Aug. 4, 1925.

1,548,371

R. G. MOORE

AUTOMOBILE DOOR LATCH

Filed May 23 1924

2 Sheets-Sheet 1

Fig. 1.

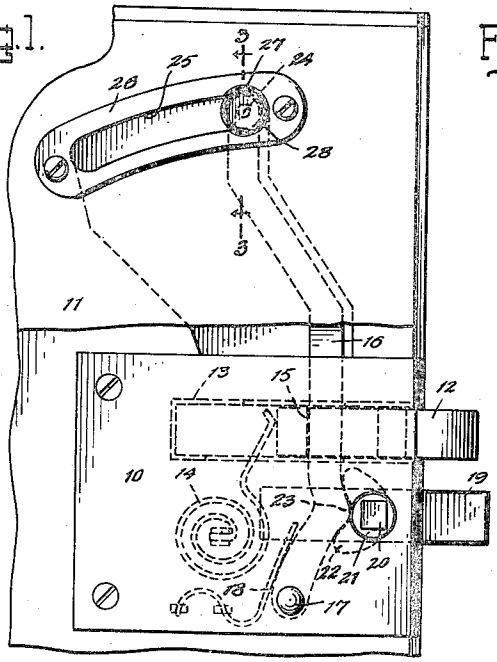


Fig. 2.

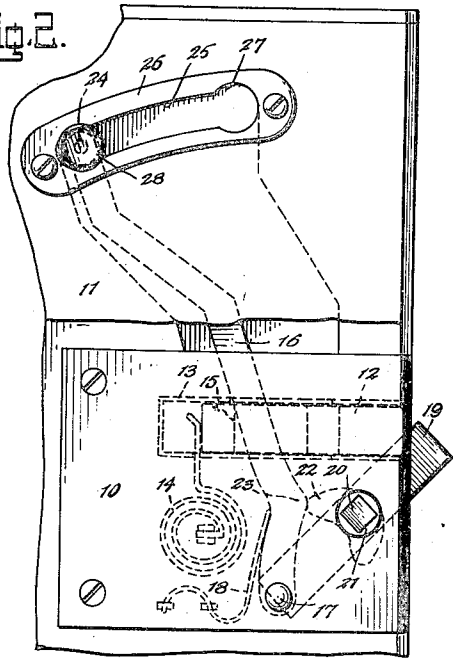


Fig. 3.

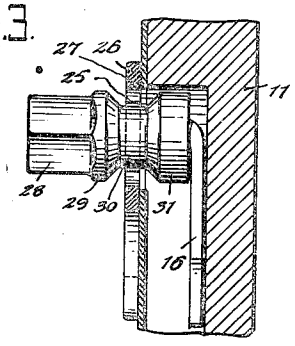


Fig. 4.

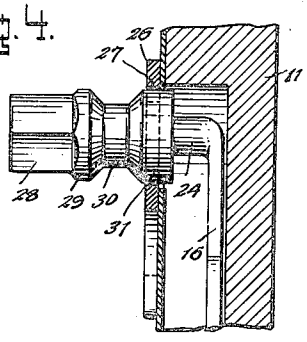


Fig. 5.

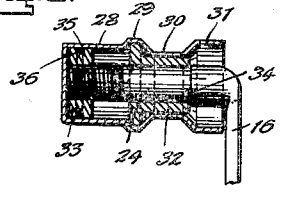


Fig. 6.

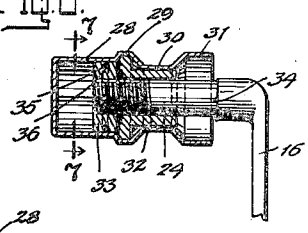
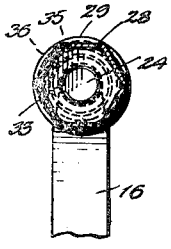


Fig. 7.



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ATTORNEY

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R. G. MOORE

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Fig. 8.

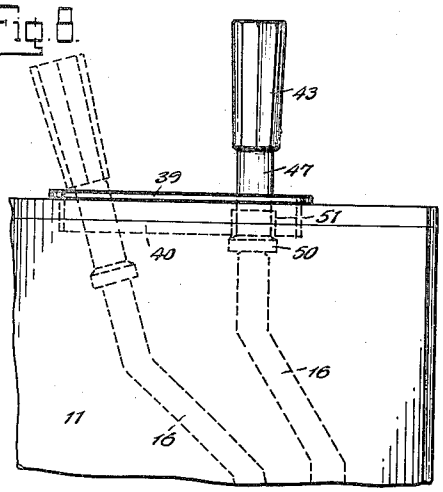


Fig. 9.

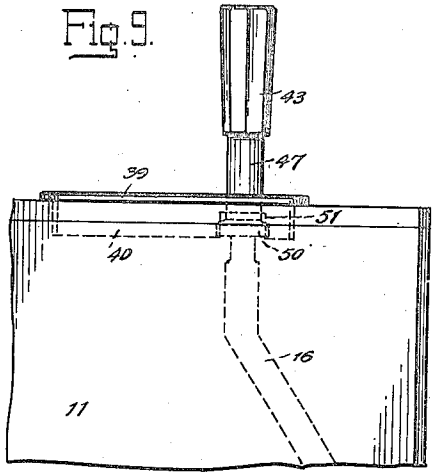


Fig. 10.

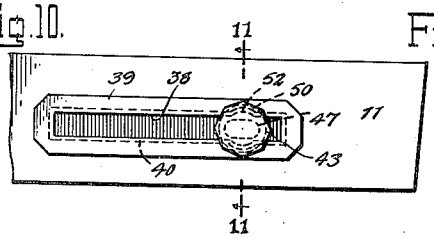


Fig. 11.

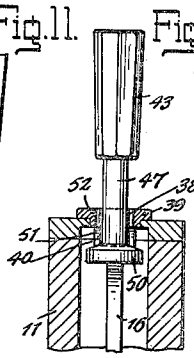


Fig. 12.

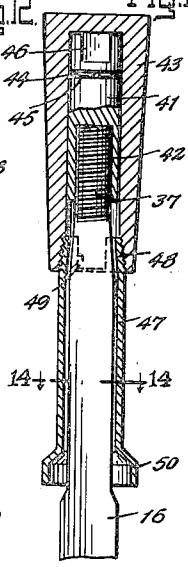


Fig. 13.

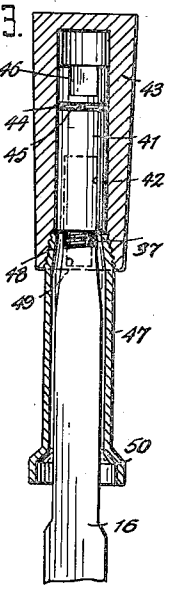


Fig. 15.

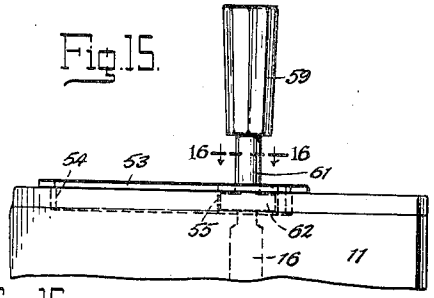


Fig. 14.

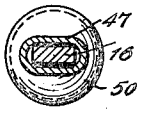


Fig. 16.

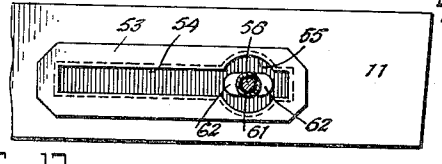


Fig. 17.

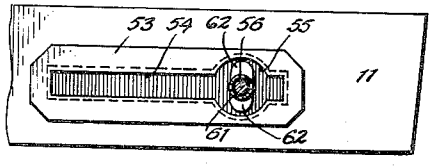


Fig. 18.

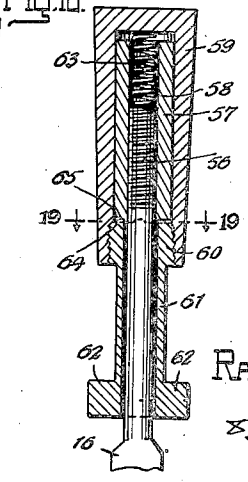
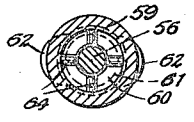


Fig. 19.



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Patented Aug. 4, 1925. 1,548,371

UNITED STATES PATENT OFFICE.

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AUTOMOBILE DOOR LATCH.

Application filed May 23, 1924. Serial No. 715,271.

To all whom it may concern:

Be it known that I, RAYMOND G. MOORE, a citizen of the United States, and a resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Automobile Door Latches, of which the following is a specification.

This invention relates to improvements in automobile door latches, and has for an object to provide a latch of this character, having both an inside and an outside operating handle, and which may be locked from the inside, so as to prevent operation of the outside handle. This type of latch is especially adapted for use upon doors of closed cars, one of the doors of which is adapted to be locked from the outside, while the others, provided with latches according to the present invention, are locked from the inside.

A further object is to provide a latch in which the locking means is incorporated in the inside handle structure, in such manner as to be attached to the inside handle lever, without necessitating any change or alteration in the usual construction of the latch proper.

A still further object is to provide a latch having a double acting outside handle, and which will be locked against movement in either direction upon operation of the improved locking means.

Other objects are to provide a locking device which may be operated with ease, will be of extremely simple construction and manufacture, may be assembled with facility, and will not readily get out of order.

With the above and other objects in view, embodiments of the invention are shown in the accompanying drawings, and these embodiments 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 an inside elevation of the corner of an automobile door provided with one embodiment of the invention, and showing the parts in the projected position of the latch bolt;

Fig. 2 is a similar view, and showing the parts in the retracted position of the latch bolt;

Fig. 3 is a vertical sectional view, enlarged, taken along the line 3—3 of Fig. 1, and showing the inside handle in operative or unlocked position;

Fig. 4 is a similar view, and showing the inside handle in inoperative or locked position;

Fig. 5 is a sectional view of the inside handle, the same being in unlocked position;

Fig. 6 is a similar view, the handle being in locked position;

Fig. 7 is a sectional view, taken along the line 7—7 of Fig. 6;

Fig. 8 is an inside elevation of the corner of an automobile door provided with locking means, according to a modified embodiment of the invention, the dotted lines showing the lever handle in the bolt retracting position;

Fig. 9 is a similar view, and showing the lever handle in locked position;

Fig. 10 is a top plan view;

Fig. 11 is a vertical sectional view, taken along the line 11—11 of Fig. 10;

Fig. 12 is a vertical sectional view, enlarged, of the lever handle, and showing the same in operative or unlocked position;

Fig. 13 is a similar view, and showing the handle in inoperative or locked position;

Fig. 14 is a transverse sectional view, taken along the line 14—14 of Fig. 12;

Fig. 15 is an inside elevation of the corner of an automobile door provided with locking means according to a further modified embodiment of the invention, and showing the same in operative or unlocked position;

Fig. 16 is a sectional plan view thereof, taken along the line 16—16 of Fig. 15, the same being in unlocked position;

Fig. 17 is a similar view, and showing the handle in inoperative or locked position;

Fig. 18 is a vertical sectional view, enlarged, of the lever handle; and

Fig. 19 is a transverse sectional view, taken along the line 19—19 of Fig. 18.

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

Referring to the drawings, and more particularly to Figs. 1 to 7 thereof, the embodiment of the invention shown therein comprises a latch 10 secured to the automobile door 11 in the usual manner, and including a rectilinearly movable bolt 12 slidable in a guide-way 13, and normally projected by

means of a coil spring 14, being provided with a cut-out 15 in which is engaged the inside handle lever 16, pivoted upon the latch frame at 17, and normally pressed forwardly, as in Fig. 1, by means of a spring 18.

The outside handle 19 has its squared shank 20 engaged in a rotatable roll-back 21 having a heart cam 22 engaging above and below a hump-shaped cam portion 23 of the lever 16. By swinging the lever 16 rearwardly the bolt will be retracted, or the same may be retracted by turning the outside handle 19 in either direction, this latter operation swinging the lever 16 and thereby effecting retraction of the bolt, as indicated in Fig. 2. By locking the lever 16 against swinging movement the outside handle will be positively locked, and the present invention consists in the provision of means for locking said lever from the inside of the car.

The lever 16 is bent at a right angle at its upper end, as at 24, and extends into the arcuate slot 25 of an escutcheon plate 26, the slot being provided at its forward end with a circular enlargement 27, constituting a locking portion, as will presently more fully appear.

The handle, which is secured to the upper end of the lever and adapted to move in the slot 25, consists of an outer shell having a forward hexagonal portion 28, an annular shouldered portion 29, a reduced portion 30 of such diameter as to move in the slot 25, and an enlarged cylindrical inner end portion 31 of such diameter as to fit into the enlargement 27 of the slot. A tubular flanged bushing 32 is secured within the reduced portion 30, the flange being disposed within the shouldered portion 29 to thereby form a solid supporting structure for the shell.

The end 24 of the lever 16, which is threaded, is slidably engaged through the passage of the bushing 32, and is screwed into engagement with a hexagonal nut 33 slidably disposed within the hexagonal portion 28 of the shell, a shoulder 34 on the lever portion 24 abutting the inner end of the bushing in the inwardly disposed position of the handle, Fig. 2. A split spring ring 35 is disposed about the nut 33 in an annular recess 36 formed therein, and presses against the inner surface of the shell to prevent looseness and to frictionally retain the handle in position.

In the normal unlocked position of the handle, the same is disposed in its inwardly moved relation upon the end 24 of the lever, as indicated in Figs. 3 and 5, with the reduced portion 30 in register with the slot 25, so that the lever may be swung from its position, Fig. 1, in which the bolt 12 is projected, to its position, indicated in Fig. 2, to retract the bolt; the latch being also operable by means of the outside handle in this unlocked relation of the inside lever handle. In order to lock the latch, the handle is pulled outwardly to the position indicated in Figs. 4 and 6, the space between the nut 33 and the flanged bushing 32 being just sufficient to allow the enlarged end portion 31 to enter the enlargement 27 of the slot, thereby locking the lever against swinging movement, and consequently preventing operation of the outside handle 19. The latch is unlocked simply by pressing the handle inwardly.

It will be seen that the slidable locking handle constitutes a unit, which may be screwed upon the end of the lever in the same manner as an ordinary handle, thereby greatly facilitating the assembly of the device.

In Figs. 8 to 14 I have illustrated a modified construction, in which the invention is embodied in a lever handle provided in the upper surface or sill of the door. According to this embodiment the upper threaded end 37 of the lever 16 extends upwardly through the slot 38 of an escutcheon plate 39, the slot being provided with a downwardly extending flange or skirt 40 along the longitudinal and end edges thereof. A cylindrical post 41 having an interiorly threaded passage 42 at its lower end is screwed upon the threaded end 37 of the lever, and a hollow handle 43, closed at its upper end, is slidably engaged over the same, a split spring ring 44 being provided in an annular groove 45 of the post, which presses against the inner surface of the handle to prevent looseness and to frictionally retain it in position. Flats 46 are provided at the end of the post to enable it to be conveniently screwed upon the lever end with a suitable wrench.

Below the handle a sleeve 47, of oval cross-section, slidably surrounds the lever, and is provided at its upper end with a slightly tapered threaded portion 48 upon which the lower interiorly threaded end of the handle is screwed, the upper end of the sleeve forming an abutment shoulder within the handle in spaced relation to the lower end of the post 41. In producing the threaded upper end of the oval cross-section sleeve, opposed cut-outs 49 are produced therein, so that said end is slightly resilient, and a tight wedging relation is thereby procured between the threaded connection of the handle and sleeve.

At the lower end of the sleeve there is provided an enlarged annular locking shoulder or flange 50, of greater diameter than the width of the escutcheon slot 38.

In the normal unlocked position of the handle the same is in its downwardly pressed position, as indicated in Figs. 8, 11

and 12, the locking shoulder 50 being below the flange 40 of the slot 38, so that the handle is free to be swung to the dotted line position, Fig. 8. In order to lock the lever, the handle is pulled upwardly, to the position indicated in Figs. 9 and 13, the upper shouldered end of the sleeve 47 abutting the lower end of the post 41 to limit the upward movement, and the locking shoulder 50 being drawn upwardly into cut-out portions 51 provided in the longitudinal flanges 40 of the escutcheon, so that the lever is effectually and positively locked against swinging movement, and the operation of the outside handle is prevented. In order to unlock the lever the handle is simply pressed down to disengage the locking flange 50 from the cut-outs 51.

In assembling the handle and escutcheon, the handle portion 43 is disengaged from the sleeve 47, the latter remaining upon the lever. The escutcheon is engaged over the end of the post 41, and thereupon fitted into the door sill, and for this purpose the slot 38 of the escutcheon is widened, as at 52, so that it will pass over the post 41 without necessitating removal of said post. The handle is then engaged over the post and screwed to the upper end of the sleeve 47.

In Figs. 15 to 19 I have illustrated a further modification, in which the lever handle is adapted to be rotated to bring it into and out of locking relation. The escutcheon plate 53 is provided with a longitudinal slot 54 having a circular enlargement 55 adjacent its forward end, and in which the lever handle is normally disposed. The lever 16 is threaded at its upper end, as at 56, and a tubular cylindrical post 57 is screwed thereon, and extends above the end of the lever to provide a pocket 58; a hollow handle 59, closed at its upper end, being slidably engaged over the post and secured at its lower end upon the upper threaded end 60 of a sleeve member 61 slidably and rotatably engaged upon the lever. Integral diametrically extending locking lugs 62 are provided at the lower end of the sleeve member 61, and are adapted to cooperate with the enlargement 55 of the escutcheon slot to lock the lever, as will presently more fully appear.

The upper end of the post 57 is slightly spaced from the end of the handle, and a spring 63 is disposed in the pocket 58 pressing the handle upwardly, so that the upper end of the sleeve member 61 is yieldably drawn into engagement with the lower end of the tubular post 57, said end of the sleeve member being provided with four radial ribs 64 interlockingly engaged with corresponding radial grooves 65 provided in said end of the post. This construction permits the handle to be rotated a quarter turn to bring the lugs 62 into either longitudinally disposed unlocked position within the escutcheon slot, as in Fig. 16, or the transversely disposed locked position within the enlargement 55 of the slot, as in Fig. 17. In the first position the lever is free to be swung to operate the latch, and to permit of the operation of the outside handle, while in the latter position the same is effectually locked against swinging movement, and operation of the outside handle is therefor prevented.

I have illustrated and described preferred and satisfactory embodiments 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 bolt adapted to be projected and retracted, inside bolt retracting means movable about a fixed axis, means adapted to lock said retracting means against normal retracting movement, a rotatable autside actuating handle rotatable about an axis removed from the axis of said inside retracting means and cooperatively related to said inside retracting means adapted to move said inside retracting means upon rotation, and adapted to be locked against operation through the locking of said inside retracting means.

2. In a latch, a bolt adapted to be projected and retracted, inside bolt retracting means having a fixed pivotal mounting, means adapted to lock said retracting means against movement, and outside bolt retracting means adapted upon operation to actuate said inside retracting means to retract said bolt, and adapted to be locked against operation through the locking of said first retracting means, said bolt in the locked relation of said retracting means being free to move in retracting direction through pressure applied to one end of said bolt.

3. In a latch, a bolt adapted to be projected and retracted, bolt retracting means including inside actuating means adapted to retract said bolt, outside actuating means cooperating with said inside actuating means to retract said bolt, and means adapted to lock said inside actuating means against movement, said bolt in the locked relation of said retracting means being free to move in retracting direction through pressure applied to the end of said bolt.

4. In a latch, a bolt adapted to be projected and retracted, inside bolt retracting means, means adapted to lock said retracting means against movement, a rotatable outside actuating handle cooperatively related to said inside retracting means adapted to have actuating movement in opposite directions from its normal position and

means to bolt retracting position by rotation in either direction, and adapted to be locked against operation through the locking of said first retracting means.

5. In a latch, a bolt adapted to be projected and retracted, a pivoted lever engaging said bolt and adapted to be actuated to retract said bolt, means adapted to lock said lever against movement, a rotatable outside actuating handle cooperatively related to said lever and adapted to move it to bolt retracting position upon rotation, said outside handle adapted to be locked against operation through locking of said lever, said bolt in the locked relation of said retracting means being free to move in retracting direction through pressure applied to one end of said bolt.

6. In a latch, a bolt adapted to be projected and retracted, inside bolt retracting means, a handle movably mounted on said means, means cooperatively related to said handle whereby the handle is adapted to be manually moved into locked and unlocked relation therewith, and outside bolt retracting means adapted to be locked against operation through the locking of said handle.

7. In a latch, a bolt adapted to be projected and retracted, inside bolt retracting means, a handle movably mounted on said retracting means, an escutcheon disposed about said handle and including means adapted to lockingly engage said handle upon manual movement thereof relatively to said retracting means, and to unlock the same upon a further manual movement thereof, and outside bolt retracting means adapted to be locked against operation through the locking of said handle.

8. In a latch, a bolt adapted to be projected and retracted, an inside bolt retracting lever, a handle movably mounted on said lever, a slotted escutcheon disposed about said handle and including means adapted to lockingly engage said handle upon manual movement thereof relatively to said retracting lever, and to unlock the same upon further manual movement thereof, and outside bolt retracting means adapted to be locked against operation through the locking of said handle.

9. In a latch, a bolt adapted to be projected and retracted, an inside bolt retracting lever, a handle movably mounted on said lever and including a locking portion, a slotted escutcheon disposed about said handle, and including a locking portion adapted to be lockingly engaged by said locking portion of the handle upon manual movement thereof relatively to said lever, and to unlock the same upon further manual movement thereof, and outside bolt retracting means adapted to be locked against operation through the locking of said handle.

10. In a latch, a bolt adapted to be projected and retracted, inside bolt retracting means, a handle movably mounted on said retracting means and including a locking portion and movable into locking and unlocking position, friction means adapted to yieldably retain said handle in either of its moved positions, an escutcheon disposed about said handle and including means adapted to lockingly engage said locking means of the handle upon manual movement thereof relatively to said retracting means, and to unlock the same upon further movement thereof, and outside bolt retracting means adapted to be locked against operation through the locking of said handle.

11. In a latch, a bolt adapted to be projected and retracted, inside bolt retracting means having a threaded end, a handle including means screwed upon said threaded end and means movably mounted relatively to said last means, and having a locking portion, an escutcheon disposed about said handle and including means adapted to lockingly engage said locking means of the handle upon manual movement thereof relatively to said retracting means, and to unlock the same upon further movement thereof, and outside bolt retracting means adapted to be locked against operation through the locking of said handle.

12. In a latch, a bolt adapted to be projected and retracted, an inside bolt retracting lever, a handle including means secured to said lever and a member slidably mounted on said last means, and having a reduced portion and an enlarged locking portion, a slotted escutcheon disposed about said handle, the slot being normally in register with said reduced portion to permit movement of said lever, said slot having an enlargement adapted to be engaged by said enlarged portion of said handle member upon manual movement thereof to lock the lever against movement, and outside bolt retracting means adapted to be locked against operation through the locking of said handle.

13. In a latch, a bolt adapted to be projected and retracted, an inside bolt retracting lever, a handle including means secured to said lever, a hollow handle member slidably mounted on said last means, a sleeve surrounding said lever and secured to said handle member, and having an enlarged locking portion, a slotted escutcheon disposed about said sleeve and having means adapted to be engaged by said enlarged locking portion of the sleeve upon manual movement of said handle to lock the lever against movement, and outside bolt retracting means adapted to be locked against operation through the locking of said handle.

14. In a latch, a bolt adapted to be projected and retracted, an inside bolt retracting lever, a handle including means secured to said lever, a hollow handle member slidably mounted on said last means, a sleeve of elongated cross-section surrounding said lever and secured to said handle member, and having an enlarged locking portion, a slotted escutcheon disposed about said sleeve, the width of said slot being less than the greatest cross-sectional dimension of said sleeve, said escutcheon having means adapted to be engaged by said enlarged locking portion of said sleeve upon manual movement of said handle to lock the lever against movement, and outside bolt retracting means adapted to be locked against operation through the locking of said handle.

15. In a latch, a bolt adapted to be projected and retracted, an inside bolt retracting lever, a handle including means secured to said lever, the lower end of said means forming a shoulder, a hollow handle member slidably mounted on said last means, a sleeve surrounding said lever and secured to said handle member, its upper end forming a shoulder, said sleeve having an enlarged locking portion at its lower end, a slotted escutcheon disposed about said sleeve and having means adapted to be engaged by said enlarged locking portion of said sleeve upon manual lifting movement of said handle to lock the lever against movement, abutment of said shoulders adapted to limit said lifting movement, and outside bolt retracting means adapted to be locked against operation through the locking of said handle.

16. In a latch, a bolt adapted to be projected and retracted, an inside bolt retracting lever, a handle rotatably mounted on said lever and including locking means adapted upon rotation of said handle to be moved into and out locking position, frictional retaining means adapted to yieldably retain said handle in locking and unlocked positions and to limit rotation to said positions, a slotted escutcheon disposed about said handle and having means adapted to be engaged by said locking portion upon rotation of said handle to lock the lever against movement, and outside bolt retracting means adapted to be locked against operation through the locking of said handle.

17. In a latch, a bolt adapted to be projected and retracted, inside bolt retracting means, locking means for said retracting means movably connected thereto, and outside bolt retracting means adapted to be locked against operation through the locking of said locking means, said bolt in the locked relation of said retracting means being free to move in retracting direction through pressure applied to one end of said bolt.

18. In a latch, a bolt adapted to be projected and retracted, inside bolt retracting means, manually operable locking means movably mounted on said retracting means, and outside bolt retracting means adapted to be locked against operation through directly applied manual movement of said locking means relatively to said inside retracting means, said bolt in the locked relation of said retracting means being free to move in retracting direction through pressure applied to one end of said bolt.

19. In a latch, a bolt adapted to be projected and retracted, inside bolt retracting means, locking means for said retracting means movably connected thereto, and outside bolt retracting means cooperatively related to said inside retracting means and adapted to be locked against operation through the locking of said inside retracting means, said bolt in the locked relation of said retracting means being free to move in retracting direction through pressure applied to one end of said bolt.

20. In a latch, a bolt adapted to be projected and retracted, inside bolt retracting means, locking means movably connected to the end of said retracting means, and outside retracting means adapted to be locked against operation through the locking of said locking means.

Signed at Bridgeport, in the county of Fairfield, and State of Connecticut, this 21st day of May, 1924.

RAYMOND G. MOORE.