July 10, 1951 J. H. ROETHEL 2,560,477

DOOR LOCK CONTROL

Filed Oct. 26, 1944 2 Sheets-Sheet 1

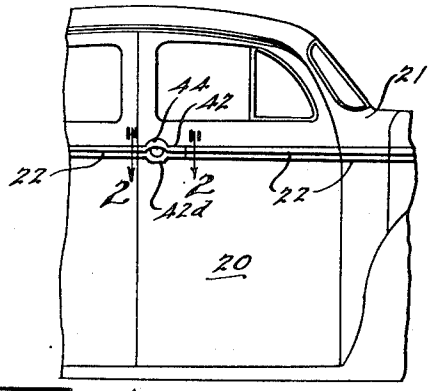


Fig. 1.

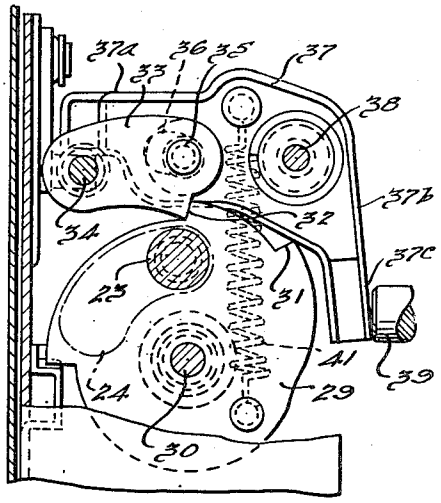


Fig. 3.

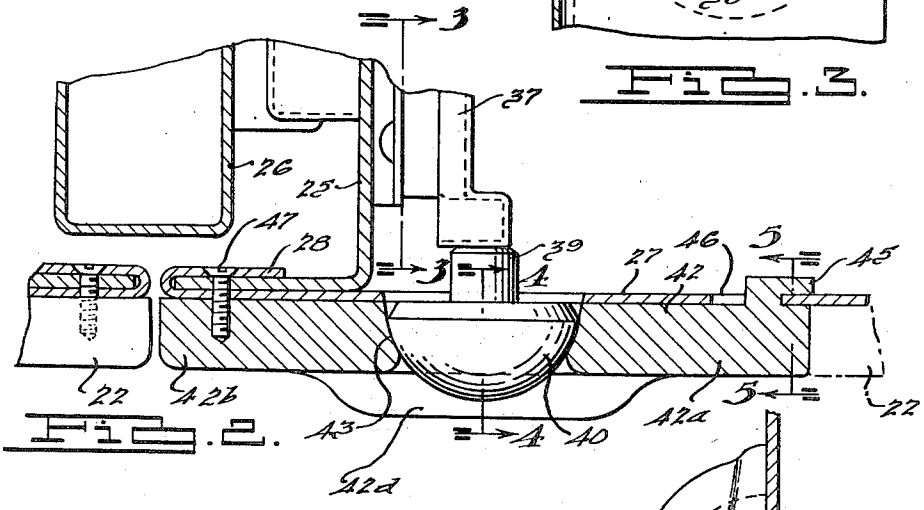


Fig. 2.

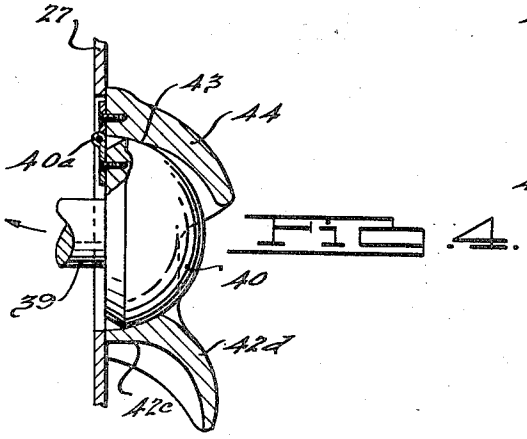


Fig. 4.

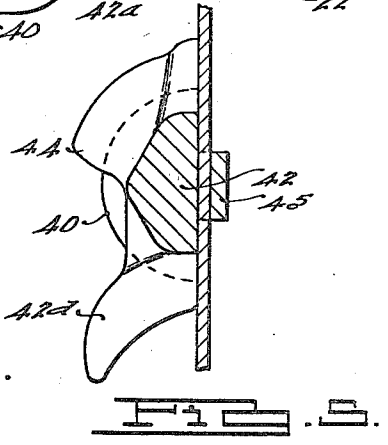


Fig. 5.

INVENTOR.
John H. Roethel.
BY
Gray & Smith
ATTORNEYS.

July 10, 1951 J. H. ROETHEL 2,560,477

DOOR LOCK CONTROL

Filed Oct. 26, 1944 2 Sheets-Sheet 2

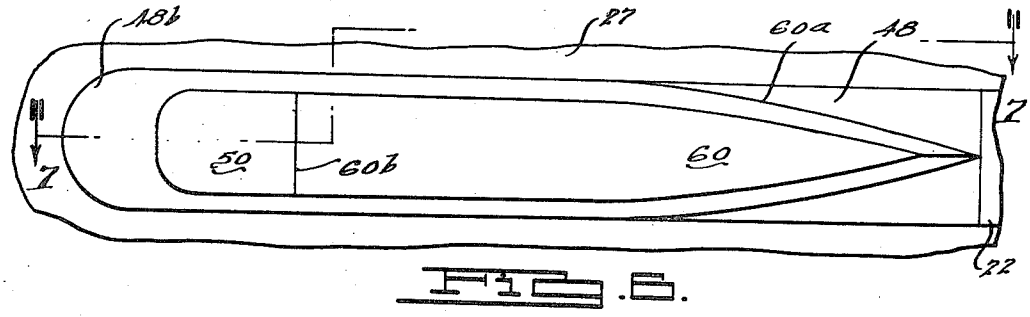


Fig. 6.

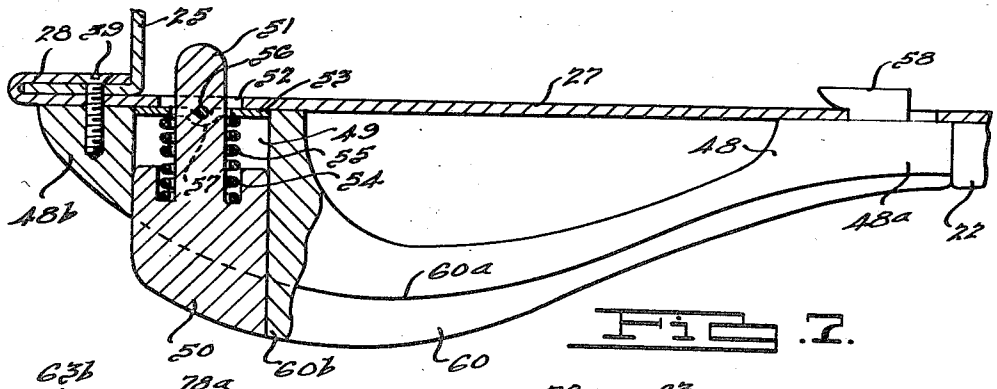


Fig. 7.

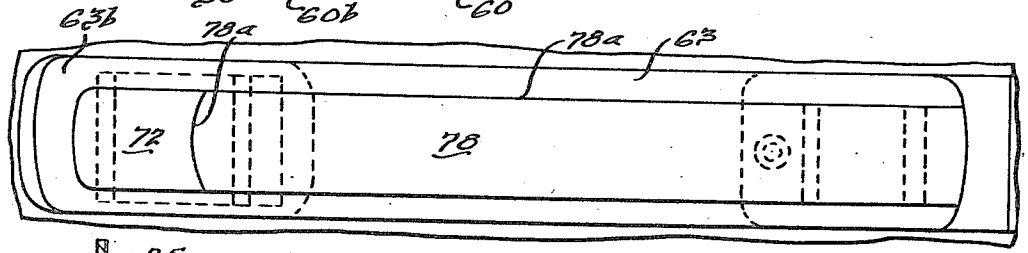


Fig. 8.

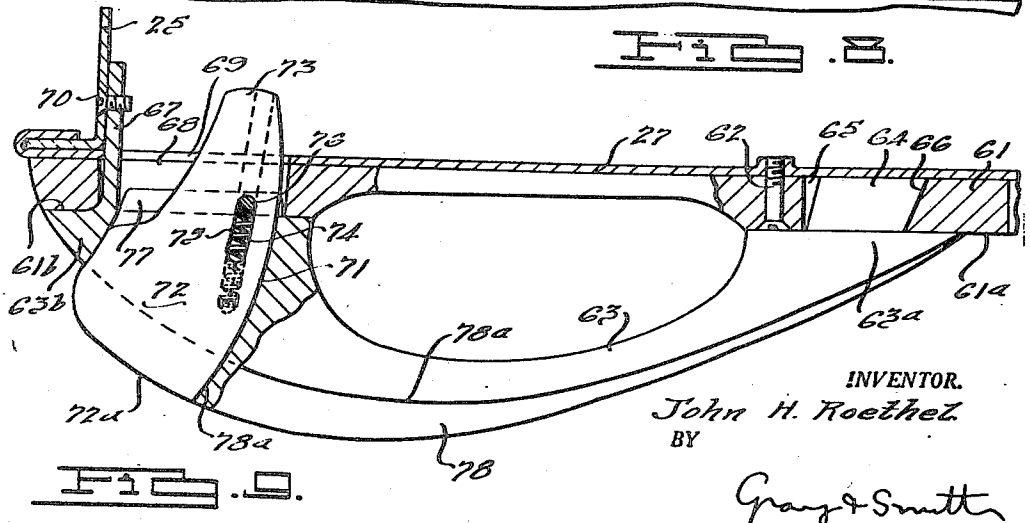


Fig. 9.

INVENTOR.
John H. Roethel
BY
Gray & Smith
ATTORNEYS.

Patented July 10, 1951

2,560,477

UNITED STATES PATENT OFFICE

2,560,477

DOOR LOCK CONTROL

John H. Roethel, Detroit, Mich., assignor to Roethel Engineering Corporation, Detroit, Mich., a corporation of Michigan

Application October 26, 1944, Serial No. 560,391

4 Claims. (Cl. 292—229)

1

This invention relates to control mechanism for door locks and more particularly to a plunger or push button assembly adapted to be mounted upon the outside or inside of a swinging door, especially an automobile or other vehicle door, for actuating the lock or latch mechanism for the door.

An object of the invention is to provide an improved mounting for a plunger or push button adapted to be shifted transversely of the door to actuate an element of the door latch mounted within the well or other enclosed space within the door for releasing the latch and permitting the door to be opened.

A further object of the invention is to provide an improved handle assembly adapted to be mounted on the inside or outside of the door and in which a push button or plunger is carried by the handle for releasing the door latch to permit opening of the door.

Still another object of the invention is to provide a unitary mounting or assembly having a push button or plunger mounted on the handle in such manner and in such position as not only to permit convenient operation thereof when the handle is grasped but also to enable the handle to lie as close to the body as possible while providing means for shielding or guarding the projecting portion of the push button or plunger.

A further object of the invention is to provide a plunger or push button assembly for a door latch mechanism in which the base of the assembly forms a continuation of or an extension of the belt line molding of the door and body and is adapted to blend into the molding so as to enhance the appearance of the door while at the same time providing a convenient means for actuating the latch mechanism when it is desired to open the door.

Other objects of this invention will appear in the following description and appended claims, reference being had to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

Fig. 1 is a fragmentary view of an automobile body having a swinging door provided with latch control mechanism constructed in accordance with the present invention.

Fig. 2 is an enlarged section taken substantially through lines 2—2 of Fig. 1 looking in the direction of the arrows.

Fig. 3 is a section taken substantially through lines 3—3 of Fig. 2 looking in the direction of

2

the arrows and showing a portion of a latch device adapted to be controlled in accordance with any embodiments of the present invention.

Fig. 4 is a section taken substantially through lines 4—4 of Fig. 2 looking in the direction of the arrows.

Fig. 5 is a section taken substantially through lines 5—5 of Fig. 2 looking in the direction of the arrows.

Fig. 6 is a face view of a handle assembly mounted upon a door and illustrating one embodiment of the invention.

Fig. 7 is a section taken substantially through lines 7—7 of Fig. 6 looking in the direction of the arrows.

Fig. 8 is a view somewhat similar to Fig. 6 illustrating a handle assembly constructed in accordance with another embodiment of the invention.

Fig. 9 is a section taken substantially through lines 9—9 of Fig. 8 looking in the direction of the arrows.

Before explaining in detail the present invention it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation.

The door lock control mechanism embodying the present invention may be used in connection with a door lock for an automobile door, such as the front door 20 hinged at its forward edge to the front pillar of the body 21. Extending along the side of the body and door 20 is an ornamental belt line molding 22. The door lock may comprise a latch bolt 23 projecting longitudinally through an arcuate slot 24 in the free edge wall 25 of the door and cooperable with a striker or keeper on the jamb edge 26 of the body pillar. The door comprises the usual outer metal door panel 27 having its edge crimped around the flanged outer edge of the pillar to provide an overlap flange 28. Referring to Fig. 3 the latch bolt 23 is rigidly secured within the window well to a rotatable latch bolt plate 29 mounted to turn about the axis of a pin or stud 30 secured thereto and journalled on the usual case plate of the lock. The plate 29 is formed with shoulders or abutments 31, 32 forming the safety and final locking steps respectively and engageable successively during closing of the door by a detent 33 pivoted at its inner end at 34 to the case plate.

The opposite end of the detent carries a pin 35 slidable within a slot 36 in the inner end 37a of a lever 37 fulcrumed at 38 on the lock case plate and provided with a depending extension 37b widened at its lower end at 37c for engagement by the plunger or push button of the control mechanism of any of the embodiments of the invention, such as the stem 39 of the push button 40 shown in the embodiment of Figs. 1, 2, 4 and 5.

In Fig. 3 the door 20 is closed and the latch bolt is held in locked position by engagement of the detent 33 with the shoulder 32. By shifting the stem 39 inwardly against the end 37c of the lever 37 the latter will be swung about its fulcrum 38, raising the end 37a thereof and correspondingly raising the end of the detent through the pin and slot connection 35, 36. When the detent is thus swung upwardly it will release the plate 29 permitting it to be swung counterclockwise under the action of tension spring 41, this spring having its upper end anchored to lever 37 and its lower end anchored to plate 29. Rotation of the plate when thus released will swing latch bolt 23 from the upper end of slot 24 to the lower end thereof, unlatch the door and urge the same into open position. The construction of the latch mechanism as well as the striker device associated with the latch bolt, herein shown and above described, corresponds to the disclosure of my copending application Serial No. 550,036 filed Aug. 18, 1944.

In the embodiment shown in Figs. 1, 2, 4 and 5 the lock control unit comprises an elongated mounting or base 42 having opposite ends shaped and contoured to simulate the belt molding 22, such for example as shown in section in Fig. 5. One end 42a of the base abuts against the end of the belt molding and, being the same width and cross-sectional shape thereof, forms a continuation of the molding. The opposite end 42b terminates at the edge of the door and forms a similar continuation of the belt molding 22 on the adjacent door. The base 42, which may be a die-casting, is widened intermediate its ends at 42c and formed with an outwardly converging curved wall aperture 43 providing a socket for the semi-pherical button 40. This button is hinged at its upper edge at 40a to the door panel 27 so that when pressed inwardly the button will tilt or swing about the hinge axis. This construction facilitates operation by pressure of the thumb against the lower part of the button and also provides more effective contact of the stem 39 with the end 37c of the detent release lever 37. It also provides inexpensive anchoring means for the button requiring no additional space transversely. The widened portion 42c of the base is formed above the button with an arcuate hood or guard 44 which overhangs the button and encloses opposite upper sides thereof. This hood not only shields the button against rain but also provides a guard preventing accidental operation of the button. Below the button 40 the portion 42c of the base 42 is formed with a projecting hollow finger grip or handle portion 42d into which the fingers may be inserted to permit the door to be pulled upon after pressing the button 40.

The base 42 is provided with theft-proof means for attaching it to the panel 27. At its forward end it is formed on the inside thereof with a hook 45 insertable through a slot 46 in the panel so as to permit the hook to engage over the rear edge of the slot. After this operation the opposite end of the base is attached to the door overlap flange by a screw 47 accessible at the inside of the flange

and hence, inaccessible when the door is closed as shown in Fig. 2.

In the embodiment of Figs. 6 and 7 a handle forming base 48 is used in lieu of the base 42 of the previous embodiment. The forward end 48a of the base abuts against the adjacent end of the belt molding 22 and is of the same width to form a continuation thereof. It may be shaped in cross-section so as to give an ornamental appearance and to blend into the contour of the belt molding. The opposite end 48b terminates adjacent the edge of the door overlap flange as in the previous embodiment and in advance thereof is provided with a transverse slot or opening 49 to receive a push-button 50 of similar shape. This button is located immediately in rear of the central hand grip portion for convenient engagement by the thumb when the handle is grasped. The button has a stem or plunger 51 projecting through a slot 52 in the door panel 27. Extending within and across the inner end of the slot 49 and lying against the panel 27 is a retainer piece 53. Interposed between the retainer piece and a groove 54 in the base of the button 50 is a light compression spring 55 which assists in returning the button to its normal position as shown. The button is anchored in this position against withdrawal outwardly by a fixed pin 56 extending through the stem 51 and having its projecting ends engageable in grooves 57 in the piece 53.

The handle base 48 is secured to the panel 27 in substantially the same manner as in the previous embodiment by means of a hook 58 insertable through a slot in the panel and adapted to hook over the rear edge of the slot. The opposite end of the base is secured from the inside of the overlap flange 28 by a screw 59 rendering the assembly theft proof when the door is closed. The outer face of the handle may be formed with an ornamental embossment 60 forming a rib merging at its side edges 60a into the surface of the handle and increasing in thickness rearwardly to terminate in a guard shoulder 60b having its outer surface flush with the outer end of the button. This construction not only tends to improve the appearance but also protects the button against damage and guards against inadvertent operation of the button.

It will be understood that by grasping the handle portion of the member 48 and pressing inwardly on the button 50 with the thumb, the plunger or stem 51 will engage the end 37c of the lever 37 (Fig. 3) and release the detent 33 from the latch bolt plate 29. The latch bolt 23 will immediately swing toward open or unlocked position. Hence, at the same time that the thumb presses in the push button the handle may be pulled to swing the door open.

In the embodiment shown in Figs. 8 and 9 there is provided an elongated base 61 which may be in the form of a metal die casting or molded plastic material. This base may also have the same width and thickness as the belt line molding 22 and form a continuation thereof. The base 61 is secured to the door panel 27 by a screw 62 and is provided at opposite ends with flat surfaces 61a and 61b providing seats for the plane surfaces of the ends 63a and 63b of a handle 63. The end 63a is provided with a tapered projection or dowel 64 insertable into an aperture 65 in the base and held against withdrawal therefrom by the overlying wall 66 of the aperture. The opposite end 63b of the handle has a projecting tongue 67 extending through an aperture 68

in the base and a corresponding aperture **69** in the panel **27** and secured to the inner side of the free edge wall **25** by a screw **70**. This construction renders the handle theft-proof since the fastening means at opposite ends thereof is inaccessible when the door is closed.

The thickened end **63***b* of the handle is provided with a curved angularly extending slot **71** within which a push button **72** has a sliding fit. This slot extends at an angle as compared with the straight slot **49** in the previous embodiment so as to cause the thumb engaging end **72***a* of the button to face more to the rear and away from the protruding portion of the handle, thus minimizing to a greater extent accidental operation of the button. The button, however, is conveniently located for engagement by the thumb when the handle is grasped and its angular or curvilinear travel when pressed inwardly makes its operation by the thumb very easy. The button is provided with a plunger or stem **73** projecting through the apertures **68**, **69** in the base and panel for engagement with the end **37***c* of the detent release lever **37** (Fig. 3). The button **72** is in this instance provided with a groove or slot **74** housing a light compression spring **75** engaging a pin **76** anchored in a projecting lip **77** on the handle and extending into the end of the slot to anchor the button against outward withdrawal.

The outer face of the handle **63** is formed with an ornamental embossment **78** forming a rib merging at its side edges into the surface of the handle and increasing in thickness rearwardly to terminate in a shoulder **78***a* masking the adjacent protruding side of the button. The end face **72***a* of the button thus lies flush with the face of the embossment **78** and the width of the latter at its end is the same as the width of the button but less than the width of the handle portions **63***b* within which the button is mounted. This construction not only enhances the appearance of the handle by tending to conceal the button, since its end surface substantially merges into the surface of the embossment or rib **78**, but also provides a guard for the button minimizing the danger of damage thereto and inadvertent actuation thereof.

I claim:

1. A control device for a door latch carried by a swinging door and provided with a shiftable member for releasing the latch bolt thereof, comprising a handle attachable at opposite ends to the door and having a hand grip intermediate said ends, a slidable plunger mounted in one of said ends and projecting outwardly thereof for engagement by a finger to permit the plunger to be pressed inwardly and shift said bolt releasing member, and an outwardly projecting rib on said hand grip having one end terminating at said plunger and lying substantially flush therewith to shield the projecting end of the plunger, the said end of the rib having less width than the adjacent portion of the handle and substantially the same width as the adjacent end of the plunger.

2. A handle for attachment to a door having a door latch, comprising a hand grip intermediate the ends of the handle, a push button slidable in one of said ends for releasing the door latch and having its outer end projecting beyond an adjacent surface of the handle, and an embossment on the outer surface of the handle of less width than said surface terminating at the projecting end of the push button for concealing one side thereof.

3. A handle for attachment to a door having a door latch, comprising a hand grip intermediate the ends of the handle, a push button slidable in one of said ends for releasing the door latch and having its outer end projecting beyond an adjacent surface of the handle, and an embossment on the outer surface of the handle of less width than said surface terminating at the projecting end of the push button for concealing one side thereof, the adjacent portions of the push button and embossment having substantially the same width.

4. A push button for attachment to the panel of an automobile door having a door latch and a shiftable member for releasing the latch, comprising a base having means for attaching the same to said door panel, a handle spanning said base and having an intermediate hand grip terminating in ends engaging the outer face of the base and concealing said attaching means a push button slidable in one of said ends and projecting through the door panel for engagement with said latch releasing member, concealed means for attaching one end of the handle to said base, and a member on the handle projecting through the door panel for attachment to the inner side of the free edge wall of the door.

JOHN H. ROETHEL.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
Re. 20,639	Price	Jan. 25, 1938
1,227,916	Lauffer	May 29, 1917
1,351,568	Hart	Aug. 31, 1920
1,383,088	Earle	June 28, 1921
1,424,686	Somers	Aug. 1, 1922
1,687,650	Giragosian	Oct. 16, 1928
1,754,889	Halinka	Apr. 15, 1930
2,189,992	Pearce	Feb. 13, 1940
2,193,488	Morley et al.	Mar. 12, 1940
2,234,810	Simpson	Mar. 11, 1941
2,240,524	Smith	May 6, 1941
2,259,766	Murphy	Oct. 21, 1941
2,304,145	Borchers	Dec. 8, 1942