

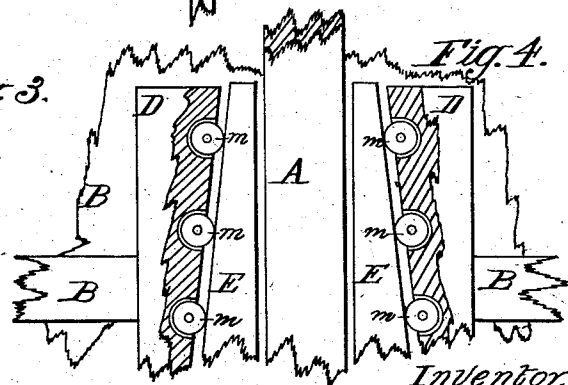
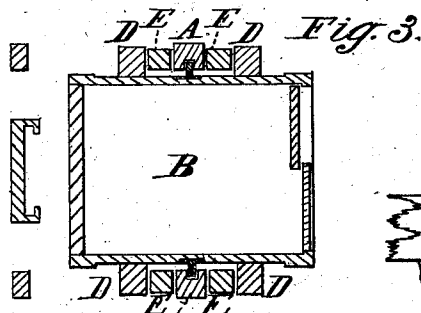
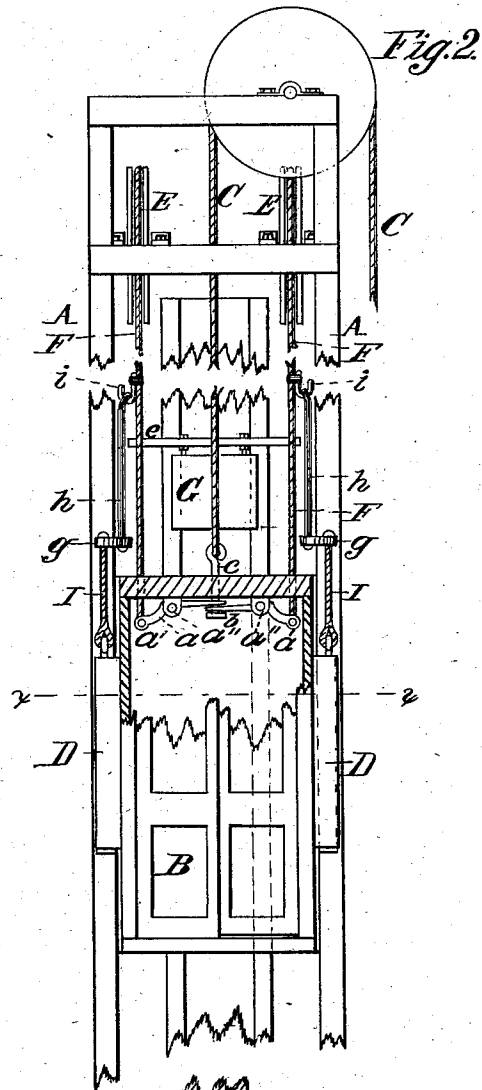
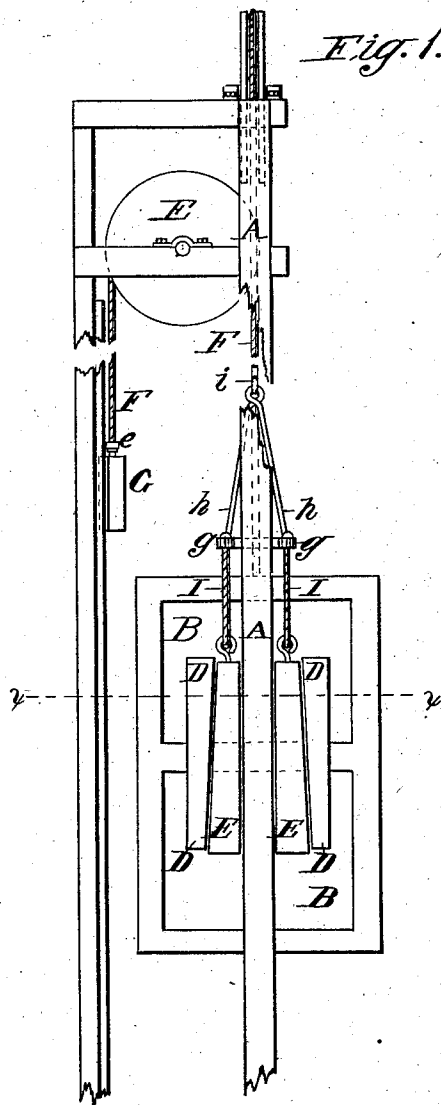
(No Model.)

M. N. HUTCHINSON.

SAFETY APPARATUS FOR PASSENGER AND OTHER ELEVATORS.

No. 259,019.

Patented June 6, 1882.



Witnesses: ^{F. F.}
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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. 259,019, dated June 6, 1882.

Application filed April 19, 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 an improved apparatus for retarding or arresting the downward movement of a car or cage of a passenger or other elevator in the event of the breaking of the draft or hoisting rope or chain, whereby I secure greater security to the passengers or property carried by said elevator than has ordinarily been attained in such apparatus of this class.

My said invention comprises a novel combination of gripping-wedges with a post arranged to be gripped with a strong frictional hold by the said wedges when the car is relieved from the upward strain of the draft rope or chain—as, for example, by the breaking of said rope or chain.

My said invention also comprises certain novel combination of parts, whereby the application to use of the main or leading feature of my said invention is rendered more effective.

Figure 1 is a side elevation of an elevator apparatus constructed according to my said invention. Fig. 2 is a side elevation and partial sectional view, looking from a side at right angles with the Fig. 1. Fig. 3 is a horizontal sectional view of the same, taken in the line *a a*. Fig. 4 is a detailed view on a larger scale, representing one of the features of my said invention.

A is a fixed vertical post, of which in practice there will be one on each side of the car B, the said car arranged to be raised and lowered by the usual draft-rope C, and working up and down between the said posts.

It is preferred and designed that the appliances at one side of the car B shall be duplicated on the other side thereof. A description of the apparatus at one side is therefore sufficient. D are vertical blocks or inclined planes, firmly secured to the side of the car B, one upon each side of the post A and at a suitable distance therefrom. The slope of the inner surfaces of these blocks or inclined planes D is downward and outward, as represented

in Figs. 1 and 3. Between each block or inclined plane D and the adjacent flat surface of the post A is a wedge, E, the outer lateral surface of which is inclined with a slope upward and inward, coincident with the slope of the adjacent block or inclined plane D, so that when the said wedges are forced upward with reference to the respective blocks or inclined planes D their flat inner surfaces will be jammed or forced tightly against the adjacent lateral surfaces of the post A, and also that when lowered with reference to said blocks or inclined planes they all release their grip upon the post A. The wedges E are connected by ropes or chains I to a cross-piece, *g*, which, by means of a link or yoke, *h*, is suspended from a hook, *i*, fixed upon one of the ropes F, hereinafter described.

Placed in suitable supporting-bearings at the top of the two 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 the lever, as indicated at *a'*. The said levers *a* are pivoted at *a''* at the top of the car or cage B, and their inner ends project over a flange or hinge, *b*, provided on a lower extremity of a sliding bolt, *c*, to the upper end of which is attached the draft rope or chain from which the car or cage is suspended.

The weight of the car or cage B is borne directly by the flange or 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 levers *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.

While the draft-rope or chain C remains unbroken or untarded the inner arms of the lever *a* are held upward against the top of the car or cage and through the connecting-mechanism hold the ropes F downward, so to speak, to an extent sufficient to keep the wedges depressed out of contact with the adjacent lateral surfaces of the post A between them; but

should the rope or chain break the inner arms of the lever *a* are released, so that the counter-weight *G* draws upward the outer arms of the said lever, and consequently lifts the rope vertically with regard to the car or cage *B*. This
5 insures a draft upon the yoke *h* and ropes *I*, which in their turn lift the wedges, which, acting upon the inclined plane, are pressed inward to grip the said post between them, as hereinbefore explained. This gripping action
10 of the wedges upon the post being promoted and increased by their frictional contact after they have once been pressed against the surface of the said post, as aforesaid, the pressure
15 of the wedges upon the post being increased by the dependant weight of the entire cage or car and its contents.

In order that the friction of the wedges against their adjacent blocks or inclined planes
20 may be reduced to a minimum, I include in my invention the additional feature of anti-frictional rollers *m* placed in suitable recesses formed in the inner surfaces of the blocks or inclined planes *D*, as is represented in the partial
25 sectional view of Fig. 4. Said anti-frictional rollers working on suitable bearings providing the inner surfaces or faces of the said blocks or inclined planes indicated in said figure.

30 The displacement of the wedges with reference to their blocks or inclined planes may be prevented by suitable flanges provided to fit said blocks at the back or front and projecting beyond the adjacent edges of the wedges,
35 as indicated in Fig. 3.

I do not claim the application of wedges in safety appliances for elevators when the said wedges are so placed as to act upon one side

only of a post or posts, and outward against the same instead of gripping the post between
40 duplicate wedges, as hereinbefore described, inasmuch as the outward thrust of the wedge, applied in connection with the safety devices of an elevator, tends to spring the post out of
45 its place and thereby weaken the structure, whereas in my invention the parts are so combined and arranged that the post retains its perpendicularity, and no lateral stress is thrown upon it.

What I claim as my invention, is—

50 1. The combination of the oppositely-arranged blocks or inclined planes *D* upon the car or cage *A*, the wedges *E*, arranged to act in connection with the said blocks or inclined planes, and the post *A* placed between the
55 said wedges, so that the upward movement of the wedges with reference to the blocks or inclined planes *D* will cause the post *A* to be firmly gripped between the said wedges, all substantially as and for the purpose herein set
60 forth.

2. The oppositely-arranged blocks or inclined planes *D*, attached to the car or cage *B*, the wedges *E*, arranged coincident with the said
65 blocks or inclined planes *D*, the post *A*, placed between the said wedges, the lever *a*, the rope *F*, the counter-weight *G*, and means, substantially as described, for connecting the rope *F*
70 with the oppositely-arranged wedges, all substantially as and for the purpose herein set forth.

MERRILL N. HUTCHINSON.

Witnesses:

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