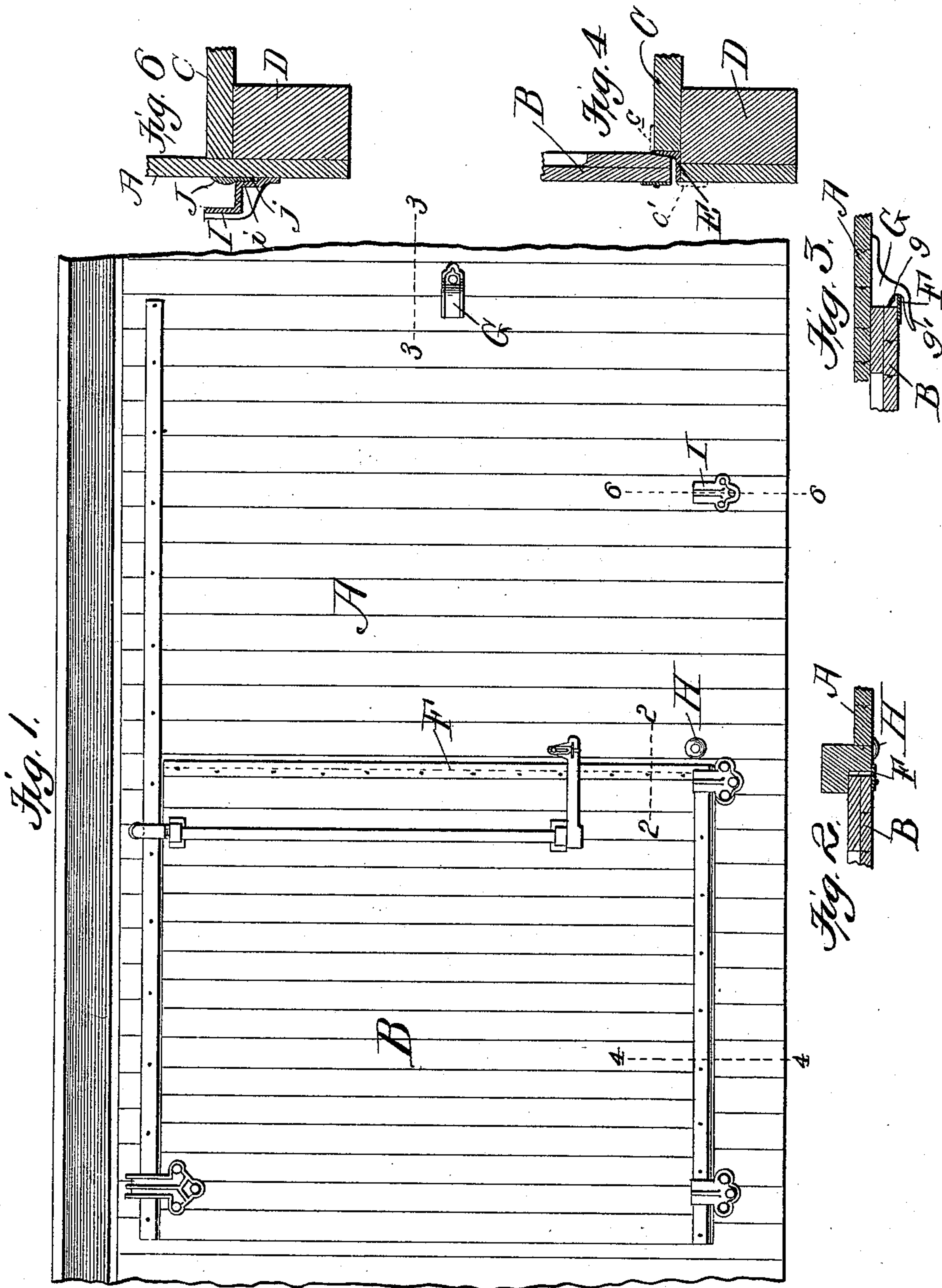


(No Model.)

E. S. MARSHALL.
CAR DOOR.

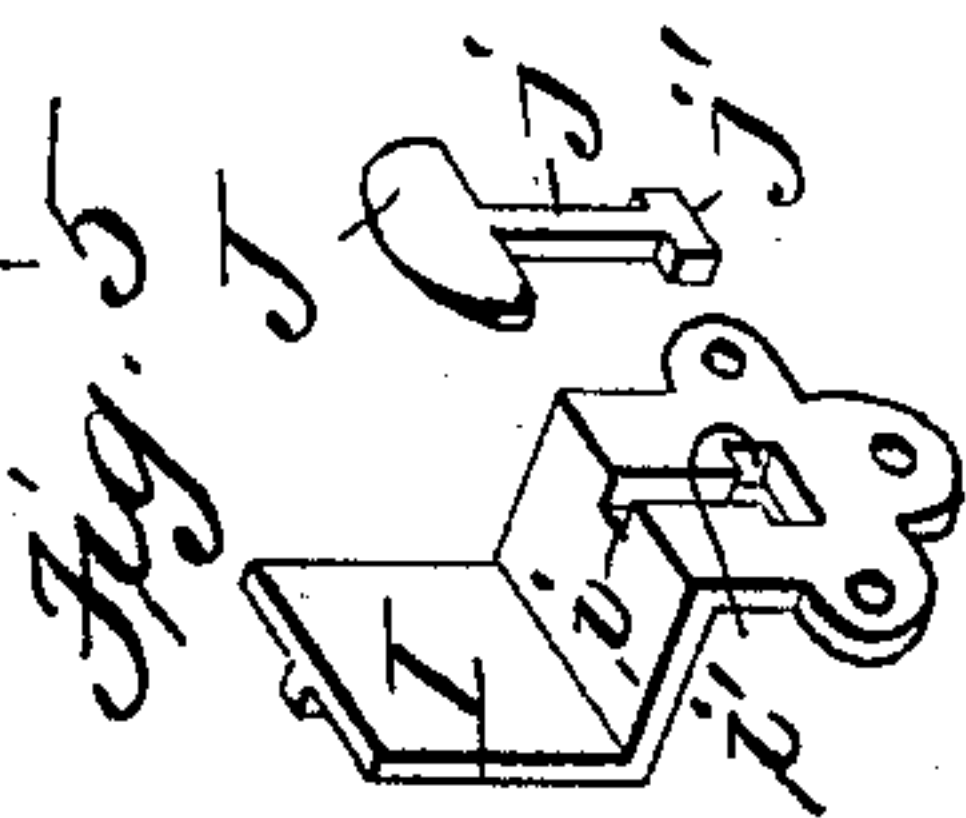
No. 601,665.

Patented Apr. 5, 1898.



WITNESSES:

G. A. Pennington
Wm. J. H. A.



INVENTOR
Edward S. Marshall
BY
Bakewell & Cornwall
ATTORNEYS

UNITED STATES PATENT OFFICE.

EDWARD S. MARSHALL, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE
MISSOURI RAILWAY EQUIPMENT COMPANY, OF SAME PLACE.

CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 601,665, dated April 5, 1898.

Application filed November 4, 1897. Serial No. 657,322. (No model.)

To all whom it may concern:

Be it known that I, EDWARD S. MARSHALL, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Car-Doors, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevational view of a portion of a car, showing my improved car-door in position. Fig. 2 is a detail sectional view on line 2 2, Fig. 1. Fig. 3 is a detail sectional view on line 3 3, Fig. 1. Fig. 4 is a detail sectional view on line 4 4, Fig. 1. Fig. 5 is a detail view of one of the bracket-guides and its rubbing-piece. Fig. 6 is a sectional view through said guide, said view being taken on line 6 6, Fig. 1.

This invention relates to a new and useful improvement in car-doors, being designed to be used particularly with the type of door illustrated in United States Letters Patent No. 575,257, granted January 12, 1897, to the American Railway Equipment Company, of East St. Louis, Illinois, assignee of myself.

The special features of this invention reside in the arrangement of an angle-iron against which the lower edge of the door coöperates, said angle-iron rendering the side wall, side sill, and floor-decking practically stormproof when the door is closed.

Another feature of invention resides in the arrangement of a strip on the rear edge of the door which coöperates with the rear door-post to seal the door at that point, and in the provision of a suitable stop which is attached to the side wall of the car to coöperate with the door and strip to hold said door in its open position.

Another feature resides in the provision of rubbing-pieces which are secured to the side wall of the car to hold the door in its opening and closing movements away from the side wall of the car to prevent the door from binding should the side wall of the car bulge out.

In the drawings I have shown means for opening and closing the door which is claimed

in the former patent to which I have referred, and therefore I do not claim the same here.

A indicates the side wall of the car, and B the car-door. This door is what is known as a "flush" door—that is, the front end of the track on which the door is suspended recedes toward the side wall of the car, thus forcing the front end of the car-door inwardly, while a crank-lever attached to the rear end of the door coöperates with the track, forcing the rear end of the door inwardly flush with the side wall of the car.

Heretofore it has been usually the practice to bevel off the lower edge of the door and force the same upon the chamfered edge of the decking or threshold. I have found by experiment that such an arrangement very often causes the door to bind, moreover, making it possible for water and other foreign particles to enter the car beneath the door. To prevent this, I have cut off the decking short of the outer edge of the side sill D, as shown in Fig. 4, thus saving the expense of chamfering the decking, and in order to prevent the water from entering the cracks or joints thus exposed and rotting the wood at this point I introduce an angle-iron E, which effectually seals all the cracks against the entrance of water and forms a vertical wall of some extent, against which the inner face of the lower edge of the door is forced. If desired, this angle-iron can be extended over the decking, as shown at c in Fig. 4, thus making a threshold-plate and stormproof-strip of one piece, or said iron can be extended down over the side wall of the car, as shown at c', to offer greater protection against the entrance of water.

The rear edge of the door is forced into the stop formed under the rear door-post, and in order to seal the same I have arranged a metallic strip F along the rear edge of the door, which coöperates with the outer face of the door-post. This strip, which is generally made of strap-iron, is liable to get hammered out of shape and battered up by the use of ordinary back-stops for the door, and in order to prevent the door from swinging outwardly when it is open and at the same time provide an effectual stop for the door I arrange a stop G, (shown in Fig. 3,) which stop is formed with

a pocket or recess *g*, and a gooseneck extension *g'*, which extends in front of the door and prevents the door from swinging out away from the side wall of the car.

5 H indicates a rubbing knob or projection arranged on the side wall of the car behind the door-opening and adjacent to the lower end thereof. The purpose of this knob is to throw the lower edge of the door away from
10 the side wall of the car, so that said door will move freely in its opening and closing movement and not bind should the side wall of the car be bulged out. This knob will coöperate with the lower batten on the inside of the
15 door, and by reason of the door being suspended from hangers it will be obvious that the middle portion of the door will clear the side wall of the car.

I indicates a guiding-bracket which is
20 formed with a groove *i* in its inner face, whose lower end terminates in a pocket *i'*. In this groove and pocket I secure a rubbing-knob J, which is formed with a shank *j*, fitting in the groove *i*, and a head *j'* on the lower end
25 of said shank, which fits into the pocket *i'*. When the shank and head of this rubbing-knob are in position in their coöperating groove and pocket, the bracket-guide will hold the rubbing-knob firmly in position against
30 the side wall of the car, thus requiring no individual attaching means for said knob. Bracket I and knob J are arranged intermediate the knob H and the bracket-stop G for the purpose of preventing the rear edge of the
35 door from rubbing the side wall of the car after said rear edge has passed the knob H.

I am aware that many minor changes in the construction, arrangement, and combination of the several parts of my improved car-
40 door can be made and substituted for those herein shown and described without in the least departing from the nature and principle of the invention.

Having thus described my invention, what
45 I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination with the side sill and side wall of a car, of the decking or flooring which is cut short of the outer edge of the
50 side sill, and an angle-iron for sealing the exposed cracks or joints; substantially as described.

2. The combination with the side wall A of

a car, the door B, side sill C, decking D, and an angle-iron E; substantially as described. 55

3. The herein-described stop-casting adapted to be attached to the side wall of a car, the same consisting of a body portion G formed with a recess *g* in its front side and a gooseneck extension *g'*; substantially as described. 60

4. The combination with the side wall A of a car, the door B, having a sealing-strip F on its rear outer end, and a back-stop G formed with a recess *g* for receiving the projecting edge of strip F, and an extension *g'* for extending over the door to prevent the same
65 from swinging out; substantially as described.

5. The combination with the side wall of a car, of a sliding door, and a rubbing knob or projection formed with a convexed face, which
70 knob is secured to the side wall of the car adjacent to the lower rear edge of the door-opening, for throwing the door away from the side wall of the car; substantially as described.

6. The combination with the side wall of a car, of a sliding door suspended by suitable hangers, a knob or projection H secured to the side wall of the car adjacent to the lower
75 rear edge of the door-opening, said knob being formed with a convexed outer face and coöperating with the batten on the lower inner edge of the door for throwing said door, in its opening and closing movement, away from the side wall of the car, so that said door will
80 not bind, should the side wall of the car be bulged; substantially as described. 85

7. The combination with the side wall of a car, of a sliding door, a rubbing knob or projection for holding the door away from the side wall of the car, and a guide-bracket for
90 securing said rubbing-knob to the side wall of the car; substantially as described.

8. The combination with the guide-bracket I formed with a groove *i* and a pocket *i'* in its inner face, of a rubbing-knob J, and a
95 headed shank *j j'*, extending from said knob and coöperating with the groove and pocket in the guide-bracket; substantially as described.

In testimony whereof I hereunto affix my
signature, in the presence of two witnesses,
this 28th day of October, 1897.

EDWARD S. MARSHALL.

Witnesses:

HUGH K. WAGNER,
F. R. CORNWALL.