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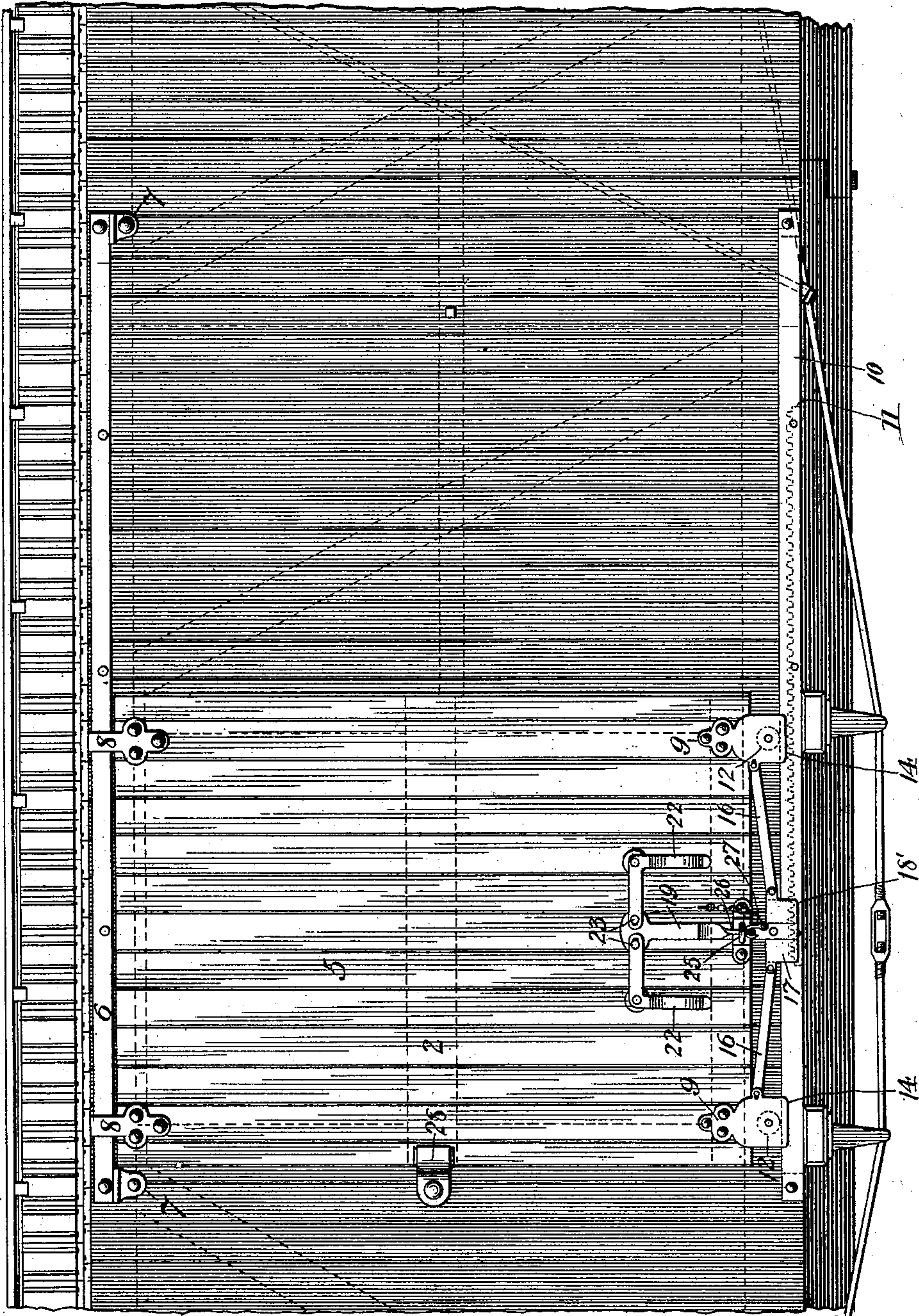
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W. O. DAVIES, Jr.
CAR DOOR FASTENING.

No. 603,362.

Patented May 3, 1898.

Fig. 1.



Witnesses:

Arthur S. Brown
Charles H. Johnson

Inventor:

W. O. Davies Jr.
By *J. C. Stebbins*
att'y

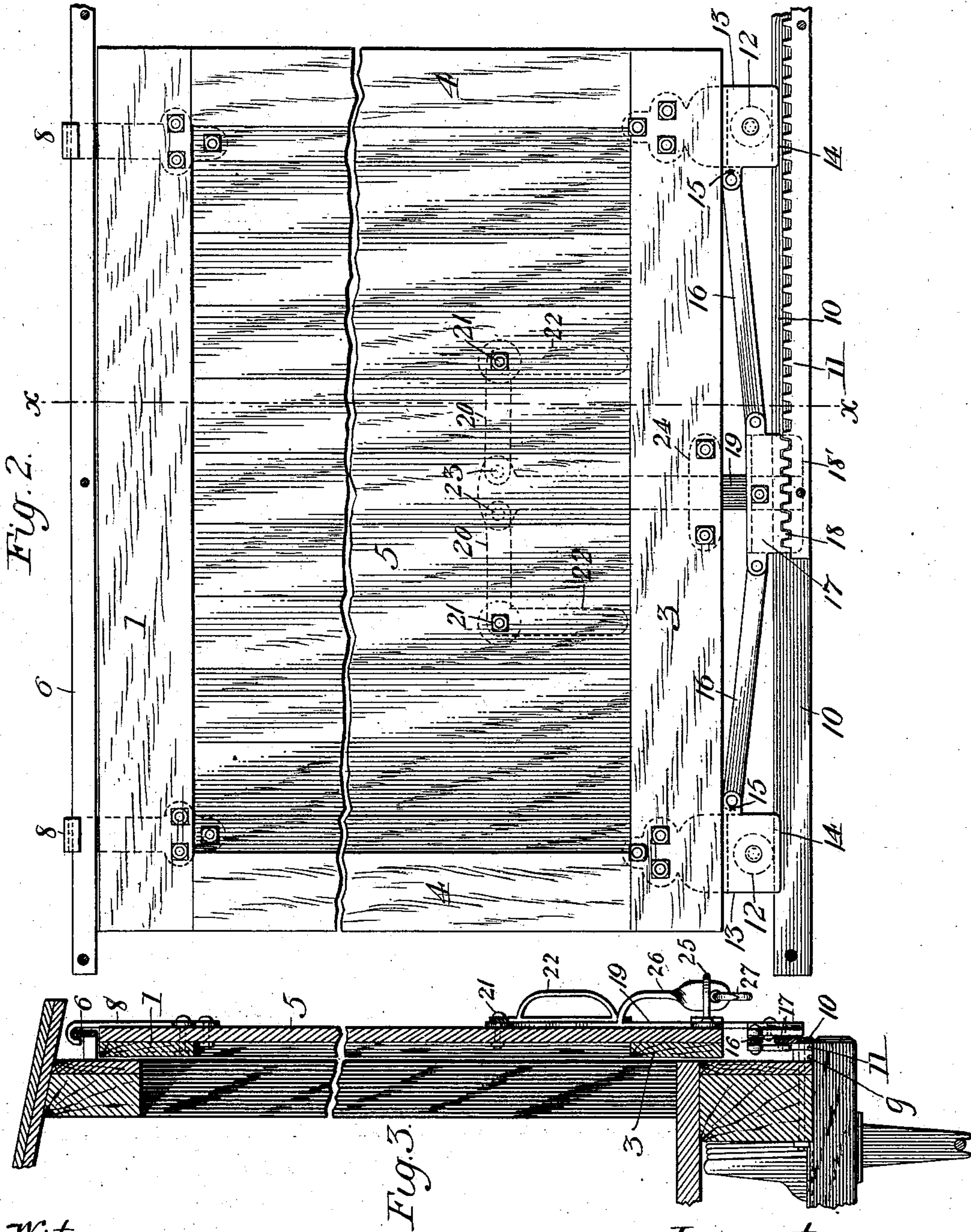
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Eugene W. Johnson

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UNITED STATES PATENT OFFICE.

WILLIAM O. DAVIES, JR., OF CHICAGO, ILLINOIS.

CAR-DOOR FASTENING.

SPECIFICATION forming part of Letters Patent No. 603,362, dated May 3, 1898.

Application filed June 18, 1897. Serial No. 641,334. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM O. DAVIES, Jr., a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Door Fastenings; and I do declare the following to be a full, clear, and exact description of the invention, 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, and to the figures of reference marked thereon, which form a part of this specification.

The object of my invention is the production of a car-door fastening which will be comparatively cheap in first cost, simple in construction, economical to maintain, easily manipulated, not liable to become inoperative, which can seal the door at any point or position on the track, and which will not allow the door to become detached and swing outwardly from the plane of the car-wall.

With these ends in view my invention consists in a car-door provided at the bottom with sheave plates or shoes and sheaves adapted to move upon a stationary track and at the top with guide-hangers fitting a guide-rail.

It further consists in the combination, with a door, of a ratchet-rail and ratchet-dog for locking the door in any desired position on the track.

Finally, it consists in certain novelties of construction and combinations of parts hereinafter specifically set forth.

The figures of the drawings illustrate an example of the physical embodiment of my invention and the one which I consider the best of the several modes I have thus far devised for the application of the principle thereof.

Figure 1 is a view in elevation of a part of a car side, showing my door in a closed position and locked and sealed by a hook. Fig. 2 is a reverse view of the door and the means for supporting and operating it detached from the body of the car, the middle part of the door being broken away. Fig. 3 shows a perpendicular section of the door, taken on line *xx* of Fig. 2, in combination with the car side, also shown in perpendicular section taken through the doorway or opening.

In the example the door is shown adapted to close the main side opening of a freight-car. The body of this car is of ordinary construction and need not be described. The door itself is made up of the top rail 1, middle or lock rail 2, bottom rail 3, stiles 4, and panels 5. Above the door-opening is located an upper horizontal guide-track 6, supported on brackets 7. Guide-hangers 8 of the shape shown are bolted to the upper edge of the door and hook over the upper guide-track, as clearly illustrated in Fig. 3. The guide-hangers are in frictional contact with the track, but do not under normal conditions support the weight of the door. Their function is to maintain the top of the door in proper position and guide it in its backward and forward movements. Below the door-opening is secured in the usual manner by brackets 9 and bolts a lower horizontal track 10. On the inner face of the track is located a ratchet-rail 11, held in proper position by the same bolts which fasten the track in place. The teeth of the rail are in the views on a line below the upper edge of the track. The teeth may, however, be integral with track 10.

The door is supported on the lower track by sheaves 12 12, journaled in shoes 13 13, which are bolted to the door and provided with edges 14 14, overlapping the track on both sides and which serve as guides and prevent the displacement of the door. Each shoe has slotted lugs 15 15 integral with the body of the shoes and to which are loosely pivoted bars 16 16. The opposite ends of the bars are pivoted to a cast-iron ratchet or locking dog 17, provided with teeth 18 to engage the ratchet-rail and with a downwardly-projecting lip 18', which serves to guide the dog and hold it in place on the lower track and rail. A reciprocating bar 19 is at its lower end bolted centrally to the dog and at the upper end loosely connected with rectangular lever-arms 20 20, each pivoted to the door at 21 21 and having handles 22 22. The ends of the lever-arms are slotted where they join the reciprocating bar 19 for the purpose of receiving the ends of the headed rivets 23 23, fixed in the bar.

To guide and to confine the bar in place and to provide means for locking it, a keeper-strap 24 is bolted over the bar adjacent the

outside lower edge of the door. This keeper-strap has a projecting staple 25, through which can pass the end of a perforated bar 26. This latter is integral with or rigidly
 5 secured to the reciprocating bar, projects about an inch therefrom, and is carried by the said reciprocating bar in its upward and downward movements. A hook 27 or other
 10 suitable means may be employed to hold or lock the bar and at the same time the dog upon the ratchet-rail. The door-stop 28, having an inclined face to force the edge of the door against the sheathing, may also be employed, if desired.

15 The *modus operandi* of the door is as follows: When it is desired to open the door, the hook 27 is withdrawn, the handle at the left moved toward the right, which action lifts the toothed dog out of engagement with the
 20 ratchet-rail, and then sufficient additional energy is imparted to the lever-arm as will move the door upon the sheaves. To return the door to a closed position, the handle at the right is grasped and operated as before
 25 described, but reversely.

It is obvious from the foregoing description that my combined car-door and fastening possess many desirable features and characteristics.

30 The lower track normally supports the entire weight of the door, the upper track serving merely as a guide in ordinary use, but holding the door against displacement should the lower track by accident become broken.

35 No weight rests on the ratchet-dog or ratchet-rail.

Being provided with guiding and confining means both at the top and bottom the door cannot become detached and fall upon the
 40 track.

Should the shoes become broken, the dog will prevent the lower part of the door from swinging outwardly and coming in contact with a passing train.

45 By respectively pushing or pulling on the handles the ratchet-dog is released and the door simultaneously opened or closed. The door is immediately locked by gravity as soon as the handle is released. It can be
 50 locked and sealed at any point on the track, thus providing for the ventilation of the car.

All the working part of the door are within easy reach by a man standing on the ground, which dispenses with the use of a step-ladder
 55 to reach the fastening means for sealing the doors.

In dispensing with the ordinary top roller-hanger a door-cap is also unnecessary.

By reason of the location of the operating
 60 means repairs can conveniently be made.

While I have shown but one example of the physical embodiment of my invention and that in combination with a side door for a freight-car, I do not consider such embodiment exhaustive of it, since the end openings
 65 of cars may likewise be provided with my improvement. Changes in construction may

also be introduced and equivalent elements substituted for those shown and my invention still be used. All colorable and formal
 70 changes I intend to embrace within the scope of my claims.

What I claim is—

1. The combination with a car having the upper and lower tracks of a sliding door; and
 75 locking means for said door consisting of the series of teeth in connection with the lower track, the dog 17 having teeth, the bar 19, the strap 24, and the rectangular levers 20, having handles 22; in substance as set forth. 80

2. The combination with the car, having upper and lower tracks, of a sliding door supported and guided by said tracks, the lower track being located directly beneath the lower edge of the door; shoes having edges 14 overlapping the lower track; and a reciprocating
 85 locking bar and dog on the door, said dog engaging teeth on the lower track and also overlapping the upper edge of the same when dropped, thereby preventing the displacement
 90 of the door; in substance as set forth.

3. The combination with a car and sliding door supported and guided by lower and upper tracks on the car, of a reciprocating locking bar and dog carried by the door; said
 95 lower track supporting teeth to be engaged by the dog, and said dog having a lip 18' which serves in connection with the teeth 18, when the dog is dropped, to prevent an outward displacement of the door; in substance as set
 100 forth.

4. The combination with a car and sliding door of locking means consisting of a series of teeth on the car; a reciprocating locking bar and dog on the door; and lever-arms 20
 105 having handles, said levers being pivoted to the bar 19 and to the door; in substance as set forth.

5. The combination with a car, having upper and lower tracks, of a sliding door supported on the lower track by sheaves journaled in shoes; a series of teeth on the car below the door; and a reciprocating locking
 110 bar and dog supported on the door and guided by a strap having a staple adapted to receive a perforated bar carried by the reciprocating bar; in substance as set forth. 115

6. The combination with a car, having upper and lower tracks, of a sliding door supported on the lower track by sheaves journaled in shoes; a series of teeth located on the inside of the lower track and out of the path of the shoes; a reciprocating locking bar and dog on the door; and bars, as 16, pivoted to the said shoes and dog; in substance as set
 120 125 forth.

7. The combination with a car-body having an upper guide-track and a lower track, of a sliding door located beneath the upper track and provided with hangers at the top edge
 130 thereof, said door supported on the lower track by sheaves journaled in shoes having edges 14 overlapping the said lower track on each side; a series of teeth on the car below

the door; a reciprocating locking bar and dog normally under the action of gravity engaging the teeth; and two levers each pivoted to the door and locking-bar; in substance as set forth.

5 8. The combination with a car-body having an upper guide-track and a lower track, of a sliding door located beneath the upper track, said door provided at its upper edge with
10 guide-hangers, as 8, loosely engaging the said upper track, and at its lower edge with shoes carrying sheaves which support the door on the lower track; a series of teeth on the car below the lower edge of the door; a reciprocating bar and dog actuated by gravity and
15 guided by a strap on the door; and a lever pivoted to the door and locking-bar for raising the latter and the dog; in substance as set forth.

20 9. The combination with a car-body having an upper guide-track and a lower track, of a

sliding door located in the same perpendicular plane as the upper track and beneath said track, said door provided at its top edge with
25 guide-hangers loosely engaging the upper track, and at its lower edge with shoes carrying sheaves which support the entire weight of the door on the lower track; a series of teeth on the car below the lower edge of the door; and a reciprocating locking bar and dog
30 carried by the said door and normally under the action of gravity engaging the teeth below the door and locking the same in any desired position on the lower track; in substance as set forth.

35 In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM O. DAVIES, JR.

Witnesses:

S. A. McDEARMON,
D. F. KEENEY.