

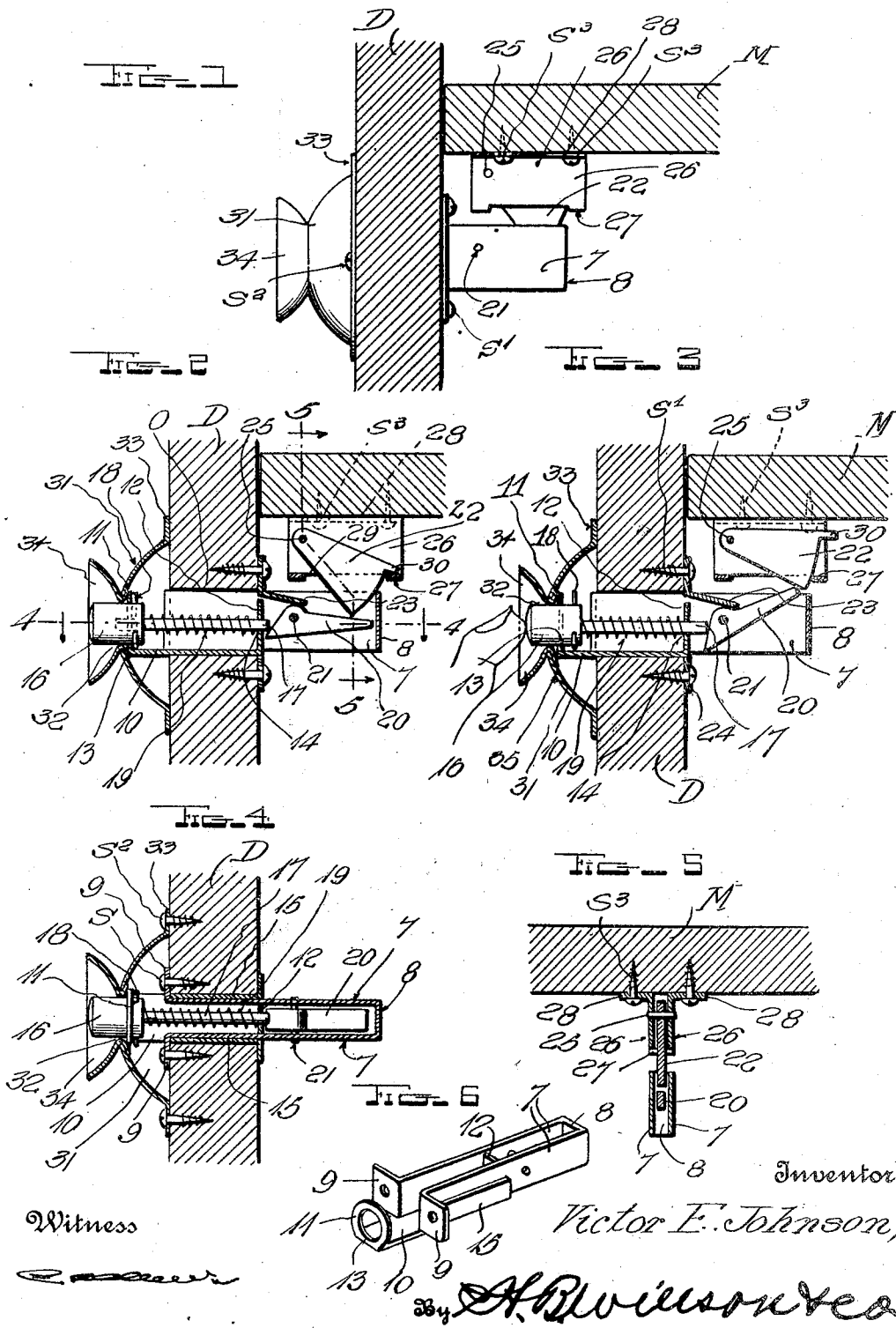
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DOOR LATCH

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Witness

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UNITED STATES PATENT OFFICE

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DOOR LATCH

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The invention aims to provide a new and improved latch for cupboard and other doors, of such construction that it may be easily and inexpensively manufactured, sold at small cost, easily applied and both latched and unlatched conveniently and easily.

With the foregoing in view, the invention resides in the novel subject matter hereinafter described and claimed, description being accomplished by reference to the accompanying drawing.

Fig. 1 is a side elevation showing the latch applied to a portion of a door and a shelf toward which said door closes.

Fig. 2 is a central longitudinal sectional view.

Fig. 3 is a view similar to Fig. 2 but showing the latch released.

Fig. 4 is a horizontal sectional view on line 4-4 of Fig. 2.

Fig. 5 is a vertical sectional view on line 5-5 of Fig. 2.

Fig. 6 is a perspective view of the casing in which the latch-releasing parts are mounted.

The form of construction selected for illustration in the present application, may be considered as preferred, and while this construction will be herein specifically explained, it is to be understood that within the scope of the invention as claimed, variations may be made.

An elongated metal strip is bent substantially into U-shape to provide two parallel casing sides 7 and a rear casing end 8, the front ends of said sides 7 being apertured and laterally bent to provide attaching flanges 9. A bottom plate 10 contacts with the lower edges of the sides 7 throughout substantially the front halves of the latter. The front portion of this plate projects forwardly beyond the flanges 9 and is bent upwardly to provide a lug 11, while the rear end of said plate 10 is bent upwardly between the casing sides 7 to form a barrier 12. The lug 11 and barrier 12 are formed with relatively large and small openings 13-14 for a purpose to appear. While the plate 10 may be secured to the casing sides 7 in any desired manner, I prefer to provide said plate with

upstanding longitudinal flanges 15 which are spot welded, soldered or otherwise secured to said sides.

A push-button 16 passes slidably through the opening 13 and a rod 17 is secured to and projects rearwardly from this push-button through the opening 14. Preferably the front end of the rod is received in a socket in the rear end of the push-button and a pin 18 passes through said button and rod to secure them together, the ends of the pin projecting beyond the push button to abut the inner side of the lug 11 and limit the forward movement of the button and rod. A coiled compression spring 19 surrounds the rod 17 and abuts the barrier 14 and the push-button 16 to normally shift the latter and the rod 17 forwardly to the limit permitted by pin 18.

A latch-releasing lever 20 is fulcrumed at 21 in the rear portion of the casing formed by the parts above described this lever being mounted in operative relation with the rear end of the rod 17, so that upon rearward movement of this rod, the lever 20 will be swung to the position shown in Fig. 3 for the purpose of releasing the latch 22. A portion of this latch is normally received in one of the open sides of the casing and abuts the rear casing end 8, said latch being mounted in a manner hereinafter explained.

Excessive movement of the latch-releasing lever 20 under the influence of the rod 17, is prevented by a stop tongue 23 carried by a rectangular plate 24 which surrounds the casing.

The latch 22 is preferably of gravity-applied form and is pivoted at 25 in a flat casing. This casing is formed from a single metal plate bent into channel-shape to provide parallel sides 26 and a bottom 27. The upper portions of the sides 26 are bent laterally and apertured to provide attaching flanges 28, and a longitudinal slot 29 is formed in the bottom 27 through which a portion of the latch may project as shown in Fig. 2 for engagement with the casing end 8. The latch is provided with a stop lug 30 to rest upon the bottom 27 and limit the projection of said latch,

To obscure front portions of the first described casing and contained parts, to form a knob for opening the door provided with the latch and to guard the push-button 16, novel provision is made. A concavo-convex disk 31 is provided with a central opening 32 through which the push-button 16 passes slidably, the peripheral edge of said disk being provided with an annular apertured attaching flange 33. A relatively small concavo-convex disk 34 is also centrally apertured and is secured to the disk 31 with the convex sides of the two disks toward each other, the securing of these disks being preferably effected by providing disk 34 with a portion 35 which passes through the opening 32 and is clinched. The concavity of the disk 34 receives the push-button 16.

To install the device, an opening O is formed in the door D, the first described casing is passed rearwardly through this opening and its flanges 9 are secured to the door by screws S. Then, the plate 24 is placed around the rear portion of the casing and fastened to the door by screws or the like S'. The disk 31 is secured to the outer side of the door by screws or the like S² and other screws S³ are employed to fasten the flanges 28 of the latch casing to a shelf or other fixed member M toward which the door D closes. Some of the openings through which the screws S³ pass are preferably of elongated form to permit proper longitudinal adjustment to dispose the latch 22 in proper co-operative relation with the casing end 8, before these screws are tightened and the others driven.

When the door D is closed, the casing end 8 strikes and upwardly swings the latch 22 and when this casing end has cleared said latch, the latter falls by gravity to the extent permitted by the stop lug 30 and abuts the inner side of said casing end 8 as shown in Fig. 2, thereby latching the door closed. At this time, lever 20 underlies the latch 22 and when the push-button 16 is rearwardly forced, rod 17 upwardly swings said lever, thereby upwardly forcing the latch from engagement with the casing end 8 and permitting outward swinging of the door. When latch-releasing and door-opening are to be effected, the operator places two fingers between the convex sides of disk 31—34 and with his thumb presses upon the push-button 16. Hence, with the hand in one position, the latch may be released and the door pulled open, the disk 34 then constituting a knob.

As excellent results are obtainable from the details disclosed, these details are preferably followed. However, within the scope of the invention as claimed, variations may be made as above stated.

I claim:—

65 1. In a door latch, a casing for passage

through a door and having a portion to project rearwardly beyond the door, said projecting portion of said casing having an open side, a self-projecting latch having means for mounting it independently of the door and having a portion receivable in said open side of the casing, and means in said casing for forcing said latch from the casing when desired, said means having an operating button at the front of the door.

2. In a door latch, an elongated casing for passage through a door, said casing having a lateral attaching flange and a transverse lug at its front end, a transverse barrier between its ends, a rear wall for co-action with a latch, and an open side to admit the latch, said lug and barrier being formed with aligned relatively large and small openings, a push-button slidable in the opening of said lug, a rod secured to said push-button and projecting rearwardly through the opening of said barrier, a latch-releasing lever pivotally mounted in the rear portion of said casing and operatively related with said rod for actuation by means of the latter, a coiled compression spring surrounding said rod and bearing against said push-button and said barrier, and means for limiting the forward movement of said push-button and rod.

3. In a door latch, a metal strip bent into substantially U-shape to form parallel casing sides and a rear casing end for co-action with a latch, the front ends of said sides being bent laterally to provide attaching flanges, a bottom plate secured to the casing sides and projecting forwardly therefrom, the front end of said plate being bent upwardly to form a lug, the rear end of said plate being bent upwardly between said casing sides to provide a barrier which is located in advance of said rear casing end, said lug and barrier being formed with aligned relatively large and small openings, a push-button slidable in the opening of said lug, a rod secured to said push-button and projecting rearwardly through the opening of said barrier, a latch-releasing lever pivotally mounted in the rear portion of said casing and operatively related with said rod for actuation by means of the latter, a coiled compression spring surrounding said rod and bearing against said push-button and said barrier, and means for limiting the forward movement of said push-button and rod.

4. In a latch, a metal plate bent into channel shape to provide casing sides and a casing bottom, the latter having a longitudinal slot, the upper portions of said sides being bent laterally and apertured to form attaching flanges, and a latch loosely pivoted between said casing sides and having a portion projecting through said slot, said latch having a lug co-operable with said casing bottom to limit the projection of said latch through said slot.

5. In a latch, a casing adapted to project rearwardly from a door, said casing having an open side, a latch adapted to project into said open casing side, latch releasing means embodying a lever in said casing to force the latch from said open casing side, a plate surrounding the casing and adapted for attachment to the rear side of the door, and a tongue on said plate positioned to prevent excessive movement of said lever.

6. In a door latch, a latch-releasing push-button, a concavo-convex disk having a central opening through which said button passes slidably, the peripheral edge of said disk being provided with an outstanding apertured attaching flange, and a knob-forming concavo-convex disk centrally apertured and joined to the first named disk, the convex sides of the two disks abutting each other, said button being received in the concavity of the second disk to be pushed by the thumb when two fingers of the hand are placed between the convex sides of the two disks preparatory to opening the door.

In testimony whereof I have hereunto affixed my signature.

VICTOR E. JOHNSON.

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