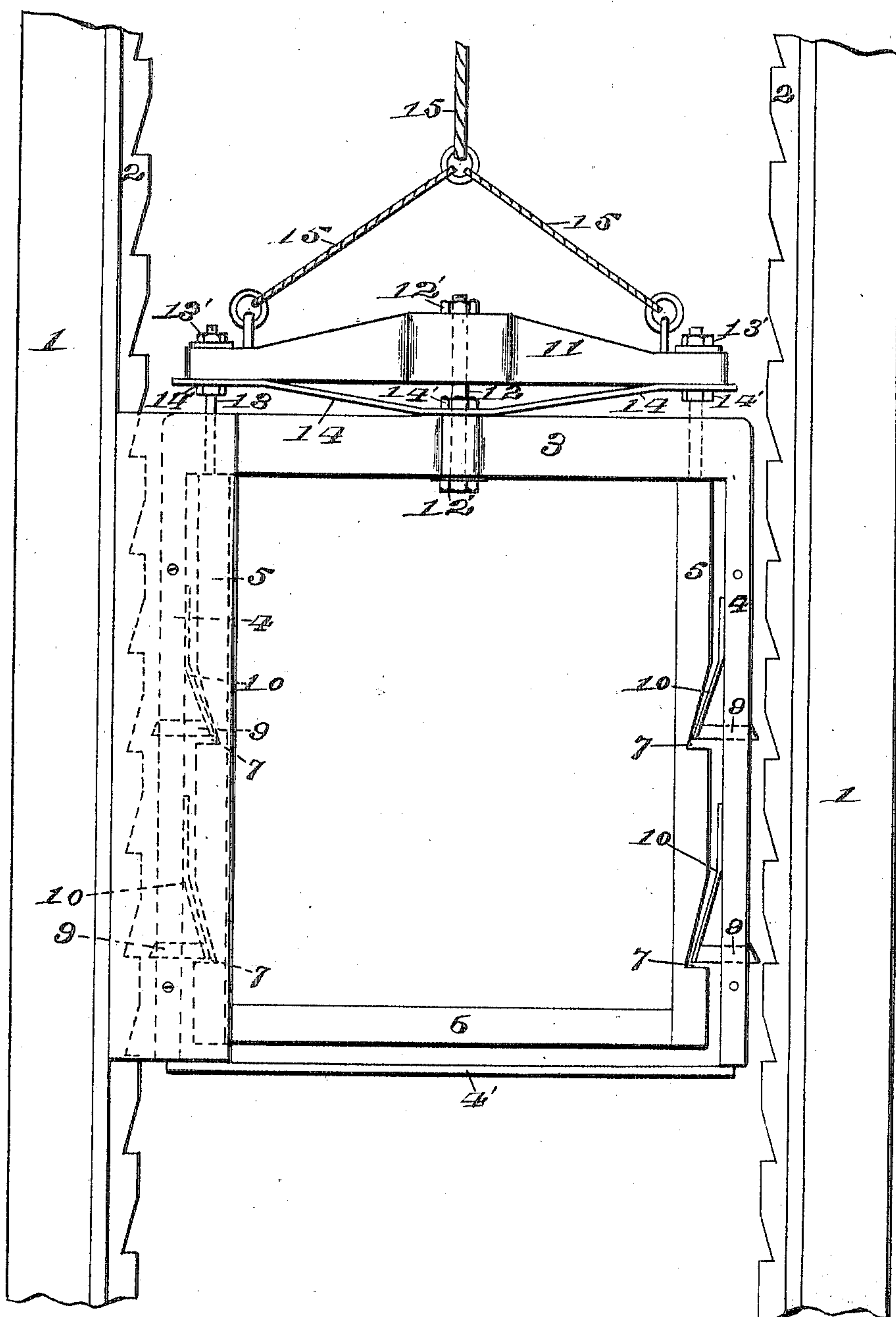


No. 811,604.

PATENTED FEB. 6, 1906.

F. A. WEIGEL.
SAFETY DEVICE FOR ELEVATORS.

APPLICATION FILED APR. 28, 1904.



WITNESSES

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FREDERICK A. WEIGEL, OF FLOREFFE, PENNSYLVANIA.

SAFETY DEVICE FOR ELEVATORS.

No. 811,604.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed April 28, 1904. Serial No. 205,317.

To all whom it may concern:

Be it known that I, FREDERICK A. WEIGEL, a citizen of the United States of America, residing at Floreffe, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Safety Devices for Elevators; and I do 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, reference being had to the accompanying drawing, and to the figures of reference marked thereon, which forms a part of this specification.

My invention relates to a new and useful improvement for a safety device for elevators, especially to that class of safety devices adapted to operate laterally to engage with the racks of the elevator-shaft.

The further object of the invention is to so construct the elevator of two cages movable one relative to the other that upon the breaking of the supporting-cable one cage will receive an accelerating motion sufficient to impel the same downward in advance of the other cage for the purpose of ejecting the safety catches or pawls for the purpose of engagement with the racks of the shaft.

The accompanying drawing is a side elevation of the elevator-cages in position in the shaft, illustrating the operating parts.

Like numerals represent like parts throughout the drawing.

The numeral 1 indicates the side walls of the elevator-shaft, while 2 represents the ratchets or "racks," as more commonly termed, formed in the shaft and extending vertically throughout the length thereof. Upon the top of the elevator-cage there is a beam 3, to which is secured the side walls 4, while a beam 4' connects the walls at the bottom. On each side of the elevator, upon the inside thereof, is a suspended upright 5 and adjacent to the outer wall 4 and having attached thereto the floor 6, upon which is carried the passengers and freight. From this construction it will be noted that there are two cages, which will be hereinafter termed the "inner" and "outer" cages, respectively. Furthermore, in the uprights 5 are the recesses 7 7, while guide-plates 8 are secured to the side walls 4 at each side of the elevator. Locking pins or pawls 9 are seated in the openings provided for that purpose in the walls 4, and to the inner end of these pins are attached springs 10, secured to the walls 4.

These pawls are for the purpose of engaging with the racks upon the fall of the inner cage of the elevator in advance of the movement of the outer cage, as will hereinafter be explained.

Upon the top of the beam 3, supported by a suitable bolt 12 and secured in position by nuts 12' 12', is an adjustable operating-beam 11. Extending upward through the beam 3 are the reduced upper portions 13 of the uprights 5 and which are adjustably secured to the nuts of the operating-beam 11 by suitable nuts 13'. Secured between the beams 3 and 11 is the strong spring 14, whose tension is adjustable to circumstances so far as the construction of the elevator-cages is concerned. This spring is held by suitable nuts 13', the spring being of such strength as to support the outer cage in case the supporting-cable breaks in order to permit the descent of the inner cage prior to that of the outer cage for the purpose of ejecting the safety catches or pawls into engagement with the side racks.

In the operation of my improved device, considering the same as utilized in bearing persons and freight from one floor to another, the platform 6 will be lifted clear of the bottom 4', and upon the breaking of the suspension rope or cable the inner cage thus released will drop by its own weight and also with the assistance of the released tension of the spring 14 as far as the floor 4', which in practice would be from three to five inches, the exact distance being regulated by the adjustment of the nuts 14'. Upon the movement of the cage due to the breaking of the cable the angled recesses formed in the uprights 5 engage the springs 10 and force the pins 9 9 through the openings in the walls 4 into engagement with the racks 2. This movement of the safety-pawls prevents the further downward flight of the elevator. When the elevator is in its operative position supported by the cable, the inner cage will be elevated to a distance above described above the floor of the outer cage, so that the springs 10 will withdraw the pins 9 from engagement with the racks 2. There is no time lost between the breaking of the suspension-rope and the automatic action which results in the pins engaging with the racks to arrest the descent of the elevator.

Having thus fully shown and described my invention, what I claim, and desire to protect by Letters Patent, is—

1. In a safety device for elevators, the com-

combination with racks provided in the side walls of the elevator-shaft, of an outer frame or cage having a top, side walls and bottom, an inner cage adapted to operate therein, 5 spring-actuated locking-pins mounted for horizontal movement in the side walls of the outer cage adapted to engage with the racks, said inner cage adapted to force the locking-pins into engagement with the racks, substantially as described. 10

2. In a safety device for elevators, the combination of an outer frame or cage having a top beam, side walls and a bottom, an inner cage adapted to operate therein, spring-actuated locking-pins mounted for horizontal 15 movement in the walls of the outer cage, racks formed in the side walls of the elevator-shaft, said pins being adapted to be forced into engagement with the racks by the inner cage and guide-plates secured to the side of 20 said walls, substantially as described.

3. In a device for elevators, the combina-

tion with the outer frame or cage having a top beam, side walls and bottom, of an operating-beam adjustably seated on said top 25 beam, a spring mounted between the operating-beam and the top beam, uprights suspended from the operating-beam extending downwardly through the top beam of the cage supporting a platform at the lower end 30 thereof and being provided with angled recesses, spring-actuated pins mounted in the walls of the outer cage, racks mounted in the elevator-shaft, said pins being adapted to be operated by the walls of the recesses of the up- 35 rights upon movement of the same, substantially as described.

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

FREDERICK A. WEIGEL.

Witnesses:

Mrs. C. S. HELMICK,
C. S. HELMICK.