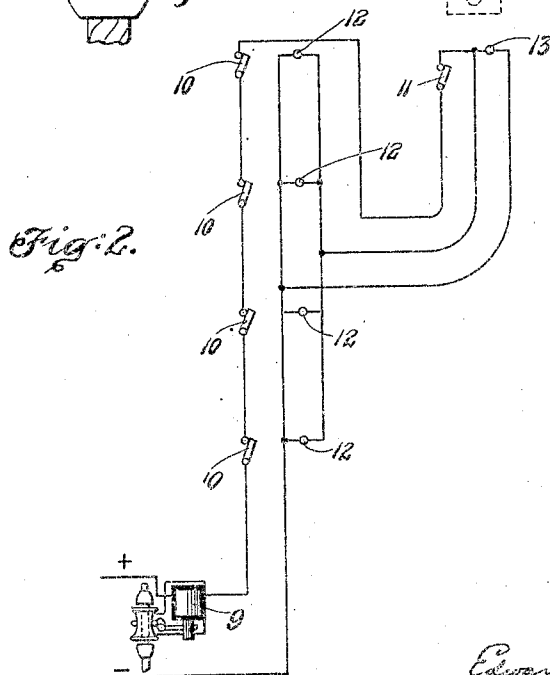
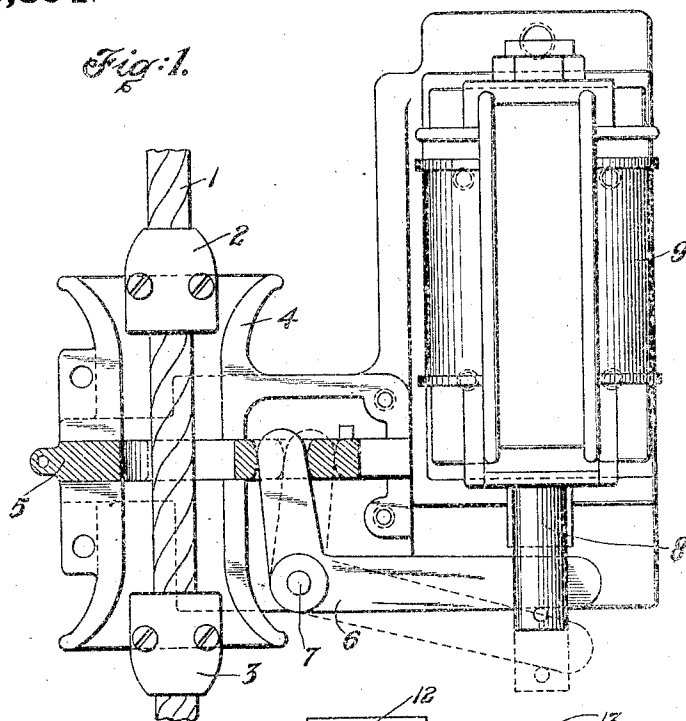


E. L. DUNN.
ELEVATOR CONTROL LOCK.
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1,246,894.

Patented Nov. 20, 1917.



Inventor
Edward L. Dunn,
By his Attorneys
Edwards, Lager & Worcester.

UNITED STATES PATENT OFFICE.

EDWARD LEE DUNN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO STANDARD PLUNGER ELEVATOR COMPANY, OF WORCESTER, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

ELEVATOR-CONTROL LOCK.

1,246,894.

Specification of Letters Patent.

Patented Nov. 20, 1917.

Application filed December 29, 1915. Serial No. 69,192.

To all whom it may concern:

Be it known that I, EDWARD L. DUNN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Elevator-Control Locks, of which the following is a full, clear, and exact specification.

This invention relates to improvements in elevator control locks, and has particular reference to a locking device for elevators wherein the control of the power is effected through a hand rope or similar device. By this invention, the hand rope, rod or the like, is normally held locked against actuation to start the car, and can only be unlocked by a conscious effort on the part of the operator, or some other person before it can be moved sufficiently to apply the power to the hoisting motor. In addition, the normally operative lock is controlled by door switches either at the hatchway doors, or on the car, or both, so that the lock cannot be released, if any door is opened. The locking mechanism is so constructed that it does not interfere with movement of the controlling device to stop the elevator, but when the control device has been brought to the stop position, it is thereupon locked and cannot be released until the operator has made a special releasing movement distinct from that he uses in closing the door and starting the car. The lock itself is preferably constructed so that it moves to locking position by gravity and is held out of locking position by a solenoid, the device being also preferably attached to the building near the hoisting motor, although it could be carried on the car, in case the control rope extends up and down the hatchway and has a set of stop buttons for each floor.

In the accompanying drawings, Figure 1 is a cross section of the locking device together with a section of a control rope, and Fig. 2 is a diagram of the controlling circuits.

1 represents a controlling device for an elevator motor, as for example, a hand rope, which is provided with two buttons 2, 3, beveled or rounded on one side, and having right angle surfaces on the other. The distance between these two buttons is less than the movement of the rope required to throw the power controller of the elevator, such as

a valve or switch from stopped to running position, it being understood that when the rope is in a central position as shown in Fig. 1, the power is cut off, and that it is moved up to start the motor in one direction and down from this central position to start the motor in the other direction. 4 represents a stationary double guide thimble preferably fixed to the building, through which the rope 1 passes. Mounted to slide transversely of the hole in the thimble is a ring 5 having a central hole, which in one position of the slide registers with the hole in the thimble, so that the buttons 2, 3 can pass through without obstruction. This is the position shown in the figure in solid lines, when the control rope is unlocked and the elevator capable of being started in either direction. When the slide 5 is thrown to the right in Fig. 1, the passage through the thimble is obstructed so that the stop buttons 2 or 3 cannot pass the slide, thus locking the control rope. The slide 5 is actuated by a bell crank lever 6 pivoted at 7, the long end of the bell crank lever extending into a slot in the core or armature 8 of the solenoid or magnet 9. When the solenoid 9 is deenergized, the core 8 falls by gravity to dotted position and through the lever 6 pulls the slide 5 so as to obstruct the passage through the thimble. When the solenoid 9 is energized, the core 8 is lifted and thus the slide 5 moves to such position as to allow the buttons 2, 3 to be moved freely through the thimble. The coil 9 is in series with door switches 10, 10, and a car switch 11, so that when any door switch or car switch is open, the circuit of the coil 9 cannot be completed. The control is automatically locked, because it cannot be unlocked until the coil 9 can be energized. Push buttons 12 at the several floors may be provided to control the solenoid, and also push button 13 on the car. The push buttons 12 can be placed in the hatchway adjacent each floor, so that the operator must not only close the door but must in addition press the button 12 before he can unlock the control device to start the car. Obviously, the push buttons 12 can be located at any desirable place. While I have shown the rope lock supported on the building, or fixed, it could equally well be mounted on the car, but in such case the control rope would have to

have a pair of stop buttons for each floor. When the rope is to be moved to stop the car, it will be seen that the rounded ends of the stop buttons move freely through the hole in the slide 5, but the weight of the core 8 throws the slide back after the button has passed so that the rope is locked against movement in either direction.

Various modifications and changes may be made without departing from the scope of the appended claims.

What I claim is:—

1. The combination with an elevator controlling means, of locking means normally effective to prevent actuation of said controlling means to start the car in all positions of the elevator door, and manually controlled means dependent in its action upon a position of said door for rendering said locking means ineffective and permitting starting of the car, said manually controlled means being accessible from within the car when the elevator door is closed.

2. The combination with an elevator controlling means, of locking means normally effective to prevent actuation of said controlling means to start the car in all positions of the elevator door, and manually controlled means within the elevator hatchway effective only upon closing of the elevator door for rendering said locking means ineffective and permitting starting of the car.

3. The combination with an elevator controlling means for starting the car, of means for preventing and permitting movement of

tronic circuit normally open during the movement of the car and when the elevator door is open, and a switch for closing said circuit and releasing said locking means to permit starting of the car, said switch being dependent for its circuit closing action upon the position of said door and having means normally holding it in open position.

4. The combination with an elevator controlling means, of locking means for preventing movement of said controlling means to start the car, and releasing means comprising an electric circuit normally open while the car is in motion, a switch normally biased to open position and placed within the elevator hatchway for closing said circuit to permit starting of the car, and means rendering said circuit closing switch ineffective until the elevator door is closed.

5. The combination with an elevator controlling means, of locking means for preventing actuation of said controlling means to start the car, and releasing means comprising an electric circuit having a manually controlled switch having means normally holding it in open position and being effective when closed to release said locking means and permit starting of the car, and means for rendering said switch ineffective when the elevator door is open.

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

EDWARD LEE DUNN.

Witnesses:

B. E. GARRETT,
E. H. KEMP.