

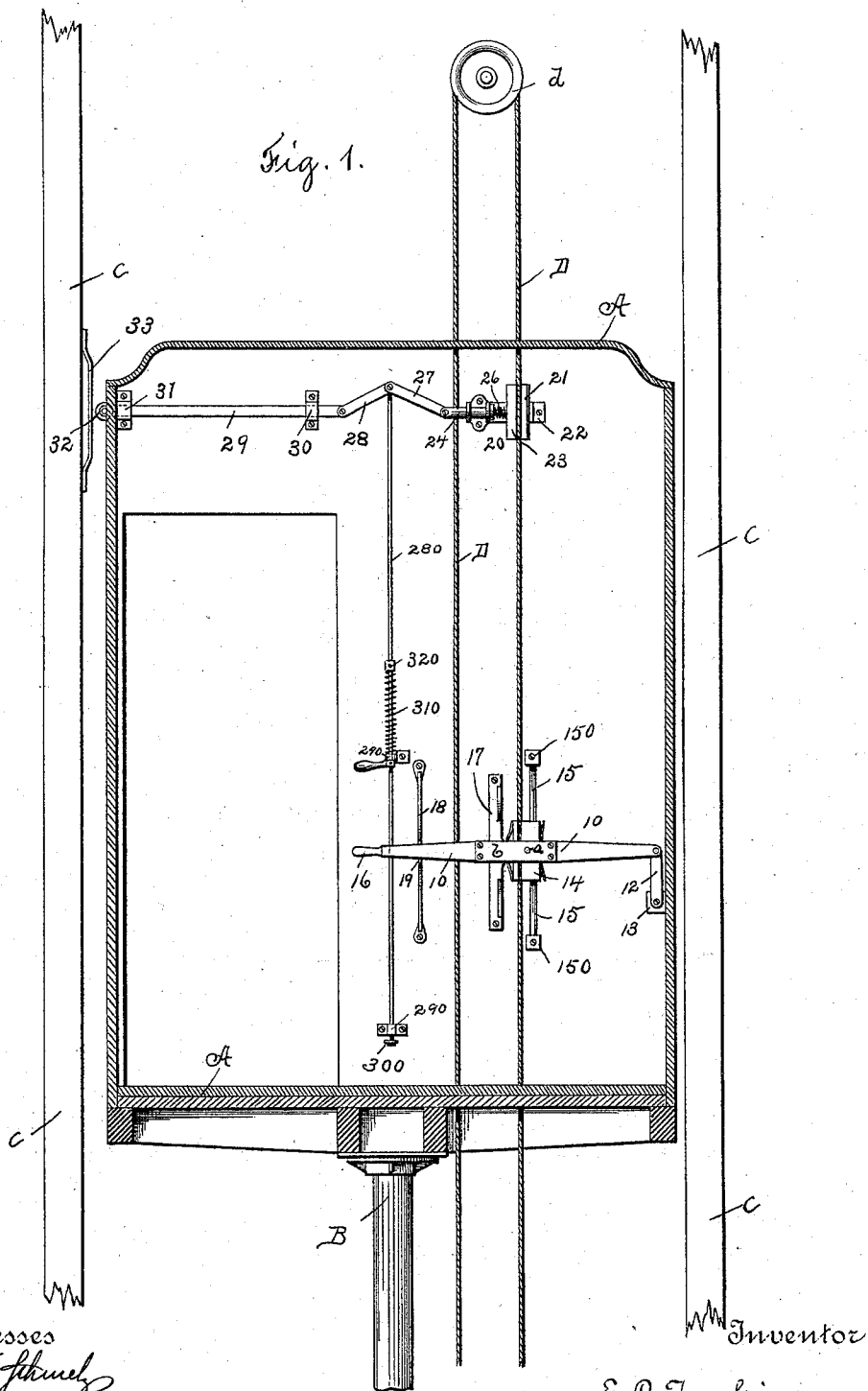
(No Model.)

3 Sheets—Sheet 1.

E. C. JENKINS.
ELEVATOR CONTROLLER.

No. 540,390.

Patented June 4, 1895.



Witnesses
Chas. F. Johnson
E. M. Healy.

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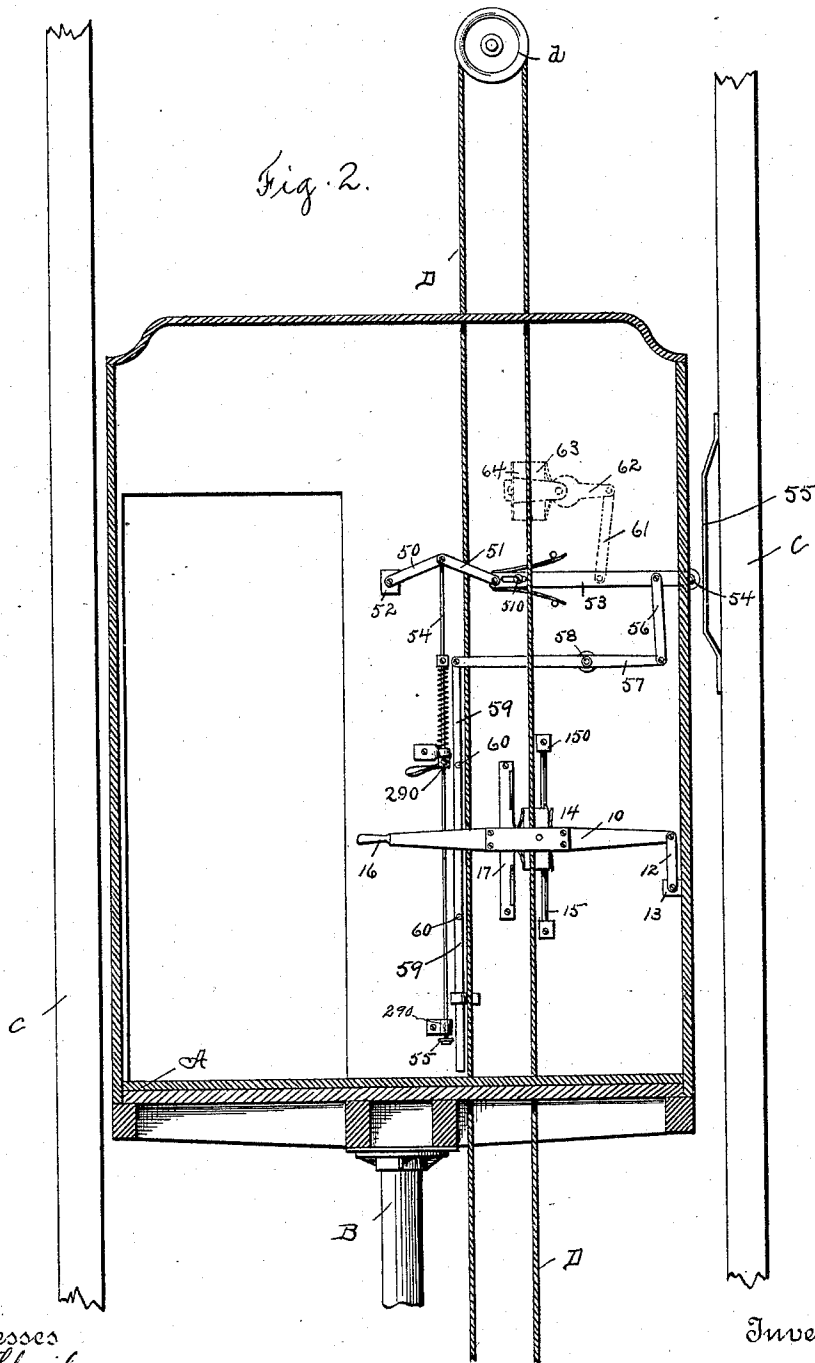
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3 Sheets—Sheet 2.

E. C. JENKINS.
ELEVATOR CONTROLLER.

No. 540,390.

Patented June 4, 1895.



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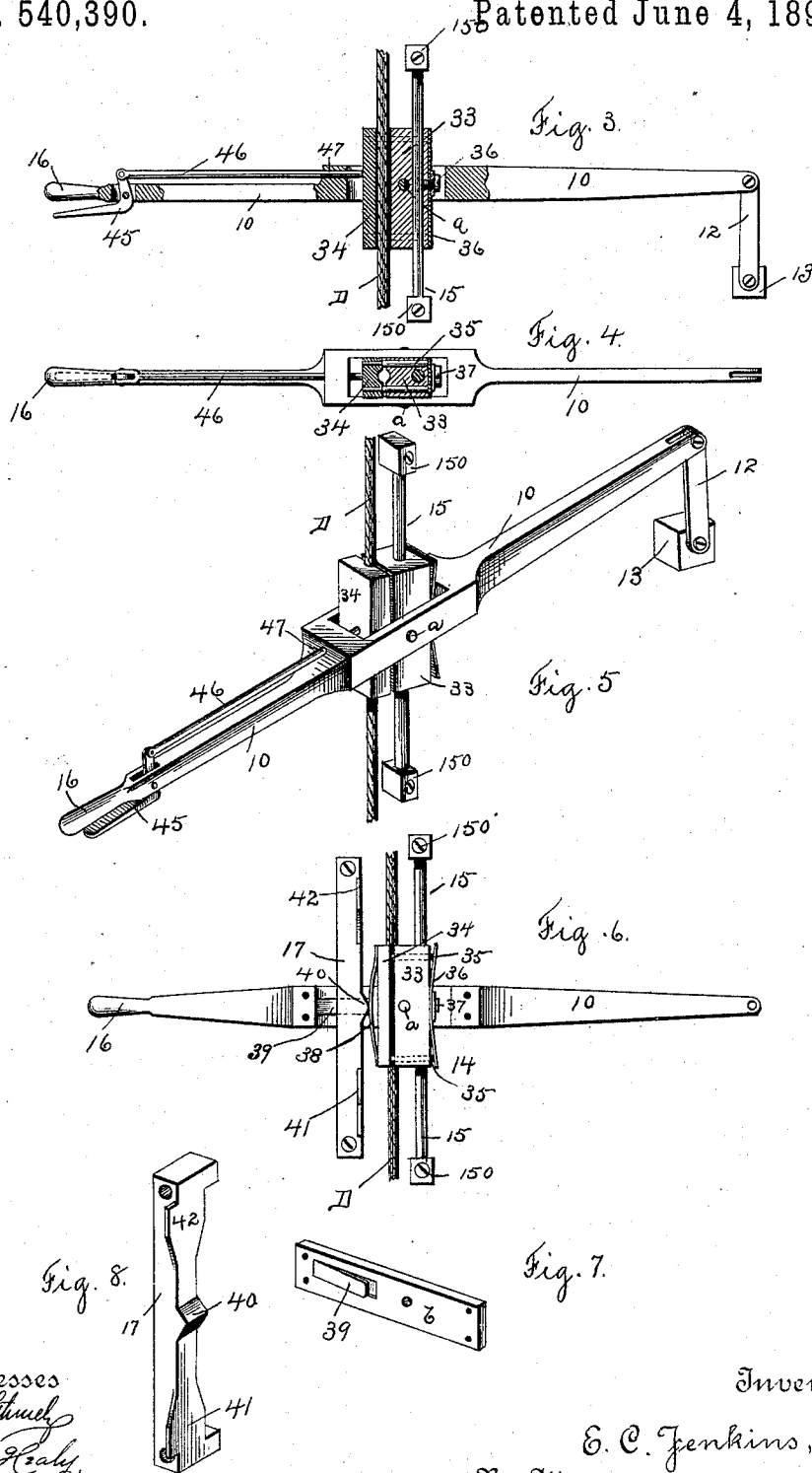
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3 Sheets—Sheet 3.

E. C. JENKINS.
ELEVATOR CONTROLLER.

No. 540,390.

Patented June 4, 1895.



Witnesses
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UNITED STATES PATENT OFFICE.

EBENEZER C. JENKINS, OF WORCESTER, MASSACHUSETTS.

ELEVATOR-CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 540,390, dated June 4, 1895.

Application filed August 29, 1894. Serial No. 521,577. (No model.)

To all whom it may concern:

Be it known that I, EBENEZER CURTIS JENKINS, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Elevator-Controllers, of which the following is a specification.

My invention relates that class of devices, which are used for stopping and starting elevator cars, and the especial object of my invention is to provide a strong, simple and convenient apparatus for gripping and actuating the controlling rope of an elevator, said device being mounted in and movable with the elevator car.

To these ends, my invention consists in the parts and combinations of parts as hereinafter described, and more particularly pointed out in the claims at the end of this specification.

In the accompanying three sheets of drawings, Figure 1 is a transverse sectional view of an elevator-car provided with controlling devices constructed according to my invention. Fig. 2 is a similar view showing a modified form of construction. Figs. 3, 4, and 5 are detail views illustrating a modified form of controlling-lever; and Figs. 6, 7, and 8 are detail views of the form of controlling-lever illustrated in Figs. 1 and 2.

Referring to the drawings and in detail, A designates the elevator carriage or car, which may be of any ordinary or approved construction, and as shown in the drawings, the car A is actuated by means of the plunger B, and is adapted to be moved on vertical guides or ways C.

Passing through the car A is the ordinary controlling rope or cable D, which is led up over a sheave or pulley *d*, and may be connected to the elevator starting and stopping devices in any of the ordinary or approved manners, not necessary to be herein shown or described at length.

The device which I preferably employ for gripping and actuating the controlling rope for starting the elevator consists essentially of a vertically movable pivoted lever having a gripping device for engaging the cable carried thereby.

In Fig. 1, 10 designates a lever, which is

pivoted or connected to a link 12, the said link 12 being pivoted to the elevator car as shown at 13. At its opposite end, the lever 10 may be provided with an actuating handle 16, as shown. A gripping device 14 is pivoted near the center of the lever 10 by means of suitable trunnions or pivots *a*, the gripping device 14 being mounted upon and engaging a guide-rod 15 secured to the side of the elevator car by means of suitable lugs or projections 150. The gripping device, which is thus mounted upon and carried by the pivoted lever 10 may be automatically actuated to engage the controlling cable, or, if preferred, the gripping device may be actuated by hand-controlled connections extending into proximity to the handle 16, as hereinafter described.

Referring to Figs. 6, 7 and 8, which illustrate the form of controlling lever shown in Figs. 1 and 2, it will be seen that the gripping device 14 consists of a stationary jaw or part 33, which is mounted upon the guide 15, and a movable part or jaw 34, which is movably connected to the part 33 by means of dowels or pins 35, as shown. Resting upon and engaging the ends of the pins 35, I provide a flat spring 36, which is secured in place by means of a screw 37, and normally tends to open the gripping device and prevent the same from engaging the hoisting cable. Mounted upon and having one end secured to the movable jaw 34, I also provide a projecting flat spring 38, which has its central portion bent outwardly to form a yielding cam projection, as illustrated in the drawings.

As the controlling lever is shifted up and down past its central position, the projecting spring 38 is adapted to engage and be actuated by a stationary cam 40, carried by the cam-plate 17, which is secured to the side of the car, parallel with the guide 15. When the parts are thus actuated, the movable jaw 34 will be forced in by the spring 38 and the gripping device will engage the controlling cable with a spring tension.

In order to hold the movable jaw of the gripping device 14 in contact with the controlling cable until the controlling lever 10 has been thrown far enough in either direction to start the elevator car, the side plates of the lever 10 are provided with spring pawls 39, which

are adapted to engage behind the spring 38, and prevent the spring 36 from restoring the movable jaw to its normal position.

In order to release the gripping device 14 from the controlling rope, when the elevator shall have been started, the cam-plate 17 is provided with extending wings or cams 41 and 42, located near each end thereof, the said cams 41 and 42 being adapted to engage the spring-pawls 39, and to force the same back, so as to allow the spring 36 to restore the movable jaw 34 to its normal position, and release the gripping device from the rope.

In connection with the controlling lever 10, I may employ a stop or bracket for locking the lever in its central position, and in Fig. 1, 18 represents an extending bracket, which is provided with a central notch or depression 19 into which the controlling lever 10 may be adjusted, thus locking the gripping device upon the controlling rope, and preventing the car from being started either up or down.

The operation of the parts in a controlling device thus constructed is thought to be apparent.

If the controlling lever 10 is moved downward, the stationary cam 40 will actuate the gripping device to engage the same with the controlling cable, the gripping device being held in engagement with the cable by means of the spring-pawls 39, and the controlling cable moving with the gripping device far enough to start the elevator going up, when the pawls 39 will be released by means of the stationary cam 41, and the gripping device will be disengaged from the controlling rope.

In connection with the controlling lever, as before described, I preferably employ a stopping device, which may be actuated by the foot independently of the said lever, and which is so constructed as to bring the car to a stop opposite the desired landing.

Referring to Fig. 1, 22 designates a bracket which is secured to the side of the elevator car, and carries a gripping device consisting of a stationary jaw 21 and a movable jaw 23, which are movably connected and normally held apart by means of a flat spring as before described. Extending from, and secured to the movable jaw 23, I provide a shaft or pin 26 having a coiled spring thereon, as shown, the pin 26 fitting into and telescopically engaging a movable pin 24 guided by lugs in the bracket 22, as shown. The coiled spring which is mounted on the pin 26 is provided for the purpose of compensating for any side play between the elevator car and the vertical guides. This coiled spring is normally free from tension, and will not exert pressure upon the gripping device except when compressed or actuated by means of the links or connections as hereinafter described. Pivoted to the end of the pin 24, I provide the links 27 and 28, which normally stand at an angle to each other to form a toggle-joint, the opposite end of said toggle-joint being pivoted to a link 29, said link 29 being longitudinally

guided by means of brackets 30 and 31, as shown, and being provided with a friction-wheel 32. Pivoted to the toggle-joint formed by the links 27 and 28, I also provide a draw-rod 280, which is guided by brackets 290, and is provided with a foot-piece 300, the said draw-rod being normally maintained in an elevated position by means of a coiled spring 310, which bears upon a collar or washer 320, as shown.

When the elevator-car has been started in either direction by means of the controlling lever 10, and it is desired to stop the same opposite the landing, the operator may actuate the toggle-joint formed by the links 27 and 28 by means of the foot-piece 300, or by means of a handle as shown. When this has been done, the link 29 is moved longitudinally so that its friction-wheel 32 will come into position to engage a stationary cam 33 carried by the guide-way C, and when the friction-wheel 32 engages said cam, the clamping device will be actuated to engage the controlling cable through the links 27, 28 and 29, and the car will be brought to rest at the desired point.

Instead of providing a separate clamp to be actuated by the foot-controlled stopping device, I may connect the foot-piece in such a manner that it will actuate the clamping device carried by the controlling lever, and I have illustrated such a construction in Fig. 2. Referring to this figure, 50 and 51 designate suitable links, which normally stand at an angle to each other to form a toggle-joint, the link 50 being pivoted to the side of the car, as at 52, and the link 51 being secured to a longitudinally movable lever or link 53, which is slotted to engage the stationary pin 510, and is provided with extending spring pieces, as shown, which normally maintain said lever in a horizontal position. Secured to the toggle-joint formed by the links 50 and 51, I provide a draw-rod or link 54, having a foot-piece 55, and normally maintained in its elevated position by means of a coiled spring, as shown.

57 designates a lever or link, which is pivoted to the side of the car, as shown at 58, and is connected with the lever 53 by means of a link 56, the pivoted lever 57 being connected with and actuating a vertically movable link or piece 59, which is provided with projections or pins 60, which are located in a position to engage with and actuate a controlling lever 10, constructed as hereinbefore described.

When the controlling lever 10 has been thrown to its lowest position to start the elevator-car upward, the foot-piece 55 may be actuated to stop the car at any desired landing; and, if this be done, the lever 53 will be pushed out by means of the toggle formed by the links 50 and 51, so that the friction-wheel 54 carried by the lever 53 will be brought into position to be actuated by the stationary cam 55. When the lever 53 is actuated by the stationary cam 55, motion will be transmitted

through the link 56 and the pivoted lever 57, and the vertically movable link or piece 59 will be raised so that the lower pin or projection 60 will engage the controlling lever 10 so as to raise the same to its central position and bring the car at rest when opposite the landing.

In some cases, it may be preferred to have the swinging lever 53, which is controlled from the foot-piece 55 actuate an independent clamping device instead of having the same connected so as to operate the controlling lever 10, and I have illustrated such a construction by dotted lines in Fig. 2. When this construction is used, the vertically movable link or piece 60, and its connecting lever and link 57 and 56 may be omitted, and in place thereof, the swinging lever 53 may be connected by a link 61 with a pivoted lever 62, which is made in the form of a cam so as to actuate the movable jaw 63 of a clamping device 64, which may be constructed substantially as hereinbefore described. In some cases, it may also be preferred to provide hand-controlled connections for actuating the clamping device which is carried by the controlling lever, and I have illustrated such a construction in Figs. 3, 4 and 5. Referring to these figures, it will be seen that the controlling lever 10 may be mounted substantially as before described by means of a pivoted link 12, which is pivoted as at 13, and the controlling lever may be provided near its center with a gripping device consisting of a fixed jaw 33 pivoted to the lever by means of trunnions *a*, and guided to move in a vertical path on the guide-rod 15, which is secured to the side of the car by means of lugs 150. The movable jaw 34 of the clamping device may also be connected to the stationary jaw 33 by means of the dowels or pins 35, as before described; but instead of having the gripping device automatically actuated by means of stationary cams, I may provide connections for actuating the same, which extend into proximity to the operating handle 16, and in their preferred form, these connections may consist of a bell-crank lever 45, which is pivoted in a slot in the lever 10, one leg thereof being in a position to be conveniently grasped at the same time with the handle 16, and the other leg of said lever being pivoted to a link 46 having a bearing 47 in the controlling lever 10, and abutting against and engaging the movable jaw 34. I consider this form of controlling device an exceedingly desirable one, as the bite or tension of the gripping device upon the controlling rope can be regulated from the controlling handle 16, and when in action, this controlling device will produce substantially the same effect upon the controlling cable, as when the controlling cable is directly grasped by the attendant in the ordinary manner—that is to say, the gripping device may be actuated from the bell-crank lever 45 so as to firmly engage the controlling rope and close tightly thereon, or it may be

actuated to place more or less friction upon the controlling rope, and thus bring the car gradually to rest, avoiding all sudden jars or shocks.

I am aware that many changes may be made in the construction of my elevator controlling device by those who are skilled in the art without departing from the scope of my invention, as expressed in the claims, and I do not wish, therefore, to be limited to the construction which I have shown and described, but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. The combination of an elevator car, a controlling rope or cable for said car, a lever mounted in the car, a gripping device pivotally mounted upon said lever, means for guiding said gripping device to move up and down vertically, and means for actuating said gripping device to engage the controlling rope, substantially as described.

2. In an elevator controlling device, the combination of a lever, a link connected to said lever and pivotally mounted in the car, a gripping device carried by said lever, and means for actuating said gripping device to engage the controlling rope, substantially as described.

3. The combination of an elevator car, a controlling rope or cable, a controlling lever mounted in said car and movable in a vertical plane, a gripping device pivotally mounted upon said controlling lever, said gripping device comprising a stationary piece or jaw, and a movable piece or jaw, and means for actuating said gripping device to engage the controlling rope, substantially as described.

4. In an elevator controlling device, the combination of a lever 10 movable in a vertical plane, a link 12 for mounting said lever, a gripping device comprising a piece or jaw 33 pivotally mounted in said lever, a vertical guide 15 on which said piece or jaw is adapted to move up and down, a movable jaw 34, dowels or pins 35 for connecting the jaw or part 34 with the part 33, and means for actuating said gripping device to engage the controlling rope, substantially as described.

5. In an elevator controlling device, the combination of a lever movable in a vertical plane, a gripping device carried by said lever, and a stationary cam for actuating said gripping device to engage the controlling rope, substantially as described.

6. In an elevator controlling device, the combination of a controlling lever, a gripping device pivotally mounted in said controlling lever, a spring for normally maintaining the gripping device out of engagement with the controlling rope, and a stationary cam for engaging said gripping device with the controlling rope, substantially as described.

7. In an elevator controlling device, the combination of a lever, a gripping device pivotally mounted in said lever, a spring for normally disengaging the gripping device from

the controlling rope, a stationary cam for actuating said gripping device to engage the controlling rope, pawls or latches for holding said gripping device in engagement with said controlling rope, and stationary cams for actuating said pawls or latches to disengage the gripping device from the controlling rope, substantially as described.

8. The combination of an elevator car, a controlling rope or cable, a lever for starting said car, and a stopping device comprising a stationary cam, a friction-wheel or part adapted to be engaged by said stationary cam, and foot-controlled connections for throwing said friction-wheel into position to be engaged by said stationary cam, substantially as described.

9. In an elevator-stopping device, the combination of a stationary cam, a part adapted to engage with and be actuated by said stationary cam, a toggle joint, and foot-controlled connections for bringing said part into position to be actuated by said stationary cam, substantially as described.

10. In an elevator controlling device, the combination of a controlling rope or cable, a lever for actuating said cable to start the elevator, a stationary cam, a part adapted to be actuated by said stationary cam, foot-controlled connections for bringing said part into position to engage said stationary cam, and connections between said part and said starting lever, substantially as described.

11. In an elevator controlling device, the combination of a controlling rope or cable, a controlling lever, a gripping device carried thereby for engaging and actuating said controlling rope, a pivoted lever, a stationary cam for actuating said lever, a toggle joint for moving said lever into position to engage said stationary cam, a foot-piece for actuating said toggle-joint, and connections between said cam-actuated lever and the controlling lever, substantially as described.

12. In an elevator controlling device, the combination of a controlling lever adapted to stop the elevator when in its central position, and to start the elevator when shifted from said central position, and foot-controlled connections for restoring said controlling lever to its central position, substantially as described.

13. The combination of an elevator car, a controlling lever adapted to start said car when shifted from its central position, a stationary cam, a part actuated by said cam, connections between said part and the controlling lever adapted to shift said controlling lever to its central position, and foot-controlled connections for throwing said cam-actuated part into position to be engaged by said stationary cam, substantially as described.

14. In an elevator controlling device, the combination of a movable lever, a gripping device carried by said lever, said gripping device comprising a stationary jaw or piece, a movable jaw or piece, a projecting spring mounted upon the movable jaw or piece and a stationary cam for engaging the projecting spring and actuating the movable jaw to engage the controlling cable, substantially as described.

15. In an elevator controlling device, the combination of a controlling rope or cable, a gripping device for engaging said controlling rope or cable, a stationary cam, a part or piece connected to actuate said gripping device, and connections for moving said part or piece into position to be engaged by said stationary cam, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

E. C. JENKINS.

Witnesses:

LOUIS W. SOUTHGATE,
PHILIP W. SOUTHGATE.