

(No Model.)

R. M. KERSHAW.

GATE FOR ELEVATOR HATCHWAYS.

No. 390,864.

Patented Oct. 9, 1888.

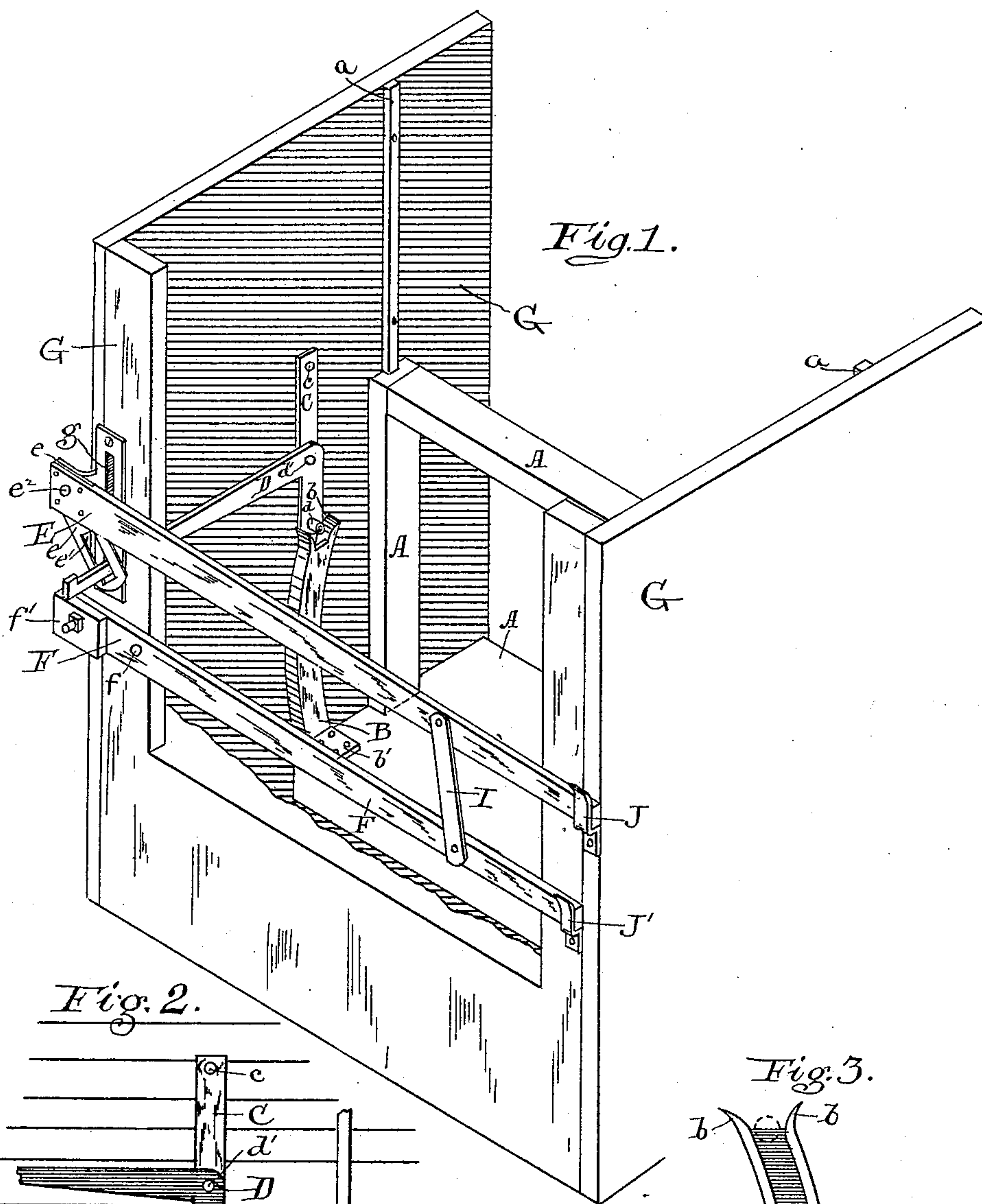
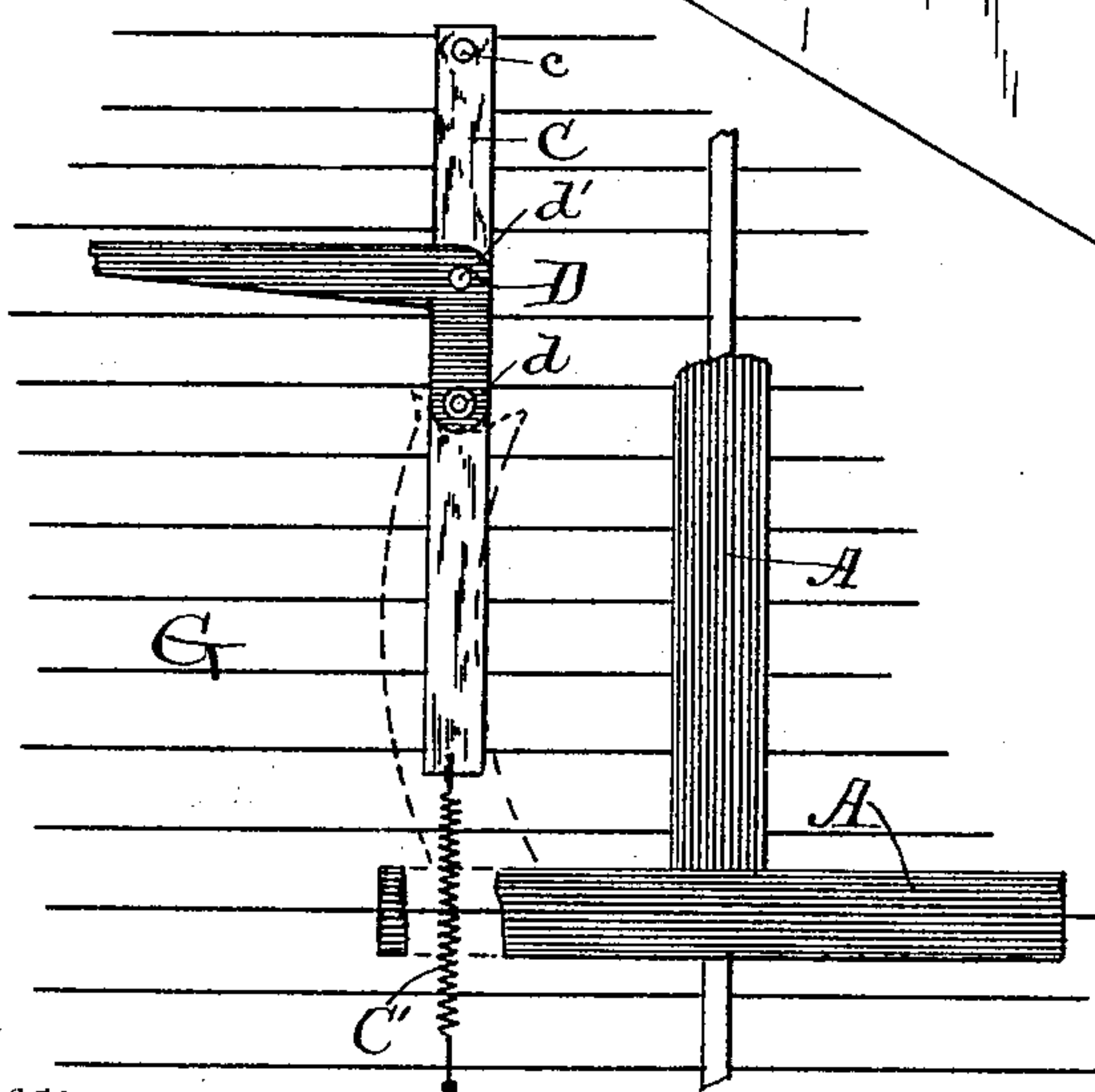
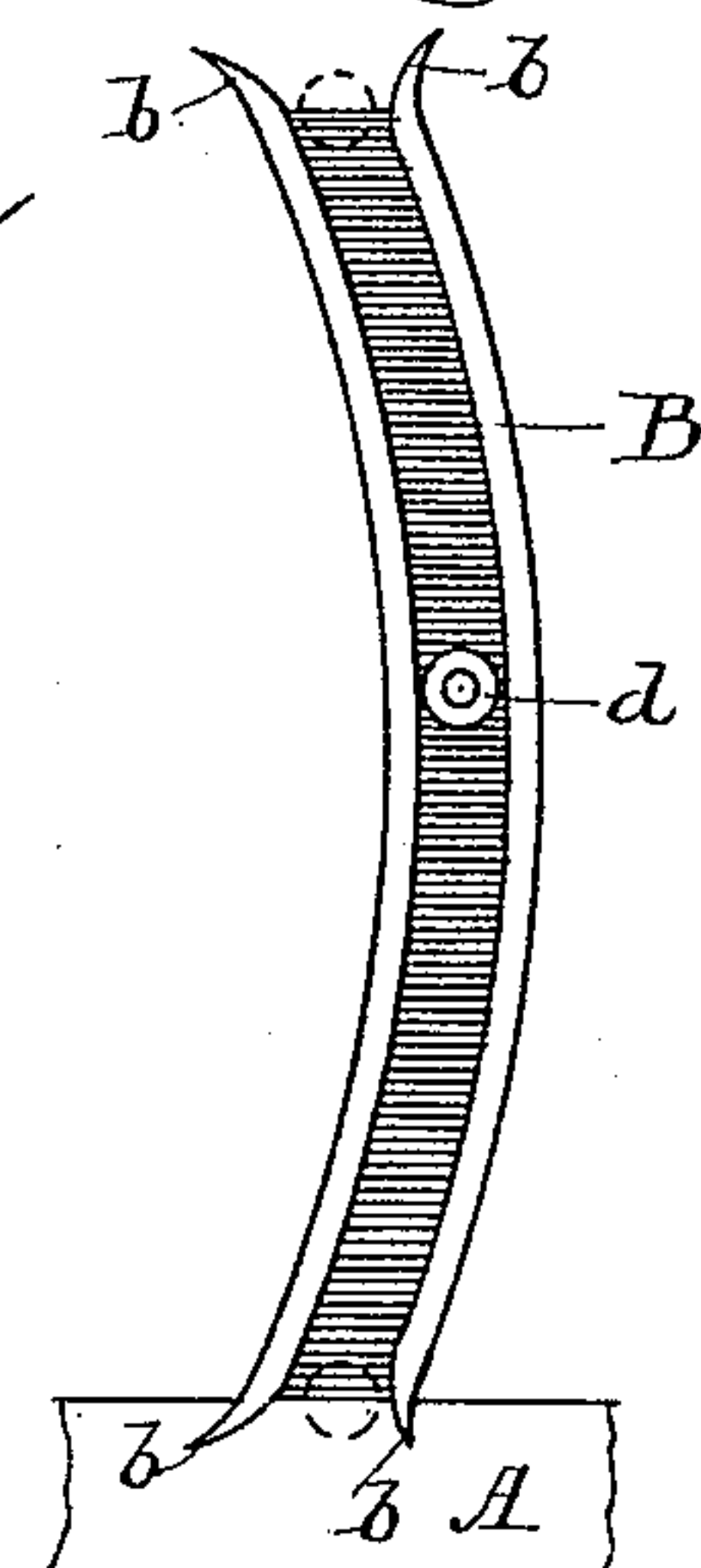


Fig. 2.



Witnesses:  
Charles S. Loomis.  
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Fig. 3.



Inventor:  
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# UNITED STATES PATENT OFFICE.

ROBERT M. KERSHAW, OF AUBURN, MAINE.

## GATE FOR ELEVATOR-HATCHWAYS.

SPECIFICATION forming part of Letters Patent No. 390,864, dated October 9, 1888.

Application filed June 4, 1888. Serial No. 275,964. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT M. KERSHAW, a citizen of the United States, residing at Auburn, in the county of Androscoggin and State of Maine, have invented certain new and useful Improvements in Automatic Gates for Elevator-Hatchways; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to automatic gates for closing the entrance to elevator-hatchways.

My invention relates more particularly to freight-elevators, although it is applicable to passenger-elevators.

The object of the invention is to construct a gate which shall automatically open and close with a positive motion, and in which suitable provision is made for the catching or sticking of the gate.

A further object of the invention is to construct such a gate as may be cheaply made and which will be simple and durable.

I illustrate my invention by means of the accompanying drawings, in which—

Figure 1 is a perspective view of my device with the gate closed. Fig. 2 is an elevation showing the elbow-lever and adjacent parts. Fig. 3 is an elevation of the cam or guide.

The drawings represent the hatchway-opening on one floor.

G G are the walls of the elevator-well, and A is a freight-elevator car of ordinary construction. The elevator runs on the guides *a* in the usual manner. A cam, B, is secured in an upright position to the elevator A by means of a flange, *b'*, at the bottom. The cam B contains a path or channel on that face which comes next the walls of the elevator-well, and it has an opposite inclination from the center toward either end. It may have a curved or bow form, as here shown, or it may be angular with straight sides inclining in either direction from the center. At the ends of the cam the walls *b* are carried outward, forming flaring openings.

To the side of the elevator-well, at each floor, is pivoted the upper end of a vertical lever, C, by means of the pivot *c*. To the lower end of this lever is attached a spring, C', which is also secured to the side of the well

directly in the line of the lever C, thus holding it by its tension in an upright position. To this vertical lever is pivoted the elbow-lever D by means of the pivot *d'*, which passes through the angular part of said lever. The lever D has a short arm which extends directly downward, and has on its end and projecting at right angles to its face an anti-friction roll, *d*, adapted to travel in the channel of the cam B. The lever D also has a long arm which extends horizontally outward through a slot, *g*, in the wall of the well and at the side of the opening in front of the hatchway. A bar or gate, E, extends horizontally across this opening, one end of it being pivoted at *e*. A plate, *e*, secured to it at the pivoted end, contains a slot which extends downward in an inclined direction and admits the passage through it of the end of the long arm of the lever D.

Below the gate or bar E is pivoted the bar F by means of a pivot, *f*. The bar F is counterbalanced by means of the weight *f'*, secured to its end. A link, I, is pivoted by its ends to each of these bars and causes them to act together. Rests or catches J and J' are provided to sustain the ends of the bars E and F.

The position of the lever D is so arranged that when the elevator is at the level of the floor or landing the roll *d* will be midway of the channel of the cam B, and consequently will be pressed to its greatest extent toward the front of the elevator.

The operation of my device is as follows, namely: When the elevator is above or below the landing, the gate remains closed in the position shown in Fig. 1. As it rises, bearing with it the cam, the roll *d* enters the channel and is gradually pressed toward the gate. The long arm is thus raised, and by its action on the slotted plate *e*, through which it passes, it raises the bar E to an upright position, the bar F rising also and aiding in raising the bar E by reason of the counter-weight *f'*, which is designed to be more than sufficient to lift the bar F alone. As the elevator moves up or down from the landing, the roll gradually returns to its former position, and as the long arm of the lever D falls it forces down the arm E with it. The spring C' is designed to be sufficiently stiff, so that as the lever D is pressed laterally the lever C will not yield to any extent. If, however, any obstruction is



placed against the gate, whereby it cannot be raised, as often happens in stores and warehouses, then the lever C gives way laterally with the lever D, and the long arm of lever D instead of rising moves out longitudinally through the slot *e'*. The lever C thus constitutes a laterally-yielding support for the lever D, and it is obvious that this support may be provided in a number of ways other than by the exact mechanism here shown. It will thus be seen that by the movement of the elevator the gate is raised and lowered at the proper time by a positive movement not depending on the weight of the gate, as in many devices of this kind, and that the obstruction of the gate is duly provided for, thereby preventing all breakage of the parts of the device.

The two horizontal bars shown may be replaced by any suitable gate capable of being tilted to a vertical position.

I do not wish to limit myself to the exact device illustrated and described, for it is evident that changes and modifications may be made in the apparatus without departing from the spirit of my invention as expressed in the claims.

If when the gate is raised any obstruction is placed under it to prevent its closing, the upright lever C and the lever D will be moved horizontally backward, allowing the roll to pass from the cam without injury to any part. When released from the cam, the roll will move forward, clearing or moving against the convex side of the cam as the latter moves up and down so long as the obstruction continues.

I claim—

1. In an automatic gate for elevator-hatchways, the combination of an elevator, a cam having an oppositely-inclined channel or guide

attached thereto, an elbow-lever having a long and a short arm, the latter containing an anti-friction roller or projection adapted to travel in said channel, and a gate pivoted at the side of said hatchway and containing a slot or opening through which the long arm of said lever passes, whereby said gate is raised and lowered with a positive motion, substantially as shown.

2. In an automatic gate for elevator-hatchways, the combination of a vertical lever pivoted by its upper end to the sides of the well, a spring for retaining it in a vertical position, an elbow-lever having a long and a short arm and being pivoted at its angle to said vertical lever, an anti-friction roll on the end of said short arm, a cam having an oppositely-inclined channel attached to the elevator adapted to admit the passage of said anti-friction roller, and a gate pivoted at the side of said hatchway and adapted to be raised by the long arm of said elbow-lever, substantially as shown.

3. In an automatic gate for elevator-hatchways, the combination of an elevator, a cam having an oppositely-inclined channel secured thereto, an elbow-lever having a long and a short arm, an anti-friction roll or projection on the end of the latter and adapted to travel in said channel, said elbow-lever being pivoted at its angle to a laterally-yielding support, and a gate adapted to be raised by the long arm of said elbow-lever, substantially as shown.

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

ROBERT M. KERSHAW.

Witnesses:

ORLANDO J. HACKETT,  
ADDISON A. MILLER.