Aug. 30, 1960 F. J. EVANS 2,950,614

LOCK MEANS FOR AUTOMOBILE DOOR LOCK BUTTONS

Filed Aug. 21, 1958

Fig.1

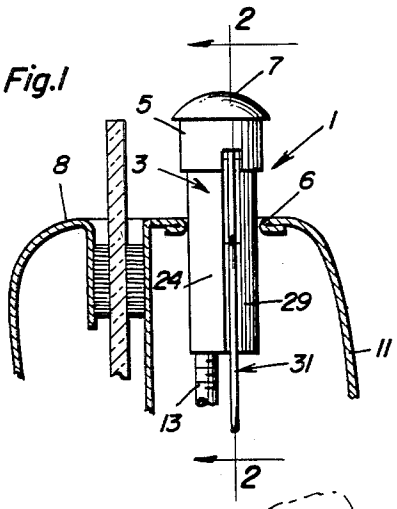


Fig.2

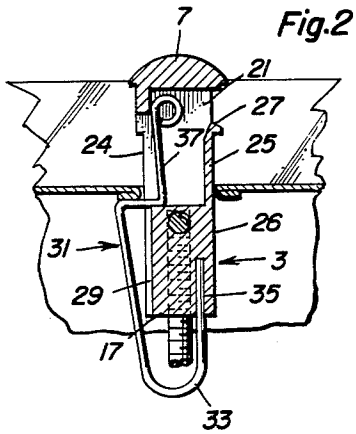


Fig.3

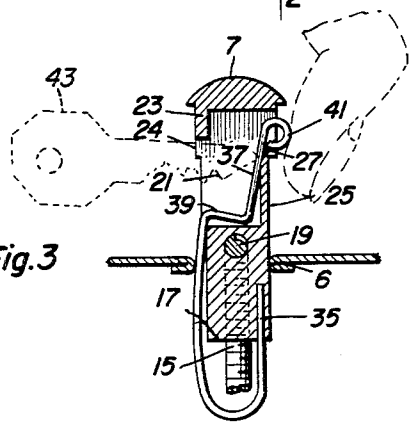


Fig.4

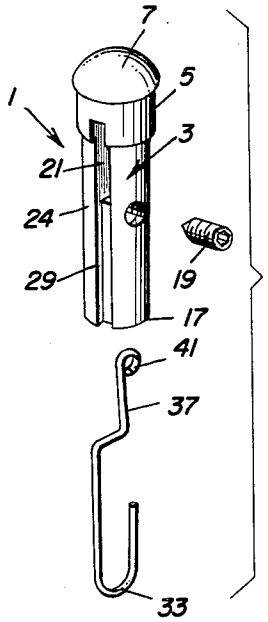
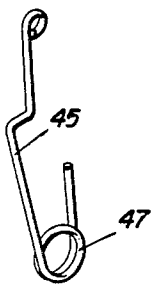


Fig.5



Franklin J. Evans

INVENTOR.

BY Clarence A. O'Brien and Harvey B. Jacobson

Attorneys

United States Patent Office 2,950,614 Patented Aug. 30, 1960

2,950,614

LOCK MEANS FOR AUTOMOBILE DOOR LOCK BUTTONS

Franklin J. Evans, 600 Grant St., Hazleton, Pa.

Filed Aug. 21, 1958, Ser. No. 756,389

11 Claims. (Cl. 70—181)

This invention relates to lock means for automobile door lock buttons of the type movable upwardly or downwardly in an opening in the door window frame to move a push-pull rod upwardly or downwardly for permitting or preventing, respectively, operation of the door unlocking handle, and it is designed as an improvement over the door button lock of my co-pending application Serial No. 584,911, filed May 15, 1956, now Patent No. 2,855,773.

The primary object of this invention is to provide for such a door locking button, a single resilient snap action locking element movable into a locking position to lock the button down to the window frame against casual movement upwardly, as by children in an automobile, and which is movable into unlocking position from the outside of an automobile by pushing an ignition key against the element, together with means for releasably latching the element in unlocking position when locking of the button is not desired.

Another object is to provide a door lock button and locking means therefor of very simple, durable and inexpensive construction, and which is safe to use when it is desired to lock an automobile door to lock children or the like in an automobile.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a fragmentary view in vertical section of a lock button of this invention with the locking element therefor in locking position to lock the lock button down to the window frame;

Figure 2 is a fragmentary view in vertical section taken on the line 2—2 of Figure 1;

Figure 3 is a fragmentary view in vertical section taken on the same line of Figure 1 as Figure 2 and showing the locking element moved into unlocking position and latched in unlocking position;

Figure 4 is an exploded view in perspective of the lock button, the locking element, and means for securing the element to the lock button, and

Figure 5 is a perspective view of a modified form of locking element.

Referring to the drawing by numerals, according to the preferred form of the invention shown in Figures 1 to 4, the lock button, designated generally by the numeral 1 comprises a vertically elongated cylindrical body 3 having an enlarged upper finger-grip end 5 terminating in a top button 7 on said body 3 and, as is conventional, the body 3 is slidable upwardly and downwardly in an opening 6 formed in the bottom of the window frame 8 of an automobile door 11 to correspondingly move the push-pull rod 13 which is threaded, as at 15 into the lower end 17 of the body 3 and secured to said rod 13 by a setscrew 19.

The body 3 is provided with a longitudinal slot 21 in its upper end portion extending downwardly from the button 7. A stop lug 23 depends from the button 7 part way into the slot 21 at a front side 24 of the body 3 below which said slot 21 is open at the front side 24 of said body.

An upstanding web 25 at the rear side 26 of the body 3 terminates in an upper tooth 27 spaced below the button 7. The purpose of the slot 21, stop lug 23 and the tooth 27 and web 25 will presently appear. A longitudinal groove 29 in the front side 24 of the body 3 extends from the slot 21 to the lower end 17 of the body and serves a purpose presently seen.

The locking element, designated generally by the numeral 31, is formed of resilient wire and extends upwardly at the front side 24 of the body 3 with a hooked return bent lower end 33 terminally fixed in a longitudinal bore 35 in the lower end 17 of the body 3 and which curves under the lower end 17 of said body, and whereby said element 31 normally flexes forwardly of said body 3 above said end 33 of the element into locking position, but is flexible rearwardly into unlocking position. An upper end portion 37 of the locking element 31 is disposed in said slot 21 and movable forwardly and rearwardly therein and engages the stop lug 23 to limit flexing of said element 31 forwardly into locking position, whereas, said upper end portion 37 engages the web 25 to limit flexing of the locking element 31 rearwardly into unlocking position.

A right angled bend in an intermediate portion of the locking element 31 and which forms a locking shoulder 39 on said element 31 is projected and retracted out of and into the slot 21 in response to flexing of the locking element 31 into locking and unlocking positions respectively.

A rearwardly extending terminal eye 41 on the upper end portion 37 of the locking element 31 releasably hooks in the unlocking position of the locking element 31 over the tooth 27 with a snap-action to latch said locking element 31 in unlocking position and projects when hooked or engaged over the tooth 27 partway out of the slot 21 for a purpose presently seen.

The operation of the invention will be readily understood. The lock button 1 is pushed downwardly into home locking position, shown in Figures 1 and 2, to correspondingly operate the push rod 13 for preventing unlocking of the door 11. In response to such movement of the lock button 1, the locking element 31 between the shoulder 39 and the lower end 17 of the body 3 slides in the opening 6 against the frame 8 until the stop shoulder 39 is below said opening. Thus the element 31 is flexed into unlocking position and latched in that position with a portion thereof below the shoulder 39 extending into the groove 29 to brace said locking element. When the lock button 1 is thus pushed home, the locking element 31 may be unlatched by the pressure of a thumb, as shown in broken lines in Figure 3, against the eye 41 to release the eye from the tooth 27 to unlatch the latch means, whereupon, the locking element 31 will flex forwardly and engage the stop shoulder 39 under the frame 8 at the opening 6 to lock said lock button down in home, locking position.

To unlock the lock button 1 for movement upwardly for permitting the door 11 to be unlocked, the locking element 31 is flexed rearwardly until it is latched in unlocking position and by inserting an ignition key 43 of an automobile in the slot 21 and pushing said key against the upper end portion 37 of the locking element. As will be apparent, the locking element 31 may be latched in unlocking position permanently, so that the lock button 1 may be operated at will without being locked and unlocked. As will also be apparent, the slot 21 guides the upper end portion 37 of the locking element 31, and an ignition key, pushed against said portion 37 and if the described latch means is released before

the lock button 1 is pushed down and home, the locking shoulder 39 will engage under the frame 8 with a snap action to form a snap action lock for locking the lock button down.

In the modified form of the invention shown in Figure 5, the locking element, designated 45, is provided with a helical coil 47 at its lower end for greater resiliency of the locking element.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. For use in connection with a vehicle door slide bolt locking mechanism of the type including an apertured window frame on said door having an operating rod extending through said aperture and mounted with said locking mechanism for reciprocal movement between limits for locking said mechanism when in a retracted position and unlocking said mechanism when in an extended position, a door locking button comprising an elongated cylindrical body adapted for securement with the extended end of said rod for movement therewith through said aperture, said body having a slot formed therethrough, a resilient locking element secured to said body having a laterally projecting stop shoulder adapted to engage a portion of the inner surface of said frame adjacent said aperture normally resiliently urged toward an extended locking position and movable between said extended position and a retracted unlocked position seated in said slot, said resilient locking element having means formed integrally therewith engageable with said body for releasably retaining said element in a retracted unlocked position, said stop shoulder projecting from one end of said slot when in the locking position and said retaining means projecting from the other end of said slot when retaining said resilient locking element in the retracted unlocked position whereby the latter may be urged into the unlocked position upon inward lateral movement of said resilient element from said one side of said body and may be released from retainment in an unlocked position upon inward lateral movement of said retaining means from the other side of said body, said retaining means engaging a portion of the outer surfaces of said body defining said other end of said slot when retaining said resilient locking element in the unlocked position, wherein said retaining means engages a portion of the outer surfaces of said body defining said other end of said slot when retaining said resilient locking element in the unlocked position.

2. In a vehicle door of the type including a locking mechanism and a window frame having an aperture formed therein through which an upstanding operating rod connected with the locking mechanism extends for reciprocal movement between limits for locking said mechanism when in a retracted position and unlocking said mechanism when in an extended position, the improvement comprising; an axially extending door locking button secured to the upper end of said rod, said button comprising an elongated member longitudinally receivable through said aperture, a resilient locking element extending longitudinally of said body along one side thereof, means securing the lower end of said locking element to a lower portion of said body, said body having a transversely extending opening therethrough, an upper portion of said locking element terminating in a laterally projecting shoulder portion receivable in said opening in a recessed position from said one side of said body, said locking element being inherently resilient for normally urging said shoulder portion outwardly of said body and into engagement with the undersurface of said window frame, said shoulder portion terminating in abutment means for engagement by an implement inserted in said opening from said one side of said body to move said shoulder portion inwardly of said opening to said recessed position, and resilient retaining means carried by said abutment means releasably engaging said body and retaining said shoulder portion in said recessed position, said retaining means projecting outwardly of the other side of said body through said opening when retaining said shoulder portion in the recessed position whereby it may be fingered to be released.

3. The combination of claim 2 wherein said resilient locking element includes an upwardly and outwardly inclined cam portion intermediate the lower end thereof and said shoulder portion engageable with the edges of said window frame defining said aperture through which said body projects to urge said shoulder portion into said recessed position in said opening and to engage said retaining means with said body upon movement of said body from an upper unlocked position to a lower locked position,

4. The combination of claim 2 wherein at least the end of said opening communicating with said one side of said body is of a sufficiently reduced width to preclude direct digital contact with said abutment means and yet of sufficient width to permit engagement of the latter by a thin implement such as a key.

5. The combination of claim 2 wherein said body is of a diameter adapted to be snugly received through said aperture, said resilient locking element including a cam portion engageable with said frame to move said locking element to the unlocked recessed position upon movement of said body to the retracted locked position.

6. The combination of claim 2 including a longitudinal blind bore formed in the lower end of said body adapted to receive the extended end of said rod, said body having a transverse bore formed therein communicating with said longitudinal bore, a lock screw threadedly engaged in said transverse bore.

7. The combination of claim 2 wherein said resilient locking element comprises a length of spring wire.

8. The combination of claim 2 wherein said transverse opening is provided with stop means, said abutment means normally engaging said stop means for limiting movement of said shoulder portion outwardly of said body.

9. The combination of claim 2 wherein said resilient locking element includes an upwardly and outwardly inclined cam portion intermediate the lower end thereof and said shoulder portion engageable with the edges of said window frame defining said aperture through which said body projects to urge said shoulder portion into said retracted position in said opening and to engage said retaining means with said body upon movement of said body from an upper unlocked position to a lower locked position, said body having a longitudinally extending groove formed in said one side below said opening, said cam portion being at least partially received in said groove when said shoulder portion is recessed within said opening.

10. The combination of claim 2 including an upstanding web carried by said body and extending across the lower part of the end of said opening remote from said one side of said body, said retaining means including a resilient terminal eye portion formed on said abutment means for engagement with the upper edge of said web.

11. The combination of claim 10 wherein said abutment means comprises an upstanding portion formed on the innermost end of said shoulder portion, said upstanding portion engaging said web and limiting movement of said shoulder portion toward said recessed position.

References Cited in the file of this patent

UNITED STATES PATENTS

2,358,607	Tinnerman	Sept. 19, 1944
2,708,845	Trammell	May 24, 1955
2,908,155	Schumann	Oct. 13, 1959