

(No Model.)

S. SCHALLENBERGER.
SLIDING CAR DOOR.

No. 573,486.

Patented Dec. 22, 1896.

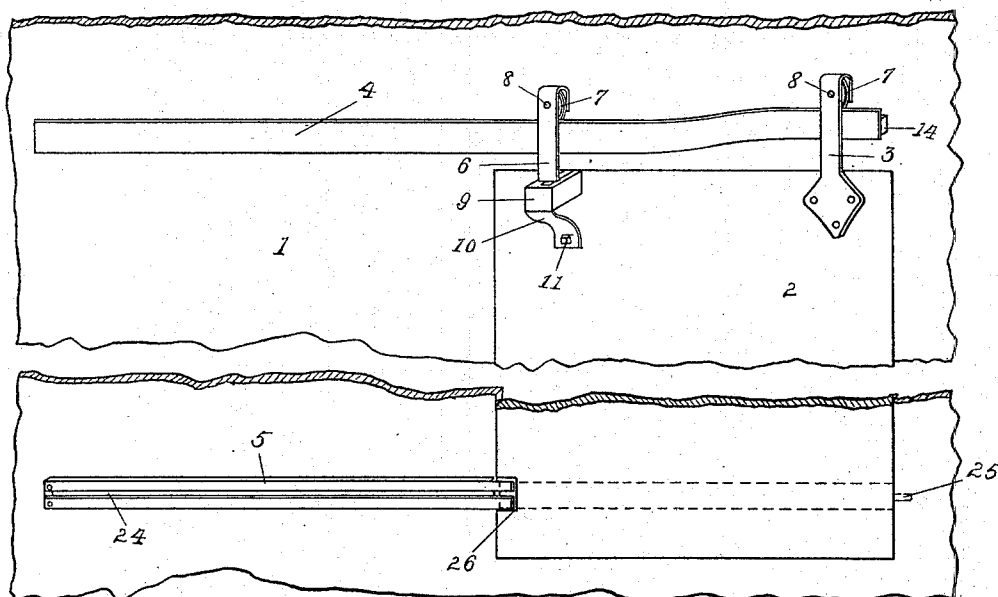


Fig. 1

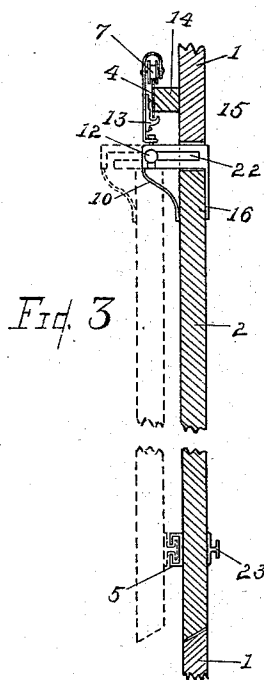


Fig. 3

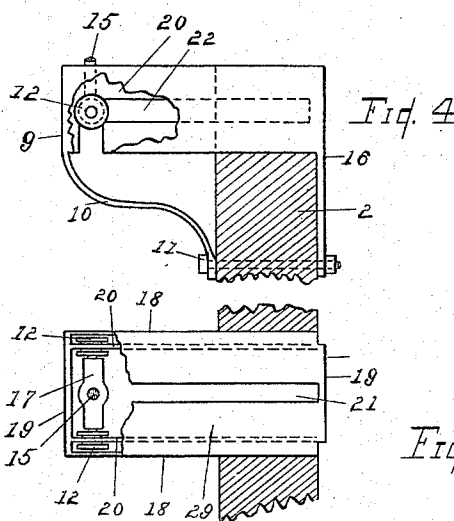


Fig. 2

WITNESSES:

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UNITED STATES PATENT OFFICE.

STEPHAN SCHALLENBERGER, OF FORT WAYNE, INDIANA.

SLIDING CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 573,486, dated December 22, 1896.

Application filed April 25, 1896. Serial No. 589,004. (No model.)

To all whom it may concern:

Be it known that I, STEPHAN SCHALLENBERGER, a citizen of the United States, residing at Fort Wayne, in the county of Allen, in the State of Indiana, have invented certain new and useful Improvements in Sliding Car-Doors; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in sliding car-doors which are suspended by hangers from a trolley-track, the main objects of my invention being to provide means, by the novel construction of an adjustable hanger mounted upon a switch trolley-track rail, that the outer face of the side of the car-door, when closed, will be flush with the outer face of the side of the car and when being opened that it can be drawn from the doorway and moved along the side of the car; also, an improved guide-rail for the lower end of the car-door to keep it in place when the door is either shut or open; and the invention consists in the construction and combination of the parts as hereinafter described and set forth in the following specification and claims.

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

Figure 1 is a perspective view of a section of the side of a car and the door when hung and closing the doorway of the car, broken in parts. Fig. 3 is a cross-sectional view of the door in position, showing in dotted lines the position of the door when opened and a side view of the hanger with the outer side wall of the lower part removed, also an end view of the guide-rail and track at the lower part of the door. Fig. 4 is a detail side view of the upper part of the door with the box inclosing the lower part of the adjustable hanger partly broken away to show the slots in the inner walls and the mounting the roller-carriers therein. Fig. 2 is a detailed view of the adjustable part of Fig. 4, also broken away in part to show the axle and the rollers mounted upon the same.

In the drawings, 1 represents the sides or wall of the car, and 2 the car-door suspended by means of the hangers and upon the trolley switch-track 4. This trolley-track is a flat iron rail secured above the door to the side of the car by bolts in the usual manner upon a strip of wood 14, taperingly curved toward the rear side of the doorway and inserted between the rail and the car to permit the movement of the hangers upon the rail without frictional contact with the side of the car.

The space between the rail and the car at the rear edge of the door is only sufficient to admit the free movement of the hanger, and as the rail extends to the right it projects forward, so that when the door is opened by sliding it alongside the car it is switched away from the side sufficiently to admit of its free movement along the outer wall of the car. The rail 4 is wider than the support 14, thereby forming flanges both above and below the support, as shown in Figs. 1 and 3.

3 is a metal hanger of ordinary construction, looped at its upper end and bolted to the right-hand side of the door with a carrier-wheel 7, rotatably suspended in the loop upon the bolt or rivet 8 and having its periphery grooved so as to embrace the upper edge of the rail 4 upon which it is mounted. The hanger 6 has also upon the upper or bracket part a grooved wheel 7, rotatably suspended upon the rivet 8 like the hanger 3 and adapted to roll upon the upper edge of the rail 4. Upon the inner side of the bracket of the hanger 6 is secured a recessed lug 13, so adapted as to loosely embrace the lower edge of the rail 4 and thus, with the grooved wheel 7, securing the hanger from displacement from the said rail 4. The lower end of this hanger-bracket is bent at right angles and perforated to receive the bolt 15, from which is suspended the adjustable part of the hanger hereinafter described.

9 is a rectangular box or housing having a slotted cover 29, sides 18 and 18, ends 19 and 19, and interior slotted partition-walls 20 20. This box has an integral flange 16 upon its rear end and an integral or rigidly-secured bracket 10 in front, and is let into a gain in the top of the door its full depth and is securely fastened in place by the bolt 11, passing through the lower end of the bracket

10, the door, and the flange 16, as shown in Fig. 4.

21 in Fig. 2 indicates the slot in the cover of the box 9, and 22 in Figs. 3 and 4 longitudinal slots in the partition-walls 20 20. The slots 22 are intersected at their forward ends by vertical downward slots, as shown in the drawings, which are adapted to admit the roller-carriers 12 12 when being placed in position.

Within box 9 is a transverse axle 17, which is secured to the lower end of the bolt 15, as shown in Fig. 3. Rotatably mounted upon the ends of this axle are the roller-carriers 12 12, having their peripheries grooved and adapted to freely roll in the slots 22 22, which are of less width than the outer disks of the wheels, thereby securing the wheels from lateral movement within the slots.

Upon the outer side of the car at a proper distance above the lower end of the doorway is secured the horizontal track-rail 5, parallel to the trolley-rail 4. The rail 5 has a central longitudinal recess 24, formed with lipped flanges upon the edges of the rail, and the recess is thereby adapted to receive a horizontal guide-rail 23, which is secured to the inside of the car-door and has a T-head adapted to loosely engage in said recess 24. The head of the T at the rear side of the door is prolonged, so as to enter into a mortise in the jamb of the doorway, (shown by the dotted lines 25 in Fig. 1.)

The amount of play given to the T-head will be determined by circumstances, but I find by making the stem of the T-rail about three-fourths of an inch deeper than the recess in rail 5 is amply sufficient. That construction leaves a space of three-fourths of an inch between the crown of the T and the inner side of the flanges upon the rail 23.

A gain 26 is made in the forward edge of the door about an inch in depth and wide enough to freely receive the end of the rail 5, which projects into this gain, but has its back part cut away the length of the gain, leaving the sides and front flanges intact. The rail 23 has its base also cut away the length of the gain. When the door is closed, the front edge can be readily pulled forward laterally until the crown of the rail 23 meets the lips or flanges of the rail 5. It can then be pushed along the side of the car, as the rails 23 and 5 readily engage and keep the car-door in proper position.

Any suitable stop-blocks can be placed at the forward end of the rails 4 and 5 to prevent the door from sliding so far as to be dismounted.

The operation of hanger and door-guide is as follows: The door being mounted upon the hangers in position fits into the doorway, so that the outer face is flush with the outer face of the car. The rear side of the door is securely fastened in place at the upper end by the rail 4 in the groove of the wheel 7 in the hanger 3 and at the lower end by the pro-

jection of the end of the guide-rail 23 in the door-casing 25, and the front side can be fastened by a lock or other suitable means. To open the door when it is unfastened at the front end, the door can be readily pulled outward. The adjustable hanger sliding freely upon the rollers 12 and 12 is brought out from the jamb and by the same movement the lower end is brought forward, so that the T-head of the guide-rail 23 is brought opposite the recess 24 in the track 5. The door can then be readily pushed along upon the trolley-rail and the lower guide without obstruction, and the hanger 3, following the curve of the trolley-track, is also brought forward and the whole door readily slides along the side of the car. The flanges of the trolley and the guide-rail secure the door so that it cannot be dis-

mounted. By this invention all bottom door-slides and crank-rods are dispensed with and there is a great economy in the weight of metal, the saving over that in an ordinary car-door and slide-rails being about one hundred and forty pounds, and the dirt will not lodge upon the side of the lower track and obstruct the movement.

My invention, it is evident, is applicable to stable and other sliding doors.

Having thus briefly described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An adjustable hanger for sliding car-doors, comprising an upper and lower part, having mounted thereon a grooved carrier-wheel adapted to ride upon the trolley switch-rail 4 and a recessed lug 13 integral with the hanger adapted to embrace the lower edge of said switch-rail, the lower part of said hanger constructed as shown, having the box 9 securely fastened to the upper edge of the car-door and having mounted therein the axle 17 and the roller-carriers 12, and the axle 17 being secured to the upper part of the hanger by the bolt 15 as shown in combination with the switch-rail 4 secured to the car above the door substantially as described and shown.

2. The combination of an adjustable hanger for sliding car-doors comprising an upper and lower part, the upper part having mounted thereon a grooved carrier-wheel adapted to ride upon the trolley switch-rail 4 and a recessed lug 13 integral with the said hanger adapted to embrace the lower edge of said switch-rail, the lower part of said hanger constructed as shown, having the box 9 securely fastened to the upper edge of the car-door and having mounted therein the axle 17 and the roller-carriers 12, and the axle 17 being secured to the upper part of the hanger-bolt 15 as shown, in combination with the switch-rail 4, the recessed track-rail 5 and the guide-rail 23 substantially as shown and described and for the purpose stated.

3. In a freight-car, the combination of a sliding car-door movable sidewise supported upon an overhead rail by a hanger 3, and the

adjustable hanger-bracket 6, comprising an upper and lower part, the upper part having mounted thereon a grooved carrier-wheel adapted to ride upon the said overhead rail
5 4, and a recessed lug 13 integral with the said hanger, adapted to embrace the lower edge of the switch-rail, the lower part of said hanger having the box 9 securely fastened to the car-door and having mounted therein the
10 axle 17 and the roller-carriers 12, and the axle 17 being secured to the upper part of the

hanger by the bolt 15 as shown in combination with the switch-rail 4, the recessed rail 5 and the guide-rail 23 substantially as shown and described.

Signed by me at Fort Wayne, Indiana,
April 21, 1896. 15

STEPHAN SCHALLENBERGER.

Witnesses:

JAMES H. POWER,
FLAVIUS J. YOUNG.