

(No Model.)

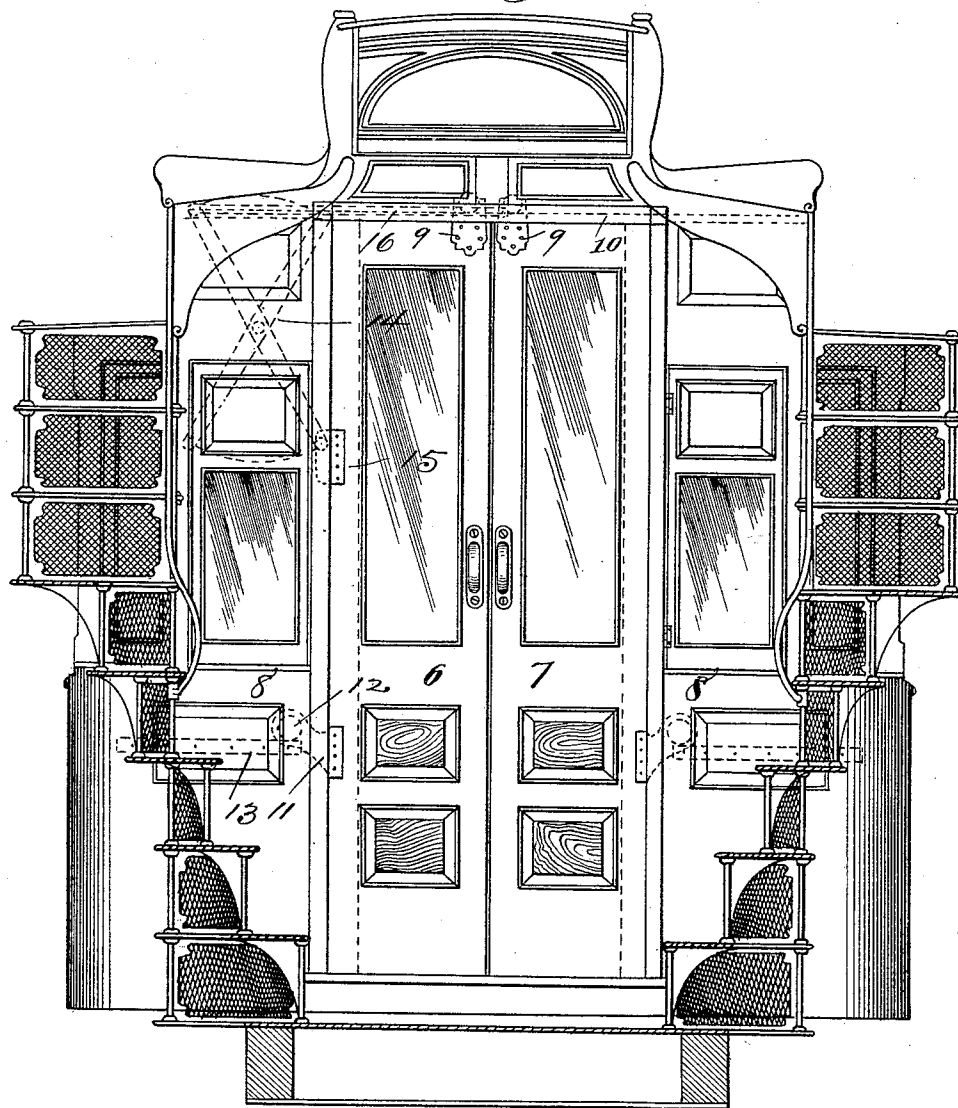
2 Sheets—Sheet 1.

A. RAPP.
DOOR OPENER.

No. 500,211.

Patented June 27, 1893.

Fig. 1.



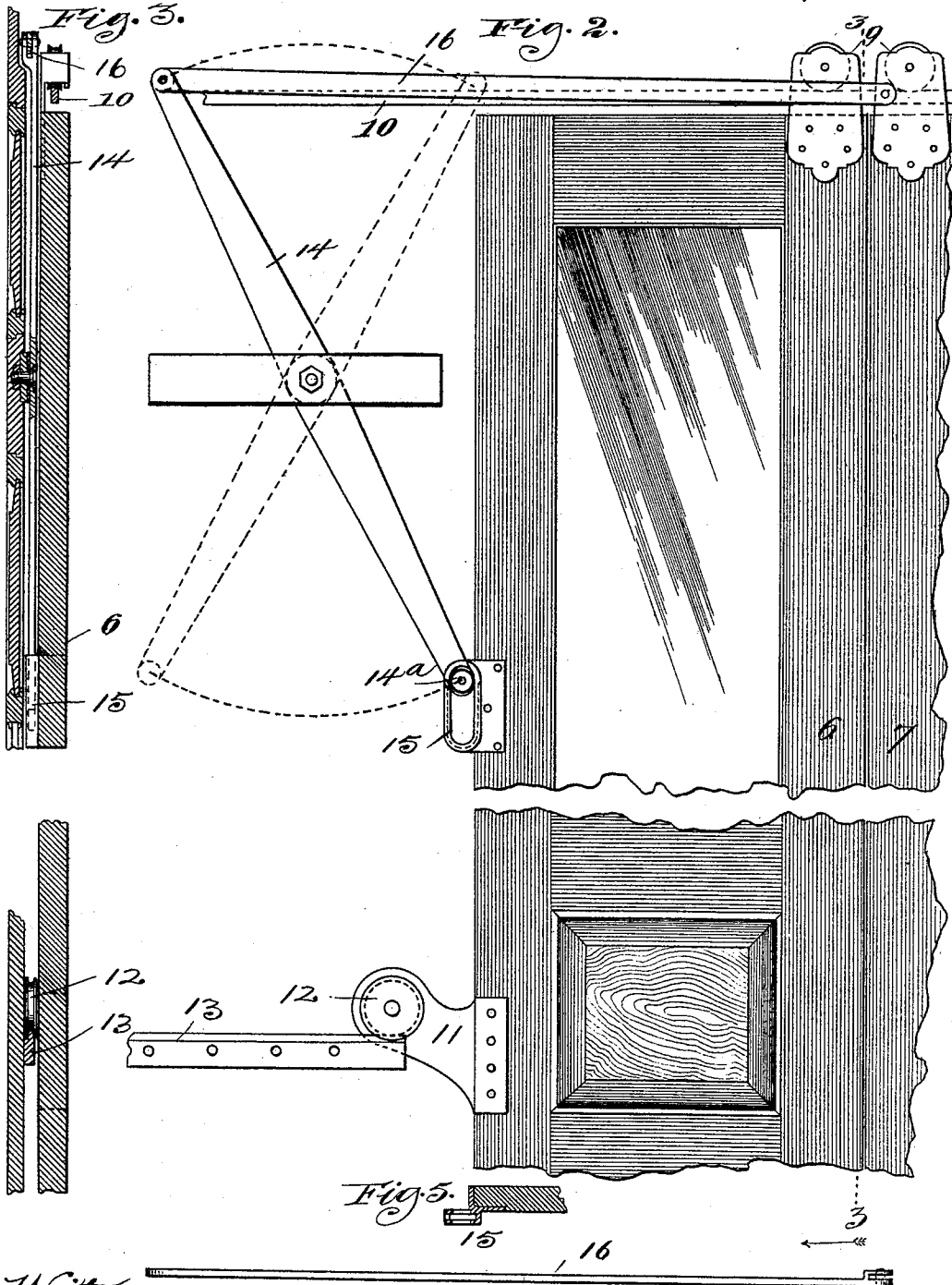
Witnesses,
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Inventor,
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Fig. 4. Inventor,
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UNITED STATES PATENT OFFICE.

AUGUST RAPP, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE PULLMAN'S PALACE CAR COMPANY, OF SAME PLACE.

DOOR-OPENER.

SPECIFICATION forming part of Letters Patent No. 500,211, dated June 27, 1893.

Application filed March 8, 1892. Serial No. 424,179. (No model.)

To all whom it may concern:

Be it known that I, AUGUST RAPP, a citizen of the United States, residing at Chicago, Illinois, have invented certain new and useful Improvements in Door-Openers, of which the following is a specification.

This invention relates to improvements in that class of devices which are used for opening and closing doors and particularly to that class of devices which are used for operating sliding or rolling doors.

The object of the invention is to provide a simple and efficient means whereby a door or pair of doors suspended from or supported on a track so as to roll or slide can be opened or closed at ease.

In the accompanying drawings, I have shown my invention applied to a pair of doors suspended by anti-friction door hangers of peculiar construction and adapted to be moved toward or from each other so as to control the door-way in a partition between the vestibule and the lower seating compartments of a double deck street car.

The means for operating the doors consist of a lever pivoted between its ends to one wall of the well in which the door passes. The lower end of said lever has a sliding or variable connection with the edge of one of the doors, while its upper end is pivotally connected with a second lever which extends along the over head track and has its opposite end pivotally connected to the second door. The vibration of the first named lever causes the reciprocation of the second and consequently the separation or approximation of the two doors. The moving force, of course, is most conveniently applied to one of the doors.

In the drawings, Figure 1 is an elevation of the inner end of a street car, the view being sectional through the vestibule. Fig. 2 is a broken elevation showing the doors closed, the dotted lines showing the position of the operating levers when the doors are opened. Fig. 3 is a broken sectional elevation on the line 3—3 of Fig. 2 and looking in the direction of the arrow. Fig. 4 is a detail view of the reciprocating operating lever; and Fig. 5 is a sectional detail of a slotted guide in which

the traveler carried by the vibrating lever moves.

In the drawings, 6 and 7 represent doors arranged to close the door-way in the end wall 8 of one compartment of a street car. These doors have at their upper inner corners the hangers 9, the traveling wheels of which run on the track rails 10. The outer edges of the doors are sustained by means of anti-friction hangers comprising the frame 11 secured to the edge of the door and an anti-friction roller 12 adapted to the track 13 secured to the wall of the door well. The doors are thus supported at both edges and toward the top and bottom, the bearings being in non-parallel horizontal planes, so that a line passing through both bearings would cross the door diagonally. The swinging of the door at either end is thereby prevented and the doors are steadied in their movements by this method of hanging them, thus insuring their free movement and without contact with the walls between which they move.

14 represents a lever which is pivoted between its ends to the car structure and has its lower end provided with an anti-friction roller 14^a which is adapted to travel in a slotted guide 15 affixed to the edge of the door 6, as clearly shown in Fig. 2 of the drawings. The upper end of the lever 14 is pivotally connected with a reciprocating lever 16 which extends across the top of the door 6 and is connected to the hanger of the door 7.

If force be applied to door 6 to open it, door 7 will be thrust back into its well by the movement of the vibrating lever 14 and the reciprocation of the horizontally arranged lever 16, which latter serves as a pitman both to pull and thrust said door.

If force be applied to the door 7 to open it, door 6 will be opened by the pull of the pitman and the vibration of the pivoted lever.

The devices shown and described occupy but small space; they are not likely to become disarranged or get out of order; they furnish a strong leverage for moving the door and can be applied without any change in the construction of the present form of sliding or hanging doors.

It is evident that the invention may be ap-

plied to the opening of a single door; for example, the door of an elevator, but the invention is best utilized in the form shown in the drawings where two comparatively narrow
5 doors are so arranged as to open by moving away from each other.

The same arrangement of levers may be applied to the bottom instead of the top of the door, but as the suggested arrangement would
10 require the cutting of the floor it is not so desirable a construction.

I claim—

1. The combination with a sliding or rolling door, of a door opener comprising a vibrating lever pivoted between its ends and having
15 one of its ends variably connected to the rear edge of the door, and an operating means connected with the opposite end of said lever, substantially as described.

2. A door opener, comprising in combination with a pair of doors movable to and from each other, a lever pivoted between its ends
20 and having a variable connection at one of its ends with the edge of one of the doors, and its other end pivotally connected to a reciprocating lever, the latter being connected to the
25 second door, substantially as described.

3. The combination with a pair of doors mounted upon anti-friction hangers, of a door
30 opener comprising a vibrating lever pivoted between its ends and having a variable connection with one of said doors, a reciprocating lever connected to the vibrating lever and to the other of said doors, substantially as described.

4. The combination with a pair of sliding doors, having anti-friction hangers applied to the upper ends of their meeting edges and similar hangers applied to their outer edges toward
35 their lower ends, a slotted guide secured to the rear edge of one of said doors, a vibrating lever having an anti-friction traveler adapted to move in said slotted guide, and a reciprocating lever pivotally connected to the upper
40 end of said vibrating lever and to the other of said doors, substantially as described.

5. The combination with a pair of sliding doors, having anti-friction hangers applied to the upper ends of their meeting edges and similar hangers applied to their outer edges toward
45 their lower ends, a slotted guide secured to the rear edge of one of said doors, a vibrating lever having an anti-friction traveler adapted to move in said slotted guide, and a reciprocating lever pivotally connected to the upper end of said vibrating lever and to the other of said doors, substantially as described.

AUGUST RAPP.

Witnesses:

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