(No Model.) 2 Sheets—Sheet 1.

A. T. RAMSDELL.

MECHANISM FOR OPERATING ELEVATOR GUARDS.

No. 305,472. Patented Sept. 23, 1884.

Fig: 2.

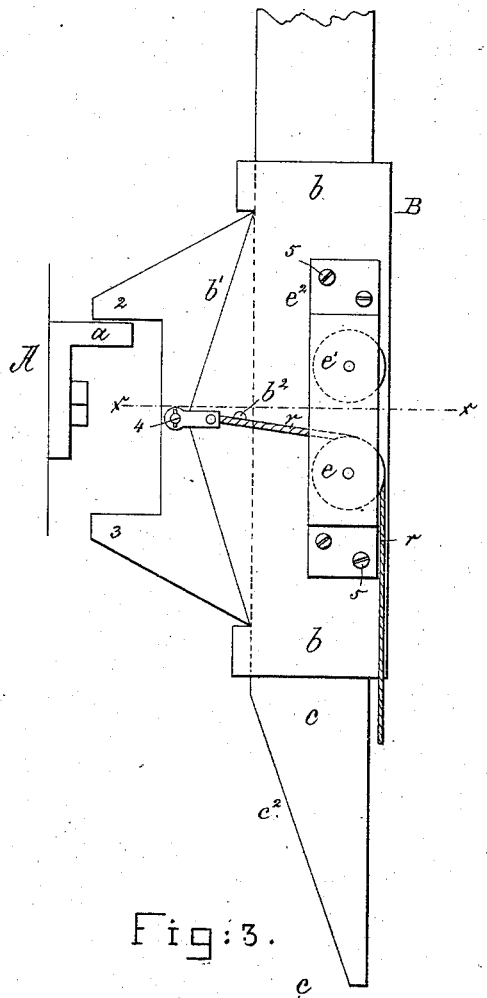


Fig: 1.

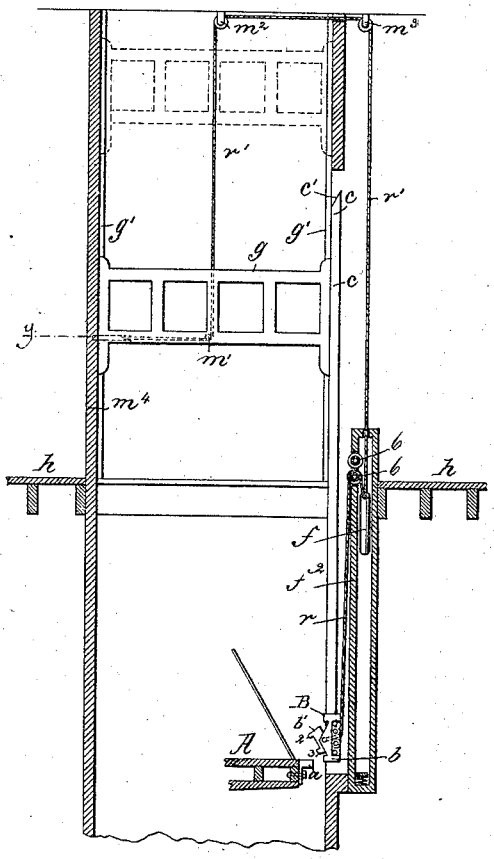


Fig: 3.

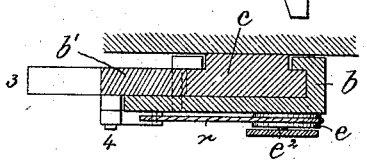
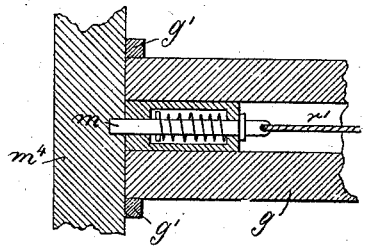


Fig: 4.



Witnesses.

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(No Model.) 2 Sheets—Sheet 2.

A. T. RAMSDELL.

MECHANISM FOR OPERATING ELEVATOR GUARDS.

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Fig. 5.

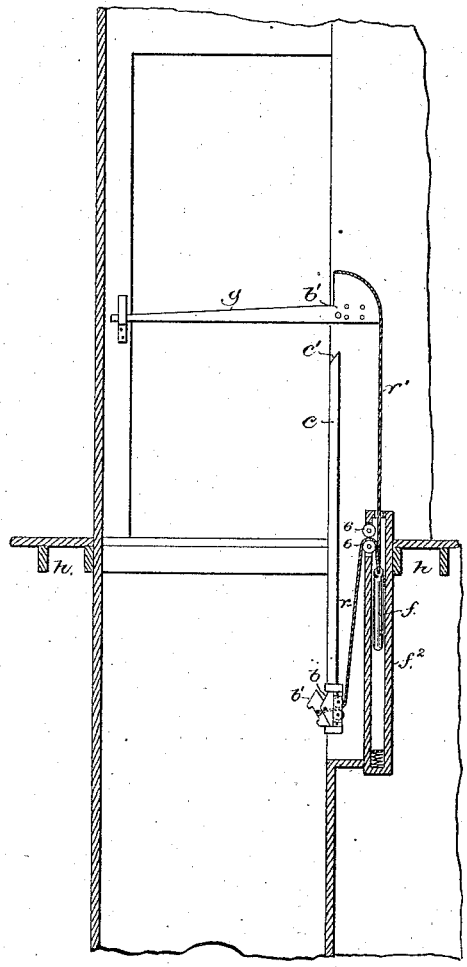


Fig. 6.

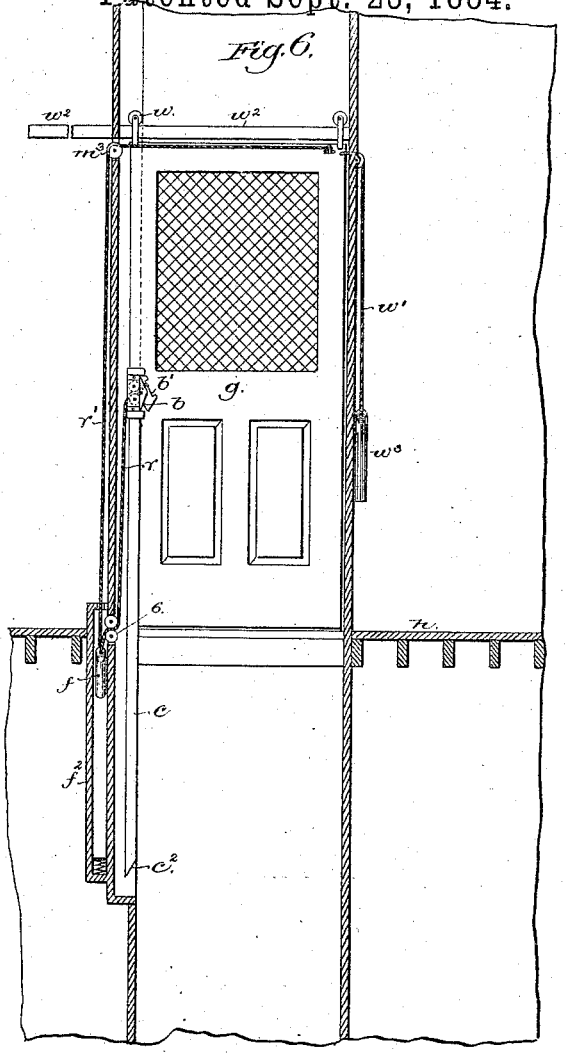
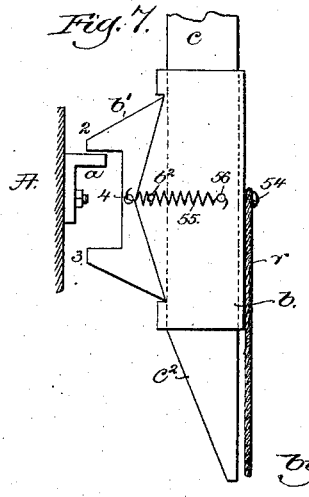


Fig. 7.



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UNITED STATES PATENT OFFICE.

ALVAH T. RAMSDELL, OF BOSTON, MASSACHUSETTS.

MECHANISM FOR OPERATING ELEVATOR-GUARDS.

SPECIFICATION forming part of Letters Patent No. 305,472, dated September 23, 1884.

Application filed March 14, 1884. (No model.)

To all whom it may concern:

Be it known that I, ALVAH T. RAMSDELL, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Mechanism for Operating Elevator-Guards, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My improvement in elevators relates to the combination, with the car, of mechanism actuated by it to handle a weight which, by connections with, controls the movement of a gate or closing device made either as a slide or pivoted to swing, the said gate closing and opening the entrance from the elevator well or car to the hallway or passage of a building, as will be described.

Figure 1 in vertical section represents a sufficient portion of an elevator-car and building to illustrate my improvements; Fig. 2, a detail, on a larger scale, of the weight-operating mechanism. Fig. 3 is a section of Fig. 2 on the dotted line *x x;* Fig. 4, a sectional detail of the gate and its fastening device on the line *y y*, drawn through the lower rail of the gate and through the bolt-case, but above said bolt. Fig. 5 is a modification showing my improved devices applied to move a pivoted gate, and Fig. 6 a modification showing the same applied to a horizontally-sliding gate; and Fig. 7 is a modification to be described.

The car A, of any suitable construction, and operated in any usual manner, has a projection, *a*, by which to operate the weight-moving devices B, composed of a metal carriage, *b*, and a catch, *b'*, pivoted thereon at b^2, the catch having toes 2 3, which are adapted to be engaged by the projection *a* both as the car ascends and descends, the projection *a* engaging and leaving the catch both during its ascent and descent, as will be described. The carriage *b* is flanged at its inner or rear side to embrace and slide upon the T-shaped or flanged guide bar or track *c*, attached to the side of the building, and inclined or beveled at its upper and lower ends, as at c' c^2, to form carriage-locking surfaces. The catch *b'* has a pin, 4, to which is attached, preferably, a rope, *r*, but it might be a chain, *d*, which is passed between rollers or sheaves *e e'* in a sheave-plate, e^2, attached to the carriage *b* by screws 5, or in other suitable manner. Beyond the said sheaves the rope *r* is passed between two other sheaves, 6, mounted in the weight-case f^2, fastened to the building, the said rope having attached to it a suitable weight, *f*, which is preferably but little heavier than the gate *g*, which, as shown in Figs. 1 and 4, is adapted to slide vertically between suitable guides, *g'*, at the sides of the casing or entrance-way from the elevator-well to the landing, there being a gate at each landing, the floor *h* of but one landing being, however, shown in the drawings. The gate *g* (shown in Figs. 1 and 4) is provided with a fastening device, shown as a spring-bolt, *m*, to which the end of the cord or rope *r'* is attached, the said rope passing over sheaves at m' m^2 m^3, and meeting the rope *r* at the weight *f*.

When the parts are in the position Fig. 1, the face of the catch *b'* below its pivot rests against the inclined face c^2 of the guide-bar or track *c*, and as the pin 4 is then lower than the pivot b^2 of the catch, the latter will be held in the position Fig. 1 by the weight, and in such position the weight will be suspended by the rope *r*, the rope *r'* at such time being relieved from the stress of the said weight, the bolt *m* entering a hole made in the guide m^4, and serving as a locking device for the gate. In its upward movement the projection *a* of the car meets the toe 2 of the catch *b'*, carries the catch up with it, and tips the catch on its passage, so that both ends of the catch rest on the straight side of the guide or track *c*. As the carriage is thus lifted, the weight *f* descends, and as the weight commences to descend it draws upon the rope *r'*, withdrawing the bolt *m*, and as the weight *f* is heavier than the gate, the latter rises as the rope *r* lets the weight fall, and by the time that the platform of the car A reaches the landing *h* the gate is lifted into its dotted-line position, Fig. 1, opening or unbarring the entrance-way to the car-platform. As the car continues to rise above the landing *h*, the projection *a* yet engaging the toe 2, the carriage commences to lift the rope *r* and weight *f*, thus permitting the gate attached to the outer end of the rope *r'*, then

relieved from the strain of the weight *f* by the rope *r*, which is then being lifted by the car, to descend by its own gravity until it reaches its position to close or bar the passage from the landing or hallway to the well of the elevator, when the locking device or bolt *m* comes opposite the hole made in the guide m^4 to receive it, and locks the gate. When the gate arrives in position to be locked, as described, the projection *a* of the car has lifted the carriage *b* sufficiently high on the track *c* to carry the upper end of the catch *b'* above the straight edge of the said track, when, owing to the location of the pin 4 with relation to the pivot b^2, and the fact that the chain *r* is at such time extended about the sheave *e'*, the catch *b'* is turned upon or about its pivot b^2, and is placed with its flat edge against the inclined edge *c'* of the track *c*, in which position the said catch serves as a lock to hold the carriage *b* in place while the car rises and the projection *a* leaves the catch, and the carriage and the said catch, with the attached ropes, hold up the weight *f*, with the gate in position to close the entrance from the hallway into the elevator-well. The car as it rises will meet a second catch on a second carriage, and in the manner as described will operate the gate for the next floor, and so on.

Instead of the vertically-sliding gate, I may use a vibrating or pivoted gate, *g*, as shown in Fig. 5, the said gate being pivoted at *t'*, the rope *r'* being attached directly to the gate, as shown at one side of its pivot, the weight *f*, when permitted to descend, lifting the gate, the latter being sufficiently heavy to close itself when the weight is lifted.

In Fig. 6 I have shown my improved devices arranged to operate a horizontally-sliding gate having attached rollers *w*, to run on a track, w^2. In the said figure the gate, made as a door, has connected with it a rope, *w'*, which is extended over a sheave, and has attached to it a closing-weight, w^3. The rope *r'*, extended over the sheave m^3, common to Fig. 1, is attached to the top of the horizontally-sliding gate, Fig. 6, and the weight *f*, operated as before described, is adapted to open the gate at the proper time with relation to the position of the car.

I do not desire to limit my invention to the exact form of carriage and latch, but consider as within my invention any form of latch on a carriage which is adapted to be slid up and down on a track to control a weight so that that weight at the proper time will slide or move a gate-closing device to open or bar the entrance way from an elevator-well to the landing of a building or carriage, the catch also at times acting to suspend the weight, as described.

The ropes *r r'* form a flexible connecting device between the weight-moving device and gate, and also a support for the weight.

The sheaves *b b'* form a guide for the rope *r* at or near the weight when in its highest position, and the sheaves *e e'* form a guide or constitute rests for the said rope between the side of the carriage and the pin 4 of the latch, so that the rope *r* may bear on first one and then on the other sheave, both as the carriage ascends and descends, to change the angle of the pull of the rope on the catch, in order that it may at the proper time tip over upon the surfaces *c' c²*.

Instead of the sheaves, the edge of the part c^2 might be rounded to prevent wear of the rope. The sheaves *e e'* form bearing-points on the carriage for the rope or chain.

As a modification of my invention, the rope *r* may be connected directly to the carriage, as at 54, and the catch may be provided with a spring, such as shown at 55, the same spring being connected with the pin 4, and with the carriage at 56.

I claim—

1. In an elevator, a movable gate or door to close the passage between an elevator-shaft and landing of a building, and a weight-moving slide adapted to be slid on a guide or track by the car, combined with flexible connection between the gate and slide, and with a weight attached to the said flexible connection between the gate or door and the slide, to operate substantially as described.

2. In an elevator, a gate, a rope, *r'*, connected therewith, and an attached weight, combined with the rope *r*, substantially as described.

3. The track *c*, carriage thereon, and catch pivoted on the carriage, combined with the car and a projection thereon to engage the catch and move the carriage on the track, substantially as described.

4. The track provided with carriage-locking surfaces, a carriage placed on the said track, a catch pivoted on the said carriage and having toes, combined with an elevator-car provided with a projection to engage and retire from one of the toes of the latch as the car is ascending, taking with it the carriage and leaving it at the inclined portion *c'* of the track, the projection on the car, as the latter descends, engaging the other toe of the catch and moving the carriage downward on the track, the said projection retiring from the said toe at the inclined portion c^3 of the track, substantially as described.

5. In an elevator, a movable gate, a rope, *r'*, connected with it, a weight attached to the rope, a track, a carriage thereon provided with a catch, a rope, *r*, to connect the catch with the said weight, and a sheave or guide for the rope *r*, combined with a car provided with a projector to engage the catch and move the carriage on the said track, the carriage, as the car approaches the elevator-landing, acting to slacken the rope *r* and permit the weight to descend to move the gate to open the entrance-way to the elevator-well, and as it recedes from the said landing lifting the weight in the direction to slacken the rope *r'*, to re-

lieve the gate and permit it to descend by gravity, and close the entrance-way to the elevator-well, substantially as described.

6. In an elevator, a gate or door and its spring-actuated bolt, catch, or lock, and rope r', attached to the lock and adapted to lift the gate and permit it to descend by its own gravity, combined with a weight attached to the rope which lifts the gate, and with a slide, substantially as described, to operate the weight, the latter, as it commences to descend to lift the gate, first acting to withdraw the lock to unfasten the gate, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALVAH T. RAMSDELL.

Witnesses:

W. H. SIGSTON,

JOS. P. LIVERMORE.