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Patented May 1, 1900.

P. H. JACKSON.

AUTOMATIC LOCKING MECHANISM FOR SIDEWALK OR OTHER ELEVATOR DOORS.

(Application filed Jan. 31, 1900.)

(No Model.)

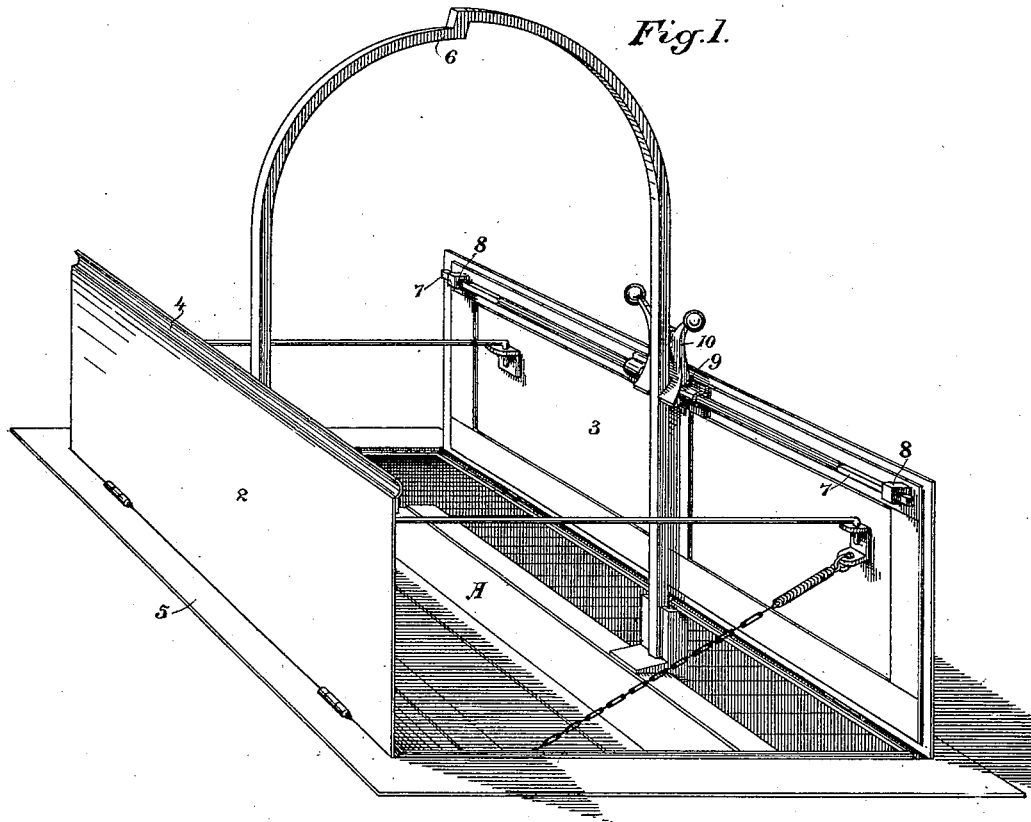
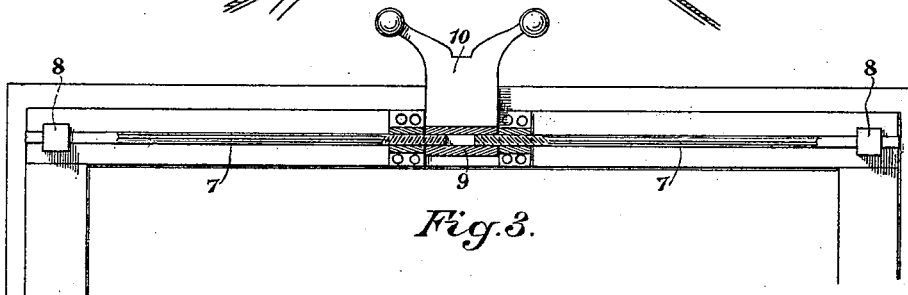
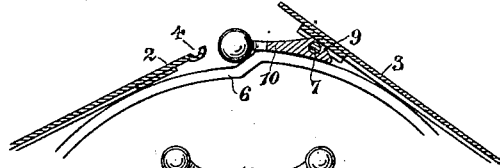


Fig. 2.



Witnesses,
J. H. Morse
J. F. Oscheck

Inventor
Peter H. Jackson
By Duway Strong & Co.
Atty

UNITED STATES PATENT OFFICE.

PETER H. JACKSON, OF SAN FRANCISCO, CALIFORNIA.

AUTOMATIC LOCKING MECHANISM FOR SIDEWALK OR OTHER ELEVATOR DOORS.

SPECIFICATION forming part of Letters Patent No. 648,624, dated May 1, 1900.

Application filed January 31, 1900. Serial No. 3,409. (No model.)

To all whom it may concern:

Be it known that I, PETER H. JACKSON, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Automatic Locking Mechanism for Sidewalk or other Elevator Doors; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an automatic mechanism for securing and releasing elevator-hatchway doors. It is especially applicable to the doors which close over sidewalk elevator platforms or hoists.

It consists in a mechanism whereby the doors are automatically unfolded and lifted as the elevator platform or hoist rises and closed and bolted as the platform sinks below the sidewalk.

Referring to the accompanying drawings, Figure 1 is a view of a hatchway and elevator-platform. Fig. 2 shows the bail descending with the doors in their respective positions. Fig. 3 is an inside view of the latch-carrying door, the central portion being in section.

As shown in the present drawings, A is an elevator-platform, here shown as depressed below the level of the sidewalk, and in Fig. 1 the doors 2 and 3 are shown open and fixed in place by transverse hook-rods which also form guards when the platform is down in the manner usual to this class of devices. The door 2 has a metal gutter 4, extending along the free edge, this gutter serving to receive any drip which may pass through when the doors are closed. Both doors are hinged to the hatchway-frame 5, which is fixed in the sidewalk, and open outwardly from each other, as shown. The doors may either meet at the center or one may overlap the other. As here shown, the door 3 closes over the door 2, so that it slightly overlaps the gutter 4. In order to open these doors when the elevator-platform rises and to allow them to close gradually when it descends, a bail 6 is fixed to the sides of the elevator-platform and is suitably guided so that it travels vertically. When the upper convexity of the bail contacts with the closed doors, it begins to raise them and they gradually separate as the bail rises until the vertical portions of

the bail standing between the doors will hold them open as long as the elevator is at the level of the sidewalk. When the elevator descends until the curvature of the bail arrives opposite the inner surfaces of the doors, the latter gradually close, following it down until the bail is entirely below the doors, when they lie flat and flush with the sidewalk. These doors are locked from the inside by means of longitudinally-slidable bolts 7, the outer ends of which are preferably made rectangular or flattened and slide through correspondingly-shaped guides 8, which prevent them from turning. The ends of these bolts are adapted to engage either with holes or sockets made in the hatchway sides, or they may pass beneath the overhanging ledges of the hatchway-frame, and if necessary may be bent or have offsets formed to allow of this engagement. The inner ends of the bolt-rods 7 are adjacent to each other. One has a right-hand and the other a left-hand screw-thread cut upon it.

9 is a sleeve or nut having screw-threads cut within it corresponding to those upon the inner ends of the bolt-rods, and this sleeve is suitably journaled and freely turnable, so that when turned in one direction it acts like a turnbuckle to draw the bolts toward each other, and thus withdraw their outer ends from their locking engagement. When turned in the other direction, it correspondingly forces the bolts outwardly, so as to engage them and lock the two doors in place. This threaded sleeve or turnbuckle has fixed to it a weighted arm 10, which is here shown as forked at the outer end and so formed that it contacts with the side of the bail 6 when the latter moves upward, and this pushes the arm back into an approximately-horizontal position, and by this movement it turns the turnbuckle so as to withdraw the bolts, the pitch of the screw-threads being sufficiently sharp, so that approximately a quarter-turn of the turnbuckle will be sufficient to move the bolts as far as may be desired. When the platform and the bail descend, as soon as the curved portion of the bail arrives opposite the weighted lever it and the door follow the curvature of the bail without essentially moving the bolts until after the bail has descended below the level of the closed doors, when the

weight will act to swing the lever downward, and in turning the sleeve or turnbuckle it acts to force the bolt outwardly and lock the doors. This operation is thus automatically performed without care or watchfulness on the part of the operator, and it will insure the doors being free to open, and thus prevent accidents, which sometimes occur by reason of an operator starting the platform upwardly and depending upon his ability to unlock the doors in time for them to be opened before the platform reaches the doors. If he fails in this, he will be crushed between the platform and the doors.

I have heretofore described the doors as being lifted by a bail and the turnbuckle or nut turnable by a weight; but it is to be understood that any equivalent for the weight may be used, as a spring, and any legs or devices movable in unison with the cage or platform may be substituted for the bail, which simply illustrates one form of device. If the doors do not overlap, then each door should be provided with locking-bolts.

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

1. In combination with an elevator-hatchway, doors hinged to the hatchway-frame and closable so as to meet on the central line, and a vertically-movable elevator-platform, guided slidable locking-bolts adjacent to the edges of the doors, said bolts having right and left screw-threads cut upon their inner ends, a revolubly-journaled sleeve or turnbuckle having corresponding threads within which the bolt ends fit, and a weighted lever connected therewith and turnable by the rise and fall of the elevator-platform to withdraw or advance the bolts.

2. An elevator-hatchway having doors hinged at opposite sides and adapted to close with the meeting edge of one door overlapping the other, in combination with guided slidable bolts on one of the doors having the outer ends adapted to engage with locking-sockets or the like, a turnbuckle or sleeve

having reverse screw-threads with which the correspondingly-threaded inner ends of the bolts engage, a weighted lever-arm attached to said sleeve, and a bail fixed to the elevator-platform and contacting with the lever whereby the latter is turned to withdraw the bolts on the upward movement of the platform, and allow it to fall and engage the bolts after the doors are closed.

3. A locking device for oppositely-hinged hatchway-doors, of elevator-wells consisting of bolts guided and slidable upon the edges of the overlapping doors, a reversely-screw-threaded turnable sleeve in which the corresponding screw-threaded inner ends of the bolts are fitted, and a weighted lever connected with the sleeve, and in line with the movable elevator-platform whereby the rising of the platform acts to retract and disengage the bolts, and the descent of the platform releases the lever and allows the bolts to be forced into their holding-sockets.

4. In an elevator-well or the like, hinged doors, and devices by which they are opened and closed in unison with the movements of the elevator-platform, oppositely-slidable bolts carried by the doors, a screw-threaded nut with which said bolts engage, and mechanism by which the nut is turned and the bolts moved to lock or unlock the doors.

5. An elevator-hatchway having hinged doors and devices by which they are opened and closed in unison with the movements of the platform, slidable locking-bolts and means including a screw-threaded turnbuckle or nut with which the bolts engage, mechanism actuated by the approaching platform to retract the bolts, and weights by which the nut is turned to advance the bolts and lock the doors, as the platform recedes.

In witness whereof I have hereunto set my hand.

PETER H. JACKSON.

Witnesses:

S. H. NOURSE,
JESSIE C. BRODIE.