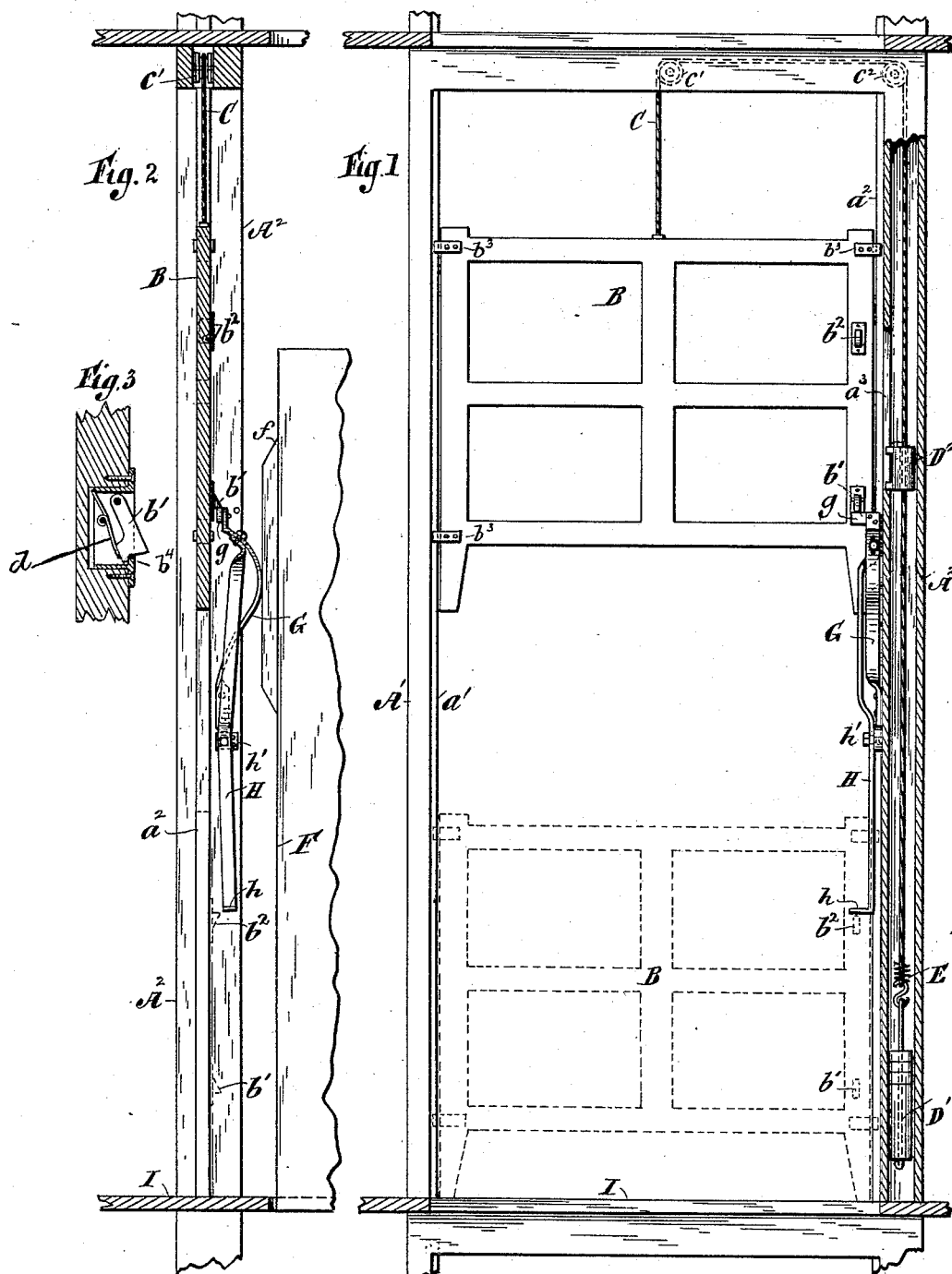


(No Model.)

D. FRASER.  
ELEVATOR GUARD.

No. 421,395.

Patented Feb. 18, 1890.



Witnesses  
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# UNITED STATES PATENT OFFICE.

DANIEL FRASER, OF NEW YORK, N. Y., ASSIGNOR TO THE EXCELSIOR ELEVATOR GUARD AND HATCH COVER COMPANY, OF SAME PLACE.

## ELEVATOR-GUARD.

SPECIFICATION forming part of Letters Patent No. 421,395, dated February 18, 1890.

Application filed June 26, 1889. Serial No. 315,683. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL FRASER, of New York, in the county and State of New York, have invented a certain new and useful Improvement in Guards for Elevator-Hoistways, of which the following is a specification.

I will describe a guard for an elevator-hoistway embodying my improvement and then point out the novel features in claims.

In the accompanying drawings, Figure 1 is a vertical section of a hoistway having my improvement applied to it, the view being taken looking toward the front of the hoistway from the inside. Fig. 2 is a vertical section of the hoistway and appurtenances, taken in a plane at right angles to that of Fig. 1. Fig. 3 is a vertical section of the lower part of a gate.

Similar letters of reference designate corresponding parts in all the figures.

A' A<sup>2</sup> designate posts at the front of the hoistway. They are not guide-posts for the elevator-car, but they are the posts which form the sides of the opening affording communication between the hoistway and a floor of a building.

B designates a vertically-sliding gate. It is provided with clips or plates b<sup>3</sup>, which embrace ribs a' a<sup>2</sup>, arranged upon the opposite sides of the posts A' A<sup>2</sup>.

At the center of the upper portion of the gate a cord or chain C is attached. This cord C passes around guide-pulleys c' c<sup>2</sup> and thence descends into the post A<sup>2</sup>, the latter being of hollow construction to admit of this. The cord C has attached to the lower end a weight D' for counterbalancing the gate. This weight is not intended to be equal to the weight of the gate; but it prevents the gate from descending violently.

D<sup>2</sup> designates another weight. That portion of the cord C which descends within the post A<sup>2</sup> passes through this weight. The weight projects through a guide-slot a<sup>3</sup> in one side of the post A<sup>2</sup>. Normally the weight D<sup>2</sup> is supported at the bottom of this slot. The bottom of the slot therefore forms a rest for it.

E designates a spiral spring surrounding the lower end of the cord C, where this is at-

tached to the counterbalance-weight D'. When the gate descends, the weight D' is raised, and when the spring E contacts with the under side of the weight D<sup>2</sup> the latter will be picked up without any violent shock and carried upwardly. If it contacts with the upper end of the slot a<sup>3</sup>, the further ascent of the weights will be arrested, but not with any violent concussion, because if the weight D<sup>2</sup> is thus stopped the spring E will yield and stop the weight D' slowly. When the ascent of the weights is terminated, the descent of the gate is likewise ended.

F designates a portion of an elevator-car, which may be of any ordinary construction, saving only that it has upon the front a cam f. This cam operates upon a spring G, consisting of a bent strip of metal secured to the side of the post A<sup>2</sup>.

If the gate is raised at the time when the floor of the elevator-car is opposite the floor I of the building, it will be locked in a raised position, because the cam f of the elevator-car will force the free end of the spring G forward to engage with the gate. When the spring is forced forward, an arm or detent g, with which it is provided, passes along a hook or projection b', extending from the back of the lower portion of the gate B. The gate will be secured in the raised position as soon as the elevator-car occupies a position with its floor in line with the floor I of the building. Whenever the elevator-car moves materially either up or down from this position, the free end of the spring will be moved backwardly, or away from the front of the hoistway. Then the gate will descend until it reaches its lowest position. The hook or projection b' preferably will be pivotally connected in a recess in the gate and impelled outwardly, by a spring d, so that it may move inwardly to allow it to pass the detent g, if the gate be raised after the elevator has reached the position with its floor in line with the floor I of the building.

The gate has on its back near the top a hoop or projection b<sup>2</sup>. When the gate is lowered, the hook or projection b' will come beneath the plane of the arm h of a lever H, which is fulcrumed about midway between its ends by a pin h' to the inner side of the

post A<sup>2</sup>. The upper end of this lever is rigidly connected to the spring G, near the free end of the latter. This spring, therefore, will always swing backwardly the upper end of the lever and forwardly the lower end of the lever, excepting when the elevator-car is in such position that its cam *f* forces forward the upper end of the spring. When the upper end of the spring is moved forwardly by the elevator-car, the arm *h* of the lever H is out of the path of the hook or projection *b*<sup>2</sup>. Obviously, except when the elevator-car is in such position that its floor is opposite the floor I of the building, the lever H will be in such position as to lock the gate downwardly, for then it will occupy such position that its arm *h* will extend above the hook or projection *b*<sup>2</sup> of the gate. The hook or projection *b*<sup>1</sup> is preferably pivoted in a recess in the gate and impelled outwardly by a spring. As it can move forwardly or into the gate, the gate is enabled to pass downwardly even when the lower end of the lever H is in its most forward position.

Both the hook *b*<sup>1</sup> and the hook *b*<sup>2</sup> have a stop *b*<sup>4</sup> at the lower end, as shown in Fig. 3, to limit the outward movement.

It will be seen that by my invention I provide a very simple mechanism, whereby a gate will be locked while down or closed at all times, except when the elevator-car is opposite the opening in the hoistway, and that then it will be unlocked by the elevator-car. It will be apparent, furthermore, that this mechanism serves to hold the gate in its raised position, if the gate is raised, while the elevator-car is opposite the opening in the hoistway.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with an elevator-hoist-

way and a gate sliding in the opening in the hoistway, of a cord or chain attached to the gate, guide-pulleys around which the cord or chain passes, a counter-balance attached to the lower end of the cord or chain, a spring in the cord or chain near the counter-balance, a second weight through which the cord or chain passes loosely, a guide for said weight, and a rest at the bottom of the guide for normally supporting the second weight, substantially as specified.

2. The combination, with an elevator-hoistway and a gate sliding in the opening in the hoistway, of a cord or chain attached to the gate, guide-pulleys around which the cord or chain passes, a counter-balance attached to the lower end of the cord or chain, a spring on the cord or chain intermediate of the two weights, a second weight through which the cord or chain passes loosely, and a rest for normally supporting the second weight, substantially as specified.

3. The combination, with an elevator-hoistway and a gate sliding in the opening in the hoistway, of a pivoted hook or hooks on the back of said gate, a curved spring secured at one end to a post of the hoistway, a detent on the upper end of the spring adapted to engage with a hook of the gate to hold the gate in its raised position, a lever fulcrumed near its center to a post of the hoistway, said lever being connected rigidly to the spring near the free end of the spring and having an arm at its lower end to engage a hook and lock the gate in its closed position, and an elevator-car having a cam to operate the spring and lever, substantially as specified.

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Witnesses:

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