July 7, 1953 G. B. POOLE 2,644,708

FASTENING FOR GATES, DOORS, AND THE LIKE

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FIG. 1.

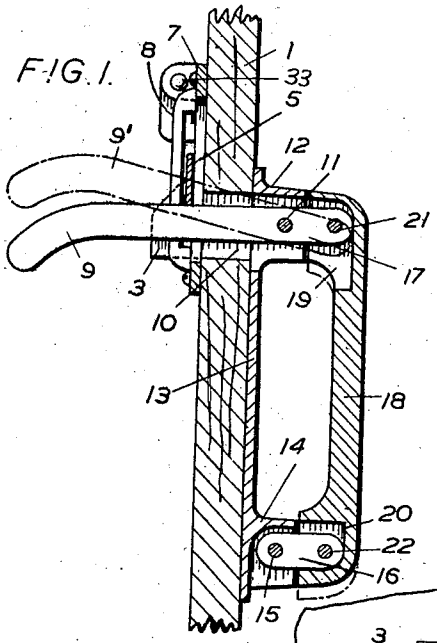


FIG. 2.

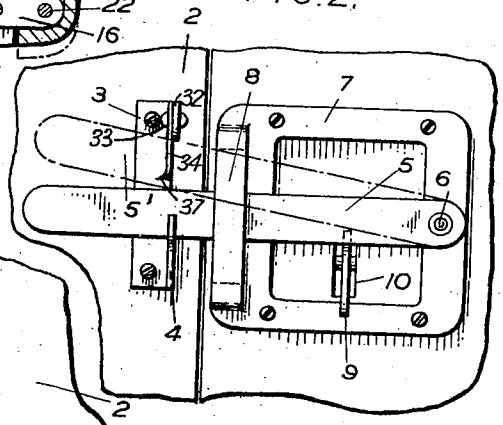


FIG. 3.

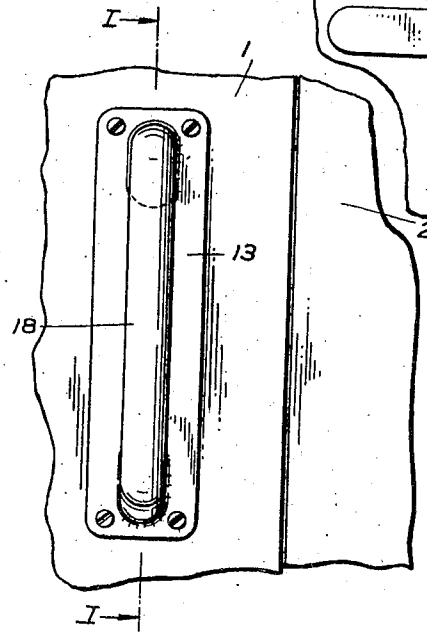
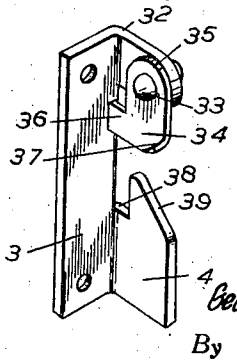


FIG. 8.



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FIG. 4.

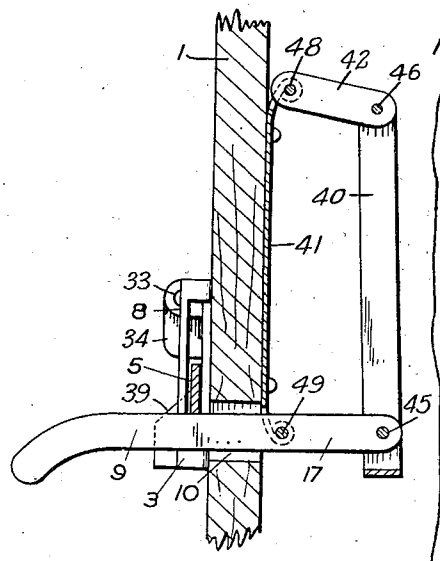


FIG. 6.

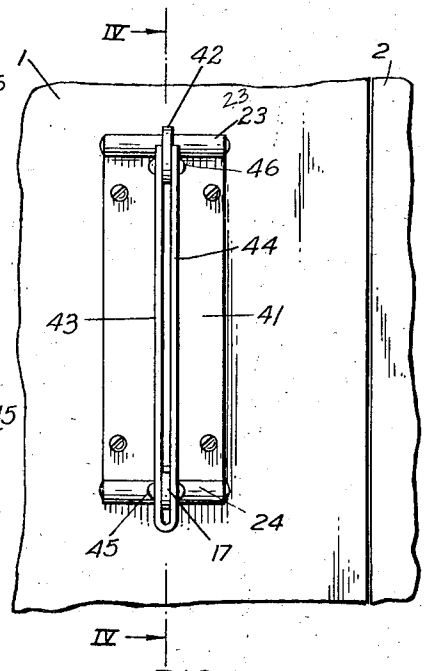


FIG. 5.

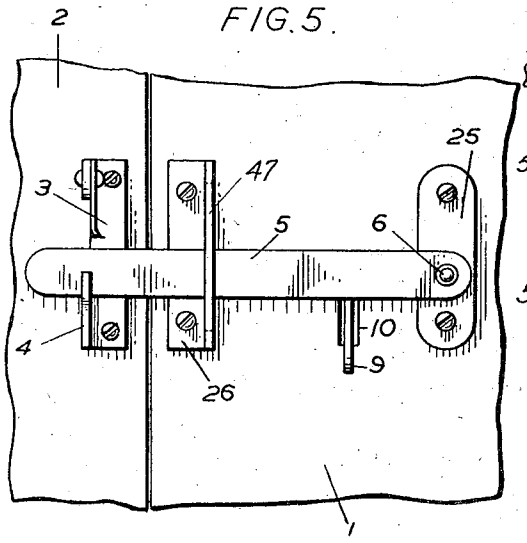
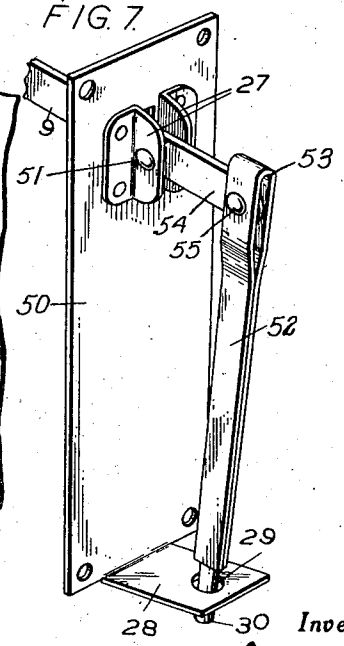


FIG. 7.



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Patented July 7, 1953

2,644,708

UNITED STATES PATENT OFFICE

2,644,708

FASTENING FOR GATES, DOORS, AND THE LIKE

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Application July 19, 1949, Serial No. 105,615
In Great Britain July 28, 1948

4 Claims. (Cl. 292—236)

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This invention relates to devices for fastening a gate, door, flap or analogous hinged unit to an adjoining, relatively fixed member, and is particularly concerned with a fastening of the type which, when mounted in position for use, comprises a bar which is pivotally mounted on one side (the "inside") of the hinged unit and is arranged to project from the latter so that it can engage a keeper on the fixed member, this bar being swingable into or out of its latching condition under the action of a further bar or lever (hereinafter called the "latch lift") which is also pivotally mounted on the hinged unit but extends through the latter transversely to the first bar (hereinafter called "the fall bar") and engages the latter from beneath, the latch lift thus being operable from the opposite side (the "outside") of the hinged member to raise the fall bar and release it from the keeper to free the hinged unit.

A form of this fastening is the so-called Suffolk latch, in which the fall bar is arranged to drop under its own weight into a keeper in the form of a notched plate or stop screwed to the adjoining fixed member, and the latch lift, which is sometimes referred to as a "sneck," is in the form of a lever which extends, in the unoperated condition, in a more or less horizontal direction, through a vertical slot in the hinged unit (usually a door or gate).

Conventionally, the latch lift of a Suffolk latch, as applied, say, to a gate or an outer door, is pivoted between lugs provided on a plate screwed to the outer face of the gate or door, the inner end of the said lift being formed for lifting by a finger, or a thumb and fingers, to raise the fall bar and unlatch the gate or door from the inside, whilst the outer end of the latch lift is customarily formed with a thumb plate for depression to raise the fall bar and unlatch the gate or door from the outside.

In some forms of Suffolk latch, moreover, the pivoting movement of the fall bar is kept within limits by a staple-like guide bar on the inside of the door or gate.

Hitherto it has been customary to provide the hinged member, e. g. the door or gate, with a fixed handle on the outside, this for instance being provided on the aforesaid lug-carrying plate, to facilitate pushing open of the unit, or pulling it closed, from the outside.

Accordingly, to unlatch and open the hinged unit from the outside, the fixed handle has heretofore been grasped in the hand and the thumbpiece, located immediately above the handle, has

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been depressed by an independent movement of the thumb to release the latch.

An object of this invention is to furnish an improved fastening. In the present invention a handle is connected to the latch lift on the outside of the hinged unit at a position spaced from the pivot of the lift on the hinged unit, this handle being formed to provide a hand grip and extending upwards or downwards from the latch lift and being movable in a vertical direction to actuate the latter, but simultaneously serving as a means by which the hinged unit can be moved in its opening or closing direction.

The improved construction and arrangement is therefore such that by merely grasping the handle and simultaneously imparting to it a movement to a small extent in the appropriate direction, the latch lift is automatically turned to raise the fall bar clear of the keeper, thereby unlatching the hinged unit and permitting it to be opened by a push on the same handle.

Other features and objects of the invention are hereinafter set forth.

Three forms of the invention are illustrated by way of example in the accompanying drawings, and reference to these drawings is made below.

Figure 1 is a vertical section through a latch of the Suffolk type formed in accordance with the present invention and secured to a door. This section is taken on the line I—I of Figure 3.

Figure 2 is a front elevation, on an enlarged scale, of the parts of the latch secured to the inside of the door.

Figure 3 is a corresponding elevational view of the latch as seen from the outside of the door.

Figure 4 is a vertical section, corresponding to that of Figure 1, but illustrating another form of latch according to the invention, shown mounted on a door. The section is taken on the line IV—IV of Figure 6.

Figure 5 is an elevation of the parts of this latch seen from the inside of the door, and corresponding to the view of Figure 2.

Figure 6 is an elevation of the parts of the latch of this second embodiment, seen from the outside of the door.

Figure 7 is a perspective illustration of a latch lift and handle assembly constructed in accordance with a third embodiment of the invention.

Figure 8 is a perspective view of the keeper and locking element used in the construction of Figures 1 to 3.

In the various drawings, similar parts have been given the same reference numerals.

Referring first to Figures 1 to 3, the latch here

illustrated is shown secured by screws to a door 1 and to the associated fixed jamb 2.

Secured to the jamb 2 is the keeper 3 which is in the form of a plate having a projecting flange 4 which is notched at its upper part (i. e. at 38) to provide a retaining means, open at its upper end, for receiving the fall bar 5 of the latch. The latter is pivotally mounted at 6 (e. g. by means of a rivet), so as to fulcrum about this point, and the fall bar 5, since it extends beyond the edge of the door 1, can engage in the keeper 3 as illustrated to retain the door closed. The upper edge 39 of the flange 4 is inclined to facilitate movement of the fall bar into notch 38 as the door is closed.

The pivot 6 of the fall bar 5 is secured to a frame 7 with which is integrally formed a guide bar 8 of staple-like form surrounding the fall bar 5 and limiting its upward and downward swinging.

This fall bar is operated by a latch lift 9 which passes through a slot 10 in the door. The lift 9 is in the form of a lever which is pivoted at 11, intermediate its ends, in a hollow or vertically-slotted boss 12 which is formed integrally with a plate 13 secured by screws to the outside of the door and forming a finger plate. This pivoting is effected by means of a pivot pin 11 which is mounted in the side walls of the boss 12.

The plate 13 is provided towards its lower end (i. e. at a position vertically spaced from the boss 12) with a similar hollow boss 14 which has mounted, between its side walls, a pivot pin 15 for a link 16. It will be observed that the latch lift 9 is formed with a downward curve at the end thereof inside the door as is customary in Suffolk latches, and that it has a portion 17 projecting, on the outside of the door, beyond the pivot pin 11.

Articulated to the outer ends of the lift part 17 and the link 16 is a handle 18 which has its length extending in the vertical direction and is recessed at 19 and 20 for reception of the parts 16 and 17 and to form bifurcated portions between which the respective pivot pins 21 and 22, for the end of the latch lift 9 and the link 16 respectively, are mounted. The boss 14, pin 15, link 16 and pin 22 define a guide means for the end of the handle remote from the latch lift 9.

As is more clearly seen from Figure 8, the keeper plate 3 also has, projecting from the upper part of the edge carrying flange 4, a lug 32, which is rounded at its outer end. Pivotally secured by a rivet 33 to this lug 32 is a locking element 34. The latter is in the form of a generally rectangular and flat plate which is rounded at the side 35 adjacent which it is pivoted to the lug 32 and has, at its opposite end, a projecting nose 36. When the locking plate 34 is in the dependent position indicated in the drawings, the nose 36 obstructs the upward pivoting of the fall bar 5 so that the latter is retained in the notch 38 of the keeper flange 4, the length of the locking plate 34 being appropriately chosen to this end.

In addition, a corner 37 of the plate 34 is bent up out of the plane of the latter so as to form a convenient finger grip whereby this element can be moved out of its locking position, into an out of the way position so as to be out of the path of the fall bar 5.

The locking element 34 may be normally inoperative or be adapted normally to fall into the locking position under its own weight, in the latter case only being released by actuation by a user and becoming effective each time that the door is shut. In the former case the desired result may be obtained by pushing up the element 34 beyond its top dead centre position, or for instance by suitably arranging for a tight gripping of the plate 34 against the lug 32 when connected thereto by the rivet 33, or furnishing the locking element with an upper portion slightly offset in relation to the main plane so as to engage frictionally, at all times, against the lug. Again, the locking element 34 may be attached to the lug 32 by means of a threaded bolt having a wing nut whereby the element can be tightened or loosened as required.

With the construction described in reference to Figures 1 to 3 and Figure 8 it will be observed that, if a user wishes to open the door and assuming the locking element 34 to be raised clear, it is merely necessary for him to grasp the handle 18 in the ordinary way, pull this handle downwards and simultaneously exert a pushing force against the same. The downward pull on the handle will cause the link 16 and the lever part 17 to pivot downwards, and the inside end of the latch lift 9 will therefore be raised to the position indicated by the dotted lines 9'. This will consequently provoke the raising of the fall bar 5 into the position indicated by dotted lines at 5' in Figure 2, the extent of the movement being limited by the guide bar 8, so that the fall bar is free of the keeper 3. The pushing effort will therefore open the door.

The construction illustrated in Figures 4 to 6 is similar, but here, it will be noted, the latch lift 9 is connected to the lower end of the handle 40 instead of to its upper end as in the first construction.

In this second instance the finger plate 41 is curved outwards at its upper and lower ends and furnished at these ends with a roll, 23 and 24 respectively, which is divided midway between its ends for the purpose of accommodating the end of a link 42 (which in this case is provided at the upper end of the handle 40) and the outward extension 17 of the latch lift 9 respectively.

This enables the plate 41 to be made of simple and cheap construction, as is also the handle 40, the latter being formed by folding back on itself a single strip of metal to produce two spaced parallel strips 43 and 44 which are secured, by pivot pins 45 and 46 respectively, to the lift part 17 and the link 42.

In this construction, moreover, the retaining flange 4 on the keeper 3 and the locking element 34 are provided at the opposite side of this latter from the arrangement in the construction according to Figures 1 to 3, and in the present instance the fall bar 5 and the guide bar 47 are mounted and provided on separate plates 25 and 26 secured to the inside of the door.

It is also to be noted that the distance between 48 (the pivot pin securing link 42 in roll 23) and 46 is in this case less than the distance between pivot points 49 (the pivot pin mounting latch lift 9 in roll 24) and 45, whereas these distances were equal in the first construction described.

The operation of the latch according to this second construction, i. e. the simultaneous unlatching and pushing open of the door, is exactly analogous to that of the first construction described, as is the function of the locking element 34.

It will be appreciated that in both the constructions described, although the handle has in the one case been shown arranged below the latch lift, and in the other case above this lift,

the arrangement could in either case be reversed. It will furthermore be understood that the parts on the inside of the door can be applied to a door which opens either left-handed or right-handed fashion, and that the plate and associated parts on the outside of the door can be used with either arrangement.

It will also be appreciated that in both constructions the plate **13** or **41**, the latch lift **9**, the handle **18** or **40** and the link **16** or **42** form a unitary assembly which is secured in the desired position by screws through the plate.

A similar consideration applies to the parts of a latch assembly illustrated in Figure 7, the major differences here lying in the means for guiding the end of the handle remote from the latch lift, in the form of the handle itself, and in the manner of mounting the latch lift on the finger plate.

In Figure 7 the finger plate **50** is provided at its upper part with a pair of parallel lugs **27** between which the latch lift **9** is mounted by means of a pivot pin **51**. At its lower end this plate is integrally formed with a bent out tongue **28** which is apertured at **29** for the passage, with a certain amount of play, of a reduced lower end **30** of the handle **52**.

This handle may again be formed from a single strip folded midway along its length, the strip being of smaller width at its outer ends to form the reduced portion **30**, and the adjacent faces of the folded strip being brought together except at the upper part of the handle **53** where they are left spaced to receive the lift part **54** and the pivot **55** therefor.

In this case the combined unlatching and door opening operation, by actuating the handle **52**, is exactly similar to that described in connection with Figures 1 to 3, the reduced end **30** of the handle moving downwards through the guideway formed by aperture **29** in the tongue **28**. It will be appreciated that the aperture in the tongue forms the guide means for the end of the handle remote from the lift latch.

In any of the constructions described the fall bar **5** may, if necessary or desirable, be weighted.

Although specific embodiments of the invention have been described and illustrated, it will be understood that changes may be made herein within the scope of the appended claims.

I claim:

1. In a fastening of the type set forth for a hinged unit, a fall bar adapted for pivotal mounting on said unit at the inside thereof, a latch lift adapted to traverse said hinged unit, to be pivoted thereon, and to engage beneath said fall bar, a vertically-disposed hand grip pivotally connected to the end portion of said latch lift at the outside

of said hinged unit, and guide means for securing on the outside of the hinged unit, said guide means engaging an end part of said hand grip spaced from the said latch lift and restraining this end part against substantial movement in the horizontal direction when the hand grip is moved downwardly to operate the latch lift.

2. In a fastening of the type set forth for a hinged unit, a fall bar adapted for pivotal mounting on said unit at the inside thereof, a plate for attachment to the outside of said hinged unit, a latch lift pivoted on said plate intermediate its ends and adapted to pass through the hinged unit and engage beneath said fall bar, a hand grip articulated to the outside end portion of the latch lift, and guide means for said hand grip secured to said plate at a position spaced from the latch lift and restraining this end part against substantial movement in the horizontal direction when the hand grip is moved downwardly to operate the latch lift, said plate, said hand grip and said guide means constituting a unitary assembly.

3. In a fastening of the type set forth for a hinged unit, a fall bar adapted for pivotal mounting on said unit at the inside thereof, a plate for attachment to the outside of said hinged unit, a latch lift pivoted on said plate intermediate its ends and adapted to pass through the hinged unit and engage beneath said fall bar, a hand grip articulated to the outside end portion of the latch lift and a link pivotally mounted on said plate and articulated to the hand grip.

4. A fastening of the type set forth for a hinged unit, comprising a fall bar pivoted on the inside of said hinged unit, a mounting plate secured to the outside of said hinged unit, a first projection on said plate, a latch lift pivoted between its ends to said first projection and extending through the hinged unit to engage beneath the fall bar, a second projection on said plate at a position vertically spaced from the first projection, a hand grip articulated at one end part to the outer end portion of said latch lift, and a link pivoted on said second projection and articulated to said hand grip at a position spaced from its articulation to the latch lift.

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