April 22, 1952 N. KULBERSH 2,593,573

DOOR LATCH

Filed Jan. 22, 1948 2 SHEETS--SHEET 1

Fig. 1.

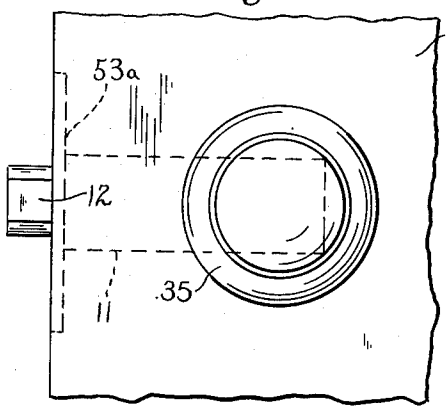


Fig. 2.

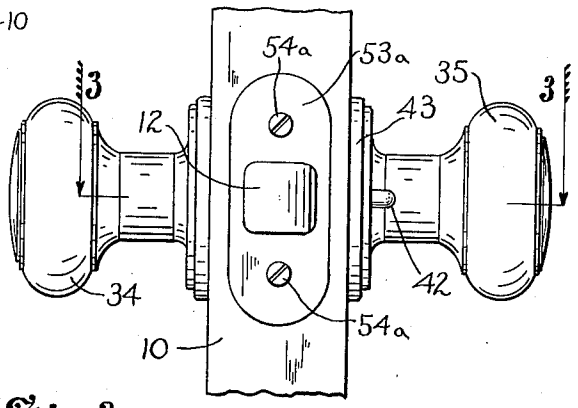
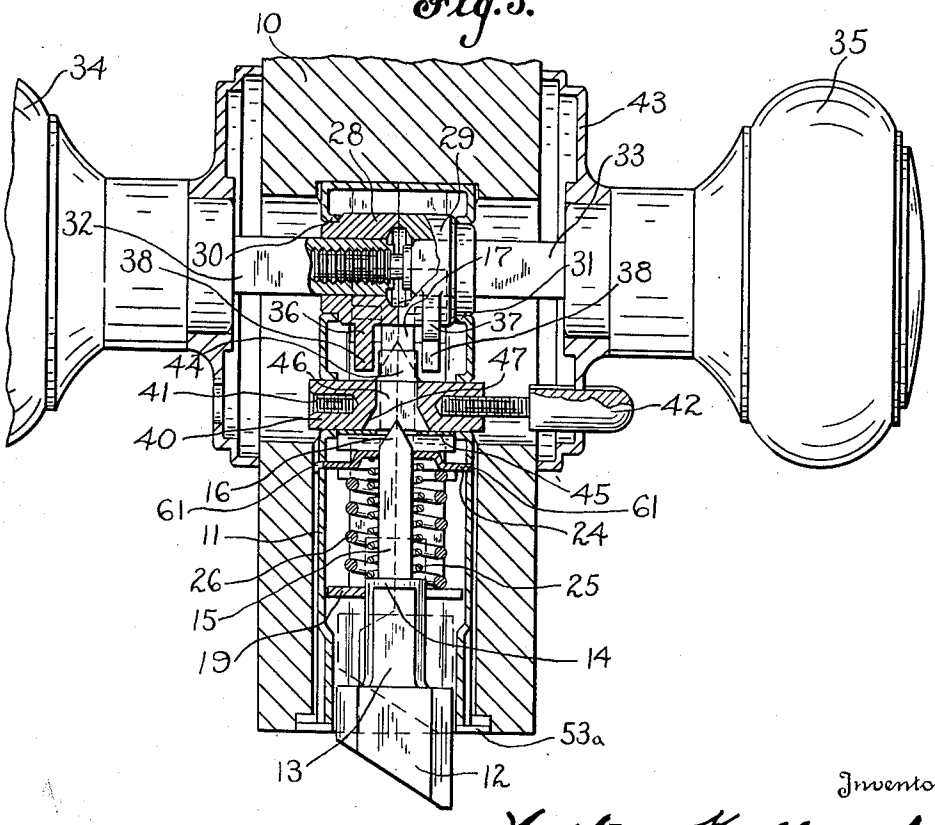


Fig. 3.



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DOOR LATCH

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Fig. 4.

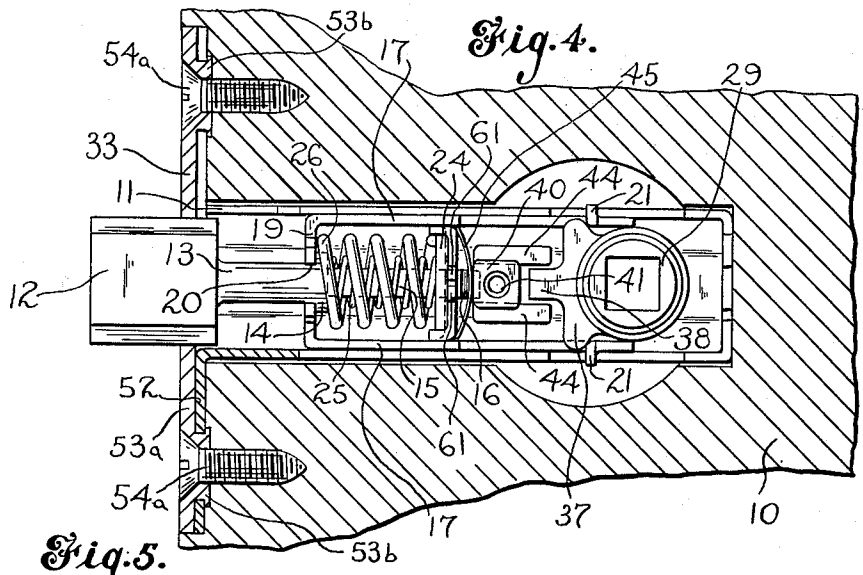


Fig. 5.

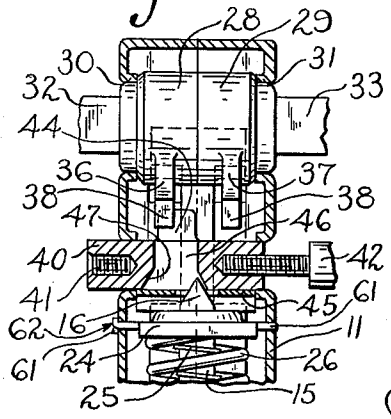


Fig. 6.

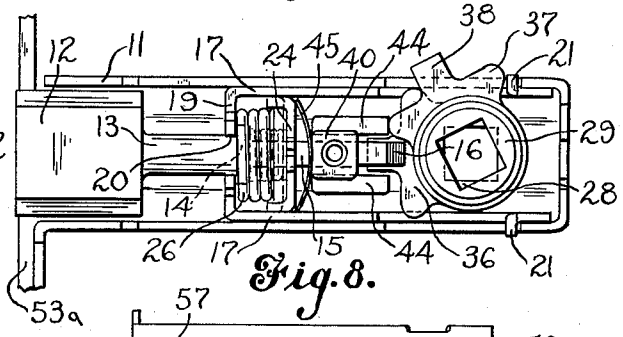


Fig. 7.

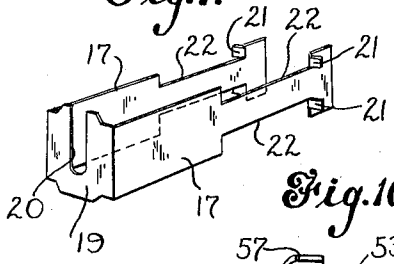


Fig. 8.

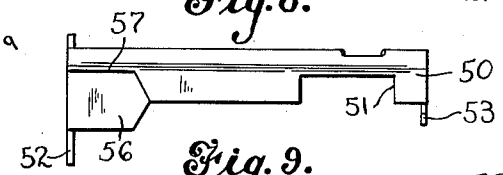


Fig. 9.

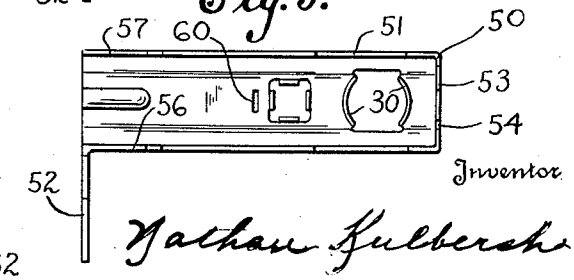
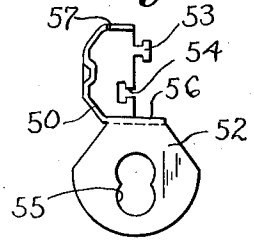


Fig. 10.



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UNITED STATES PATENT OFFICE

2,593,573

DOOR LATCH

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Application January 22, 1948, Serial No. 3,669

4 Claims. (Cl. 292—169)

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This invention relates to latches, and more particularly to a latch having a latch bolt which may be dogged against retraction so as to prevent unauthorized entry to the door upon which the latch is mounted.

It will be appreciated that doors may swing in either direction from the hinge and also may be hinged at either edge, and it is necessary when a door latch is provided so to construct the latch that it may be mounted upon either right- or left-hand doors. In many instances, it is necessary to remove the cover or in some manner open the casing of the latch and reverse the bolt in order that the latch bolt face in the proper direction relatively to the direction in which the door swings to closed position. This is particularly true with latches, such, for instance, as those adapted for use upon bathroom doors, where it is desirable that provision be made for dogging the latch in protracted position and where the dogging means should always be at the inside of the door.

It is contemplated by the present invention to provide a latch of this character, so that it may be mounted upon a door of either hand without the necessity of opening the case or making any change in the latch mechanism within the case.

To this end, the latch case and the mechanism therein is reversible, so that it may be mounted upon a door with the latch bolt facing in either direction, and a dogging slide is provided which may occupy a neutral position in which it is inoperative to dog the latch bolt, but which may be moved in either direction from this neutral position to dog either one of the rollbacks which serve to actuate the latch bolt.

It is, of course, desirable that the outside rollback be dogged, and, with the present arrangement, either of the two rollbacks may be associated with the outside knob as either one may be dogged by the dogging slide. To change the latch from a door of one hand to a door of another hand, it is only necessary to disengage the pushbutton or any operating member for the dogging slide and engage it with the other end of this slide at the other side of the case. This is very simply done, and does not require that the case be opened or that any of the interior mechanism of the latch be changed in any way.

One object of the present invention is to provide a new and improved latch mechanism for doors.

A further object of the invention is to provide a new and improved latch mechanism having a case and operating parts symmetrically arranged so that the case may be mounted upon either right- or left-hand door without changing the position of the latch bolt relatively to the case.

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Another object of the invention is to provide a latch bolt of the character described above, wherein a bolt-operating mechanism is provided at each side of the case, and means are provided for dogging either one of said bolt-operating mechanisms, so that the bolt may always be dogged from operation from the outside regardless of the position in which the latch is mounted.

A still further object of the invention is to provide a door latch of the character described above, and to provide a pair of rollbacks for operating the latch bolt and a dogging slide for these rollbacks, the slide having a neutral position in which it is inoperative, and being movable in either direction so as to dog either of the rollbacks against operation as desired.

Still another object of the invention is to provide a casing for a door latch mechanism, which casing may be made in two identical halves, thus rendering the manufacture of the case more economical than is possible under the present practice.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a front elevational view of a portion of a door having my improved latch mounted thereon;

Fig. 2 is an edge view of the parts shown in Fig. 1;

Fig. 3 is a sectional view through the latch case on line 3—3 of Fig. 2;

Fig. 4 is a view of the latch with a portion of the case removed to show the interior mechanism;

Fig. 5 is a detail sectional view similar to Fig. 3 but showing the parts in another position;

Fig. 6 is a view similar to Fig. 4, showing the latch bolt in retracted position;

Fig. 7 is a perspective view of the retractor yoke;

Fig. 8 is a top plan view of a portion of the latch case;

Fig. 9 is a side elevational view of the latch case part shown in Fig. 8; and

Fig. 10 is a front elevational view of the latch case part shown in Figs. 8 and 9.

To illustrate a preferred embodiment of my invention, I have shown in the drawings a door

10 having a latch mechanism mounted therein. The latch mechanism consists of a case 11, which, as will be more particularly described hereinafter, consists of two identical parts.

Slidably mounted within the case is a latch bolt comprising a bolt head 12 and a stem 13. Upon the stem is provided an abutment 14, and rearwardly of this abutment the stem is reduced in size, as shown at 15, and the extreme end portion is beveled at each side as at 16.

Also slidably mounted within the case is a retracting yoke shown more especially in Fig. 7. This yoke comprises a pair of spaced legs 17 joined at their front ends by a crosshead 19 having therein a slot 20 to receive the portion 13 of the bolt. It will be understood that this crosshead 19 lies forwardly of the abutment 14 and the slot is smaller than the abutment, so that, when the yoke is drawn rearwardly in the case, the bolt will be retracted by engagement of the edges of the slot 20 with the abutment 14. The legs 17 of the yoke are provided adjacent their rear ends with outwardly turned lugs 21 adapted to be engaged by knob-operated rollbacks, as will be hereinafter explained. Forwardly of the lugs 21, the legs of the retractor are provided with recesses 22.

Secured to the case, and extending from one side to the other thereof between the legs 17 of the yoke, is a plate 24 which serves as an abutment for the bolt springs, of which two are provided. As shown in Figs. 3, 4 and 5, a relatively light spring 25 surrounds the rear portion 15 of the bolt stem, the rear end of this spring acting against the abutment plate 24, and the forward end of the spring acting against the abutment 14 on the bolt stem so as to urge the stem forwardly to projected position.

Surrounding this spring is a stronger spring 26, which also acts at its rear end against the plate 24, but its front end acts against the crosshead 19 of the retracting yoke. This spring is a compression spring like the spring 25, and serves to urge the retractor to a forward position. The diameter of the spring 26 is sufficiently large, so that the spring does not bear against the abutment 14, and, therefore, does not act on the bolt itself. It will be apparent that with this arrangement, when the bolt 12 is retracted by engagement with the strike plate upon the door, the stem 13 of the bolt slides freely through the slot 20 in the retracting yoke, so that the retractor is not moved rearwardly with the bolt. Therefore, only the light spring 25 is compressed at this time, thus making easier the closing of the door. When, however, the retractor is moved to retract the bolt, both springs are compressed, for in this case it is desirable to have a strong spring to return the parts to their normal position.

As shown more especially in Figs. 3 and 5, a pair of rollback hubs 28 and 29 are rotatably mounted in the case, these hubs having bearings in the wall of the case at 30 and 31. Square spindles 32 and 33 are fitted into similarly shaped openings of the hubs 28 and 29 in order to rotate the latter, and knobs or other operating members 34 and 35 are mounted upon these spindles. It will be understood that, as is usual in door latches of this kind, either spindle may be rotated independently of the other, and, likewise, the rollback hubs 28 and 29 are also independently rotatable by the spindles.

The rollback hubs 28 and 29 are provided with rollbacks 36 and 37, respectively, these rollbacks

being disposed in the recesses 22 of the retracting yoke, so that they bear against the lugs 21 and serve to move the retracting yoke rearwardly when the knob spindles are rotated. Each of these rollbacks is provided with a forwardly extending lug 38, the purpose of which will now be explained.

A dogging member 40 is slidably mounted in opposite walls of the latch case, both ends of this dogging member being threaded, as shown at 41, to receive a pushbutton or other actuating member 42 designed to project from the inner rose 43, so that it may be operated at the inside of the door to dog the rollback. It will be understood that the dogging member, as shown in Fig. 3, is in its neutral position, and may be moved in either direction from this position. However, as shown in Fig. 3, it is intended only to be moved toward the left, and is moved in the other direction when the latch is mounted on a door of the other hand, and, in such case, the actuating member 42 is threaded into the other end of the member 40.

The bolt dogging member 40 is provided with a rearwardly projecting yoke 44 adapted, when the dogging member is in its neutral position, as shown in Fig. 3, to stand between the lugs 38 on the rollbacks 36 and 37 in engagement with neither thereof. However, when the dogging member is moved in one direction or the other, such as toward the left, as shown in Fig. 5, this yoke straddles the lug 38 of the rollback 36 and prevents operation of the outside rollback and therefore of the outside knob, thus dogging the latch bolt against operation from the outside of the room. A bowed spring 45 acts against the dogging slide 40 to hold it yieldingly in the position to which it is moved

An opening 46 is provided in the dogging member 40, this opening being provided with oppositely beveled areas 47 at its forward end with which the beveled surfaces 16 on the reduced portion 15 of the latch bolt stem cooperate to move the dogging member to its neutral position whenever the bolt is retracted. As will be apparent from Fig. 3, when the dogging member 40 is in its neutral position, the stem 15 passes freely into the opening 46 without engaging the sides of the opening. When, however, the dogging member has been moved to dogging position, as shown in Fig. 5, and the bolt is retracted either by one of the knobs or by contact with the strike plate, the beveled rear end 16 of the stem portion 15 engages one of the beveled surfaces 47 of the opening 46 and cams the dogging member to its normal or neutral position. Thus, the door may never be closed with the dogging member in its operative position.

The case 11 is preferably made of sheet material, and consists of two identical halves, one of which is shown at 50 in Figs. 8, 9 and 10. Each of these halves is provided with slots 51 for the reception of the rollbacks 36 and 37 and also of the lugs 21, and each of the parts is provided with a face plate part 52 projecting in one direction from the case. At its rear end each of the casing parts is provided with a matching T-shaped tongue 53 and groove. It will be apparent from Fig. 10 that, when the opposite half of the case is matched with the half shown, there will be a second face plate part 52 projecting in the opposite direction, thus forming the face plate for the case. The parts of the case may then be secured together at their front ends by means of the plate 53a, which

serves as the outer plate when the latch is in place, as shown in Fig. 2, this plate being secured to the face plate part 52 by short sleeves 53b which pass through openings 55 in the portions 52, and are upset at the rear of the latter. Screws 54a may be passed through these sleeves to secure the casing to the door. As the forward end of each casing part 50 adjacent the part 52 is enlarged, as shown at 56, the opposite side of the casing part is recessed, as shown at 57, so as to receive the part 56 of the other half of the case. Thus, the two casing parts may be made in identical halves, effecting a considerable economy in the manufacture of the latch.

Each casing part is provided with an opening 60, and the abutment 24 is provided with tongues 61 which pass through these openings to hold the abutment in place. At one side of the case the tongues may be clenched over, as shown at 62.

While I have shown and described a preferred embodiment of my invention, it will be understood that it is not to be limited to all of the details shown, but is capable of modification and variation within the spirit of the invention and within the scope of the claims.

What I claim is:

1. A door latch comprising a case, a bolt reciprocably mounted therein, means for operating said bolt including a pair of rollbacks rotatably mounted in the case, means to dog either of said rollbacks against rotation, said means comprising a member slidably mounted in the case and having a part normally standing between said rollbacks, means for moving said member in either direction from its normal position to dog either of said rollbacks as desired, and means to move said member to its normal position from either of its dogging positions when the bolt is retracted.

2. A door latch comprising a case, a bolt reciprocably mounted therein, means for operating said bolt including a pair of rollbacks rotatably mounted in the case, means to dog either of said rollbacks against rotation, said means comprising a member slidably mounted in the case and having a part normally standing between said rollbacks, means for moving said member in either direction from its normal position to dog either of said rollbacks as desired, and means actuated by the retraction of the bolt to move said member to its normal position from either of its dogging positions.

3. A door latch comprising a case, a bolt reciprocably mounted therein, means for operating said bolt including a pair of rollbacks rotatably mounted in the case, means to dog either of said rollbacks against rotation, said means comprising a member slidably mounted in the case and having a part normally standing between said rollbacks, means for moving said member in either direction from its normal position to dog either of said rollbacks as desired, said bolt having a stem, and means on the stem to engage said member when the bolt is retracted and move the member to its normal position regardless of the direction in which it has been moved.

4. A door latch comprising a case, a bolt reciprocably mounted therein, means for operating said bolt including a pair of rollbacks rotatably mounted in the case, means to dog either of said rollbacks against rotation, said means comprising a member slidably mounted in the case and having a part normally standing between said rollbacks, means for moving said member in either direction from its normal position to dog either of said rollbacks as desired, said bolt having a stem, said member having an opening adapted to receive the end of the stem, and said opening having opposed cam-shaped walls whereby the member is cammed to its normal position by retraction of the bolt.

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