

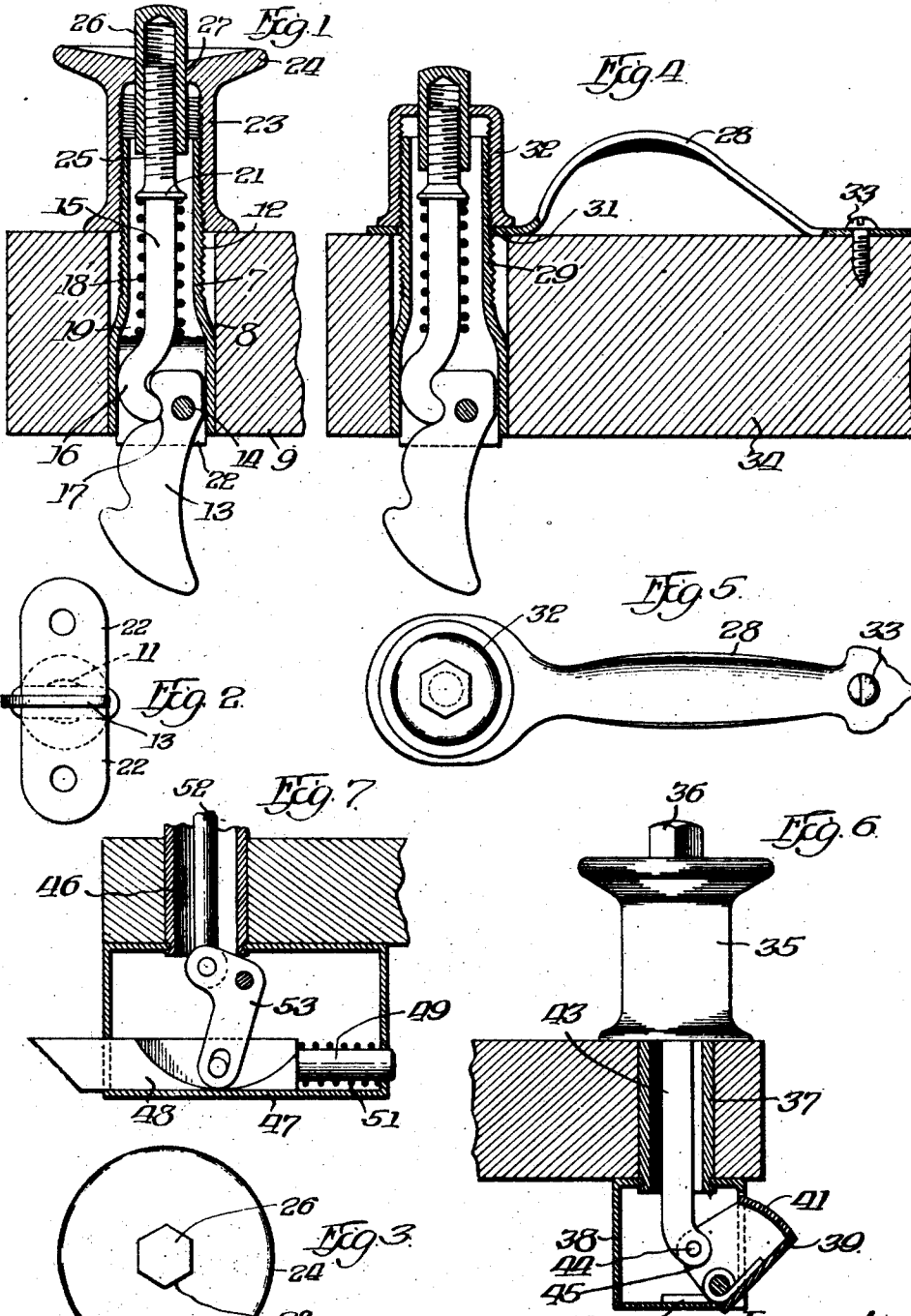
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E. W. NORTH

PUSH BUTTON CATCH

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Witness
Ed. E. Adams

Inventor:
Edwin W. North,
By Frank Wilson Att'y.

UNITED STATES PATENT OFFICE.

EDWIN W. NORTH, OF ROCKFORD, ILLINOIS, ASSIGNOR TO NATIONAL LOCK CO., OF
ROCKFORD, ILLINOIS, A CORPORATION OF DELAWARE.

PUSH-BUTTON CATCH.

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This invention relates to push button latches of the type wherein the latch is operated by a push button which extends outwardly in a position where it may be conveniently operated simultaneously with the grasping of the handle or knob of the door on which the latch is used.

In the use of latches of this type the handle or knob of the door usually includes a cap containing the push button and fitted to the outside of the door. The push button is secured to the end of the actuating member for the latch. The latches are made in more or less standard size and it is necessary to accommodate this size to different thicknesses of doors. In adjusting latches of this type to the different thicknesses of doors great difficulty has been experienced in maintaining proper relative positions of the cap and button.

It is accordingly an object of this invention to provide a latch of this type in which the desired relation between the cap and the push button may be simply and easily maintained.

It is further an object of this invention to provide a latch of this type in which the button and cap are assembled together in the same relative positions which it is desired that they occupy when the assembly is complete, the said button and cap being maintained in proper relations with each other during assembly.

Other and further objects of this invention will be apparent from an examination of the specification and claims in connection with the accompanying drawings, wherein

Fig. 1 is a fragmentary longitudinal section of a latch embodying this invention.

Fig. 2 is a bottom plan view of the same.

Fig. 3 is a top plan view of the same.

Fig. 4 is a sectional view of a modification.

Fig. 5 is a plan view of the same.

Fig. 6 is a view partly in section of another modification.

Fig. 7 is a fragmentary section of another modification.

Referring to the drawings more particularly, numeral 7 indicates a sleeve forming a part of a latch mechanism and extending through an aperture 8 in a door or the like 9. The sleeve 7 acts as the body portion of the latch housing, is flattened at its inner end, as at 11, and threaded, as at 12, from its outer

end practically to its middle or beyond. In the flattened portion 11 a catch 13 is pivoted on a pin 14 transversely secured in said portion. An actuating rod 15 for the catch 13 extends longitudinally of the sleeve 7 and is provided with a hook portion 16 at its inner end, the end of such hook portion engaging in a recess 17 in the catch 13 adjacent the pivot thereof, thus as the member 15 is actuated inwardly its end acting in the recess 17 will act to release the catch and when said member is actuated outwardly said end will act to close the catch by moving it in a clockwise direction where it is adapted to cooperate with a suitable keeper (not shown). A spring 18 surrounding the member 15 abuts at its lower end a shoulder 19 formed in the sleeve 7 by the juncture between the flattened portion 11 and the rest of the sleeve. The upper end of the spring 18 acts on a collar 21 integral with the member 15 and acts to move the same outwardly. The limited rotation of the catch 13 limits the outward movement of the member 15.

The lower end of the sleeve 7 is provided with lateral flanges 22 so that when the sleeve 7 is inserted in the aperture 4 its inner end will grip the inner edge of said aperture and prevent said sleeve being pulled all the way through. The threaded portion 12 on said sleeve is adapted to extend out of the outer end of said aperture 8 to threadedly receive a cap 23 in the form of a knob having an annular flange 24 around its outer edge adapted to be grasped manually to open the door 9. The outer end of the member 15 is also threaded, the threads 25 preferably being of the same pitch as those on the sleeve 7. A push button in the form of an extension 26 is fitted on the threads 25. The extension 26 is adapted to extend outwardly through a central aperture 27 in the outer end of the knob 23 any desired amount, the fit of the said extension 26 in said knob being a slidable one. The extension 26 is connected to the knob 23 so that it will rotate therewith when the latter is threaded on the end of the sleeve 7 causing said knob and extension to maintain their predetermined relative positions as they are being threaded on the sleeve and member 15 respectively. In order to connect the extension 26 with the knob 23 the former is preferably provided with a plurality of longi-

tudinally extending flat sides 28 which are parallel with corresponding sides of the aperture 27.

Thus regardless of the thickness of the door 9 the relative position of the extension or push button 26 with respect to the knob 24, once the former has been started on the threads 25, will not be changed no matter how far the knob 24 is threaded on the sleeve 7 to accommodate different thicknesses of doors, because said extension will rotate with said knob and will move longitudinally therewith as the threads of both said extension and said knob are of the same pitch.

In Fig. 4 there is shown a modification in which the latch mechanism itself is substantially the same as in the previous embodiment. Among the differences are that a handle 28 is provided, the sleeve 29 of the latch mechanism extending through an aperture 31 in one end of the handle and the cap 32 is comparatively plain and acts to secure said end over said sleeve. The other end of the handle 28 is secured by an ordinary screw 33 extending into the door 34.

In Fig. 6 there is shown another modification in which the knob 35 and extension 36 for the actuating member of the latch are substantially the same as in the first embodiment. In this modification the sleeve 37 of the latch mechanism, which is otherwise the same as in the first embodiment, is not flattened at its inner end, but is suitably secured to a rectangular frame or housing 38 in which is pivoted a latch bolt 39. The latch bolt 39 may have an arcuate surface 41 adapted to cooperate with a keeper in the same manner as the latch bolt in the copending application of Gedor W. Aldeen Serial No. 149,839, filed November 22, 1926. The bolt 39 is yieldingly held in latching position as shown by a spring 42 surrounding the pivot of said bolt. In this case the actuating member 43 is considerably longer than in the first embodiment and is secured by a pin 44 to a rearward extension 45 on the latch bolt. Thus as the extension 36 is pressed inwardly the bolt 39 will be withdrawn against the action of the spring 42 and when the said extension is released the latch bolt will move outwardly to engage with its keeper.

In Fig. 7 there is shown a further modification in which the sleeve 46 of the latch mechanism is substantially the same as in the last embodiment, (Fig. 6). In this modification the housing 47 secured to the end of said sleeve supports a latch bolt 48, one end of which slidably extends through one side of said housing and is in the form of a typical latch bolt. The other end 49 of the bolt 48 is cylindrical in form and slidably extends through the opposite end of the housing 47. A spring 51 surrounding the portion 49 normally acts to hold the bolt 48 to the

left in latching position where it is adapted to engage a keeper (not shown) on the door jamb. The actuating lever 52 of the latch mechanism is practically the same as in the last embodiment (Fig. 6) and is pivotally secured to one end of a bell crank lever 53 which is pivotally mounted in the housing 47. The other end of the lever 53 is pivotally secured to the bolt 48 whereby the push button (not shown) may be pressed inwardly to withdraw said bolt and upon said button being released the spring 51 will project said bolt back to operative position.

The principles of this invention may thus be utilized with many different forms of locks and therefore I do not wish to be limited to the details shown and described.

I claim:

1. In a latch, the combination of a latch member, a frame support including a sleeve adapted to extend outwardly of a door, a cap threaded on the outer end of said sleeve, an actuating member in said sleeve operatively connected to said latch member, and a push button extension threaded on the outer end of said actuating member and connected to rotate with said cap relative to the actuating member whereby it may be threaded on said actuating member as said cap is threaded on said sleeve.

2. In a latch, the combination of a latch member, a frame support including a sleeve adapted to extend outwardly of a door, a cap threaded on the outer end of said sleeve, an actuating member in said sleeve operatively connected to said latch member, and a push button extension threaded on the outer end of said actuating member and keyed to said cap whereby it may be threaded on said actuating member as said cap is threaded on said sleeve.

3. In a latch, the combination of a latch member, a frame support including a sleeve adapted to extend outwardly of a door, a cap threaded on the outer end of said sleeve, an actuating member in said sleeve operatively connected to said latch member, and a push button extension threaded on the outer end of said actuating member and connected to rotate with said cap whereby it may be threaded on said actuating member as said cap is threaded on said sleeve, the threads of said extension and said cap being of the same pitch.

4. In a latch, the combination of a latch member, a frame support including a sleeve adapted to extend outwardly of a door, a knob threaded on the outer end of said sleeve, an actuating member in said sleeve operatively connected to said latch member, and a push button extension threaded on the outer end of said actuating member and connected to rotate with said knob whereby it may be threaded on said actuating member as said knob is threaded on said sleeve.

5. In a latch, the combination of a frame support including a sleeve adapted to be inserted through an aperture in a door, means associated with said support for limiting the movement of said sleeve through said aperture, a cap threaded on said sleeve adapted to cooperate with said means for securing said support, a latch member, an actuating member in said sleeve operatively connected to said latch member, and a push button extension threaded on the outer end of said actuating member and connected to rotate with said cap. 10

In witness of the foregoing I affix my signature.

EDWIN W. NORTH.