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DOOR GUARD FOR ELEVATORS.

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Fig. 1.

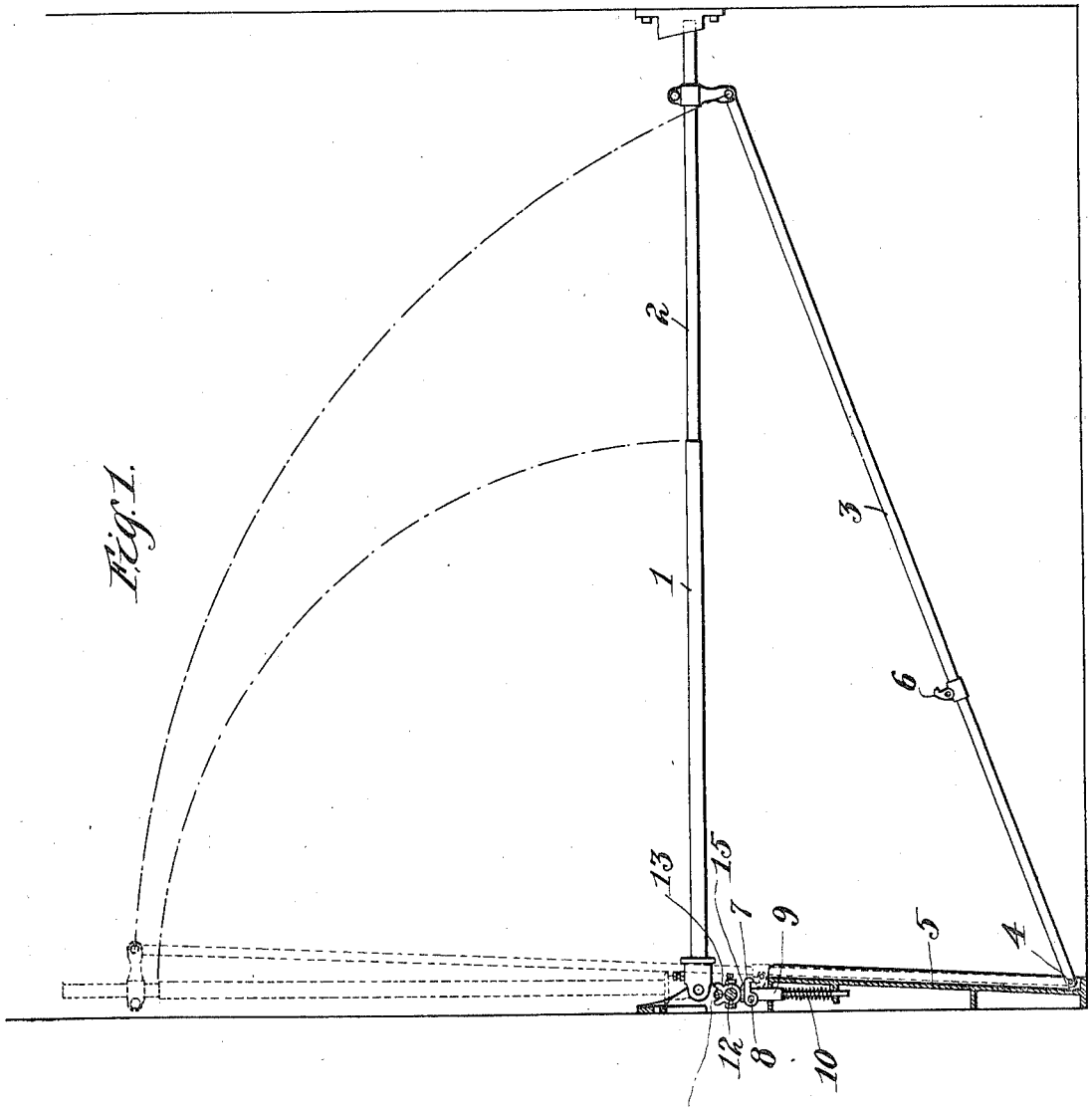
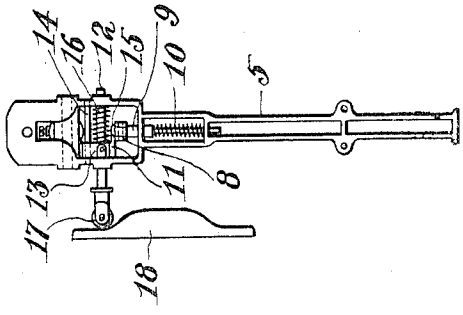


Fig. 2.



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DOOR-GUARD FOR ELEVATORS.

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To all whom it may concern:

Be it known that I, LUDWIG CHRISTIANSEN, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Door-Guards for Elevators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to guards for elevators such as are used in connection with freight elevators to prevent accidental entrance into the elevator well when the elevator car is not in position, and more particularly to means for retaining the guard in elevated position when it is moved up to give access to the elevator car.

The object of the invention is to provide novel and improved means for retaining the guard in elevated position when moved up to give access to the elevator car, and for automatically releasing and returning the bar to normal position when the elevator car moves away.

To this end the invention consists in the features of construction and combination of parts hereinafter described and referred to in the claims.

The invention will be readily understood from an inspection of the accompanying drawings and the following detailed description of the construction referred to therein.

In the drawings Figure 1 is a front elevation partly in section of an elevator door guard embodying the invention in its preferred form, and Fig. 2 is a side elevation of the latching devices, looking toward the right in Fig. 1.

In the construction shown in the drawings the guard for the elevator door comprises a bar consisting of two telescoping sections 1 and 2, and a link 3, one end of which is pivotally connected to the outer section 2 of the bar, and the other end of which is pivoted at 4 to a supporting standard 5. The end of the inner section 1 of the bar is pivoted to the standard 5 at a point above the pivot 4 of the link, so that when the bar is swung up into the dotted line position, Fig. 1, the section 2 is drawn into the section 1, thus contracting or shortening the bar, and when the bar is swung down into the full line position, is drawn out of the section 1, thus extending or elongating the bar.

If the elevator car is in position to be entered when the guard is swung up into the dotted line position of Fig. 1, the guard is latched in raised position and is held in this position by latching devices which are rendered active by the movement of the elevator car into position at the guard. The device for thus latching the guard in raised position comprises a latching lug 6 secured to the link 3 and arranged to coöperate with a latch 7 mounted on the standard 5. The latch 7 is pivoted at 8 to the upper end of a slide 9, the latch extending across and normally resting on the upper end of the slide. The slide is supported upon a spring 10 which normally holds it in such position that the latch 7 is above the path of the lug 6, as indicated in full lines in Fig. 1, and is therefore out of position to coöperate with the lug 6 in latching the guard. The latch is forced down into position to coöperate with the lug 6 by a cam shoe 11 secured to a transverse rod 12 which is mounted to slide in bearings in the upper end of the standard 5. The cam shoe is formed on a collar 13 secured to the rod 12 and provided with lugs embracing a guiding rod 14. The latch 7 is provided on its upper surface with a rib 15 over which the cam 11 rides when the rod 12 is forced to the right in Fig. 2. The rod 12 is held normally in the position indicated in Fig. 2 by a spring 16, and when in this position the cam shoe 11 engages the upper end of the latch 7 to one side of the rib 15, and forms a stop for limiting the upward movement of the latch and its slide 9. The end of the rod 12 carries a roll 17 arranged in the path of a cam 18 carried by the elevator car, and so arranged that it will force the rod 12 to the right in Fig. 2 when the car comes into position at the door or entrance protected by the guard.

When the elevator car is not in position at the guard the latch 7 is inactive, and will not operate to hold the guard in raised position in case it should be raised. When the elevator car comes into position at the guard the rod 12 and cam shoe 11 are forced to the right in Fig. 2 by the cam 18, and the cam shoe rides over the rib 15, thus depressing the latch 7 and slide 9 against the tension of the spring 10. This brings the latch into position to engage the lug 6 in

case the guard is swung up into the dotted line position of Fig. 1. When the guard is swung up into this position the end of the lug 6 engages the free end of the latch 7. At this time the cam shoe 11 acts as a fulcrum about which the latch may turn sufficiently to enable the latch to ride over the end of the lug 6 and engage the shoulder formed on the lug. This rocking movement of the latch is resisted by the spring 10 acting through the pivot 8 of the latch. The spring yields, however, to allow the pivot 8 to swing downward as the free end of the latch is raised, and immediately returns the latch to normal position after its end has passed beyond the shoulder on the lug 6. When the elevator car moves away from position at the guard, the cam 18 releases the rod 12 so that the cam 11 returns to normal position, allowing the latch slide 9 to rise and disengage the latch from the lug 6. The guard immediately falls into the full line position of Fig. 1, and the latch remains inactive until the elevator car again comes into position at the guard.

While it is preferred to employ the specific construction and arrangement of parts shown and described, it will be understood that this construction and arrangement is not essential, and may be varied and modified without departing from the invention.

Having explained the nature and object of the invention, and specifically described one form of device in which it may be embodied, what I claim is:—

1. A door guard for elevators comprising a guard, a spring operated slide, a latch pivoted on the slide, a cam operated by the elevator car for forcing the latch into active position against the tension of the spring and arranged to form a fulcrum about which the latch may turn in engaging the guard, substantially as described.

2. A door guard for elevators comprising a guard provided with a latching lug 6, a latch 7, a spring-operated slide 9 to which the latch is pivoted, a rod 12 carrying a cam shoe arranged to ride over the latch and force it into position to engage the lug 6, and a cam 18 on the elevator car for operating the rod 12, substantially as described.

3. A door guard for elevators comprising the telescoping sections 1 and 2 and the link 3, a latching lug 6 secured to the link 3, a latch 7, a slide 9 to which the latch is pivoted, a spring 10 for holding the latch out of active position, a rod 12, a cam shoe 11 carried by the rod and arranged to depress the latch and its slide, and a cam on the elevator car for operating the rod 12, substantially as described.

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