June 13, 1939. E. B. NISWONGER ET AL 2,161,930

AUTOMATIC SAFETY LATCH FOR VEHICLE DOORS

Filed April 10, 1937

Fig. 1.

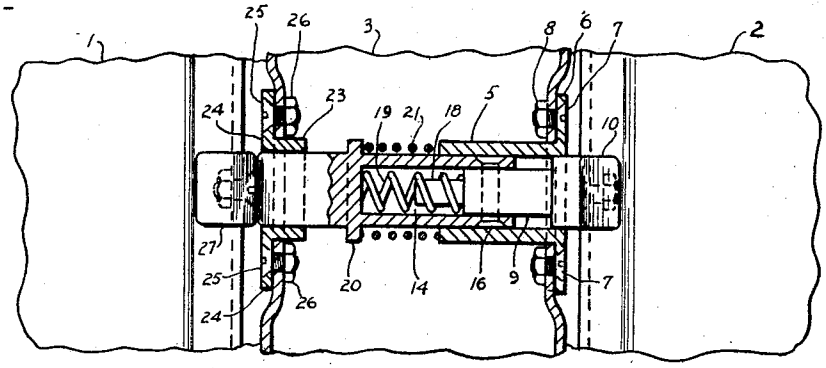


Fig. 2.

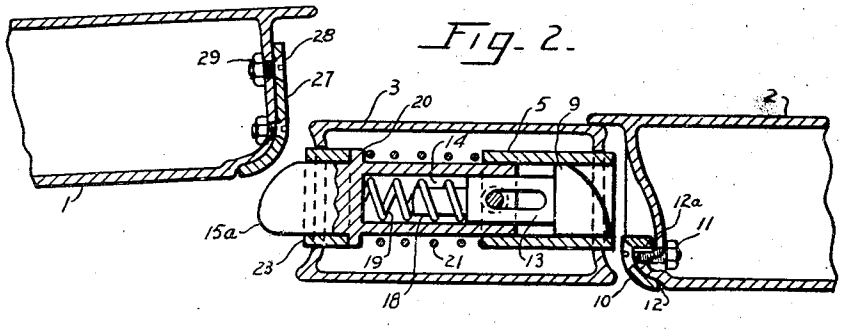


Fig. 3.

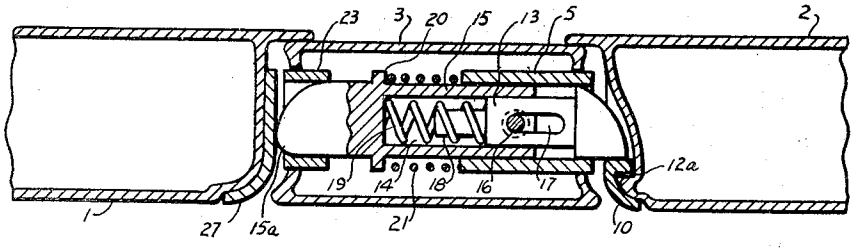
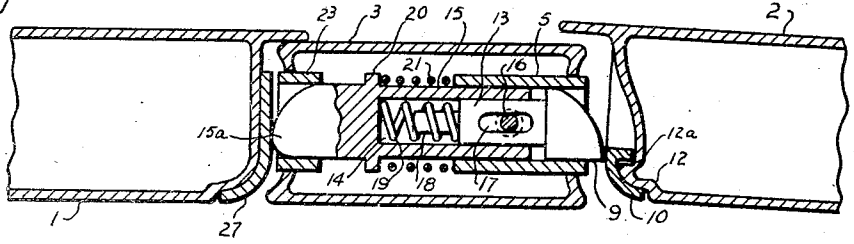


Fig. 4.



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AUTOMATIC SAFETY LATCH FOR VEHICLE DOORS

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2 Claims. (Cl. 292—182)

This invention relates to new and useful improvements in an automatic safety latch for vehicle doors.

The invention, generally stated, relates to an automatic safety latch for two doors with a jamb between them, and has more especial relation to a latch device for automobile and vehicle doors, to prevent anyone in the rear from opening them while the car is in motion or from jarring open.

The principal object of the present invention is to provide a latch device of the character stated, in which there is provided a latch bolt which is limited as to outward movement, with engagement back of a keeper to prevent the door on that side being opened, when the door on the opposite side is closed.

A further object of the invention resides in the provision of a plunger to which the above latch bolt is secured, the plunger being operated by closing or opening the door on the opposite side of the door jamb.

A further object of the invention resides in the provision of an arrangement of parts as above described in which the door on the right side may be closed and latched automatically after the door on the left side is closed.

A further object of the invention is to provide a latch bolt that will also operate just as efficiently in case the door opposite the latch bolt was hinged to the door jamb between the doors.

A still further object of our invention is to provide a latch device of the character stated comprising very few parts which can be cheaply manufactured and which will be very efficient for the purpose desired.

Other and further objects not at this time appearing will hereinafter be set forth and described.

The invention consists of the novel construction hereinafter described and finally claimed. The nature, characteristic features and scope of the invention will be more fully understood from the following description taken in connection with the accompanying drawing forming a part thereof, and in which Figure 1 is a view in elevation plan from the inside, with the device and jamb in section. Figure 2 is a sectional plan view showing the door on the left opened, permitting the door on the right to open. Figure 3 is a similar view, showing both doors closed, and Figure 4 is a similar view, showing the door on the left closed, while the door on the right is almost closed.

For the purpose of illustrating our invention we have shown in the accvompanying drawing one form thereof which is at present preferred by us, because the same has been found practical and reliable, but it is to be understood that the various parts of which our invention consists can be variously arranged and organized and that our invention is not limited to the precise arrangement and organization of the parts as herein shown and described.

Referring now to the drawing in detail, the reference numeral 1 designates a door which is hinged at the extreme left in practice although the hinge points are not shown in the drawing. However, it will be noted that the action of the latch will be substantially the same if it were hinged to the jamb. The numeral 2 designates also a door hinged at the extreme right and closing on the door jamb 3, such as the doors of an automobile sedan.

Mounted in the right side of the jamb 3 is a square-hole casing 5 having at its outer end radial lugs 6 formed with holes through which screws 7 are passed into and through the jamb wall to receive nuts 8.

Outwardly movable from the casing 5 is a latch bolt 9 of square section and rounded on its extreme right end for contact with a keeper 10 secured to the door 2 by screws 11. The metal 12 in the door 2 is shaped as shown in Figures 2, 3 and 4 to assist in retaining the keeper in place. Shims 12ª may be placed between the door and the ledge of the keeper 10 to set it outward to take up wear and obtain an adjustable fit between it, the door and the latch bolt 9.

The latch bolt 9 has a rearwardly projecting round end 13 that is slidably fitted in an axial bore 14 in the inner end of a plunger 15 that has a sliding fit in the hollow casing 5. A retaining pin 16 passes from the walls of the plunger 15 through a longitudinal slot 17 in the rear end 13 of the latch bolt 9. Formed on the extreme inner end of the latch bolt is a reduced axial projection 18 over which fits one end of a helical spring 19 within the hollow inner end of the plunger.

Formed on the outer periphery of the plunger 15 at the end of its hollow spring-receiving portion is an annular rib 20. Between the latter and the inner edge of the casing 5 a helical spring 21 surrounds the plunger.

In front of the rib 20 the plunger 15 is of square section, with a rounded outer end 15ª, for a sliding fit in the square bore of a casing 23 having radial lugs 24 for attachment to the jamb 3 by screws 25 and nuts 26.

The rounded end 15ª of the plunger 15 normally projects into the path of inward move-

ment of a cam plate 27 secured by screws 28 and nuts 29 to the door 1. In the present instance the latter is the front door of an automobile. When closing this door the pad 27 contacts the rounded end of the plunger 15, forcing it into the casing 23. As the plunger 15 moves inwardly, the spring 21 surrounding it is compressed. The spring 19 within the hollow rear end of the plunger is also compressed to force the latch bolt 9 outwardly over the ledge 10 on the door 2, which in the present instance is the rear door of the automobile, to lock the same in its closed position until the front door 1 is again opened. If the rear door 2 is not closed when the front one is shut, the rounded end of the latch bolt 9 will be in the path of the rear door when it is closed to be forced inwardly by the ledge 10 until the latter passes the latch bolt, whereupon the spring 19 will force the latch bolt outwardly over the ledge to hold the rear door closed. During this inward and outward movement of the latch bolt 9, the slot 17 passes over the pin 16 carried by the plunger 15.

When the front door 1 is again opened, the pad 27 will clear the rounded end 15a of the plunger 15 to permit the compressed spring 21 to force it outwardly. As the plunger 15 is pressed outwardly by the spring 21, the pin 16 will engage the front end of the slot 17 in the latch bolt 9 to draw it inwardly out of the path of the ledge 10, whereupon the rear door 2 is free to be opened. But so long as the front door 1 is closed, the rear door cannot be jarred open to permit children or others to fall out of the vehicle while it is in motion.

Having described our invention, we claim:

1. A latch for association with a door on each side of a jamb and free to open outwardly therefrom, said latch adapted for cooperation with a ledge on one door, and comprising a casing in said jamb opposite said ledge, a latch bolt movable in said casing and having an outwardly projecting end, a casing in the other side of said jamb opposite the first casing, a plunger in said second casing having a rounded front end, said plunger having an external projection near its front end and a hollow rear end having a sliding fit in the first casing, the inner end of the latch bolt being slidingly fitted in said hollow rear end of said plunger, a spring in the hollow rear end of the plunger in engagement with the inner end of the latch bolt, the latter being formed with a longitudinal slot, a pin carried by the rear end of the plunger having a sliding fit in said slot, and a helical spring surrounding the plunger between the inner end of the first casing and the projection on the plunger, the rounded end of the plunger being adapted to engage a cam plate on the second door when the latter is closed, whereby said plunger will be forced inwardly for the purpose described.

2. A latch for association with a door on each side of a jamb and free to open outwardly therefrom, said latch adapted for cooperation with a ledge on one door, and comprising a casing in said jamb opposite said ledge, a latch bolt movable in said casing, a spring for moving said latch bolt out of the casing over the ledge on said door to hold it in a closed position, a casing in the other side of said jamb opposite the first casing, a plunger in said second casing, a spring for forcing said plunger outwardly into the path of closing movement of the second door, said plunger formed with a hollow rear end having a sliding fit in the first casing to receive the first spring, and a pin and slot connection between the rear end of the plunger and the latch bolt, said plunger adapted, through the first spring, to move the latch bolt over the ledge on the first door when the front end of said plunger is engaged by the second door during the closing movement of the latter.

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