

(No Model.)

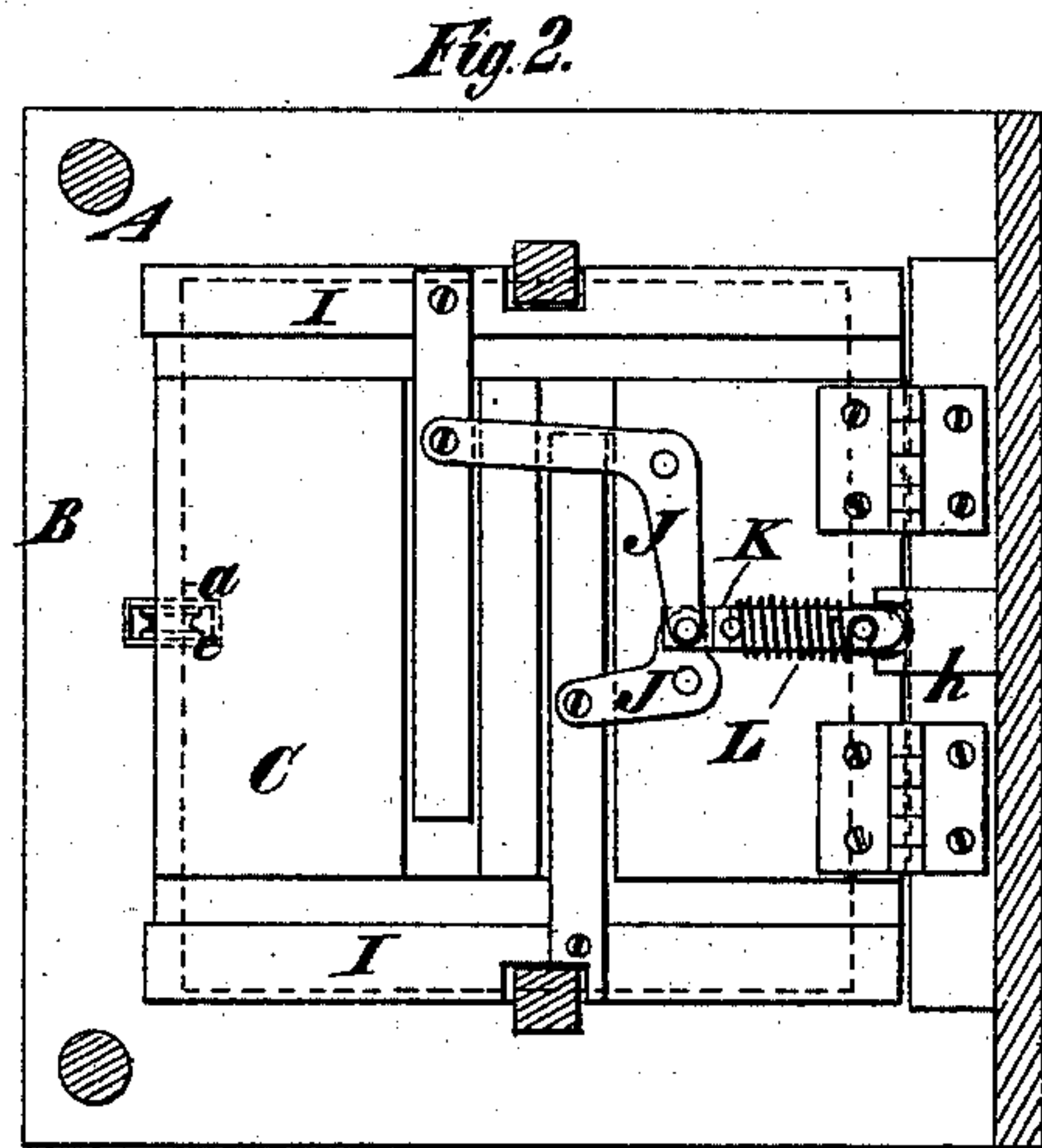
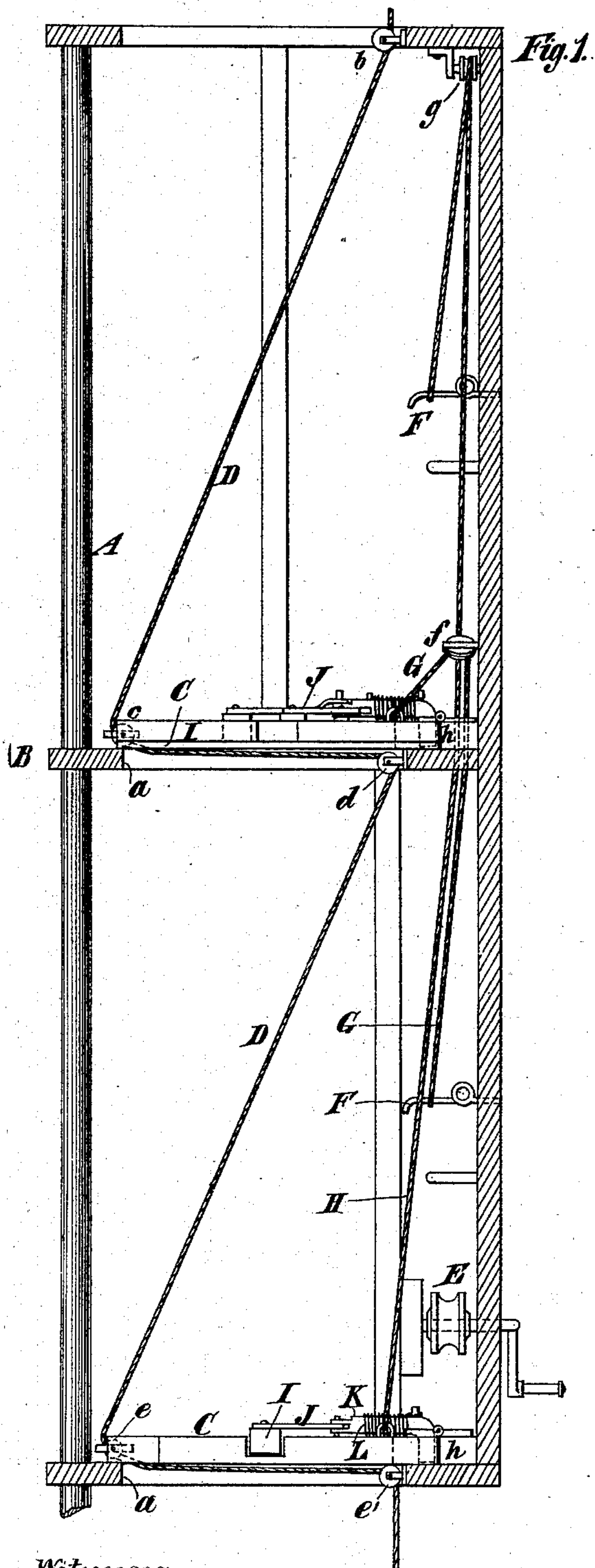
2 Sheets—Sheet 1.

D. FRASER.

MEANS FOR CLOSING AND CONTROLLING HOISTWAY COVERS.

No. 278,528.

Patented May 29, 1883.



Witnesses:
J. H. Leane
James R. Bowen.

Inventor:
Daniel Fraser
By his atty
Edwin H. Brown.

(No Model.)

2 Sheets—Sheet 2

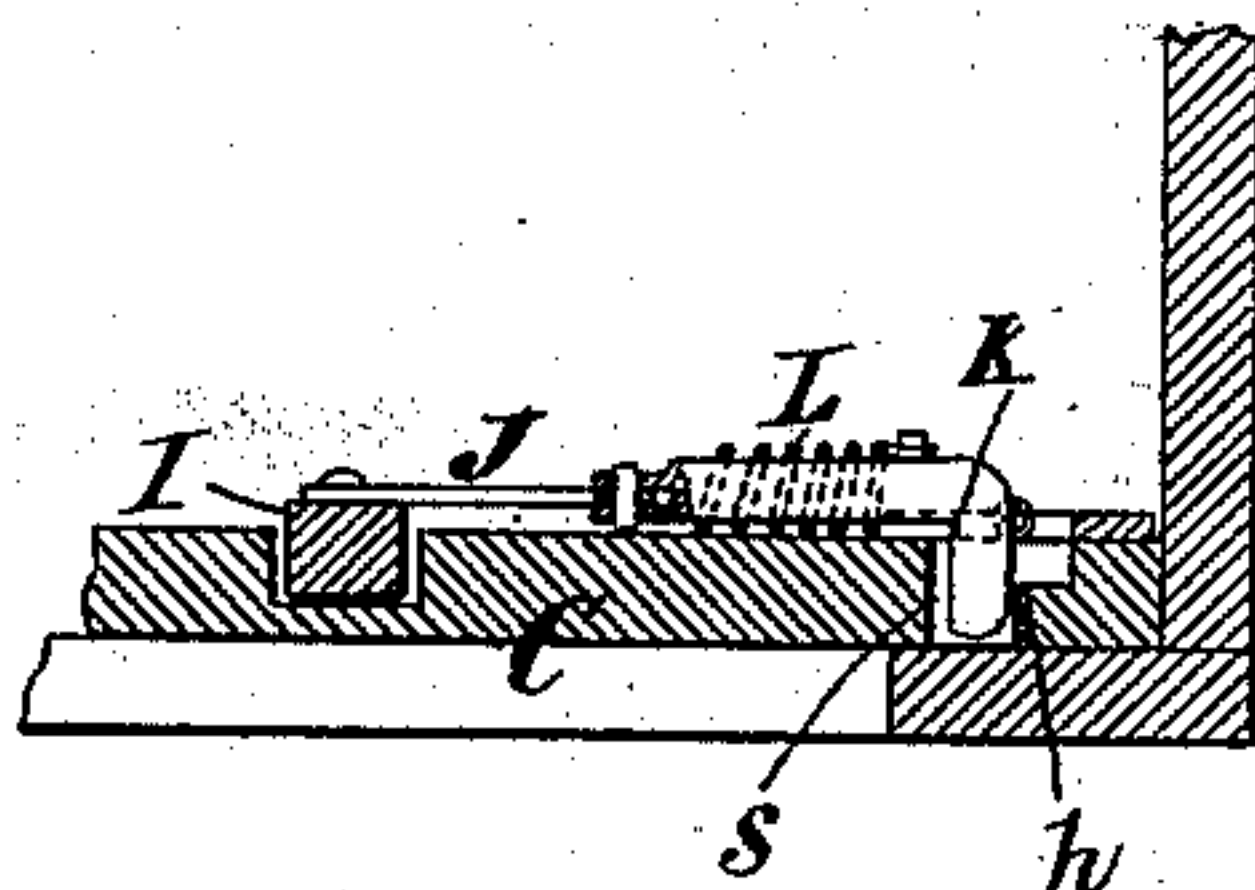
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Fig 3.



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UNITED STATES PATENT OFFICE.

DANIEL FRASER, OF NEW YORK, N. Y., ASSIGNOR TO THE EXCELSIOR
HATCH COMPANY, OF SAME PLACE.

MEANS FOR CLOSING AND CONTROLLING HOISTWAY-COVERS.

SPECIFICATION forming part of Letters Patent No. 278,528, dated May 29, 1883.

Application filed August 31, 1882. (No model.)

To all whom it may concern:

Be it known that I, DANIEL FRASER, of New York, in the county and State of New York, have invented a certain new and useful
5 Improvement in Means for Closing and Controlling Hoistway-Covers, of which the following is a specification.

The improvement consists in the combination, with a number of hinged doors and a cord
10 or chain for opening and closing them, of a number of catches for engaging with the doors when opened, and serving to hold them open independently of the cord or chain, and a connection between the catch of one door and an
15 adjacent door, so that the closing of the last-mentioned door will effect the release of the other door from its catch and admit of its closing.

The improvement also consists in the combination, with a number of hinged doors and a cord or chain for opening and closing them, of a number of catches for engaging with the doors when opened, and serving to hold them open independently of the cord or chain, and
25 another cord or chain connected to the catch of one door, passing up over a pulley on the hoistway, and fastened to the upper door, whereby the closing of the upper door will effect the release of the lower door from its catch, so that
30 it may be subsequently closed.

The improvement also consists in the combination, with a hinged door for covering an opening in a hoistway, of a slide for closing the space between a side edge of the door and the
35 hoistway, and a bell-crank lever fulcrumed to the door, connected at one end to the slide and at the other to means whereby, on the opening of the door, the slide is shifted inwardly.

The improvement also consists in the combination, with a hinged door for covering an opening in a hoistway, of a slide for closing the space between a side edge of the door and the hoistway, a bell-crank lever fulcrumed to the door and connected at one end to the
40 slide, and a pin connected to the other end of the bell-crank lever, and having a sliding motion sufficient for operating the slide when the door is opened and closed.

The improvement also consists in the combination, with a hinged door for covering an opening in a hoistway, of a slide for closing

the space between a side edge of the door and the hoistway, a bell-crank lever fulcrumed to the door and connected at one end to the slide, a pin connected to the other end of the bell-
55 crank lever, and being slid forward by the closing of the door, so that it will effect the closing of the slide, and a spring for sliding the pin rearward, so that it will effect the retraction of the slide.

The improvement also consists in the combination, with a hinged door for covering an opening in a hoistway, of slides for closing spaces between the side edges of the door and the hoistway, bell-crank levers fulcrumed to
60 the door and connected at one end to the slides, and a pin connected to the other end of the levers, and having, on the opening and closing of the door, a sliding motion sufficient to enable it to effect the shifting of the slides.

In the accompanying drawings, Figure 1 is a central vertical section of an elevator-hoistway embodying the invention. Fig. 2 is a horizontal section of the same, and Fig. 3 is a detail sectional view of a portion of one of the
75 doors and adjacent parts, showing more clearly the sliding pin for operating the slides.

Similar letters of reference designate corresponding parts in all the figures.

A designates the hoistway, which may be of
80 the usual form.

B designates the floors of the building in which the hoistway is located. In these floors are openings *a*, communicating with the hoist-
85 way.

C designates doors for closing the hoistway when it is not in use. In this example of my invention these doors are hinged at the back edge and open and close by swinging up and down. I have shown a chain or rope, D, for
90 opening and closing them. This chain or rope extends from a point above the upper door down over a pulley, *b*, arranged near the back of the hoistway, thence over a pulley, *c*, affixed to the door, at or near the front edge, thence
95 below the door to and around a pulley, *d*, arranged on the back of the hoistway, just below the door, thence over a pulley, *e*, affixed to the lower door, and thence to a pulley, *e'*, arranged at the back of the hoistway, just be-
100 low this door. The chain or rope D may be operated at either end by a windlass, E. I

will assume that its lower end passes around suitable pulleys and is fastened to these pulleys, and that its upper end is fastened to the hoistway. When the windlass is turned so as to wind up the chain or rope the lower door is first raised to an upright position, and on its arriving there the second door is raised in the same way, the tension on the chain or cord tending to draw it straight, and thereby effecting the raising of the doors. The doors may, if necessary, be weighted at the front to cause them to close by gravity. They are so constituted as to have a tendency to fall forward. It is advantageous to have the rope or chain D pass below the door, between the pulleys *c* and *d*, because it will sustain the door, even if the pivot of the pulley *c* should break or work out.

F designates catches arranged on the back of the hoistway, adapted to engage with projections on the front edges of the doors when the latter are raised, so as to secure them in upright positions and relieve the chain or rope D of strain. These catches may be pivoted in place, and impelled downward at the forward end by springs or by weight; or they may have resilient shanks, as shown. To the upper catch is attached a cord, H, which passes around a pulley, *g*, arranged on the back of the hoistway above, and thence down the hoistway, where it is secured to the door below, forward of its hinges. When it is desired to release the upper door, C, this cord H is pulled so as to disengage its catch from it, and then the windlass E is turned so as to pay out the chain or cord and allow of the descent of the said door. To the catch of the lower door is attached a cord, G, which passes up the hoistway, around a pulley, *f*, arranged on the back of the hoistway, above the upper door, and thence to the upper door, forward of the hinges, where it is fastened. This cord G is so short that just before the upper door closes it pulls the cord sufficiently to effect the disengagement of the catch of the lower door from it. If, then, the windlass is turned so as to pay out the chain or rope D, the lower door may be closed. The cord H is connected to the lower door and operated by the closing of said door.

The doors have applied to them slides I, which move laterally outward when the doors are closed to cover the space between the doors and the openings into the hoistway around the posts, and which move laterally inward when the doors are opened, so as to pass the posts. Two of these slides are in this example of my invention shown as applied to the upper door, and but one to the lower door.

As the upper door has therefore all that is combined with the lower door, and more, I will describe this feature of my invention particularly with reference to the upper door. This door is shown clearly in Fig. 2. The slides I have shanks fitting into grooves provided in the door for guiding them.

J designates bell-crank levers fulcrumed independently of each other to the door. At

the outer ends they have a pivotal connection with the shanks of the slides, and at the inner ends they both have a pivotal connection with a pin, K, which is free to slide in the door lengthwise. The rear end of this pin is bent transversely, so as to extend downward through a slot or notch, *s*, in the door. When the door is closed the bent end of this pin comes in contact with a projection, *h*, as shown in Fig. 3, and is thereby caused to slide through the door and shift the bell-crank levers, so that they will impel the slides outward. When the door is raised the bent end of the pin is relieved, and a spring, L, applied to the pin, pushes the latter rearwardly and causes the bell-crank levers to pull the slides inward. I do not confine myself to the use of this spring, as the pin K may be so connected and combined with devices affixed to the hoistway as to derive all of its necessary movements therefrom.

It will be observed that the mechanism for operating the slides is independent of the means for opening and closing the doors, and that is adapted to give the slides any desirable range of movement.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a number of hinged doors and a cord or chain for opening and closing them, of a number of catches for engaging with the doors when opened, and serving to hold them open independently of the cord or chain, and a connection between the catch of one door and an adjacent door, so that the closing of the last-mentioned door will effect the release of the other door from its catch and admit of its closing, substantially as specified.

2. The combination, with a number of hinged doors and a cord or chain for opening and closing them, of a number of catches for engaging with the doors when opened, and serving to hold them open independently of the cord or chain, and another cord or chain connected to the catch of one door, passing up over a pulley on the hoistway, and fastened to the upper door, whereby the closing of the upper door will effect the release of the lower door from its catch, so that it may be subsequently closed, substantially as specified.

3. The combination, with a hinged door for covering an opening in a hoistway, of a slide for closing the space between a side edge of the door and the hoistway, and a bell-crank lever fulcrumed to the door, connected at one end to the slide and at the other to means whereby, on the opening of the door, the slide is shifted inwardly, substantially as specified.

4. The combination, with a hinged door for covering an opening in a hoistway, of a slide for closing the space between a side edge of the door and the hoistway, a bell-crank lever fulcrumed to the door and connected at one end to the slide, and a pin connected to the other end of the bell-crank lever, and having a sliding motion sufficient for operating the

slide when the door is opened and closed, substantially as specified.

5 5. The combination, with a hinged door for covering an opening in a hoistway, of a slide for closing the space between a side edge of the door and the hoistway, a bell-crank lever fulcrumed to the door and connected at one end to the slide, a pin connected to the other end of the bell-crank lever, and being slid forward by the closing of the door, so that it will effect the closing of the slide, and a spring for sliding the pin rearward, so that it will effect the retraction of the slide, substantially as specified.

6. The combination, with a hinged door for 15 covering an opening in a hoistway, of slides for closing spaces between the side edges of the door and the hoistway, bell-crank levers fulcrumed to the door and connected at one end to the slides, and a pin connected to the 20 other end of the levers, and having, on the opening and closing of the door, a sliding motion sufficient to enable it to effect the shifting of the slides, substantially as specified.

DANIEL FRASER.

Witnesses:

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