

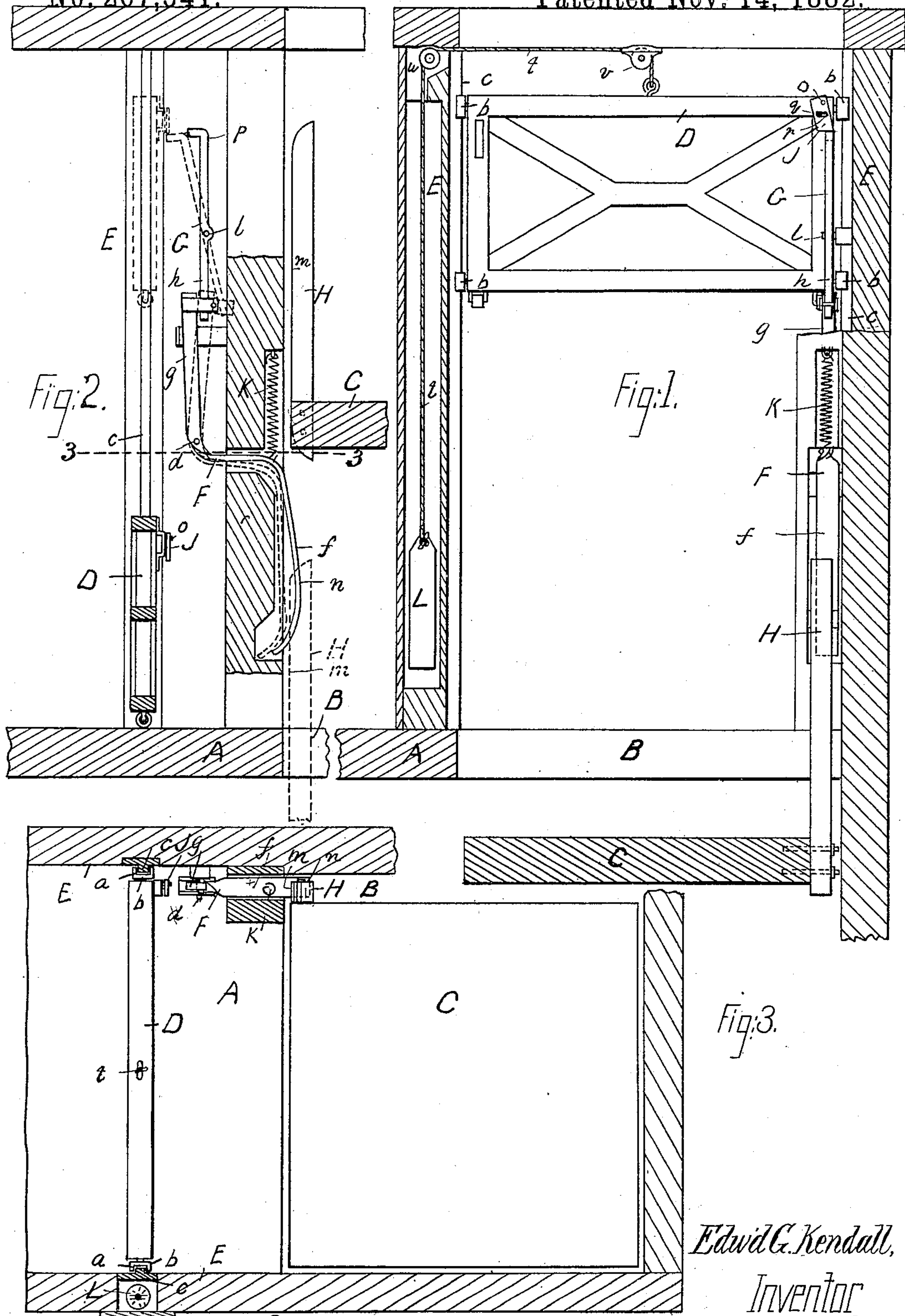
(No Model.)

E. G. KENDALL.

SAFETY GUARD FOR ELEVATOR HATCHWAYS.

No. 267,541.

Patented Nov. 14, 1882.



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UNITED STATES PATENT OFFICE.

EDWARD G. KENDALL, OF BOSTON, MASSACHUSETTS.

SAFETY-GUARD FOR ELEVATOR-HATCHWAYS.

SPECIFICATION forming part of Letters Patent No. 267,541, dated November 14, 1882.
Application filed March 31, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDWARD G. KENDALL, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Safety-Guards for Elevator-Hatchways, of which the following is a full, clear, and exact description.

This invention relates to improvements in self-closing hatchway-guards, which are arranged to operate automatically by the elevator as it moves from the floor in either direction in its travel through the hatchway or opening.

My invention consists in a novel combination of gate arranged to slide vertically on guideways, with a vertically-pivoted lever, having its upper end provided with means to engage and retain the gate in an elevated position, while the lower end of the lever is directly acted on by the elevator-platform, all as more fully hereinafter described, and pointed out in the claims.

In the accompanying plate of drawings this invention is illustrated, Figure 1 being a vertical section of an elevator hatchway or opening in a floor and the surrounding casing, looking toward the guard or gate from the hatchway or opening, the guard being in its elevated position. Fig. 2 is a detail vertical section at right angles to Fig. 1, the elevator above the floor, and the gate in position to guard the elevator hatchway or opening. Fig. 3 is a horizontal section on line 3 3, Fig. 2.

In the accompanying plate of drawings, A represents the floor of a building, having an elevator hatchway or opening, B, in which is arranged to travel in any of the usual ways the elevator-platform C.

D is the guard or gate. This guard or gate D is arranged to be raised and lowered in front of the hatchway or opening B, and in such movements it is guided by grooves *a* in plates *b*, secured at each end of the gate or guard D, which are adapted to slide on the vertical strips or ribs *c*, secured to the casing E in proper position therefor.

F is a lever pivoted to the casing E at *d*, at one corner of the hatchway B, its lower arm, *f*, extending into the hatchway, as shown more particularly in Fig. 2, and by its other arm, *g*, it engages with the lower end, *h*, of a vertical lever, G, pivoted at *i* to the side casing.

H is a vertical extension of the platform C, at one side of the same, near its front edge, and in such a position relatively to the lever F that in the travel of the elevator up and down through the hatchway the edge or side *m* of the extension will bear and press against the side *n* of the lower arm, *f*, of the lever F, and, swinging it on its fulcrum, swing the upper lever, for the purposes hereinafter described.

J is a pawl, pivoted at *o* on the back side of and at one end of the gate, and in such manner that the gravity of the pawl, when it is left free to swing on its pivot, will swing its lower end from and beyond the end of the gate in line with the upper end of the lever G when such lever is swung in the right direction therefor.

When the elevator is at or near the floor its extension H presses on the lower arm, *f*, of lever F, and, swinging it, causes the upper end, *p*, of lever G to be swung forward into such position that if the guard or gate be then raised it will be there held in such raised position by the pawl J, resting on the upper end of lever G, being there held as long as the elevator-platform is at or near the floor and the extension H in contact with the arm *f* of lever F. The pin *q* in the gate and slot *r* in the pawl J regulate the movements of the pawl, either to hold the pawl in its rest on the lever or to allow it to move sufficiently to freely pass the lever if the guard is raised when the elevator-platform is at the floor. When the elevator leaves the floor in either going up or down and the extension passes from contact with the lever F, then, by the reaction of a spiral spring, K, secured by one end to the arm *f* of lever F and by its other end to the casing, the lever F will be swung on its pivot and cause the upper lever, G, to disconnect with the pawl on the gate, which will then by its own weight fall to its position to guard and protect the hatchway or opening. The spring K holds the arm *f* of lever F in proper position for the extension H of the platform to strike and bear against it, as described. By this arrangement of the levers F and G with the spring K the guard will only be held in its elevated position when the elevator is at the floor or near enough for its extension to bear and press against the spring-lever F. Consequently when the elevator has passed up or down and

left the hatchway or opening in the floor, so far as it is concerned, unguarded and open, the guard or gate D will have fallen to its lower position, and thus have covered and guarded the hatchway or opening, whereby all liability of any person accidentally falling down the same is prevented.

To prevent the gate from falling too suddenly a weight, L, arranged to travel in the casing E, is attached to one end of a cord, t, which cord runs over pulleys u and v and connects by its other end with the gate D, enabling the gate to be adjusted to fall as desired.

I do not wish to be understood as broadly claiming self-closing hatchway-doors and automatically-operated devices for retaining such doors open during the time the platform is stopped at such doors; but,

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

1. The combination, substantially as hereinbefore described, of a vertically-sliding gate or guard, D, and a lever pivoted in a vertical plane, with its lower end projecting in the path of the elevator-platform and its upper end provided with means to retain the gate or guard in an elevated position while the lower end of the lever is operated on by the platform in its ascent or descent.

2. The combination, substantially as hereinbefore described, of a vertically-sliding gate or guard and guideways for the edges thereof, with a lever pivoted in a vertical plane, and having its lower end arranged to be directly acted on by the elevator-platform, and its upper end provided with a pivoted secondary lever operated to engage and sustain the gate or guard in an elevated position when the

lower end of the main lever is acted on by the elevator-platform.

3. The combination, substantially as hereinbefore described, of a sliding gate or guard, a pivoted lever having a curved end projecting in the path of the elevator-platform, and at its other end provided with a pivoted lever, which is tilted to engage the gate or guard by the direct action of the elevator-platform on the curved end of the main lever.

4. In combination with an elevator-platform, C, a guard, D, adapted to be raised or lowered in suitable guideways, and levers F and G, one, F, of which levers is in the path of the platform, and the other of said levers is arranged to engage with said guard, said lever G being normally out of engagement with the guard and thrown into engagement therewith by the movement of the platform, substantially as and for the purpose specified.

5. In combination with an elevator-platform having an extension, H, a guard adapted to be raised and lowered in suitable guideways, levers F and G, one of which levers is in the path of an extension of said elevator, and the other of said levers is arranged to engage with the guard, said levers being normally out of engagement with the guard and thrown into engagement therewith by the movement of the platform and said extension, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

E. G. KENDALL.

Witnesses:

EDWIN W. BROWN,
WM. S. BELLOWS.