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**DOOR LOCK**

John H. Roethel, Detroit, Mich.

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This invention relates to a latch mechanism for swinging doors, particularly the doors of automobile or other vehicle bodies, an object of the invention being to provide an improved door latch mechanism which is characterized by its simplicity and compactness in construction and which is economical to manufacture, comparatively quiet in operation and efficient in use.

In general, the improved door latch mechanism of the present invention comprises a rotary latch device, detent means for holding the rotary latch device in door latching position, means manually operable from the outside of the door for disengaging the detent means from the latch device, which manually operable means includes a detent release lever pivotally mounted on the case plate portion of the latch mechanism, means manually operable from the inside of the door for releasing the detent means from the latch device independently of the detent release lever, and means to prevent actuation of the detent release lever to prevent release of the latch mechanism from the outside of the door, which last mentioned means comprises a pivoted member or lever swingable into blocking position relative to the detent release lever thereby to render the means manually operable from the outside of the door inoperable to release the detent from the latch device.

It is an object of the present invention to provide an improved construction and arrangement of the detent means, the detent release lever, and the pivoted member for blocking the movement of the detent release lever, which improved construction and arrangement provides a highly positive blocking action by the pivoted member of the detent release lever when it is desired to render the means manually operable from the outside of the door inoperative.

It is a further object of the present invention to provide an improved construction and arrangement for swinging the pivoted member into and out of blocking position with respect to the detent release lever. In the illustrated embodiment of the invention, movement of the means manually operable from the inside of the door in a direction opposite to the direction in which said means is normally moved to disengage the detent means from the latch device results in a part of said manually operable means striking an extension of the pivoted member in such a manner as to swing the pivoted member into blocking relation to the detent release lever, thereby to prevent release of the latch mechanism from the outside of the door. Where desired, a key operated device operable from the outside of the door also may be provided to shift the pivoted member into and out of blocking position with respect to the detent release lever.

Restoration of the pivoted member to non-blocking position is accomplished from the inside of the door by movement of the means manually operable from the inside of the door in the direction said means is normally moved to disengage the detent means from the latch device. The detent means is provided with an extension which is adapted to lie in abutting relation to a part of

the pivoted blocking member when the latter has been shifted into blocking position relative to the detent release lever. Upon pivotal actuation of the detent means by the means manually operable from the inside of the door, the extension on the detent means during swinging movement of the latter will engage the part of said pivoted member and swing the pivoted member out of blocking relation to the detent release lever.

The construction and arrangement wherein the detent means extension is adapted to lie in abutting relation to a part of the pivoted blocking member is utilized to provide an automatic means for restoring the pivoted member to non-blocking position in the event that the pivoted member is placed in blocking position while the door is in an open position and the door is then closed. The construction and arrangement of the latch device and detent means is such that the detent means releasably restrains rotation of the rotary latch device in one direction of rotation only. When the latch device is rotated in the unrestrained direction of rotation, such as occurs when the latch device engages the keeper device as the door is moved from an open to a latched position, a portion of the latch device engages the detent means and pivotally moves the same in the same direction as moved when disengaged from the latch device by the manually operable means. Thus, if the pivoted member is placed in blocking position relative to the detent release lever when the door is in an open position, rotation of the latch device upon engagement with the keeper device as the door is moved to a closed position results in a pivotal movement of the detent means, and upon such pivotal movement the detent means extension engages the abutting part of the pivoted blocking member and thereby swings said member into non-blocking position and restores the effectiveness of the means manually operable from the outside of the door to release the detent means from the latch device.

Other objects, features, and advantages of this invention will be apparent from the following description and appended claims, 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 sectional elevation illustrating the parts of the latch mechanism mounted on the case plate of a door latch mechanism constructed in accordance with the present invention.

Fig. 2 is an end elevation of the mechanism shown in Fig. 1.

Fig. 3 is a section taken substantially through line 3—3 of Fig. 1 illustrating the mechanism mounted on the flange portion of the case plate.

Fig. 4 is a fragmentary elevation illustrating a portion of the mechanism shown in Fig. 1 displaced from the position as shown in Fig. 1.

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 it is to be understood that the phraseology or terminology employed therein is for the purpose of description and not of limitation.

In the drawings there is illustrated, by way of example, a certain embodiment of the present invention as applied to the door and door frame structures of an automobile body. The latch device constructed in accordance with the illustrated embodiment of the invention comprises a case plate 10 which is provided with screw bosses 10a which are adapted to receive screws for fastening the case plate to the inner side of the jamb portion or free edge

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wall of the vehicle door, the case plate 10 having a flange 11 which is adapted to be positioned along the inner panel of the door. The present latch device is provided with a rotatable toothed latch or bolt 12 positioned at the outer face of the case plate 10, this latch or bolt having an integral projecting stud shaft or pivot 13 extending through an aperture in the case plate which is formed as a bearing for the stud shaft. The inner end of the stud shaft 13 is flattened and extended through a correspondingly shaped aperture in a rotatable toothed detent engaging member or ratchet 14 and is riveted thereto. From the foregoing construction it will be seen that the toothed latch or bolt 12 is rigidly secured to the detent engaging member or ratchet 14, being concentric therewith on the stud 13.

The rotatable latch or bolt 12 is formed with a number of radially projecting toothlike projections 12a, such as six, which are spaced equally entirely around the periphery of the latch so as to provide in effect a gear type latch. The detent engaging member or ratchet 14 is formed around its periphery with a number of abutment shoulders 14a which correspond in number to the number of toothlike projections 12a. Thus, in the illustrated embodiment the latch 12 has, for example, six toothlike projections 12a and the detent engaging member 14 has six equally spaced detent engaging abutments or shoulders 14a.

Cooperable with the peripheral notched edge of the ratchet 14 is a swinging detent, pawl or dog 15 pivotally mounted on a shoulder rivet 16 secured to the case plate 10. The detent 15, as shown in Fig. 1, is a multi-arm member having one arm 17 extending in a substantially downward direction. The detent arm 17 is engageable with any one of the teeth 14a in the manner shown in Fig. 1 to hold the ratchet member and hence the bolt 12 in locking position against rotation in a counterclockwise direction. A second arm 18 of the detent member 15 extends in a substantially horizontal direction toward the flange 11 and a third arm 19 extends upwardly in a direction substantially opposite to the direction in which the arm 17 extends. The detent arm 17 has a further downwardly extending extension 20. The function of each of the arms 18 and 19 and the extension 20 will be explained as the description of the invention proceeds.

Associated with the detent is a vertically extending detent actuating or release lever 21 which is pivoted at its upper end upon a shoulder rivet or stud 22 secured to the upper portion of the case plate flange 10. The release lever 21 has a portion or projection 23 extending to a point intermediate the ends thereof, which portion is normally in abutting relation to a part of the detent arm 19. At its lower extremity the release lever 21 is formed with a flange 24 thereon, which flange is engageable by a means manually operable from the outside of the door, such as a push button 25, for imparting a pivotal or swinging movement to the release lever. As viewed in Fig. 1, when the detent release lever 21 is swung about its pivotal axis in a clockwise direction upon the push button 25 being moved inwardly, the portion 23 of the lever 21 will engage the arm 19 of the detent means 15 and swing the same in a counterclockwise direction about its pivot axis. Counterclockwise movement of the detent means 15 results in the detent arm 17 being swung out of engagement with the teeth or projections 14a of the ratchet 14, thereby permitting free rotation of the ratchet 14 and thus the latch bolt 12 in a counterclockwise direction.

A single coiled spring 26 is utilized to yieldingly urge the detent means 15 in a clockwise direction and the detent release lever 21 in a counterclockwise direction, or, in other words, to restore said detent means and release lever to a normal position after they have been swung to release the ratchet and rotary bolt. The spring 26 is anchored at its inner end to a kerf 27 in the stud 16 and has an upwardly extending arm 26a engageable with a lug 19a on the end of the detent arm 19. The spring 26 thus

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continuously urges the detent arm 19 and therefore the detent means 15 in a clockwise direction, as viewed in Fig. 1, about the pivot stud 16 so as to yieldingly hold the detent arm 17 in latching engagement with a tooth 14a of the ratchet 14. Due to the abutting relation of the detent arm 19 and the portion 23 of the detent release lever 21, the force of the spring 26 tending to urge the detent means in a clockwise direction is transmitted to the detent release lever 21 and urges the latter in a counter-clockwise direction about its pivot stud 22. The flanged end 24 of the lever arm is thus yieldingly urged outwardly so as to be maintained in the normal non-operating position shown in Fig. 1.

The detent release lever 21 is provided along its outer edge with a reinforcing rib or flange 28, which rib or flange terminates in a projecting edge 29 at the upper end of the release lever. An upstanding lug 30 is lanced from the surface of the case plate 10 in position to abut the edge 29 of the flange or rib 28 when the detent release lever 21 is in its normal non-operated position, as shown in Fig. 1. The lug 30 thus provides a stop to limit the outward swinging movement of the release lever 21 under the urging of the spring 26. The spring 26 in holding the release lever 21 against the stop 30 ensures that the parts will not rattle when not under pressure of the means manually operable from the outside of the door.

The present latch device is preferably operated from the inside of the door through the medium of a remote control mechanism comprising a longitudinally shiftable draft link 31 which is pivotally connected by a rivet 32 to the lower end of one arm 34 of a bell crank lever 33, see Fig. 3. The lever 33 is pivoted on a shoulder rivet 35 secured to the case plate flange 11 and is provided with a projecting arm 36 overlying at its inner end the detent arm 18. The remote control mechanism is preferably manually actuated from the inside of the door remote from the case plate 10 by means of a door handle (not shown) which may be turned in a desired direction.

In accordance with the embodiment of the invention herein illustrated, means is provided for restraining or blocking the detent release lever 21 against movement toward the flange 11 by the means manually operable from the outside of the door, such as the push button 25. The blocking means comprises a lever or member 37 pivoted intermediate its ends on a stud 38 secured to the case plate 10. As illustrated in Figs. 1 and 4, the pivot axis of the blocking lever 37 is located below the pivot axis of the ratchet 14 and the lever 37 extends in a substantially horizontal direction. At its outer end 39, the right end as viewed in Figs. 1 and 4, the blocking lever 37 is provided with a flange 40, a portion of which is adapted to lie in the path of swinging movement of the detent release lever 21 toward the flange 11 when the blocking lever 37 has been swung into blocking position as shown in Fig. 1. Since it is necessary that the detent release lever 21 be freely swingable toward the flange 11 in order for its portion 23 to engage the detent arm 19 to swing the detent means 15 out of engagement with the ratchet 14, the relationship of the flange 40 to the end or flange 24 of the detent release lever 21, as shown in Fig. 1, determines whether or not the means manually operable from the outside of the door, such as the push button 25, will be operative to release the detent means 15 from the ratchet 14.

When the blocking lever 37 is in the position shown in Fig. 1, its flange 40 will effectively block the movement of the detent release lever 21 toward the flange 11 necessary to cause disengagement of the detent means 15 from the ratchet 14. In Fig. 4, the blocking lever 37 is shown in a position in which its flange 40 is out of the path of movement toward the flange 11 of the detent release lever 21.

When the parts of the latch mechanism are in the relationship shown in Fig. 1, the latch mechanism is considered to be "locked," i. e., the means manually operable

from the outside of the door is incapable of releasing the detent means 15 from the ratchet 14. Conversely, when the parts of the latch mechanism are in the relationship shown in Fig. 4, the latch mechanism is considered "unlocked," i. e., the means manually operable from the outside of the door is capable of releasing the detent means 15 from the ratchet 14.

The bell crank lever 33 of the remote control mechanism which is actuable from the inside of the door for releasing the detent means 15 from the ratchet 14 also comprises a part of a means for shifting the blocking lever 37 into or out of blocking position relative to the detent release lever 21. The construction and arrangement through which the bell crank lever 33 is utilized to shift the blocking lever 37 into blocking position is as follows: The inner end 41 of the blocking lever 37 extends toward the portion of the flange 11 on which the bell crank lever 33 is mounted and is provided at its extremity with an angular projection 42 which extends in a plane substantially parallel to the plane of swinging movement of the bell crank lever arm 34. The bell crank lever arm 34 is provided at its lower end with a cam surface 43 adapted to engage the angularly inclined edge 44 of the projection 42 when the latter is in the dotted outline position shown in Fig. 3. The projection 42 occupies the dotted outline position shown in Fig. 3 when the blocking lever 37 is in non-blocking position relative to the detent release lever 21, as shown in Fig. 4. Thus, when the handle (not shown) on the inside of the door is turned in a direction to swing the bell crank lever arm 34 toward the case plate 10, the cam surface 43 will engage the angularly inclined edge 44 of the projection 42 and cause the blocking lever 37 to swing about its pivot axis from its non-blocking position shown in Fig. 4 to its blocking position as shown in Fig. 1.

To restore the blocking lever 37 to non-blocking position it is only necessary that the inside door handle be turned in the direction it is normally turned to disengage the detent means 15 from the ratchet 14. It will be noted with reference to Fig. 1 that the blocking lever 37 has an upwardly extending finger or projection 45 located intermediate the pivot axis and the flange 40 thereof. The finger or projection 45 is adapted to lie in abutting relation to the extension 20 of the detent arm 17 when the blocking lever 37 is in blocking relation to the detent release lever 21. Thus, when the bell crank lever arm 35 is swung downwardly into engagement with the detent arm 18 thereby swinging the detent means 15 in a counterclockwise direction as viewed in Fig. 1, the extension 20 of the detent arm 17 will engage the finger 45 of the blocking lever 37 causing the latter to swing from its blocking position to its non-blocking position.

A toggle spring 46 having one end hooked into an aperture in the inner end 41 of the blocking lever 37 and its other end hooked in an aperture in the case plate 10 is provided to yieldingly urge and hold the blocking lever 37 toward each end of its range of movement. A lug 47 lanced out of the surface of the case plate 10 provides a stop which determines the final position of the blocking lever 37 in its non-blocking position while the abutting relation of the extension 20 of the detent arm 17 to the upper edge of the blocking lever 37 determines the final position of the latter when in blocking position.

An illustrative means for swinging the blocking lever 37 through a key controlled device operable from the outside of the door comprises a pin or projection 48 mounted on the rotary cylinder of a conventional key cylinder mechanism generally designated 49. The pin 48 is swingable eccentrically of the axis of rotation of the rotary cylinder of the key cylinder mechanism 49 and projects through an aperture 50 in the flange 40 of the blocking lever 37. When the rotary cylinder of the key cylinder mechanism 49 is turned as a result of turning movement exerted on a key inserted in the key cylinder mechanism, the pin 48 will be swung and upon engage-

ment thereof with either the upper or lower edge of the aperture 50 will cause the blocking lever 37 to be swung into or out of blocking position with respect to the detent release lever 21, as the case may be. As illustrated, the pin 48 is adapted to be returned to a neutral position between the upper and lower edges of the aperture to permit withdrawal of the key from the key cylinder mechanism.

It will be noted, with particular reference to Fig. 1, that if the ratchet 14 is rotated in a clockwise direction, as occurs when the latch bolt engages a keeper device as the door is moved from an open to a closed position, the detent arm 17 will be engaged by the ratchet abutments 14a and will be swung in the same direction it is swung by the means manually operable from either the inside or outside of the door when the latter are operated to release the latch mechanism. The foregoing pivotal movement of the detent means is utilized to provide an automatic restoration of the blocking lever 37 to non-blocking position in the event that it has been shifted to blocking position while the door is in an open position and the door is then moved to a latched or closed position. The finger or projection 45 on the blocking lever 37 will always be in abutting relation to the extension 20 of the detent arm 17 whenever the blocking lever 37 is in blocking relation to the detent release lever 21. The pivotal movement of the detent means 15 caused by the rotation of the ratchet 14 as the door is moved to a latched or closed position will cause the detent arm extension 20 to strike the projection 45 and thereby swing the blocking lever to non-blocking position. The foregoing construction thus provides a means wherein the parts of the latch mechanism, if inadvertently placed in locked condition when the door is open, are automatically restored to unlocked condition when the door is moved to a latched or closed position.

I claim:

1. In a latch mechanism for a swinging door, a support having a plate portion for disposition at the free edge wall of the door and having a flange extending from the inner edge thereof, a latch device pivotally mounted on said plate portion having a peripheral series of tooth-like abutments, detent means pivotally mounted on said plate portion and engageable successively with said abutments for holding said latch device in door latching position, outer manually operable means including a vertically extending lever pivotally mounted on said plate portion for pivotally actuating said detent means thereby to disengage the latter from said latch device, said lever having an arm portion extending below the pivot axis of said latch device, a member mounted for swinging movement on said support, and inner manually operable means for swinging said member into a position in which a blocking portion thereof will abut said arm portion and block swinging movement of said lever thereby to render said outer manually operable means ineffective to effect disengagement of said detent means, said swingable member having a part movable into the path of swinging movement of a part of said detent means when said blocking portion is disposed in blocking relation to said lever, said detent means part being engageable with said swingable member to shift its said blocking portion out of blocking position upon pivotal movement of the detent means independently of actuation thereof by said outer manually operable means.

2. In a latch mechanism for a swinging door, a support having a plate portion for disposition at the free edge wall of the door and having a flange extending from the inner edge thereof, a latch device pivotally mounted on said plate portion having a peripheral series of tooth-like abutments, detent means pivotally mounted on said plate portion and engageable successively with said abutments for holding said latch device in door latching position, outer manually operable means including a vertically extending lever pivotally mounted on said plate portion

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for pivotally actuating said detent means thereby to disengage the latter from said latch device, said lever having an arm portion extending below the pivot axis of said latch device, a member mounted for swinging movement on said support, and inner manually operable means movable in one direction for swinging said member into a position in which a blocking portion thereof will abut said arm portion and block pivotal movement of said lever thereby to render said outer manually operable means ineffective to effect disengagement of said detent means, said swingable member having a part movable into the path of swinging movement of a part of said detent means when said blocking portion is disposed in blocking relation to said lever, said inner manually operable means being movable in the opposite direction for pivotally actuating said detent means to cause said part thereof to engage said swingable member part and thereby shift said blocking portion out of blocking position.

3. In a latch mechanism for a swinging door, a support having a plate portion for disposition at the free edge wall of the door and having a flange extending from the inner edge thereof, a latch device pivotally mounted on said plate portion having a peripheral series of tooth-like abutments, detent means pivotally mounted on said plate portion and engageable successively with said abutments for holding said latch device in door latching position, outer manually operable means including a vertically extending lever pivotally mounted on said plate portion for pivotally actuating said detent means thereby to disengage the latter from said latch device, said lever having an arm portion extending below the pivot axis of said latch device, a member mounted for swinging movement on said support, and inner manually operable means for swinging said member into a position in which a blocking portion thereof will abut said arm portion and block swinging movement of said lever thereby to render said outer manually operable means ineffective to effect disengagement of said detent means, said swingable member having a part movable into the path of swinging movement of a part of said detent means when said blocking portion is disposed in blocking relation to said lever, said detent means part being engageable with said member to shift said blocking portion out of blocking position upon pivotal movement of the detent means independently of actuation thereof by said outer manually operable means, said independent pivotal movement of the detent means being caused by said latch device abutments striking said detent means upon rotation of the latch device by engagement with a keeper device as the door is moved to a closed position.

4. In a latch mechanism for a swinging door, a support having a plate portion for disposition at the free edge wall of the door and having a flange extending from the inner edge thereof, a latch device pivotally mounted on said plate portion having a peripheral series of tooth-like abutments, detent means pivotally mounted on said plate portion having an arm engageable with any one of said abutments for holding said latch device against rotation in one direction, outer manually operable means including a lever pivotally mounted on said plate portion for pivotally actuating said detent means to disengage said arm from said latch device, a member mounted for swinging movement on said support, a bell crank lever pivotally mounted on said flange, and inner manually operable means for swinging said bell crank lever in one direction to cause a part thereof to engage a part of said member to swing the latter into a position in which a portion thereof will block pivotal movement of said first mentioned lever thereby to render said outer manually operable means ineffective to effect disengagement of said detent means, said swingable member having a part movable into the path of swinging movement of a part of said arm when said member portion is disposed in blocking relation to said lever, said part of said arm being engageable with said member part to shift said swingable

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member portion out of blocking position upon movement of the detent means independently of actuation by said outer manually operable means.

5. In a latch mechanism for a swinging door, a support having a plate portion for disposition at the free edge wall of the door and having a flange extending from the inner edge thereof, a latch device pivotally mounted on said plate portion having a peripheral series of tooth-like abutments, a multi-arm detent means pivotally mounted on said plate portion, one arm being engageable with any one of said abutments for holding said latch device against rotation in one direction, and a second arm extending toward said flange, outer manually operable means including a lever pivotally mounted on said plate portion for pivotally actuating said detent means to disengage said one arm from said latch device, a member mounted for swinging movement on said support, a bell crank lever pivotally mounted on said flange, and inner manually operable means for swinging said bell crank lever in one direction to cause a part thereof to engage a part of said member to swing the latter into a position in which a portion thereof will block pivotal movement of said first mentioned lever thereby to render said outer manually operable means ineffective to effect disengagement of said detent means, said swingable member having a part movable into the path of swinging movement of a part of said on arm when said member portion is disposed in blocking relation to said lever, said inner manually operable means being adapted to swing said bell crank lever in the opposite direction to engage said second arm to swing said detent means to cause said part of said one arm to abut said swingable member part and shift said swingable member out of blocking position.

6. In a latch mechanism for a swinging door, a support having a plate portion for disposition at the free edge wall of the door and having a flange extending from the inner edge thereof, a latch device pivotally mounted on said plate portion having a peripheral series of tooth-like abutments, a multi-arm detent means pivotally mounted on said plate portion having an arm engageable with any one of said abutments for holding said latch device against rotation in one direction, outer manually operable means including a lever pivotally mounted on said plate portion for pivotally actuating said detent means to disengage said one arm from said latch device, a member pivotally mounted intermediate its ends on said plate portion and having a blocking portion on one of its ends, a bell crank lever pivotally mounted on said flange, and inner manually operable means for swinging said bell crank lever in one direction to cause a part thereof to engage the other end of said swingable member to swing the latter to position said blocking portion in blocking relation to said first mentioned lever thereby to render said outer manually operable means ineffective to effect disengagement of said detent means, said swingable member having a part movable into the path of swinging movement of a part of said arm when said blocking portion is disposed in blocking relation to said lever, said part of said arm being engageable with said member part to shift said blocking portion out of said blocking position upon movement of the detent means independently of actuation by said outer manually operable means.

7. In a latch mechanism for a swinging door, a support having a plate portion for disposition at the free edge wall of the door and having a flange extending from the inner edge thereof, a latch device pivotally mounted on said plate portion having a peripheral series of tooth-like abutments, a multi-arm detent means pivotally mounted on said plate portion, one arm being engageable with any one of said abutments for holding said latch device against rotation in one direction and a second arm extending toward said flange, outer manually operable means including a lever pivotally mounted on said plate portion for pivotally actuating said detent means to disengage said one arm from said latch device, a member

pivotally mounted intermediate its ends on said plate portion and having a blocking portion on one of its ends, a bell crank lever pivotally mounted on said flange, and inner manually operable means for swinging said bell crank lever in one direction to cause a part thereof to engage the other end of said swingable member to swing the latter to position said blocking portion in blocking relation to said first mentioned lever thereby to render said outer manually operable means ineffective to effect disengagement of said detent means, said swingable member having a part movable into the path of swinging movement of a part of said one arm when said blocking portion is disposed in blocking relation to said lever, said inner manually operable means being adapted to swing said bell crank lever in the opposite direction to engage said second arm and swing said detent means to cause said part of said one arm to abut said swingable member part and shift said swingable member out of blocking position.

8. In a latch mechanism for a swinging door, a support having a plate portion for disposition at the free edge wall of the door and having a flange extending from the inner edge thereof, a latch device pivotally mounted on said plate portion having a peripheral series of tooth-like abutments, detent means pivotally mounted on said plate portion having an arm engageable with any one of said abutments for holding said latch device against rotation in one direction, outer manually operable means including a lever pivotally mounted on said plate portion and swingable toward said flange for pivotally actuating said detent means to disengage said arm from said latch device, a member mounted for swinging movement on said plate portion, a bell crank lever pivotally mounted on said flange, and inner manually operable means for swinging said bell crank lever in one direction to cause a part of said lever to engage a part of said member to swing the latter into a position in which a portion thereof will block pivotal movement of said first mentioned lever toward said flange thereby to render said outer manually operable means ineffective to effect disengagement of said detent means, said swingable member having a part movable into the path of swinging movement of a part of said arm when said member portion is disposed in blocking relation to said lever, said part of said arm being engageable with said member part to shift said swingable member portion out of said blocking position upon movement of the detent means independently of actuation by said outer manually operable means.

9. In a latch mechanism for a swinging door, a support having a plate portion for disposition at the free edge wall of the door and having a flange extending from the inner edge thereof, a latch device pivotally mounted on said plate portion having a peripheral series of tooth-like abutments, a multi-arm detent means pivotally mounted on said plate portion, one arm engageable with any one of said abutments for holding said latch device against rotation in one direction and a second arm extending toward said flange, outer manually operable means including a lever pivotally mounted on said plate portion and swingable toward said flange for pivotally actuating said detent means to disengage said one arm from said latch device, a member pivotally mounted intermediate its ends on said plate portion and having a blocking portion on one of its ends, a bell crank lever pivotally mounted on said flange, and inner manually operable means for swinging said bell crank lever in one direction to cause a part thereof to engage the other end of said swingable member to swing the latter to position said blocking portion into a position in which it will block pivotal movement of said first mentioned lever toward said flange thereby to render said outer manually operable means ineffective to effect disengagement of said detent means, said swingable member having a part movable into the path of swinging movement of a part of said one arm when said blocking portion is disposed in blocking rela-

tion to said lever, said inner manually operable means being adapted to swing said bell crank lever in the opposite direction to engage said second arm to swing said detent means to cause said part of said one arm to abut said swingable member part and shift said swingable member out of blocking position.

10. In a latch mechanism for a swinging door, a support having a plate portion for disposition at the free edge wall of the door and having a flange extending from the inner edge thereof, a latch device pivotally mounted on said plate portion having a peripheral series of tooth-like abutments, a movable detent means mounted on said plate portion, said detent means having a plurality of projections thereon, one projection being engageable with any one of said abutments for holding said latch device against rotation in one direction, outer manually operable means including a detent means actuator mounted on said plate portion and having a part thereof engageable with a second projection on said detent means for actuating the same to disengage said one projection from the latch device, a generally horizontally extending member mounted for swinging movement on said support, lever means pivotally mounted on said support, and inner manually operable means for swinging said lever means in one direction to cause a part thereof to engage a part of said member to swing the latter into a position in which a portion thereof will block movement of said detent means actuator thereby to render said outer manually operable means ineffective to effect disengagement of said detent means from said latch device, said swingable member having a part movable into abutting relation to another projection on said detent means when said member portion is disposed in blocking relation to said detent means actuator, said last mentioned projection being engageable with said member part to shift said swingable member portion out of blocking position upon movement of the detent means independently of actuation by said outer manually operable means.

11. In a latch mechanism for a swinging door, a support having a plate portion for disposition at the free edge wall of the door and having a flange extending from the inner edge thereof, a latch device pivotally mounted on said plate portion having a peripheral series of tooth-like abutments, a movable detent means mounted on said plate portion, said detent means having a plurality of projections thereon, one projection being engageable with any one of said abutments for holding said latch device against rotation in one direction, outer manually operable means including a vertically extending lever pivotally mounted on said plate portion and having a part thereof engageable with a second projection on said detent means for actuating the same to disengage said one projection from the latch device, said lever having an arm portion extending below the pivot axis of said latch device, a generally horizontally extending member mounted for swinging movement on said plate portion, a bell crank lever means pivotally mounted on said flange, and inner manually operable means for swinging said bell crank lever means in one direction to cause a part thereof to engage a part of said member to swing the latter into a position in which a portion thereof will block movement of said detent means actuator thereby to render said outer manually operable means ineffective to effect disengagement of said detent means from said latch device, said swingable member having a part movable into abutting relation to another projection on said detent means when said member portion is disposed in blocking relation to said detent means actuator, said last mentioned projection being engageable with said member part to shift said swingable member portion out of blocking position upon movement of the detent means independently of actuation by said outer manually operable means.

12. In a latch mechanism for a swinging door, a support having a plate portion for disposition at the free edge wall of the door and having a flange extending from the

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inner edge thereof, a latch device pivotally mounted on said plate portion having a peripheral series of tooth-like abutments, a movable detent means mounted on said plate portion, said detent means having a plurality of projections thereon, one projection being engageable with any one of said abutments for holding said latch device against rotation in one direction, outer manually operable means including a detent means actuator mounted on said plate portion and having a part thereof engageable with a second projection on said detent means for actuating the same to disengage said one projection from the latch device, said detent means actuator having a blocking portion located below the pivot axis of said latch device, said detent means having a third projection extending toward said flange, a generally horizontally extending member mounted for swinging movement on said plate portion below the pivot axis of said latch device, a bell crank lever means pivotally mounted on said flange, and inner manually operable means for swinging said bell crank lever means in one direction to cause a part thereof to engage

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a part of said member to swing the latter into a position in which a blocking means thereon will engage said blocking portion and block movement of said detent means actuator thereby to render said outer manually operable means ineffective to effect disengagement of said detent means from said latch device, said swingable member having a part movable into abutting relation to a fourth projection on said detent means when said member portion is disposed in blocking relation to said lever, said inner manually operable means being adapted to swing said bell crank lever in the opposite direction to engage said third projection to move said detent means to cause said fourth projection to abut said swingable member part and shift said swingable member out of blocking position.

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