To whom it may concern:

Be it known that I, Archibald B. Gruber, a citizen of the United States, residing at San Bernardino, in the county of San Bernardino and State of California, have invented certain new and useful Improvements in Push-Button Latches; and I do declare the following to be a full, clear and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to latches of the type employing push buttons for retracting the bolt; and one object is to construct the bolt so that it will be reversible for doors and the like which close in different directions. A further object is to provide a novel form of locking device for the inner bolt retracting plunger, whereby operation thereof by small children is prevented and whereby release of the bolt from the outer side of the door may be made impossible, provided the two plungers are suitably connected for movement in unison.

A still further object is to provide ornamental knobs and escutcheon plates which will present a neat and attractive appearance.

With the foregoing general objects in view the invention resides in the novel features of construction and unique combinations of parts to be hereinafter fully described and claimed, the descriptive matter being supplemented by the accompanying drawings which form a part of this specification and in which:

Figure 1 is a side elevation of the latch applied to a door;

Figure 2 is a horizontal section on the plane of line 2—2 of Fig. 1 with parts in elevation;

Figure 3 is a disassembled perspective of the plunger lock;

Figure 4 is a perspective view of the bolt;

Figure 5 is a perspective of one of the knobs; and

Figure 6 is a detail illustrating the manner in which the two plungers may be connected for simultaneous movement.

In the drawing above briefly described, the numeral 1 designates a flat casing adapted in most cases to be mortised into the edge of a door or the like D, although in some instances it may be constructed for attachment to one side of the closure on which it is to be used. The lower portion of the casing 1 will preferably but not necessarily be provided with a key operated bolt (not shown) and key holes 2 are formed in a pair of escutcheon plates 3 for giving access to this bolt with the proper key. The plates 3 are of ornamental design as seen in Fig. 1 and in addition to its key hole 2, each of said plates is provided in its upper portion with a preferably circular opening 4 (Fig. 2), these openings receiving lateral flanges 5 on the inner ends of the tubular hubs 6 of a pair of knobs 7, said flanges being secured to the door or the like by screws 8 while other screws 9 are provided for securing the escutcheon plates 3 in place.

The knobs may be of the same ornamental design, but I prefer to shape one as seen in Figs. 1 and 2 and the other as featured in Fig. 5. In both cases the hubs 6 are preferably enlarged at their outer ends as seen at 10 and the interiors of said hubs are threaded throughout the greater part of their lengths for engagement with a pair of tubular plunger guides 11 whose inner ends are threaded in openings in the sides of the casing 1.

Cylindrical plungers 12 are slidable in the guides 11 and have sockets formed in their outer ends into which the inner ends of a pair of plunger stems 13 are adjustably threaded at 14, lock nuts or washers 15 being threaded on said stem for holding them and the plungers against further relative movement after proper adjustment. The outer ends of the stems 13 are threaded at 16 in a pair of cylindrical push buttons 17 which are slidable in the outer ends of the hubs 10.

For holding the outer plunger and its stem and push button against withdrawal, a screw 18 or any other suitable means may be employed as seen at the upper portion of Fig. 2, the inner end of said screw being 19 in the outward path of the adjacent washer 15. A cylindrical lock plunger 19 whose mounting will be hereinafter described is employed for preventing withdrawal of the other plunger, stem and push button and also for locking these parts so as to prevent releasing of the plunger from the outside of the door, or if desired the plunger 19 may lock the bolt direct as will hereinafter appear. Before describing the features last mentioned, it will be well to explain the construction and mounting of the latch bolt.
20 which is controlled by the plungers 12. This bolt is preferably rectangular and is slidably supported in the upper portion of the casing 1 by any preferred means; and the outer end of said bolt projects beyond the edge of the casing and is beveled at 21 for engagement with the keeper (not shown) in the usual manner. A coiled spring 22 is provided for normally projecting the bolt 20, this spring being located in a longitudinal slot 23 formed in the bolt, said slot opening through opposite sides of said bolt. The outer end of the spring bears against the corresponding end of the slot while the inner end of said spring abuts a suitable lug 24 extending into the slot from the casing 1. This lug also limits the projection of the bolt 20 by engagement with the inner end of the slot 23.

Near its inner end the bolt 20 is formed with a rectangular opening 25 which opens through its opposite sides, the rear wall of said opening being beveled at its vertical edges as seen at 26 for engagement with the beveled inner ends 27 of the plungers 12, whereby inward movement of either plunger by pushing on its button 17 will retract the bolt 20 against the tension of the spring 22. It is to be observed particularly that both the slot 23 and the opening 25 open through opposite sides of the bolt. This is highly advantageous since it permits reversal of the bolt to adapt the latch for a door or the like closing in either direction.

The plunger 19 above referred to is slidably in the inner end of a tubular plunger guide 28 which is tapped into the hub 6 of the knob on the inside of the door, or if desired may pass through the opening 25 and connect with casing 1, the outer end of said guide having a pair of diametrically opposite shallow notches 29 and an additional pair of deeper notches 30. A stem 31 extends from the plunger 19 through the guide 28 and is provided at its outer end with a key 32 receivable in either pair of notches 29-30. When in the notches 29, the key 32 permits the plunger 19 to move inwardly only to an extent to abut the washer 15 and thus prevent withdrawal of the inner plunger 12 from its guide 11. When however the key is received in the notches 30, the plunger 19 is permitted to move farther inward for reception in a socket 33 formed in the stem 13 of said inner plunger. By this means therefore, small children are prevented from pushing the inner button 17 and releasing the latch. Also, by properly connecting the two plungers 12 for movement in unison, as by a pinion 12° and racks 12° (Fig. 6), the plunger 19 when engaged with socket 33 will prevent release of the latch from the outside, or if the guide 28 passes through the opening 25, the plunger 19 will then abut the end of slot 23 to prevent retraction of the bolt 20 from either side. A coiled spring 34 is housed in the guide 28 and bears against the plunger 19 to normally force the latter inwardly to the extent allowed by the key 32.

The latch may be employed wherever applicable and it is to be understood that although this application discloses two push buttons 17, stems 13 and plungers 12, only one of each may be employed in cases where it is not necessary that the door or other device upon which the latch is used, shall be opened from either side. I may also state that within the scope of the invention as claimed, numerous minor changes may well be made.

I claim:

1. A latch comprising a casing, a latch bolt slidably therein, a lateral plunger for operating said bolt, a stem extending outwardly from said plunger and having a push button on its outer end and a socket near its inner end, an inclosing and guiding means for said plunger, stem and push button, a tubular guide extending laterally from said inclosing and guiding means and having in its outer end a shallow and a relatively deep notch, a locking plunger slidable in the inner end of said guide, a stem extending from said locking plunger through said guide, a spring in said guide for normally forcing said locking plunger inwardly, and a key on the outer end of said last named stem for reception in either of said notches, positioning of said key in the shallow notch only permitting sufficient inward movement of said locking plunger to prevent withdrawal of said first named plunger, while positioning of said key in the deeper notch permits movement of said locking plunger into said socket.

2. Locking means for the herein described latch comprising a tubular guide having in one end a shallow and a relatively deep notch, a locking plunger slidable in the other end of said guide, a stem extending from said plunger through said guide, a spring in said guide for projecting said plunger, and a key on said stem for reception in either of said notches to either hold said plunger retracted or to permit projection thereof.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ARCHIBALD B. GRUBER.

Witnesses:

LOUIS G. MOTTES,
GEORGE J. DAVIS.