

H. G. VOIGHT.
ELEVATOR DOOR STOP.
APPLICATION FILED NOV. 30, 1912.

1,069,078.

Patented July 29, 1913

FIG. 1.

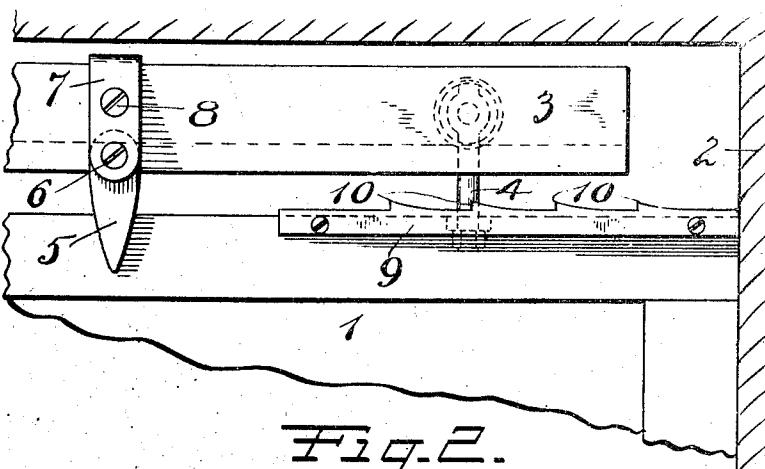


FIG. 2.

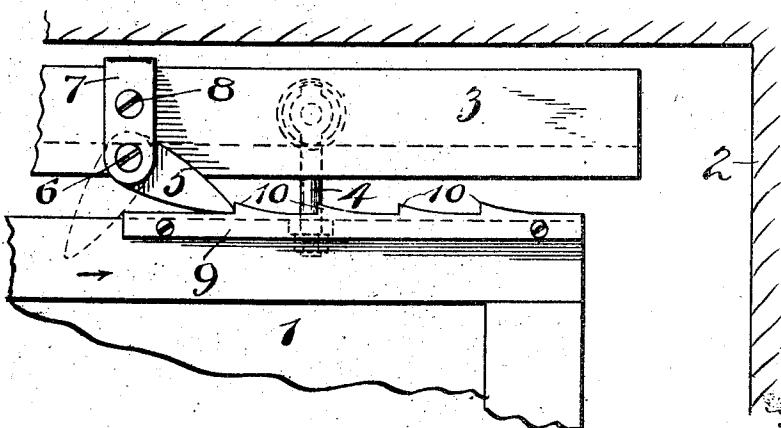
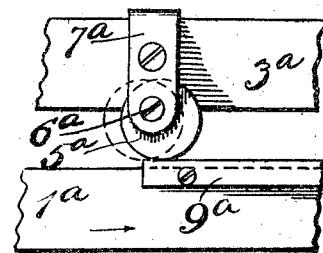
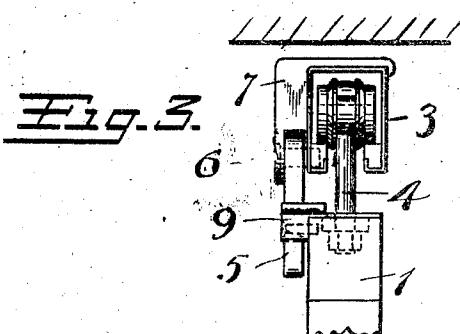


FIG. 4.



Witnesses:

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ELEVATOR-DOOR STOP.

1,969,078.

Specification of Letters Patent.

Patented July 29, 1913.

Application filed November 30, 1912. Serial No. 734,255.

To all whom it may concern:

Be it known that I, HENRY G. VOIGHT, a citizen of the United States, residing at New Britain, Hartford county, State of Connecticut, have invented certain new and useful Improvements in Elevator-Door Stops, of which the following is a full, clear, and exact description.

My invention relates to a door check device for sliding doors, the same being particularly useful in connection with sliding doors such as employed for elevator shafts. The object of the invention is to provide a very simple and effective checking device 15 to prevent the door from being reopened during its closing movement, thus preventing anyone outside the shaft from forcing the door open while the door is closing in the event the elevator has started away before the door has been fully closed.

In the accompanying drawings, Figure 1 is a view of the upper part of an elevator door and the adjacent parts of the casing, and illustrating my improved stop in one 25 position, the door being fully closed. Fig. 2 is a similar view showing the parts in a slightly different position, the door being partially opened. Fig. 3 is an end elevation of the parts shown in Fig. 1. Fig. 4 is a 30 side elevation of a modification.

1 represents a sliding door.
2 represents a door casing.

Any suitable means may be provided to hold the door locked in a closed position, 35 such as shown in Fig. 1.

The door is mounted in any suitable manner to slide, and, for example, may be supported from an overhead track 3 by means of a hanger 4.

40 In the form shown in Figs. 1 to 3, the stop comprises a freely movable pivoted depending stop element such as a pawl 5 pivoted at 6 to a bracket 7, which may be mounted upon the overhead track 3, or other suitable 45 support, being adjustable to a proper position thereon and there fixed as by means of a set screw 8.

9 is a rack having a suitable number of tooth-like projections 10-10, which are arranged to hold the end of the pawl 5. This rack is carried by the door 1 along its upper edge and arranged to travel underneath the pivot 6 of the pawl and to engage and swing the pawl. The forward end of the rack 9 terminates at or near the forward edge of

the door 1, while the rear end of the rack 9 terminates at a point forward of the pawl 5, for example, as shown in Fig. 1. If the door 1 is now opened, the rear end of the rack 9 will engage the now depending pawl 60 5 and swing it back, as shown in dotted lines, Fig. 2, so that the rack 9 will travel freely under the pawl on its opening movement, the pawl being so located that when the door is fully opened, the forward edge 65 of the rack 9 will clear the pawl and allow it to again drop to the position shown in Fig. 1. When the door is closed, the forward end of the rack 9 will engage the pawl 5 and swing it at the angle indicated in solid 70 lines, Fig. 2, whereupon its end will drop back of the locking shoulders 10-10 as the same successively pass under the pawl. Any attempt, while the pawl is in this position and resting upon the rack 9, to reopen the 75 door will, of course, be checked or stopped by the pawl engaging one of the shoulders 10, thus making it impossible for anyone, either inside or outside of the elevator shaft, to reopen the door until the same is fully 80 closed or until the rack 9 has again left the pawl 5 and allowed it to drop to the position shown in Fig. 1.

In the modification shown in Fig. 4, 8a represents the overhead track. 7 represents the bracket and 5a represents a cam or eccentric pivotally mounted at 6a on the bracket 7.

9a represents the rack which in this instance may have a smooth bearing surface 90 for engagement with the cam 5a. The cam 5a operates precisely as the pawl 5 in conjunction with the rack 9a excepting that instead of engaging the rack 9a at several points, as at 10-10 in Fig. 1, the cam will 95 engage the rack to stop the reopening of the door at any point. The cam construction has some advantages over the pawl construction in that it not only will engage the rack 9a at any point, but is also silent in its 100 action. When the parts stand as in Fig. 4, the door 1a can be moved only in the direction of the arrow indicated thereon. When, however, the end of the rack rail 9a passes the cam 5a, the door 1a may be moved in an 105 opposite direction, the rear of the rack engaging the cam 5a and swinging it into the position indicated in dotted lines. This construction has a further advantage in that the operator of an elevator car must open 110

the door fully to allow passengers to enter and make their departure before he can close the same.

In a broad sense, I wish it to be understood that I regard the eccentric cam 5^a as a pawl or the equivalent thereof in that it operates to perform the same function as the part 3, accomplishing said function in a slightly different manner, nevertheless both parts are actuated by gravity and are moved in the same manner by the rack or rail with which that part coöperates to positively stop the door against an opening movement when partially closed. It should, therefore, be understood that in the use of that term, namely, "pawl", as employed in the following claims, I intend that it shall cover and include both forms of pawl shown herein or any other equivalent thereof.

20 While I have shown the pawl and rack as suitably arranged and associated for operation with the upper edge of the door, it is obvious that it may be connected with the lower part of the door, in which event the 25 pawl would be carried by the door and the rack would be carried by the floor, which arrangement is an obvious reversal. The arrangement shown in the drawings, however, is preferable.

30 What I claim is:

1. A stop for a sliding door comprising a freely movable pivoted depending stop element, a rail arranged to be carried by the door, the length of said rail being less than 35 the full range of the sliding movement of the door, said stop being pivoted at a point to the rear of said rail when the door is fully closed, said point being also forward of the rail when said door is fully opened, 40 and means to cause said stop to lock with

the rail to prevent the reopening of the door on its closing movement while said stop is resting on said rail.

2. A stop for sliding doors comprising a freely movable pivoted depending stop element, a rail arranged to be carried by the door, the length of said rail being less than the full range of the sliding movement of the door, said stop being pivoted at a point to the rear of said rail when the door is fully closed, said point being also forward of the rail when said door is fully opened, and means to cause said stop to lock with the rail to prevent the reopening of the door on its closing movement while said stop is resting 55 on said rail, said rail having shoulders at intervals arranged to engage said stop when said stop is inclined in one direction and rests on top of said rail.

3. A stop for a sliding door comprising a freely swinging depending stop element carried by the door or casing, a coacting rail carried by the opposite part, said rail being shorter than the range of movement of the sliding door, said stop being free of said rail when the door is fully opened or fully closed, the length of said stop element being such that when the door is being closed and said stop is resting on said rail it will stand at such an angle thereto that said direction 70 of movement cannot be reversed until the rail has passed the stop, permitting the latter to swing down to the rear of said rail, whereupon the next opening movement of the door will swing said stop in an opposite 75 direction to that first described.

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Witnesses:

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