Jan. 31, 1933. R. G. MOORE 1,895,892

LATCH

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Fig. 1.

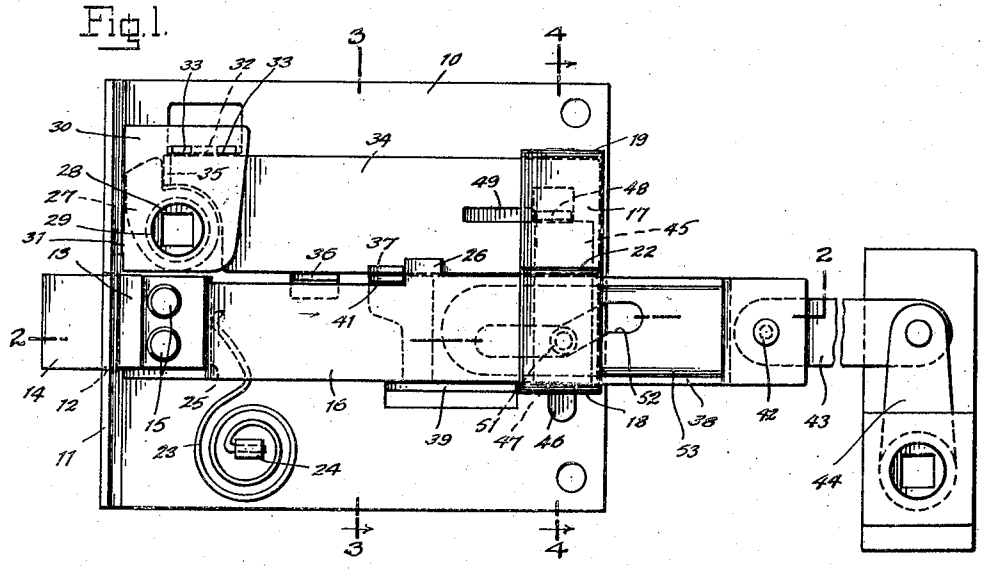


Fig. 2.

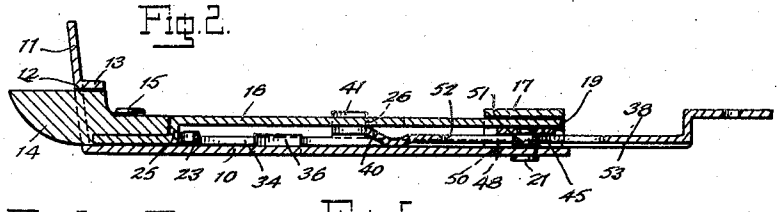


Fig. 3

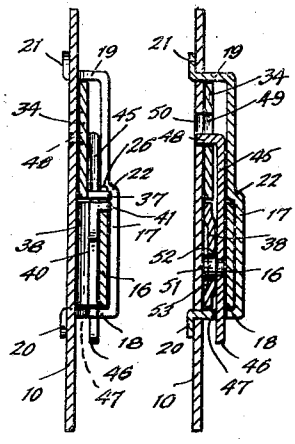


Fig. 4.

Fig. 5.

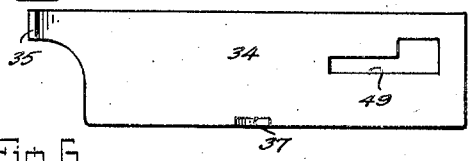


Fig. 7.

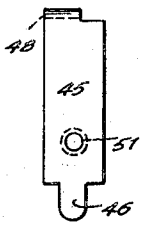


Fig. 6.

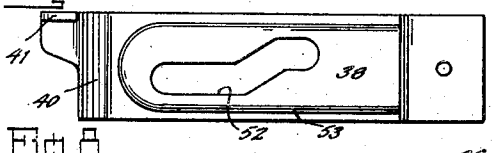
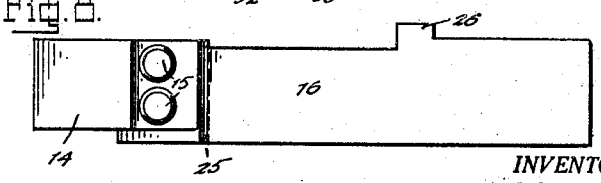


Fig. 8.



INVENTOR.
RAYMOND G. MOORE.
BY
Thurman Matthews.
ATTORNEY.

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Fig. 9

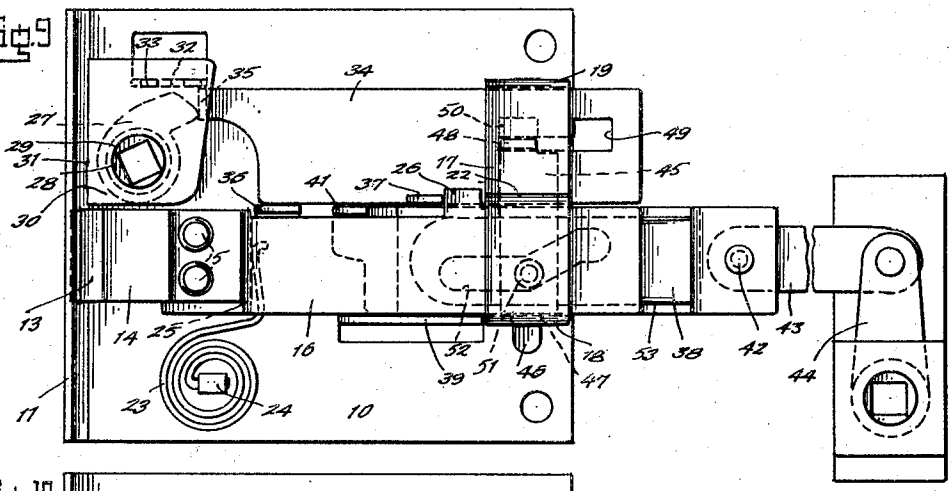


Fig. 10.

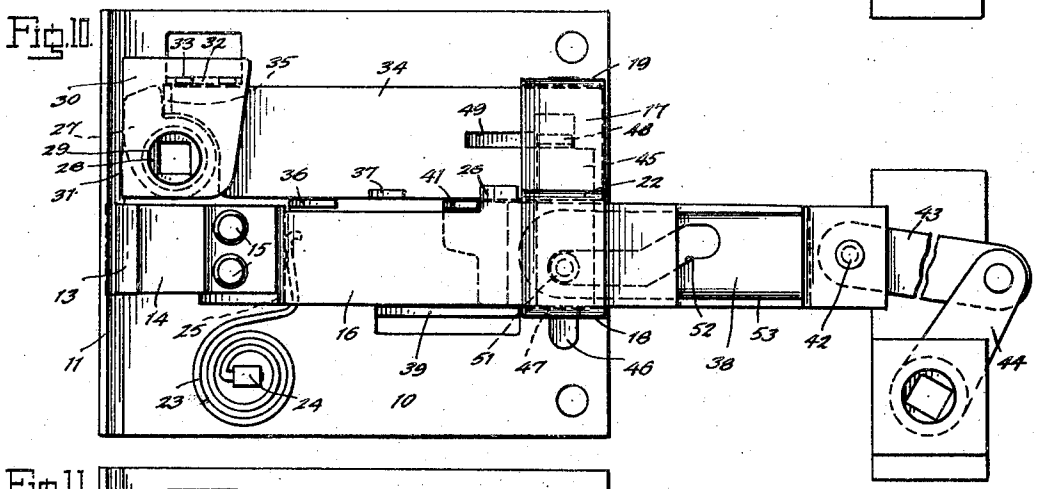
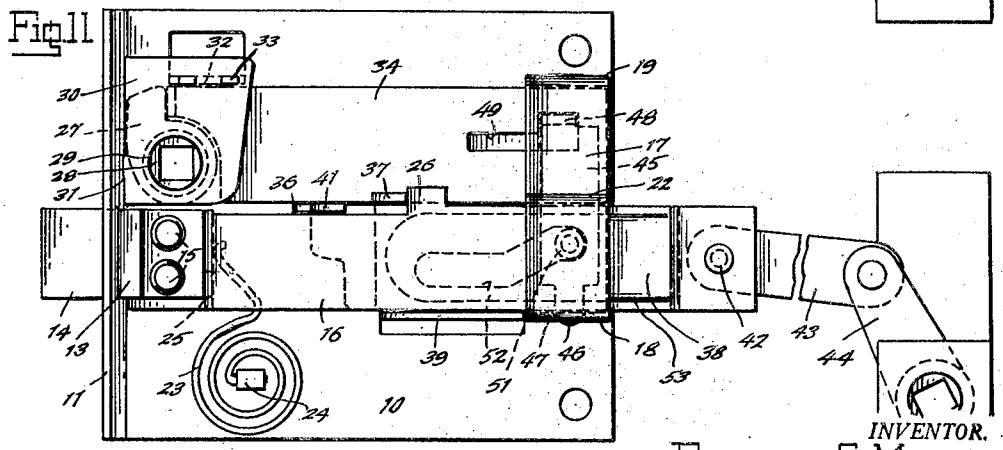


Fig. 11



INVENTOR.
RAYMOND G. MOORE.
BY
ATTORNEY.

Patented Jan. 31, 1933 1,895,892

UNITED STATES PATENT OFFICE

RAYMOND G. MOORE, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE BASSICK COMPANY, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF CONNECTICUT

LATCH

Application filed March 25, 1930. Serial No. 438,764.

The present invention relates to an improved latch, particularly for automobiles of the type having an inside and an outside operating handle, and in which the outside handle is adapted to be latched against operation by manipulation of the inside handle. The latch is especially adapted for use upon doors of closed cars, being applied to all but one of the doors, and which latter is adapted to be latched from the outside. I particularly propose to provide an outside handle roll-back adapted to operate upon the latch bolt through an intermediate retracting member, and an inside handle roll-back adapted to operate upon the latch bolt through a retracting and latching member adapted upon manipulation in one direction to retract the latch bolt independently of said intermediate member, and in the other direction to operate latching means to latch the intermediate member against operation by the outside handle roll-back.

Other objects are to provide a latch of simple and inexpensive construction, and which will be positive and reliable in operation.

With the above and other objects in view an embodiment of the invention is shown in the accompanying drawings, and this embodiment will be hereinafter more fully described with reference thereto, and the invention will be finally pointed out in the claims.

In the drawings:—

Fig. 1 is a plan view of an automobile door lock, according to the present embodiment of the invention.

Fig. 2 is a longitudinal sectional view taken along the line 2—2 of Fig. 1.

Fig. 3 is a transverse sectional view, taken along the line 3—3 of Fig. 1.

Fig. 4 is a transverse sectional view, taken along the line 4—4 of Fig. 2.

Fig. 5 is a plan view of the intermediate retracting member for the outside handle roll-back.

Fig. 6 is a plan view of the inside retracting and latching member employed.

Fig. 7 is a plan view of the latching member for latching the intermediate member.

Fig. 8 is a plan view of the bolt.

Fig. 9 is a plan view of the latch showing the bolt retracted by the outside handle roll-back.

Fig. 10 is a similar view, showing the bolt retracted by the inside handle roll-back.

Fig. 11 is a similar view showing the outside handle latched through manipulation of the inside handle.

Similar reference characters indicate corresponding parts throughout the several figures of the drawings.

Referring to the drawings, the embodiment of the invention shown therein comprises a sheet metal frame or base plate 10 having a face flange 11 bent therefrom at one end and within which a rectangular latch bolt opening 12 is provided. A flanged lip portion 13 is bent inwardly from the upper edge of the opening to provide a bearing for the latch bolt.

The latch bolt comprises a nose portion 14, riveted at 15 to a sheet metal bolt plate or bar 16 guided at its inner end in a transverse bridge member 17 having downwardly bent ends 18 and 19 secured to the base plate by bent lugs 20 and 21, the bolt bar being guided at one edge through engagement with the end 18 and at its other edge against a shoulder formed by a bend 22 in the top of bridge member. A coil spring 23, mounted upon the base by means of a clip 24, has its end engaged against a shoulder 25 of the bolt, formed by bending the same adjacent the nose portion 14, and normally presses the bolt to its projected portion. An upwardly projecting lug 26 is provided at the upper edge of the bolt, and is adapted to be engaged by the retracting means of both the outside and inside handle roll-back, presently to be more fully described.

The outside handle roll-back 27 has its hub 28 rotatably engaged in apertures 29 in the base plate and in a retaining plate 30. The plate 30 is secured by a lug 31 formed thereon to the flange 11 and is also secured and supported by a flange 32 bent upwardly from the base plate and having lugs 32 swaged in apertures in the plate 30. The flange 32 also serves as a guide for the upper edge of an intermediate retracting slide bar 34 engaging

the base plate and provided at its forward end with an upwardly bent flange 35 against which the roll back engages. The slide bar 34 is further guided by a lug 36 bent upwardly from the base plate and engaging the lower edge and also through engagement of its upper edge with the flange 19 of the bridge member 17.

A projecting lug 37 is provided at the lower edge of the slide bar 34 which engages the forward side of the upwarly projecting lug 26 of the latch bolt bar, the latch bolt spring 23 being adapted to normally press the bolt and the bar 34 forwardly against the roll-back, thereby limiting the projection of the bolt and yieldably retaining the roll-back in its normal position against the flange 11. The arrangement permits free retracting movement of the bolt, through pressure applied at its nose, as in closing the door, independently of the retracting bar and the roll-back.

A retractor bar 38 for the inside handle roll-back is slidably mounted on the base plate beneath the bolt bar 16, being guided at its upper edge by engagement with the lower edge of the outside roll-back retractor bar 34, and at its lower edge by engagement with the flange 18 of the bridge member 17 and a flange 39 bent upwardly from the base and arranged in line with the flange 18.

The forward end of the bar 38 is bent upwardly, as at 40, into engagement with the under surface of the latch bolt bar, and is provided at the upper edge with an upwardly bent lug 41 engaging the forward surface of the lug 26 of the bolt bar, being normally disposed in aligned relation with the lug 37 of the outside roll-back retractor bar 36, as shown in Fig. 1. The bar 38 projects rearwardly from the base plate, where it is pivotally connected at 42 to one end of a link 43 which is connected at its other end to the remote control inside handle roll-back 44, placed at any suitable point upon the door frame.

As clearly shown in Fig. 9, the retraction of the bolt through operation of the outside handle roll-back and the bar 34 is independent of the bar 38, while, as shown in Fig. 10, the retraction of the bolt through operation of the inside handle roll-back and the bar 38 is independent of the bar 34.

The intermediate retracting bar 34 and the outside handle roll-back 27 are adapted to be latched against movement by movement of the inside handle roll-back and the bar 38 in the opposite direction to the retracting movement. For this purpose a transversely slidable latching bar 45 is mounted beneath the bridge member 17, between the inside roll-back retracting bar 38 and the bolt bar 16, being guided at one end by a tongue 46 engaging a slot 47 in the flange 18 of the bridge member, and at its other end by a downwardly bent lug 48 extended through an angular slot 49 in the bar 34 and engaged in a rectangular slot 50 in the base plate. The slot 49 is of right angular shape, its longitudinal portion being relatively elongated and adapted to permit normal retracting movement of the bar 34 in the lower or inoperative position of the latching bar, (Figs. 1 and 9), while its transverse portion is co-extensive with the slot 50 in the base plate, and is adapted through engagement of the lug 48 therein, in the upper or operative position of the latching bar (Fig. 11), to latch the bar 34 against movement.

The latching bar is provided with a downwardly projecting stud 51 engaging a slot 52 in the retracting bar 38, the slotted portion of said bar being embossed upwardly, as at 53, so as to provide clearance for the stud 51 with respect to the base plate. The slot 52 is of obtuse angular formation, and includes a lower relatively long longitudinal portion in which the stud is engaged in the normal position and permits retracting movement of the bar 38 without imparting movement to the latching bar (Fig. 10), an angular portion for camming the latching bar to its upper or latching position, upon movement of the inside handle roll-back and bar 38 in a reverse direction to the normal retracting movement, and an upper relatively short longitudinal portion in which the stud is disposed in the latched position (Fig. 11). In the latched position (Fig. 11) retracting of the bolt by means of the outside handle roll-back is prevented.

In order to unlatch the bar 34 the inside handle is merely turned in retracting direction, the initial movement of the bar 38 in retracting direction camming the latching bar to its lower or inoperative position, and the continued movement causing retraction of the bolt through engagement of the lug 41 with the lug 26 of the bolt.

I have illustrated and described a preferred and satisfactory embodiment of the invention, but it will be obvious that changes may be made therein, within the spirit and scope thereof, as defined in the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. In a latch, a longitudinally slidable latch bolt, means for retracting said bolt including inside and outside manually operable means disposed in non-co-axial relation, a retracting member movable relatively to said bolt interposed between said outside retracting means and the bolt, a second retracting member having longitudinal movement only interposed between said inside retracting means and the bolt, said retracting members being disposed in the same plane in offset relation and adapted to have inde-

pendent retracting movement, and means adapted upon movement of said second retracting member in non-bolt-retracting direction to render said first retracting member inoperative.

2. In a latch, a latch bolt, means for retracting said bolt including inside and outside manually operable means disposed in non-co-axial relation, a retracting member offset with respect to said bolt interposed between said outside retracting means and the bolt and movable longitudinally only along a line in parallel relation with the longitudinal axis of the bolt, a second retracting member interposed between said inside retracting means and the bolt and movable longitudinally along a line coinciding with the longitudinal axis of the bolt, said retracting members adapted to have independent retracting movement, and means adapted upon movement of said second retracting member in non-bolt-retracting direction to render said first retracting member inoperative.

3. In a latch, a latch bolt, means for retracting said bolt including inside and outside manually operable means disposed in non-co-axial relation, a retracting member movable relatively to said bolt interposed between said outside retracting means and the bolt, a second retracting member having longitudinal movement only and interposed between said inside retracting means and the bolt, said retracting members adapted to have independent retracting movement in parallel relation to said bolt, a latching member for said first retracting member adapted to be moved into latching and unlatching positions differentially of the movement of said retracting members, and means cooperating between said second retracting member and said latching member and adapted upon movement of said second retracting member in non-bolt-retracting direction to move said latching member into latching position, and upon movement in bolt retracting direction to move it into unlatching position.

4. In a latch, a latch bolt, means for retracting said bolt including inside and outside manually operable means disposed in non-co-axial relation, a longitudinal movable retracting slide movable relatively to said bolt interposed between said outside retracting means and the bolt, a second longitudinally movable retracting slide having longitudinal movement only interposed between said inside retracting means and the bolt, said retracting slides adapted to have independent retracting movement in parallel relation to said bolt, a transversely movable latching slide for said first retracting slide having latching means adapted to be moved into latching and unlatching positions, and means cooperating between said second retracting slide and said latching slide and adapted upon movement of said second retracting slide in non-bolt-retracting direction to impart differential movement to said latching slide to move it into latching position, and upon movement in bolt retracting direction to move it into unlatching position.

Signed at Bridgeport, county of Fairfield, and State of Connecticut, this 4th day of February, 1930.

RAYMOND G. MOORE.