

(No Model.)

2 Sheets—Sheet 1.

L. C. ALCORN.
SAFETY ATTACHMENT FOR ELEVATORS.

No. 542,722.

Patented July 16, 1895.

FIG. 1.

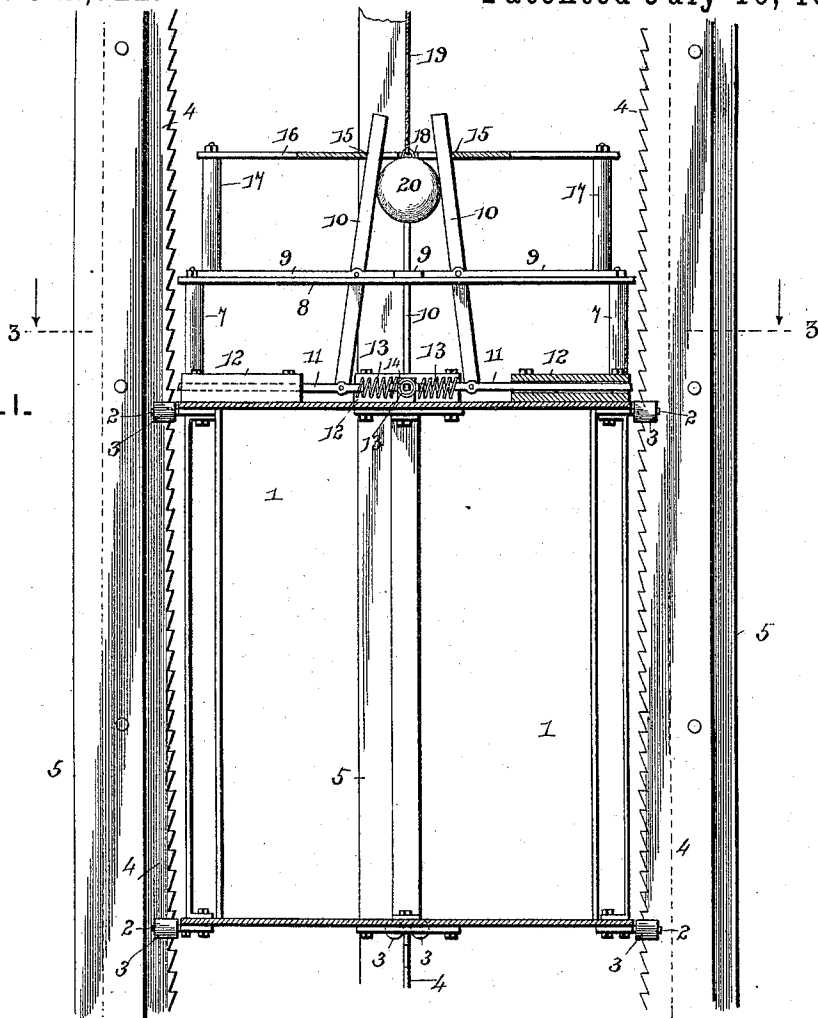
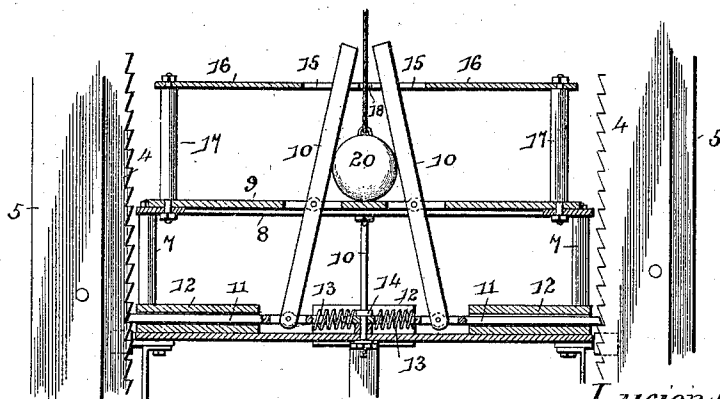


FIG. 2.



Witnesses

Jas. K. McLaughlin
[Signature]

By His Attorney

Lucien C. Alcorn

[Signature]

Inventor

(No Model.)

2 Sheets—Sheet 2.

L. C. ALCORN.
SAFETY ATTACHMENT FOR ELEVATORS.

No. 542,722.

Patented July 16, 1895.

FIG. 3.

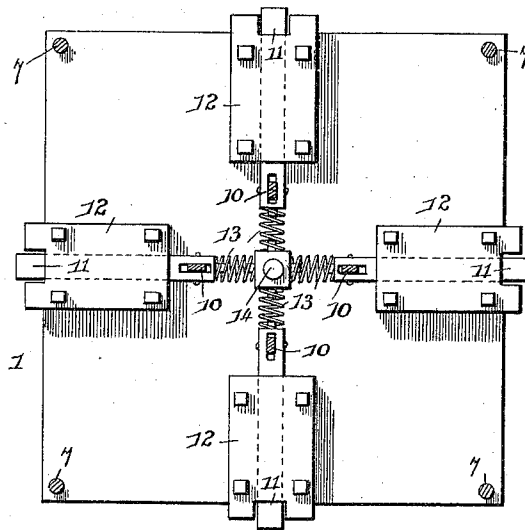
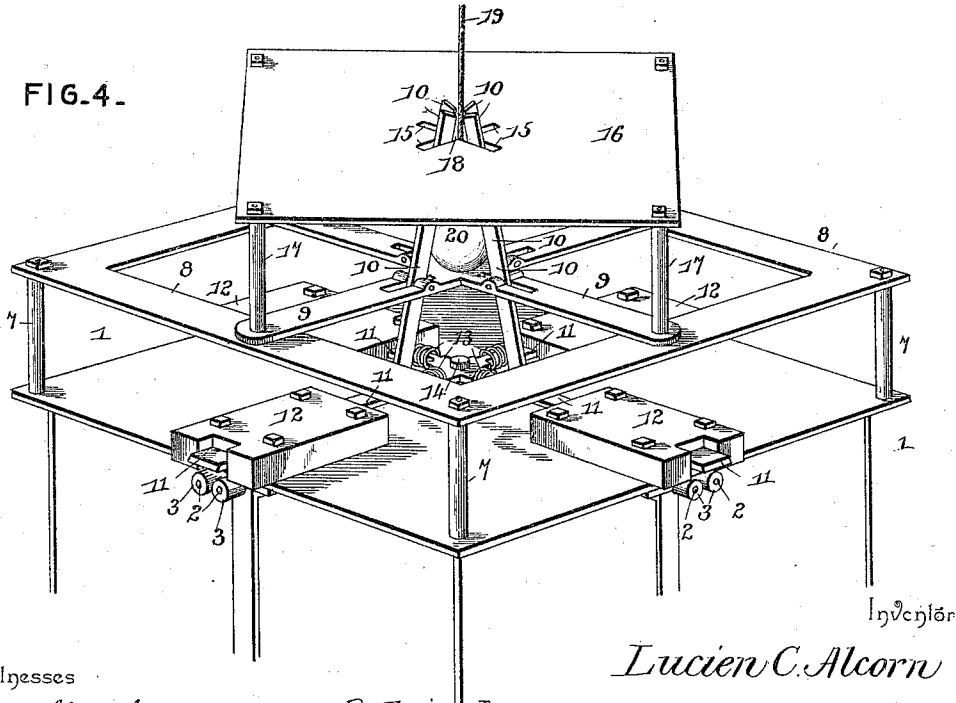


FIG. 4.



Inventor

Lucien C. Alcorn

Witnesses

Jas. H. McLaughlin
[Signature]

By this Attorney

N. B. Miller
[Signature]

UNITED STATES PATENT OFFICE.

LUCIEN C. ALCORN, OF GREENSBURG, KENTUCKY.

SAFETY ATTACHMENT FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 542,722, dated July 16, 1895.

Application filed January 31, 1895. Serial No. 536,845. (No model.)

To all whom it may concern:

Be it known that I, LUCIEN C. ALCORN, a citizen of the United States, residing at Greensburg, in the county of Green and State of Kentucky, have invented a new and useful Safety Attachment for Elevators, of which the following is a specification.

My invention relates to a stop device for use in connection with elevators, and the objects in view are to provide means whereby, when the hoisting-cable is broken or the upward draft upon such cable caused by the weight of the elevator car is relieved, the car will be automatically locked and held from downward movement.

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

In the drawings, Figure 1 is a vertical section of an elevator and the contiguous portion of the well, said elevator being provided with stop devices embodying my invention. Fig. 2 is a similar view showing the stop-pawls in engagement with the rack-bars. Fig. 3 is a horizontal section on the line 3 3 of Fig. 1. Fig. 4 is a perspective view of the upper portion of the elevator-car and the stop device carried thereby.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a car, which may be of any preferred construction, provided near its floor and top with laterally-projecting pins 2, arranged in pairs and carrying anti-friction rolls 3 to bear upon opposite sides of the vertical guides 4, said vertical guides being attached to vertical timbers 5, and being toothed at their inner edges to form rack-bars. Rising from the roof or top 6 of the car are standards 7, which support the rectangular frame 8, having cross-bars 9, and pivotally connected to the said cross-bars upon opposite sides of their centers are levers 10. The lower ends of these levers are connected to the inner ends of pawls 11, fitted slidably in horizontal guides 12, secured to the upper surface of the roof or top of the car, and bearing at their outer ends against the lower extremities of the le-

vers are the actuating-springs 13, which are attached at their inner extremities to a central stud 14 on the roof or top of the car. The upper ends of the levers are arranged in radial guide-slots 15 in the horizontal plate 16, which is supported by standards 17 from the above-described horizontal frame, said guide-slots communicating at their inner ends with a central opening 18, through which extends the hoisting-cable 19. Attached to the lower end of the hoisting-cable and arranged between the said levers is a ball or spreader 20, and when the weight of the car is upon the hoisting-cable this spreader is drawn upward into contact with the under surface of the horizontal plate, which I will, for convenience, term a supporting-plate, and the upper ends of the levers are spread or deflected and are held in contact with the outer ends of the radial guide-slots. This disposition of the levers causes the pawls to maintain a position out of contact with the teeth of the rack-bars, and therefore the car is free to move vertically. When, however, the cable breaks or is allowed to run out by reason of injury to the elevating mechanism, the spreader drops from its position in contact with the supporting-plate, and by allowing the upper ends of the levers to approach each other causes the outward movement of the pawls, and hence the engagement thereof with the rack-bars, thus checking the downward movement of the car.

The spreader preferably consists of a polished metallic sphere, and as the levers occupy an inclined position when separated or spread at their upper ends it will be seen that upon relieving the strain on the hoisting-cable the inward pressure of the levers, due to their actuating-springs, will force the spreader downward and thus allow the engagement of the pawls with the rack.

From the above description it will be seen that the device is simple in construction and may be manufactured at a comparatively small cost, and that the slacking of the hoisting-cable cannot fail to result in the immediate operation of the locking-pawls.

Various changes in the form, proportion, and the minor details of construction may be

resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. The combination with rack bars arranged parallel with the path of an elevator car, of spring actuated pawls disposed in operative relation with the rack bars, immediately pivoted levers connected at one end respectively to the pawls and converging toward their other ends, a supporting plate provided with radiating guide slots for the free ends of the levers, said slots communicating with a central opening, a hoisting cable extending through said opening in the supporting plate and a spreader attached to the end of the cable and arranged between the upper ends of the levers, whereby when the hoisting cable is strained said spreader is brought into contact with the supporting plate and sepa-

rates the contiguous ends of the levers, substantially as specified.

2. The combination with rack bars arranged parallel with the path of an elevator car, of spring actuated pawls arranged in operative relation with the rack bars, immediately pivoted levers connected at one end respectively to the pawls and converging toward their opposite ends, a supporting plate having radiating guide slots for the free ends of the levers, and a polished spherical spreader attached to a hoisting cable and disposed between the convergent upper portions of the lever, substantially as specified.

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

LUCIEN C. ALCORN.

Witnesses:

H. D. HUBBARD,
E. H. HOBSON.