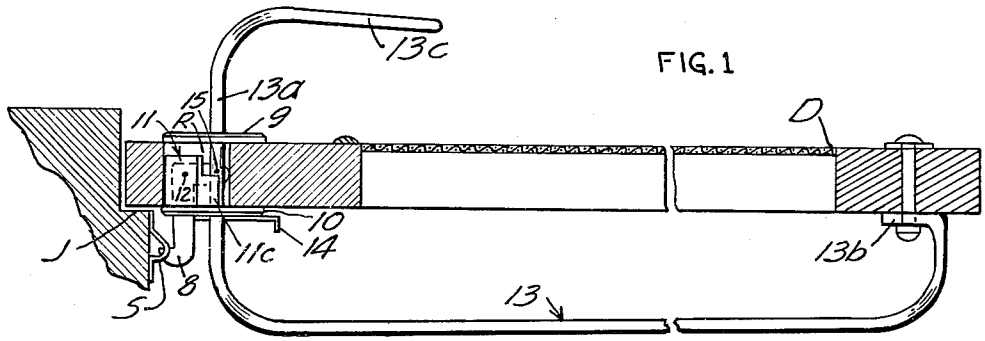
April 18, 1961 D. E. SCHWANZ ET AL 2,980,459

PUSH-RELEASED DOOR LATCH

Filed Aug. 23, 1957

FIG. 1



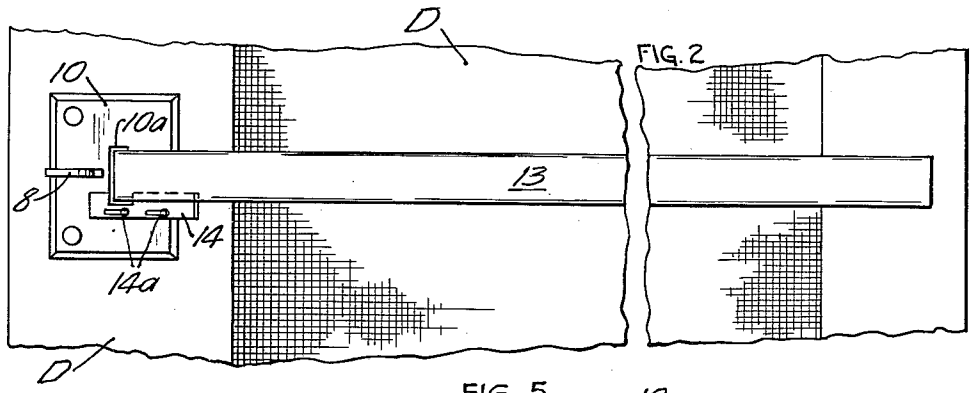


FIG. 3

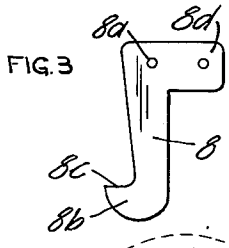


FIG. 5

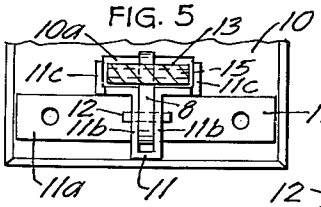


FIG. 4

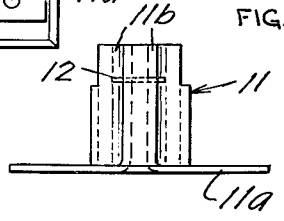


FIG. 6

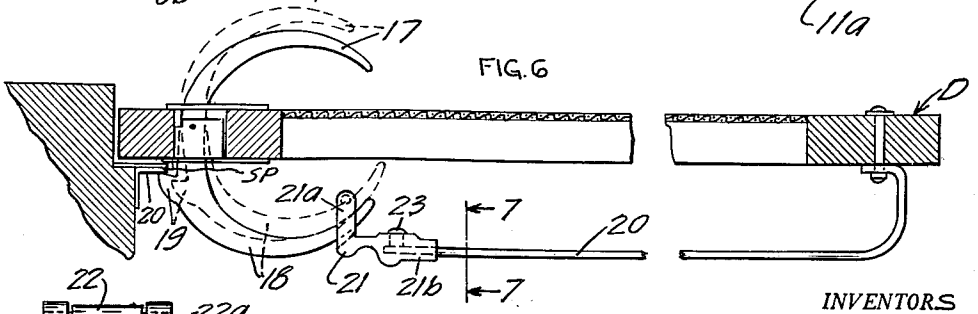
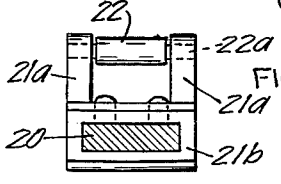


FIG. 7



INVENTORS
VERNON L. STURMAN
DONALD E. SCHWANZ

BY Williamson, Schroeder, Adams & Meyers
ATTORNEYS

United States Patent Office

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PUSH-RELEASED DOOR LATCH

Donald E. Schwanz and Vernon L. Sturman, Minneapolis, Minn., assignors to Hiawatha Metalcraft, Inc., Minneapolis, Minn., a corporation of Minnesota

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2 Claims. (Cl. 292—122)

This invention relates to mechanism for latching and releasing doors to facilitate opening thereof by imparting thrust to a conveniently mounted push bar which also provides the resiliency for retaining the latch when the door is closed.

While our invention is capable of use on any type of vertically hinged doors, it is particularly adapted for screen or storm doors where simplicity of structure and light weight are essential.

It is an object of our invention to provide a very simple but highly efficient door latch with push-control releasing means, which structure may be mounted upon a door with a minimum effort, requiring only a simple opening through the door for installation thereof.

A further object is the provision of a door latch of the type described which employs an elongated, resilient push bar horizontally disposed at approximately the height of the latch member for releasing the latch when the bar is pushed towards the door by contact with a human body and for also securing and retaining the latch when the door is swung to closed position.

Another object is the provision of a multi-functional handle and push-bar member readily assembled with the latch member and insertable through a single opening formed in a door adjacent the free edge thereof. This integral member provides a handle at one side of the door and a push-bar release at the opposite side of the door and in addition, supplies the tension for retaining the latch member to secure the door in closed position, and also protect the screen.

A still further object is the provision of a highly simplified latch construction wherein one of the escutcheon plates of the latch serves as a support for the multi-function push-bar and handle member, as well as for the latch member itself.

Another object of our invention is the provision of simple push-release mechanism which may be readily applied to conventional door latches now installed in swinging doors for facilitating release of the latch mechanism by thrust against a horizontally disposed push-bar while also providing the tension or resiliency for returning the latch member to locking position and retaining the latch when the door is swung to closed position.

These and other objects and advantages of our invention will more fully appear from the following description made in connection with the accompanying drawings wherein like reference characters refer to similar parts throughout the several views and in which:

Fig. 1 is a horizontal mid-section through a screen door with portions broken away to foreshorten the same and showing an embodiment of our complete latch mechanism installed therein;

Fig. 2 is a fragmentary front elevation, taken on a slightly larger scale than Fig. 1 of the mechanism shown in Fig. 1;

Fig. 3 is a plan view, taken on a larger scale showing the latch member detached;

Fig. 4 is a side elevation showing the inner escutcheon plate and housing for the latch member and accommodation of a portion of the integral push-bar;

Fig. 5 is an end elevation latch housing, the dotted lines indicating the cross sectional shape of our push-bar confined therein;

Fig. 6 is a central, horizontal section illustrating another form of our invention comprising an attachment for use with conventional installed latches applied to a screen door, the dotted lines indicating the position of the latch in retaining the door in closed position; and

Fig. 7 is a cross section taken along the line 6—6 of Fig. 6.

Referring now to the complete latch and release mechanism illustrated in Figs. 1 to 4 of the drawings, our structure is mounted upon a conventional type of screen door designated as an entirety by the letter D, hinged in the usual manner (not shown) from the right longitudinal edge thereof, as viewed in Figs. 1 and 2. The free edge of door D cooperates with a conventional door jamb J which is provided appropriately at its inwardly offset, vertical portion with a conventional strike plate S which as shown, is medially slotted to cam-engage and lock with a shiftable latch member or plate 8.

Our entire latch mechanism with the exception of the escutcheon plates 9 and 10 is insertable through and accommodated by a single bore or recess R of cylindrical shape formed adjacent the free vertical edge of the door at an appropriate height. The door-recess R may be drilled with an ordinary brace and bit and need not be over one inch in diameter.

In the simple latch mechanism illustrated in Figs. 1 to 4 inclusive, we provide a small open housing 11 (see Figs. 4 and 1) having an attachment base 11*a* which may be welded or otherwise secured to the inside door escutcheon 10. This housing is U-shaped in cross section, the inner walls thereof being spaced apart a distance to nicely accommodate the shiftable or swingable latch member 8 while offset flanges 11*c* straddle and confine a portion of the push-bar 13 (see Fig. 5). Latch member 8, as clearly shown in Fig. 3 is constructed from a rigid, flat sheet of suitable metal and is generally of L-shape having its inner or attachment portion provided with an aperture 8*a* through which a pivot pin 12 is extended, said pin being received in the two opposed and spaced side walls 11*b* of the housing. The outer and longer end of the latch member 8 extends outwardly and horizontally terminates in a hook-like extremity 8*b* which is rounded at its extreme edge to cam against the strike plate and which has a locking shoulder 8*c* on the inward surface of said end.

The inside escutcheon 10 covers the opening R and is slotted to accommodate the extending portion of the latch member and slotted vertically at 10*a* to very loosely accommodate the intermediate portion 13*a* of a preferably integral, multi-function push-bar and handle indicated as an entirety by the numeral 13. The inside escutcheon 10 carries some suitable locking or dogging mechanism for retaining the latch member in door-retaining position. As shown, a simple slide plate 14 is provided, having slot and pin connection 14*a* with escutcheon 10 and having an intermediate notched portion at its upper edge to accommodate the intermediate portion 13*a* of bar 13 which as shown in Fig. 2, gives freedom of the push bar 13 to be moved as well as freedom for shifting of the latch member 8.

Referring now more in detail to the multi-function push-bar and handle member **13**, one end thereof is bent first in the direction of the door and then again inwardly to provide an attachment foot **13***b* which can be firmly secured to one of the rails (the rail which is hinged) of the door. Such structure spaces the body or main portion of the push bar **13** a short distance from the inner surface of the door and this bar extends across the middle height of the door throughout almost the entire width thereof. The opposite end portion of the bar **13** is bent at substantially right angles to the main or body portion to form the intermediate handle portion **13***a* previously described. The extremity of the bar **13** opposite from the attached portion is bent again at substantially right angles to form an outside latch handle **13***c*.

It will be understood that the bar **13** is constructed of fairly resilient and elastic material such as aluminum alloy or other metals preferably of relatively light weight. The bending of the bar **13** providing the intermediate portion **13***a* and also forming the handle portion **13***c* is preferably along curved lines so that the entire bar before assembly of the escutcheon plates, may readily be passed through the relatively small aperture R formed near the free edge of the door and so that further, the bar may be passed through the appropriate slots formed in the two escutcheon plates **9** and **10**.

The intermediate handle portion **13***a* of the bar **13** is constructed for accommodating and pivoting with the short arm **8***d* of the latch member. As shown, this intermediate bar portion is slotted longitudinally of the bar, receiving the short arm **8***d* of the lever-latch member and being pivoted thereto by means of a pin **15**. The positions and spacing of the pivot pins **12** and **15** are such in reference to the elongated arm of the latch member, that the latch member will remain in the door-retaining position shown in Figs. 1 and 2 through the normal positioning of the push bar **13**.

When the push bar **13** is contacted by thrust from the hips or other portion of a human body, it moves slightly in the direction of the door itself and thereby, is placed under spring tension. Such movement of the body of bar **13** through its intermediate pivotal connection with the latch member, swings the latch member to released position, clearing the strike plate S and of course, further thrust or push against the bar causes the door to open. When the door is closed manually or by a closing spring, the curved end of the latch plate **8** cams against the striker plate causing the locking shoulder **8***c* to engage the hasp and the previous tension upon push bar **13** returns the push bar to the normal closed position shown in Fig. 1 and in so doing of course, through its pivotal connection by the pin **15** to the short arm **8***d* of the lever-latch plate, yieldingly retains the latch plate in door-retaining position.

Thus the integral push-bar and handle member eliminates need for any springs upon the latch structure per se as well as furnishing an across-the-door release bar to enable the persons with packages or articles in their hands to readily release the latch and open the door through merely bodily pushing outwardly against the bar **13**.

In addition to the foregoing functions, the main portion of the bar **13** spaced from the inner side of the door furnishes a protection to prevent outward bulging of the screen by knees or other portions of a person's body.

The form of our invention illustrated in Figs. 6 and 7 provides a push-releasing attachment and retaining means for application to conventional handle-type latch mechanisms now in wide use on auxiliary doors.

In this form of the invention, a conventional type of latch mechanism having the outer handle **17** and the inner door handle **18** is shown, said handle parts being either integrally formed or rigidly interconnected. The intermedial portion of the connection between the two handles is provided with a latch tooth **19** which is adapted to engage and lock behind a hasp or strike plate SP.

Our attachment illustrated in Figs. 6 and 7 consists in a push bar **20** for the most part, of the general construction of our push bar **13** in the form first described. The push bar in the latter instance or attachment however, terminates at the left end as viewed in Fig. 5, short of the positioning of the escutcheons of the latch. For facilitating adjustment, the push bar **20** may be cut to various lengths depending on the various particular widths of doors to which it is to be attached.

A handle-engaging and operating head **21** is provided for rigid attachment to the straight, left end of the push bar **20** having as shown in Fig. 6, a pair of spaced arms **21***a* which extend horizontally and inwardly towards the door for confining the width of the free end of the inner handle **18**. A small roller **22** is journaled on a shaft **22***a* which extends between and is supported by the extremities of the spaced arms **21***a*. The head member **21** carries an attachment socket **21***b* which is shaped to telescope over the extremity of the push bar **20** and as shown, a pair of set screws **23** are provided for rigidly securing the socket of the head to the push bar **20**.

It will of course be understood that head **21** may be provided with a more simplified handle-engaging and confining means eliminating if desired, the roller **22** and merely utilizing a properly proportioned casting or stamping.

It will of course be understood that various changes may be made in the form, details, arrangement and proportions of the parts without departing from the scope of our invention.

What is claimed is:

1. In combination with a vertically hinged door having a small aperture bored medially of its height adjacent the free vertical edge thereof, door latch and guard structure comprising a latch member mounted within said apertured portion of the door and having a securing element extending outwardly from said door, said latch member being shiftable inwardly and outwardly relative to the door jamb for cooperation with a fixed retaining element, an integral bar constructed throughout of somewhat flexible resilient material having an elongated, substantially straight body disposed transversely and medially of said door and acting as a guard for panels of said door, means for affixing one end of said body to said door at a point substantially removed from said latch member leaving the greater portion of said body and the opposite end free for flexing movement toward and away from said door, said opposite end of said body being first curved to form a short portion angled with respect to said body and which extends through the aperture of said door adjacent said latch member and directly connected to a portion of said latch member for shifting the same when said body is flexed inwardly toward said door, said opposite bar end terminating in a handle portion curved from said last mentioned angle portion and disposed on the side of said door opposite from said body, the said curving of said bar to form said angled portions enabling said integral bar to be longitudinally passed through said door aperture for assembly purposes of said structure.

2. In combination with a vertically hinged door having a small aperture medially of its height adjacent its free vertical edge, door latch and operating mechanism comprising a bellcrank latch member pivotally mounted within said apertured door portion and having a hasp-retaining element extending outwardly from said door and an arm mounted in said aperture, an elongated bar constructed substantially throughout of somewhat flexible resilient material disposed transversely and medially of said door, means affixing one end of said bar to said door at a point substantially removed from said latch member leaving the greater portion of said bar free for flexing movement toward and away from said door, the opposite end of said bar being first curved to form a short door-traversing portion angled with respect to the main

portion and then being again curved to form a handle portion extending exteriorly of said door, said first angled portion extending through said aperture and being recessed for receiving said arm of the bellcrank door latch member to shift the same for release when said bar is flexed inwardly toward said door, said curving of said bar enabling the same to be longitudinally passed through said door aperture for assembly purposes.

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