

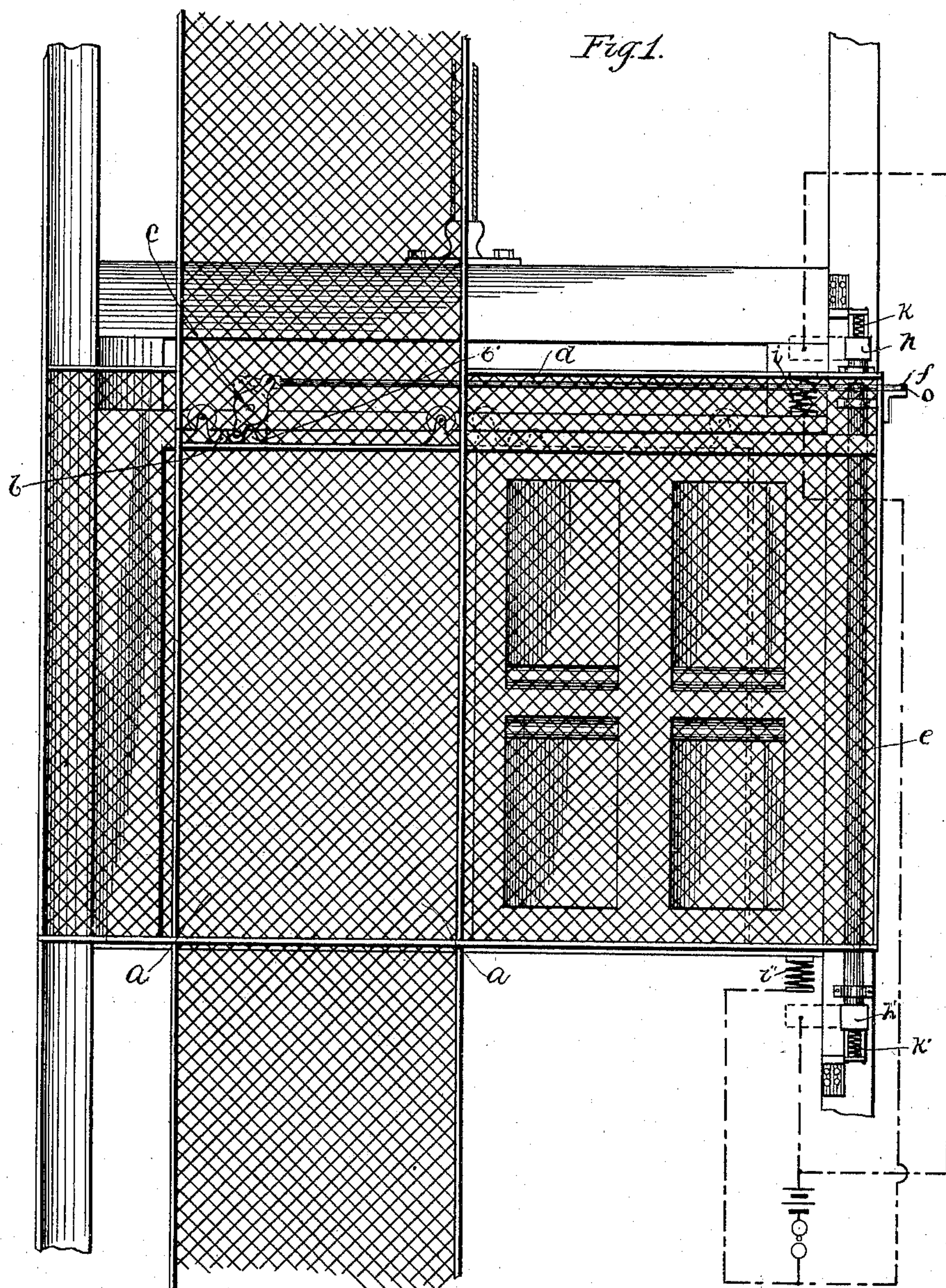
(No Model.)

2 Sheets—Sheet 1.

H. L. HOLLIS.  
ELEVATOR.

No. 476,017.

Patented May 31, 1892.



Witnesses  
George L. Cragg.  
Edith M. Arnold.

Inventor,  
Henry L. Hobbs.  
By Barton Brown  
att'ys.



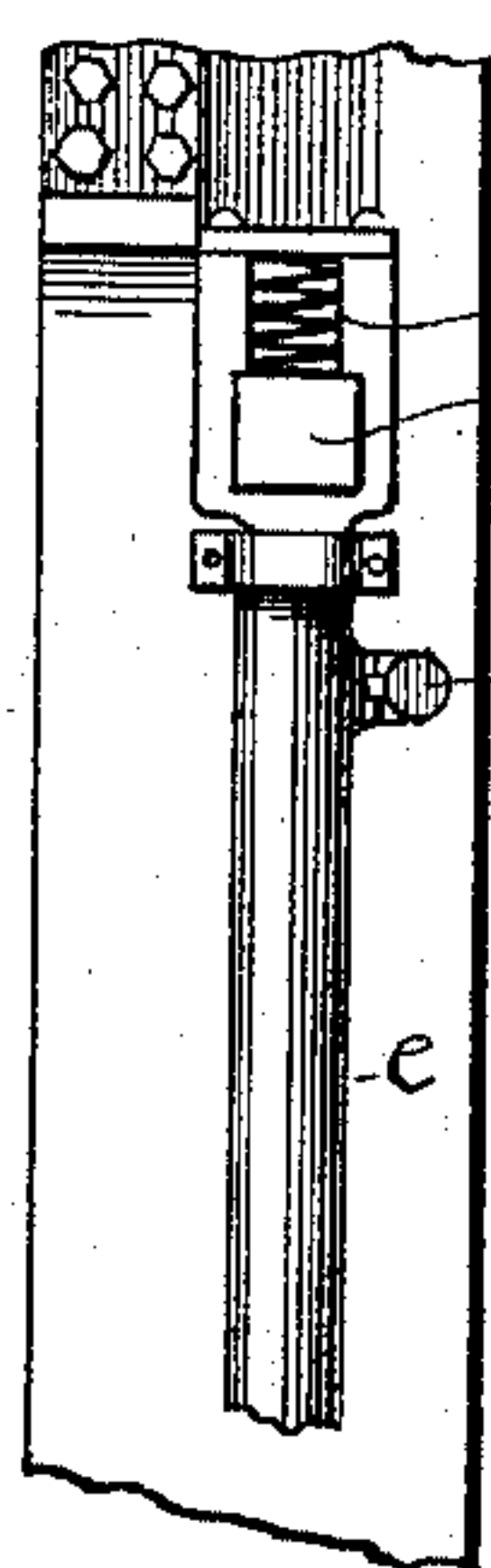
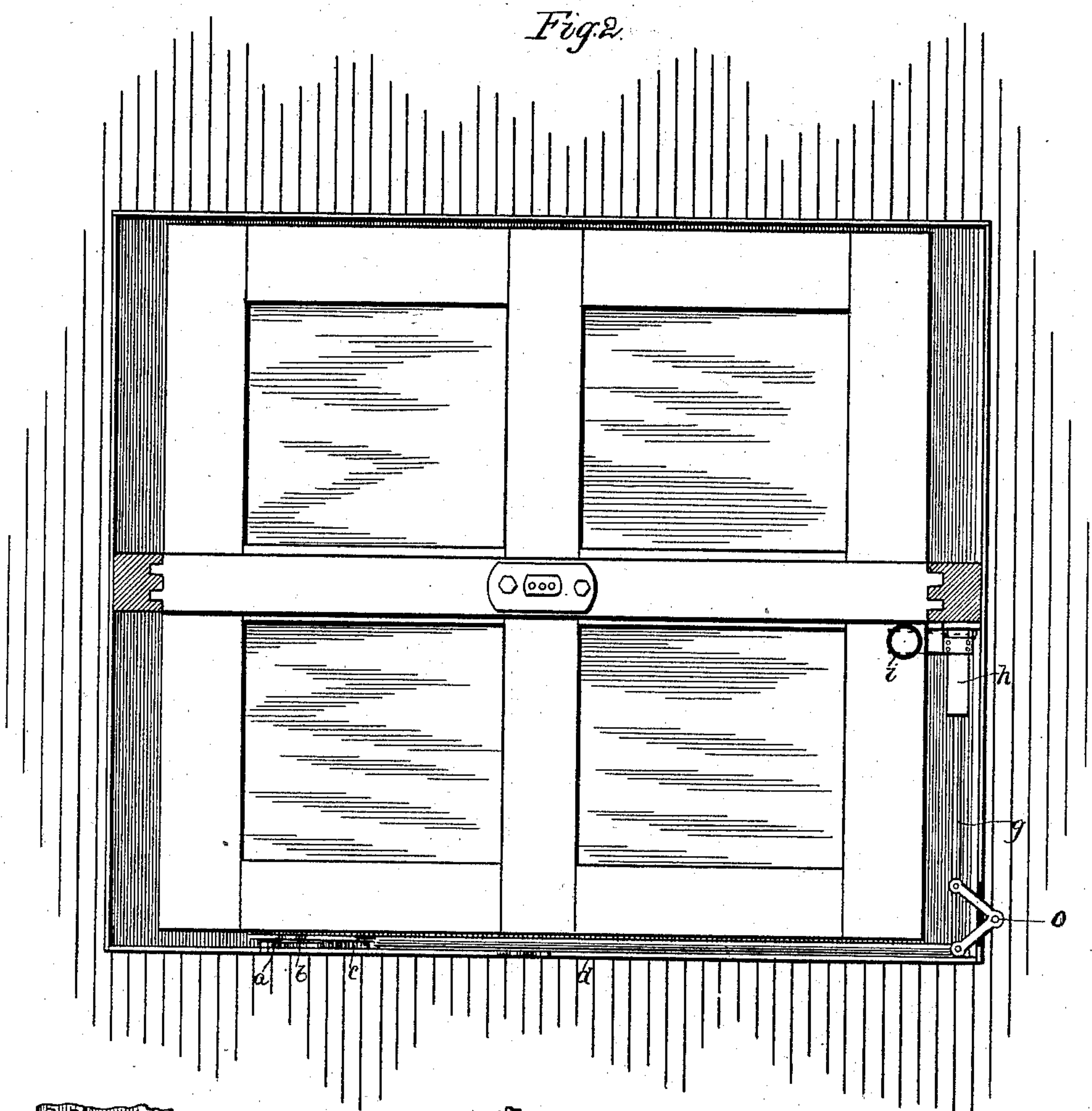
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2 Sheets—Sheet 2.

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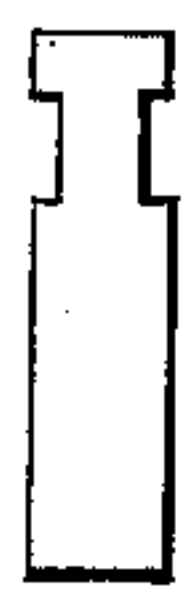
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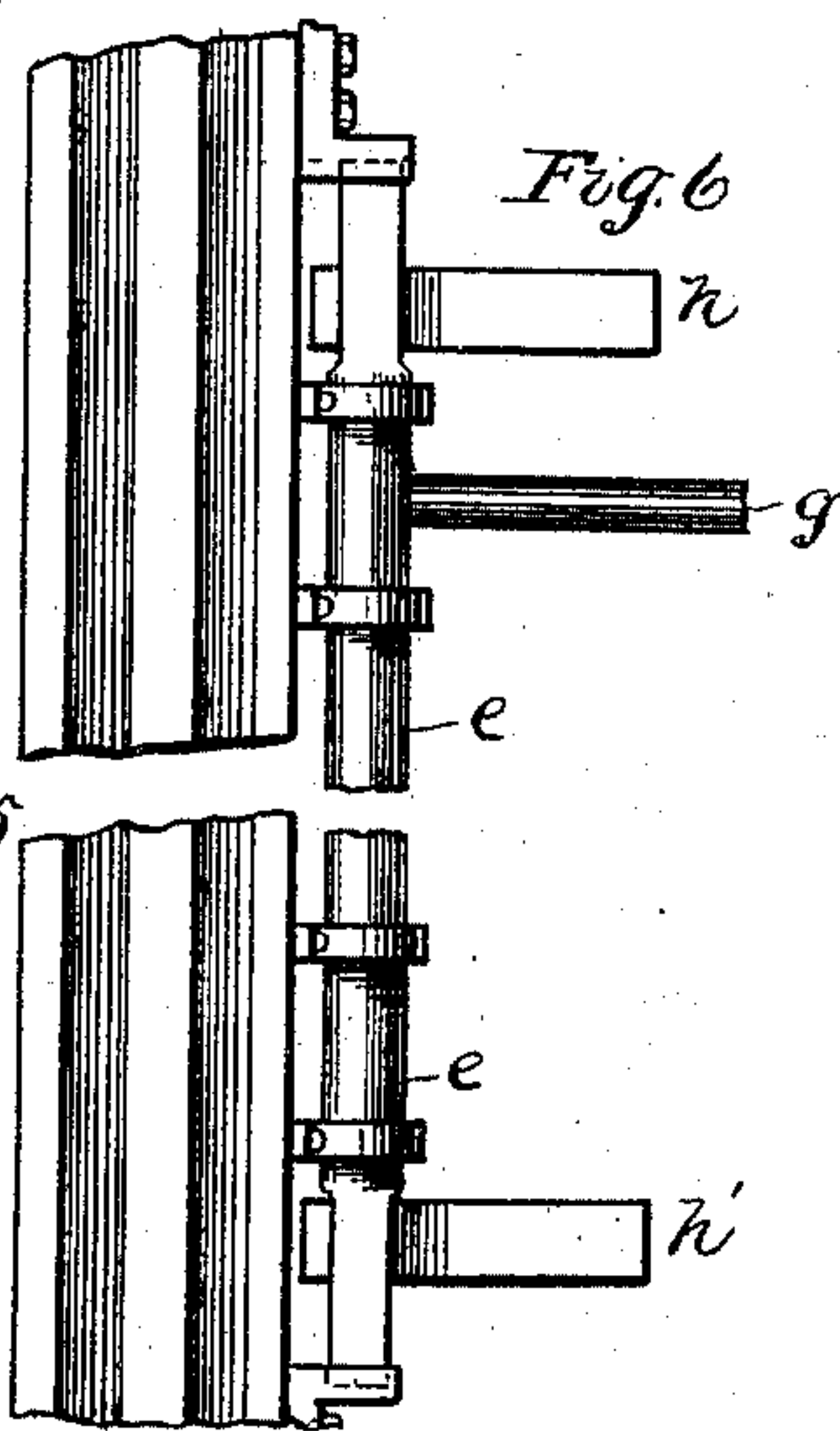
*Fig. 3*



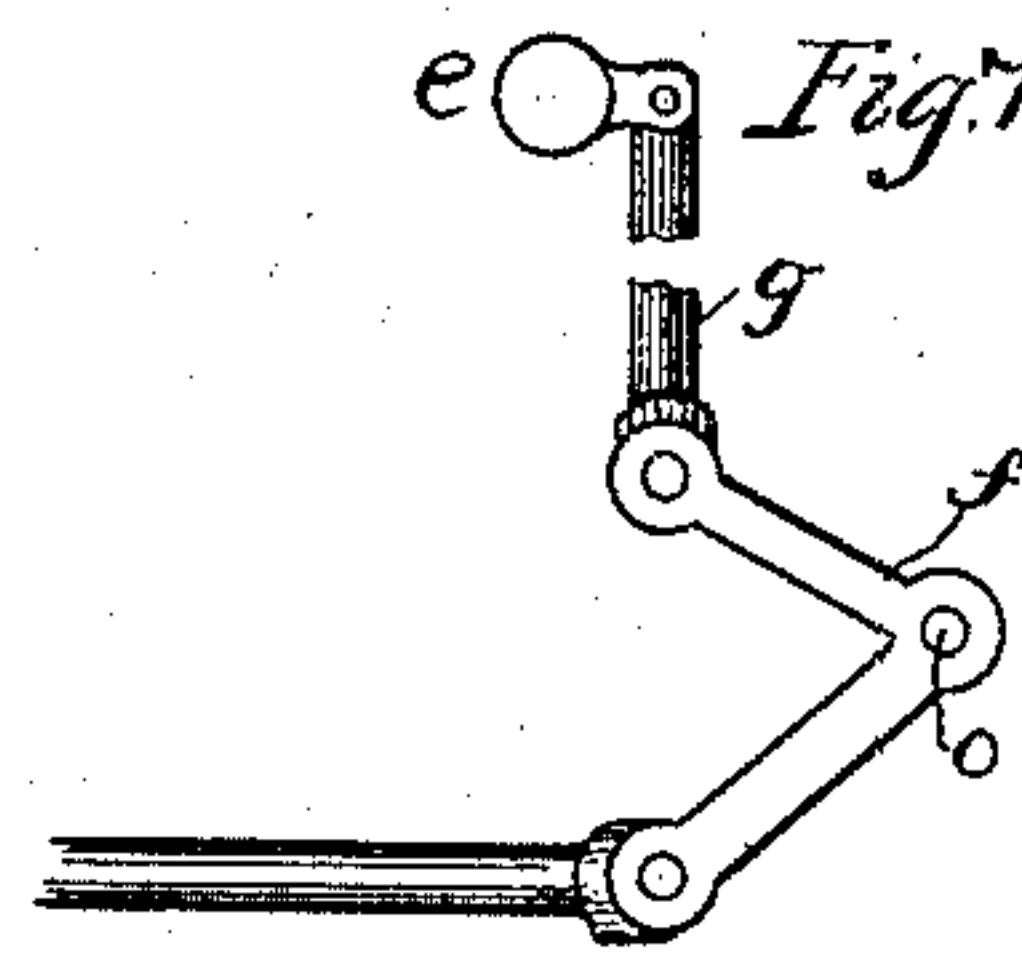
*Fig. 4*



*Fig. 5*



*Fig. 6*



*Fig. 7*

Witnesses  
George L. Cragg  
Edith M. Arnold.

Inventor;  
Henry L. Hollis.  
By Carter & Brown  
attys.



# UNITED STATES PATENT OFFICE.

HENRY L. HOLLIS, OF CHICAGO, ILLINOIS.

## ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 476,017, dated May 31, 1892.

Application filed August 10, 1891. Serial No. 402,267. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY L. HOLLIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Safety Attachments for Elevator-Bases, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to improvements in elevators or hoists, and the object of my invention is to increase their safety by providing a safeguard against accidents which often arise by the door to the well being left open accidentally or carelessly. By means of my invention it is possible to prevent such accidents as occur by the unexpected movement of the elevator-car away from any landing while the door or gate guarding the entrance to the elevator-car is open. I attain this object by the mechanism illustrated in the accompanying drawings.

Figure 1 is a side elevation of the elevator-car with the device of my invention shown in place and a diagram of the electric circuit which is a part of this invention. Fig. 2 is a top view of the elevator-car, showing the rods and levers which operate the mechanism of my invention. Figs. 3, 4, 5, 6, and 7 are details of the mechanism, which I will now describe.

Similar letters refer to similar features of the invention throughout the different views.

On the top of door *a* to the elevator-well are two projections *b b'*. These projections engage with and serve to operate the lever *c*. When the elevator-door *a* is open, the shorter of the two projections *b* moves the lower part of the lever *c* to the right, as shown by dotted lines in Fig. 1. This lever *c*, being pivoted at its center, the top is moved to the left and carries with it the rod or link *d*. This rod or link *d* is either coupled directly or by means of the secondary lever or link, as shown in the drawings, to the rod *e*. When the construction of the elevator-well is such as to permit of the rotating perpendicular rod *e* being placed in the corner of the well on the same side with the door, this connection between the link *d* and the rod *e* can be made direct. If, however, as is shown in the drawings, the con-

struction of the elevator well and apparatus is such that the rod *e* must be placed in some other part of the elevator-well—as, for instance, at the side—then it will be found convenient to make a secondary connection by means of the angular lever *f* and link *g*, as shown. The moving of the link *d*, whether communicating directly or indirectly to the rod *e*, serves to rock this rod upon its perpendicular axis, this rod being placed in bearings at the top and bottom, which permits it to be rocked easily. Near either extremity of the rod *e* is placed an arm or stop *h h'*, which is arranged to swing with the rocking of the rod *e*. When the upright rod *o* occupies the position which it will assume upon motion being given to the levers connected with the same by the opening of the elevator-door, the stops *h h'* will project into the elevator-well. Figs. 1 and 2 show the position of the stops *h* and *h'* as they would be with the door closed and in dotted lines the position of the stops as they would be with the door open.

At the point on the elevator-car above and below where the stops *h h'* would strike upon the car buffers are placed, made of springs or other suitable elastic material, to prevent the sudden shock which would arise by the instantaneous stopping of the car. These buffers are shown at *i i'*, Fig. 1.

The stops *h h'* are attached to the upright rod *e*, as shown in detail in Figs. 3, 4, 5, and 6. Fig. 5 shows the stop separated from the upright rod *e*. Fig. 4 shows the top view of the upright rod *e*; Fig. 3, the end of the upright rod with the stop in place. It will be seen that a mortise on the stop is so arranged that it forms a guide for the stop between the two upright halves of the top extremity of the perpendicular rod *e*. An elastic buffer is placed either upon the stop itself or on the rod *e* back of the stop, (shown at *k* in Fig. 3,) to operate in the same manner as the buffer *i i'*. (Shown on the elevator-car, already referred to.) It will be observed that a space greater or less in extent, as may be desired, is left between the stops and the bottom and top of the elevator-car as a margin of motion which will be allowed the elevator-car before the closing of the door.

*l l'* are intended to represent electrical cir-



cuit-closing contacts of any suitable construction, by means of which the circuit is closed when upon either the upward or downward movement of the car before the closing of the door the car presses upon the arms *h h'*. The circuit being thus closed, current flows from the battery *m* through the bell *n* and a signal is given either to the elevator attendant or, if desired, the engineer, as it is obvious that the bell may be located at any convenient and desirable point.

Fig. 7 shows the details of the angular lever pivoted at *o*, which is a form that I consider desirable for operating my device where it is to be placed at the side or at the corner of the elevator well distant from the door.

By a system of levers it is obvious that the upright rod *e* can be duplicated on the opposite of the car, and this may be desirable sometimes where the elevator is designed for heavy loads.

While I have not shown in the drawings the method by which I apply my device to doors which open by swinging instead of by sliding, it is obvious that such an application can be made with facility, and I desire that my patent shall cover this application as well as the one shown in my drawings.

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

1. A locking device for holding elevator-cars at their landings, consisting of the lever *c*, the door provided with projections *b b* the link-lever *d*, the rod *e*, and the arms *h h'*, substantially as described. 35

2. In devices for holding elevator-cars at their landings, the combination of the upright rod provided with stops having a space between them greater than the height of the car, bearings for the rod, buffer-springs to ease the contact of the car with the stops, and connections between the rod and the elevator-well door, whereby when said door is opened the stops are thrown into the path of the car and when the door is closed said stops are withdrawn, all substantially as described. 45

3. The combination, with a moving elevator-car, of a locking device adapted to hold the car at its landings, the door opening into the elevator-well, connections whereby said lock is operated upon the movement of the elevator-well door, and electric connections adapted to operate an alarm when the car is in contact with the locking device, all substantially as described. 55

In witness whereof I hereunto subscribe my name.

HENRY L. HOLLIS.

Witnesses:

EDITH M. ARNOLD,  
GEORGE L. CRAGG.