

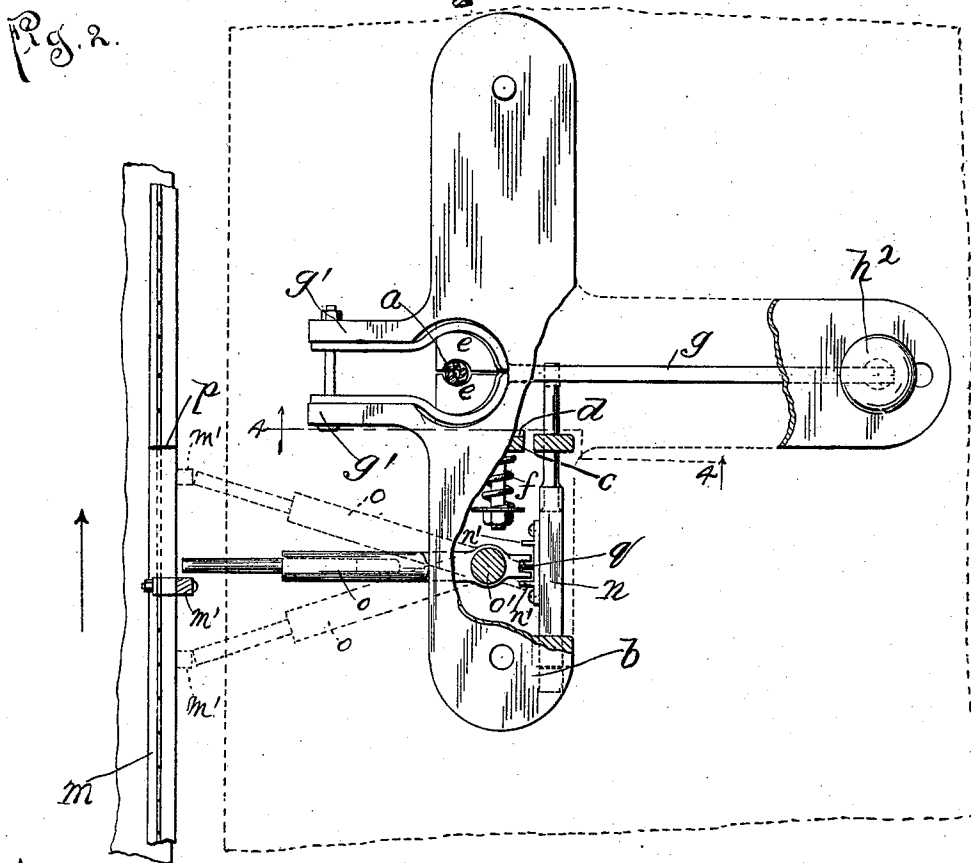
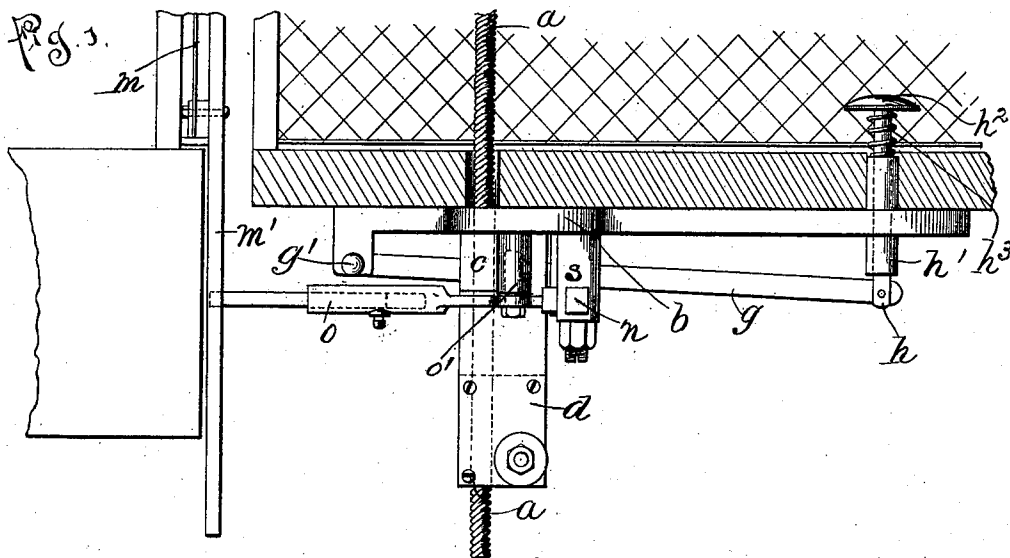
(No Model.)

2 Sheets—Sheet 1.

G. W. W. PERKINS.
ELEVATOR.

No. 568,410.

Patented Sept. 29, 1896.



Witnesses:
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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

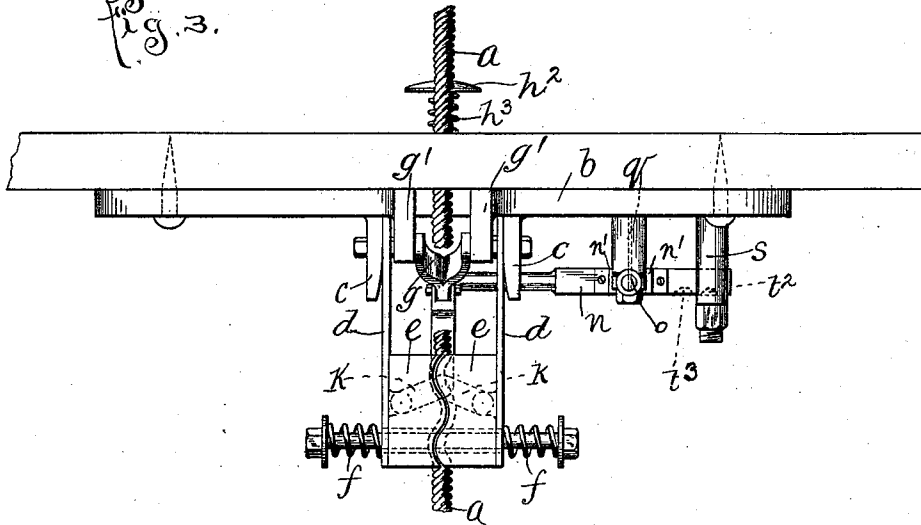


Fig. 4.

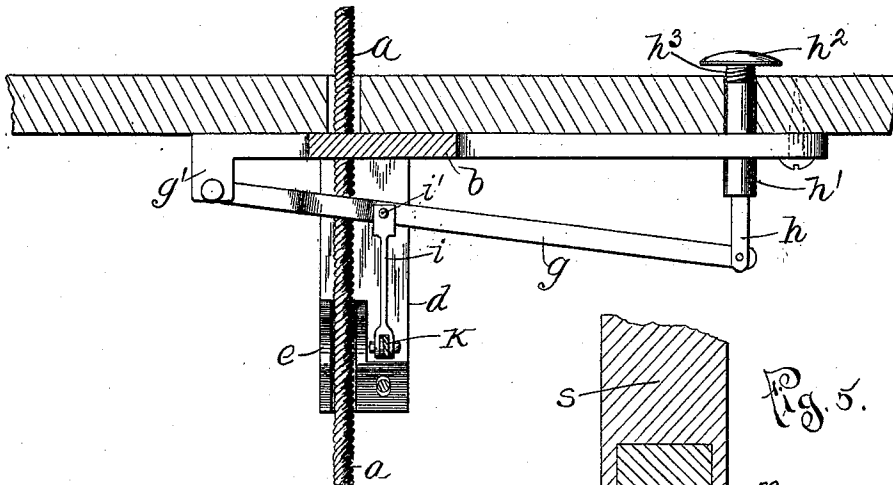
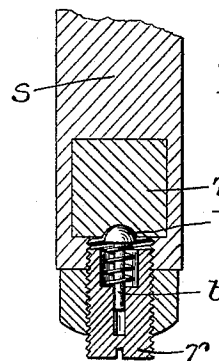


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE W. W. PERKINS, OF CHICAGO, ILLINOIS.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 568,410, dated September 29, 1896.

Application filed April 18, 1896. Serial No. 588,091. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. W. PERKINS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Elevators, (Case No. 1,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to passenger or freight elevators, and has for its objects, first, to provide an improved form of clutch mechanism for operating the controller cable or rope controlling the elevator-engine, and, second, to provide an improved form of safety appliance adapted to prevent the operation of the controller-cable by the attendant while the door to the elevator is open.

Generally speaking, the preferred form of the first feature of my invention consists of a pair of clutch-blocks disposed about the controller-cable and flexibly mounted beneath the car, with which blocks is associated lever mechanism adapted, upon being operated by the attendant, to release the engagement of said blocks with said controller-cable, this engagement being preserved, in the absence of counter influence by said lever mechanism, by clamping-springs mounted upon a rod passing through the clutch-blocks, which springs press said clutch-blocks together about the cable.

The preferred form of the second feature of my invention consists of a plunger adapted to reciprocate in a plane at right angles to the clutch-operating lever, a lever being articulated to said plunger, one portion whereof is placed in juxtaposition with the elevator-door and is adapted to be operated thereby as the door is being opened and closed. The door to the elevator, upon being opened, engages the plunger-actuating lever, whereby the plunger is moved beneath the clutch-actuating lever to prevent the same from being operated, the clutch-blocks engaging the controller-cable when the parts are in this position to prevent said cable from being shifted. When the door is being closed, it engages the plunger-actuating lever and causes the same to withdraw the plunger from beneath the

clutch-operating lever, whereupon the attendant may release the clutch-blocks from the cable.

My invention will be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of the apparatus of my invention. Fig. 2 is a plan view thereof. Fig. 3 is a front elevation thereof. Fig. 4 is a sectional view on line 4 4 of Fig. 2. Fig. 5 is a detail sectional view of a locking device for maintaining the plunger in either of two positions.

Like letters indicate like parts throughout the different figures.

The controller-cable *a* is illustrated as being of the usual hand-operated type, passing through the elevator within reach of the attendant. Beneath the floor of the elevator-car is secured a T-plate *b*, which supports the various elements comprising the apparatus of my invention. Two lugs *c c* are cast integrally with the plate *b* upon opposite sides of an opening in said plate, through which the controller-cable passes. To these lugs are secured flexible plates *d d*, upon which are mounted the clutch-blocks *e e*, adapted in their closed position to grip the controller-cable when the elevator-car is to be stopped or is at rest, and in their open position to allow the controller-cable to pass freely between the same when the elevator-car is to be started or is in motion. Clamping-springs *f f* are provided upon a rod passing through elliptical openings in the clutch-blocks *e e* to press said blocks into engagement with the controller-cable, said springs bearing between the plates *d d* and heads provided upon their supporting-rod, as shown most clearly in Fig. 3. To separate the clutch-blocks from the controller-cable, I provide lever mechanism, which comprises a Y-shaped lever *g*, pivoted at one end upon lugs *g' g'* and articulated at its other end to a plunger *h*, adapted to be reciprocated within a containing-sleeve *h'* in one direction by the pressure of the attendant's foot, a button *h²* being provided upon the plunger for this purpose, and in the opposite direction by a spring *h³*, which bears between the sleeve *h'* and the button upon the plunger, a link *i* pivoted at *i'* to said le-

ver, and links $k k$, pivoted to the clutch-blocks and link i , and forming a toggle-joint, as shown in Fig. 3.

The attendant may, for the purposes above mentioned, remove the clutch-blocks from their engagement with the controller-cable by depressing the lever g , as shown in Fig. 4, which acts upon the links i and $k k$ to separate said blocks. When the lever g is relieved from the pressure of the attendant's foot, the spring h^3 restores lever g to the position shown in Figs. 1 and 3, which, in assuming this position, permits the clamping-springs $f f$ to readvance the clamping-blocks into engagement with the controller-cable. To permit of the use of clamping-springs of less weight, whereby the work of the attendant in counteracting the same is lessened, I make the opposing faces of the clamping-blocks curved, the cable being thereby bent at the point where it is clutched, as shown in Fig. 3, whereby its frictional engagement with the clutch-blocks is increased in proportion to the strain exerted by the clamping-springs.

Referring to Fig. 2, the attendant, after having released his foot from the button h^2 and thereby having caused the clutch-blocks to engage the controller-cable to stop the elevator-car, opens the door m in a direction opposite to the arrow. Vertically mounted upon each elevator-door is a bar m' , the function whereof being to reciprocate a plunger or detent n , supported in suitable guides beneath the elevator-car through the medium of a lever o , pivoted at o' and engaging alternately with lugs $n' n'$, secured to said plunger as the elevator-doors are opened and closed. As the door is being opened the bar m' in passing impinges against the lever o , which is thereby momentarily shifted to the position shown in dotted lines in the lower portion of Fig. 2. In assuming this position the lever shifts the plunger n beneath the operating-lever g , as shown in full lines in Fig. 2, thereby preventing the depression of said operating-lever. The clutch-blocks being thus freed from the influence of lever g , the clamping-springs are freely permitted to secure the clutch-blocks in engagement with the controller-cable, whereby said cable is secured in an immovable position. When the elevator-car is to be started, the door is closed in the direction indicated by the arrow, the bar m' engaging as it passes with the lever o , which is thereby momentarily shifted to the alternate position shown in dotted lines. In coming to this position the lever causes the plunger to recede from beneath lever g to the position shown in dotted lines, said lever being thus free to be depressed to release the clutch-blocks from the controller-cable. The lever o is placed upon the elevator-car near the line of the closing-jambs p of the elevator-door to prevent the withdrawal of the plunger n from beneath the lever

g until the particular elevator-door has been nearly closed.

The normal position of the lever o is indicated in full lines in Fig. 2, a spring q , Figs. 2 and 3, secured beneath the elevator-car, being provided to restore said lever after it has been shifted to either of the dotted positions shown in Fig. 2, the bar m' escaping said lever after shifting the same upon the door being opened or closed.

It will be observed that when the plunger n is to be shifted from one position to another by the lever o but slight lost motion is caused between the engaging parts of said lever and plunger. To secure the plunger in either of its two alternative positions I provide the locking device illustrated in Fig. 5, which comprises a screw r , screwed within the guide-post s , through which the plunger n is adapted to reciprocate, said screw containing a plunger t , provided with a hemispherical-head t' , adapted to engage a recess t^2 to secure said plunger in position beneath lever g , and a recess t^3 to secure said plunger in its reciprocal position, springs being provided to press said plunger upwardly into engagement with said recesses.

The bar m' should be made sufficiently long to permit the engagement thereof with the lever o when the elevator occupies a position a short distance above or below the level of the floor.

It is obvious that my invention may be applied to other types of elevators than that illustrated. Modifications may be readily made without departing from the spirit of my invention, and I do not desire to confine myself, therefore, to the precise details of construction shown; but,

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an elevator, the combination of clutch-blocks flexibly mounted upon the elevator-car, with a rod passing through the same, clamping-springs supported upon said rod adapted to secure the engagement of said blocks with the controller-cable of the elevator, and lever mechanism adapted to separate said clutch-blocks, substantially as described.

2. In an elevator, the combination of a pair of clutch-blocks flexibly mounted upon the elevator-car, with a rod passing through the same, clamping-springs supported upon said rod adapted to advance said clutch-blocks into engagement with the controller-cable, links connecting said blocks and forming a toggle-joint, and a lever connected with said links adapted upon being actuated to separate said blocks, substantially as described.

3. In an elevator, the combination of a pair of clutch-blocks flexibly mounted upon the elevator-car, with a rod passing through the same, clamping-springs supported upon said rod adapted to advance said clutch-blocks into

engagement with the controller-cable, links connecting said blocks and forming a toggle-joint, a lever connected with said links, a plunger *h* connected to said lever, a button
 5 connected with said plunger adapted to be operated by the attendant, and a spring adapted to restore said button and parts connected therewith when pressure is removed from said button, substantially as described.

10 4. In an elevator, the combination of clutch-blocks and a controller-cable adapted to be engaged thereby, with clamping-springs adapted to press said blocks into engagement with said cable, lever mechanism adapted to re-
 15 lease said clutch-blocks from engagement with said cable, a plunger, and a lever adapted to be actuated in one direction by the elevator-door as it is being opened and to bring said plunger into the path of said lever mech-
 20 anism while being thus actuated whereby said mechanism is prevented from releasing the clutch-blocks from said cable, said lever being also adapted to be actuated in an alter-
 25 nate direction by the elevator-door when being closed, whereby said plunger is removed from the path of said lever mechanism, sub-
 stantially as and for the purpose specified.

5 5. In an elevator, the combination of clutch-blocks, a controller-cable adapted to be en-
 30 gaged thereby, a rod passing through said clutch-blocks, and clamping-springs supported by said rod and adapted to press said blocks into engagement with said cable, with
 35 an actuating-lever adapted to remove said clutch-blocks from their engagement with said cable, a button connected with said lever and located preferably within reach of the at-
 40 tendant's foot adapted upon actuation to move said lever and thereby release the clutch-blocks from the cable, a spring to restore said
 45 button and the lever connected therewith when pressure has been removed therefrom, a plunger adapted to be placed within and removed from the path of said actuating-lever,
 50 a lever adapted to be actuated by the elevator-door as it is being opened and closed, thereby causing said plunger to be placed within and removed from the path of the said
 actuating-lever respectively, substantially
 as and for the purpose specified.

6. In an elevator, the combination of clamp-
 55 ing mechanism, a controller-cable adapted to be engaged thereby, an actuating-lever adapted to remove said clamping mechanism from
 its engagement with the controller-cable, a
 plunger adapted to be placed within and
 60 withdrawn from the path of said actuating-lever, a lever adapted to engage with said plunger to put the same within or withdraw
 it from the path of the actuating-lever re-
 spectively by the elevator-door as the same
 is being opened and closed, lugs provided
 upon said plunger with which said lever is
 65 adapted to engage, and a spring disposed be-
 tween said lugs adapted to restore said lever to a middle position after each actuation
 thereof, substantially as described.

7. In an elevator, the combination of the
 elevator-car, an elevator-controller, means
 located upon said car adapted to lock the ele- 70
 vator-controller, and a lever adapted to oper-
 ate said means, with a detent adapted to be
 operated by the elevator-shaft door as it is
 being opened, to prevent the actuation of said
 lever to the position which it has when said 75
 means release said controller, substantially
 as described.

8. In an elevator, the combination of the
 elevator-car, an elevator-controller, means
 located upon said car adapted to lock the ele- 80
 vator-controller, with an actuating-lever
 adapted to operate said means, a second lever
 adapted to be shifted by the elevator-door,
 as it is being opened and closed, a plunger
 or detent adapted to be brought into position 85
 by said second lever when it is actuated by
 the door as it is being opened, to lock the
 aforesaid actuating-lever to prevent the ac-
 90 tuation of said lever to the position which it
 has when said means release said controller,
 said plunger or detent being removed from
 said position by said lever when it is actuated
 by the door as it is being closed, substantially
 as described.

9. In an elevator, the combination of the 95
 elevator-car, a controller-cable and clamping
 mechanism located upon the car, with lever
 mechanism under the control of the attend-
 ant, adapted to release said clamping mech- 100
 anism from its engagement with the control-
 ler-cable, and a detent adapted to be placed
 in position by the elevator-door as it is being
 opened, to prevent said lever mechanism from
 being actuated in a manner to release the
 clamping mechanism from said controller- 105
 cable; substantially as described.

10. In an elevator, the combination of the
 elevator-car, an elevator-controller, means
 located upon said car adapted to lock the ele- 110
 vator-controller, and a lever adapted to op-
 erate said means, with a detent and means
 for operating said detent said last-named
 means being operated by the elevator-shaft
 door as it is being opened, to prevent the ac- 115
 120 tuation of said lever to the position which it
 has when said first-named means releases
 said controller and being operated by the
 shaft-door as it is being closed to release said
 detent from said lever, substantially as de-
 scribed.

11. In an elevator, the combination of the
 elevator-car with a controller, mechanism lo-
 cated upon the car under the management of
 the attendant adapted to govern said con- 125
 troller, and a detent adapted to be placed in
 position by the elevator-door as it is being
 opened to prevent said mechanism from being
 actuated in a manner to put said controller
 in condition to permit of the travel of the car,
 substantially as described. 130

12. In an elevator, the combination of the
 elevator-car, a controller-cable and clamping
 mechanism formed of clutch-blocks, with a
 lever adapted to be actuated to separate said

clutch-blocks from the controller-cable, and a plunger under the control of the attendant extending through the floor of the car connected with said lever and adapted to operate the same, and a detent adapted to be brought into position by the elevator-door as it is being opened to prevent the actuation of said plunger, substantially as described.

13. In an elevator, the combination of clamping mechanism and a controller-rope adapted to be engaged thereby, with a lever adapted to release said clamping mechanism from its engagement with the controller-cable,

a plunger or detent adapted to be placed within and withdrawn from the path of said lever by the elevator-door as it is being opened and closed respectively, and a locking-plunger connected with said detent and adapted to secure the same in either of its two alternative positions, substantially as described.

In witness whereof I hereunto subscribe my name this 16th day of April, A. D. 1896.

GEORGE W. W. PERKINS.

Witnesses:

GEORGE L. CRAGG,
DWIGHT B. RAMSEY.