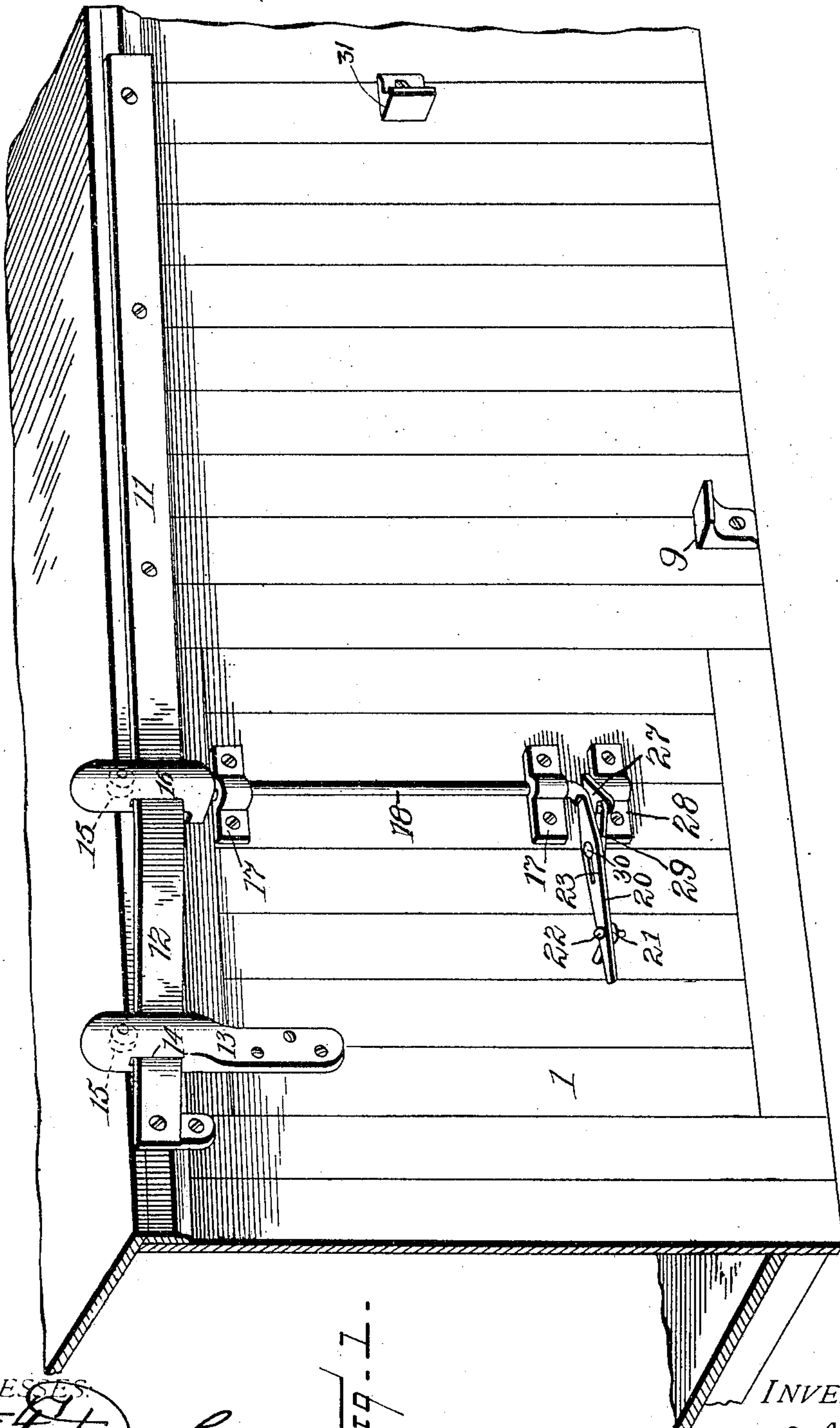


No. 781,756.

PATENTED FEB. 7, 1905.

J. L. YARNELL.
CAR DOOR FASTENER.
APPLICATION FILED APR. 25, 1904.

2 SHEETS—SHEET 1.



WITNESSES

Wm. F. Doyle.
E. R. Lusby.

INVENTOR

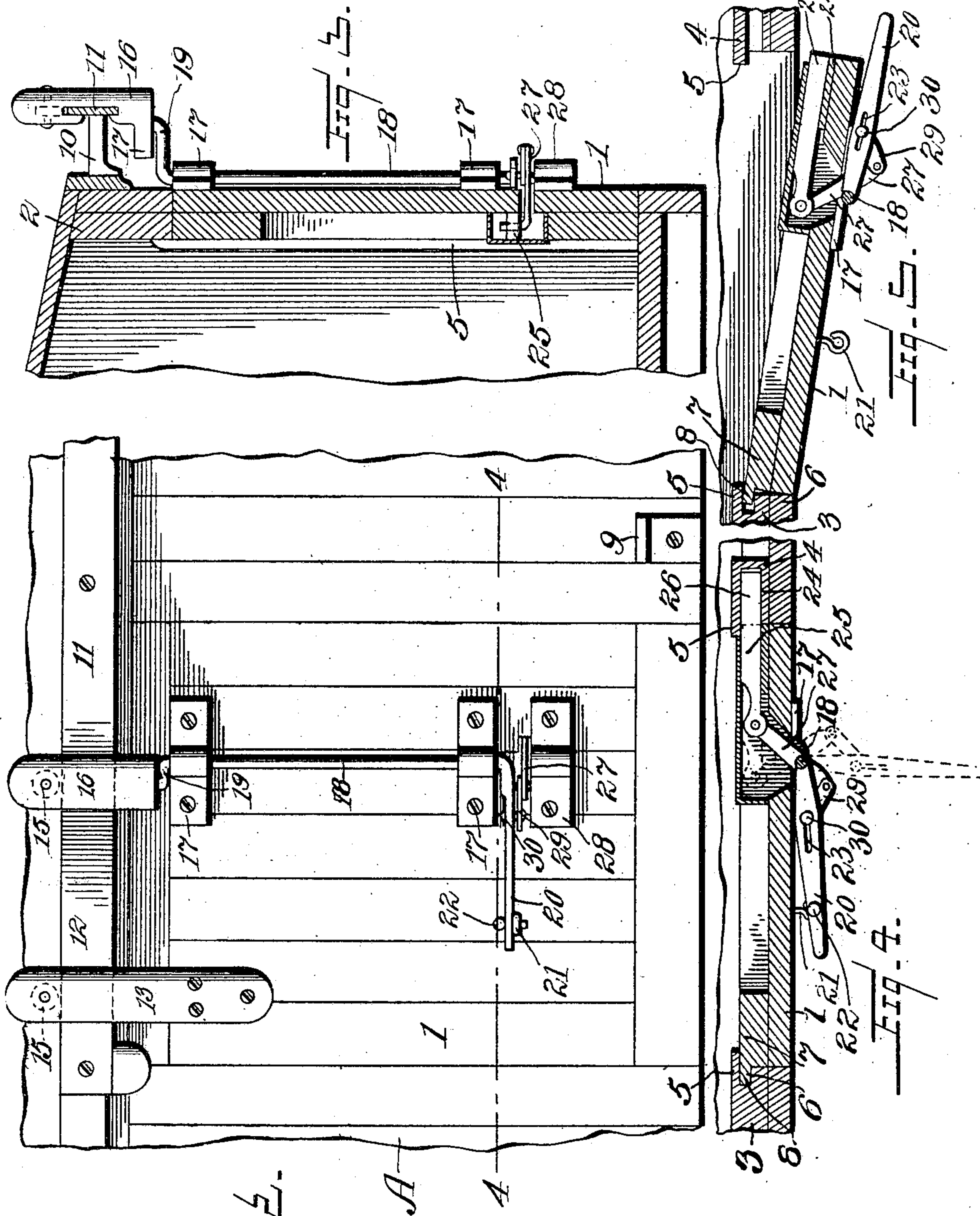
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2 SHEETS—SHEET 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JESSE L. YARNELL, OF ALTOONA, PENNSYLVANIA.

CAR-DOOR FASTENER.

SPECIFICATION forming part of Letters Patent No. 781,756, dated February 7, 1905.

Application filed April 25, 1904. Serial No. 204,791.

To all whom it may concern:

Be it known that I, JESSE L. YARNELL, a citizen of the United States, residing at Altoona, in the county of Blair and State of Pennsylvania, have invented new and useful Improvements in Car-Door Fasteners, of which the following is a specification.

My invention relates to improvements in car-door fasteners of that kind or style which is particularly adapted for attachment to slidable doors which when in closed position set flush with the face of the car-body and which when opened slide over and stand parallel with the closed wall of the car-body.

The mechanism comprises a sliding bolt, an actuating-lever, and means to hold the lever in locked position.

The invention consists in the novel construction of parts and their aggroupment in operative novel combinations, as will be fully hereinafter described and the asserted novelty particularly set forth and distinctly claimed.

I have fully and clearly illustrated the improvements in the annexed drawings to be taken as a part of this specification.

Reference being had to the drawings, Figure 1 is a side elevation of a portion of a car-body shown as having my improvements attached, the fastening-lever being indicated as locked in the fastening position. Fig. 2 is a side elevation showing the locking-lever as in the movement to carry the door out of its seat in the car-body and placing the door so that it can be slid back on the trolleys. Fig. 3 is a vertical sectional view through the door and wall of the car and side elevation of the complete fastener. Fig. 4 is a detail longitudinal section through the car-wall and the door, taken on the line 4 4 of Fig. 2 and showing the fastener in plan view and indicating the fastening-bolt as in locked position. Fig. 5 is a detail longitudinal section taken on the same line as that of Fig. 4 and showing the fastener as unlocked and the door as partly swung outward to be moved to open the opening in the car.

In the drawings the same parts appearing in different illustrations are designated by the same reference-notations.

Referring to the drawings, A designates a

car-body, which may be of any of the usual and approved constructions adapted for the transportation of freight. In the side of the car-body is made an entrance, as usual, which is closed by a door 1 fitted therein. The entrance has a top cross-piece 2 firmly secured to the inner face of the top rail thereof, and to the vertical side boards on the inside are secured cleats 3 4 to bring the door-face flush with the outer face of the car-wall. The cleats 3 4 are formed with inwardly-extended flanges 5, against which the door lodges when closed, and in the cleat 3 is formed a groove 6 to take in the flange made on the stile of the door and lock it fast at that end.

1 designates the door made up of vertical boards, as shown, which are secured to top and bottom rails and vertical side boards, which pieces constitute the frame of the door and bring its outer face flush with the outer face of the car-body, as indicated in the drawings. The vertical stud or board 7 of the door-frame is formed with a tongue 8, which engages in the groove 6 in the cleat 3 to hold the door fast by the engagement. Instead of the groove and flange the cleat 3 may have sockets made in it and the door be provided with studs to enter the sockets and hold the door in position at that end. At a proper place on the car-body face is secured a bracket 9, on which the lower edge of the door rides while being opened.

Adjacent to the upper end of the car-facing are secured a plurality of brackets 10, to the outer ends of which is secured a horizontal rail 11, on which the hangers ride. The main portion of this rail 11 lies parallel with the face of the car at such distance therefrom as to permit the free movement of the door when being opened and closed. The end portion 12 of the rail 11 is inclined inward toward the face of the car, so that the hanger occupying that portion of the rail when the door is being operated will draw the door outward and when being closed the hanger will push the door into the desired position. To the upper end of the door adjacent to the flanged side is secured a hanger 13, having a passage 14, in which the rail 11 is arranged, and in the hanger above the passage is journaled a roller 15, (see

the dotted lines,) which traverses the rail and rides thereon to support the door.

16 designates a hanger having a passage therethrough to receive the rail 11, on which the hanger rides, as indicated. This hanger 5 16 is provided with a roller 15, a duplicate of that arranged in the hanger 13.

Both hangers have their inner walls cut out, as indicated in Fig. 3, to afford for the passage of the hangers over the bracket-arms 10. 10 The hanger 16 is formed at its base with an inwardly-extending part 17, which is provided with a vertical bearing-aperture to take in the upper end of the crank-shaft hereinafter described. 15

To the face of the door are secured upper and lower strap-keepers 17, constituting bearings for the vertical crank-shaft 18. The upper keeper being located in alinement with the 20 upper edge of the door, as shown, serves as a support for the crank-shaft, the crank 19 of which rests on the keeper and is formed with a vertically - extending stud or projection, which engages loosely in the bearing-aperture of the inwardly - extending part 17 of 25 the hanger 16, substantially as shown. The lower portion of the shaft 18 is extended to form a lever 20, which is locked to a staple or eye 21, fixed in the face of the door. A fastening-pin 22 is one of the means which 30 may be used to secure the lever to the staple. The lever 20 is formed with a longitudinal slot 23, for the purpose hereinafter specified. In the cleat of the door-frame is made 35 a horizontal passage 24, wherein is slidingly disposed a locking-bolt 25, which engages in a bolt-socket 26, made in the cheek of the vertical upright of the door-entrance, as seen in Fig. 4 of the drawings. To the end of the 40 bolt is pivotally connected the one end of an actuating-lever 27, fulcrumed to a support 28, secured to the face of the car-door, as shown in the drawings. To the outer end of the lever 27 is pivotally connected one end of a link 45 29, the other end being provided with a stud 30, which slidingly engages in the slot 23 of the operating-lever 20. It will now be readily perceived that when the bolt is shoved home into the socket in the frame of the door-opening the bolt will remain locked as long as the 50 lever remains in the position seen in Fig. 4 of the drawings. When the purpose is to open the door, the lever is released from its holding appliances and is turned outward and away from the door on a horizontal plane 55 and the bolt is withdrawn by the movement and at the same time the rotation of the crank-shaft will lift the door from its seat in the opening, so as to escape the car-facing, and 60 then by applying force the door may be run out on the rail 11 until the desired position is reached. A buffer or stop-block 31 is secured to the face of the car, which limits the movement of the car-door in that direction. When 65 the bolt is in locked position, a pin may be

utilized to fasten it in position and the usual seal be secured in addition as a protective element. After the door has been opened and it is desired or required to return it to the closed position the lever is permitted to remain in the position assumed when in the unlocked condition and the door is pushed back 70 until the door reaches the opening and substantially alines therewith, when the lever 20 is reversed from the unlocked position to the locked position, which movement turns the 75 crank-shaft and pushes the door into the entrance and at the same time results in moving the bolt into locked position. It will be seen that the operating-lever lies in the locked position as well as in the unlocked position close 80 against the door, so as to be out of the way of passing cars.

Having thus described my invention what I claim is— 85

1. In combination with a car provided with an entrance, a door adapted to fit within the entrance, means for supporting the door, a crank-shaft to withdraw the door from the entrance, said crank-shaft being provided with 90 a slotted lever, a bolt adapted to retain the door within the entrance, a lever fulcrumed upon the door and having one end connected to said bolt, and a link connected to the free end of said lever and provided with a stud 95 arranged in said slot.

2. In combination with a car provided with an entrance, cleats provided with flanges, one of said cleats being provided with a groove and the other provided with a passage, a door 100 adapted to fit within the entrance and adapted to engage said flanges, said door being provided with a flange adapted to engage in the groove in said cleat, means for suspending the door, a crank-shaft to withdraw the door from 105 the entrance and provided with a lever, a bolt adapted to engage in the passage in said cleat, and means for connecting the bolt and said lever, whereby the bolt will be withdrawn simultaneously with the movement of the door 110 from the opening.

3. The combination with a car having an entrance wherein one stile is formed with a locking-groove and the other stile with a bolt-socket, of a door adapted to fit within the 115 entrance and formed with a flange to engage in the locking-groove, a rail secured to the car and having an inwardly-inclined portion at the flanged end of the door to carry the door inward at that side, a hanger secured to 120 the door and to travel on the rail, a second hanger mounted on the rail and formed with an inwardly-extending bearing-lug, a crank-bar secured to the door and having its upper end pivotally secured in the bearing-lug of 125 the second hanger and formed with a lever-arm at its lower end, a bolt slidably disposed in the door and engaging in the bolt-socket, a lever connected to the end of the bolt, and a link having one end connected to the said le- 130

ver and its other end adjustably connected to the lever on the end of the crank-bar.

4. In combination with a car provided with an entrance, cleats provided with inwardly-directed flanges, one of said cleats being provided with a groove and the other with a passage, a door adapted to fit within the entrance and abutting against said flanges, said door being provided with a flange adapted to engage in said groove, means for suspending the door, a crank-shaft having connection with said means and provided with a slotted lever, a bolt adapted to fit in the passage, a lever fulcrumed upon the door and having one end connected to the bolt, and a link secured to the free end of said lever and provided with a stud fitting within the slot of the lever of the crank-shaft.

5. In combination with a car provided with an entrance, a door, means for suspending said door, a crank-shaft having connection with

said means and adapted to remove the door from the entrance, said crank-shaft being provided with a lever, a bolt, and link connection between said bolt and the lever of the crank-shaft. 25

6. In combination with a car provided with an entrance, a door, means for suspending the door, a crank-shaft having connection with said means and adapted to remove the door from the entrance, said crank-shaft being provided with a lever, a bolt, a lever fulcrumed upon the door and having connection with the bolt, and a link connection between the lever of the crank-shaft and said last-named lever. 35

In testimony whereof I have hereunto set my hand in the presence of two attesting witnesses.

JESSE L. YARNELL.

Witnesses:

CHARLES GEESEY,
MARY C. McCORMAC.