July 30, 1957 P. S. JEAVONS 2,800,787

VEHICLE DOOR FASTENING

Filed Jan. 10, 1956 4 Sheets-Sheet 1

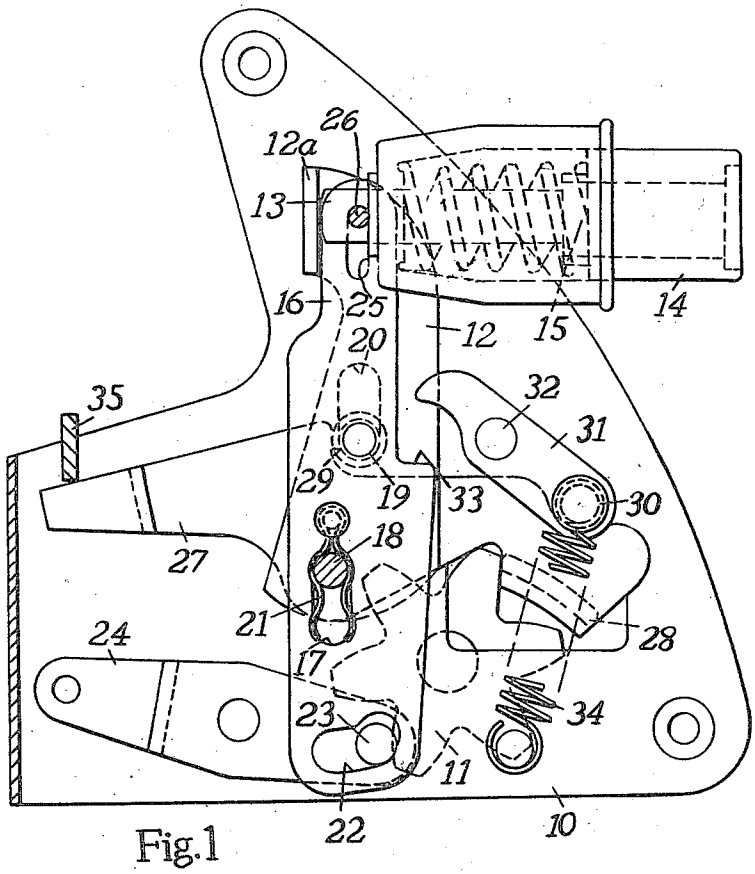


Fig.1

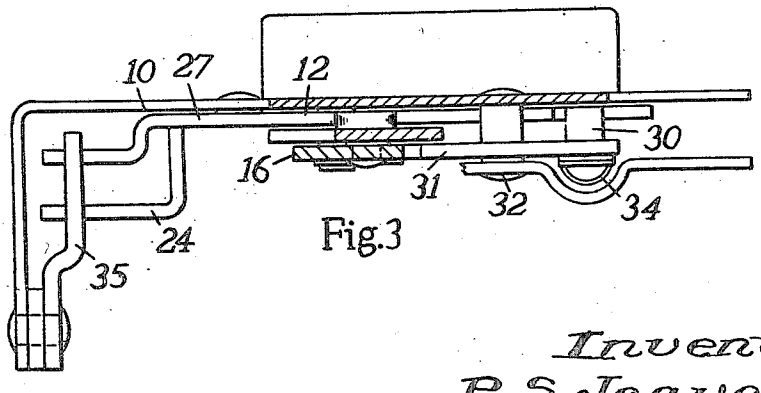


Fig.3

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July 30, 1957 P. S. JEAVONS 2,800,787

VEHICLE DOOR FASTENING

Filed Jan. 10, 1956 4 Sheets-Sheet 2

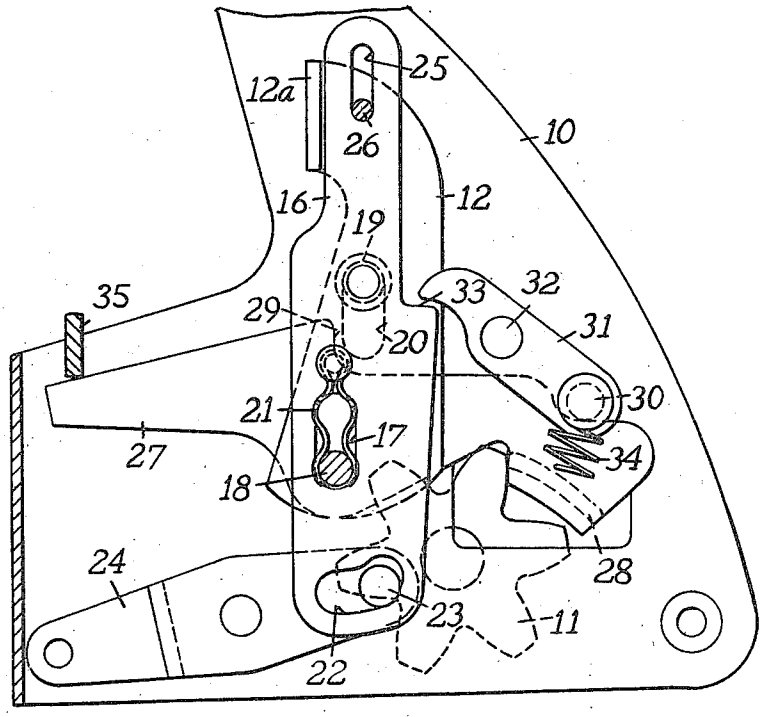


Fig.2

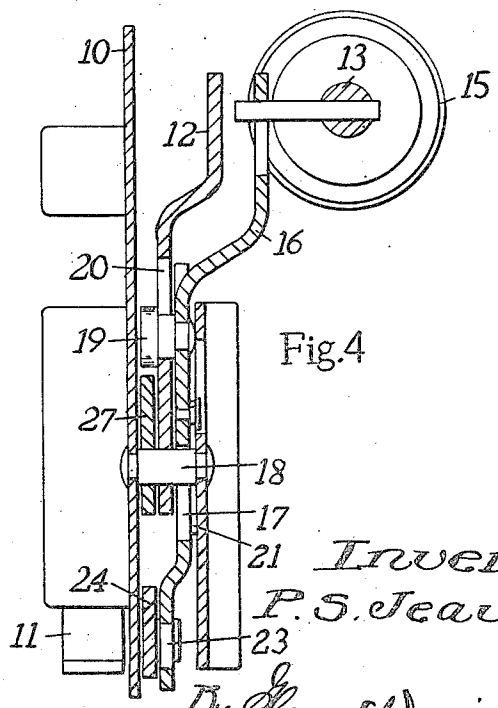


Fig.4

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July 30, 1957 P. S. JEAVONS 2,800,787

VEHICLE DOOR FASTENING

Filed Jan. 10, 1956 4 Sheets-Sheet 3

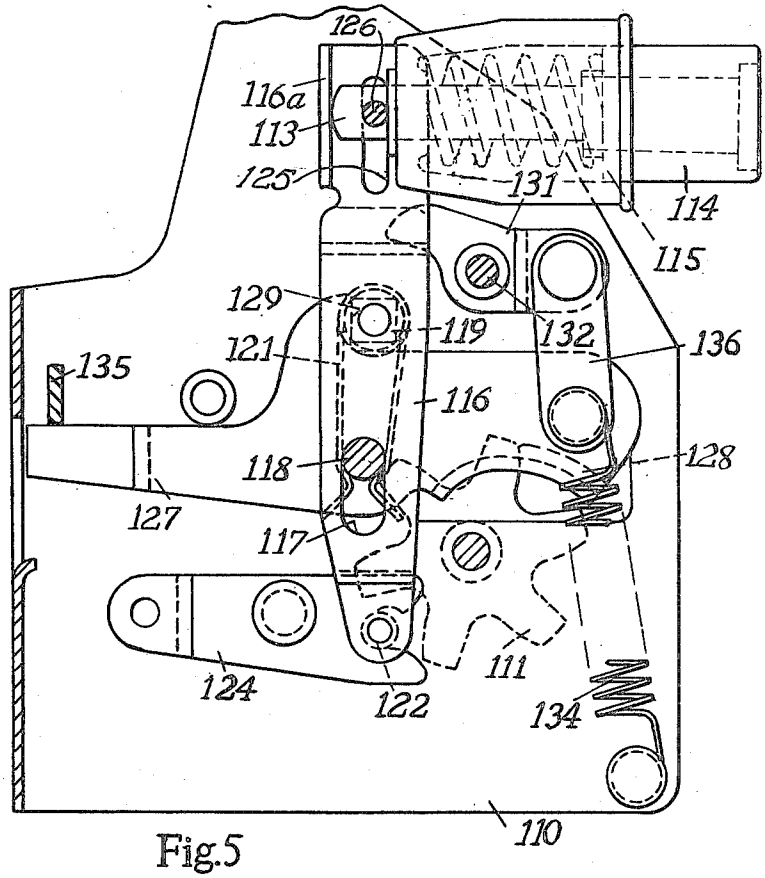


Fig.5

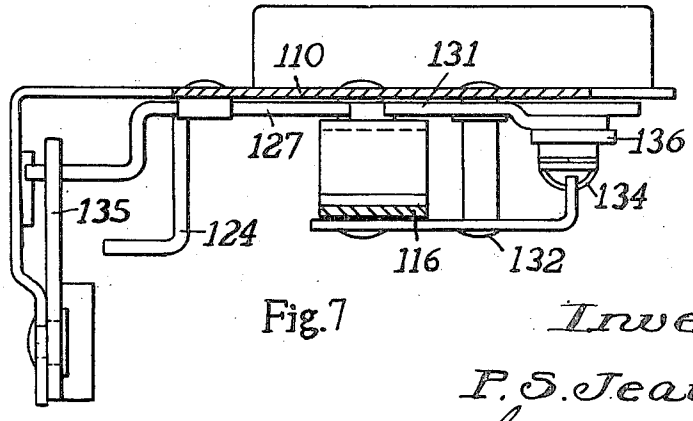


Fig.7

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July 30, 1957 P. S. JEAVONS 2,800,787

VEHICLE DOOR FASTENING

Filed Jan. 10, 1956 4 Sheets-Sheet 4

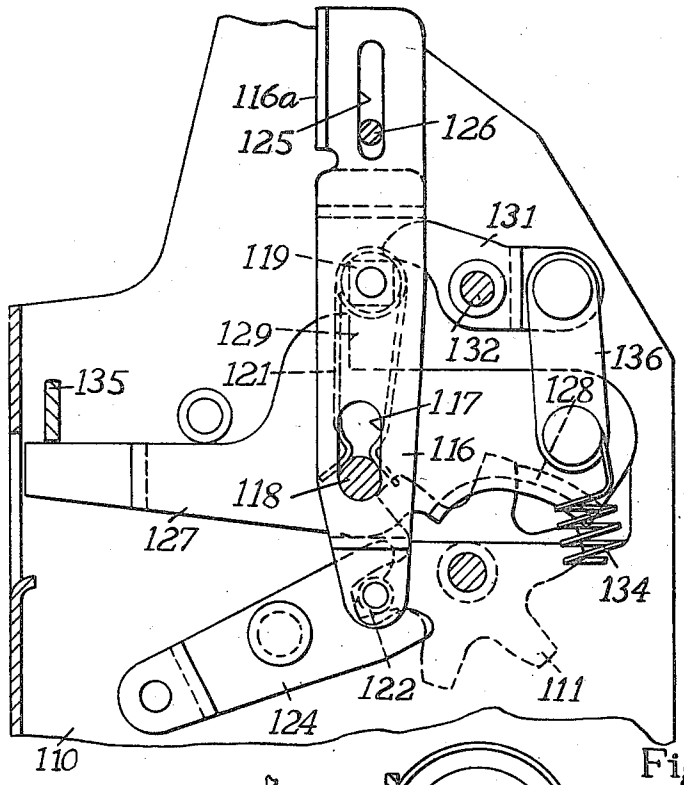


Fig.6

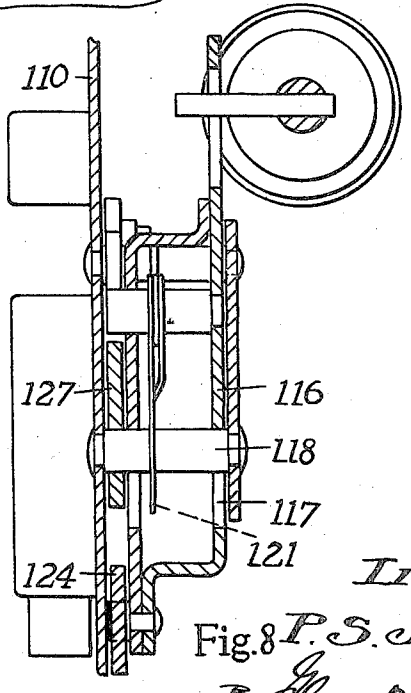


Fig.8

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United States Patent Office 2,800,787 Patented July 30, 1957

2,800,787

VEHICLE DOOR FASTENING

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Application January 10, 1956, Serial No. 558,325

Claims priority, application Great Britain January 25, 1955

3 Claims. (Cl. 70—135)

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 press 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 loaded and 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, locking means operable 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 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.

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

Figures 7 and 8 are respectively a sectional plan and a sectional end view of Figure 5.

In the example of the invention illustrated in Figures 1 to 4 a body part **10** adapted to be mounted on the free edge of the door carries a rotary toothed catch **11** for engagement with a striker mounted on the vehicle body in known manner. Pivotally mounted on the body part is a lever **12** which at its upper end has a lateral part **12***a* against which bears an inward extension **13** of a spring loaded push button **14** operable from the outside of the door. The extension **13** is connected to a barrel lock **15** which is accommodated within the push button and is rotatable with the extension by means of a key, this lock being of the kind which can be moved in either direction against the action of a centralizing spring. Carried by the lever **12** is a slide **16** which has a longitudinally and vertically extending slot **17** which is engaged by the pin **18** on the body part forming the pivot of the lever. Also the slide **16** carries a stud or other projection **19** engaging a parallel slot **20** in the lever **12**. Angular movement imparted to the lever **12** by depression of the push button **14**, is thus also imparted to the slide **16**.

In order to maintain the slide **16** at either of its extreme positions relative to the main lever (corresponding respectively to a locked position and an unlocked position of the fastening as hereinafter described) there is connected to the slide a bifurcated spring **21** which embraces the pivot pin **18**. The limbs of this spring approach one another in alignment with the mid-point of the slot **17** and thereby tend to resist movement of the pivot pin from the ends of the slot.

At the lower end of the slide **16** is an arcuate slot **22** in which is a lateral pin **23** extending from the one end of a locking lever **24** pivoted on the body part. This locking lever **24** is adapted for connection to a handle or other means (not shown) on the inside of the door whereby it may be rocked to impart vertical movement in either direction to the slide between the locked and the unlocked position. Another, but vertically extending slot **25**, at the upper end of the slide is engaged by a lateral pin **26** on the extension **13** of the push button. Thus rotation of the barrel lock by a key will also impart vertical movement to the slide.

Pivotally mounted upon the pivot pin **18** is a pawl **27**. This pawl has a laterally extending portion **28** on its lower edge for engagement with a tooth of the rotary catch **11** and a step or other abutment **29**, on its upper edge for co-operation with the stud or other projection **19** on the slide in a manner to be described. Another part of the upper edge of the pawl bears against a lateral pin **30** on the one end of a detent **31** pivoted at **32** on the body part. The opposite end of this detent has a nose which is adapted to co-operate with a shoulder or other abutment **33** on the slide in a manner to be described. The detent is loaded by a spring **34** which holds the lateral pin **30** in contact with the pawl, and urges the pawl into engagement with the rotary catch. Alternatively the pawl and detent may be loaded by separate springs.

The end of the pawl **27** remote from the detent and catch extends beneath the one arm of a bellcrank lever **35** which is adapted to be rocked by a catch releasing handle (not shown) on the inside of the door, so that actuation of this handle will at all times release the pawl from the catch.

When the mechanism is unlocked the slide is in its lower position, seen in Figure 1. In this position depression of the push button, by imparting angular movement to the lever **12** and the slide **16** will cause a releasing movement to be imparted to the pawl **27** due to the contact of the stud or other projection **19** with the step or other abutment **29**, thereby freeing the catch. When the mechanism is locked, either by the locking means operable from

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 slide, and thus 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 locking 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 **116***a* 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**, which carries a lateral pin **126** engaging 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 forked 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 at 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 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 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-operable barrel lock has an extension carrying a lateral pin which engages a slot in the slide.

References Cited in the file of this patent

UNITED STATES PATENTS

2,705,884	Craig	Apr. 12, 1955
2,759,351	Allen	Aug. 21, 1956

FOREIGN PATENTS

874,258	Germany	Apr. 23, 1953