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2,955,864

AUTOMOBILE DOOR LATCH

Filed Dec. 17, 1957

2 Sheets-Sheet 1

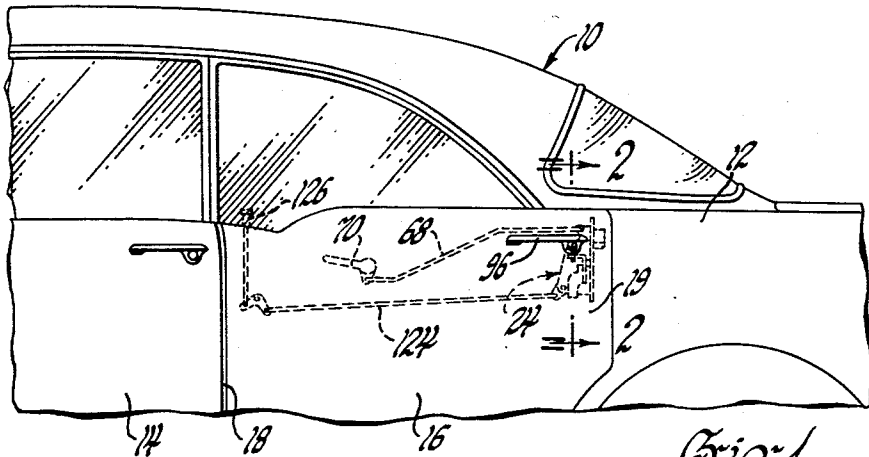


Fig. 1

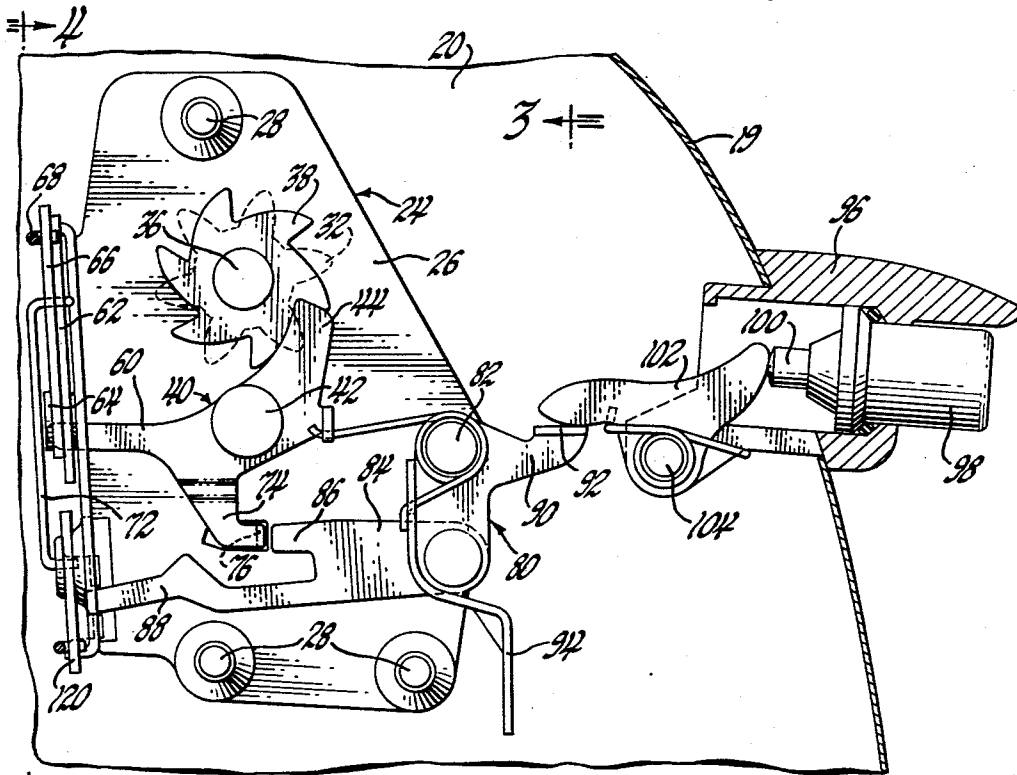


Fig. 2

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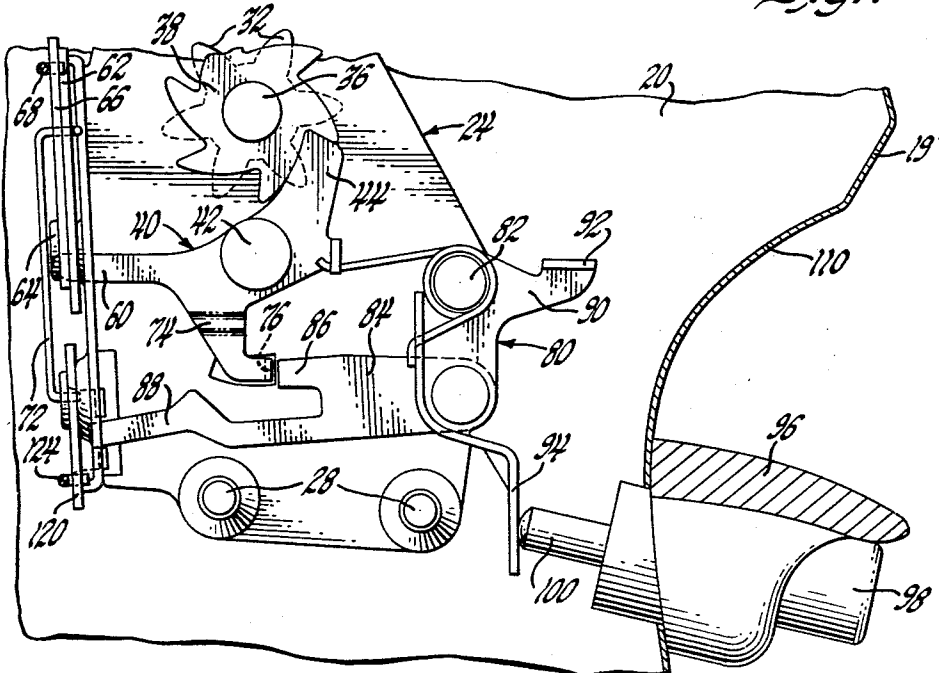
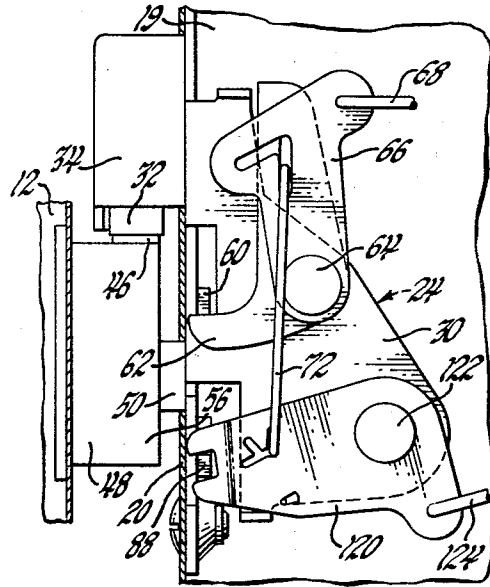
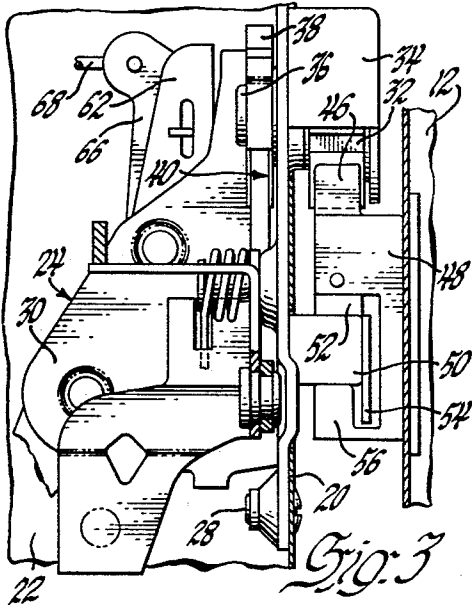


Fig. 5

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**AUTOMOBILE DOOR LATCH**

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2 Claims. (Cl. 292—280)

This invention relates to a door latch, and more particularly to a door latch for an automobile.

One feature of the invention is that it provides an improved automobile door latch; another feature of the invention is that it provides a door latch which is adapted for use with latch operating means mounted alternatively in various locations; and still another feature of the invention is that it provides a latch having a detent for blocking movement of the latching means and a detent operating lever having two actuating arms extending in different directions from the pivot of the lever whereby the operating lever may be coupled to latch operating means mounted in either of two spaced locations.

Other features and advantages of the invention will be apparent from the following description and from the drawings, in which:

Figure 1 is a fragmentary side elevational view of an automobile having the improved latch mounted in the rear door thereof;

Figure 2 is an enlarged transverse vertical section taken along the line 2—2 of Figure 1;

Figure 3 is a section through the latch of Figure 2 taken along the line 3—3 thereof;

Figure 4 is a section through the latch of Figure 2 taken along the line 4—4 thereof;

Figure 5 is a view similar to Figure 2 showing how the latch is adapted for use with an outside latch operator mounted in a different location on the door.

In automobiles having varying body styles, it is often necessary to mount the outside door latch operator in various positions with relation to the latch. In the past, this necessitated using a different latch for each different body style. In many instances, the differences in the latches were relatively minor to all outward appearances; however, any changes in the size and shape of the latch frame or in the size, shape or location of the latch operating parts and the relationship of these parts to each other necessitated expensive tooling costs. For example, in some instances, a relatively minor change in the door contour may make it necessary to change the position of the outside push button operator with respect to the latch. This in turn, according to past practices, required changes in certain of the latch operating parts to accommodate the changed location of the push button operator. Accordingly, expensive tooling costs were incurred to make these relatively minor changes in the latch parts. According to this invention, the latch has an operating lever with a first actuating arm extending in one direction and a second actuating arm extending in another direction, whereby the operating lever may be coupled to latch operating means, as the outside push button assembly, mounted in either of two spaced locations. Accordingly, the latch may be used with two different body styles requiring different locations for the outside push button without the necessity of making any changes in the latch frame or the latch operating parts.

Referring now more particularly to the drawings, in Figure 1, an automobile designated generally as 10 has a body including a rear quarter portion 12, a front door

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14 and a rear door 16. The rear door is hinged in conventional manner at its forward edge on a body center pillar 18 and the rear free swinging edge of the door is latched in conventional manner to a keeper mounted on the body rear quarter portion 12. While the invention is applicable to front door latches as well as rear door latches, it is illustrated herein only in a rear door. The rear door 16 has an outer panel 19 (Figure 2), a jamb face panel 20 (Figures 3 and 4) and an inner panel 22. The latch comprises a frame designated generally as 24 and having a body portion 26 lying in a plane parallel to the jamb face 20 of the door and secured thereto by bolts 28. A right angular flange portion 30 of the latch frame lies in a plane generally parallel to the inner door panel 22.

A bolt 32 is rotatably mounted in a bolt housing 34 secured by welding or other conventional means to the outside of the frame body and projecting out through an opening in the jamb face 20 of the door. The bolt 32 is rigidly mounted on a stub shaft 36 which is journaled for rotation in the frame and bolt housing and which, adjacent the inside surface of the frame body 26, rigidly mounts a ratchet 38. A detent designated generally as 40 is pivotally mounted adjacent the ratchet on a stud 42. The detent has an upwardly extending foot 44 for engagement with the ratchet to block rotatable movement thereof in a clockwise direction as the parts appear in Figures 2 and 5. This holds the door in latched condition, the bolt teeth mating with complementary teeth 46 on a keeper 48 secured to the rear quarter body portion 12. As shown in Figure 3, a dovetail wedge 50 which projects from the latch frame below the bolt housing enters a wedge receiving recess in the keeper against the force of a conventional spring-biased sliding shoe member 52. A downwardly projecting interlock flange 54 on the dovetail seats in the keeper slot behind an upwardly projecting wall portion 56 thereof to prevent the door from being pulled longitudinally away from the rear quarter body portion 12.

The detent has an integral inside operating arm 60 which extends toward the frame flange 30 and projects through a slot therein. This inside operating arm 60 is adapted to be engaged by an arm on a remote lever 62 pivotally mounted at 64 on the frame flange 30. A free wheeling lever 66 is also pivoted on the frame flange at 64 and overlies the remote lever 62. A rod 68 connects the free wheeling lever 66 to a conventional inside turn handle 70 mounted on the door inner panel. When the handle 70 is turned, it pulls on rod 68 to rotate the free wheeling lever 66 in a clockwise direction in Figure 4. A free wheeling selector wire 72 is arranged normally to couple the levers 62 and 66 together so that when the free wheeling lever is swung clockwise the remote lever also is swung in a clockwise direction, lifting up on the detent arm 60 and swinging the detent foot 44 out of engagement with the ratchet. With the detent foot held away from the ratchet, the bolt-ratchet unit is freely rotatable and the door may be opened. The free wheeling selector wire may be so arranged that it also couples the levers 62 and 66 together when the door is locked so that the door may be opened from the inside, even though it is locked from the outside. If desired, the wire 72 may be arranged so that it uncouples the levers 62 and 66 when the door is locked, in which condition the door is locked against inside operation as well as outside operation. The free wheeling selector wire 72 is so arranged that it always couples the levers 62 and 66 together when the door is unlocked. Meservy Patent 2,674,482, entitled "Automobile Door Lock" contains a more detailed description of this free wheeling selector arrangement, which forms no part of the invention claimed here.

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The detent 40 also has a downwardly extending outside operating arm 74 which terminates at its lower free end in a turned pick-up tab 76. Detent operating means comprises an operating lever designated generally as 80 pivotally mounted intermediate its ends on a stud 82 projecting from the latch frame body 26. The detent operating lever pivotally mounts an intermittent link 84 for coupling the operating lever to the outside operating arm of the detent, the intermittent link having a projecting portion 86 adapted to abut the pick-up flange 76 on the detent arm 74 to swing the detent foot out of engagement with the ratchet when the intermittent link is shifted to the left in Figure 2. The intermittent link also has a locking arm 88, the function and operation of which will later be described.

As shown best in Figures 2 and 5, the detent operating lever 80 has a first actuating arm 90 extending generally horizontally from the pivot stud 82 and terminating in a turned pick-up flange 92. A second actuating arm 94 on the operating lever extends generally downwardly from the pivot 82. The provision of these two arms on the lever results in an arrangement wherein the operating lever may be coupled to outside latch operating means mounted in either of two spaced locations. In Figures 1 and 2, the outside latch operating means is mounted quite close to the belt line of the automobile. A gripping handle 96 is fixedly secured to the outer door panel 19 and carries a slidable push button assembly, including an outside operating push button 98 and a push rod 100. The inner end of the push rod abuts one arm of a bell crank lever 102 pivotally mounted on a stud 104 carried on a portion of the handle inside the door, the other arm of this bell crank overlying the pick-up flange 92 on the detent operating lever 80. Depression of the push button 98 will move the rod 100 inwardly, swinging the bell crank 102 in a counterclockwise direction in Figure 2. The bell crank 102 picks up the detent operating lever 80 and swings it in a clockwise direction to shift the intermittent link 84 longitudinally inwardly or to the left in Figure 2. When the parts are in the unlocked condition shown, the projection 86 on the intermittent link abuts the pick-up flange 76 on the detent arm 74 and swings the detent foot out of engagement with the ratchet.

Figure 5 shows how the identical latch may be utilized in an automobile having a different body style. In Figure 5, the door outer panel 19' is formed with an undercut surface 110 in the area where the handle is mounted in the embodiment of the invention shown in Figures 1 and 2. Consequently, it is necessary to move the handle down a couple of inches where it is mounted on a generally vertical surface portion of the door outer panel. In this embodiment of the invention, the bell crank lever 102 is omitted. However, since this lever was not a unitary part of the latch and was not mounted on the latch frame, no changes whatsoever are necessary in the latch frame, the operating parts mounted on the frame or the relationship of the parts to each other. In Figure 5, the push rod 100 directly abuts the second actuating arm 94 of the detent operating lever 80 so that the same latch can be used in both automobile body styles with no changes whatsoever in the latch.

The latch illustrated includes locking means for swinging the intermittent link 84 into and out of coupled relation with the detent. As shown in Figure 4, there is a locking lever 120 pivotally mounted at 122 on the frame flange 30, this lever being connected by a rod 124 to a conventional inside garnish molding locking button 126 carried on the door. The free end of the locking lever is formed with a slot which receives the end of the intermittent link arm 88. When the garnish molding button is depressed, the locking lever 120 is swung upwardly in Figures 2 and 5 to move its pick-up projection 86 away from the pick-up flange 76. Upon operation of

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the outside push button, the intermittent link now merely "free wheels" without disturbing the detent.

While I have shown and described one embodiment of my invention, it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

I claim:

1. An automobile door latch of the character described, including: a frame having a body portion lying in a plane parallel to the jamb face of the door and a generally right angular flange portion lying in a plane generally parallel to a side panel of the door; latching means movably mounted on the frame comprising a rotatable unit having a bolt and a ratchet; a detent pivotally mounted on the frame adjacent said ratchet, the detent having a foot adapted to engage the ratchet and block rotatable movement thereof in one direction, and said detent having a downwardly extending outside operating arm and an inside operating arm which extends toward said flange and terminates adjacent thereto; inside operating means including a remote lever adapted to be coupled to said inside operating arm of the detent to swing the detent foot out of blocking engagement with said ratchet; detent operating means comprising an operating lever pivotally mounted intermediate its ends on the frame, said operating lever having a first actuating arm extending generally horizontally from its pivot and a second actuating arm extending generally downwardly from its pivot, whereby said operating lever may be coupled to outside latch operating means mounted in either of two spaced locations; outside latch operating means adapted to engage one of the actuating arms of said operating lever; an intermittent link pivotally mounted on said operating lever for coupling said operating lever to the outside operating arm of the detent; and locking means including a lever pivotally mounted on the flange portion of the frame and connected to said intermittent link for swinging said intermittent link into and out of coupled relation with said detent.

2. An automobile door latch of the character described, including: a frame; latching means movably mounted on the frame, comprising a rotatable unit having a bolt and a ratchet; a detent pivotally mounted on the frame and having a foot adapted to engage the ratchet and block rotatable movement thereof in one direction, said detent having an outside operating arm and an inside operating arm, inside operating means including a remote lever adapted to be coupled to said inside operating arm of the detent to swing the detent foot out of blocking engagement with said ratchet; detent operating means comprising an operating lever pivotally mounted intermediate its ends on the frame, said operating lever having a first actuating arm extending in one direction from its pivot and a second actuating arm extending in another direction from its pivot, whereby said operating lever may be coupled to latch operating means mounted in either of two spaced locations; outside latch operating means adapted to engage one of the actuating arms of said operating lever; link means coupling said operating lever to the outside operating arm of the detent; and locking means for swinging said link means into and out of coupled relation with said detent.

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