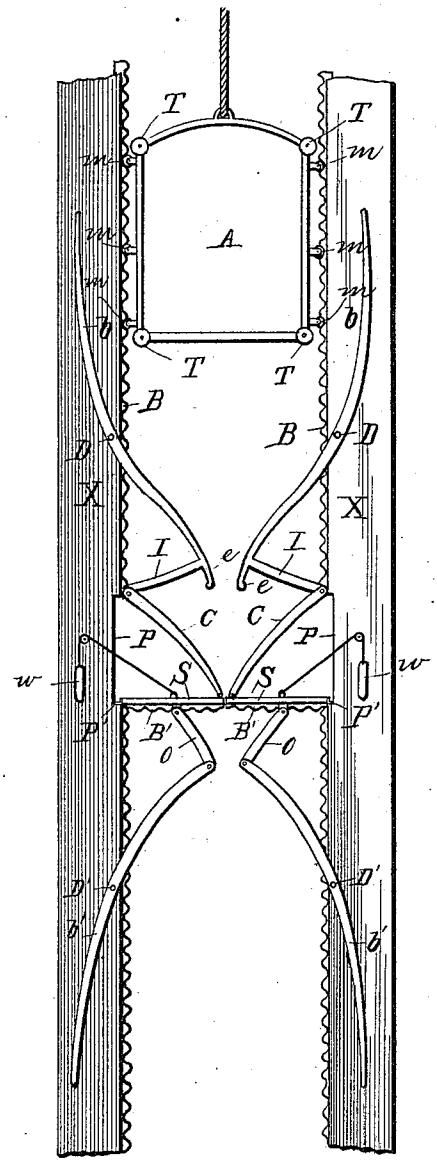
(No Model.)

D. HUMPHREYS.

SELF OPENING AND SELF CLOSING HATCHWAY.

No. 291,737. Patented Jan. 8, 1884.



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UNITED STATES PATENT OFFICE.

DAVID HUMPHREYS, OF NORFOLK, VIRGINIA.

SELF-OPENING AND SELF-CLOSING HATCHWAY.

SPECIFICATION forming part of Letters Patent No. 291,737, dated January 8, 1884.

Application filed November 7, 1883. (No model.)

To all whom it may concern:

Be it known that I, D. HUMPHREYS, a citizen of the United States, residing at Norfolk, in the county of Norfolk and State of Virginia, have invented certain new and useful Improvements in Elevators; 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 drawing, and to letters or figures of reference marked thereon, which form a part of this specification.

The figure of the drawing is a representation of a side elevation of the elevator.

This invention has relation to elevators; and it consists in the construction and novel arrangement of devices, as will be hereinafter fully described, and particularly pointed out in the claims appended.

Referring by letter to the accompanying drawing, X X designate the uprights, having the sectional racks or notched track-rails B B. These uprights X X are recessed in their inner faces above the floor-levels of the elevator-well at P, to receive the sectional doors S S when the latter are turned up to permit the ascent or descent of the car A. The under faces of the doors S S are provided with notched track-sections B' B', that meet the rails B B when the doors S S are turned up, and make the track continuous when the well is open. Levers *b b*, curved as shown, are fulcrumed to the uprights X X at D D, and are connected at their lower ends by rigid arms I I to the sectional doors S S by arms *c c*, hinged to the arms I I, and to the doors near their meeting edges on their upper faces. The doors S S are hinged to the floors P' P' by strap-hinges at the bases of the recesses P P, so that when turned up they will enter the recesses.

Below the sectional doors S S are fulcrumed the levers *b' b'*, their fulcral points being at D' D' on the uprights X X. These levers are also curved, as shown, and are connected to the under faces of the sectional doors S S at about the middle of their width by short arms *o o*, hinged to their upper ends and to the under faces of the doors. The lower ends of the upper levers, *b b*, have projections or ribs *e e*, which catch the edges of the doors S S as they rise, and hold them in their grasp until they descend in closing. Three grooved wheels, *m m m*, are used on each side of the car to travel the notched trackway to prevent jarring when the car passes the sections secured to the under faces of the doors S S. The upper and lower corners of the car A are provided with drum-rollers T T, which strike the lever *b b* and *b' b'*, when the car ascends and descends, to operate the levers, and thereby open and close the doors to permit the car to pass and repass. Thus the elevator-well is closed, except while the car is actually passing the floor, and the danger from draft in the case of fire is obviated.

The device is exceedingly simple, inexpensive, easily constructed, and is not liable to get out of order, while at the same time it makes a complete automatic opening and closing hatchway for elevator-wells.

To make the doors move readily at the slightest touch of the levers, weights *w w* are attached by cords to the upper side of each door to nearly balance the weight of the doors; but these weights are only required with very heavy doors.

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

1. In an elevator-way, the combination, with the uprights provided with sectional tracks, of the hinged doors provided with track-sections on their under faces adapted to join the track-sections on the uprights when the doors are opened, and levers connected with the doors and fulcrumed to the uprights, whereby the doors may be automatically closed by the ascent and descent of the car, substantially as specified.

2. In an elevator, the combination, with the uprights having the sectional notch-track and the hinged doors having track-sections on their under faces, of the upper levers fulcrumed to the uprights above the doors, provided at their lower ends with rigid outwardly-extending arms connected by inwardly-extending arms hinged to the rigid arms and to the upper faces of the hinged doors, substantially as specified.

3. In an elevator, the combination, with the uprights having the sectional notched tracks, and the hinged doors in the elevator-well, provided with the notched track-sections on their under faces, of the lower levers fulcrumed to the uprights and connected at their upper ends by hinged arms connected by hinges to the under faces of the hinged doors, substantially as specified.

4. In an elevator, the combination, with the uprights having the sectional notched tracks and the recesses for the reception of the hinged doors above the floor-levels, and the hinged doors having the track-sections on their under faces, of the upper levers fulcrumed to the uprights, provided at their lower ends with nibs or projections for engaging and holding the doors open, and with rigid arms connected by hinged arms to the upper faces of the doors, substantially as specified.

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

DAVID HUMPHREYS.

Witnesses:

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