





# UNITED STATES PATENT OFFICE.

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## DUPLEX LATCH FOR DOORS OF ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 631,397, dated August 22, 1899.

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*To all whom it may concern:*

Be it known that I, STEPHEN FISHER, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented a new and useful Duplex Latch for Doors of Elevators in Mines and Buildings, of which the following is a specification.

The object of this invention is to provide a duplex latch for doors of elevators in mines and buildings so constructed and arranged that the door to which it is attached cannot be opened except when the bottom of the cage is in alinement with the floor from which it is desired to enter the same.

Accidents frequently occur owing to the fact that doors of elevator-shafts are unintentionally or accidentally left open, and persons thinking the cage is in position to be entered walk into the shaft and fall down therein to meet with serious injuries or death.

My invention is especially intended for elevators in mines, in which such accidents most frequently occur; and it consists of the construction, arrangement, and combination of parts, as hereinafter set forth, pointed out in the claims, and illustrated by the accompanying drawings, in which—

Figure 1 shows a section of an elevator-shaft, part of the post and guide broken away and showing part of the cage. Fig. 2 shows the latch as it appears on the outside of the door and a guard to prevent unlocking from the outside in dotted lines. Fig. 3 shows a section of an elevator-shaft, taken at right angles to that shown in Fig. 1.

Referring to the drawings, the numeral 10 is used to indicate the casing or framework of an elevator-shaft which is provided with a door 11, hinged to swing horizontally, (hinges not shown,) and a cage 12. The latch proper is composed of three members or parts. The lower member 13 or keeper is bolted permanently to the framework of the shaft and is notched transversely near its end to receive the central member 14 of the latch. This member 14 is slidingly mounted upon the door by means of the guides or guards 15 and 16, which are fixed to the door by means of bolts 17. The part 14 of the latch is also

notched near its end on the upper side to receive the third member 18 and is rounded off on its end to facilitate engagement with the other parts. The upper part 18 is pivotally connected to an operating-bar 19 and is rounded off on three sides, the fourth side being angular to engage the part 14. An opening 20 is provided in the post, through which the member 18 is inserted, and this opening is of sufficient depth to allow the required vertical movement of the same. A roller 21 is provided to facilitate the free and easy reciprocation of the part 18. A handle 22 is also provided to facilitate access on either side of the door to the part 14 of the latch. This handle projects on the inside of the door through a slot 23 and also limits the movement of the member 14 by contact with the guide 17. A guard 24 is provided to prevent intentional or accidental opening of the latch.

The operating-bar 19 is pivoted at 25 and is provided with a cam or projection 26 and normally holds the latch in a locked position by means of the weight 27, which is connected therewith by means of a short arm in such a manner that its weight normally holds the latch locked. Guards 28 and 29 are provided to prevent displacement of the bar 19. The operating-bar 19 is preferably curved inwardly at 30 to allow a free movement of its reciprocating parts. For the weight 27 may be substituted a spring to normally hold the latch locked.

A pin or lug 31 is bolted to the lower part of the car and actuates the part 18 of the latch and allows the unlocking of the doors, and it will be noticed that this can be done only when the cage is in position to be entered.

The operation of this device is as follows: When the cage is down in the shaft, the door is locked and cannot be unlocked until the cage ascends. The ascent of the cage causes the pin 31 to engage the cam on the operating-bar, which in turn causes the part 18 or key of the latch to be withdrawn. The sliding member 14 may then be drawn out of the keeper and the door unlocked and opened. When the cage descends, the pressure of the pin 31 on the cam is removed and the door is

then locked. From this it will readily be seen that this arrangement allows the latch to be locked at all times, but prevents unlocking except when the cage is in position to be entered.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent of the United States therefor, is—

1. The combination, with the elevator-shaft door, of means for latching said door, means for preventing said latch from being operated, an operating-bar pivoted in the elevator-shaft and connected with the last-named means, said bar being provided with a cam,

and the elevator-cage having a pin or lug to act on said cam, substantially as described.

2. The combination, with an elevator-shaft door, of a latch for said door, a keeper for said latch, a catch adapted to slidably engage said latch to prevent it from being disengaged from said keeper, an operating-bar connected with said catch, and an elevator-car having a pin thereon to engage said operating-bar and free said latch from said catch, substantially as described.

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Witnesses:

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