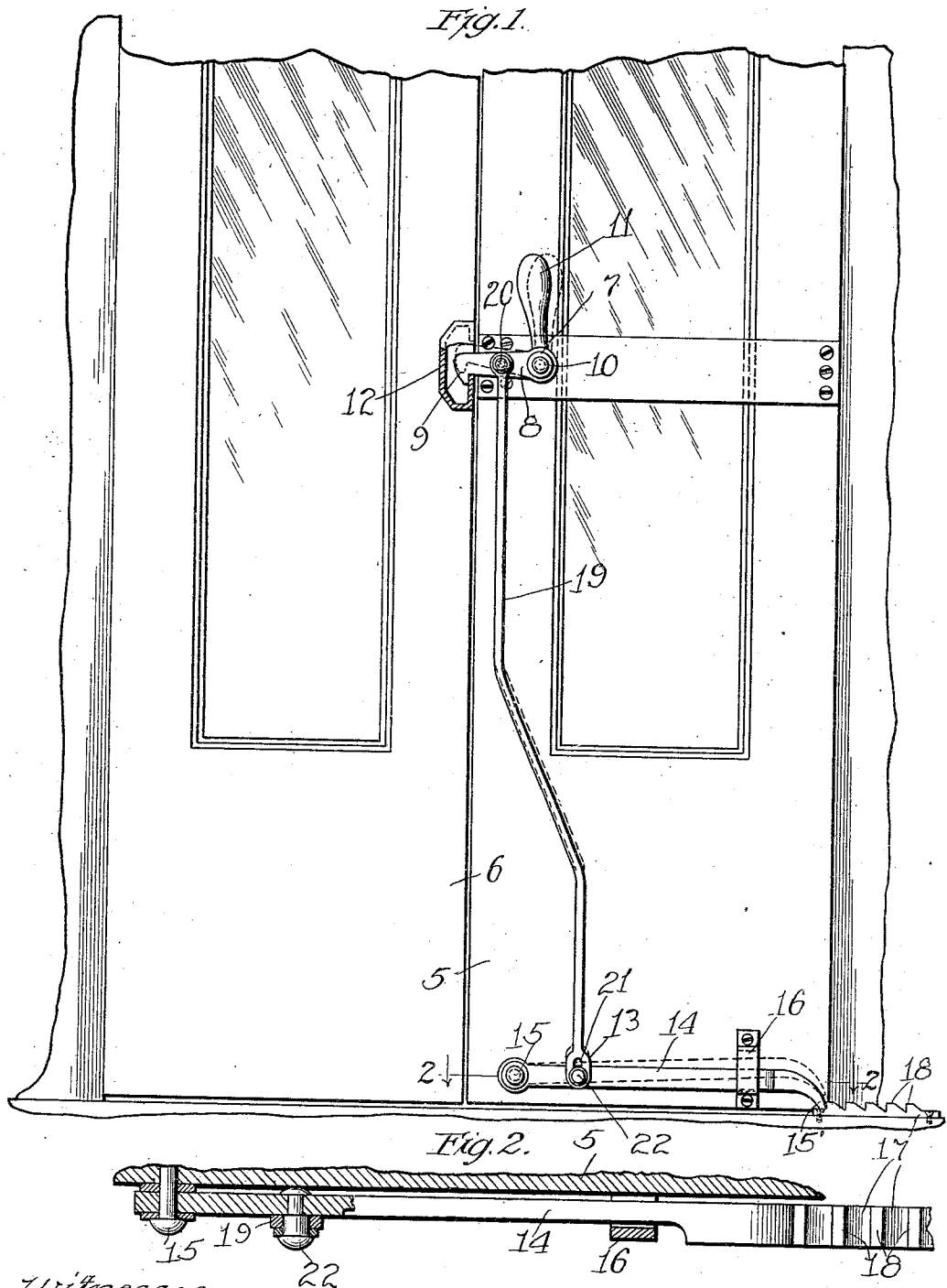


D. A. ANDERSON.
SLIDING DOOR LATCH.
APPLICATION FILED SEPT. 7, 1909.

961,197.

Patented June 14, 1910.



Witnesses
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UNITED STATES PATENT OFFICE.

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SLIDING-DOOR LATCH.

961,197.

Specification of Letters Patent. Patented June 14, 1910.

Application filed September 7, 1909. Serial No. 516,393.

To all whom it may concern:

Be it known that I, DAVID A. ANDERSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sliding-Door Latches, of which the following is a specification.

My invention relates to improvements in sliding-door latches and more particularly to latches for elevator doors.

One of the salient objects of my invention is to provide an elevator-door latch comprising two distinct latch instrumentalities, which I may term the "primary latch" and the "secondary latch," arranged for operation at different periods in the movement of the door toward closed position and in arrangement such that the primary latching instrumentality, last to operate in the closing of the door, is arranged naturally to control the effort of the operator to move the door to closed position, while the secondary latching instrumentality, first to operate in the closing movement, will hold the door latched in partly closed position against backward movement, should the operator fail to accomplish the latching of the door through the primary instrumentality.

In elevator runnings it is a condition of too frequent occurrence that the car operator fails to move the shaft door to closed position and functionally operate the single latch customarily provided upon the door. Rack-and-pawl devices have been employed to enable the door to latch before it reaches its finally closed position, but such devices are ordinarily difficult to be seen by the operator and it can hardly be ascertained whether or not they act in every instance, so that, when reliance is placed upon these devices alone, accidents are apt to occur from the unnoticed failure of such latching devices; and further the operator is encouraged to rely upon their catching the door if it is moved anywhere near closed position without any way of ascertaining that they have in fact functionally operated.

In the embodiment of my invention, I provide a primary butt latch upon the vertical edge of the door in position relatively high from the floor for easy observation by the operator upon the car so that the natural effort of the operator will be always to close the primary butt-latch at hand and under his observation. In conjunction with said

primary latch I provide a secondary slide latch, preferably of pawl-and-rack construction, at a horizontal edge of the door for operation to latch the door in partially closed position before it comes into a situation for the functional operation of the primary latch; and these two latches I interconnect for harmonious operation under all conditions.

In the drawings, wherein I have illustrated an operative embodiment of my invention, Figure 1 is a front elevation of an elevator door equipped with an embodiment of my invention; and Fig. 2 is a section on line 2—2 of Fig. 1.

In said drawings, 5 indicates the sliding elevator door and 6 a cooperating abutment part with which said door should contact when closed. The part 6 may be a companion door connected with the first for opposite complementary action, or a stationary part, such as a door frame, the members being typical of a sliding door and any complementary abutment part.

Upon the vertical front edge of the door is mounted at a suitable elevation for operation by the operator from the car a primary butt-latch, 7, herein shown as comprising a latching tongue, 8, provided with a head, 9, pivoted upon a stud, 10, and providing in vertical arrangement an operating handle, 11, the head 9 preferably projecting beyond the door for coöperation with a fixed catch, 12, of any suitable construction.

At a remote point adjacent one of the horizontal edges of the door, preferably the bottom, I provide a secondary slide latch, 13, arranged to operate functionally in advance of the time of operation of the primary latch. Said secondary latch comprises an elongated gravity pawl, 14, pivoted to the door upon the truck 15, adjacent the forward edge and extending back toward the back edge of the door through a suitable guide, 16, said guide being preferably in the form of a strap or yoke, so arranged that when the door rests upon the bottom member thereof it rides clear of the floor, and said guide being of such vertical dimensions as to permit vertical play of the latch end to a suitable extent to ride over the associated rack. The latch 15 is preferably provided with a downturned nose, 15', arranged for coöperation with a rack, 17, suitably secured upon the floor and provid-

ing a series of teeth, 18, with which the nose 15' may coöperate. Operative relation is effected between the secondary latch and the primary latch by means of a link, 19, pivoted to the primary latch tongue, 8, as at 20, and at its lower end providing an elongated loop, 21, connected with the stud, 22, carried by the secondary pawl 14 between its ends, the parts being so related that when both latches are in functionally operative position the stud 22 rests upon the bottom of the loop 21, so that the secondary-latch pawl may ride over its rack without raising the primary-latch tongue.

In operation, it will be observed that as the primary-latch handle 11 is thrown to dotted-line position (Fig. 1) to raise and unlatch the head 9 from its catch, the secondary-latch pawl is raised to dotted-line position by the link 19, thereby freeing its nose 15' from the teeth 18 of the rack 17. The door may then be slid to open position and as the handle is naturally pulled upon by the operator to move the door, the secondary latch is maintained in raised position free from its rack. On the return of the door to closed position, the primary latch, standing in convenient visible position before the operator, naturally causes his effort to be to bring the primary latch into functionally-operating position, and during the closing movement of the door, the secondary latch runs over its rack 18 for a considerable distance before the primary latch arrives to operating position. Therefore, while the operator does not depend upon the secondary latch but directs his attention instinctively to the primary latch, should he fail completely to close the door so that the primary latch does not exercise its function, the secondary latch is nevertheless in position to hold the door against opening movement if it has been brought within any reasonable range of closed position.

In practice I have found the latch as above described to be effective and practical and to satisfy a long recognized demand for safe and convenient latching means for such sliding doors.

While I have herein described in some detail a particular embodiment of my invention, it will be apparent to those skilled in the art that numerous changes in the arrangement of parts might be made without departure from the spirit of my invention and within the scope of the appended claims.

What I claim is:

1. The combination with a door of two latching means in different positions upon the door interconnected for simultaneous un-

latching operation, and arranged to effect their latching function successively in the travel of the door toward closed position.

2. In a door latch, the combination with a door of a primary latch located upon the door at a height free for inspection to operate only when the door is closed, a secondary latch arranged at a relatively remote and visually obscure point, functionally operable in advance of the primary latch.

3. In an elevator door latch, the combination of a latching tongue at the side of the door near its vertical mid area, a handle for said tongue, a gravity pawl near the bottom of the door, a rack for said pawl, a link connection between said gravity pawl and the upper latching tongue, and a catch for said upper latch arranged to receive said latch after the pawl has coöperated with the rack.

4. In an elevator latch, the combination with a door, and a complementary coacting part, of a catch upon said complementary part, a primary latch tongue upon the door coöperating with said catch and arranged near the vertical mid-area of the door at the forward edge thereof, an operating handle for said latch tongue, a gravity latch pawl pivoted near the front edge of the door and extending adjacent the rear edge thereof substantially parallel with the floor, a guide for said pawl arranged to hold the latter above the floor when in lowest position, a rack with which said pawl coöperates before the primary latch functionally operates, and a link connecting the primary latch with said latching pawl having a lost motion connection in one direction whereby the secondary-latch pawl may operate upon its rack without affecting the primary latch, but whereby the elevation of the primary latch raises also the latching pawl.

5. In an elevator door latch, the combination of a side butt-latch and a bottom slide-latch, and means whereby the opening of the butt-latch raises the slide-latch, but whereby the slide-latch may be raised without moving the butt-latch.

6. In an elevator door latch, the combination of a side butt-latch and a horizontal slide-latch, and means whereby the opening of the butt-latch vertically moves the slide latch out of operative position, but whereby the slide-latch may be so vertically moved without moving the butt-latch.

In testimony whereof I hereunto set my hand in the presence of two witnesses.

DAVID A. ANDERSON.

In the presence of—
W. LINN ALLEN,
MARY F. ALLEN.