Jan. 5, 1943. H. L. MOUNTJOY 2,307,634

CLOSURE FASTENER

Filed April 28, 1941

FIG_1

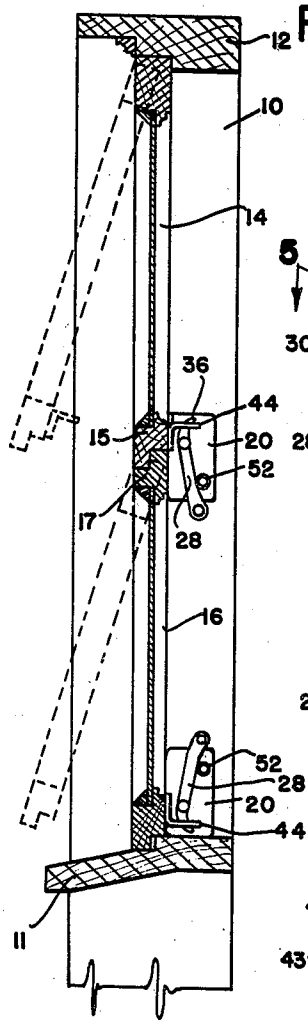


FIG_2

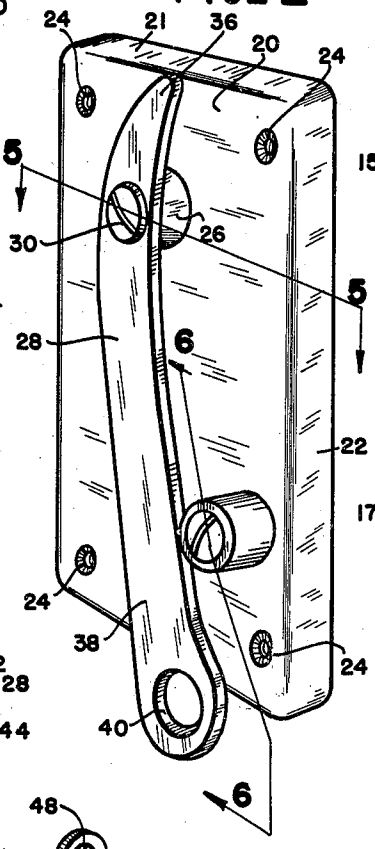
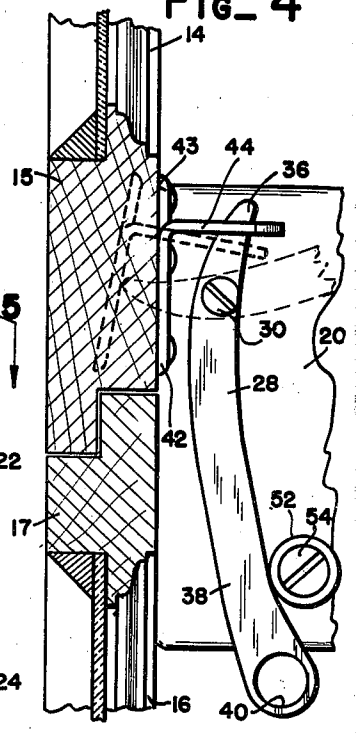


FIG_4



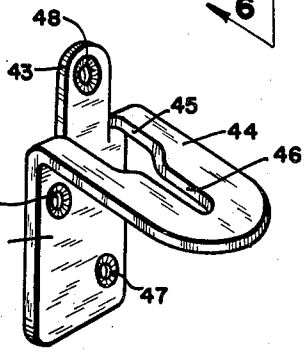


FIG_3

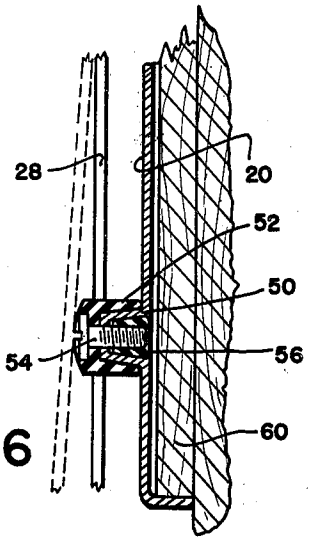


FIG_6

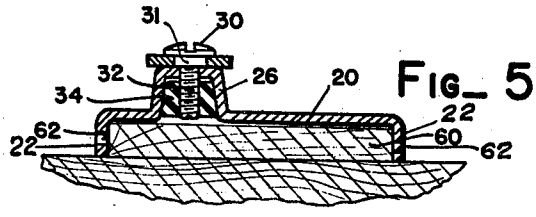


FIG_5

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UNITED STATES PATENT OFFICE

2,307,634

CLOSURE FASTENER

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3 Claims. (Cl. 292—202)

This invention relates to improvements in a closure fastener of a type suitable for use in closing or shutting separate parts, such as windows or doors in their frames, or other like objects.

More particularly this invention appertains to lever closure devices adapted to be mounted for example on a frame to engage in a loop or stirrup secured to a window or sash that is to be closed into the frame. When the two objects are brought together by means of the leverage action obtained, they not only will be securely closed, but they will also be latched as well.

Many of the fastener devices observed as being now available for window and door mechanism are either extremely complex in their construction or difficult to operate because of the manner in which they were designed and constructed. The result is that they are not readily operable by children or adults who do not possess a reasonable degree of mechanical skill and knowledge.

It has been, therefore, an important object of my invention to provide a fastener mechanism having such an inherently simple and obvious means of operation as to be capable of manipulation by the most inexperienced person who might on occasion be required to use the device.

Another observed undesirable feature of many of the fastener devices has related to the manner in which the devices were to be installed. A common practice has been the provision of a latch plate to be secured to a window in its frame and which must be mortised into the surface of the object to which it is to be attached. This requires the ability of accomplishment of handling carpenter's tools in order to produce a satisfactory mounting of the device.

Another object of my invention, therefore, has been the provision of a fastener mechanism which can be mounted for use with the utmost ease and without requiring any degree of mechanical skill beyond the ability to operate a screwdriver.

A further object of the invention has been the provision of a fastener mechanism comprising a relatively few number of parts associated together to produce a compact, simply-operated device that can be manufactured in large quantities and as a result can be sold at an extremely low price.

Other objects and advantages of my invention will be apparent during the course of the following description. In the accompanying drawing I have illustrated a preferred form of my invention, but it will be understood that I may depart from the details of that showing within the scope and limits of the subjoined claims.

Referring now, specifically to the drawing,

Figure 1 is a vertical, sectional view as through a window frame and sash of the double-swung type, illustrating the general arrangement of parts when my fastener is installed in a window in connection with such a device,

Figure 2 is a perspective view of the mounting plate and fastener lever employed thereon,

Figure 3 is a perspective view of the stirrup used in connection with the device of Figure 2,

Figure 4 is a vertical, sectional view, similar to that of Figure 1 but enlarged, showing in solid and dotted lines various positions assumed by the operating lever,

Figure 5 is a sectional view taken on line 5—5 of Figure 2, and

Figure 6 is a fragmentary, sectional view taken along line 6—6 of Figure 2.

In Figure 1, the numeral 10 designates a side bar or rail of a window frame having a sill member 11 and a head member 12. In this particular instance there are a plurality of window sash 14 and 16 mounted in the frame on horizontal pivots to be swung outwardly after the manner indicated by the dotted lines. I have adopted, for the purpose of this illustration, the showing of this particular type of window mechanism. It will be understood, however, that I do not wish to be limited thereby, and that the showing is made primarily for purposes of illustration.

In this showing, the lower cross rail 15 of the sash 14 is designed to overlap or overhang the upper cross rail 17 of the sash 16. Often the action of weather or of age brings about a material change in the manner in which such pairs of sash will close against each other, or even in the manner in which a single sash will close against the stops in its frame. Sash usually becomes warped at some period after its installation and when closed a crack will be left that will permit the entry of cold air, wind or even rain when these openings are exposed to the weather. The usual closures provided are of such a limited scope that they can not encompass the gap left between the parts to be closed, in the case of a warped window, and unless pressure can be applied from without they can not be tightly closed. The device shown in the drawing is primarily intended to meet this objection.

Conversely, when such a warped window is closed, it is often true then that the parts have been forced so closely together that they are not easily disengaged from each other, and it has also, therefore, been deemed advisable to design

my mechanism so that it would assist in dislodging such jammed windows or doors.

The fastener of my invention is best shown in Figures 2 and 3, where, in enlarged perspective views, I have illustrated the two principal elements of the device. The numeral 20 designates a mounting plate that has downwardly turned end flanges 21 and side flanges 22, which not only add to the strength of the plate 20 but also position it outwardly from the surface upon which it is to be mounted. I have provided countersunk screw holes 24 which may be arranged in the corners of the plate or according to any alternative pattern that is deemed desirable.

A slightly tapered boss 26 is shown in Figure 2 to have been pressed outwardly from the plate 20. It will, of course, be understood that this method of forming a boss 26 is not absolutely compulsory, as any other manner of attaching it to the plate 20 would be very satisfactory. The lever 28 is swingingly mounted to the boss 26 by means of the pivot screw 30 which has the pivot shank 31 as well as the threaded shank 32. The shank 32 is inserted through an opening in the upper face of the boss 26 and engages in a nut 34 shown in Figure 5 to be formed of rubber or other similar resilient material.

The lever has the stirrup engaging horn 36 disposed on one side of the screw 30 and the handle portion 38 extends on the opposite side of the pivot. An end eye ring 40 may also be provided on the lever end.

The stirrup employed in connection with the lever 28 is adapted to be mounted separately on an object, such as the sash 14 or the sash 16 of Figure 1. Variations in the manner of mounting the parts of the closure may be used. The stirrup comprises the mounting plate 42 which has a projecting ear 43 as well as an angularly disposed stirrup loop 44. As shown in Figure 3 the device has been formed from a blank produced by a stamping operation from a single sheet of material. The ear 43 has been formed from the main part of the angularly disposed arm 44, leaving the opening 45, which in a forward direction has been narrowed by tapers to form the slot 46, with which the horn 36 is engaged to draw the two elements into close proximity. The plate 42 lies at right angles below the opening 45 and slot 46 and in line with the horn 36 of the lever in its path of travel. The plate is shown as being provided with a pair of countersunk screw holes 47. The ear 43 also has a countersunk screw hole 48 to assist in mounting the device.

Spaced apart from the boss 26 in the mounting plate is the secondary boss 50 which may also, as seen in Figure 6, be formed from the main part of the plate 20 and raised or extended therefrom a distance equal to the plane of the lever 28. A rubber cap 52 is mounted over the boss 50 and is held therein by means of the screw 54. The cap 52 stands out from the surface of the plate 20 approximately the full limit of the distance that the lever 28 lies from the plate 20. Then, when the lever is positioned as shown in Figure 2, the handle portion 38 lies behind the rubber cap 52 and is retained in that position. This is clearly shown in Figure 6.

The arrangement of the bosses 26 and 50 on the mounting plate 20 is such that the use may be for either right or left hand attachment according to the need of the particular sash or window or for both side use. The bosses are identically formed and arranged on the plate 20 and the flexible rubber cap 52 is interchangeable with either boss. The lever 28 also may be secured to either boss. Thus by reason of this arrangement fewer units need be carried in stock and a universal fixture is provided.

In order to move the latch arm or lever arm 28 from the dotted line position as shown in Figure 4 to the solid line position, where it lies behind the boss 52, it is necessary that the lever 28 be sprung to the angle indicated in Figure 6 so that it can be slipped past the head of the screw 54 and the cap 52 to assume the dotted line position of the showing of the same figure.

In the interior of the boss 50 I fit the resilient rubber nut 56 into which the screw 54 is threaded. The nut 56 may be provided with a central hole that need not necessarily be threaded, but should be of a diameter that is slightly less than the inside diameter of the threads of the bolt or screw 54. When the threads of the screw 54 are threaded into the nut, the rubber will closely engage the bolt and hold it against turning and against displacement. The action of the nut 34 is exactly the same and the primary function of the nuts 34 and 56 is to prevent the bolts 30 and 54 respectively from accidentally becoming loosened.

Under the plate 20 and within the flanges 21, 21 and 22, 22, I ordinarily place a wooden block 60 which substantially fills the area and serves to position the plate on the frame or other object upon which it may be mounted. In one or both of the flanges 22 nail holes as 62 may be formed so that when the plate 20 is properly mounted in a window frame, for example, weatherstripping may be tacked immediately against the edge of the plate disposed outwardly and tacks or nails used to secure the weatherstripping can be passed through the preformed holes 62.

To open the window as shown in Figures 1 and 4 to the dotted line position shown in Figure 1, the operator of the device would grasp the lever by its handle portion 38 adjacent the loop 40 and spring or flex the lever outwardly as indicated in Figure 6. The lever can then be swung past the rubber covered stop 52, and further swinging of the lever, as to the right in Figure 4, will disengage the horn 36 from the slot 46 and the horn 36 will be brought into contact with the face of the plate 42 as indicated.

Because the fulcrum formed by the bolt 30 for the lever 28 is fixed, the horn 36 will then cause outward dislodgment or displacement of the sash carrying the stirrup member. If the sash is jammed or stuck so that ready dislodgment manually would be difficult, this operation, it will be seen, will be considerably simplified by the use of my device. As the horn 36 is swung or rotated about the pivot 30 the sash 15 will also swing on its outward pivot and will quickly and readily be freed from its seat in the frame or against its mating sash.

To return the windows to their closed position, they will be manually swung to a point where the horn 36 may be engaged in the slots 46 Then by swinging the lever clockwise, about its pivot in Figure 4, the sash 15 will be drawn inwardly against the jamb or stops to effect a tight closure of the sash, regardless of the amount of warp in the sash.

A prime object of this invention has been to produce a device that would insure a right fit of a sash with its frame. At times variances in the fit of the sash may occur and for that reason

I have provided in such instances that the cap **52** be eccentric on its outer face that engages the lever. By loosening the retaining screw, the cap may be rotated on the boss **50**, as occasion demands, and a greater or lesser thickness of the cap can be disposed between the outer wall of the boss **50** and the rear edge of lever **38**. Thus the horn **36** will be retained at a farther drawn-in position and the sash be retained more securely.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a fastener of the latch and keeper type, latch means comprising a base having a hollow flat-ended boss protruding therefrom, said boss being adapted to have a pin passed axially through its outer face, a pin loosely mounted in said boss, a resilient retainer member on the inner end of said pin within said boss, a rigid latch lever pivotally mounted on said pin and adapted on one end to engage a keeper, and a second boss on said base in the path of the other end of the latch lever, whereby the resiliency of the pivotal mounting permits the latch lever to be passed outwardly over the second boss to the latched position.

2. In a fastener of the latch and keeper type, latch means comprising a base having a hollow flat-ended boss protruding therefrom, said boss being adapted to have a pin passed axially through its outer face, a pin loosely mounted in said boss, a resilient retainer member on the inner end of said pin within said boss, a rigid latch lever pivotally mounted on said pin and adapted on one end to engage a keeper, a second boss on said base in the path of the other end of the latch lever, and eccentric means on said second boss, whereby the resiliency of the pivotal mounting permits the latch lever to be passed outwardly over the second boss to the latched position.

3. In a fastener of the latch and keeper type, latch means comprising a base having a hollow flat-ended boss protruding therefrom, said boss being adapted to have a pin passed axially through its outer flat face, a pin mounted in said boss, a resilient retainer member on the inner end of the pin within said boss, a rigid latch lever pivotally mounted on the pin and adapted on one end to engage a keeper, and a retainer member on the base in the path of the other end of the latch lever, whereby the resiliency of the pivotal mounting permits the latch lever to be passed outwardly over the retainer member to the latched position.

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