Dec. 25, 1951 F. McCONNELL 2,580,237

LATCH

Filed May 8, 1947 2 SHEETS—SHEET 1

FIG. 1.

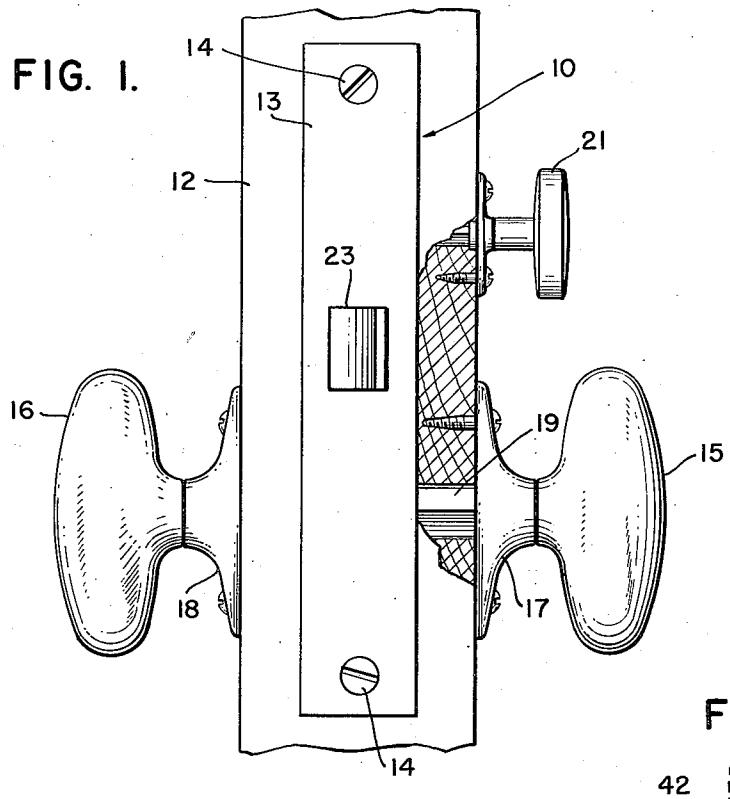


FIG. 2.

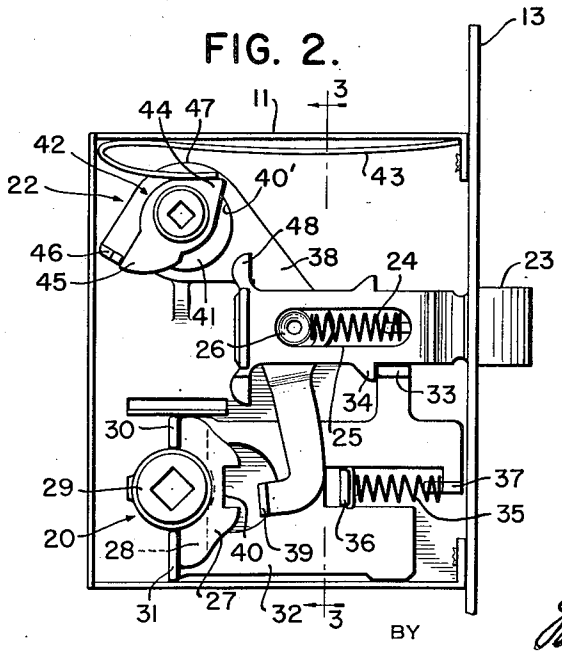
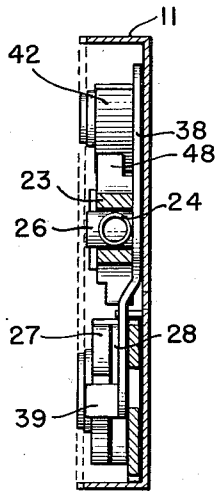


FIG. 3.



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FIG. 4.

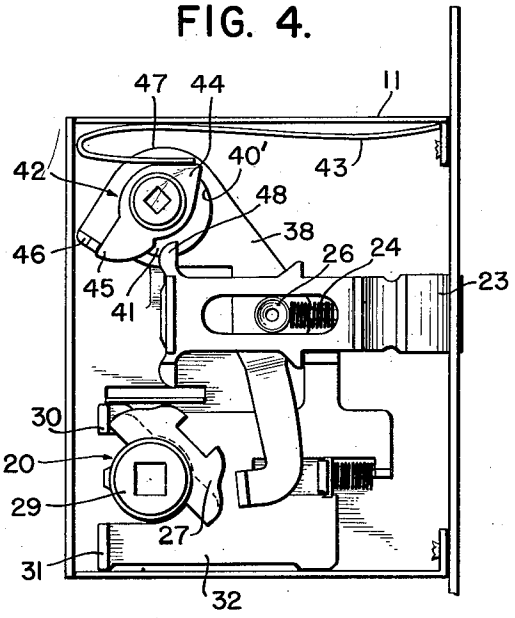


FIG. 5.

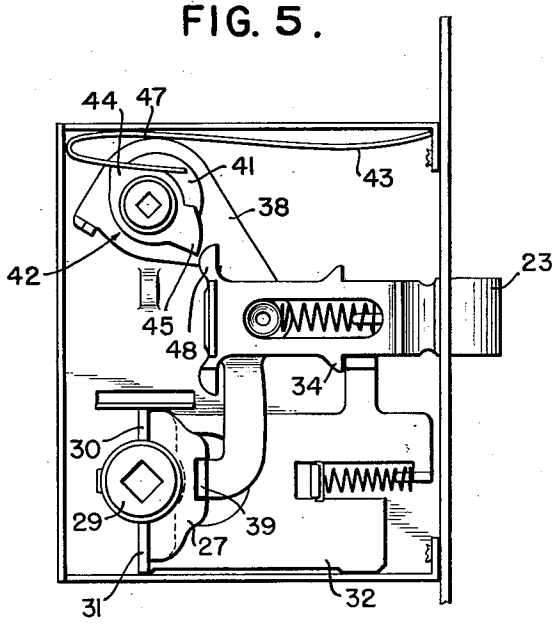
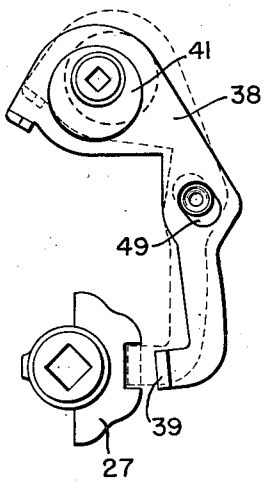


FIG. 6.



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UNITED STATES PATENT OFFICE

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LATCH

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5 Claims. (Cl. 292—169)

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My invention relates to latching devices and in particular to those which are adaptable to a door or the like.

It is an object of my invention to provide an improved device of the character indicated.

It is another object to provide an improved dogging mechanism for a latch device of the character indicated.

It is a general object to provide a simple, less expensive, and more reliable construction for a latching device of the character indicated.

Other objects and various further features of the invention will be pointed out or will occur to those skilled in the art from a reading of the following specification in conjunction with the drawings included herewith. In said drawings:

Fig. 1 is an end view of a latching device according to the invention, shown in assembled position on a door;

Fig. 2 is a side view of the latch of Fig. 1, shown with the cover for the latch case removed;

Fig. 3 is a sectional view taken substantially in the plane 3—3 of Fig. 2;

Fig. 4 is a view similar to Fig. 2, but with parts in a different relationship to illustrate functioning according to the invention;

Fig. 5 is another side view similar to Figs. 2 and 4 and illustrating still another relationship of parts; and

Fig. 6 is a simplified side view of parts of the latch of Fig. 1.

Briefly stated, my invention contemplates an improved dogging mechanism for a latch-actuating means. The dogging mechanism in a preferred form comprises a pivoted lever having a dog and a cam-actuated part. In the form to be described, the dog is at one end of the lever, the pivot is centrally located, and the cam-actuating means is an eccentric engaging a circular opening at the other end of the lever. Other features of the invention include resilient means for maintaining the eccentric mechanism in one of two selected positions and for disengaging the dog upon strike-plate actuation of the latch bolt.

Referring to the drawings, my invention is shown in application to a latch mechanism 10 contained within a generally rectangular latch case 11, to be inserted within a suitable opening in the door 12. The front of the latch case may comprise a plate 13 having projecting ends which may be secured by screws 14 into the door 12. Knobs 15—16 may be journalled in rosettes 17—18 mounted on opposite sides of the door 12 and each knob may be secured to a spindle 19 which in turn may engage a part of the

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latch-actuating mechanism 20. A further knob 21 may be mounted on one side of the door 12 to actuate a part of the dogging mechanism 22 for dogging the latch-actuation mechanism 20. A latch bolt 23 may slidably project beyond the latch front or plate 13 and be resiliently urged in the extended position shown in Fig. 2, as by means of a spring 24. In the form shown, the latch bolt 23 is formed with an elongated central opening 25, the walls of which may serve as guides in their engagement with a stud or boss 26 carried by the latch case 11. The spring 24 is shown compressibly engaging the boss 26 so that the extended position of the latch bolt 23 is determined by abutment of the boss 26 with the back end of the opening 25.

In the form shown, the latch-actuating mechanism 20 comprises a roll-back having two parts 27—28, both of which include hubs such as the hub 29. If desired, each of these hubs 29 may be engaged by a separate spindle 19 so that one of the knobs, say the knob 15, may control the roll-back part 28, while the other of the knobs 16 may control the roll-back element 27. In the form shown, no matter which of the knobs 15—16 is actuated, the generally radial projections of either one of the roll-back elements 27—28 may engage one of two lugs 30—31 formed in the end of a latch plate 32 (see Fig. 4). The latch plate 32 may be longitudinally slidable to actuate the latch bolt 23, as by means of a dog or lug 33 which may abut a projection 34 on the latch bolt 23. The latch plate 32 is preferably always resiliently urged to the right (in the sense of Fig. 2), as by means of a compression spring 35 between a stop or abutment 36 on the latch case and an upturned projection or lug 37 on the latch plate. The rightward motion of the plate 32 will be understood to be limited by abutment of the roll-back-engaging lugs 30—31 with the roll-back elements 27—28.

In accordance with a feature of the invention, I provide a novel dog mechanism for selectably locking, and thus disabling, the roll-back mechanism 20. In a preferred form this dogging mechanism comprises essentially a dogging lever or plate 38 having at one end a dog 39 to engage a dog-receiving recess 40 formed in the roll-back element 27 for the outside knob 16. The dogging plate 38 may be pivotally supported, as by slotted engagement with the boss 26 which, it will be recalled, is carried by the latch case 11. The other end of the dogging lever or plate 38 may be formed with an opening 40', which may be oval or even an open fork but which in the

form shown is circular so as to embrace cam means in the form of an eccentric surface 41. The eccentric 41 may be integral with the actuating element 42 of the dogging mechanism 22. It will be clear that upon a rotation of the dogging control knob 21 the actuating member 42 may be rotatably displaced from, say, the position shown in Fig. 1 to the position shown in Fig. 5. This displacement causes a corresponding displacement of the eccentric 41 with a result that the dogging lever or plate 38 may be shifted from the solid-line position of Fig. 6 to the dotted-line relationship of Fig. 6. In the latter position it will be seen that the dog 39 is in engagement with the roll-back element 27, in which position the roll-back element 27 will be understood to be effectively disabled so that latch operation by way of the knob 16 may be completely prevented.

In accordance with a feature of the invention, resilient means such as a spring 43 may compressibly abut a part of the latch case 11 and a projection 44 formed on the dog-actuating element 42. The spring 43 preferably engages one side of the projection 44 for a first adjusted relationship of parts (as in Fig. 2) and the other side of the projection 44 for another adjusted position of the member 42 (as in Fig. 5). The projection 44 cooperating with the spring 43 thus performs the function of a snap action means or detent resiliently holding one of two adjusted positions of the member 42.

To prevent inadvertent twisting of the dog-control knob 21 in the wrong direction, abutment means may be provided to engage the dog-control element 42. In the form shown, the element 42 carries a projection 45 to engage a lug 46 formed as an upturned portion of lever 38. The other limiting position (as in Fig. 5) of the actuating member 42 may be determined by abutment of a part 47 of lever 38 with the inside of the latch case, as when further rotation (counterclockwise in the sense of Fig. 5) of member 42 causes the eccentric 41 to attempt to raise part 47 further than the position shown in Fig. 5.

In accordance with still another feature of the invention, the dogging mechanism 22 may be disabled upon a depression of the latch bolt 23, as when the bolt 23 engages a strike plate upon a closure of the door 12. This function may be accomplished by abutment means cooperating between the latch bolt 23 and the actuating member 42 and tending to rotate member 42 clockwise. In the form shown, the inner end of the latch bolt may carry a projection 48 which may engage the projection 45 on the dog-actuating member 42. It will be clear from an inspection of Fig. 5 that even though the dogging mechanism 22 be in locked position, that is, with the dog 39 engaging the roll-back element 37, the projections 48—45 may be forcibly engaged when the latch bolt 23 itself is resiliently depressed as by a strike plate. This abutment may provide a clockwise turning moment sufficient to overcome the holding force of spring 43 and to displace the actuating member 42 to a position in which it may be resiliently thrown into the Fig. 2 relationship of parts. The dog 39 will then be understood to be disengaged from the roll-back mechanism 20, so that operation of door 12 by means of either knob 15—16 is again possible.

It will be appreciated that I have described a relatively simple mechanism for dogging a latch-actuating mechanism. The improved dogging construction may be fabricated of a single stamping of sheet material and yet may be completely positive in its action. Although the pivot of the dogging lever or plate 38 has been described as a slotted engagement as at 49, it will be understood that this arrangement was dictated by the nature of the eccentric construction for actuating the dogging lever 38.

While I have described my invention in detail for the preferred form shown, it will be understood that modifications may be made within the scope of the invention as defined in the appended claims.

I claim:

1. In a lock, a latch case, a latch bolt, actuating means for said latch bolt, and dogging means for locking said actuating means, said dogging means including a lever having an eccentric-engaging opening at one end and a central pivoted portion, an eccentric member journalled in said latch case and having an eccentric portion engaging the opening of said lever, abutment means cooperating between said eccentric member and said lever for determining a limiting rotary displacement of said eccentric member, and further abutment means cooperating between said latch bolt and said eccentric member when said eccentric member is in a position rotatably displaced from engagement with said first abutment means, whereby a forcible direct actuation of said latch bolt as by a strike plate may serve to actuate said eccentric member and said dogging lever.

2. In a lock, a latch case, a latch bolt, actuating means including a roll-back having a dog-engaging means, a lever having a dog to engage said dog-engaging means and pivotally supported by said latch case, said lever having an eccentric-engaging opening, an eccentric member journalled in said latch case and including an eccentric to engage said opening.

3. In a lock, a latch case, a latch bolt, actuating means including a roll-back having a dog-engaging means, a lever having a dog to engage said dog-engaging means and pivotally supported by said latch case, said lever having an eccentric-engaging opening, an eccentric member journalled in said latch case and including an eccentric to engage said opening, abutment means engaging said eccentric member to determine a first limiting rotary position thereof, said dog being out of engagement with said roll-back when said abutment is in near engagement with said eccentric member, and further abutment means cooperating between said latch bolt and said eccentric member in a second position of said eccentric member, said dog engaging said roll-back for said second position of said eccentric member.

4. A device according to claim 3, in which said roll-back includes two parts, one of which has said dog-engaging means, whereby said dogging mechanism may be effective to lock said latch bolt against actuation when one of said roll-back elements is rotated, and whereby said dog may be ineffective to lock said latch bolt when the other of said roll-back elements is rotated.

5. In a device of the character indicated, a latch bolt, actuating means for said latch bolt, dogging means for said actuating means, said dogging means including a single lever doggingly engageable with said actuating means, eccentric actuating means for moving said lever into and out of engagement with said actuating means, and throw-off means for said dogging means and including an abutment on said latch bolt in actuating relation with said eccentric actuating

means when said eccentric actuating means has been actuated to move said lever to dogging position.

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