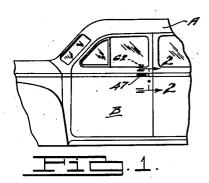
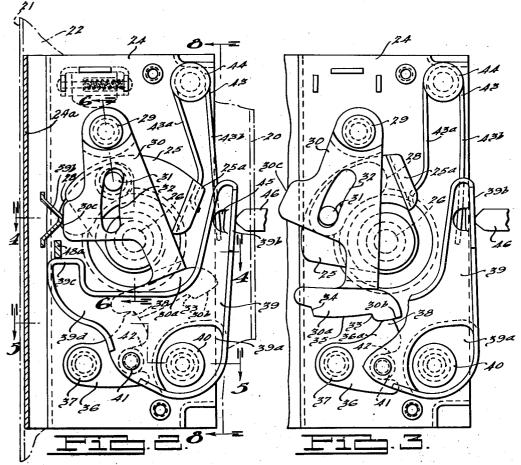
DOOR LOCK

Filed March 28, 1947

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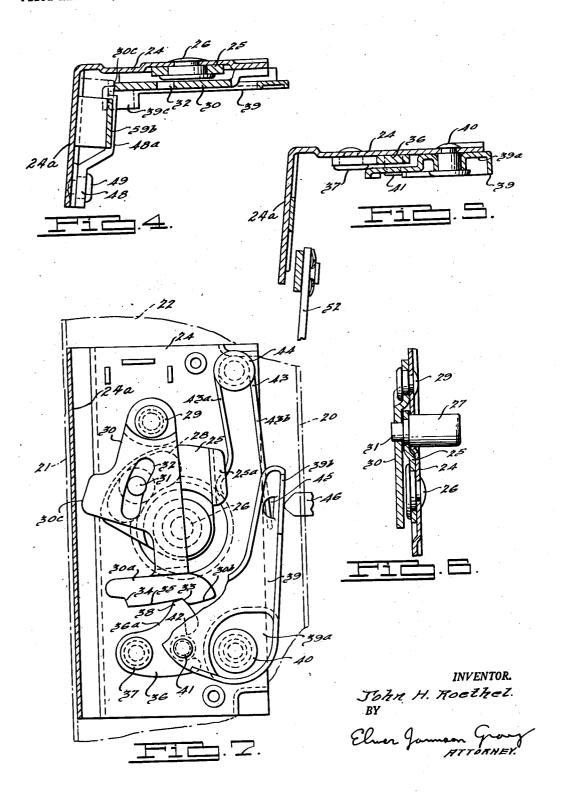




INVENTOR. John H. Mocthel. BY Elmen Jameson Grong DOOR LOCK

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3 Sheets-Sheet 2



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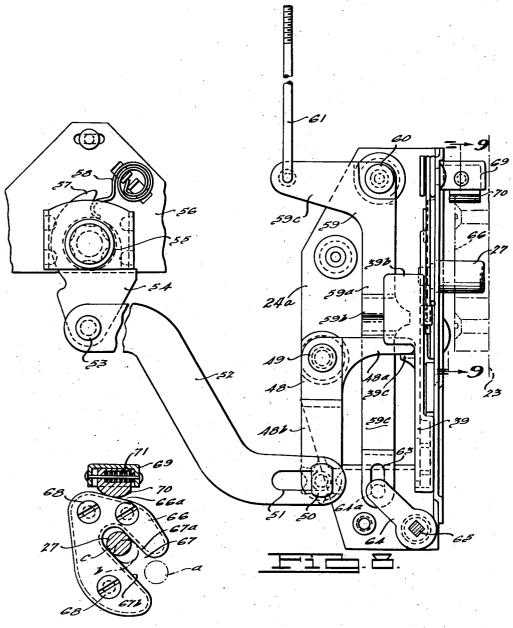
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DOOR LOCK

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INVENTOR.

John H. Roethel.

BY

Elmer James Grang

# UNITED STATES PATENT OFFICE

2,603,516

### DOOR LOCK

John H. Roethel, Detroit, Mich., assignor to Roethel Engineering Corporation, Detroit, Mich., a corporation of Michigan

Application March 28, 1947, Serial No. 737,865

5 Claims. (Cl. 292-229)

This invention relates to latch mechanism for the swinging doors of various structures. Although especially adapted to be used in connection with the doors of vehicle bodies, such as automobile bodies, the present invention may be 5 applied to various other uses.

An object of the invention is to provide a door latch which combines in relatively simple and compact form such desirable features as quietness of operation when closing the door, simplicity and 10 compactness in construction, operational efficien-

cy and economy in manufacture.

Another object of the invention is to provide an improved door latch embodying a latch bolt exdoor and shiftable bodily in a generally vertical or up and down direction by a rotative motion both when closing and opening the door, means being provided for locking or holding the bolt preferably in a plurality of positions and additional means of an improved, relatively simple and efficient character being provided for releasing the bolt locking means selectively from the inside and outside of the door to permit the door to be opened.

A further object of the invention is to provide an improved latch device having a bolt mounted eccentrically upon a rotatable member and movable up and down bodily during operation, said member being locked or held in one or more bolt 30 locking positions by means of a detent or dog mounted and controlled in improved manner.

Another object of the invention is to provide a latch device in which the rotatable bolt or latch carrying member is positively held or restrained 35 arrows. in various latched positions of the door by a swinging toothed lever or locking member controlled in its movement by the bolt carrying member and in turn positively locked in various positions by a detent or dog capable of being readily and 40 easily released manually from the outside or inside of the door.

Further objects of the invention are to provide improved remote control means for releasing the door latch from the inside of the door and im- 45 proved manually operable means accessible at the inside of the door for blocking or restraining release of the latch device when the door is

in closed position.

Still another object of the invention is to pro- 50vide a latch device having a rotatable latch or bolt carrying member, a swinging locking member controlled thereby to swing oppositely thereto and a detent or dog cooperable with said locking member, said detent being releasable through 55 it is to be understood that the phraseology or

the medium of a swinging release lever, and the bolt carrying member, detent and release lever being controlled or influenced by a common spring

A further object of the invention is to provide improved means for blocking or restraining release of the bolt or latch device, such means being manually operable and including an element movable into and out of blocking engagement with the swinging locking member which in turn is so connected to the bolt carrying member as to be movable only in unison therewith.

Other objects of this invention will appear in the following description and appended claims, tending longitudinally at the free edge of the 15 reference being had to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

Fig. 1 is a fragmentary side elevation of a portion of an automobile body provided with a swinging front door upon which a latch device made in accordance with the present invention is installed.

Fig. 2 is an enlarged vertical section taken sub-25 stantially through lines 2-2 of Fig. 1, the latch device in this view being shown in its final locking position.

Fig. 3 is a view in part similar to Fig. 2, illustrating the latch device in unlatched position.

Fig. 4 is a section taken substantially through lines 4—4 of Fig. 2 looking in the direction of the arrows.

Fig. 5 is a section taken substantially through lines 5-5 of Fig. 2 looking in the direction of the

Fig. 6 is a section taken substantially through lines 6-6 of Fig. 2 looking in the direction of the

Fig. 7 is a view in part similar to Fig. 2, illustrating the latch device in safety latching posi-

Fig. 8 is a fragmentary side elevation taken substantially from lines 8—8 of Fig. 2 looking in the direction of the arrows.

Fig. 9 is a section on a reduced scale taken substantially through lines 9-9 of Fig. 8 looking in the direction of the arrows.

Before explaining in detail the present invention it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also

In the drawings there is illustrated, by way of example, one embodiment of the present invention as applied to a door and door frame structure 5 of an automobile body. As illustrated in Fig. 1, the automobile body, designated generally at A, is provided with a front door B which is hinged at its front edge so as to swing against a door post or body pillar in accordance with conven- 10 tional practice. The door comprises an outer metal door panel 20 and an inner metal door panel 21, see Fig. 2. The panel 21 terminates in a transverse jamb edge or portion 22 facing the fixed jamb face or edge 23 (Fig. 8) of the door 15 frame post or body pillar.

Adapted to be secured, as by means of screws, to the inner side of the jamb portion 22 of the door is a case plate 24 having a flange 24a engaging the inner door panel 21. Mounted on the 20 case plate 24 is a bolt carrying plate or member 25 which is rotatable upon a pivot or stud 26 in the form of a shoulder rivet secured to the case plate, see Fig. 6. Rigidly fastened to the bolt plate 25 at a point spaced from the pivotal axis 25 26 thereof is a longitudinally extending cylindrical latch bolt 27. This bolt projects outwardly in a longitudinal horizontal direction through an arcuate slot 28 in the case plate and also through 22 of the door, these slots being covered by the bolt plate 25 when the door is open, as illustrated in Fig. 3. A shoulder rivet or stud 29 is rigidly fastened to the case plate at a point above the bolt 27. The upper end of a toothed locking bar 35or plate 30 is pivotally mounted or fulcrumed upon a cylindrical portion of the stud 29 so as to swing back and forth between the positions shown in Figs. 2 and 3 during opening or closing movement of the door. The swinging motion of the 40 toothed locking bar or ratchet member 30 is controlled by the bolt plate 25, this being accomplished in the present instance through the medium of a pin and cam slot connection, although it will be understood that other mechanical means may be utilized for swinging the locking bar 30 from the bolt plate 25. A simple form of connection between the bolt plate 25 and the locking bar 30 may take the form of an integral pin or stud extension 31 of the bolt having a sliding fit within an arcuate cam slot 32 in the locking bar

The locking member 30 is elongated to extend a predetermined distance below the pivot 26 of the bolt plate 25 and is formed at its lower end with a widened portion 30a terminating in an edge preferably formed with an arcuate portion 30b having its center of curvature substantially at the pivot 29. The lower edge of the locking bar is cut to provide two spaced teeth or inclined detent or dog engaging abutments 33 and 34 with an intervening smooth edge portion 35 extending between the abutments. The tooth or abutment 33 forms the safety locking step and the tooth or abutment 34 forms the final locking step of the latch device.

Cooperating with the locking bar 30 is a dog, detent or pawl 36 having a bearing hole to receive a shoulder rivet 37 attached to the case plate 24 and through the medium of which the detent is pivotally mounted on the case plate. The dog or detent 36 is provided with an arm 36a terminating at its upper end in a dog or detent portion 33 shaped to engage either one of the abutments 33 and 34 when the door is closed.

The detent or dog 36 is adapted to be released or disengaged from the toothed locking bar 30 by means of a detent actuating or release lever 39. This lever is in the form of a single stamping formed with reinforcing flanging around its edges. The lever has an embossed portion 39a at its lower end engageable with the case plate, this embossed portion of the release lever being pivoted to the case plate at 40 by means of a shoulder rivet. The lever 39 carries at its lower end a projecting pin or stud 4!, preferably in the form of a shoulder rivet, and this pin or stud has an annular portion positioned between the pivot 40 of the lever and the pivot 37 of the detent 36 and lying within a notch 42 in the detent so as to couple the lever and detent together for simultaneous actuation. The stud 41 and notch 42 provide an articulated connection between the release lever and detent thereby permitting the detent to be swung in one direction when the release lever is swung in the opposite direction. Thus, when the detent 36 is in engagement with either of the abutments 33 and 34, as shown in Figs. 2 and 7, it will be apparent that upon swinging the release lever 39 counterclockwise, as viewed in these fig-

ures, the pin or stud 41 will be depressed thereby

rocking the detent and withdrawing the detent

portion 38 from engagement with the abutments. The bolt carrying plate 25 and the detent rea similar and registering arcuate slot in the jamb 30 lease lever 39 are controlled by means of a common spring 43 which functions to urge the bolt carrying plate constantly toward bolt unlatching position and to urge the detent actuating lever 39 constantly into retracted or inactive position, as shown in Figs. 2 and 7. The spring 43 has one or more intermediate coils wound around a cylindrical portion of a stud 44 riveted to the case plate 24, the spring being held in position by the head of the stud. The spring has an extension or arm 43a engageable at its lower end with the outer edge of the bolt plate 25, the latter being offset to provide a lip 25a overlying the lower end of the spring for the purpose of holding it in position. The spring 43 also has a somewhat longer extension or arm 43b which engages a tongue 45 lanced out of the metal of the lever 39 adjacent the upper end thereof. From this construction it will be seen that the spring extension 43a constantly exerts an inward force on the bolt plate 25 urging it towards its unlatching position shown in Fig. 3. Also the spring extension 43b exerts an outward force at 45 against the detent release lever tending to urge it constantly toward its fully retracted position. Since the spring extension 43b is longer than the spring extension 43a, the effort exerted against the release lever 39 will be less than the effort exerted against the bolt plate.

The detent release lever 39 has a widened 60 flange portion 39b engageable by a plunger 46 which may be shifted inwardly to swing the lever by any suitable manually operable means on the outside of the door such, for example, as pullout handle 47 or by any other preferred means such as a push button carried by the outside door handle.

The latch device constructed in accordance with the present embodiment incorporates a remote control mechanism for permitting actuation of the release lever 39 from the inside of the door and a manually operable blocking means for restraining the bolt carrying plate 25 against release or movement toward unlatching position. The remote control mechanism for operating the 75 detent release lever may be manually actuated in

any suitable manner from the inside of the door remote from the case plate such as by means of a door handle or push button device. This remote control mechanism comprises a bell crank or two-arm lever 48 pivoted at 49 through the medium of a shoulder rivet to the case plate flange 24a. The bell crank 48 has a longitudinally extending arm 48a overlying at its outer end a lateral flange 39c formed on an extension 39d of the detent release lever. The bell crank 10 48 also has a depending lever arm 48b connected by a stud 50 to the slotted end 51 of a remote control link 52 which at its opposite end is pivoted at 53 to the lower end of a swinging lever 54. The upper end of this lever is pivoted at 55 to a 15 mounting plate 56 secured to the inner door panel 21. The lever is secured at its pivot 55 to the shank of the inner door handle (not shown) and is provided with an upward extension 57 engaged by a spring 58 effective to return the lever and the door handle to their normal positions after the inner door handle has been released. By turning the inner door handle to rock the lever 54 the link 52 will be shifted to the left in Fig. 8, thus rocking the bell crank 48 and depressing the lever arm 48a which by engagement with the flanged end 39c of the detent release lever 39 will swing the latter in a counterclockwise direction and thereby cause the pin or stud 41 to swing the detent 36 downwardly in a clockwise direction until the dog or tooth portion 38 thereof clears and is free of either the abutment 33 or the abutment 34 on the locking lever 30. When this occurs the bolt plate 25 will be free to swing in a counterclockwise direction toward 35 bolt unlatching position, and this action will swing the locking lever 30 in the opposite direction, through the medium of the pin and cam slot connection 31, 32, from either of the positions shown in Figs. 2 and 7 to the position shown 40 in Fig. 3.

In accordance with the present embodiment means is provided for blocking the locking lever 30 and, hence, the bolt plate 25 against release when the detent release lever 39 is actuated either 45 by the plunger 46 or the remote controlled arm 48a of the bell crank 48. This additional locking means comprises a bell crank or two-arm blocking lever 59 pivoted at 60 to the case plate flange 24a, see Fig. 8. The blocking lever 59 has 50 a depending arm 59a stamped to form an intermediate embossed portion or blocking projection 59b which, as shown in Figs. 2, 4 and 8, is arranged in such manner as to be shifted into and ner edge portion 30c of the locking lever 30. The blocking lever 59 has a longitudinally extending arm 59c pivotally connected at its terminal end to a vertically extending rod or plunger 61. This rod projects through the garnish molding at the 60 lower edge of the window opening and carries at its upper end a knob or button 62 (Fig. 1) which is accessible in conventional manner at the inner side of the window glass of the door. When the knob or button 62 is pulled upwardly the rod 61 will swing the lever 59 about its pivot 60 thereby shifting the blocking projection 59b out of blocking relation to the edge portion 30cof the locking lever 30, as shown in full lines in Figs. 4 and 8. When, however, the knob or but- 70 ton as well as the plunger 61 is pushed down from the position shown in Fig. 8 the lever 59 will be rocked about its pivot thereby shifting the blocking projection 59b to the dotted line position shown in Fig. 4 into blocking or abutting re- 75 able between unlatching and latching positions in

lation to the edge of the locking lever 30. When this occurs the lever 30 will be blocked against release or swinging movement in a clockwise direction. When the locking lever 30 is thus blocked or restrained by the blocking projection 59b it will be apparent that the bolt carrying plate 25 will also be restrained against movement into unlatching position due to the interlocking pin and slot connection 31, 32. However, it will be apparent that the detent release lever 39 will not be blocked or restrained when the locking lever 30 is blocked or restrained. Hence, even though the bolt under these conditions cannot move to unlatched position, the locking lever 39 may still be freely actuated by either the plunger 46 from the outside of the door or by the lever arm 48a from the inside of the door. From this construction it is important to note, therefore, that the release lever 39 and the detent 36 may be freely actuated when the locking lever 30 and bolt plate 25 are restrained by the blocking projection 59b without permitting the door to be unlatched. The blocking projection 59b is preferably embossed into V-shape so as to provide 25 line contact with the edge 30c of the locking lever, thus reducing to a minimum the frictional resistance to movement of the blocking projection out of blocking relation to the locking lever 30.

The inside blocking lever 59 may also be actuated, where desired, by means of a key controlled device from the outside of the door, such device being ordinarily incorporated in one or both of the front door locks but usually omitted in connection with the rear door locks of an automobile. Where a key controlled device is used the arm 59a of the bell crank 59 may have a depending extension 59c provided with a vertical slot 63 within which is slidable a pin 64a attached to the upper end of a crank arm 64 pivoted at its lower end to the case plate, the lever being provided with a square opening or socket to receive a key-actuated shaft 65. This shaft is connected to the cylinder mechanism of any conventional lock having the usual key control. By turning the key in the lock in the outside of the door the crank arm 64 may be swung to rock the lever 59 and shift the blocking projection 59binto and out of blocking position in the same manner as is accomplished by shifting vertically the rod 61.

It will be noted that the blocking lever 59 may be actuated to shift the blocking projection 59b into blocking relation to the locking lever 30 in out of blocking position with respect to an in- 55 only one position of the latter, namely, when the door is fully closed and the detent or dog 36 is in engagement with the final locking step or abutment 34 as shown in Fig. 2. In this final locking position of the latch device the locking lever 30 will have been swung to the right in Fig. 2 a sufficient distance to cause the edge 30c thereof to clear the blocking projection 59b and, hence, permit the latter to be shifted into blocking position. When the latch device is in unlatched condition as shown in Fig. 3 or in safety locking position as shown in Fig. 7, the locking lever 30 will be positioned so as to prevent the locking projection 59b from being shifted into blocking or restraining relation thereto. Thus, the door must be fully closed and latched before the blocking lever 59 may be swung into blocking position either by means of the rod 61 or the key controlled crank arm 64.

It will be seen that the latch bolt 27 is mov-

an arcuate path as defined by the arcuate slot 28. The bolt is actuated when the door is closed by means of a striker device which is rigidly mounted on the jamb face 23 of the body pillar or fixed upright member of the door frame. In 5 the present instance the striker device comprises a stamped metal piece 66 having opposed lateral flanges positioned against the face of the jamb 23 and also having an intermediate outwardly embossed portion formed with an inwardly and 10 upwardly extending slot or guideway 67 which has straight upper and lower parallel sides sufficiently wide to afford ample bearing engagement with the bolt 21. The striker is secured to the pillar or door frame by screws 68. The 15 width of the guideway 67 approximates closely the diameter of the bolt 27 and the lower side 67b of the guideway projects a substantial distance below the lower end of the upper side 67a of the guideway so as to permit the bolt to pass 20 beneath the latter, as shown at a in Fig. 9, into engagement with the inclined side 67b of the guideway when closing the door. As the door continues its closing movement after initial contact of the bolt with the inclined side 67b the 25 bolt rides up on the side wall 67b and assumes successive latched positions within the guideway 67 such as shown at b and c in Fig. 9, position brepresenting the safety latching position and position c representing the final latching position 30 of the bolt.

In the present embodiment I provide yieldable wedging means cooperable with the striker casing 66 and also with the bolt 27 to hold the door rigidly against vertical vibratory motion or dis- 35 placement during operation of the vehicle. As shown in Figs. 8 and 9 this wedging means in the present instance comprises a stamped hollow casing 69 of generally rectangular shape and open at the bottom and rigidly secured to the case 40 plate but projecting at the outer side of the door jamb. Slidably mounted within this casing is a wedge block 70 controlled by means of a compression spring 71. This spring is mounted under initial load and constantly urges the wedge block toward the left in Fig. 9. During closing movement of the door the wedge block engages the top inclined surface 66a of the striker casing and due to frictional contact will be forced back to some extent against the action of the spring 71. Due to this action the wedge block will constantly tend to tighten itself against the surface 66a and, hence, will maintain the bolt 27 firmly in engagement with the upper inclined wall 67a of the guideway. In order to ensure easy closing and opening of the door the wedge block 70 is preferably formed with a curved working surface 70a which has the important advantage of preventing binding of the block against the upper surface 66a of the casing.

It will be noted that when the bolt 27 reaches approximately the position shown in Fig. 7 and at b in Fig. 9 and is blocked against outward movement by the lower end of the side wall 67aof the striker, the locking lever 30 reaches the 65 position shown in Fig. 7, having been shifted by the pin 31 in a direction opposite to the direction of rotation of the bolt plate 25. Hence, the detent 36 will positively engage the safety locking abutment 33 on the locking lever when 70 the bolt reaches the position shown in Fig. 7 and at b in Fig. 9. Continued closing movement of the door causes the detent portion 38 to ride over the smooth unobstructed edge portion 35 of the

sistance until the detent reaches the final locking step 34. Due to the action of the spring 43 on the release lever 39 the effort of this spring will force the detent 36 upwardly so as to hold it in locking position with respect to the locking abutments 33 and 34.

Since the locking lever 30 swings oppositely to the direction of rotation of the bolt plate it will by its inertia effort, when the door is slammed, tend to force the bolt tightly against the upper side 67a of the striker, thereby tending to avoid chattering of the bolt within the guideway 67 especially where the latter, on account of slight variations due to tolerances in production, has a slightly greater width than the diameter of the bolt. This tightening of the bolt against the side 67a of the striker is also assisted by the action of the wedge block 70.

Due to the curvature of the control slot 32 in the locking member 30 the actuating pin 31 will shift the locking member a relatively short distance while the bolt travels in the guideway 67 from the position of Fig. 3 to the first locking position of Fig. 7 with the end 38 of the detent slidably engaged by the smooth non-toothed arcuate portion 30b of the locking lever. When, however, the bolt travels in the guideway 67 from the first locking position of Fig. 7 to the final locking position of Fig. 2, the pin 31 will shift the locking member 30 a greater distance. Thus, the locking member 30 will be shifted at a variable rate between unlatched and latching positions of the bolt as compared with the rate of travel of the bolt.

By locating the control pin 31 intermediate the fulcrum 29 of the locking lever and the lower edge thereof, the load exerted on the detent 36. such as when an attempt is made to force the door open, is considerably less than the load required to be sustained by the bolt. As the door is closed the locking pin 31 progressively moves toward the fulcrum 29 and in the final locking position is much closer to the fulcrum than the abutment 34. This gives the detent and the locking abutments an important mechanical advantage, such as a three to one or greater advantage, and hence only requires the detent and the locking abutments to sustain a load of from onethird to one-fourth the load sustained by the bolt 27 and control pin 31.

#### I claim:

1. In a latch mechanism for a swinging door, a support having a plate portion for disposition at the door jamb and having a flange extending from the inner edge of said plate portion, a pivotal latch device mounted on said plate portion, a locking member pivotally mounted on said plate portion to swing about an axis located at one side of the axis of pivotal movement of said latch device, said locking member extending across the face of said latch device, means connecting said locking member and latch device for correlated pivotal movements, the end of said locking member on the other side of said latch device axis having abutments thereon, detent means pivotally mounted on said plate portion and engageable with one of said abutments to hold said locking member against swinging movement thereby to hold said latch device in door latching position, a lever pivotally mounted on said plate portion, means manually operable from the outside of the door for swinging said lever. said detent means and said lever being mounted for movement about spaced axes, said lever havlocking lever with a minimum of frictional re- 75 ing a part arranged in opposing relation to a

part of said detent means to abut the same upon swinging movement of said lever to pivotally move said detent means out of engagement with said locking plate abutments, a blocking portion on said locking member, a blocking member mounted 5 for pivotal movement on said support and having blocking means for cooperation with said blocking portion, and manually operable means for moving said blocking member to dispose said blocking means in position to be engaged by said 10 blocking portion thereby to block said locking member and hold said latch device in latching position even if said lever is actuated to release the detent means from said locking member abut-

2. In a latch mechanism for a swinging door, a support having a plate portion for disposition at the door jamb and having a flange extending from the inner edge of said plate portion, a pivotal latch device mounted on said plate portion, 20 a locking plate pivotally mounted on said plate portion to swing about an axis located at one side of the axis of pivotal movement of said latch device, said locking plate extending across the face of said latch device, means connecting said 25 locking plate and latch device for correlated pivotal movements, the end of said locking plate on the other side of said latch device axis having abutments thereon, detent means pivotally to release the comounted on said plate portion and engageable 30 plate abutment. with one of said abutments to hold said locking plate against swinging movement thereby to hold said latch device in door latching position, a lever pivotally mounted on said plate portion, the door for swinging said lever, said detent means and said lever being mounted for movement about spaced axes, said lever having a part arranged in opposing relation to a part of said detent means to abut the same upon swinging 40 movement of said lever to pivotally move said detent means out of engagement with said locking plate abutment, a blocking portion on said locking plate, a member mounted for pivotal movement on said support and having blocking 45 means for cooperation with said blocking portion, and manually operable means for moving said member to dispose said blocking means in position to be engaged by said blocking portion thereby to block said locking plate and hold said 50 latch device in latching position even if said lever is actuated to release the detent means from said locking plate abutment, said locking plate having a portion thereof adapted to lie in the said latch device and said locking plate are in door unlatched position thereby to prevent movement of said blocking means into said blocking position.

3. In a latch mechanism for a swinging door, 60 a support having a plate portion for disposition at the door jamb and having a flange extending from the inner edge of said plate portion, a pivotal latch device mounted on said plate portion, a locking plate pivotally mounted on said plate portion to swing about an axis located at one side of the axis of pivotal movement of said latch device, said locking plate extending across the face of said latch device, pin and slot means connecting said locking plate and latch device for correlated pivotal movements, said pin and slot means lying between the axis of pivotal movement of said latch device and the axis of pivotal movement of said locking plate thereby causing said latch device and locking plate to 75 to release the detent means from said locking

pivot in opposite directions, said locking plate swinging toward said flange as said latch device moves from door latched to door unlatched position, the end of said locking plate on the other side of said latch device axis having abutments thereon, detent means pivotally mounted on said plate portion and engageable with one of said abutments to hold said locking plate against swinging movement thereby to hold said latch device in door latching position, a lever pivotally mounted on said plate portion, means manually operable from the outside of the door for swinging said lever, said detent means and said lever being pivotal about spaced axes, said lever having a part arranged in opposing relation to a part of said detent means to abut the same upon swinging movement of said lever to pivotally move said detent means out of engagement with said locking plate abutments, a blocking portion on said locking plate, a member mounted for pivotal movement on said flange and having blocking means for cooperation with said blocking portion, and manually operable means for moving said blocking portion to dispose said blocking means in position to be engaged by said blocking portion thereby to block said locking plate and hold said latch device in latching position even if said lever is actuated to release the detent means from said locking

4. In a latch mechanism for a swinging door, a support having a plate portion for disposition at the door jamb and having a flange extending from the inner edge of said plate portion, a means manually operable from the outside of 35 pivotal latch device mounted on said plate portion, a locking plate pivotally mounted on said plate portion to swing about an axis located at one side of the axis of pivotal movement of said latch device, said locking plate extending across the face of said latch device, pin and slot means connecting said locking plate and latch device for correlated pivotal movements, said pin and slot means lying between the axis of pivotal movement of said latch device and the axis of pivotal movement of said locking plate thereby causing said latch device and locking plate to pivot in opposite directions, said locking plate swinging toward said flange as said latch device moves from door latched to door unlatched position, the end of said locking plate on the other side of said latch device axis having abutments thereon, detent means pivotally mounted on said plate portion and engageable with one of said abutments to hold said locking plate against path of movement of said blocking means when 55 swinging movement thereby to hold said latch device in door latching position, a lever pivotally mounted on said plate portion, means manually operable from the outside of the door for swinging said lever, said detent means and said lever being pivotal about spaced axes, said lever having a part arranged in opposing relation to a part of said detent means to abut the same upon swinging movement of said lever to pivotally move said detent means out of engage-65 ment with said locking plate abutments, a blocking portion of said locking plate, a member mounted for pivotal movement on said flange and having blocking means for cooperation with said blocking portion, and manually operable 70 means for moving said blocking portion to dispose said blocking means in position to be engaged by said blocking portion thereby to block said locking plate and hold said latch device in latching position even if said lever is actuated plate abutment, said locking plate having a portion thereof adapted to lie in the path of movement of said blocking means when said latch device and said locking plate are in door unlatched position thereby to prevent movement 5 of said blocking means into said blocking position.

5. In a latch mechanism for a swinging door, a support having a plate portion for disposition at the door jamb and having a flange ex- 10 tending from the inner edge of said plate portion, a pivotal latch device mounted on said plate portion, a locking plate pivotally mounted on said plate portion to swing about an axis located at one side of the axis of pivotal move- 15 said latch device and locking member as well ment of said latch device, said locking plate extending across the face of said latch device, means connecting said locking plate and latch device for correlated pivotal movements, the end of said locking plate on the other side of 20 said latch device axis having abutments thereon, detent means pivotally mounted on said plate portion and engageable with one of said abutments to hold said locking plate against swinging movement thereby to hold said latch device 25 in door latching position, a lever pivotally mounted on said plate portion, means manually operable from the outside of the door for swinging said lever, said detent means and said lever being mounted for movement about spaced axes. 30 said lever having a part arranged in opposing relation to a part of said detent means to abut the same upon swinging movement of said lever to pivotally move said detent means out of engagement with said locking plate abutment, a 35 blocking portion on said locking plate, a member mounted for pivotal movement on said support and having blocking means for cooperation with said blocking portion, manually operable means for moving said member to dis- 40 pose said blocking means in position to be en-

gaged by said blocking portion thereby to block said locking plate and hold said latch device in latching position even if said lever is actuated to release the detent means from said locking plate abutment, said locking plate having a portion thereof adapted to lie in the path of movement of said blocking means when said latch device and said locking plate are in door unlatched position thereby to prevent movement of said blocking means into said blocking position, and spring means mounted on said plate portion having a portion in engagement with said lever and a second portion in engagement with said latch device and effective for retracting both as said lever.

JOHN H. ROETHEL.

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