Jan. 27, 1931. J. H. LEVITT ET AL 1,790,104

REAR DOOR LATCH FOR PASSENGER VEHICLE BODIES

Filed Oct. 15, 1928

Fig. 1.

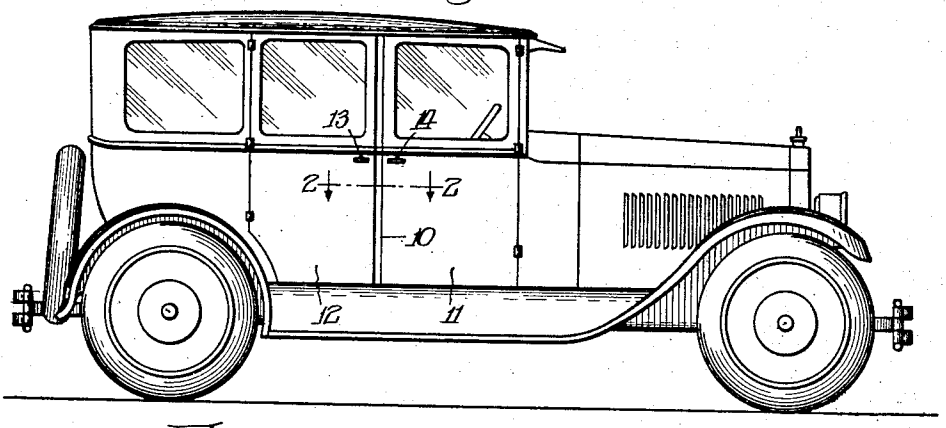


Fig. 2.

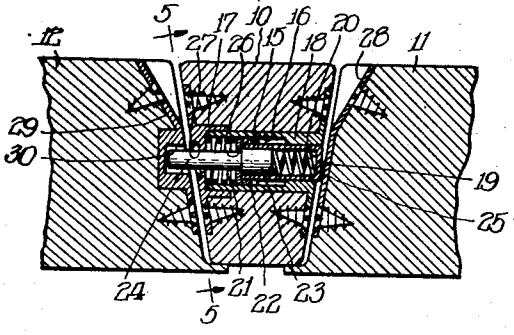


Fig. 3.

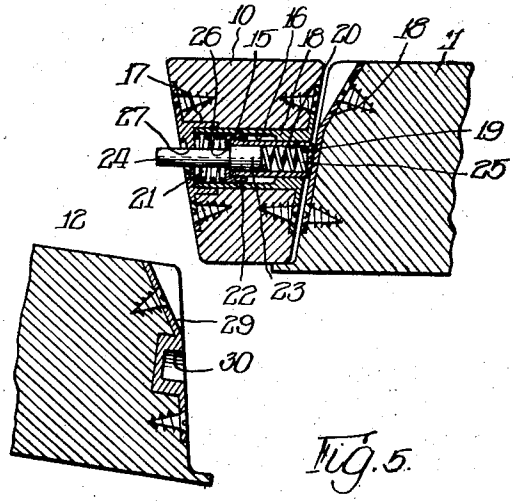


Fig. 4.

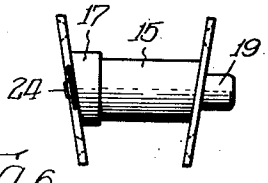


Fig. 5.

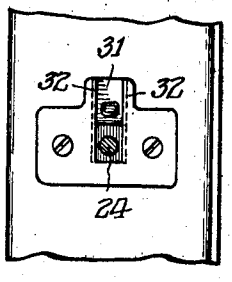


Fig. 6.

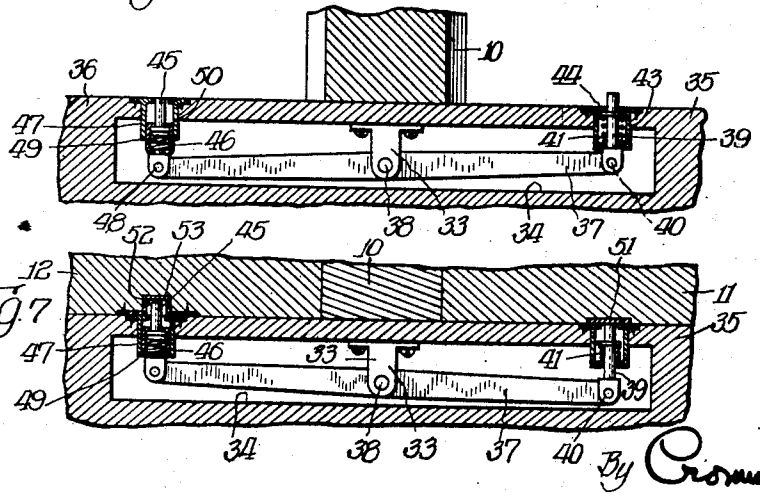


Fig. 7.

Inventors:
John H. Levitt,
George E. Stringer,
Edwin H. Gielow,
By Cromwell, Greist & Sanders
Attys.

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UNITED STATES PATENT OFFICE

JOHN H. LEVITT AND GEORGE E. STRINGER, OF EVANSTON, AND EDWIN H. GIELOW, OF CHICAGO, ILLINOIS

REAR-DOOR LATCH FOR PASSENGER-VEHICLE BODIES

Application filed October 15, 1928. Serial No. 312,407.

A great many persons, in purchasing an automobile, will select one having but two doors in preference to one having four doors, notwithstanding the advantages possessed by the latter, because of the danger of children in the rear opening the rear doors and falling out. The present invention has to do with a novel automatically actuated safety latch for the rear doors of four-door automobiles which will eliminate such danger.

The principal object of the invention is to provide a novel rear door latch for four-door automobiles, by means of which the rear doors will be automatically locked when the front doors are closed and cannot be opened until the front doors are opened.

Another important object of the invention is to provide a latch of the character described which may be rendered inoperative if and when desired.

While the foregoing statements are indicative in a general way of the nature of the invention, other objects and advantages will be evident to those skilled in the art upon a full understanding of the construction, arrangement and operation of the latch.

Two different forms of the invention are presented herein for the purpose of exemplification, but it will of course be appreciated that the invention is susceptible of embodiment in other structurally modified forms coming equally within the scope of the appended claims.

In the accompanying drawing:

Fig. 1 is a side view of a four-door automobile equipped with the automatic latch of the invention;

Fig. 2 is a fragmentary horizontal section, taken on the line 2—2 of Fig. 1;

Fig. 3 is a corresponding section, showing the front door closed and the rear door open;

Fig. 4 is a top view of the latch;

Fig. 5 is a fragmentary vertical section, taken on the line 5—5 of Fig. 2;

Fig. 6 is a fragmentary vertical section through the frame of a four-door automobile, taken at the base of the center door post, showing another form of the latch, with the front and rear doors both open; and

Fig. 7 is a corresponding section, showing the front and rear doors both closed.

The latch illustrated in Figs. 1 to 5 inclusive is mounted in the center post 10 of a four-door automobile body between the front and rear doors 11 and 12, and functions independently of the ordinary manually operated latches 13 and 14 associated with such doors.

The latch includes a tubular casing 15 which is fitted into an aperture 16 in the post 10 and is made in two telescopically associated parts 17 and 18. A plunger 19 is slidably mounted in the bore 20 of the front part 18 of the casing and is pressed forwardly by a spring 21 which is positioned between the rear end of the part 17 of the casing and a cap 22 which is screwed onto the rear end of the plunger 19 and forms in effect a part of the same. The plunger 19 is hollow, and the enlarged end 23 of a latching bolt 24 is slidably mounted in the plunger. A spring 25 is positioned in the plunger 19 between the front end of the enlarged portion of the latching bolt and the front end of the plunger and serves to press the enlarged portion of the latching bolt rearwardly with respect to the plunger into engagement with the cap 22, through an aperture 26 in which cap the latching bolt extends. The latching bolt also extends rearwardly through the bore 27 of the rear part 17 of the casing.

From the foregoing description, it will be appreciated that the latching bolt 24 normally moves as a unit with the plunger 19. When the plunger 19 is pressed rearwardly, the rear end of the latching bolt 24 will be projected rearwardly, and when the plunger is permitted to project forwardly under the action of the spring 21, the latching bolt will shift forwardly with it.

When the front door 11 of the automobile body is open, the plunger 19 and the latching bolt 24 will assume the positions shown in Fig. 4. The front door is provided with an angularly disposed strike plate 28, and, when such door is swung into its closed position, the strike plate 28 will engage with the front end of the plunger 19 and force the same, together with the latching bolt 24, rearwardly into the positions shown in Figs.

2 and 3. The rear door 12 is provided with a strike plate 29 having a shoulder 30, and, if the rear door is closed, as shown in Fig. 2, at the time that the front door is closed, the rear end of the latching bolt 24 will move into interlocked relation with the shoulder 30 on the strike plate 29. If the rear door, however, is standing open at the time the front door is closed, the strike plate 29 on the rear door will, when the rear door is subsequently closed, engage with the rear end of the latching bolt and force the same forwardly until the shoulder 30 on the strike plate 29 has moved inwardly beyond the latching bolt, whereupon the latching bolt will shift rearwardly again under the action of the spring 25 into interlocked relation with the shoulder.

It will thus be seen that when the rear door of the automobile body is closed, and the front door is closed, the rear door will be automatically locked and cannot be opened until the front door is opened, and that if the rear door is standing open at the time that the front door is closed, the rear door will be automatically locked as soon as it is closed and cannot be opened again until the front door is opened.

At times it may be desirable to dispense with the automatic locking feature. This may be done by sliding a thin cover plate 31, which is mounted in guides 32 at the rear end of the casing, down into a position overlying the rear end of the latching bolt 24. When the cover plate 31 has been moved down into such position, rearward movement of the plunger 19, instead of shifting the latching bolt 24 rearwardly, will merely compress the spring 25.

In Figs. 6 and 7 is shown another form of the invention in which the latch, instead of being mounted in the center door post 10, is mounted in the frame of the body at a point beneath the base of such post. A bracket 33 is positioned in a recess 34 in the frame beneath the front and rear door sills 35 and 36, and a lever 37 is pivoted at 38 to the bracket. A vertically extending plunger 39 is pivoted at 40 to the front end of the lever 37 and is pressed upwardly by a spring 41 which is positioned in a casing 43 set into the sill 35 and acts between the bottom of the casing and a rib 44 on the plunger. A latching bolt 45 is slidably mounted in a tubular member 46 which is in turn slidably mounted in a tubular member 47 set into the sill 36, and the tubular member 46 is pivoted at 48 to the rear end of the lever 37. A spring 49 is positioned between the lower end of the latching bolt 45 and the bottom of the tubular member 46 and serves to press the latching bolt upwardly in the tubular member into engagement with an inturned flange 50 or the upper edge of such member.

When the front door 11 is closed, a strike plate 51 on the lower edge of the same engages with and depresses the plunger 39, causing the lever 37 to raise the latching bolt 45 into a recess 52 in a strike plate 53 on the lower edge of the rear door 12, thus automatically locking the rear door in substantially the same way that the rear door is locked in the form of the invention first described.

While the invention is particularly adaptable for use in connection with four-door automobiles, it obviously may be employed to advantage in automatically locking certain doors in motor busses, airplanes and other passenger conveyances.

We claim:

1. A rear door latch for application to a four-door automobile body, comprising a latching member which is adapted to be movably mounted in the frame of a four-door automobile body in proximity to the edges of the front and rear doors, a cam member which is adapted to be mounted on the edge of the front door in such position as to move the latching member when the front door is closed, and a keeper which is adapted to be mounted on the edge of the rear door in such position as to coact with the latching member when the latter is moved by the closing of the front door into engagement therewith, said keeper being movable past the latching member into interlocked relation therewith when the rear door is moved into closed position after the front door has been closed.

2. A rear door latch for application to a four-door automobile body, comprising a resiliently yieldable latching member which is adapted to be movably mounted in the frame of a four-door automobile body in proximity to the edges of the front and rear doors, a cam member which is adapted to be mounted on the edge of the front door in such position as to move the latching member when the front door is closed, and a keeper which is adapted to be mounted on the edge of the rear door in such position as to coact with the latching member when the latter is moved by the closing of the front door into engagement therewith, said keeper being movable past the latching member into interlocked relation therewith when the rear door is moved into closed position after the front door has been closed.

3. A rear door latch for application to a four-door automobile body, comprising an elongated longitudinally compressible latching member which is adapted to be movably mounted in a horizontal position in the center door post of a four-door automobile body with its ends in proximity to the edges of the front and rear doors, a cam member which is adapted to be mounted on the edge of the front door in such position as to shift the latching member rearwardly when the front door is closed, and a keeper which is adapted to be mounted on the edge of the rear door in

such position as to interlock with the rear end of the latching member when the latter is shifted rearwardly by the closing of the front door into lapped relation thereto, said keeper being movable past the latching member into interlocked relation therewith when the rear door is moved into closed position after the front door has been closed.

4. In a passenger vehicle body having a front door and a rear door at one side of the body, a latching member movably mounted in the body between the front and rear doors in proximity to the edges of such doors, a cam formation associated with an adjacent edge of the front door for moving the latching member when the front door is closed, and a keeper formation associated with an adjacent edge of the rear door for coaction with the latching member when the latter is moved by the closing of the front door into lapped relation thereto, said keeper formation being movable past the latching member into interlocked relation therewith when the rear door is moved into closed position after the front door has been closed.

In testimony whereof we have hereunto subscribed our names.

JOHN H. LEVITT.
GEORGE E. STRINGER.
EDWIN H. GIELOW.