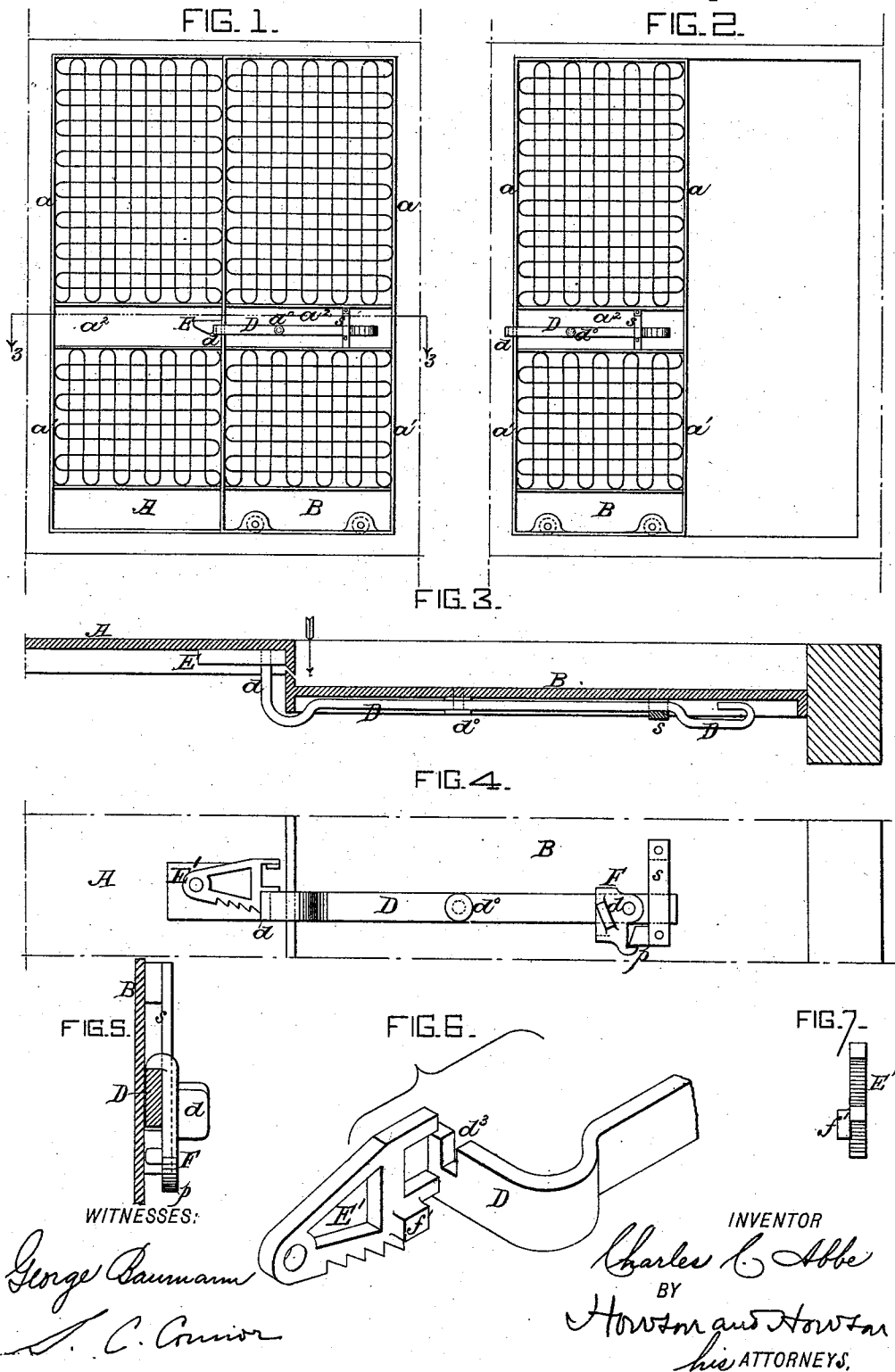


(No Model.)

C. C. ABBE.
SLIDING DOOR LATCH.

No. 537,335.

Patented Apr. 9, 1895.



UNITED STATES PATENT OFFICE.

CHARLES C. ABBE, OF BROOKLYN, NEW YORK.

SLIDING-DOOR LATCH.

SPECIFICATION forming part of Letters Patent No. 537,335, dated April 9, 1895.

Application filed July 13, 1894. Serial No. 517,390. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. ABBE, a citizen of the United States, and a resident of Brooklyn, Kings county, New York, have invented Improvements in Latches for Elevator and other Sliding Doors, of which the following is a specification.

The object of my invention is to provide sliding doors or gates more particularly gates or doors for passenger elevators with a locking device which will not present any projecting part to catch on the clothing of persons passing, which can be cheaply and yet strongly constructed, easily handled and cannot be opened by malicious persons from the outside, and will be self-latching and always operate to lock the door in closing, and to this end my invention consists in the construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is an inside view of an elevator doorway provided with my improvement, and showing the door closed. Fig. 2 is a similar view showing the door open. Fig. 3 is a sectional plan view on the line 3—3, Fig. 1, drawn to a larger scale. Figs. 4, 5, 6 and 7 are views of modifications, drawn to a larger scale.

In sliding doors as usually constructed, more particularly the doors of passenger elevators, the latching device usually is a hook part projecting beyond the forward or front of the door or that edge which forms one side of the passage when the door is open, so that persons passing through when the door is open are very apt to have their clothing caught on this projecting hook. When these sliding doors are of iron, slots have to be cut in the side flanges for the passage of the latch and the structure thus greatly weakened. Moreover after these sliding door-ways have been in use for some time they cease to hang well and then it very frequently happens that unless the door is carefully guided by the operator, the latch fails to properly engage its hook with the slot in the side-post.

My present invention is mainly designed to obviate these objections to the existing forms of latches for sliding doors, and in the accompanying drawings I have shown my invention as applied to an elevator door.

In Figs. 1, 2 and 3, A is the fixed or stationary front or frame of the elevator hatchway, and B is the horizontally sliding door shown in Fig. 1 in the closed position and in Fig. 2 in the open position. This stationary front and the sliding door may be made of any desired material or design. In the drawings I have represented them as made of flanged iron frame-work, with open panels a a' filled by grill-work. Between the grills is a cross-piece or transom a^2 .

The latch, in my improvement, is a long lever D, which is pivoted to the transom or cross-piece a^2 of the door at d^0 , and instead of having its engaging part extending to and beyond the front edge of the door, its catching end d is carried to the rear edge of the door to co-operate therewith a catch E on the inside of the fixed front or frame A.

The forward end of the latch lever D is provided with a handle fixed to or forming part of said lever near the forward edge of the door, in a position where it can be conveniently grasped by the elevator man to unlatch the lever and open and close the door. As will be seen on reference to the drawings, the catch on the fixed frame has its engaging notch opening downward, and the outer end of the latch lever itself may conveniently be formed by bending to engage with the catch. By raising the front or handle end of the latch lever, the latter may be freed from the catch and the door then be slid open. The handle end of the latch lever is of course arranged to overbalance the latching end. Near the handle end the lever may be guided by a strap s , and the latching end is preferably bent around the vertical flange at the rear edge of the door (Fig. 3), in order to avoid weakening the door by cutting a slot in the flange.

In order to prevent malicious persons from opening the latch by inserting a knife blade for instance between the meeting edges of the door and frame, I construct the flanges of the door and frame so that they overlap, as by beveling them, as shown in Fig. 3.

As a further protection I may provide the handle end of the latch lever with a gravity latch F, as shown in Figs. 4 and 5, this latch

engaging with a catch or projection p upon the door when the lever is in the closed position, so that the operator has to turn this gravity latch upon its pivot on the lever D before that end of the lever can be raised to free the opposite latching end of the lever from the catch E on the fixed frame. This gravity latch F in such case carries the handle d by which the lever D, and through the latter the door are manipulated. When this gravity latch F is used, it will be well to pivot the catch on the frame, as in the modification E', Figs. 4 and 6, for convenience in closing. To insure the latching of the door even when through the operator's carelessness, it has not been pushed all the way up to the side post of the frame, I prefer to notch the under side of the catch in advance of the main engaging notch, as shown in Fig. 4. Thus even if the door is pushed only far enough toward the closed position for the latching end of the lever to engage with the first notch, the door will nevertheless be locked. In any case, however, the latch lever is self-latching, that is, no manipulation of the latch itself is required in closing. The movement of the door causes the latch lever to engage automatically with its catch.

To prevent the possibility of the door being unlatched by the application of pressure at the point and in the direction indicated by the arrow, Fig. 3, I may make the latching end of the lever and the catch on the fixed frame to interlock with each other in that direction. This may be provided for as shown in the modification illustrated in the perspective view, Fig. 6, and in the end view of the catch, Fig. 7. In this case the catch, whether pivoted or stationary, is provided with a lip f' in front of the retaining notch for the latching end of the lever, and this latter has a notch d^8 , with which said lip engages or interlocks to prevent the disengagement of the lever from the catch by pushing the door in the direction of the arrow Fig. 3.

From the foregoing description of my invention, it will be seen that a latching or locking device for sliding doors is provided free from the objections heretofore mentioned, for with my improvement, there is no projecting catch or hook on the front edge of the door to catch the clothing, and the device can be cheaply yet strongly constructed without

weakening the door by the cutting of slots in its flanges.

I claim as my invention—

1. A sliding door having pivoted thereto a latch lever with its latching end projecting at the rear edge of the door and provided near the front edge of the door with an operating handle fixed to or forming part of the lever in combination with a stationary part of the frame having a catch to engage with the latch lever, substantially as described.

2. A sliding door having pivoted thereto a latch lever with its latching end projecting at the rear edge of the door and provided toward the front edge of the door with an operating handle fixed to and forming part of the lever and overbalancing the latching end, in combination with a stationary part of the frame having a catch to engage with the latch lever, substantially as described.

3. A sliding door having a latch lever with its latching end projecting at the rear edge of the door and having pivoted to its forward end a handled safety latch in combination with catches on the door and frame to engage with the safety latch at one end of the lever and the latching end of the lever, respectively, substantially as described.

4. A sliding door having a latch lever with its latching end projecting at the rear edge of the door in combination with a fixed part of the frame having a catch provided with several notches in advance of the main engaging notch, substantially as described.

5. A sliding door having a latch lever with its latching end projecting at the rear of the door at right angles to the movement of the door, in combination with a fixed part of the frame having a pivoted catch, with which said lever end engages, substantially as described.

6. A sliding door having a latch lever with its latching end projecting at the flanged rear edge of the door in combination with a stationary front having at its forward edge a flange overlapping that on the rear edge of the door.

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

CHARLES C. ABBE.

Witnesses:

EDITH J. GRISWOLD,
HUBERT HOWSON.