This invention relates to fastenings for vehicle doors of the kind including a rotary toothed catch for engagement with a striker on a fixed part of the vehicle body, a spring button for effecting a release of the catch from the exterior of the door and incorporating a key operated barrel lock, a catch releasing means operable from the inside of the door, and a locking means operable from the inside of the door.

The object of the present invention is to provide a fastening of this kind in a convenient and efficient form, which provides for the following features:

(a) Means whereby the mechanism is unlocked automatically in the event of the door being closed with the mechanism inadvertently set at the locked position.

(b) Means whereby the door can be locked from the outside without the use of the key, by setting the mechanism to the locked position and closing the door with the push button depressed.

(c) Means whereby the mechanism can be unlocked by the key operated barrel lock after it has been locked by the locking means operable from the inside of the door, and whereby it can be unlocked from the inside after it has been locked by means of the key.

A vehicle door fastening according to the invention comprises in combination, a body part adapted to be mounted adjacent the free edge of the door, a rotary toothed catch mounted on the body part for engagement with a striker on a fixed part of the vehicle body, a spring button and pivot and a pivotal pawl in the body part for preventing rotation of the catch in one direction, a press button operable from the outside of the door, a key-operable barrel lock incorporated in the press button, release means for imparting a releasing movement to the pawl from the inside of the door, a slide having pin and slot connection with the body part and to which angular movement can be imparted by the press button, said slide being movable between a locked position and an unlocked position by the key operable barrel lock and by the said locking means, a stud or other projection on the slide for engaging the pawl and imparting a releasing movement thereto when angular movement is imparted to the slide in the unlocked position, and a detent movable by the pawl whereby a catch releasing movement of the pawl when the slide is in the locked position, will move the slide to its unlocked position.

In the accompanying drawings—

Figure 1 is a sectional side view of one example of the invention, showing the fastening in the unlocked position.

Figure 2 is a similar view to Figure 1 but showing the fastening in the locked position, and Figures 3 & 4 are respectively a sectional plan, and a sectional end view of Figure 1.

Figure 5 is a sectional side view of a modified example of the invention, showing the fastening in the unlocked position.

Figure 6 is a similar view to Figure 5 showing the fastening in the locked position, and
inside of the door, or by the key actuated barrel lock 15, the slide is raised (as seen in Figure 2). If in this position the push button is depressed, the stud or other projection 19 on the slide is above the step or other abutment 29 on the pawl, so that the lever 12 and slide 16 can rock without imparting movement to the pawl. If the door is closed with the slide inadvertently left in the locked or raised position, rotation of the catch 11 will, by a cam action on the lateral position 28 of the pawl 27, raise the pawl and thereby rock the detent 31. This rocking of the detent causes its nose to bear upon the shoulder or other abutment 33 on the other end of the bellcrank lever 135 which is adapted to be rocked by a catch releasing handle at the inside of the door, and this automatically move the slide downwardly to the unlocked position.

A similar automatic unlocking of the mechanism is effected by the detent 31 if the pawl is rocked by the releasing handle at the inside of the door when the slide is in the locked position.

If it is desired to lock the door from outside without using a key then the slide can be set to the locked position by the blocking means operable from the inside of the door, and the door closed with the push button 14 depressed. The depressing of the push button causes the shoulder or other abutment 33 on the slide to be moved out of the path of the nose of the detent 31, so that automatic unlocking of the mechanism is prevented.

At any time the slide 16 can be moved from the locked to the unlocked position by the key actuated barrel lock, but the barrel lock is not moved by the slide due to the pin and slot connection therebetween.

In Figures 5 to 8 is illustrated an example of the invention in which an equivalent of the lever 12 is rendered unnecessary. In this example a body part 110 which is adapted to be mounted adjacent the free edge of the door carries a rotary toothed catch 111 for engagement in known manner with a striker on the vehicle body. On the body part is a pin 118 which engages a slot 117 in a slide 116, and also serves as the pivot for a pawl 127 having a laterally extending portion 128 which extends through a slot in the body part and is adapted to engage with a tooth of the catch 111 under the action of a spring 134.

At the upper end of the slide 116 is a lateral part 116a against which bears an inward extension 113 of a spring loaded push button 114 operable from the outside of the door. Within the push button is a key operable barrel lock 115 of the kind which can be moved in either direction against the action of a centralizing spring. The barrel lock 115 is connected to, or forms part of, the extension 113 in such a manner that when the pin 116 engages a slot 125 in the slide. The arrangement is such that the slide 116 can be moved vertically between a locked position and an unlocked position by actuation of the barrel lock, whilst angular movement can be imparted to the slide by actuation of the press button. The slide can also be moved vertically between a locked position and an unlocked position by means of a locking lever 124 pivoted on the body part and having a hooked end engaging a pin 122 on the slide, this locking lever being adapted for connection to a handle or other means (not shown) on the inside of the door, whereby the locking lever may be rocked.

On the slide 116 is a stud or other projection 119 which co-operates with a step or other abutment 129 on the upper edge of the pawl 127 in imparting a catch releasing movement to the pawl when the slide is moved angularly in the unlocked position, this latter position being the lowered position of the slide seen in Figure 5. When the slide is in the raised or locked position (see in Figure 6) angular movement thereof will not impart a catch releasing movement to the pawl, as the step or other abutment 129 is not in the path of movement of the stud or projection 119.

One end of the pawl 127 extends beneath the one arm of a bellcrank lever 135 which is adapted to be rocked by a catch releasing handle (not shown) at the inside of the door. Actuation of this handle will at all times impart a releasing movement to the pawl. Also actuation of this handle when the slide 116 is in the locked position will move the slide to the unlocked position. For this latter purpose the pawl 127 is connected by a link 136 to a detent 131 pivoted on the body part at 132. This detent has a nose which, as the pawl is moved to a catch releasing position with the slide in the locked position, will contact the stud or other projection 119 and move the slide to the unlocked position.

The detent 131 also serves to unlock the fastening in the event of the door being closed with the slide inadvertently set in the locked position, since on closing the door the catch will by a cam action on the lateral portion 128 impart a releasing movement to the pawl. If it is desired to lock the door from the outside without using a key, then the slide 116 can be set to the locked position by the locking means operable from the inside of the door, and the door closed with the push button 114 depressed. The depressing of the push button causes the stud or other projection 119 to be moved out of the path of the nose of the detent 131 so that automatic unlocking of the mechanism is prevented.

The slide 116 is maintained in the locked or unlocked position by a bifurcated spring 121 connected to the slide and embracing the pivot pin 118. The limbs of this spring approach one another in alignment with the midpoint of the slot 117 and thereby tend to resist movement of the pivot pin from the ends of the slot.

The slide 116 can in all times be moved in either direction by the key-operable barrel lock 115, but movement of the slide can be effected without imparting movement to the barrel lock due to the freedom of the pin 126 in the slot 125.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A vehicle door fastening comprising in combination, a body part adapted to be mounted adjacent the free edge of the door, a rotary toothed catch mounted on the body part for engagement with a striker on a fixed part of the vehicle body, a spring loaded and pivotal pawl on the body part for preventing rotation of the catch in one direction, a press button operable from the outside of the door, a key operable barrel lock incorporated in the press button, release means for imparting a releasing movement to the pawl from the inside of the door, locking means operable from the inside of the door, a slide having a pin and slot connection with the body part to which angular movement can be imparted by the press button, said slide being movable between a locked position and an unlocked position by the key operable barrel lock and by said locking means, a stud or other projection on the slide for engaging the pawl and imparting a catch releasing movement thereto when angular movement is imparted to the slide in the unlocked position, and a detent movable by the pawl whereby a catch releasing movement of the pawl when the slide is in the locked position, will move the slide to its unlocked position.

2. A vehicle door fastening as claimed in claim 1 in which the slide has a slot engaging a pin on the body part, which pin serves also as the pivot for the pawl.

3. A vehicle door fastening as claimed in claim 1 in which the key-operative barrel lock has an extension carrying a lateral pin which engages a slot in the slide.

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