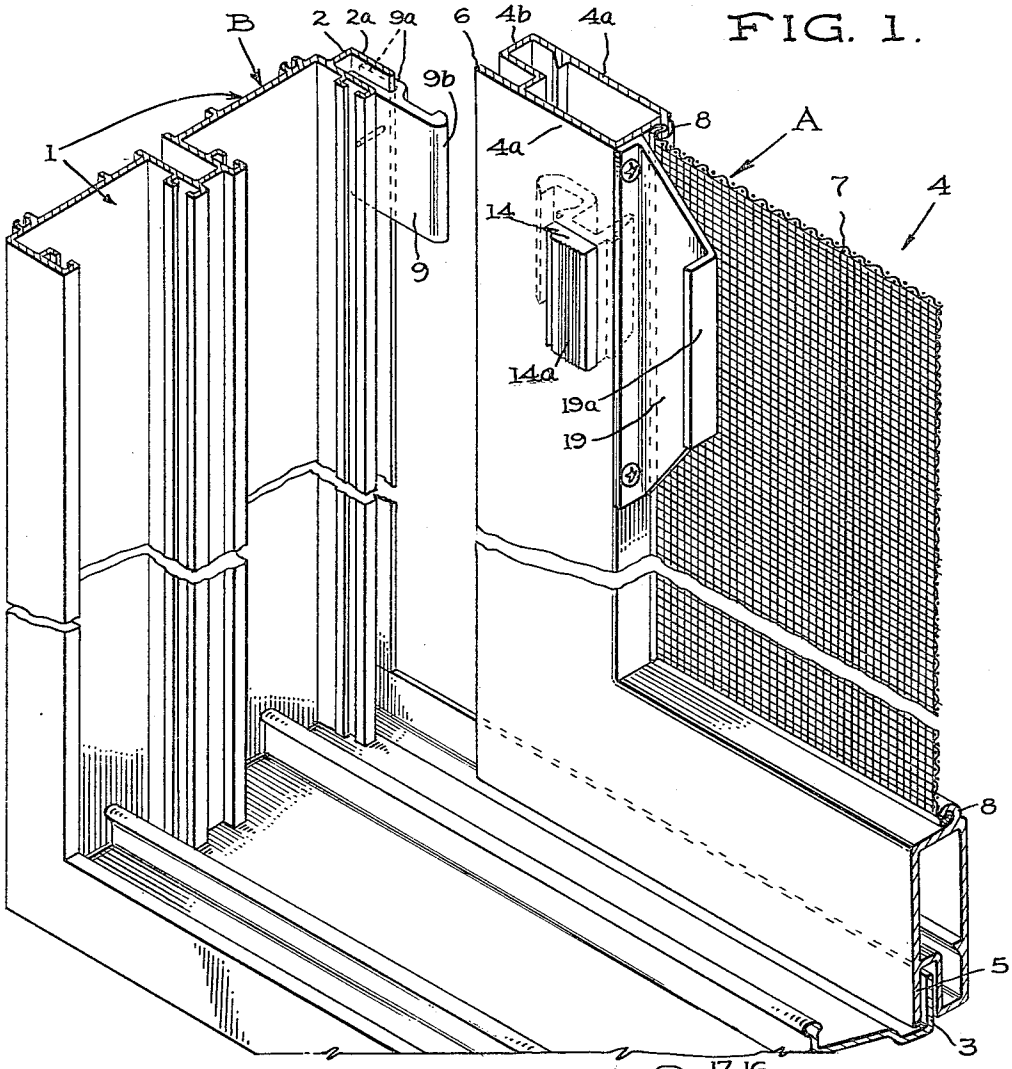
Aug. 21, 1962 R. P. MILLER 3,050,322

RELEASABLE LATCH ASSEMBLY

Filed May 16, 1960 2 Sheets-Sheet 1

FIG. 1.



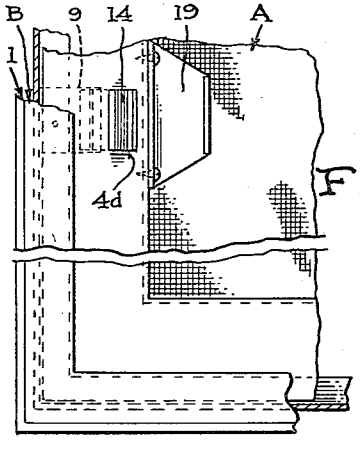
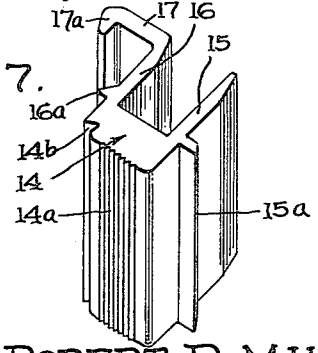


FIG. 2.

FIG. 7.



INVENTOR

ROBERT P. MILLER

BY

ATTORNEY

Aug. 21, 1962 R. P. MILLER 3,050,322

RELEASABLE LATCH ASSEMBLY

Filed May 16, 1960 2 Sheets-Sheet 2

FIG. 3.

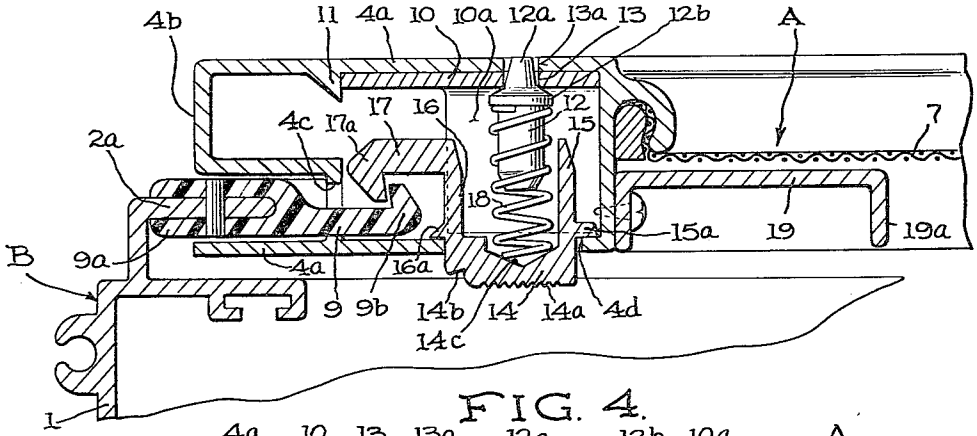


FIG. 4.

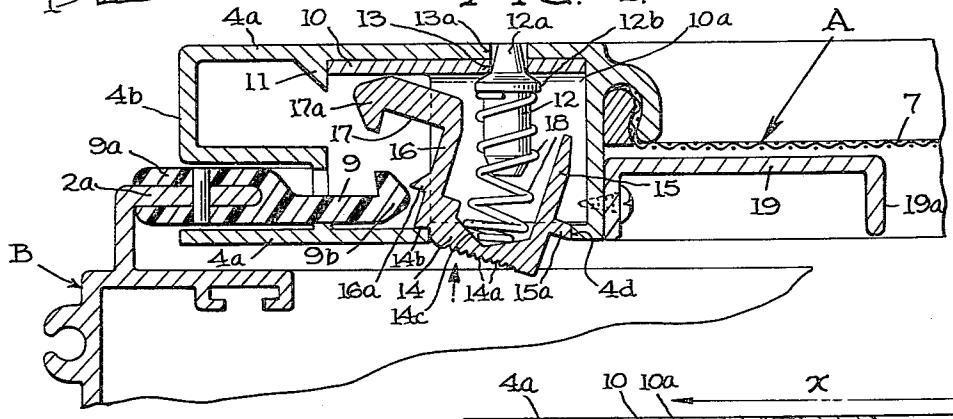


FIG. 5.

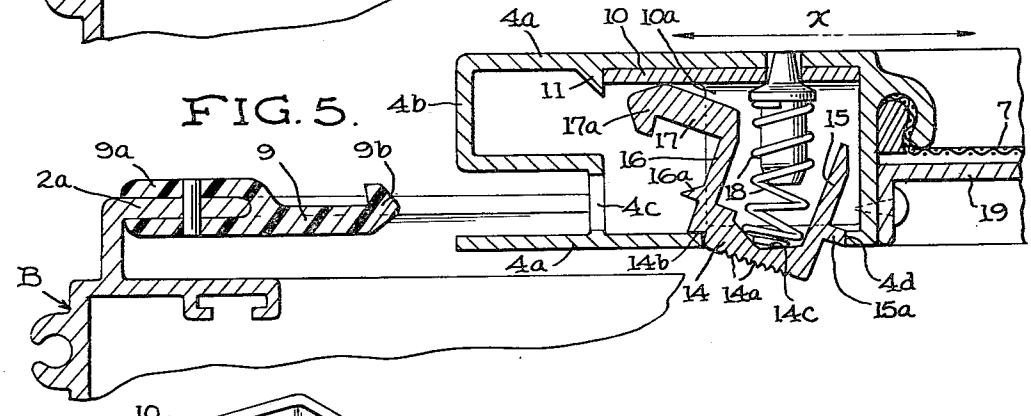
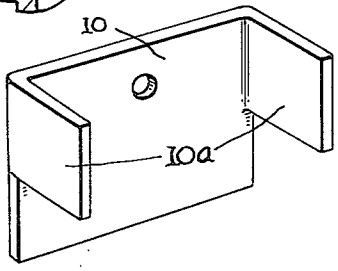


FIG. 6.



INVENTOR

ROBERT P. MILLER

BY

ATTORNEY

United States Patent Office 3,050,322 Patented Aug. 21, 1962

3,050,322

RELEASABLE LATCH ASSEMBLY

Robert P. Miller, South Miami, Fla., assignor to Daryl Industries, Inc., Miami, Fla., a corporation of Florida

Filed May 16, 1960, Ser. No. 29,287
5 Claims. (Cl. 292—114)

This invention relates to a releasable latch assembly for sliding closures such as sliding screen door or window frames, the sliding frame being of tubular or hollow construction.

An important object of the invention is to provide a latch assembly of the above character in which the latch mechanism is housed in the space within the hollow sliding frame and manually and selectively operable by means of a push button extending outwardly through a wall of the frame to either disengage the latch from its keeper each time the closure is to be opened or to disable the latching mechanism over a period of time so that the closure may be freely moved between closed and open positions without engaging the latch. More particularly, this object is accomplished by so constructing and arranging the push button that it may be depressed in a straight line for releasing the latch or may be depressed and then rocked or shifted laterally to maintain the latch in hold-open position.

Another object of the invention is to provide a latch assembly of the above character which comprises a floatingly supported push button capable of being depressed and shifted or rocked laterally for engaging a detent with a stationary part of the frame so as to maintain the latch in hold-open position, and including an abutment on the push button to prevent disengagement of the detent, such as might occur when the frame is slammed shut or subjected to other sudden impacts or shocks. Thus the latch, in its preferred construction, is depressible rectilinearly to release the keeper each time the closure is to be opened, or alternatively it may be shifted or rocked laterally to maintain the latch inoperative in its hold-open position as long as desired.

Still another important object of the present invention is to provide a latch of the above character capable of fitting into a small space, that is extremely simple in construction, easy to install, foolproof in operation, convenient to manipulate and generally inexpensive to manufacture.

The foregoing and other objectives, advantages, and features of construction will become apparent from a consideration of the following description and the accompanying drawings, in which:

FIGURE 1 is a fragmentary perspective view of a sliding screen door, including the latch assembly of the invention, showing the door in partially open position;

FIGURE 2 is a detail view on a reduced scale in side elevation, illustrating the screen door in closed and locked position;

FIGURE 3 is a horizontal cross-sectional view of the latch assembly illustrating the screen door in closed position with the latch assembly in locked relationship;

FIGURE 4 is a cross-sectional view similar to FIGURE 3 but illustrating the button of the latch assembly in hold-open position with the keeper released from the latch;

FIGURE 5 is a cross-sectional view similar to FIGURE 4 but showing the screen door and its latch moved out of engagement with the keeper;

FIGURE 6 is a detailed perspective view of the retainer for the latch button; and

FIGURE 7 is a detail, perspective view of the latch button.

The screen door A illustrated in the drawings is adapted to be mounted for horizontal sliding movement within a casing B which latter may be designed to also provide a

housing for a sliding glass door (not shown) adapted to travel in a plane parallel to the screen door. Both the screen door A and the casing B are desirably composed of metal, such as extruded aluminum, and the vertically-disposed portion of the casing defines a jamb 1 against which the sliding screen and glass doors are adapted to abut when in closed positions.

Perimetrally skirting the side of the casing facing outdoors is a vertical channel 2, coextensive with the jamb 1, and meeting a horizontal channel 3 extending along the base of the casing. The screen door comprises a rectangular, hollow frame 4, only a portion of which is illustrated in FIG. 1 of the drawings, having parallel side walls 4*a* and a perimetral end wall 4*b*. Coextensive with the indoors-facing side wall 4*a* of the screen frame is a perimetral flange, the horizontal run 5 of which slides within the channel 3 and the vertical run 6 is received within the channel 2 when the screen door is closed. A section of flexible screening 7, which may be composed of metal, plastic or fiberglass strands, spans the inner space of the frame and has its edges secured within recesses 8 extending about the inside perimeter of the frame opening.

The sliding screen door construction thus far described may be regarded as more or less conventional.

Fixedly secured to the outer flange 2*a* of the vertical channel 2 on the jamb 1 of the casing B is a keeper plate 9 having a slotted end 9*a* fitting over and riveted to this flange. The keeper plate extends parallel to the horizontal channel 3 and lies in the path of travel of the sliding screen frame 4. The keeper plate 9 opposite its slotted end is formed with a shouldered projection or hook 9*b* designed to cooperate with the latch mechanism, about to be described, housed within the vertical, jamb-abutting, section of the hollow screen frame for locking the frame in closed position. For this purpose the end wall 4*b* of the frame is provided with an opening 4*c* to permit passage of the keeper into the hollow stile when the screen frame is closed against the casing 1.

The latch assembly is illustrated in FIGS. 3 through 7 of the drawing. Adapted to snugly fit the housing provided by the hollow frame screen is a rectangular mounting plate 10 having upon its opposite edges two parallel upturned arms 10*a*. The plate 10 lies flatly against the inner surface of one of the side walls 4*a* of the frame and the arms 10*a* bridge the space between the two side walls with the ends of the arms abutting the inner surface of a side wall. To maintain the mounting plate 10 against shifting within the hollow stile, the vertical edge of the plate foots against a projection 11 on the inner surface of a side wall 4*a*. The mounting plate is also maintained in place by a pin 12, a tapered end 12*a* of which projects through two registering holes 13 and 13*a* in the mounting plate 10 and in one of the side walls 4*a* of the frame, respectively.

In a side wall 4*a* of the hollow section of the screen frame is provided an opening 4*d* through which projects a rectangular shaped block 14 having longitudinal serrations 14*a* forming the finger-engaging portion of a push button. Upon its opposite longitudinal sides, the block is extended rearwardly from its face to define a pair of spaced-apart, parallel arms 15 and 16 which freely occupy the space within the frame intermediate its opposed side walls 4*a*. Extending lengthwise upon both of the arms 15 and 16 in substantially a common plane located a spaced distance from the serrated, finger-engaging face of the block 14, is a pair of flanges 15*a* and 16*a* having flat outer faces and inwardly convergent edges adapted to normally abut the inner surface of a side wall surrounding the push button opening 4*d* and limit the protrusion of the block 14 outwardly through this opening. A corner of the block 14 is recessed to form a longi-

tudinal shoulder **14***b* adapted to serve as a detent for the block as will later be explained.

The free end of the arm **16** is formed with a lateral extension **17** that is directed outwardly in a direction generally perpendicular to the arm **16**, and terminates in an upturned projection or hook **17***a*, the extension **17** and projection **17***a* together defining a latch member for cooperation with the keeper plate **9**. A coil spring **18** has one end encircling the pin **12** and bearing against an enlarged collar **12***b* on the pin located immediately above the tapered end **12***a* of the pin, while the other end of the spring extends through the clearance between the two arms **15** and **16** of the push button and bears against the inner face of the block **14**, the inner face of the block being recessed, as indicated at **14***c*, to serve as a seat for the end of the spring. The spring **18** extends substantially beyond the end of the pin **12** and is under slight compression so as to exert a thrust between the push button and the pin and provide a floating support for the push button. The spring thus permits both rectilinear, lateral and rocking movement of the push button. The latch **17** limits the rocking movement of the push button by striking the mounting plate **10** at which time the detent shoulder **14***b* may be snapped under the margin of the opening **4***d* in the side wall **4***a* of the stile. This maintains the push button in depressed position with the latch **17** clear of the keeper-entrance opening **4***c* in the end face of the stile, as best shown in FIGS. 4 and 5. The detent shoulder **14***b* is so related to the flange **15***a* on the push button block **14** that, when the push button is rocked to the limit permitted by latch **17**, the flange **15***a* enters the push button opening **4***d* and holds the detent in engagement with the opposite edge of the opening. At the same time the off-center direction of thrust of the coil spring **18** is such as to tend to maintain the push button in its tilted position. Because the tapered end **12***a* of the pin **12** has a loose fit within the holes **13** and **13***a* of the mounting plate and side wall **4***a* of the stile respectively, this pin is free to tilt to adjust itself to the direction of thrust of the spring **18** upon the block **14** when the latter is rocked or shifted laterally.

The screen frame is provided with a handle attached to the frame which may take the form of a plate **19** disposed generally parallel to the screen having one end attached to the screen frame and its other end formed with an angled offset portion **19***a* presenting a finger grip.

In operation of the latch assembly described above from the latched to unlatched positions, it is only necessary to depress the push button **14** to disconnect the latch **17** from the keeper **9** whereupon a pull on the handle **19** will impart sliding movement to the screen frame **4**. With the push button then released, the button under the urge of coil spring **18** will automatically relock the frame when it is moved back to a closed position.

In the event it is desired to orientate the push button **14** so that it will not automatically latch when the frame is closed, the push button is depressed and tilted or moved laterally to the position illustrated in FIGURE 4 whereupon the detent **14***b* snaps under one edge of the push button opening **4***d* and the inclined surface on the flange **15***a* abuts the opposite edge of the opening **4***d*. Thus, the latch button cannot be moved laterally to hold-open position unless the push button is first depressed and then rocked or shifted laterally. Even if the screen frame is slammed closed, the push button will not be jarred loose but will still be retained in its hold-open position, as illustrated in FIGURE 5.

The entire latch assembly, except possibly for the keeper, is preferably of extruded aluminum. The keeper **9** is desirably constructed of some wear resistant plastic material, such as "nylon" or the like.

Manifestly the concepts of this invention may be incorporated with various structural features and arrangements in which a reciprocating or sliding closure may be locked in closed position and including conveniently operable means for disabling the latching mechanism when desired.

While this invention has been described in a specific form and as operating in a specific manner for the purpose of illustration, it is to be understood that the invention is not limited thereto, since various modifications will suggest themselves to those skilled in the art without departing from the spirit of this invention, the scope of which is set forth in the annexed claims.

I claim:

1. A releasable latch assembly for sliding closures, comprising a latch mounted movably in a housing formed in an edge of such a closure, a fixed keeper mounted adjacent to the closure for coopertion with the latch, a push button, secured to the latch and being floatingly mounted within the housing with a finger engageable portion normally urged outwardly through an opening provided in the housing and projecting through the opening when the latch is in its latched position engaging the keeper, resilient means urging said finger engageable portion outwardly, said push button being reciprocable in a straight line to a depressed position within the housing wherein the latch is in its unlatched position and also being rockable laterally into a hold-open position wherein the latch is unlatched from the keeper with the finger engageable portion projecting outwardly through the opening and tilted with respect to the edge of said opening, and detent means on the push button for cooperating with the edge of the opening to retain the push button in its tilted hold-open position until it is released by being depressed.

2. A releasable latch assembly for sliding closures, comprising a latch mounted movably in a housing formed in an edge of such a closure, a fixed keeper mounted adjacent to the closure for cooperation with the latch, a push button secured to the latch and having a finger engageable portion which projects outwardly through an opening in the housing when the latch is in its latched position engaging the keeper, a spring floatingly supporting the push button within the housing and normally urging the finger engageable portion outwardly through said opening, said push button being reciprocable in a straight line between its projecting position and a depressed position within the housing wherein the latch is unlatched from the keeper, said push button also being rockable laterally into a hold-open position wherein the latch is unlatched from the keeper and the finger engageable portion still projects outwardly through the opening but is tilted with respect to the edge of said opening, and detent means on the push button for engaging the edge of the opening to retain the push button in its tilted hold-open position until it is released by being depressed.

3. The latch assembly defined by claim 2, wherein the push button is provided with a laterally projecting shoulder which limits the outwardly projecting movement thereof and assists in retaining it in its hold-open position.

4. A releasable latch assembly for sliding closures, comprising a latch mounted movably in a housing formed in an edge of such a closure, a fixed keeper mounted adjacent to the closure for cooperation with the latch, a push button body having a finger engageable head portion which projects outwardly through an opening in the housing when the latch is in its latched position engaging the keeper, a pair of spaced parallel arms projecting inwardly into the housing from said head portion, one of said arms being secured to the latch, a spring engaging the inner side of the head portion between said arms for floatingly supporting the push button within the housing and normally urging the head portion outwardly through said opening, said push button being reciprocable in a straight line between its projecting position and a depressed position within the housing wherein the latch is unlatched from the keeper, said push button also being rockable laterally into a hold-open position wherein the latch is unlatched from the keeper and the finger engageable head portion still projects outwardly through

the opening but is tilted with respect to the edge of said opening, and detent means on one side of the head portion of the push button for engaging the edge of the opening to retain the push button in its tilted hold-open position until it is released by being depressed.

5. The latch assembly defined by claim 4, wherein the push button is provided with a laterally projecting shoulder which limits the outwardly projecting movement thereof, and a portion of the shoulder on the side opposite that on which the detent is located is shaped to mate with the cooperating edge of the opening thereby assisting in retaining the push button in its hold-open position.

References Cited in the file of this patent

UNITED STATES PATENTS

2,670,981 Wenham ---------- Mar. 2, 1954

FOREIGN PATENTS

652,754 Germany ---------- Nov. 6, 1937