Feb. 13, 1940. R. E. OTT 2,190,080

DOOR LATCH

Filed Feb. 19, 1938

FIG. 1.

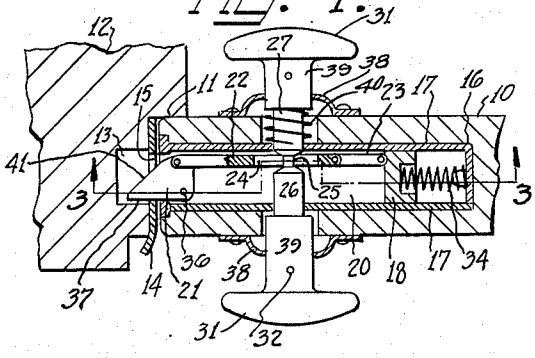


FIG. 2.

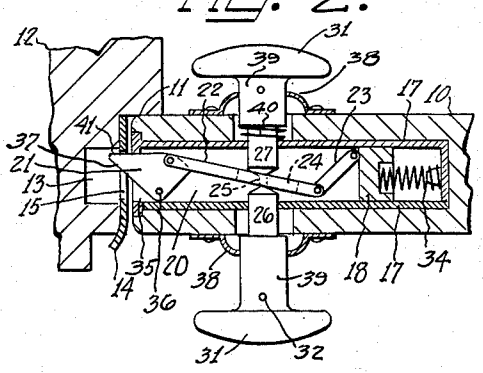


FIG. 3.

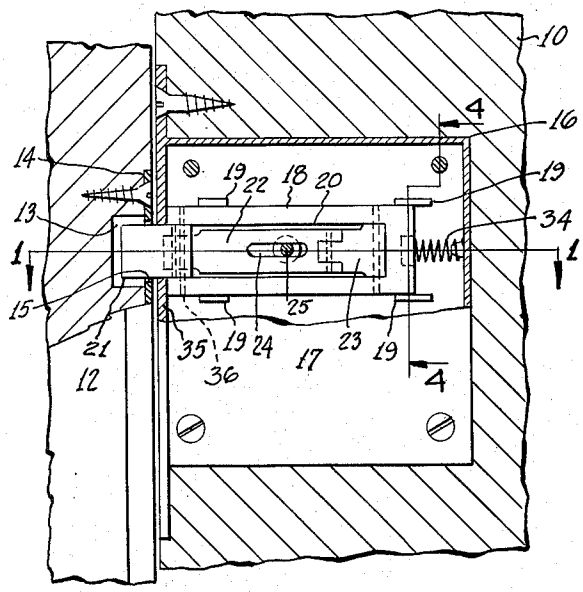


FIG. 4.

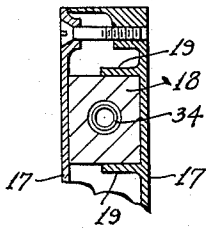


FIG. 6.

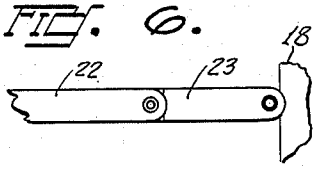
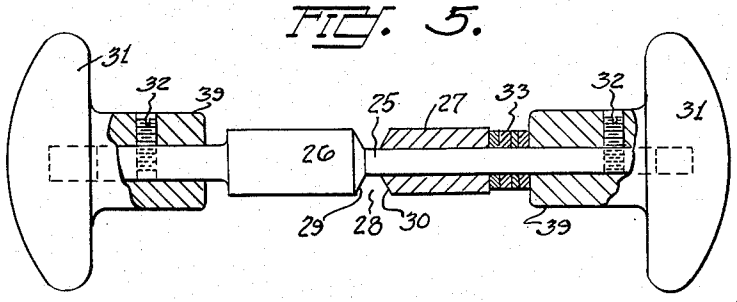


FIG. 5.



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DOOR LATCH

Roland E. Ott, Portland, Oreg.

Application February 19, 1938, Serial No. 191,444

3 Claims. (Cl. 292—192)

This invention relates generally to door hardware, and particularly to latches for doors.

The main object of this invention is the construction of an exceedingly simple and efficient form of latch which can be operated by a sliding knob instead of the usual turning knob.

The second object is the construction of a door latch which will be easy to manufacture and install and easy to operate.

I accomplish these and other objects in the manner set forth in the following specification as illustrated in the accompanying drawing, in which:

Fig. 1 is a longitudinal section taken along the line 1—1 in Fig. 3 showing the parts in a latched position.

Fig. 2 is a view similar to Fig. 1 showing the parts in an unlatched position.

Fig. 3 is a section taken along the line 3—3 in Fig. 1.

Fig. 4 is a fragmentary section taken along the line 4—4 in Fig. 3.

Fig. 5 is an enlarged section through the operating parts.

Fig. 6 is a fragmentary section showing the construction of the joints on the operating levers.

Similar numerals refer to similar parts throughout the several views.

Referring in detail to the drawing, there is shown the portion of a door 10 which is adapted to close against the stop 11 of the frame 12 which is provided with a recess 13 across which is secured the striker plate 14 whose hole 15 registers with the recess 13.

The latch itself is embodied within the casing 16 between whose sides 17 is slidably mounted the reciprocating carrier bolt 18 which is held in position between the ears 19. The bolt 18 is provided with a longitudinal slot 20 within which is mounted the rockable cam faced latch 21 and the toggle levers 22 and 23, the former of which is provided with a slot 24 through which projects the stem 25 of the latch operating member 26.

A sleeve 27 is mounted on the stem 25 in a manner to allow a space 28 to exist between the members 26 and 27. The adjacent edges 29 and 30 of the members 26 and 27 are bevelled slightly as shown.

A knob 31 is secured to opposite ends of the stem 25 by means of the set screws 32. Spacing washers 33 are placed in the stem 25 between the sleeve 27 and its adjacent knob 31. A spring 34 serves to urge the bolt 18 toward the front 35 of the latch casing 16.

The latch 21 is in the form of a bell crank lever and it pivoted on the pin 36 near its latching face 37, whereas the toggle lever 22 is hinged to the latch 21 and also to the toggle lever 23. A circular plate 38 surrounds the shank 39 of each knob 31 and serves as a guide therefor. A spring 40 is interposed between the shank 39 and the adjacent side 17.

The operation of the device is as follows:

When the parts are in the position shown in Fig. 1 the toggle levers 22 and 23 are in a straight line position, that is, the face 37 of the latch 21 is held normal to the striker plate 14 and a pressure on the door 10 which would normally open it will fail to do so by reason of the fact that the face 37 engages the side of the hole 15 squarely.

If, however, the knobs 31 are moved to the position shown in Fig. 2, then the toggle levers 22 and 23 are in a broken position permitting the cam face 37 to assume an inclined relationship to the striker plate 14 so that the pressure will cause the bolt 18 to slide against the spring 34 and permit the door to open. As soon as the pressure is removed from the knob 31, it returns under the influence of the spring 40 to the position shown in Fig. 1. Now if the door is moved to a closed position, then the cam face 41 of the latch 21 engages the striker plate 14 and causes the bolt 18 to be withdrawn, that is, to draw the latch 21 into the door structure.

It can be seen from the foregoing that I have constructed a simple form of latch which will not require the rotation of the handle in order to operate same making it possible to open or close the door without the use of the hands at the same time securely holding same against an opening movement by wind or any other force against the door proper.

Obviously, the usual key controlled locks may be employed in addition to the latching element herein described without departing from the spirit of this invention.

While I have described the members 23 and 24 as toggle levers, it is obvious that a spring could be employed which would operate in the same manner. It would merely be a straight spring fastened at its ends to the latch 21 and the bolt 18 and slotted to receive the reduced portion 25 of the member 26. Obviously, deflection of this spring by the movement of the knob 31 will produce the condition shown in Fig. 2.

I claim:

1. A latch for doors consisting of a casing adapted to be mounted in a door, a hollow bolt slidably mounted within said casing, a spring

for urging said bolt away from the hinge side of said door, a latch hingedly mounted in said bolt having one end thereof pointed and having the opposite end thereof hinged at one side to said bolt, a toggle lever for holding said latch against movement while said lever is in a straight line position, one portion of said toggle lever having a slot formed therein, a slidable stem extending through said slot and connected to said toggle lever, means for urging said stem in a direction to hold said toggle lever to a straight line position and knobs mounted on the opposite ends of said stem.

2. A latch for a closure comprising a casing, a spring projected reciprocating carrier in said casing, a latching member having opposed cam faces pivoted at one side in said carrier to normally project therefrom for engagement with a keeper, toggle links having one end connected to the other side of the latching member and the other end connected with the carrier so that when the links are aligned the latching member will be restrained from pivoting, whereby the carrier will be reciprocated upon slamming of the door by engagement of one of the cam faces of the latching member with the keeper, and means adapted to break the toggle links whereby said latching member will pivot to present the other cam face to the keeper so that upon movement of the closure to open condition the carrier will reciprocate to free the latching member from the keeper.

3. A latch for a closure comprising a casing, a spring projected reciprocating carrier in said casing, a latching member having opposed cam faces pivoted at one side in said carrier and adapted to pivot into and out of said carrier to normally project therefrom for engagement with a keeper, toggle links within said carrier having one end connected to the other side of the latching member and the other end connected with the carrier so that when the links are aligned the latching member will be restrained from pivoting whereby the carrier will be reciprocated upon slamming of the door by engagement of one of the cam faces of the latching member with the keeper, a transversely reciprocating member normally spring urged to cause said links to assume a straight line condition, said member having a connection with said toggle links whereby movement against said spring effect is adapted to break the toggle links whereby said latching member will pivot to present the other cam face to the keeper, such pivoting of the latching member causing said latter cam face to disengage from the keeper and thereby dispose such cam face in angular relation to the keeper so that upon movement of closure to open condition the carrier will free the latching member from the keeper.

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