United States Patent

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[72] Inventor **Charles W. Foley**
Warren, Mich.

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[73] Assignee **General Motors Corporation**
Detroit, Mich.

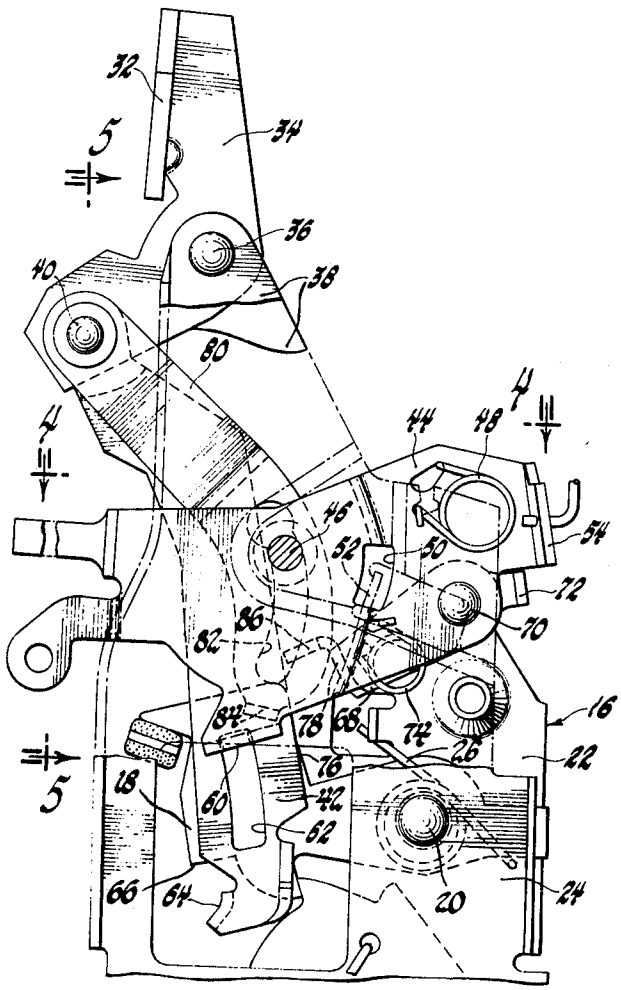
[54] **CLOSURE LATCH**
3 Claims, 5 Drawing Figs.

[52] **U.S. Cl.** **292/216**
[51] **Int. Cl.** **E05c 3/26**
[50] **Field of Search** 292/J3, J4, 216, 280, 198

[56] **References Cited**
UNITED STATES PATENTS
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Primary Examiner—Richard E. Moore
Attorneys—W. E. Finken and Herbert Furman

ABSTRACT: A door lock of the freewheeling type includes a locking lever movable between locked and unlocked positions to move the intermittent link between uncoupled and coupled positions. An abutment member carried by the locking lever is moved to an engaging position with respect to the detent when the locking lever is in locked position to thereby provide for automatic reconnecting. A set lever controlled by the outside operating means is operable to move the abutment member to a bypass position to provide keyless locking. Momentary actuation of the outside operating means is all that is required.



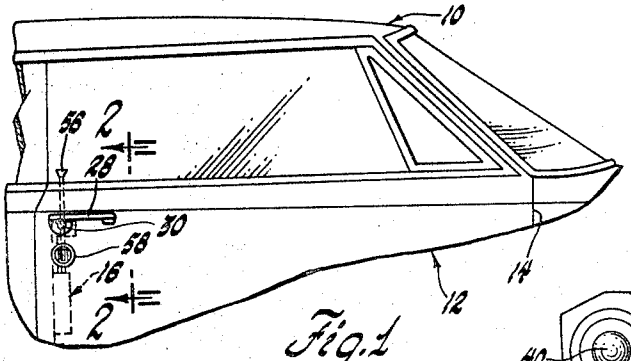


Fig. 1

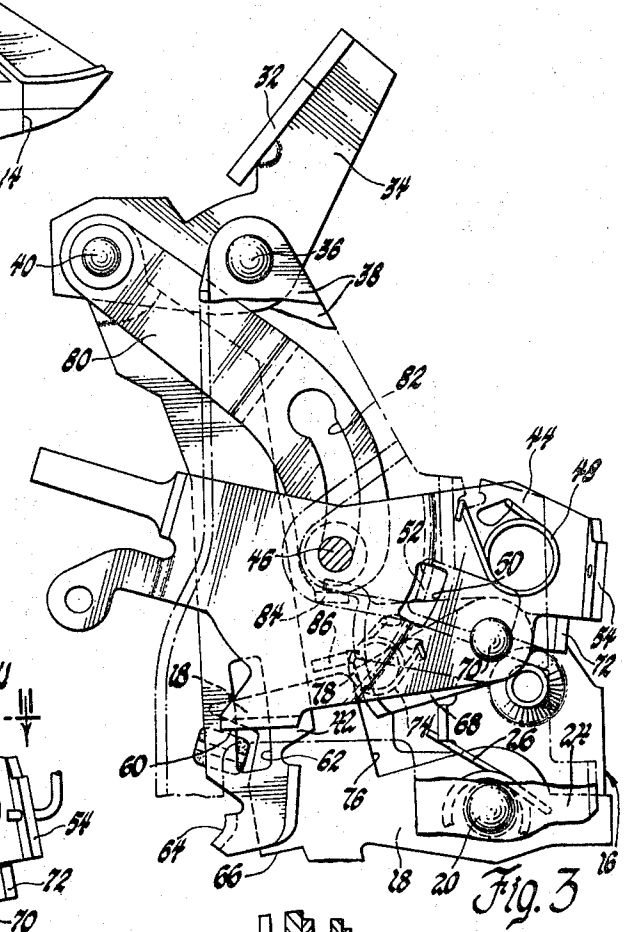


Fig. 3

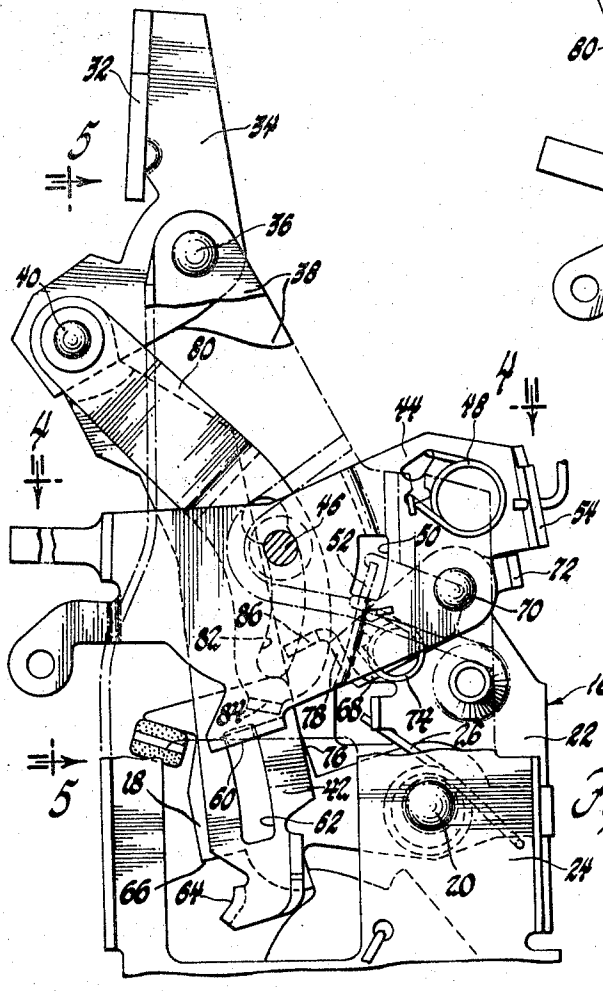


Fig. 2

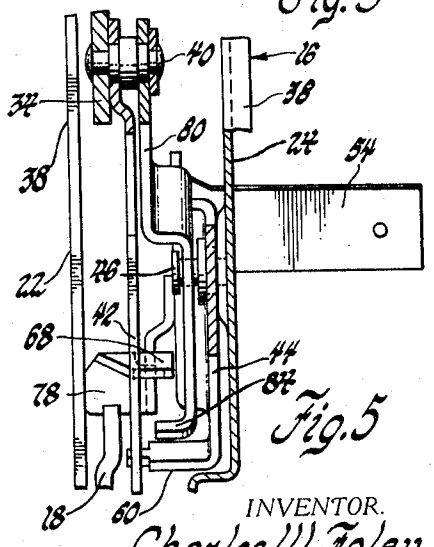


Fig. 5

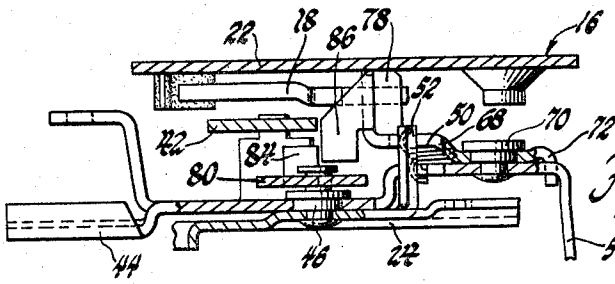


Fig. 4

INVENTOR.
Charles W. Foley
BY
Herbert Furman
ATTORNEY

CLOSURE LATCH

This invention relates to closure latches and more particularly to vehicle body door locks.

Known vehicle body door locks of the freewheeling type generally include a coupling member or intermittent link for selectively coupling and uncoupling the outside operating means and the detent. Door locks of this type may also include the features of automatic undogging and keyless locking. Automatic undogging is accomplished by providing cooperating undogging shoulders on the intermittent link and detent means for moving the intermittent link from uncoupled to coupled position when the door is closed. Keyless locking is accomplished by depressing the outside operating means as the door is being closed to shift the intermittent link in uncoupled position to a bypass position so that no engagement of the intermittent link by the detent can occur as the door is closed.

The door lock of this invention is of the freewheeling type but includes, in its preferred embodiment, an abutment member carried by the locking lever and movable to a nonengaging position when the locking lever is in locked position and the outside operating means is momentarily actuated so that the lock will remain in locked condition as the door is closed. Locks of this type have been called set and slam type locks since once the lock mechanism is preset, the operator need only thereafter close or slam the door without in any manner maintaining operation of the outside operating means to ensure that the lock remains in locked condition.

The primary object of this invention is to provide an improved vehicle body door lock of the freewheeling type having automatic undogging means which may be selectively disabled when the door is in an open position so as to retain the lock in locked condition when the door is thereafter closed. Another object of this invention is to provide such a door lock wherein the abutment means cooperable with the detent is carried by the locking lever for movement therewith between nonengaging and engaging positions as the locking lever is moved between respective unlocked and locked positions, and means controlled by the outside operating means are provided for selectively moving the abutment means independently of the locking lever from engaging to bypass position to thereby disable the automatic undogging means. Yet a further object of this invention is to provide such a door lock wherein the abutment means are automatically returned to nonengaging position upon movement of the locking means from locked to unlocked position.

These and other objects of this invention will be readily apparent from the following specification and drawings wherein:

FIG. 1 is a partial side elevational view of a vehicle body embodying a door lock according to this invention;

FIG. 2 is an enlarged view taken generally along line 2–2 of FIG. 1;

FIG. 3 is a view similar to FIG. 2 showing the abutment means in full lines in engaging position and in phantom lines in bypass position;

FIG. 4 is a view taken generally along the plane indicated by line 4–4 of FIG. 2; and

FIG. 5 is a view taken generally along the line indicated by line 5–5 of FIG. 2.

Referring now particularly to FIG. 1 of the drawings, a vehicle body designated generally 10 includes a front door 12 which is swingably mounted on the body adjacent the forward edge 14 of the door for movement between a closed position, as shown, and an open position, not shown. Door 12 is held in closed position by a door lock designated generally 16 according to this invention.

The details of the lock 16 necessary to an understanding of the invention are shown in FIGS. 2 through 5. For the other details of the lock 16, reference may be had to Fox et al. U.S. Pat. No. 3,190,682, Closure Latch, issued Jun. 22, 1965.

As shown in these FIGS. of the drawings, the detent 18 is swingably mounted at 20 to the main frame 22 and auxiliary frame 24 for movement between detented and undetented positions with respect to a conventional fork bolt. The detent is normally biased counterclockwise to detented position by means of a conventional coil spring 26 hooked between the detent and the frame 22. The outside operating means includes a conventional pushbutton handle 28, FIG. 1, incorporating the pushbutton assembly 30. The push rod of assembly 30 is adapted to engage a lateral flange 32 of an outside operating lever 34 upon operation thereof. The lever 34 is pivoted at 36 to extensions 38 of the frame 22 and 24, and pivoted at 40 to an intermittent member or link 42.

The locking lever 44 is pivoted at 46 to the plate 24 for movement between an unlocked position as shown in FIG. 2 and a locked position, clockwise of the unlocked position, shown in FIG. 3. An overcenter-type coil torsion spring 48 is hooked between an aperture in the locking lever and a notch in the frame 24 to selectively and alternately bias the locking lever to either locked or unlocked position, with the locking lever being located in each position by the engagement of the upper and lower edges of an arcuate aperture 50 thereof with a lanced lateral tab 52 of the frame 24. A lateral flange 54 at one end of the locking lever is conventionally coupled by a rod to an inside garnish button 56, FIG. 1, and the other end of the locking lever is conventionally coupled to an outside key cylinder assembly 58, FIG. 1. Upon movement of either the garnish button or the key cylinder assembly, the locking lever is moved between its locked and unlocked conditions.

A tab of a lateral flange 60 of the locking lever is slidably received within a vertically disposed arcuate slot 62 in the intermittent link 42 to move the intermittent link between its coupled position, shown in FIG. 2, and its uncoupled position, shown in FIG. 3, upon movement of the locking lever between respective unlocked and locked positions. In the coupled position, a lateral flange 64 of the intermittent link underlies a shoulder 66 of the detent to release the detent upon upward shifting movement of the intermittent link by the lever 34. In the uncoupled position, the flange 64 moves past the shoulder 66 to a bypass position upon upward shifting movement of the intermittent link so that the detent remains in detented position.

An abutment member 68 is pivoted at 70 to the locking lever 44 for movement therewith and movement independently thereof. The abutment member is movable between a nonengaging position shown in FIG. 2, an engaging position shown in full lines in FIG. 3, and a bypass position shown in phantom lines in FIG. 3. When the abutment member is in nonengaging and engaging positions, a lateral tab 72 of the abutment member underlies an edge of the locking lever 44 to locate the abutment member against the action of an overcenter-type torsion spring 74 hooked between the abutment member and the locking lever. It can be seen that movement of the locking lever from its FIG. 2 position to its FIG. 3 position will move the abutment member with the locking lever from nonengaging to engaging positions.

In the engaging position of the abutment member shown in FIG. 3, reverse rotation of intermittent movement of the detent 18 by the bolt, as the bolt moves from unlatched to latched position, will cause a shoulder 76 of the detent to engage a lateral flange 78 of the abutment member to thereby move the locking lever and the abutment member as a unit from the FIG. 3 position to the FIG. 2 position.

Coaxially mounted with the intermittent link 42 on lever 34 is a set lever 80 which shifts upwardly with the intermittent link whenever the lever 34 is swung clockwise. The path of movement of the set lever 80 is controlled by the engagement of an arcuate slot 82 therein with the pivot pin 46 of the locking lever 44. The lower end of the set lever 80 includes a lateral, inwardly extending tab 84 which moves in the path of a lateral extension 86 of the flange 78 of the abutment member.

Assume now that the door is in an open position, that either the garnish button 56 or the key cylinder assembly 58 has been operated to move the locking lever from its unlocked position of FIG. 2 to its locked position of FIG. 3, and that the operator wishes to close the door and place the lock in locked condition. The operator momentarily depresses the pushbutton means 30 to swing the lever 34 clockwise as shown in FIG.

3. This shifts the set lever 80 upwardly and engages tab 84 with tab 86 to swing the abutment member 68 clockwise of the pivot 70 from its engaging position shown in full lines in FIG. 3 to its bypass position shown in phantom lines therein. In the bypass position, the abutment member is located against the action of the spring 74 by the engagement of the upper edge thereof with the tab 52. Thereafter, the operator releases the pushbutton means 30 so that lever 34 and the set lever 80 return to their position shown in FIG. 2 and the intermittent link 42 shifts downwardly and remains in uncoupled position. The operator then closes or slams the door and the shoulder 76 of the detent will merely swing past and underneath the flange 78 of the abutment member so that the intermittent link 42 remains in uncoupled position and the locking lever 44 remains in locked position.

When the operator thereafter either actuates the garnish button 56 or the outside key cylinder 58 to move the locking lever 44 from the locked position of FIG. 3 to the unlocked position of FIG. 2, the engagement of the upper edge of the member 68 with the tab 52 automatically returns the abutment member to its position shown in FIG. 2.

Thus, this invention provides an improved vehicle body door lock.

I claim:

1. A closure latch comprising, in combination, latch means movable between latched and unlatched positions, detent means movable between detented and undetented positions with respect to the latch means and movable by the latch means in undetented position upon movement of the latch means from unlatched to latched position, movable operating means, coupling means operatively connected to the operating means for movement independently thereof between coupled and uncoupled positions with respect to the detent means and movement thereby in each position, movement of the coupling means in coupled position by the operating means moving the detent means to undetented position and releasing the latch means, locking means operatively connected to the coupling means for moving the coupling means between coupled and uncoupled positions with respect to the detent means upon movement of the locking means in unison therewith between unlocked and locked positions, abutment means movable by the locking means between engaging and nonengaging positions with respect to the detent means in unison with movement of the coupling means by the locking means between respective uncoupled and coupled positions, the abutment means being engageable in engaging position by the detent means upon movement of the detent means in undetented position by the latch means for movement of the abutment means from engaging to nonengaging position and movement of the locking means from locked to unlocked positions to move the coupling means from uncoupled to coupled position, and means operative upon momentary operation of the operating means in the unlatched position of the latch means for moving the abutment means to a bypass position with respect to the detent means.

2. A closure latch comprising, in combination, latch means movable between latched and unlatched positions, detent means movable between detent and undetented positions with respect to the latch means and movable by the latch means in undetented position upon movement of the latch means from unlatched to latched position, movable operating means, coupling means operatively connected to the operating means for movement independently thereof between coupled and uncoupled positions with respect to the detent means and movement thereby in each position, movement of the coupling means in coupled position by the operating means moving the detent means to undetented position and releasing the latch means, locking means operatively connected to the coupling means for moving the coupling means between coupled and uncoupled positions with respect to the detent means upon movement of the locking means in unison therewith between unlocked and locked positions, movable abutment means mounted on the locking means for movement therewith from nonengaging to engaging positions with respect to the detent means in unison with movement of the coupling means from respective coupled to uncoupled positions, the abutment means being engageable in engaging position by the detent means upon movement of the detent means in undetented position by the latch means for movement of the abutment means from engaging to nonengaging position and movement of the locking means from locked to unlocked position to move the coupling means from uncoupled to coupled position, and means operative upon momentary operation of the operating means in the unlatched position of the latch means for moving the abutment means independently of the locking means to a bypass position with respect to the detent means.

3. A closure latch comprising, in combination, latch means movable between latched and unlatched positions, detent means movable between detented and undetented positions with respect to the latch means and movable by the latch means in undetented position upon movement of the latch means from unlatched to latched position, movable operating means, coupling means operatively connected to the operating means for movement independently thereof between coupled and uncoupled positions with respect to the detent means and movement thereby in each position, movement of the coupling means in coupled position by the operating means moving the detent means to undetented position and releasing the latch means, locking means operatively connected to the coupling means for moving the coupling means between coupled and uncoupled positions with respect to the detent means upon movement of the locking means in unison therewith between unlocked and locked positions, movable abutment means mounted on the locking means for movement therewith from nonengaging to engaging positions with respect to the detent means in unison with movement of the coupling means from respective coupled to uncoupled positions, the abutment means being engageable in engaging position by the detent means upon movement of the detent means in undetented position by the latch means for movement of the abutment means from engaging to nonengaging position and movement of the locking means from locked to unlocked positions to move the coupling means from uncoupled to coupled position, means operative upon momentary operation of the operating means in the unlatched position of the latch means and uncoupled position of the coupling means for moving the abutment means independently of the locking means to a bypass position with respect to the detent means in unison with movement of the coupling means to bypass position, and means operative upon movement of the coupling means from uncoupled to coupled position by the locking means for moving the abutment means independently of the locking means to nonengaging position.