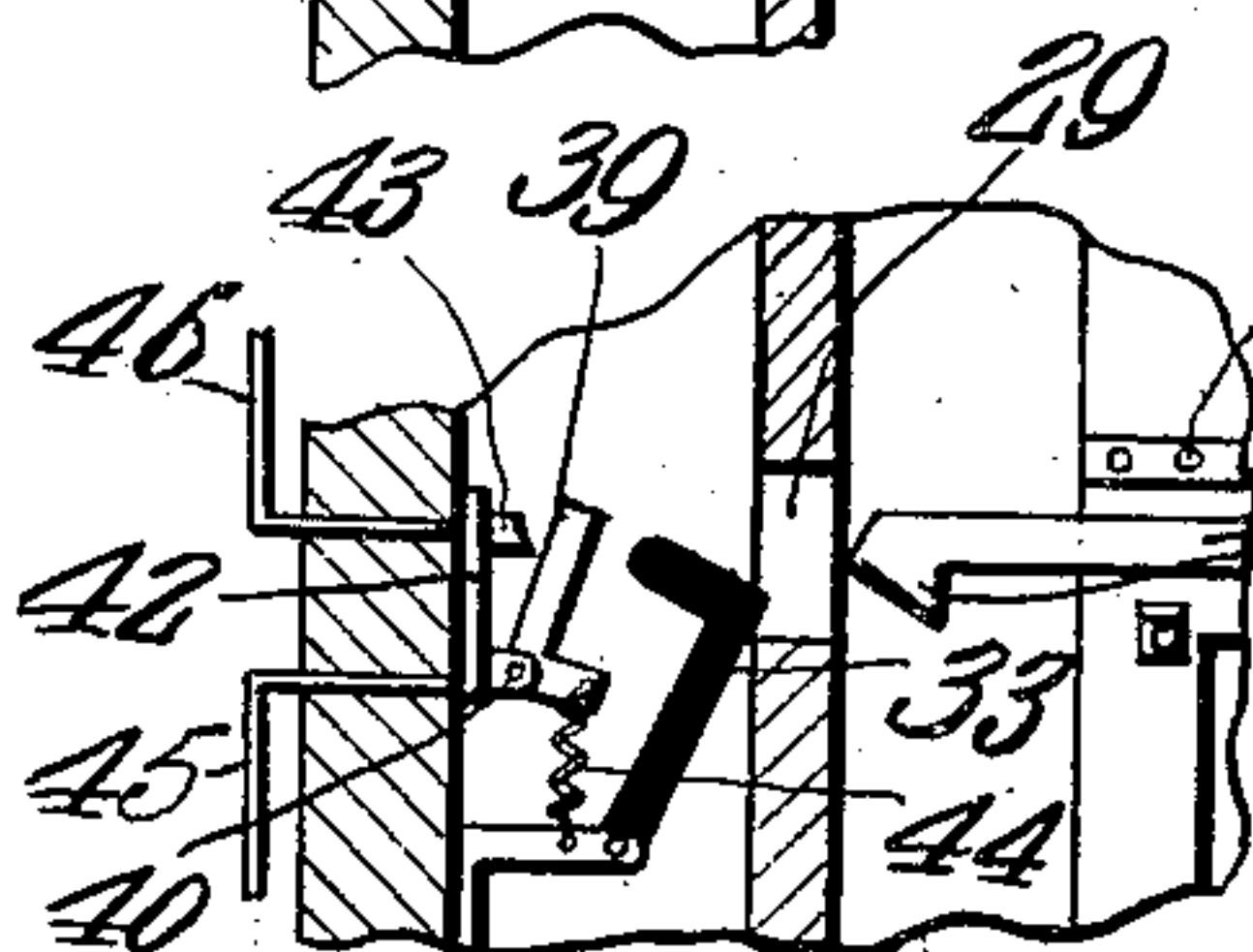
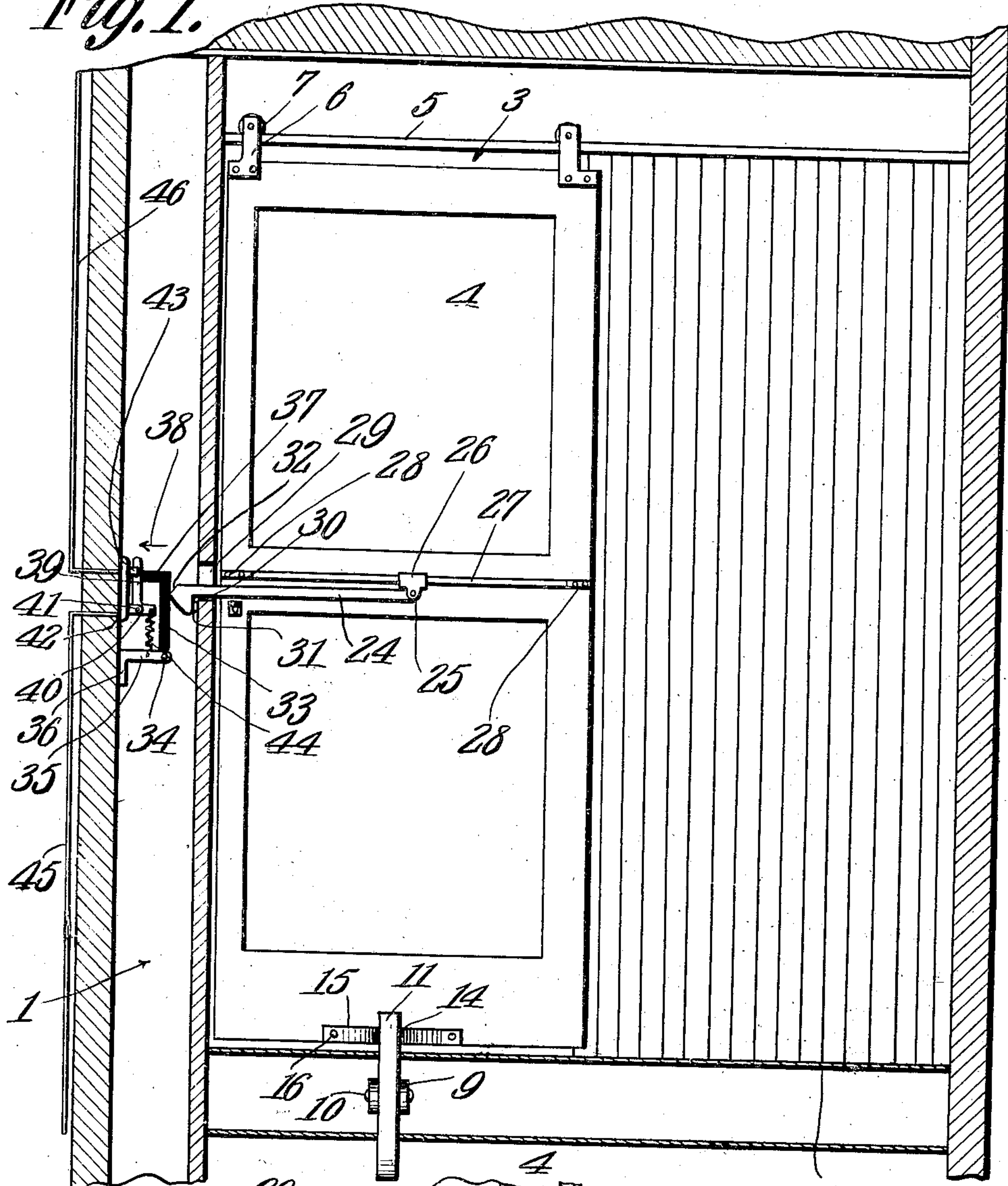


F. J. CROUCH & H. E. LLOYD.
ELEVATOR SAFETY DEVICE.
APPLICATION FILED SEPT. 9, 1910.

990,343.

Patented Apr. 25, 1911.

Fig. 1.



Witnesses

Fig. 2.
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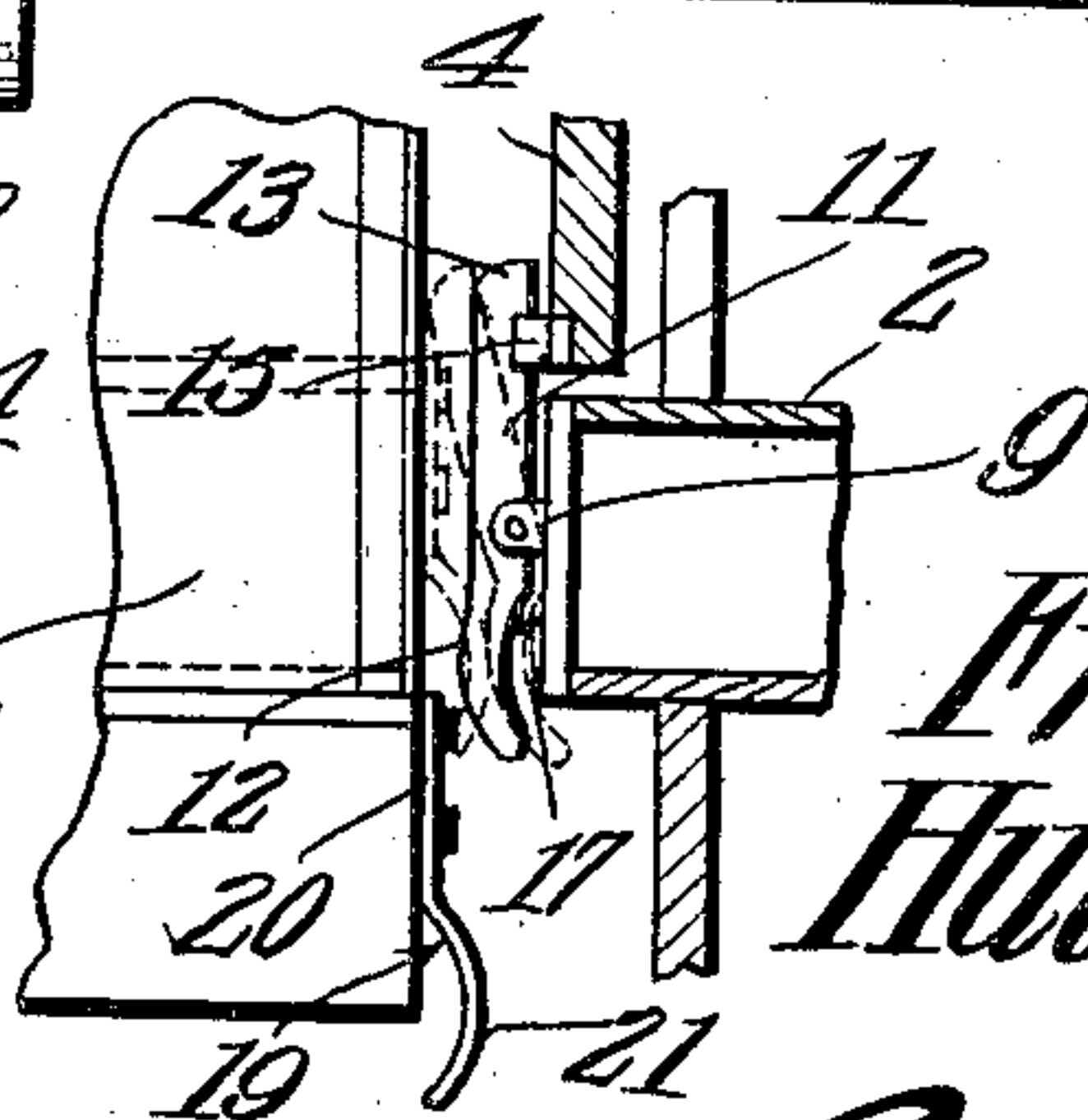


Fig. 3.

by

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UNITED STATES PATENT OFFICE.

FRANK J. CROUCH AND HULDIA E. LLOYD, OF SEATTLE, WASHINGTON.

ELEVATOR SAFETY DEVICE.

990,343.

Specification of Letters Patent. Patented Apr. 25, 1911.

Application filed September 9, 1910. Serial No. 581,230.

To all whom it may concern:

Be it known that we, FRANK J. CROUCH and HULDIA E. LLOYD, citizens of the United States, residing at Seattle, in the county of King, State of Washington, have invented a new and useful Elevator Safety Device, of which the following is a specification.

It is the object of this invention to provide a novel form of door controlled means for making and breaking an electrical circuit, in which is located the motor whereby an elevator car is actuated.

This invention embodies the door-locking means, set forth, shown in the drawings and claimed in a co-pending application filed the 9th day of September, 1910, Serial No. 581,229.

In the drawings however, there is only disclosed one particular form of the invention, but in practical fields this form may require slight alterations, to which the applicant is entitled, provided the alterations are comprehended in the appended claims.

Other features and combinations of parts will hereinafter be set forth, shown in the drawings, and claimed.

In the drawings, Figure 1 is a sectional view through a part of an elevator shaft and showing a switch for making and breaking a circuit and door-releasing means, and a door locking mechanism. Fig. 2 is a detail view showing the switch mechanism for making and breaking the said circuit in open position, with the door releasing means out of contact with the member for actuating the switch. Fig. 3 is an enlarged detail view of the door-locking means, which is arranged at the bottom of the car door and the shaft door opening.

Referring to the drawings, 1 denotes an elevator shaft, while 2 represents a landing. Opening from the elevator shaft upon the landing 2 is a door way 3, closed by a door 4. The door 4 is suspended from the track 5 by hangers 6 and pulleys 7.

Adjacent the landing 2, a bracket is secured, between the ears 9 of which, upon a pin 10, a latch member 11 is pivoted. The lower end of the latch member 11 is curved or arched outwardly, in order to provide an engaging surface 12. The upper end 13 of the latch member is received in a recess 14, in a keeper plate 15. This plate 15 is secured to the door 4 as shown at 16. Upon an examination of the drawings, it will be understood that as the door 4 is closed, the

end 13 of the latch member will fall into the recess 14 of the keeper plate. This end 13 can only be removed from the recess, when the sills of the car and the shaft door opening are in the same plane, as shown in dotted lines in Fig. 3. The latch member when actuated, will assume the position as shown in dotted lines in Fig. 3. To throw the latch member back to its normal position, when the door 4 is closed, a spring 17 is arranged between the lower curved part of the latch member and the end of the flooring of the landing 2. The keeper plate is embedded in the door 4, and the screws 16 are counter-sunk in the said plate so that as the door 4 is closed, the end 13 of the latch member will have a smooth surface to play against, when approaching the recess 14 of the plate. The car 18 is provided at its lower part with a member 19, which comprises a vertical part 20, and a lower arched portion 21. This arched portion 21 co-acts with the surface 12 of the latch member, in order to throw the end 13 out of said recess 14.

The door 4 is provided with a door releasing means, comprising a latch bar 24, fulcrumed at 25, to a sleeve 26 secured to a rod 27, which extends transversely of the door 4, and is secured thereto, as shown at 28. This bar 24 is adapted when the door is in a closed position, to extend through an opening 29 in the shaft 1. The extremity of the bar 24 is formed with a shoulder 30, which prevents the door from being opened, unless the bar 24 is slightly raised, the shoulder coming in contact with the elevator shaft as indicated at 31. The door 4 can only be opened when the latch bar 24 is lifted.

The extreme end 32 of the bar 24 remains constantly in contact with a releasing lever 33, which is pivoted at 34 to a bracket 35. This bracket 35 is secured as at 36, to the side of the elevator shaft. When the outstanding end 37 of the lever 33 is swung in the direction indicated by the arrow 38, the bell-crank switch member 39 is closed. This switch member 39 is fulcrumed at 40 to a terminal 41 upon a base 42, while the free end of the member coöperates with a terminal 43 upon said base. The lower angled end of the switch member 39, is secured to a spring 44, connected to the bracket 34. The purpose of this spring is to withdraw the free end of the switch from contact with the terminal 43, when the pressure of the latch bar 24 on the lever 33 is relieved from the

free end of said switch member. Connected to the terminal 41 is a conductor 45, while connected to the terminal 43 is a conductor 46. These conductors are in circuit with a motor (not shown); for elevating or lowering the car.

Presupposing that the parts are positioned as shown in Fig. 2, the door 4 being partly open, it will be seen that the extremity of the latchbar 24 is withdrawn from the lever 33, the lever 33 tilting out of engagement with the bell crank 39, the upper end of the bell crank being tilted out of engagement with the terminal 43, through the action of the spring 44. The circuit through the motor will thus be broken, and the elevator car cannot be moved until the door 4 is closed, whereupon, the parts being disposed as shown in Fig. 1, the bell crank 39 will unite the terminals 41 and 43, thus completing the circuit through the motor.

The invention having been described, what is claimed as new and useful is:

In a device of the class described, a base

adapted to be mounted in an elevator shaft and provided with terminals for the reception of electric conductors; a bell crank fulcrumed upon one terminal and having one of its arms positioned to engage the other terminal; a bracket fixedly supported below the base; a lever fulcrumed upon the bracket and positioned to engage said arm of the bell crank; a spring uniting the bracket and the other arm of the bell-crank to maintain the first named arm normally out of engagement with said other terminal; and a latch adapted for mounting upon a landing door and movable with the door to engage the lever.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

FRANK J. CROUCH.
HULDIA E. LLOYD.

Witnesses:

H. A. P. MYERS,
IDA CHRISTY.