June 10, 1930. W. NORMAN 1,762,883

DOOR CATCH

Filed Dec. 3, 1928

Fig. 1.

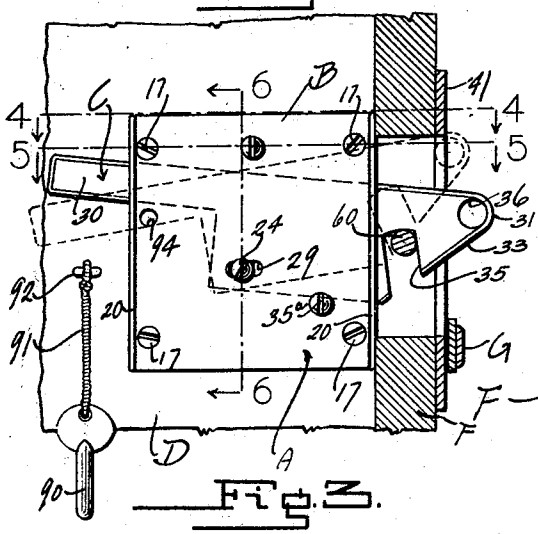


Fig. 2.

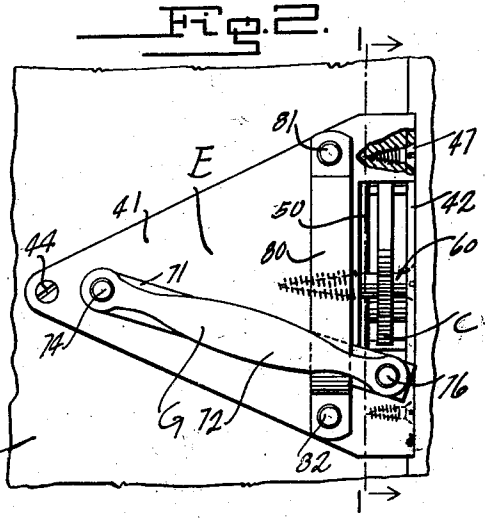


Fig. 3.

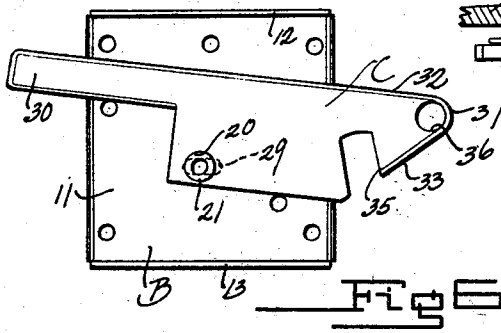


Fig. 4.

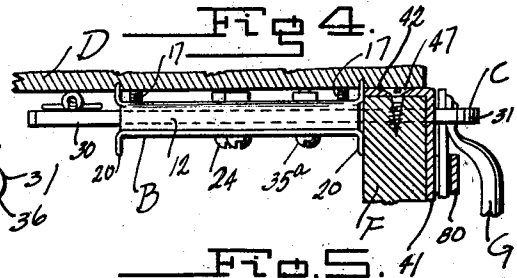


Fig. 5.

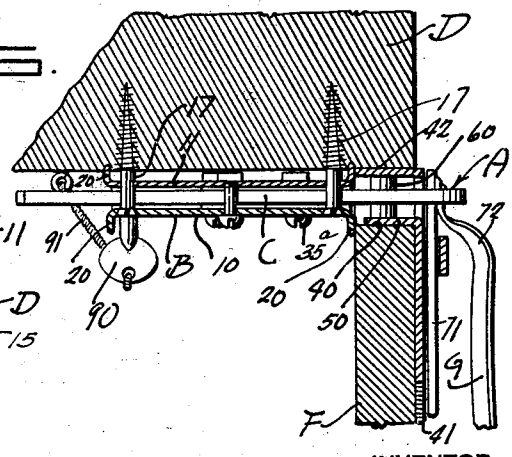


Fig. 6.

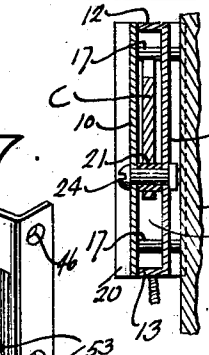
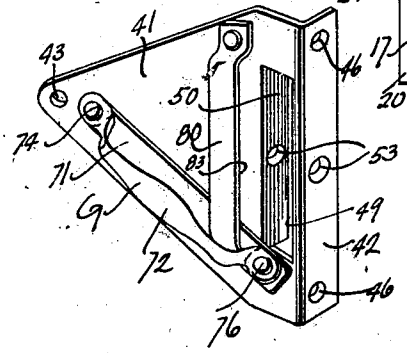


Fig. 7.



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UNITED STATES PATENT OFFICE

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DOOR CATCH

Application filed December 3, 1928. Serial No. 323,482.

This invention relates to improvements in door latches.

The primary object of this invention is the provision of an improved latch for closures, embodying improvements over the door catch set forth in my Patent #1,686,417, granted October 2, 1928, in the means for latching the closure and tripping the latch.

Other objects and advantages of this invention will be apparent during the course of the following detailed description.

In the accompanying drawing, forming a part of this specification, and wherein similar reference characters designate corresponding parts throughout the several views.

Figure 1 is a sectional view taken through a portion of the door or closure structure, and showing the improved latch as it is connected to a jamb or casing; the view being taken substantially on the line 1—1 of Figure 2.

Figure 2 is a fragmentary front view of the front portion of a door or closure structure, showing the improved type of keeper and trip lever which may be used in connection with the latch.

Figure 3 is a view of the pivoted bolt in the casing, with one wall of the casing removed.

Figures 4, 5 and 6 are sectional views taken substantially on their respective lines in Figure 1 of the drawing.

Figure 7 is a perspective view of the trip handle and the frame for supporting the same and the bolt retainer on a door or closure.

In the drawing, wherein for the purpose of illustration is shown only a preferred embodiment of the invention, the letter A may generally designate the improved door latch, which embodies a casing B having a movable bolt C therein; the casing B being mounted upon a jamb, post, door, or like structure D. A frame E adapted to receive a keeper or retainer is mounted upon a door or other building structure F, and has a trip handle G associated therewith for tripping the latch bolt, and opening the door or closure F.

The casing B preferably comprises outer and inner walls 10 and 11, the inner wall 11 at its upper and lower edges being flanged at 12 and 13 respectively, in right angled relation, to close the space 15 between the said walls. The walls 10 and 11 are provided with openings for receiving screws 17 or the like to support the casing upon the jamb, post, or other building structure D. The walls 10 and 11 are outwardly flanged at the front and rear thereof, at 20, so that the entire front and rear of the space between the walls 10 and 11 is open, and the front and rear ends of the bolt C project therethrough. The bolt C is provided with an opening 20 intermediate the ends thereof, which receives therein a spacing sleeve 21, on which the bolt is pivoted. The spacing sleeve 21, as shown in Figure 6, is supported in the space between the walls 10 and 11 by a detachable bolt 24. This spacing sleeve serves two functions, namely, to space the walls 10 and 11, and provide a pivot mounting for the bolt C. It is to be noted that the walls 10 and 11 are provided with horizontally elongated openings 29 therein, in which the ends of the bolt 24 are mounted, for adjustment, in order that the head of the bolt may be extended to various degrees with respect to the forward end of the case B, in order to adjust it to the position of the keeper, which may vary under some circumstances, as can readily be understood by those skilled in this art.

The bolt C is somewhat of the form set forth in my patent above referred to. It is elongated and forwardly of the pivot it is weighted so that the same will by gravity swing downward, so that the front end engages against a special bolt 35ª of the case. The bolt is provided with a point or apex 31 at the front thereof, formed by the intersection of the top edge 32 of the bolt, and the rearwardly and downwardly sloping front edge 33. This edge 33 is so positioned that it will slide against the retaining bolt or keeper to be subsequently described, in order to lift the latch bolt to permit the keeper to slip into the recess 35 provided upwardly in the bolt transverse to the edge 33 and intersecting the same. A suitable opening 36 may be provided at the apex end 31 of the bolt, if desired.

Referring to the keeper, its frame, and the releasing latch, the frame E is preferably of metal, and is mounted upon a door which

the bolt is to releasably latch. The door F is preferably morticed at 40, inwardly from the edge which faces the bolt support D.

The keeper frame E is preferably of forged, cast, or stamped metal, preferably including a flat plate body 41, of substantially triangular form, which at the wide end thereof is flanged, as shown at 42 in Figure 7 of the drawing. From the flange 42 the body 41 converges to a point, provided with an opening 43 for receiving a screw or bolt 44 by means of which the plate body 41 may be attached to the door or closure F, as shown in the drawing. The flange 42 is adapted to fit across the free edge of the door or closure F, and it is provided with openings 46 for receiving bolts or screws 47 by means of which the said flange 42 may be secured to the door closure. This flange 42 of course bridges the mortise or recess 40. The body 41 adjacent the flange 42 is provided with a substantially rectangular opening 49 formed by bending, stamping, or otherwise providing a flange 50 at an edge of the opening 49 in spaced parallel relation with the flange 42; the flange 50 being adapted to rest against the bottom surface of the mortice or recess 40. The flanges 42 and 50 are provided with openings 53, in aligning relation, adapted to receive the keeper pin 60, which is preferably in the form of a screw, having a head countersunk in the opening 53 and a screw threaded shank adapted to bite into the material of the door F, as shown in Figure 2 of the drawing. This keeper pin or retainer 60 has a smooth shank portion extending transversely across the space between the flanges 42 and 50, as shown in Figure 2 of the drawing.

The keeper frame E is of course so positioned on the closure F that when the latter is closed the pin 60 will engage against the edge 33 of the bolt C, lifting the bolt, on its pivot, until the keeper pin slips into the bolt recess 35, when the bolt drops downwardly and latches the door, as shown in Figure 1 of the drawing. In this position the end of the bolt projects beyond the outer surface of the frame E.

The improved latch is provided with a novel trip lever G, best shown in Figure 7 of the drawing, which includes a straight bar portion 71 having a substantially U-shaped handle 72 riveted or secured at its ends to the ends of the bar to provide a hand inserting opening between the bar and the U-shaped handle. At one end the U-shaped handle is secured to the bar 71 by means of a pin 74 which also serves as a pivot pin for the swinging of the lever G. This pivot pin is mounted adjacent the apex of the keeper frame E, and a rivet 76 secures the other end of the U-shaped handle 72 to the bar 71 to complete the handle. The free end of the lever G swings across the opening 50, and the purpose, of course, is to lift the end of the bolt off of the keeper, by swinging the lever G from the position shown in Figure 7, upwardly, and at the same time the operator pulling on the handle to open the door.

To keep the handle G in proper position upon the frame E, it is preferred to provide a retaining strap 80, which is vertically secured on the outer surface of the plate 41; the same being riveted at its upper and lower ends at 81 and 82 respectively, to the body 41 of the frame E adjacent and parallel to the opening 49, between the same and the pivot of the handle. The strap 80 provides a loop 83 between the same and the body 41 thru which the bar 71 of the handle G slidably extends; the movements of the handle G being limited by the engagement of the bar 71 at the ends of the strap 80, in a manner which is perfectly obvious. The strap 80, of course, threads thru the opening in the handle G between the handle portion 72 and the bar 71.

In order to prevent releasing of the bolt from its latching position on the keeper pin 60, merely by lifting of the trip handle G, I prefer to provide a key or pin 90, connected by a flexible strap or cable 91, at 92, upon the jamb or post D, adjacent the rear shank end 30 of the bolt C. This is adapted to be slipped through aligning openings 94 in the case walls 10 and 11, which are disposed immediately beneath the shank 30 of the bolt C when the latter is in a latching position, as shown in Figure 1 of the drawing, and which of course prevents the lifting of the retaining end of the bolt by raising the handle G. This prevents unauthorized opening of the door or closure from exteriorly thereof.

As shown in Figure 4, the door or closure F abuts against the outturned flanges 20 at the front of the latch case, to limit the closed movement of the door. These front and rear flanges 20 of the wall 11 also serve to properly space the wall 11 from the post or jamb D; biting therein to efficiently secure the case to the post or jamb against liability of movement, as shown in the drawing.

Various changes in the shape, size, and arrangement of parts of the improved latch may be made to the form of invention herein shown and described, without departing from the spirit of the invention or the scope of the claims.

I claim:

1. In a latch the combination of a casing providing a pair of walls, one of the walls having upper and lower right angled flanges, transverse detachable means connecting the walls together with the flanges in engagement between the walls to hold them spaced, the front and rear of the case between the walls being open, a pivot pin transversely carried by the walls, a latch bolt pivoted on said pin and extending through the rear and front openings between the walls, the bolt

beyond the front of the case having a keeper receiving slot therein, the pivot pin being adjustable longitudinally of the case between the front and rear open ends.

2. In a latch the combination of a casing providing a pair of walls, one of the walls having upper and lower right angled flanges, transverse detachable means connecting the walls together with the flanges in engagement between the walls to hold them spaced, the front and rear of the case between the walls being open, a pivot pin transversely carried by the walls, a latch bolt pivoted on said pin and extending through the rear and front openings between the walls, the bolt beyond the front of the case having a keeper receiving slot therein, the pivot pin being adjustable longitudinally of the case between the front and rear open ends, and releasable key means to hold the bolt in a latched relation.

3. As an article of manufacture a keeper structure for latches comprising a body plate having a right angled flange at an end thereof, the plate adjacent the flange having an opening therethrough and at the opposite side of the opening from the flange being provided with another flange spaced from and parallel with the first mentioned flange, and a keeper pin transversely carried by said flanges.

4. As an article of manufacture a keeper structure for latches comprising a body plate having a right angled flange at an end thereof, the plate adjacent the flange having an opening therethrough and at the opposite side of the opening from the flange being provided with another flange spaced from and parallel with the first mentioned flange, a keeper pin transversely carried by said flanges, a bolt tripping lever pivoted on the plate at a location remote from the flanges and operating across said opening at the opposite side of the plate from said flanges.

5. As an article of manufacture a keeper structure for latches comprising a body plate having a right angled flange at an end thereof, the plate adjacent the flange having an opening therethrough and at the opposite side of the opening from the flange being provided with another flange spaced from and parallel with the first mentioned flange, a keeper pin transversely carried by said flanges, a bolt tripping lever pivoted on the plate at a location remote from the flanges and operating across said opening at the opposite side of the plate from said flanges, and means carried by the plate for limiting the amplitude of movement of the lever.

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