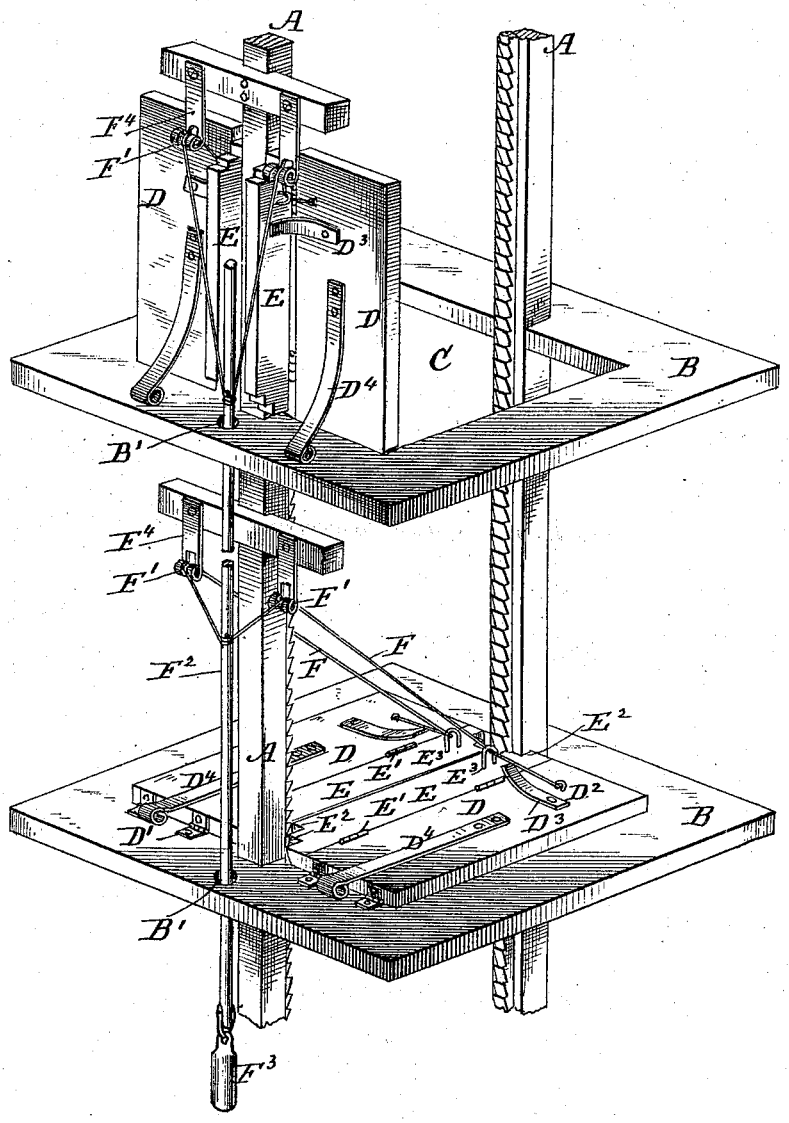
(No Model.)

J. W. BIRELY.

HATCHWAY ELEVATOR.

No. 305,419. Patented Sept. 23, 1884.



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UNITED STATES PATENT OFFICE.

JOHN WM. BIRELY, OF FREDERICK, MARYLAND.

HATCHWAY-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 305,419, dated September 23, 1884.

Application filed July 19, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN WILLIAM BIRELY, a citizen of the United States, residing at Frederick, in the county of Frederick and State of Maryland, have invented certain new and useful Improvements in Elevator-Hatchways, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention has relation to freight and passenger elevators.

The object of the invention is to construct the same in such manner that they may be opened and closed without requiring the use of space outside of that required by the main elements of the elevator, the hatchways being of that class which are hinged, in contradistinction to that class which slide laterally from over the well, to open the same for the passage of the car, and involves the use of sectional doors or hatchways, the sections being hinged to each other and to the flooring, with suitable means for operating the same, either manually or by automatic devices.

The invention consists in certain features of construction hereinafter described, and specifically set forth in the claims.

The drawing represents in perspective a sufficient portion of an elevator to illustrate the invention.

A A represent the guide-posts upon which the car travels, and B B the two floors or landings, in which are the openings C, through which the car passes. Each door comprises two sections, D and E, the former being connected at one end by hinges D′ to the landing B, at a side thereof at which one of the guide-posts is arranged, while the section E is connected to the section D by hinges E′, secured at an inner and a longer edge of the larger section D. The ends of the section E are cut away, as at E^2, to fit more or less snugly the sides and inner faces of the guide-posts. Each of the sections E is provided with a guide eye or staple, E^3, through which a cord or rope, F, passes, one end of which is secured to the section D, as at D^2, and the other end, after passing over guide-pulleys F′, suitably supported near the guides A, may be continued or passed through a suitable opening, as B′, in the landing or landings, to the floors below; or the said cords F, after passing over the guide-pulleys, may be secured to a rod, F^2, which passes through said openings and extends from landing to landing. A spring, D^3, is secured to the section D, and is adapted to bear against the upper surface of the section E, and springs D^4 are secured to the sections D, and are adapted to bear upon the landings in proximity to the pivoted ends of said section.

This being the construction, the operation of my invention is as follows: The hatchway being closed, as shown, at the lower landing B in the drawing, the rod F^2 being broken for the purpose of illustrating the upper hatchway open, a downward pull on the rod F^2 tightens the cords F, and thereby first raises the sections E to a vertical position, the strain of the cords acting against the tension of the springs D^3, and while in this position a further pulling upon the rod elevates each of the sections D, and at the same time retains the sections E at substantially a right angle thereto, so that said sections, being lifted from in front of the guide A, pass, with the sections D, at each side thereof, as shown in the upper section of the figure. At the same time the springs D^4 are put under strain, which is counterbalanced by a weight, F^3, attached to the rod and the hatchway. The doors proper are maintained in an open position. By simply lifting upon the rod the doors are started in the movement which brings them to a closed position, while said movement is assisted by the action of the springs and completed by the action of gravity in the doors themselves.

If desired, the springs D^4 may be secured to the guide A; or the guide-pulleys F′ may be supported on spring-arms F^4, which may perform the functions of the springs D^4; and instead of the rod F^2 the cords F may be continued from floor to floor, as before stated; or a single cord or chain may be substituted for the rod and its weight. So, also, may the springs D^4 be omitted and the doors closed by the action of gravity alone.

Having described my invention and its operation, what I claim is—

1. In a hatchway, the combination of the landing and a guide, with a door pivoted to swing up in line with the inner face of the guide-post, and provided with a section piv-

oted at a right angle to the guide, and with a cord or chain secured to the main section and passing through a guide or eye in the pivoted section and over suitable guide-pulleys, substantially as specified.

2. The combination, with the landing and a guide, of the doors D, pivoted to swing up in line with the inner face of the guide-post, and having sections pivoted in lines at right angles to the face of the guide, and with cords passing through eyes in the pivoted sections and secured to the main section, and passing over guide-pulleys, the door-sections being provided with springs, substantially as specified.

3. In a hatchway, doors pivoted at a side of the opening thereof at which is located one of the guides, having inner hinged sections fitted at their ends to the face of the guides, and cords or their equivalents passing through eyes and secured to the main sections or doors, and passing over suitable guide-pulleys, whereby the first action of the cords is to elevate the middle sections to pass the guide, and the second action of the cords is to elevate the main sections to clear the opening in the landing, substantially as specified.

4. The combination of the door D, having the section E, fitted at each end to the face of the guides A, and provided with an eye, E^3, with the cords F and the springs D^2 D^4, substantially as shown and described.

5. The combination of the cord or rod F^2, having the weight F^3, the cords F, the guide-pulleys F′, and the doors D, provided with the springs D^3 D^4 and with the hinged section E, provided with the eyes E^3, substantially as shown and described.

6. The hatchway-cover D, adapted to be hinged at a side to a landing at which the guide A is arranged, and provided with a hinged section, E, having the eye E^3, and means for elevating the hinged section and the door, substantially as specified.

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

JOHN WM. BIRELY.

Witnesses:

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