

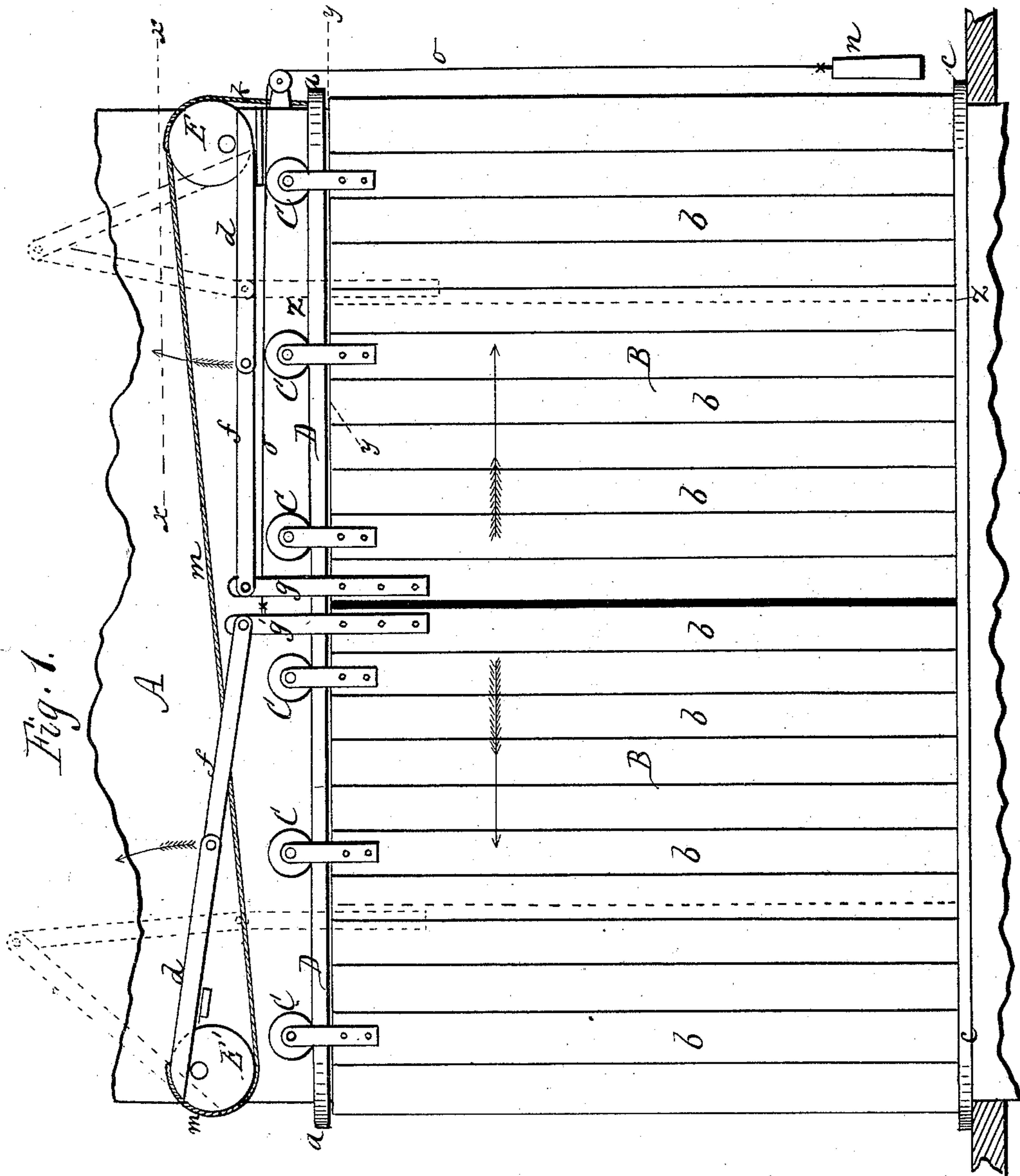
(No Model.)

3 Sheets—Sheet 1.

C. J. LATZ.  
ELEVATOR GUARD.

No. 421,940.

Patented Feb. 25, 1890.



Witnesses

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Inventor  
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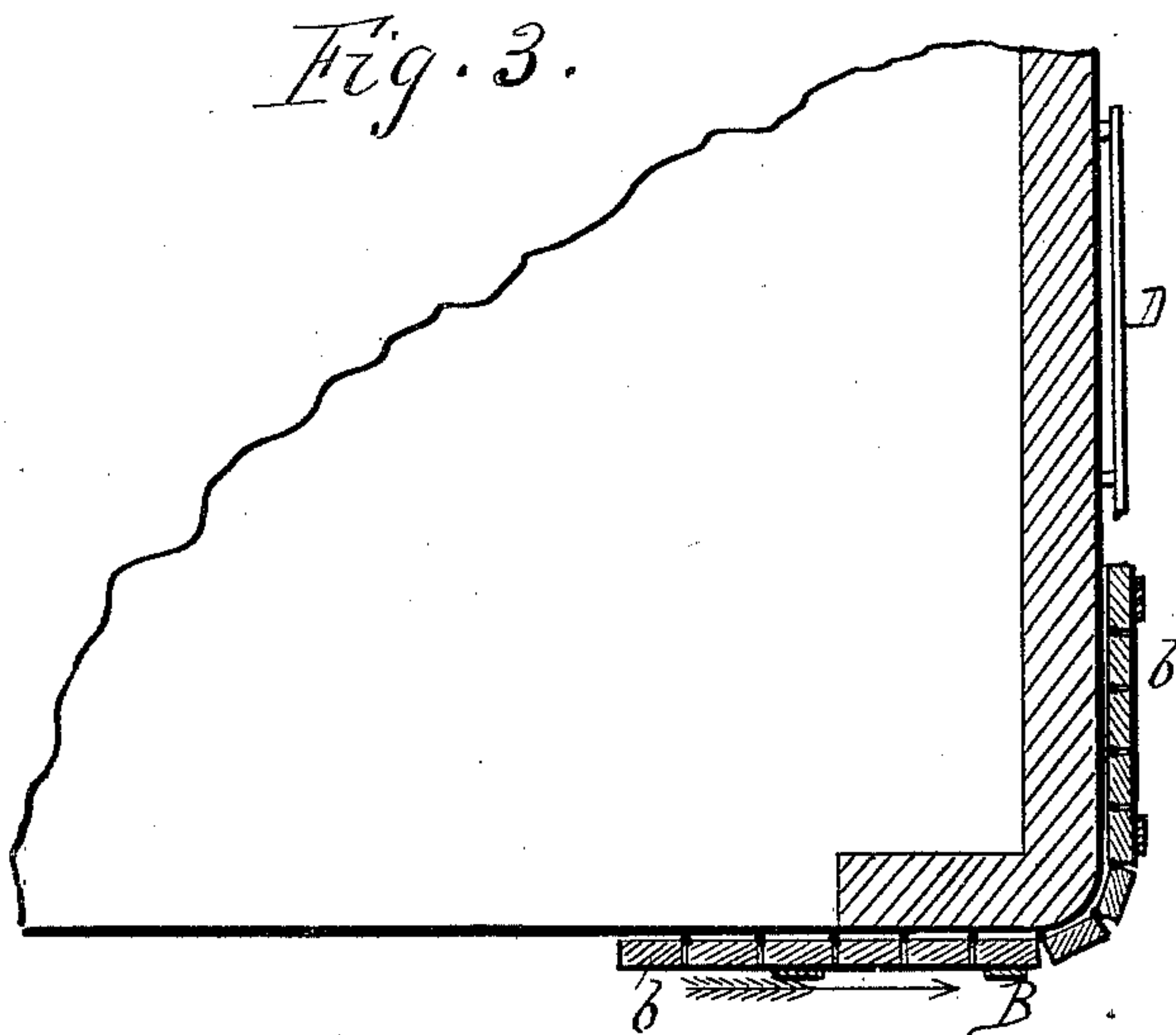
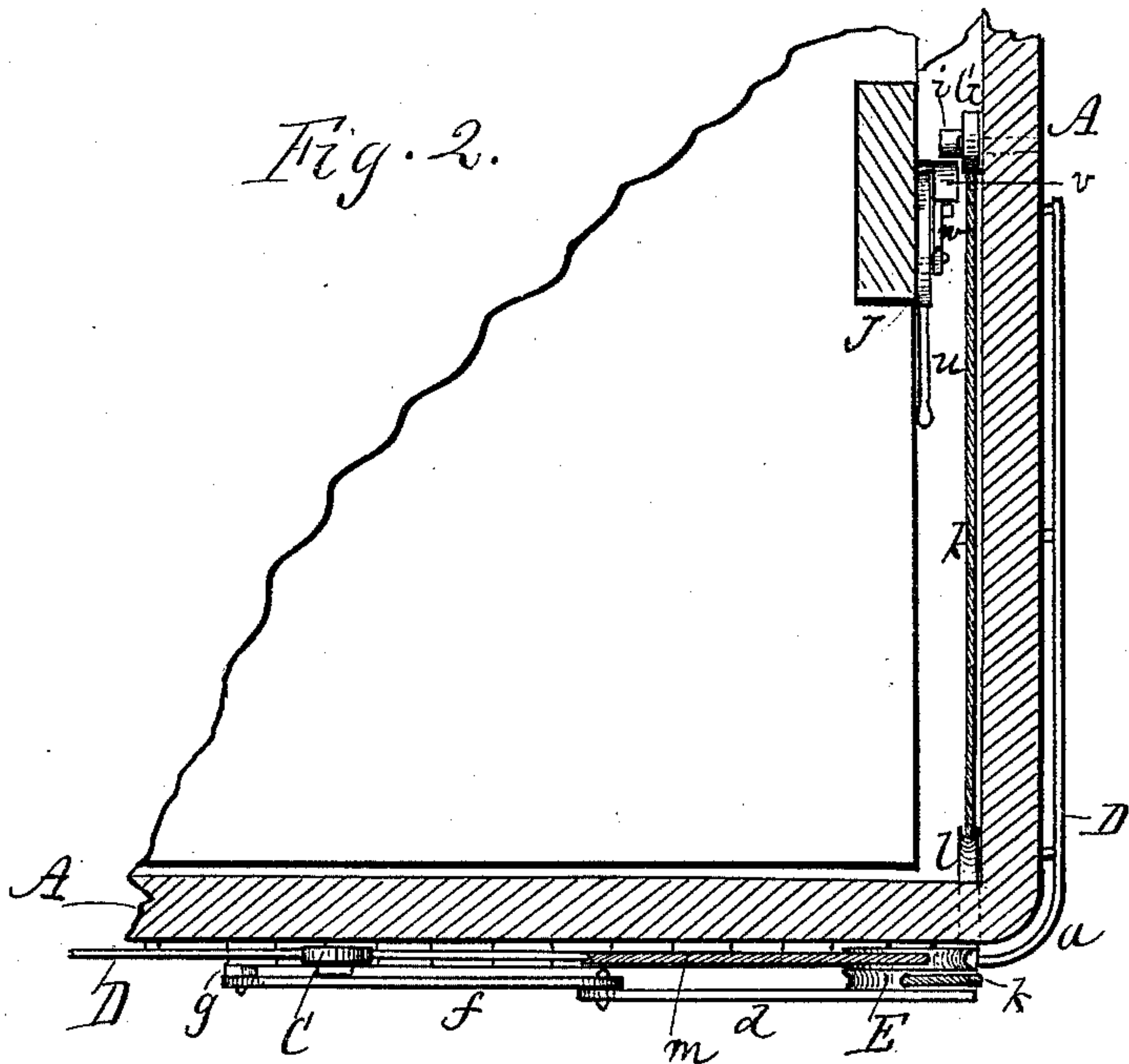
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3 Sheets—Sheet 2.

C. J. LATZ.  
ELEVATOR GUARD.

No. 421,940.

Patented Feb. 25, 1890



Witnesses

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# UNITED STATES PATENT OFFICE.

CHARLES J. LATZ, OF ROCHESTER, NEW YORK, ASSIGNOR OF THREE-  
FOURTHS TO JOHN WEHLE, OF SAME PLACE.

## ELEVATOR-GUARD.

SPECIFICATION forming part of Letters Patent No. 421,940, dated February 25, 1890.

Application filed April 26, 1889. Serial No. 308,752. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES J. LATZ, of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Elevator-Guards; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the drawings accompanying this application.

My improvement relates to sliding doors for closing the passages to elevator-wells.

One feature of my invention is a door composed of hinged sections or lags, and so arranged that it can be slid around the corner of an elevator-well, preserving close contact with the sides, thereby avoiding unnecessary projection of the door when opened and economizing space.

The invention further consists in the means for operating the doors automatically by the elevator in its passage up and down, as will be more fully described.

In the drawings, Figure 1 is a front elevation of a portion of the elevator-well and two doors covering the passage to the same, said doors being shown in the closed position. Fig. 2 is a cross-section of one corner of the well in line  $x x$  of Fig. 1. Fig. 3 is a similar section of one corner of the well in line  $y y$  of Fig. 1. Fig. 4 is an enlarged vertical cross-section in line  $z z$  of Fig. 1. Fig. 5 is a detail view of the eccentric.

A indicates the elevator-well, and B B the two sliding doors covering the entrance to the same. These doors are suspended by hangers C C C, the rollers of which run forward and back on a track or way D, similar to that of barn-doors, said track or way being permanently attached to the outside of the well above the doors, and extending not only across the front, but also around the sides, as shown in Fig. 2. The corners  $a a$  of the track, where it passes from the front to the sides, are curved, as shown in Fig. 2, to allow easy passage of the rollers.

Each of the doors B is made up of a series of vertical lags or strips  $b b$ , which are hinged together, thus allowing the door to bend as it passes around the corner of the well. When the doors are in front and close the pas-

sage, as shown in Fig. 1, they stand in a straight length; but when they are run back to open the passage, as shown in Fig. 3, they are curved, a portion standing in front and a portion on the sides, the doors adapting themselves closely to the sides of the well and having no projection. At the bottom the doors are kept in place and guided by resting loosely inside a flange  $c$ , that extends all around.

The advantage of these flexible doors is, that they are made close-fitting to the sides of the well and leave no projection outward when opened, as stiff sliding doors do. They are of service in those places where the space is narrow, as at landings at the head of stairs, and in basements, where a passage only is left between the elevator-well and wall and where a stiff door would stand in the way.

The doors are operated by the following means:

E E' are two pulleys on opposite sides, pivoted eccentrically to the outside of the well above the doors.  $d d$  are stiff arms attached to the pulleys and turning with them.  $f f$  are arms pivoted at one end to the stiff arms  $d d$  and at the other to studs  $g g$ , fixedly attached to the doors B B. The arms  $d f$  form toggles. When the doors are closed, these toggles straighten and lock the doors in position, as shown in full lines, Fig. 1. To open the doors, the pulleys E E' are turned, which raises the arms  $d d$  and draws the doors back, as indicated by the dotted lines, Fig. 1. The operation of opening and closing the doors is performed by turning the pulleys E E'.

G, Fig. 4, is a crank-arm pivoted at  $h$  on the inside of the well and provided at its lower swinging end with a projecting stud  $i$ .

$k$  is a cord attached to the lower end of the crank-arm, thence extending under and around a pulley  $l$  at the side of the well, and thence extending up around the outside of the pulley E and attached permanently there to, as shown in Figs. 1 and 2.

$m$  is another cord or cable attached to the top of pulley E, thence extending back under and around pulley E', and attached to the latter permanently, as shown at the left



in Fig. 1. It will be seen that when crank-arm G is swung to the left it draws on cable *k* and turns pulley E, and opens the door on that side, and pulley E draws on cable *m* and turns pulley E', and thus opens the door on the other side. The doors are closed again, when the power is removed, by means of a weight *n*, hung on a cord *o*, which is attached to the stud *g'* or to the door.

10 H, Fig. 4, is a cam on the elevator I for operating the crank-arm G. It consists of two toggle-arms *r r*, pivoted together in the center and having free movement at that point. The upper end is permanently pivoted to the elevator, as shown at *t*, and the lower end has free vertical movement in a slot of the elevator, as shown at *s*.

J is an eccentric pivoted to the elevator opposite the center of the cam and provided with a handle *u*, by which it is turned. The eccentric is provided on one side with a flange *v*, which, when turned outward, strikes the joint of the cam H and forces it forward, as shown in full lines, Fig. 4. When the eccentric is turned back, the flange frees from the cam and allows the latter to retract. When the cam is thrown out, as in full lines, the inclined side strikes the stud *i* of the crank-arm G and throws it to the left, thus opening the doors. When the cam is thrown back, it runs entirely clear of the crank-arm and the latter will not be operated.

*w* is a link pivoted at one end to the eccentric J and at the other to the joint of the two toggle-arms *r r*, that form the cam. When the eccentric is turned so as to free the eccentric flange from the cam, the link draws the cam back into its straight position. The operator, by turning the handle *u*, can adjust the cam so as to operate the doors as the elevator goes up and down, or so as to run free and leave the doors closed. The double inclined form of the cam causes the doors to be operated both in going up and down. This same mechanical arrangement can be used for operating stiff doors either horizontally or vertically, as well as the flexible doors described. It is obvious, also, that a single door only may be operated instead of double doors

in those cases where only a single door is used opening into the well. 50

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

1. The combination, with the flexible sliding door, of a pulley pivoted to the side of the well, folding toggle-arms connecting said pulley with a stud on the door by which said door is opened, a crank-arm pivoted inside the well so as to swing forward and back, a cam on the elevator-car for operating the crank-arm, and a cable connecting the crank-arm with the pulley and by which the latter is operated, as described. 55 60

2. The combination, with the crank-arm pivoted inside the well so as to swing forward and back, of a cam on the elevator-car for operating said crank, consisting of two toggle-arms capable of being thrown into an angular position to operate the crank-arm in ascending and descending and of being thrown into a straight position to run clear of the crank-arm, as herein shown and described. 65 70

3. The combination, with a crank-arm pivoted inside the well so as to swing forward and back, of a cam on the elevator-car for operating said crank-arm, consisting of two toggle-arms, an eccentric for throwing said toggle-arms out, and a link connecting the toggle-arms with the eccentric for drawing the toggle-arms back, as herein shown and described. 75 80

4. The combination, with two flexible sliding doors, of two pulleys pivoted to the side of the well on opposite sides, stiff arms attached to said pulleys, connecting-arms pivoted to the stiff arms and to studs on the doors, and a connection between the two pulleys, whereby both are operated simultaneously to open both doors, as described. 85 90

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

CHARLES J. LATZ.

Witnesses:

R. F. OSGOOD,  
Z. L. DAVIS.