(No Model.)

M. N. HUTCHINSON.

SAFETY APPARATUS FOR PASSENGER AND OTHER ELEVATORS.

No. 259,762. Patented June 20, 1882.

Fig. 1.

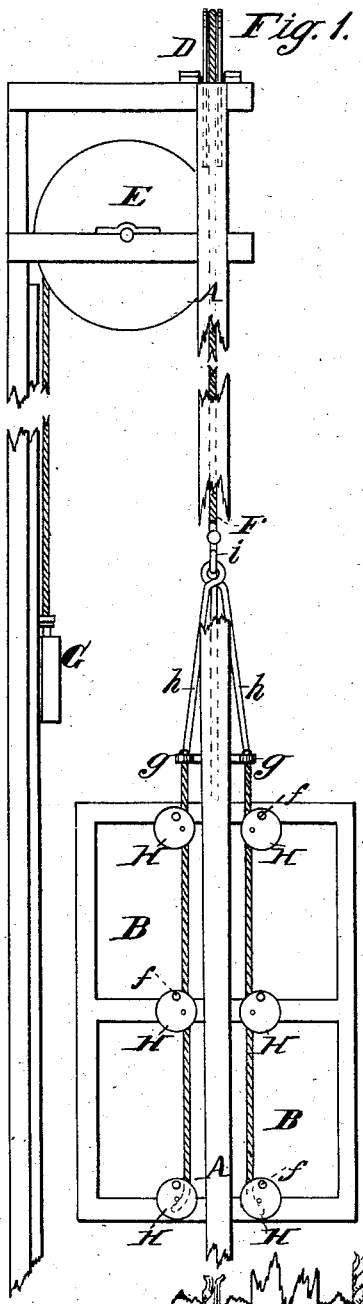


Fig. 2.

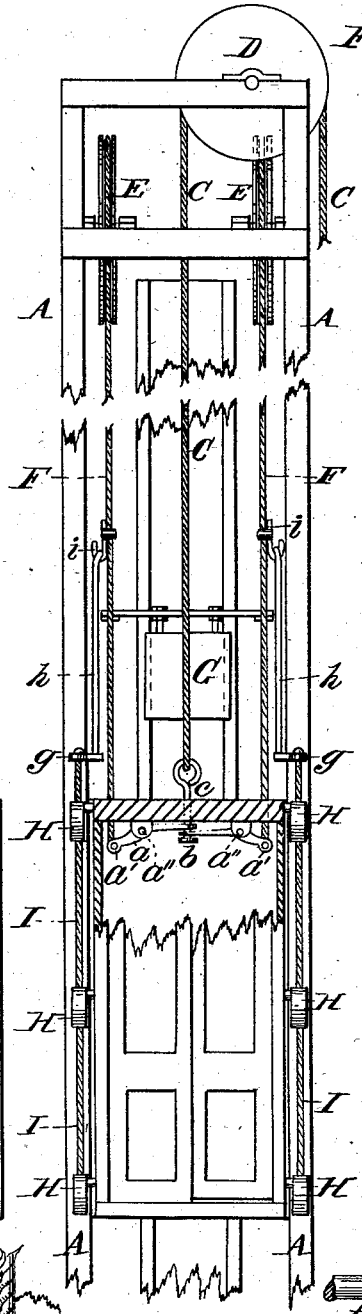


Fig. 4.

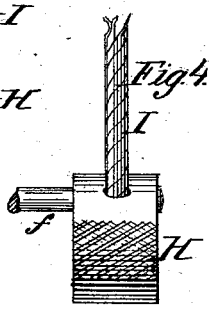
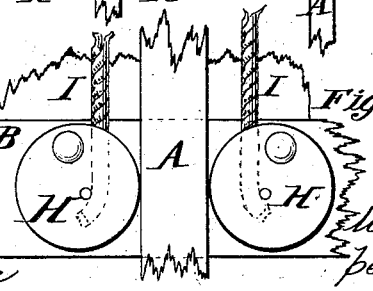


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

MERRILL N. HUTCHINSON, OF NEW YORK, N. Y.

SAFETY APPARATUS FOR PASSENGER AND OTHER ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 259,762, dated June 20, 1882.

Application filed February 13, 1882. (No model.)

To all whom it may concern:

Be it known that I, MERRILL N. HUTCHINSON, of the city, county, and State of New York, have invented certain Improvements in Safety Apparatus for Passenger and other Elevators, of which the following is a specification.

This invention relates to that class of safety attachments for passenger and other elevator cars in which eccentrics are arranged to grip upon opposite sides of a post in the event of the breaking of the hoisting-rope, whereby the eccentrics, gripping and compressing the post between them, are enabled to act with very great certainty to effect the retardation or stoppage of the downward movement of the car without tending to spread or derange the framework of the elevator; and my invention comprises a novel combination of parts, whereby I avoid the use of springs in giving effect to the gripping action of the eccentrics in the event of the breaking of the hoisting-rope, thereby providing a safety apparatus less liable to get out of order and more positive in its effect than those hitherto constructed.

Figure 1 is an elevation and partial sectional view of an apparatus embracing my said invention. Fig. 2 is an elevation and partial sectional view, seen in a plane at right angles to Fig. 1. Figs. 3 and 4 are detailed views on a larger scale, showing certain parts of said apparatus.

A A are upright posts, between which the car B, which latter may be of any usual or suitable shape and structure, has its vertical movement, said movement of the car being communicated thereto by a draft rope or chain, C, which passes over the usual pulley, D, at the top of the apparatus, and which is itself operated from any suitable engine, motive power, or driving mechanism, such means of giving the requisite vertical movement to the car or cage of the elevator being well known, and consequently requiring no specific description in this connection.

Placed in suitable supporting-bearings near the top of the posts A are pulleys E, over which pass the ropes or chains F, one end of each of which is attached to the outer arm of a lever, *a*, as indicated at *a'*. The said levers *a* are pivoted at *a''* to the top of the car or cage B, and their inner ends project over a flange or head, *b*, provided on the lower extremity of a sliding bolt, *c*, to the upper end of which is attached the draft rope or chain C, hereinbefore referred to.

The weight of the car or cage B is sustained by the flange or head *b* of the bolt *c*.

The outer ends of the ropes F are attached to a counter-weight, G, preferably by means of a cross-bar, *e*, as represented in Fig. 2. This counter-weight G is less in weight than the car or cage B, so that the preponderating weight of the latter causes the inner arms of the lever *a* to be crowded up against the under side of the top of the car or cage B by the action upon the said inner arms of said levers of the flange or head *b*, and holds against the (to a certain extent) countervailing-pressure exerted by the counter-weight. Attached to the side of the car or cage B are, as represented in Figs. 1 and 2, two vertical series of eccentric disks, H, one series upon each side of each of the posts A, as represented in Fig. 1. These eccentric disks are pivoted, as shown at *f*, to the adjacent sides of the car or cage B, and the disks of each series are connected by a rope or chain, I, the two ropes of each series of said disks connecting at top to a cross-piece, *g*, which, by means of a link or yoke, *h*, is suspended from a hook, *i*, fixed upon the adjacent one of the ropes F.

The arrangement of the eccentric disks H is such that, when swung inward and upward, each vertical post A will be gripped, as indicated in Fig. 4, between the two vertical series of said disks adjacent thereto, and the pressure being continued to turn said disks in the same direction, it follows that the grip or hold upon the post will be proportionally increased.

Such being the construction and relative arrangement of the parts, their operation is as follows: So long as the draft of the rope or chain C is continued, the flange or head *b* of the bolt *c* will hold the inner arms of the levers *a* upward against the top of the car or cage, thereby keeping the outer arms of the said levers *a* depressed, and consequently holding the ropes F, so to speak, downward to an extent sufficient to keep the eccentrics H outward out of contact with their adjacent posts A; but when for any reason the draft of the rope or chain C is destroyed—as, for example, by the parting or fracture thereof—the inner arms of the levers *a* are released, whereupon the counter-weight G draws upward the outer arms

of the said lever, and consequently lifts the ropes F longitudinally with reference to the car or cage B, which insures a draft upon the yoke *h* and the ropes I, this in its turn turning the eccentric disks H inward and upward to grip the adjacent post A between them, as hereinbefore explained, this gripping of the post between them, as represented in Fig. 4, being maintained and increased by their frictional contact after they have once been pressed against the surfaces of the said posts, the entire weight of the car in such case acting to continue and increase the pressure of the peripheries of the said disks H against the said posts, and thereby effectually securing the object required.

It is to be observed that the arrangement and combination of parts hereinbefore described as applied at one side of the car must of course be duplicated at the other, the car being provided at each of its two opposite sides with a pair of the disks H and a fixed post arranged between each pair.

I do not claim actuating oppositely-arranged disks in relation to an intermediate post by means of a spring, as shown in the patents of Atwater, dated December 21, 1880; Opperman and Block, dated January 19, 1875, and of Herron, dated April 22, 1873, inasmuch as the use of springs is uncertain and unreliable, and not to be depended upon for any length of time, it being a well-known fact in mechanics that springs, when kept continually under compression, as is necessarily the case when the same are used for actuating the safety appliances of elevators, lose in time their elasticity and become comparatively inert, and hence constitute a source of danger instead of a means of safety, inasmuch as they lead to a false sense of security; but

What I do claim as my invention is—

The herein-described oppositely-arranged eccentrics H, attached to the car or cage B, the post A, arranged between said eccentrics H, the lever *a*, the rope F, the counter-weight G, and means, substantially as described, for connecting the rope F with the oppositely-arranged eccentric H, so that in the event of the breaking of the hoisting-rope the counter-weight will hasten and promote the gripping and compressing action of the eccentrics upon the post between them, all substantially as and for the purpose herein set forth.

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Witnesses:
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