

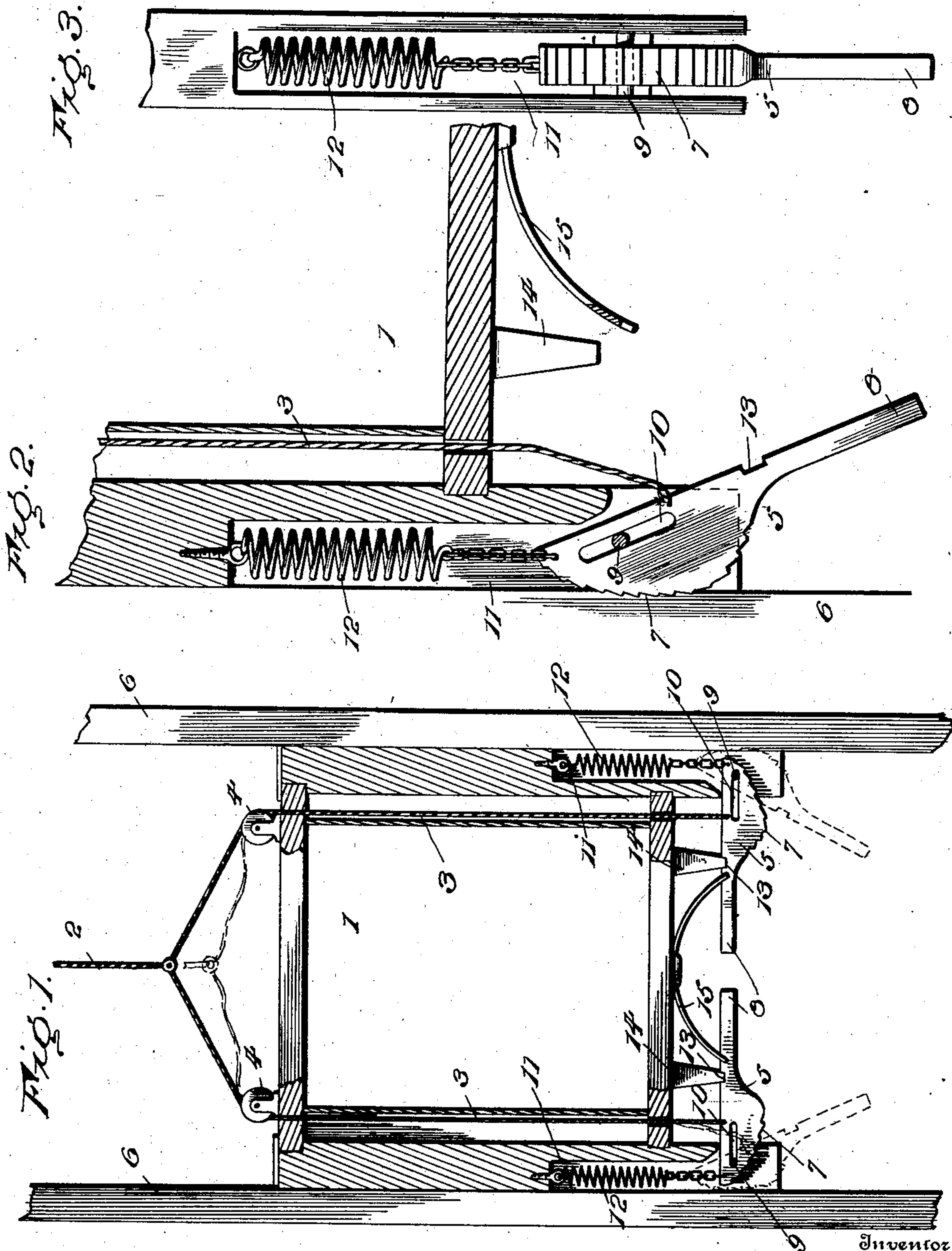
No. 710,038.

Patented Sept. 30, 1902.

P. H. BURGART.  
SAFETY ELEVATOR.

(Application filed May 22, 1902.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## SAFETY-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 710,038, dated September 30, 1902.

Application filed May 22, 1902. Serial No. 108,588. (No model.)

*To all whom it may concern:*

Be it known that I, PHILIP H. BURGART, a citizen of the United States, residing at Payne, in the county of Paulding and State of Ohio, have invented certain new and useful Improvements in Safety-Elevators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The purpose of this invention is to provide a novel form of safety appliance for elevators and hoisting appliances adapted to travel in a well or between vertical guides, the object being to arrest the descent of the car, platform, or the like in the event of the hoisting-rope breaking or slipping from the pulley or other cause tending to permit the car or platform under usual conditions to descend rapidly and at a dangerous speed.

In accordance with this invention a dog or arrester is pivotally and slidably mounted and is normally held out of action by the lifting force exerted for holding the car or platform in suspension, said dog or arrester being acted upon by two springs of novel arrangement for throwing it into operative position for arresting the descent of the car under abnormal conditions and producing a slack for severance of the hoisting-rope.

For a full description of the invention and merits thereof, and also to acquire a knowledge of the details of construction of the means for effecting the result, reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a detail view of an elevator-car and guides, showing the application of the invention, parts of the car being in section, the dogs being shown out of action by full lines and in position for arresting the descent of the car by dotted lines. Fig. 2 is a detail section of a portion of the car, showing the safety appliance on a larger scale. Fig. 3 is

a side view of the portion of the car containing the dog and spring for throwing the dog into operative position.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The elevator-car is indicated at 1 and may be of any construction, depending upon the style of hoisting the appliance and the particular use for which the same is designed.

The hoisting rope or cable is indicated at 2, and branches 3 extend therefrom and pass over guide-pulleys 4 at the top of the car, thence downward, and are attached at their lower ends to dogs or arresters 5, having pivotal and slidable connection with said car.

Vertical ways or guides 6 are provided for directing the car in its vertical movements and may be of any construction.

The dogs or arresters 5 have cam-shaped heads 7 and stems 8 and may be constructed of any material, metal being preferred, and are mounted upon pins 9 for pivotal and sliding movement. The face of the cam portion is preferably toothed, so as to bite into the adjacent face of the proximal guide. Each dog has a longitudinal slot 10, through which the pin 9 passes. The upright or part of the car to which the dog 5 is attached is recessed or made hollow, as shown at 11, to receive the cam portion of the dog and the spring 12 co-operating therewith, said spring having its lower end connected with the outer terminal of the dog and its upper end connected with the part having the recess 11. The spring 12 is of the coil type and normally exerts an outward pull upon the outer end of the dog or arrester, so as to draw it upward into the recess 11 when released from the force holding it in restraint. The stem 8 of each dog is provided with a notch 13 in its upper edge to receive the lower end of a stud 14, pendent from the car 1 and adapted to prevent longitudinal displacement of the dog when out of action, as shown by the full lines in Fig. 1.

The branch rope or cable 3 is attached to the dog at a point between the notch 13 and the pin 9, so as to hold the dog in a horizontal position, with the notch 13 receiving the



lower end of the stud 14 and with the spring 12 stretched. In the event of the hoisting rope or cable 2 breaking or slipping from the pulley or other occurrence tending to permit a slack of the said hoisting-rope, the dog or arrester 5 being released from the restraining influence of the hoisting-rope moves under the action of the spring 12 and assumes the position shown by the full lines in Fig. 2 and the dotted lines in Fig. 1, the cam portion being wedged between the guide 6 and the subjacent side of the car, thereby arresting the descent of the car. In order to prevent the slipping of the dog upon the stud 14 and in order to insure a downward movement of the inner end of the dog when the hoisting-rope is slackened from any cause, a spring 15 is provided and attached to the car and normally exerts a downward pressure upon the inner end or stem 8 of the dog. This spring 15 is compressed or subjected to tension when the dog 5 occupies a horizontal position. Hence upon slacking of the rope or cable 2 the spring 15 comes into play to release the dog from the stud 14, and at the same instant the spring 12 draws the dog outward and upward into position for arresting the descent of the car by a wedging action, as previously explained.

In the type of elevators having two guides only two dogs 5 are provided, one for each guide, and the spring 15 will be of bow form, its end portions coöperating with the oppositely-disposed dogs. In the variety of elevators having four guides four dogs may be provided, or if two are employed they will be located at diagonally opposite points by preference. The number and position of the dogs is immaterial within the purview of the invention. The stud 14, besides interlocking with the dog, so as to prevent longitudinal displacement thereof, also acts in the capacity of a stop to limit the upward movement of the dog at its inner end when under the restraining influence of the hoisting rope or cable, this being shown most clearly by the full lines in Fig. 1.

Having thus described the invention, what is claimed as new is—

1. In an elevator and in combination with the car, a dog mounted for pivotal and sliding movement, a spring for exerting an upward pull upon the outer end of the dog, a second spring for exerting a downward pressure upon the inner end of said dog, and restraining means exerting a force upon the dog at a point intermediate of the two springs for normally holding the dog out of action against the tension of the said springs, substantially as set forth.

2. In an elevator, and in combination with the car, a dog mounted for pivotal and sliding movement, a stud adapted to interlock with the dog and limit its movement in one direction, a spring for throwing the dog outward and upward into operative position, a second spring for disengaging the dog from the said stud, and restraining means for holding the dog out of action against the tension of the two springs, substantially as set forth.

3. In an elevator, and in combination with the car having a side portion recessed, a dog comprising a cam and stem portions, the cam portion having a longitudinal slot and the stem portion having a notch, a spring located in the recess of the car and exerting an upward pull upon the dog, a stud for limiting the upward movement of the dog at its inner end and adapted to enter the notch thereof, a second spring normally exerting a downward pressure upon the inner end of the dog to effect a disengagement thereof from the stud, a pin forming a pivotal and slidable support for the dog, and restraining means for normally holding the dog out of action against the tension of both of said springs, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

PHILIP H. BURGART. [L. S.]

Witnesses:

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