(No Model.)

J. W. BYRAM.

ELEVATOR SAFETY CATCH.

No. 452,096. Patented May 12, 1891.

FIG. 1.

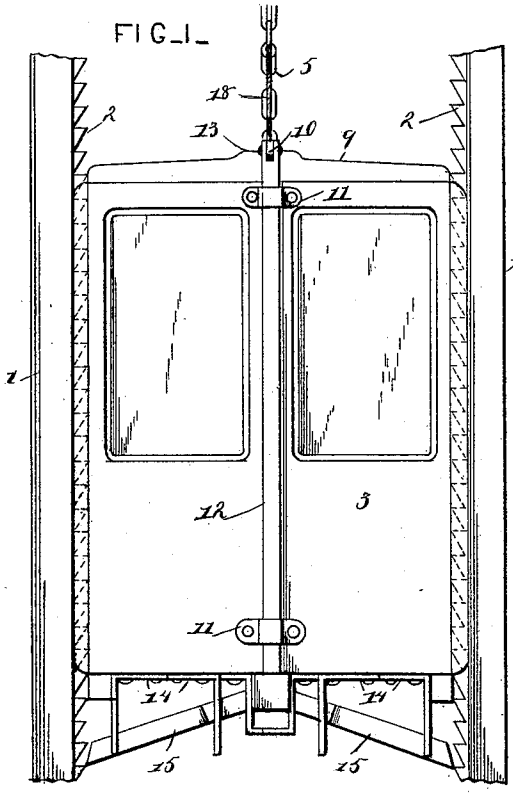


FIG. 2.

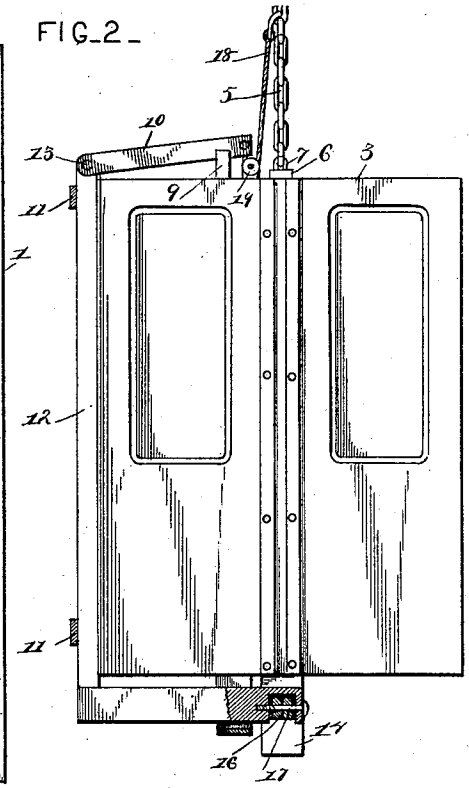
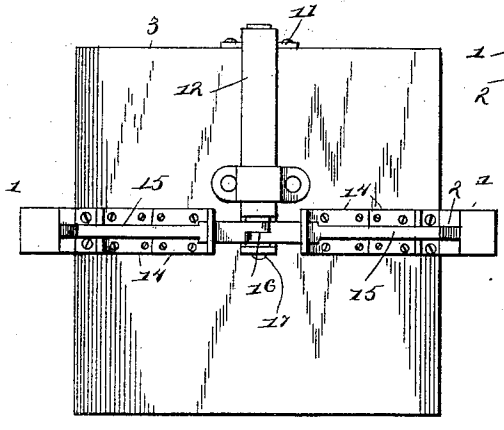
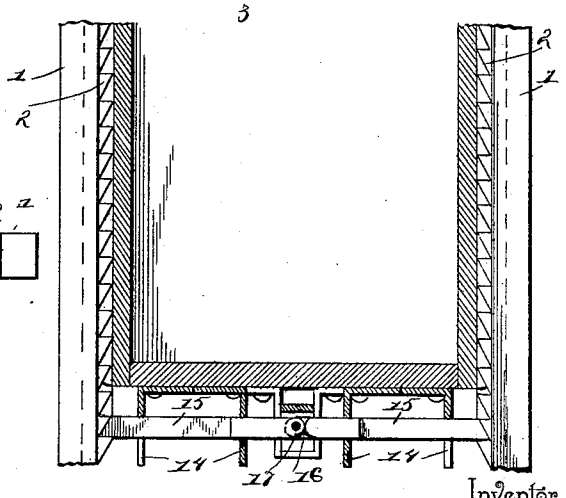


FIG. 4.

FIG. 3.





Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN W. BYRAM, OF WASHINGTON, DISTRICT OF COLUMBIA.

ELEVATOR SAFETY-CATCH.

SPECIFICATION forming part of Letters Patent No. 452,096, dated May 12, 1891.

Application filed February 3, 1891. Serial No. 380,085. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. BYRAM, a citizen of the United States, residing at Washington, in the District of Columbia, have invented a new and useful Elevator Safety-Catch, of which the following is a specification.

My invention relates to improvements in safety-catches for passenger and freight elevators, dumb-waiters, &c.; and the objects in view are to provide a cheap and simple attachment for elevators, whereby in case the elevator-rope should break the safety-catches are distended automatically to engage with the rack-bars at the sides of the elevator car or platform.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a rear elevation of an elevator constructed in accordance with my invention. Fig. 2 is a side elevation. Fig. 3 is a bottom plan. Fig. 4 is a vertical transverse section.

Like numerals indicate like parts in all the figures of the drawings.

1 designates the opposite standards, and 2 the usual toothed rack or guide bars, the same being of the usual construction. 3 designates the elevator car or platform, and 5 the elevator chain, adapted, as usual, for connection with the elevator cable or rope.

To the top of the car is secured the transversely-disposed draft bar or beam 6, having an eye 7 at its center, to which is secured the lower end of the elevator-rope. A transverse bolster 9 is also mounted upon the car in rear of the center thereof, and has fulcrumed thereon a lever 10. Keepers 11 are secured to the rear side of the car in vertical alignment, and in the same is mounted slidably a vertical L-shaped gravity-bar 12, the upper end of which is pivoted, as at 13, in the rear bifurcated end of the lever 10, which latter, it will be observed, is fulcrumed in front of its center.

Secured to the under side of the car are opposite pairs of L-shaped depending brackets 14, the inner ones of which are provided with openings and the outer ones of which are provided with slots. In each of the openings and extending into the companion slot is mounted a safety lever or catch 15, the outer ends of each of which is beveled and adapted to engage, when in a horizontal position, with the teeth of the rack bars or guides. The openings of the inner brackets serve as fulcrums for these catches, and the inner ends of the same are cut away to pass each other, as shown at 16, and are pivotally connected to each other, as at 17, and to the front end of the L-shaped gravity-bar, which latter is provided with a recess for receiving the same.

To the inner end of the lever 10 is connected one end of the short chain or rope 18, said rope being passed under the loose pulley 19, mounted in suitable brackets upon the top of the car, and the upper end of said rope 18 secured to the elevating rope or chain. It will be obvious that the lever 10 being fulcrumed at one side of its center, together with the L-shaped bar, serves to depress the inner ends of the catches, and consequently to spread or distend the outer ends thereof, whereby they automatically engage with the teeth of the rack-bar. Such depression, however, is normally prevented by means of the short chain or cord 18 just described, in that the latter, being secured to the elevating-rope, is strained or kept taut as long as said rope is, and the latter supports the weight of the elevator, and hence serves to draw the inner end of the lever 10 downwardly, thus elevating the L-shaped gravity-bar and the inner ends of the catches and normally retaining them from engagement with the rack-bars. If, however, by accident the elevator rope or chain should break, the L-shaped gravity-bar drops by its own weight and depresses the inner ends of the catches, thus forcing the outer ends into immediate contact and engagement with the rack-bars.

It will be observed that the construction of the safety device is very simple and can be applied to elevators, dumb-waiters, &c., at a trivial cost; also, that its action is positive and automatic and simply requires the parting of the elevator-rope or any slackening of the same to set the device in operation.

In applying the device to dumb-waiters the

same may be constructed of wood to effect a saving and cost; but in passenger and freight elevators, where considerable strength is required, it is of course formed of metal.

Having described my invention, what I claim is—

The combination, with the opposite ratchet-faced guide-bars and the elevator-car, of a lever 10, pivoted on the car at the top, an L-shaped gravity-bar 12, loosely connected at its upper end to the outer end of the lever and passing down along one side of the car to the bottom and extending part way across the latter, brackets located under the car, safety-catches 15, fulcrumed in the brackets and at their inner ends pivoted to the lower end of the gravity-bar, the elevator-rope connected to the top of the car, a pulley located upon the car, and a short rope or chain connected to the inner end of the lever 10, passed under the pulley, and connected to the elevator-rope, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JOHN W. BYRAM.

Witnesses:
J. W. SIGGERS,
J. A. SAUL.