

(No Model.)

R. J. WALKER.
ELEVATOR SAFETY DOOR.

No. 556,226.

Patented Mar. 10, 1896.

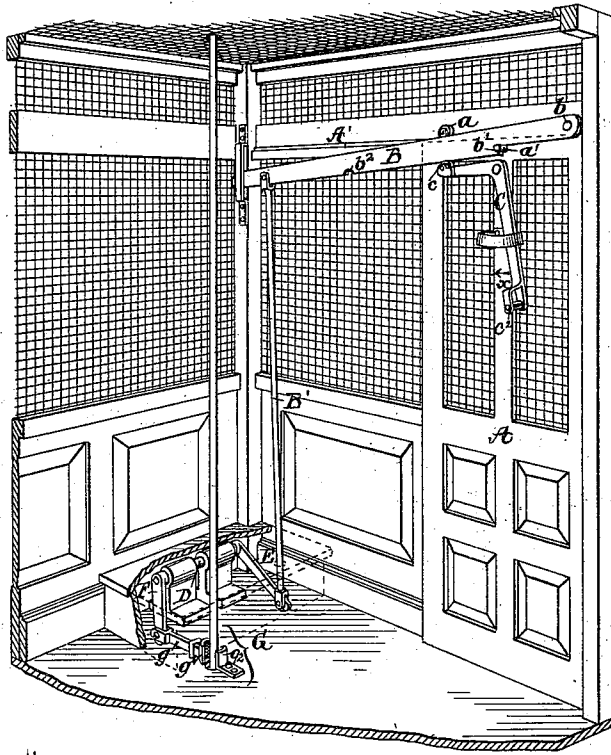


Fig. 1.

Fig. 2.

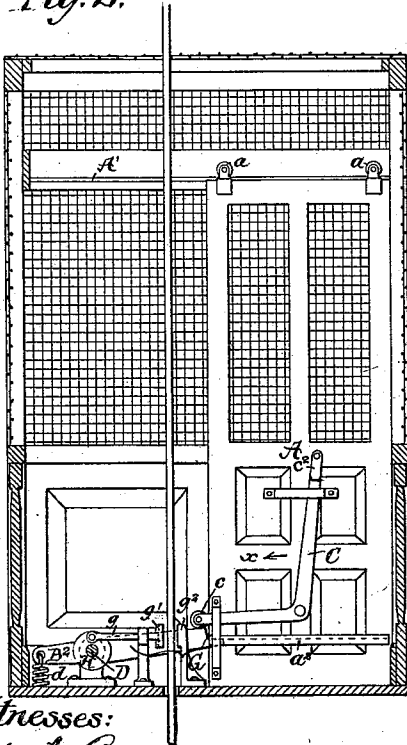
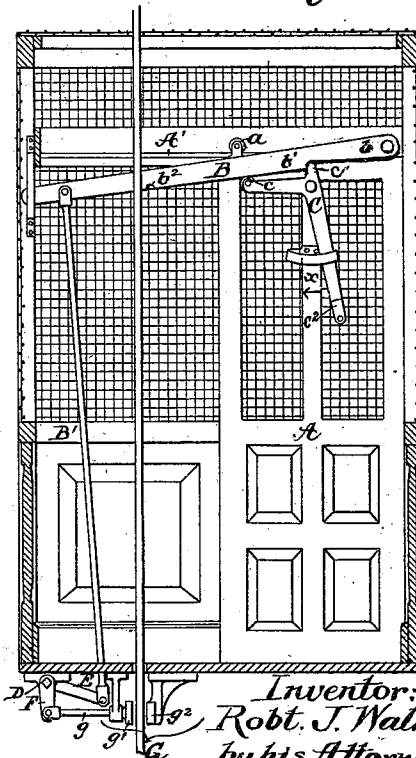


Fig. 3.



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UNITED STATES PATENT OFFICE.

ROBERT J. WALKER, OF PHILADELPHIA, PENNSYLVANIA.

ELEVATOR SAFETY-DOOR.

SPECIFICATION forming part of Letters Patent No. 556,226, dated March 10, 1896.

Application filed December 31, 1895. Serial No. 573,915. (No model.)

To all whom it may concern:

Be it known that I, ROBERT J. WALKER, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Elevator Safety-Doors, of which the following is a specification.

The object of my invention is to prevent accidents on elevators due to carelessness in operating the same, particularly in starting the car before the door of the same is closed. With my invention the opening of the door locks the car to the rope operating the same, and it is impossible to start the car until the door is closed.

My invention is fully illustrated in the accompanying drawings, in which—

Figure 1 represents a perspective view of sufficient of the interior of an elevator-car to illustrate the application of my invention, and Figs. 2 and 3 represent side elevations of modified forms of my invention.

My invention consists essentially of a pivoted locking-bar adapted normally to lock the elevator-door in a closed position, said locking-bar connected by a suitable rod to mechanism adapted to clutch the rope by which the car is operated, and thus lock the car to said rope, when the locking-bar is raised to permit the door to be opened. When the operator opens the door by means of a suitable hand-lever, the locking-bar is raised and operates the mechanism to clutch the rope, and thus lock the car to the same.

A represents the door of the elevator-car provided with suitable roller-hangers *a*, by which it may be hung on the track *A'* secured to the wall of the car. This door may be mounted on the inside or outside of the car as may be desired, but is preferably mounted on the inside of the car, since the doors which close the openings in the elevator-shaft are usually mounted on the inside of said shaft.

Pivoted at *b* above the door of the elevator is the locking-bar B, provided with a shoulder *b'* adapted to engage a pin or stop *a'* on the door of the car and thus hold the door closed. Pivoted to the door A is a bell-crank lever C, the longer arm of which terminates in a handle *c'*, which the operator grasps to open the door, pulling it in the direction of the arrow *x*. The short arm of this lever C is provided with an antifriction-roller *c*, so that the door

may be opened with as little difficulty as possible. The locking-bar is kept in engagement with the pin or stop on the door by reason of its own weight, and must be raised to release the door, so that the same may be opened by the bell-crank lever C.

In Fig. 1 I have shown the shoulder *b'* of the lever B engaging a pin or stop *a'* on the door. Instead of this pin or stop *a'*, however, I may provide the bell-crank lever C with a projecting end *c'*, with which the shoulder on the lever may engage, as shown in Fig. 3.

In the present instance on the floor of the car is a clutch G for grasping the operating cord or rod. This clutch consists of the fixed jaw, *g*², and movable jaw, *g'*. The jaw *g'* is mounted on a slide *g* connected to an arm F secured to a rock-shaft D adapted to suitable bearings on the car. On this shaft is an arm E connected to the locking-bar B by a rod B', so that when the locking-bar is raised to release the door the clutch is closed upon the operating cord or rod, thus preventing the movement of the car while the door is open.

The foregoing description applies in general to the device shown in Figs. 1 and 3, both of which operate in substantially the same manner, the only difference being their arrangement with relation to the car. In Fig. 2, however, I have shown an arrangement of the device forming the subject of my invention in which the lever B², which locks the door A, is located at the bottom of the car near the floor and is connected directly to the rock-shaft D'. This lever B² is held normally in engagement with the end of a rail or track *a*² of the door A by a spring *d*. The other end of this rock-shaft is provided with a disk H, to a crank-pin on which is connected the arm *g* of the clutch device G, which carries the movable member *g'* of the same.

To prevent the door closing accidentally, which might result from a slight jar of the same, as the contact between the lever B and the pin *a'* is only frictional, I notch the locking-bar B at *b*², so that the pin *a* will be engaged with said locking-bar when the door is opened and thus prevent the accidental closing of the same.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. The combination in an elevator-car of the door closing the opening in the same, the rope for operating the elevator, a clutch adapted to grasp said rope, mechanism for operating said clutch, means for locking the door in its closed position, and means for releasing the device which locks the door, said locking device when thus released from its engagement with the door serving to operate the clutch and lock the car to the rope which operates the same.

2. The combination of the elevator-car, the door for the same, a locking device for holding said door in its closed position, a stop or pin with which said locking device engages, and a clutch for the rope adapted to be operated by the locking device when the door is opened, said stop or pin serving to hold the locking device in such position as to lock the clutch while the door is open.

3. The combination of the elevator-car, the door of the same, means for locking said door when it is closed, the rope for operating the elevator, a clutch for said rope, a rock-shaft, an arm for operating the movable element of

said clutch connected to the rock-shaft and a connection between the mechanism for locking the door and the rock-shaft, whereby said clutch will be operated when the door-locking device is released and the door is opened.

4. The combination of an elevator-car and its door, a pivoted lever adapted to keep the door in its closed position, a rail or track carried by the door in engagement with said lever, a spring for holding said lever in its operative position, a rock-shaft to which said lever is pivoted, the rope for operating the car, and a clutch adapted to said rope, the movable member of which is connected to said rock-shaft so that when the lever which locks the door is operated to permit the opening of the same, said clutch will be forced into contact with the rope.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROBERT J. WALKER.

Witnesses:

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