

(No Model.)

M. N. HUTCHINSON.

ELEVATOR.

No. 299,645.

Patented June 3, 1884.

Fig. 1.

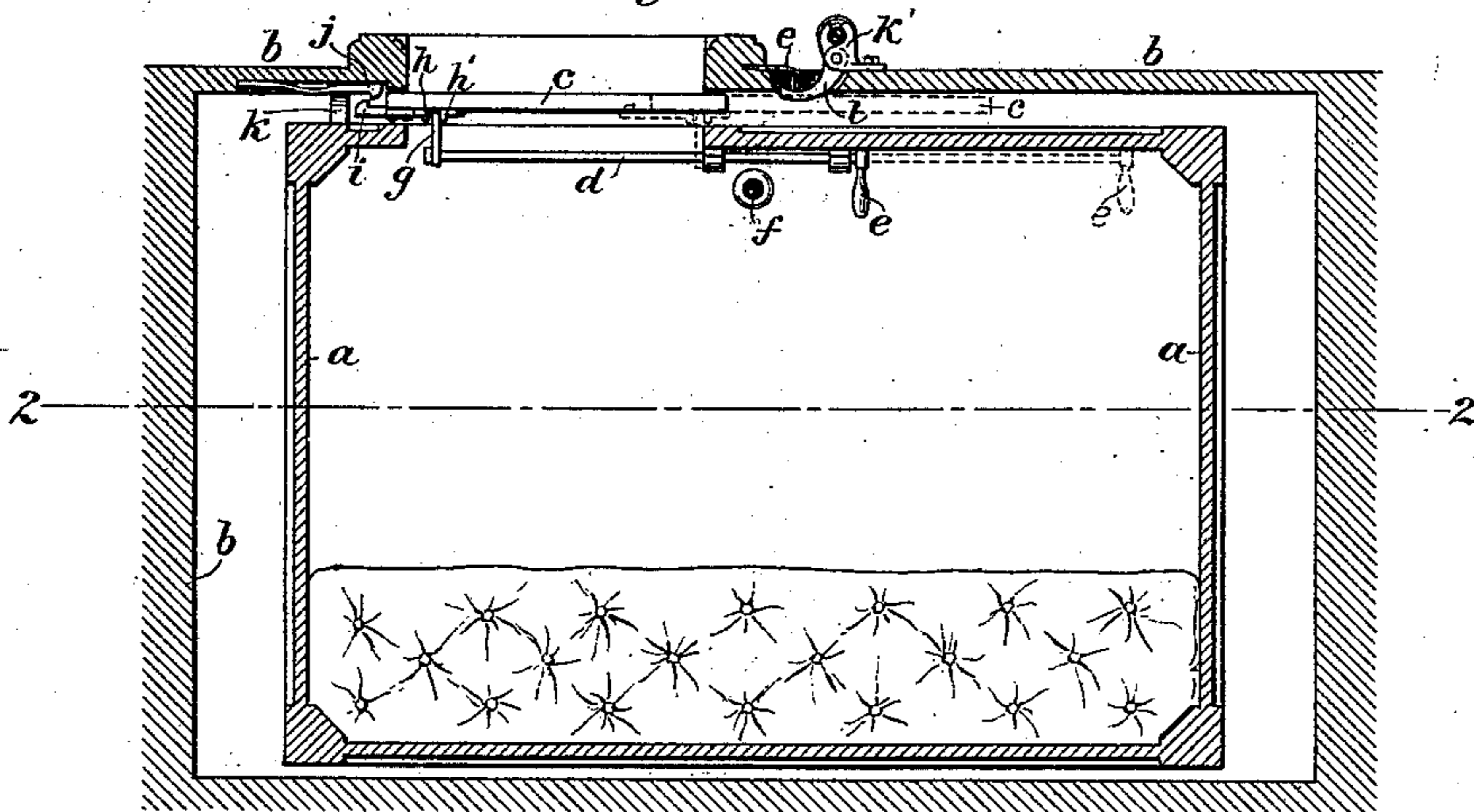
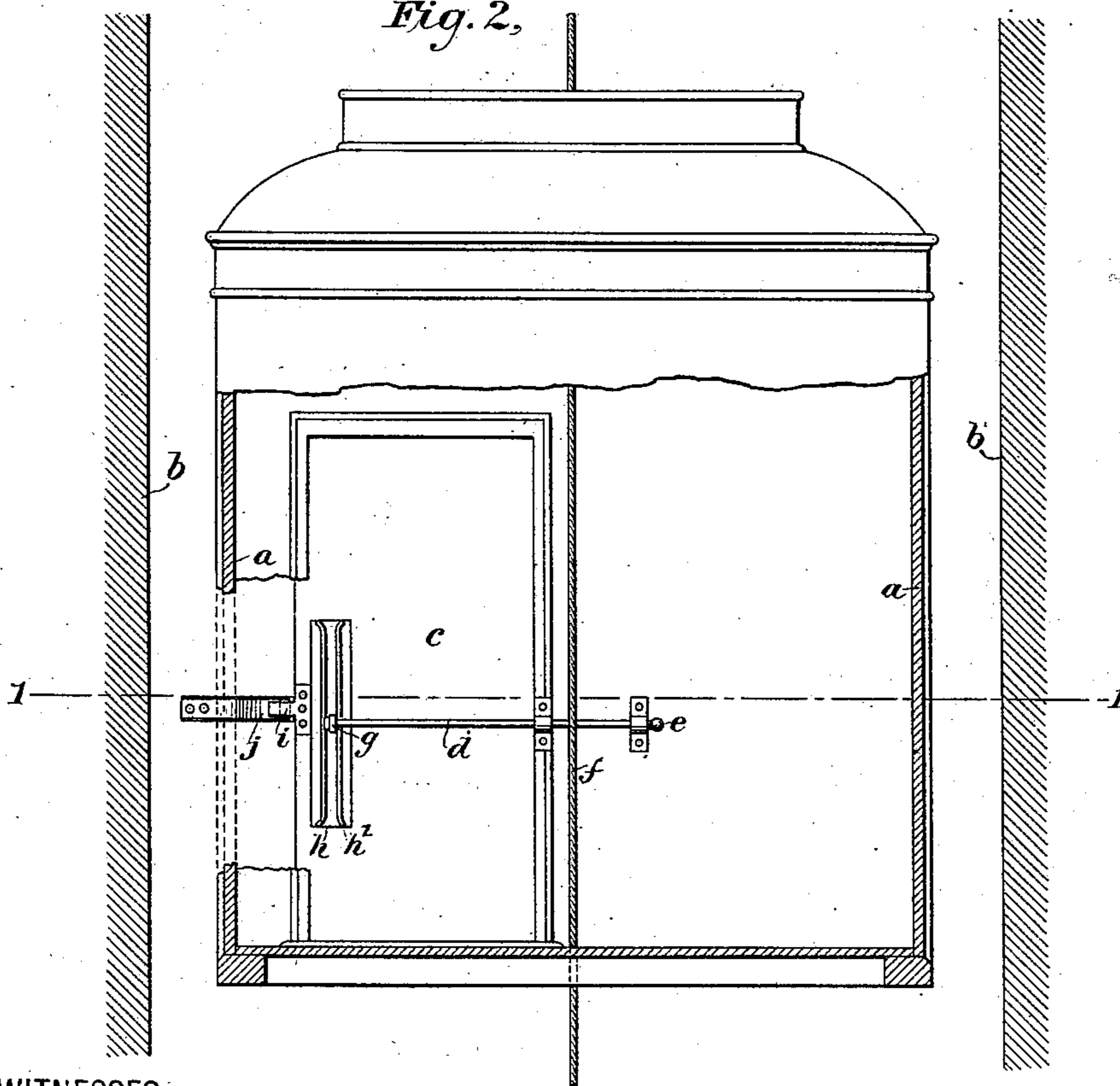


Fig. 2.



WITNESSES

Wm A. Shinkle
Geo W. Breck

INVENTOR

Mervill N. Hutchinson
By his Attorney *Livingston Lifford*

UNITED STATES PATENT OFFICE.

MERRILL N. HUTCHINSON, OF NEW YORK, N. Y.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 299,645, dated June 3, 1884.

Application filed November 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, MERRILL N. HUTCHINSON, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful improvements whereby the doors communicating with elevator cars or platforms may be conveniently and safely operated, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 represents a plan view of an elevator-car and the walls of the elevator-well in section through the line 1 1, Fig. 2. Fig. 2 represents an elevation of the same in section through the line 2 2, Fig. 1.

a represents the frame-work of the elevator-car, and *b* the frame-work of the surrounding elevator-well. *c* represents the door for closing the passage into the elevator, and which in the drawings is shown as being attached to the frame-work of the elevator-well, though in practice my invention may be applied where the door is attached to the frame-work of the elevator-car itself. *d* is a horizontal rod, which is provided at one end with a handle, *e*, located conveniently with reference to the elevator-rope *f*. Said rod *d* is supported in bearings attached to the elevator-frame, so that it and the handle *e* may be reciprocated, as indicated in dotted lines in Fig. 1. One end of this rod *d*, when it is in its forward position, projects nearly across the passageway into the elevator, and is provided at its extremity with a finger, *g*, which projects toward the door *c*. Upon the face of the door, extending a short distance in each direction from its center, are secured two parallel and vertical flanges, *h h'*, the ends of which are formed so as to recede from each other, as shown. *i* is a hook which projects from the front of the door in such position that when the door is closed it engages with the hook *j*, attached to the frame *b*. The hook *j*, when the elevator-car is not passing it, is held forward by a suitable spring; but when the elevator-car is passing it, and is in proper position for the door to be opened, a rounded projection, *k*, attached to the elevator-car, presses the hook *j* backward, as shown in Fig. 1, so that it is disengaged from the hook *i*.

At *k'*, Fig. 1, is shown a pair of jaws, which are in position to embrace the rope by which the motion of the elevator is controlled, and which are normally held open by a suitable spring. To one of these jaws is attached a projection, *l*, which is located in the path of the door *c*. As the same is being opened it will strike against the projection *l*, and thereby close the jaws *k'*, and cause them to clasp the elevator-rope tightly, and prevent its being moved so as to start the elevator until the door has been closed again. In the example shown in the drawings, the rope which these jaws embrace is shown as outside the elevator-car, as is the case in private houses or other localities where there is no regular attendant for the elevator.

In operation, as the elevator-car is passing between the different landings of the building all of the doors *c* are closed and held in that position against any attempt to open them from the outside by the engagement of the hooks *i* and *j*. Thus all danger is avoided from any communication between the landings of the building and the elevator-well. As the elevator approaches a landing the rod *d* is in its forward position, and as the passage in the elevator-car comes opposite the door on the landing, the finger *g* passes between the flanges *h h'*, its engagement between those flanges being insured by the tapering entrance between them. At the same time that the finger *g* engages the flanges *h h'* the projection *k*, on the elevator presses the hook *j* out of engagement with the hook *i*, and the door is free to be opened. All this is performed automatically, and the attendant (if there be one) on the elevator, in opening the door, has merely to push the handle *e* backward, when the door is opened to the position indicated in dotted lines, Fig. 1; or if there be no attendant the person desiring to enter the elevator may open the door from the outside. As the door opens the jaws *k'* are closed upon the elevator-rope, as before described. To close the door the attendant has merely to return the handle *e* to its first position.

It will be observed that by the use of the arrangement shown it is out of the power of any one to open the door until the elevator has arrived opposite to it, and that when the door is

once open it is out of the power of any one to start the elevator until the closing of the door. In this way I propose to avoid the danger and the many accidents which occur from the improper use which is constantly made of the doors of elevators; and the locking device is especially useful in private elevators, where there is no attendant to prevent any one from pulling the rope while some one on another landing has the door open and is in the act of using the elevator without the knowledge of the first person.

I do not limit myself to the details of arrangement shown, which, I am aware, might be varied, with the accomplishment of the same results, in substantially the same way.

I claim—

1. In combination with an elevator car or platform and the door of the passage leading thereto, the hooks *i* and *j*, and the projection *k*, whereby the said door is held closed, excepting when the elevator-car is in proper position for it to be opened, substantially as set forth.

2. In combination with the elevator-car and the door of the passage leading thereto, the flanges *h h'*, and the finger *g*, arranged to engage therewith as the elevator is passing the landing, substantially as and for the purpose set forth.

3. In combination, the elevator car or platform, the door of the passage leading thereto, the rope or other device whereby the motion of the elevator is controlled, and mechanism, substantially as described, whereby said rope or other device is locked when the door is open, as and for the purpose set forth.

4. In combination, the elevator car or plat-

form, the door of the passage leading thereto, the handle *e*, and the rod *d*, connected therewith, and provided with mechanism, substantially as described, for engaging with the door when the elevator is in proper position for the same to be opened, as set forth.

5. In combination, the elevator-car, the door of the passage leading thereto, the hooks *i* and *j*, the projection *k*, and the finger *g*, engaging the said door when the elevator is opposite the landing, substantially as described.

6. In combination, the elevator-car, the door of the passage leading thereto, the finger *g*, engaging the said door when the elevator is opposite the landing, and a locking mechanism, substantially as described, for arresting the operation of the elevator-rope when the door is open.

7. In combination, the elevator car or platform, the door of the passage leading thereto, the hooks *i* and *j*, and the projection *k*, whereby the door is automatically secured when the elevator-car is passing between landings, and unfastened when opposite landings, and the locking mechanism, substantially as described, whereby the starting of the elevator-car is prevented when the said door is open.

8. In combination, the elevator car or platform, the door of the passage leading thereto, the hooks *i* and *j*, the finger *g*, engaging with the door, and the locking device *k'*, substantially as and for the purpose set forth.

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

MERRILL N. HUTCHINSON.

Witnesses:

W. F. HAPGOOD,
D. H. DRISCOLL.