

[54] CLOSURE LATCH

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[51] Int. Cl. E05c 3/26

[58] Field of Search. 292/216, 280, DIG. 26, DIG. 27

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Primary Examiner—Richard E. Moore

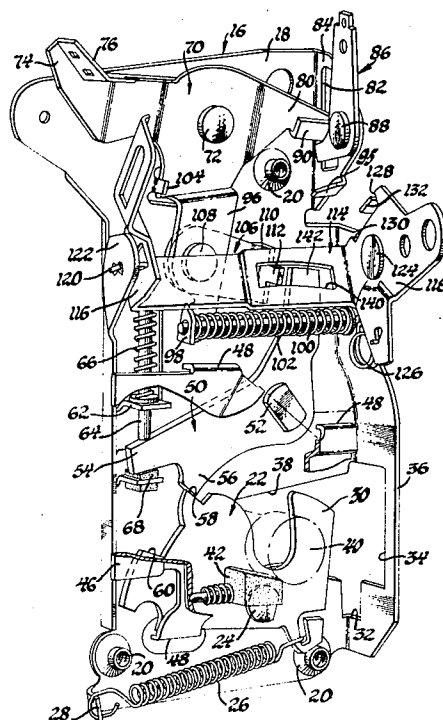
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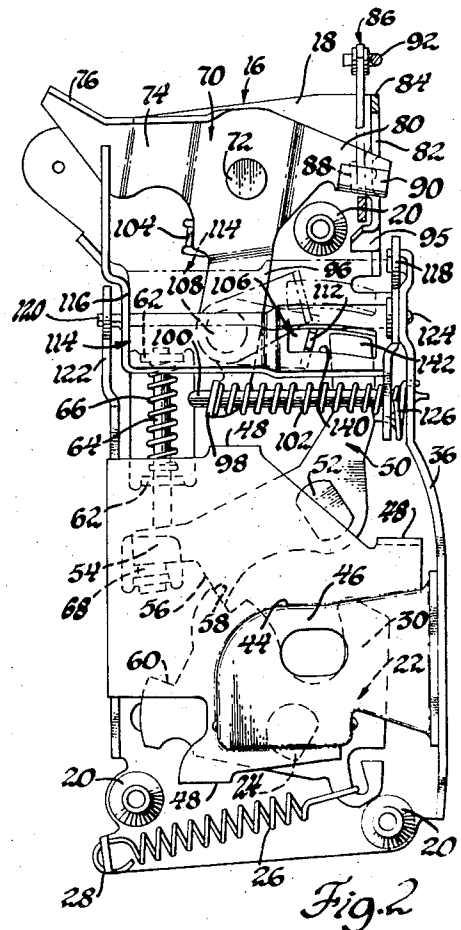
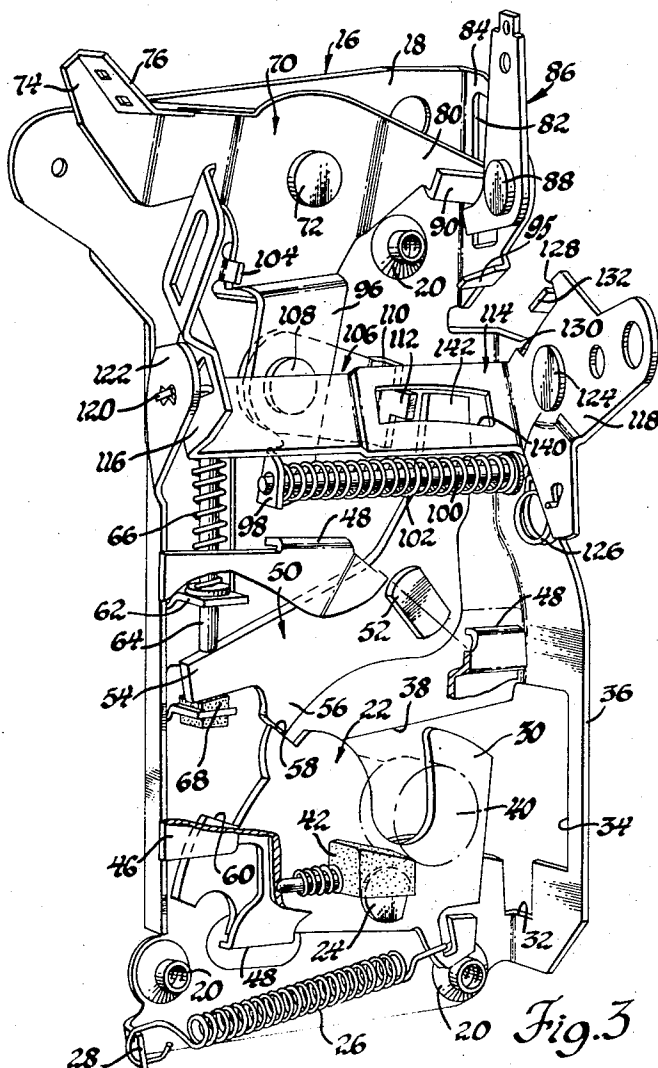
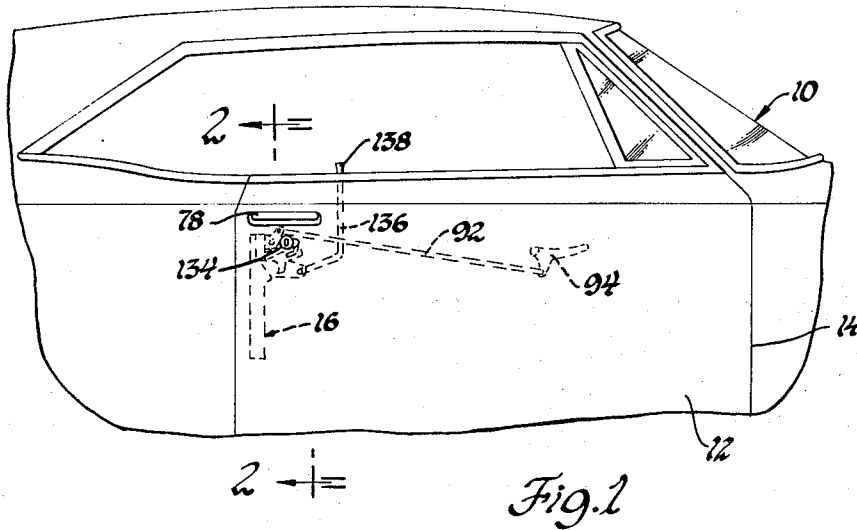
[57] ABSTRACT

A door lock includes a main frame having spaced side flanges. An operating lever is intermediately pivoted

to the main frame between the side flanges, and the arms of the lever are respectively connected to the inside remote handle and outside release handle. The lever further includes a laterally extending arm to which is pivoted one end of an intermittent member having a laterally extending tab at the free end thereof. A locking lever is pivoted to the side flanges of the frame for movement between locked and unlocked positions and is located in each position by the cooperative action of an overcenter type torsion spring and the engagement of shoulders of the lever with a tab of the frame. The locking lever includes an arcuate slot in which is received the tab of the intermittent member. An inverted fork bolt is mounted on the frame for movement between latched and unlatched positions and a detent for the bolt is also pivoted to the main frame and includes a lateral arm. The locking lever slot in the unlocked position of such lever proscribes a path about the detent pivot. Movement of the operating lever when the locking lever is in unlocked position bodily shifts the intermittent member and engages the intermittent member tab with the detent arm to release the detent. When the locking lever is in locked position, the slot thereof pivots the intermittent lever about the operating lever so that the intermittent member tab bypasses the detent arm.

3 Claims, 3 Drawing Figures





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CLOSURE LATCH

This invention relates to closure latches and more particularly to vehicle body door locks of the type including a coupling member for selectively coupling and uncoupling and operating member and a detent for the latch bolt.

One of the features of the lock of this invention is that the operating member includes a laterally extending arm to which is pivoted an intermittent member having a laterally extending tab, with the tab being selectively positioned in the path of an arm of a pivoted detent by a locking lever having a slot receiving the tab and generally proscribing a path about the detent pivot. Another feature of this invention is that the locking lever is movable between an unlocked position wherein the slot thereof proscribes such path about the detent pivot and a locked position wherein the slot positions the intermittent tab out of the path of the detent arm so that the intermittent member tab bypasses the arm of the detent.

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

Fig. 1 is a partial view of a vehicle body embodying a door lock according to this invention:

FIG. 2 is an enlarged view taken generally along the plane indicated by line 2—2 of Fig. 1; and

FIG. 3 is a broken away perspective view.

Referring now particularly to FIG. 1 of the drawings, a vehicle body designated generally 10 includes a front door 12 hinged at its forward edge 14 to the body 10 for movement between a closed position as shown and an open position, not shown. A door lock 16 according to this invention is mounted on the interior of the rear or lock pillar wall of door 12 for engagement with a conventional cooperating headed striker pin, not shown, on the adjacent lock pillar wall of the rear quarter structure of the body to hold the door 12 in closed position.

As shown in FIGS. 2 and 3, the lock 16 includes a main frame 18 having a plurality of threaded embossments 20 which receive bolts, not shown, extending through the lock pillar wall of door 12 to thereby mount the frame 18 on the interior of such wall. An inverted fork-type bolt 22 is pivoted at 24 to the frame 18 for movement between latched position, as shown, and unlatched position as will be described. A coil tension spring 26 hooked between the bolt 22 and a notched lateral tab 28 of the frame 18 continually biases the bolt clockwise to unlatched position. The bolt is located in unlatched position by the engagement of the outboard leg 30 thereof with an edge 32 of a stepped cutout 34 in a lateral side flange 36 of frame 18. The cutout 34 merges into a generally U-shaped cutout 38 in frame 18 which is aligned with a like cutout in the lock pillar wall of door 12 to provide for entrance of the head and shank of a conventional striker pin, schematically shown at 40 in FIG. 3, into the frame 18 for cooperation with the bolt. When the bolt is in latched position as shown, the shank of the striker pin is received within the bolt throat and the head of the striker pin is received between a conventional slidable shoe 42 and an upper ramp 44, FIG. 2, of an auxiliary frame 46. Frame 46 includes a plurality of lateral tabs 48 which are staked to the frame 18 to secure the frame 46 thereto in spaced relationship.

A detent 50 is pivoted at 52 to the frame 18 and includes an arm 54 having a foot 56. Foot 56 is engageable with either a shoulder 58 or a shoulder 60 of the bolt 22 to thereby respectively maintain the bolt in either fully latched position as shown or secondary latched position, clockwise of the position shown. The frame 18 is shown in FIG. 2 as including a spaced pair of lanced apertured lateral tabs 62 which receive an intermediately flanged pin 64 therethrough. A coil compression spring 66 surrounds the pin 64 and seats between the upper tab 62 and the flange of the pin to thereby bias the pin downwardly and into engagement with the arm 54 of detent 50. This in turn biases the arm 54 into engagement with a rubber bumper 68 conventionally secured to a lanced lateral tab of the frame 18 to thereby locate the detent 50 in detented position as shown and resist clockwise movement thereof to undetented position wherein the foot 56 of the detent is moved out of engagement with either shoulder 58 or 60 to permit bolt 22 to move to unlatched position.

An operating lever 70 is intermediately pivoted at 72 to the frame 18. One arm 74 of the lever includes a lateral tab 76 which is adapted to be engaged by a vertical push rod, not shown, of a conventional outside pull-type handle 78, FIG. 1, for movement of the lever 70 counterclockwise of the pivot 72 upon operation of the handle. The other arm 80 of the lever extends outwardly through a vertical slot 82 in a lateral side flange 84 of the frame 18. A remote bellcrank lever 86 is pivoted at 88 to the flange 84 and is engageable with a return bent flange 90 of arm 80 to thereby swing the lever 70 counterclockwise of the pivot 72. Lever 86 is conventionally connected by a rod 92, FIG. 1, with an inside remote handle 94, mounted on the inner panel of door 12. Counterclockwise movement of the lever is controlled by a tab 95 of frame 18.

As best shown in FIG. 3, a depending offset arm 96 of the lever 70 includes a lateral apertured tab 98. An intermediately flanged pin 100 extends through the tab 98 and an aperture in the flange 36 and a coil compression spring 102 seats between the tab 98 and the flange of the pin to continually bias the lever 70 clockwise of the pivot 72. The lever is located against the bias of the spring 102 by the engagement of the arm 96 with a lateral lanced tab 104 of the frame 18.

An intermittent member 106 is pivoted at 108 to the arm 96 of lever 70 and includes a lateral tab 110 having an extension 112.

A locking lever 114 includes lateral flanges 116 and 118. A lanced lateral tab 120 of flange 116 is received within a generally hourglass-shaped opening, FIG. 2, in a flange 122 of frame 18 and flange 118 is coaxially pivoted at 124 to the flange 36 to thereby pivotally mount the locking lever on the frame for movement between an unlocked position, shown in FIG. 3 and in full lines in FIG. 2, and a locked position, indicated schematically in FIG. 2. A coil overcenter type torsion spring 126 hooked between flanges 36 and 118 selectively and alternately biases the locking lever to either position. The locking lever is respectively located in unlocked and locked positions by the engagement of a shoulder 128 or 130 of flange 118 with a lateral tab 132 of flange 36. The flange 116 of the locking lever is conventionally connected to an outside conventional key cylinder assembly 134, FIG. 1, and the flange 118 of the locking lever is conventionally connected by a rod

136, FIG. 1, with an inside garnish button 138. The locking lever further includes a generally arcuate slot 140 which receives the tab extension 112 therethrough at all times. When the lever is in unlocked position, slot 140 generally follows a path proscribed about the detent pivot 52.

The detent 50 includes an upwardly extending arm 142 which lies in the path of the tab 110 of the intermittent member 106 when the locking lever 114 is in the unlocked position as shown, in FIG. 3. Thus, upon counterclockwise movement of the lever 70 by either the handle 78 or the remote handle 94, the engagement of the tab 110 with the detent arm 142 will move the detent 50 clockwise of pivot 52 to undetented position and permit movement of the bolt 22 to unlatched position.

Should either the outside key cylinder assembly 134 or the garnish button 138 be operated to move the locking lever to its locked position shown schematically in FIG. 2, the engagement of the lower edge of slot 140 with tab extension 112 will swing the intermittent member 106 counterclockwise of pivot 108 to its position indicated schematically in FIG. 2. Thus, tab 110 will now bypass the detent arm 142 should lever 70 be moved counterclockwise of pivot 72.

Since the arcuate shape of the slot 140 is proscribed about the pivot 52 when lever 114 is in unlocked position, the intermittent member 106 is slightly rotated about the pivot 108 as it is translated by the lever 70. This ensures full engagement of the tab 110 with the detent arm 142 when the detent is released.

When the bolt 22 is in unlatched position, the detent foot 56 rests on the edge of the bolt counterclockwise of the shoulder 60. Should the locking lever 114 be moved to locked position when the bolt is in unlatched position, subsequent closing movement of the door will rotate the bolt to either intermediate or fully latched position as the detent 50 swings intermittently about the pivot 52. The locking lever remains in its locked position.

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, a detent swingable between detented and undetented positions with respect to the latch means and including an engageable portion, a locking lever swingable about an axis transverse of the detent axis between locked and unlocked positions and including a slot therein generally following a path proscribed about the detent axis when the locking lever is in unlocked position, a swingable operating lever adapted to be connected to inside and outside release means, and an intermittent member swingably supported by the operating lever for translation thereby and swinging movement relative thereto, the intermittent member including a portion received within the slot of the locking lever and located in the path of movement of the engageable portion of the detent when the locking lever is in unlocked position, the slot in the locking lever guiding the portion of the intermittent member along such path upon translation of the intermittent member by the operating lever to thereby swing the intermittent member relative to the operating lever and ensure en-

gagement of the intermittent member portion with the detent engageable portion and movement of the detent between detented and undetented positions.

2. A closure latch comprising, in combination, latch means movable between latched and unlatched positions, a detent swingable between detented and undetented positions with respect to the latch means and including an engageable arm extending from the axis thereof, a locking lever swingable about an axis transverse of the detent axis between locked and unlocked positions and including a slot therein generally following a path proscribed about the detent axis when the locking lever is in unlocked position, an operating lever adapted to be connected to inside and outside release means and swingable about an axis spaced from the detent axis, the operating lever including an arm extending oppositely of the detent arm, and an intermittent member swingably supported by the operating lever arm for translation by the lever and independent swinging movement relative to the arm, the intermittent member including a portion received within the slot of the locking lever for positioning of the intermittent member thereby relative to the operating lever arm, the locking lever in unlocked position locating the intermittent member generally laterally of the operating lever arm and detent arm with the portion thereof located in the path of movement of the detent arm, the slot in the locking lever guiding the portion of the intermittent member along such path and into general lateral engagement with the detent arm upon translation of the intermittent member by the operating lever to thereby swing the intermittent member relative to the operating lever and ensure engagement of the intermittent member portion with the detent engageable portion and movement of the detent between detented and undetented positions.

3. A closure latch comprising, in combination, latch means movable between latched and unlatched positions, a detent swingable between detented and undetented positions with respect to the latch means and including an engageable arm extending from the axis thereof, a locking lever swingable about an axis transverse of the detent axis between locked and unlocked positions and including a slot therein generally following a path proscribed about the detent axis when the locking lever is in unlocked position, an operating lever adapted to be connected to inside and outside release means and swingable about an axis spaced from the detent axis, the operating lever including an arm extending oppositely of the detent arm, and an intermittent member swingably supported by the operating lever arm for translation by the lever and independent swinging movement relative to the arm, the intermittent member including a tab extending laterally to the detent arm and having the free end portion thereof received within the locking lever slot for positioning of the intermittent member thereby relative to the operating lever arm, the locking lever in unlocked position locating the intermittent member generally laterally of the operating lever arm and detent arm with the free end portion of the tab located in the path of movement of the detent arm, the slot in the locking lever guiding the free end portion of the tab of the intermittent member along such path and into general lateral engagement with the detent arm upon translation of the

intermittent member by the operating lever to thereby swing the intermittent member relative to the operating lever and ensure engagement of the intermittent member portion with the detent engageable portion and movement of the detent between detented and undetented positions.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,695,663 Dated October 3, 1972

Inventor(s) Stanley D. Cockburn

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In the title block insert the following:

-- Assignee: General Motors Corporation,
Detroit, Michigan --.

Signed and sealed this 17th day of April 1973.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents