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CLOSURE FASTENER

Arthur M. Johnson, Lake Lillian, Minn.

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2 Claims. (Cl. 292—62)

This invention relates to closure fasteners and more particularly to a novel hook fastener, applicable to doors and the like.

The principal object of the invention is to provide a hook fastener which will retain a door, particularly a sliding door, in a tightly closed position, yet will not interfere with the free sliding of the door during the operation of opening and closing the same.

Another object is to provide a novel closure fastener as heretofore described, which will also serve as a rigid handle to assist in opening and closing a door or the like.

Another object is to provide such a closure fastener which, when properly applied to a hanger-hung sliding door, will prevent swinging of the closed door by the wind, etc.

Still another object is to provide a novel hook fastener which is prevented from being unhooked by horses, cattle, and the like.

Another object is to provide such a closure fastener which may be applied to two-part upper and lower barn or garage doors, for holding them rigid and the closure fastener against being worked to an inoperative position due to oscillations of the door structure.

Another object is to provide a sturdy closure fastener comprising but five simple parts, easily assembled and renewed and inexpensive to manufacture.

Other objects and advantages of the invention will be apparent during the course of the following detailed description, taken in connection with the accompanying drawing, forming a part of this specification and in which drawing:—

Figure 1 is a fragmentary perspective view of a structure, including a sliding door, to which the novel closure fastener has been applied.

Figure 2 is an elevation of the closure fastener as viewed from the inner side of the closure.

Figure 3 is an elevation of the closure fastener as viewed from the outside of a closure.

Figures 4 and 5 are views substantially on their respective lines in Figure 2.

Figure 6 is a view substantially on the line 6—6 of Figure 5.

In the drawing, wherein for the purpose of illustration is shown only a preferred embodiment of the invention, the letter A may designate generally a structure such as a building provided with a closure B to which the novel closure fastener C is attached.

The novel fastener is particularly applicable to sliding doors of barns but may be applied to other structures. In the example shown, the

structure A includes a wall 10 having an opening or doorway 11, at one side of which and inwardly of the wall is an upright or jamb 12 while outwardly of the wall and at the opposite edge of the doorway is an upright stop 13 carrying one or more tongues 14 to retain the forward end of the closure B against swinging. All of the foregoing portions 10 to 14 are conventional.

The closure B, in the example shown, is a sliding door 15 for the doorway 11, and may be of double thickness as shown in Figure 4. The sliding door 15 is hung, in the example shown, at its upper end upon a door hanger assembly including a horizontal track 16 projecting outwardly from the wall 10 to which it is rigidly secured as by brackets 17 a short distance above the upper end of the doorway 11. Upon this track rides two or more wheels 18 provided with bracket members 19 for bearings, the bracket members being attached at their depending portions to the door 15. It is desirable that most sliding doors be so hung that they practically lay against the wall 10 of the structure, preventing draft and the ingress of small animals, etc. As a consequence, when the sliding door is slid open (in the example shown, in Figure 1, towards the right) there is but little if any clearance between the outer face of the wall 10 and the inner face 20 of the door 15.

For the purpose of accommodating the novel closure fastener C, the door 15 is provided adjacent its rearward end 20^a with an opening which preferably includes a relatively small round or square aperture 12 extending from the outer face 22 of the door inwardly where it opens into a substantially V-shaped mortise 23, the opening 21 leading into the mortise 23 at substantially the apex of the V.

Now as for the novel closure fastener C, the same preferably includes a hook member 24 comprising a cylindrical rod bent at one end to form a substantially O-shaped hand grip 25, an elongate straight portion 26 next thereto and an elongate bill 27 at substantially a right angle to the straight portion 26. This bill comprises a substantially straight portion 28 forming an L with the elongate straight portion 26. From the end of the portion 28 opposite its connection to the portion 26, the rod is again bent as at 29 forming a substantially L-shaped hook portion in conjunction with the portion 28. It should be noted that the axis of that portion of the rod bent as at 29 does not parallel the axis of the portion 26. The tip or free end 30 of the bill is preferably beveled or sloped as is clearly shown in Figures 2 and 6. It is preferred that the sev-

eral bends in the rod be rounded, and that the rod be cylindrical but it is possible to employ other shapes for all portions of the rod except the portion 26.

5 A particularly novel and important part of the closure fastener construction is a plate member 31 having preferably a flat face 32 and a substantially V-shaped recess 33 opening from the face 32 and with the apex of the V extending
10 toward one end of the plate, as shown in Figure 2. Close adjacent the apex of the V-shaped recess is a perforation or aperture 34 in the plate member and opening into the recess. This plate member 31 may be stamped from a sheet of suitable material so that the base 35 of the recess is substantially flat while the side walls 36 may be normal thereto or slope slightly inwardly towards the base 35 with the edges formed by the walls 36 and the face 32 rounded. It is important
20 that the size and depth of the recess be such that it will accommodate the whole of the L-shaped hook portion mentioned and so that this portion when in the recess will be below the plane of the face 32 as shown in Figure 5. It is also desirable that this portion have sufficient rotative play so that, as shown in Figure 2 in dotted lines, it may be rotated in one direction a part of a turn until the tip abuts the opposite wall of the V-shaped recess, as clearly shown in Figure 2, because moisture from the air may condense, or rain water and snow or sleet may gather in the recess 33 and freeze, making manipulation of the bill or hook portion 27 difficult or impossible, were it not for this possible play. Manipulation, as
35 shown in dotted lines in Figure 2, permits ice and snow to be dislodged and the bill to be properly retracted also. The plate member 31 may be provided with suitable perforations to accommodate screws 37 or similar means to attach the plate member to a support, such as a door. It is preferred that the perforation 34 be of a diameter sufficient to accommodate the straight portion 26 of the rod, forming a bearing therefor, as shown in Figure 4.

45 A second bearing for the straight portion 26 of the rod may be provided and comprises a suitable bearing plate 38, having a perforation 39 to accommodate the straight portion 26 of the rod, forming a bearing therefor, and perforations 40 to accommodate screws 41 or the like for the purpose of securing the plate 38 to a suitable support.

55 Encircling the straight portion 26 of the rod is an expansion coil spring 42 or the like and adapted to bear against the hand grip 25 at one extremity, and the bearing plate 38 at its opposite extremity.

An eye member is provided for the bill and may comprise a conventional staple 43.

60 All portions of the novel closure fastener are preferably of metal such as iron or steel and suitably protected from rusting. Aside from the screws 37 and 41 there are but five parts to the entire assembly.

65 With the closure B provided as heretofore set out, one example of the way the same may be assembled and applied is as follows:—Slipping the bearing plate 38 upon the hook member 24 until it contacts with the spring 42, the hook member is worked thru the aperture 21 which is preferably of a much greater diameter than the diameter of the straight portion 26 of the hook member. The hook member is of course inserted into the opening 21 from the outer face 22 of the closure. Then, upon pressing the hook member
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inwardly against the tension of the spring, the plate member 31 may be worked along the hook member 24 until it is seated in the mortise 23. If desirable, the plate member 31 may be countersunk as shown in Figure 5. Release of pressure upon the hook member 24 will temporarily hold both plate members 31 and 38 in place and then they may be secured, the former to the inner face 20 of the closure and the latter to the outer face 22. In placing the staple 43 or the like, it is very desirable for several reasons that this be so placed that when the closure is in a tightly closed position and against the stop 13 while the bill is snugly within the eye formed by the staple 43 and the jamb 12, into which the staple 15 may be driven, the convolutions of the spring 42 will meet, as clearly shown in Figure 4.

With the novel closure fastener, applied to the closure B, such as a sliding door, at adjacent the rearward end 20^a of the door, as shown in 20 Figure 1 and with the closure B in the closed position shown in Figures 1 and 4, a turn upon the hand grip to the left will disengage the bill from the eye and a slight further turn to the left, assisted by the coil spring 42 will cause the bill 25 portions 27, 28, 29 and 30 of the hook member to be drawn into the recess 33 as shown in Figure 5 and wholly out of the way. Consequently, when the closure is slid toward the right making use of the hand grip as a means, into an open 30 position there is no portion of the hook member projecting from the plane of the inner face 20 of the closure. Therefore, there is nothing to catch upon the sides of the doorway 11 nor scrape over the outer face of the wall 10. Conversely, when the closure B is slid along the outer face of the wall 10 toward the left in order to bring it to a closed position against the stop 13 and under the tongues 14, there is no portion of the closure fastener to scrape upon the wall 40 10.

When the parts are in place as shown in Figures 1 and 4, the closure cannot slam nor oscillate at its rearward portion or end, since the spring is tightly compressed, the closure fastener 45 serving as an efficient means to prevent such swinging movements at a point (the rearward portion) where the average sliding closure, such as a sliding barn door, is not generally held against swinging caused by winds and the like.

50 The portion 26 of the hook member 24 may reciprocate and rotate freely and the arrangement of parts, taken in conjunction with their sturdiness and the one-piece construction of the hook, is such that ice and snow will not be apt to prevent the proper functioning of the device.

Various changes 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.

60 What is claimed is:

1. A combined handle and closure fastener for association with an eye member, comprising bearing means including a plate member having a recess and a perforation opening thereinto, a hook member including a handle portion, a substantially straight portion extending from said handle portion and thru said perforation and a bill portion extending from said straight portion and in a plane substantially parallel with 65 the face of said plate member, said recess adapted to accommodate the whole of said bill portion with the bill portion below the plane of the face of said plate, and an expansible coil spring about said straight portion with one end bear- 75

ing against said handle portion and the other end bearing against said bearing means, the length of said spring being such that when the convolutions thereof are in contact with one another, said bill portion will be in a plane substantially coincident with the axis of the eye of said eye member.

2. In a closure fastener, an elongate rod member having a substantially L-shaped bill portion at one end thereof, an arm of said bill portion being associated with said rod to form substantially a right angle, a plate member having a V-shaped recess therein with the apex of said recess pointed toward an edge of said plate and said plate member also having a perforation

opening into said recess adjacent said apex, with said rod member extending through said perforation, said recess being of a size sufficient to wholly accommodate said substantially L-shaped bill portion and to allow rotative play of said L-shaped bill portion in one direction a part of a turn until the tip of the L-shaped bill portion abuts one wall of said V-shaped recess and rotative play in the opposite direction until said arm of said bill portion abuts the opposite wall of said recess, with the bill portion below the plane of the face of said plate, and means to urge said bill portion into said recess and to permit rotation and reciprocation of said rod.

ARTHUR M. JOHNSON.