locking the lever to the movable door member at the end of the door, substantially as described.

7. In a car-door, the combination with the supporting-rail having an inclined end, of a door having sliding members, one at one side and the other at the end, means for sliding said members, a crank-shaft mounted on the door and connected by its crank with a slide on the supporting-rail, and a hanger connected with the body of the door and the side member thereof and having a bearing to receive the supporting-rail, substantially as described.

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

GEORGE MARION CARTER.

ALEXANDER WASHINGTON DAVIDSON.

Witnesses:

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L. F. TROMLY.