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B. GERGOE ETAL

3,149,866

CLOSURE LATCH

Filed April 16, 1963

2 Sheets-Sheet 1

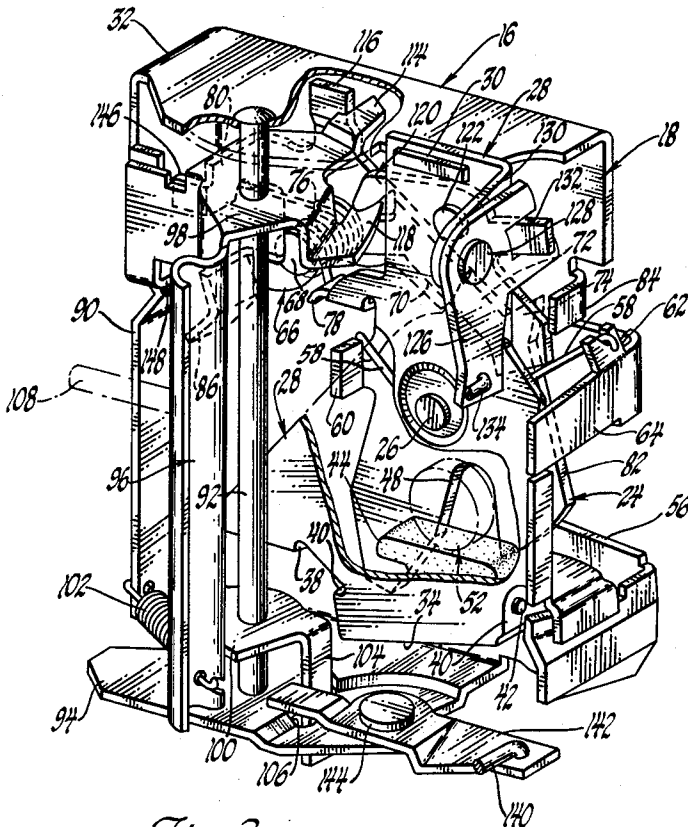
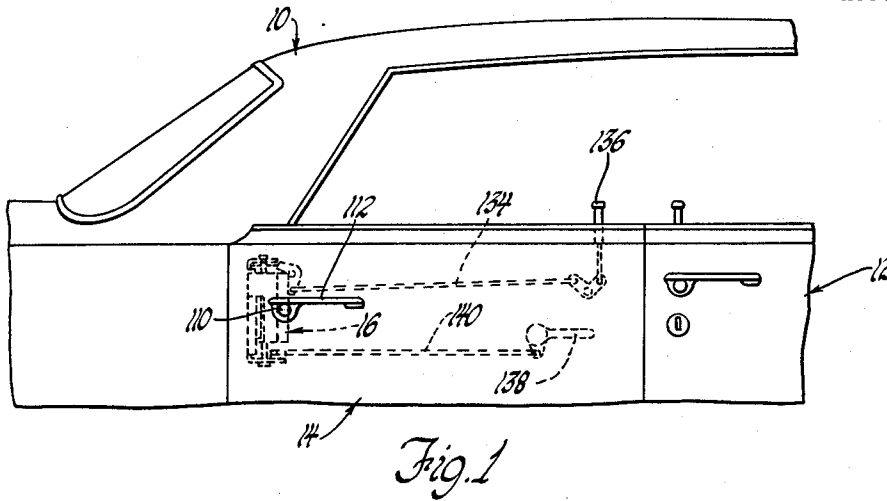


Fig. 2

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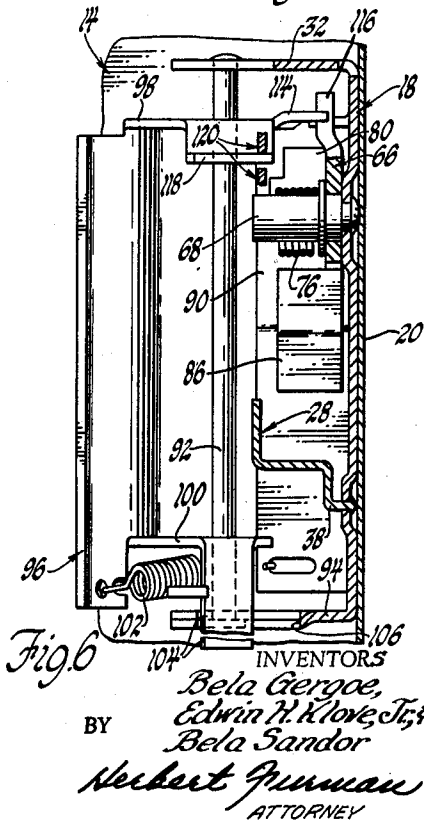
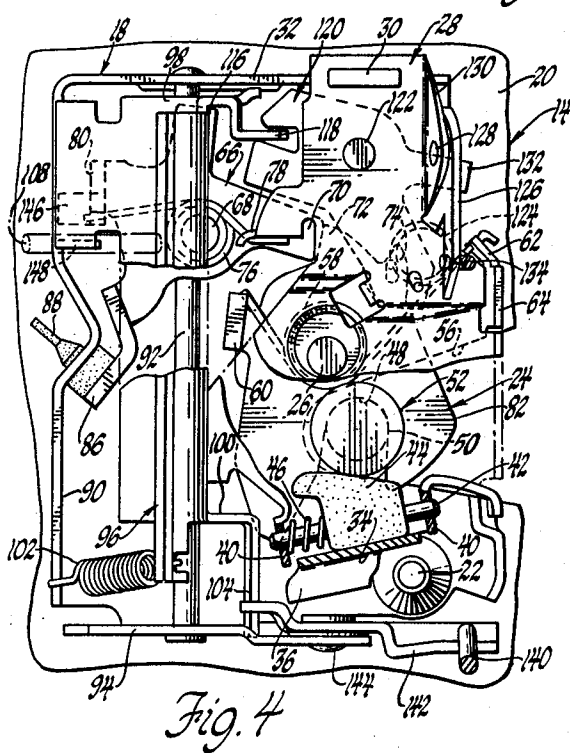
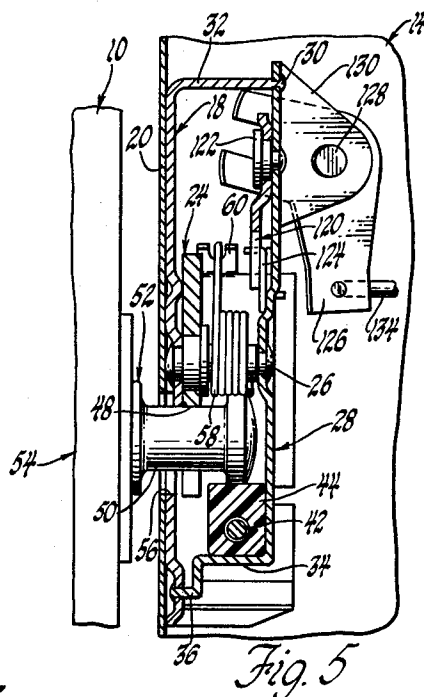
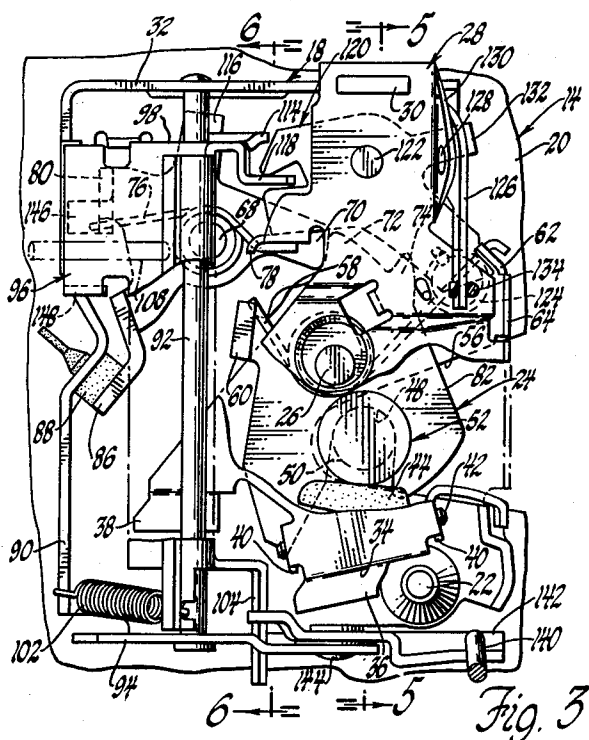
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3,149,866

CLOSURE LATCH

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7 Claims. (Cl. 292—216)

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

One feature of this invention is that it provides an improved vehicle body door lock. Another feature of this invention is that it provides an improved vehicle body door lock including a bolt movable between latched and unlatched positions, detent means releasably holding the bolt in latched position, and detent release means including an operating member which both pivots and shifts relative to a fixed axis. A further feature of this invention is that it provides an improved door lock having a bolt adapted to be releasably held in latched position by detent means, and operating means for releasing the detent means including an outside operating member which both pivots and shifts relative to a fixed vertically disposed axis.

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

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

FIGURE 2 is a partially broken away perspective view of the lock;

FIGURE 3 is a partially broken away view of the lock in unlocked position;

FIGURE 4 is a view similar to FIGURE 3 showing the lock in locked position;

FIGURE 5 is a sectional view taken generally along the plane indicated by line 5—5 of FIGURE 3; and

FIGURE 6 is a sectional view taken generally along the plane indicated by line 6—6 of FIGURE 3.

Referring now particularly to FIGURE 1 of the drawings, a vehicle body 10 includes a front door 12 and a rear door 14, each of which is swingably mounted in a suitable manner adjacent its forward edge portion on the body 10 for movement between a closed position, as shown, and an open position, not shown. Door 12 is held in its closed position by a door lock, such as that shown and described in the copending application of Robert M. Fox and Edwin H. Klove, Jr., Serial No. 273,523, filed April 16, 1963, and assigned to the assignee of this invention. Door 14 is held in closed position by a door lock 16 according to this invention.

Referring now particularly to FIGURES 2 through 6 of the drawings, the lock 16 includes a main frame or plate 18 adapted to abut the end or jamb wall 20 of door 14 and to be secured thereto in a suitable manner such as by a number of bolts 22 extending into tapped openings of the plate 18. A fork type bolt 24 is pivotally mounted on a shouldered stud 26 extending between the main plate 18 and an auxiliary plate 28. Plate 28 is staked at 30 adjacent its upper edge portion to a lateral flange 32 of plate 18 and includes a lower laterally extending flange 34 which terminates in an offset bent flange 36 which is staked to the plate 18. The plate 28 further includes an offset lateral foot or flange 38, which is also staked to the plate 18. A pair of lateral flanges 40 are located to either side of the flange 34 and fixedly support a stud or pin 42. A wedge shaped nylon shoe 44 is slidably mounted on the pin 42 and is biased outwardly of the lock or to the right, as viewed in FIGURES 2 through 4, by a coil compression spring 46 seating against one of the flanges 40 and the shoe 44.

When the bolt 24 is in its latched position, the opening 48 of the bolt receives the shank 50 of a headed striker pin 52 which is secured in a suitable manner to the body lock pillar 54, FIGURE 5. The head of the striker pin engages the shoe 44 so that the pin is effectively trapped between the bolt 24 and the shoe 44. The main frame 18 is cut away at 56 and the end wall 20 and inner panel of the door 16 are also cut away to permit the entry of the striker pin into the lock. Bolt 24 is normally biased toward an unlatched position or counterclockwise from the position shown by a coil torsion spring 58 which surrounds the stud 26 and has one end thereof engaging a notched lateral tab 60 of the bolt and the other end thereof engaging a notched offset tab 62 which extends from a lateral flange 64 of the plate 18.

A detent or detent member 66 is pivotally mounted on a shouldered stud 68 secured to the plate 18 and includes a foot 70 which is engageable with either one of a pair of shoulders 72 and 74 of the bolt 24 to hold the bolt in either a latched position, as shown, or a safety position against the action of the spring 58. A coil torsion spring 76 surrounds the stud 68 and has one leg thereof engaging under a notched lateral tab 78 of plate 28 and the other leg thereof engaging under a notched lateral leg 80 of the detent to bias the detent clockwise and into engagement with the bolt 24. The bolt 24 is located in its unlatched position by engagement of the edge 82 of the bolt with a lateral tab 84, FIGURE 2, of the plate 18 and the detent 66 is located against the action of the spring 76 by engagement of a lateral offset tab 86 thereof with a rubber bumper or stop 88 secured to a lateral flange 90 of the plate 18.

A shaft or pivot pin 92 extends the full length of the lock 16 between the upper flange 32 thereof and a lower flange 94 thereof and provides both a pivotal axis and a shifting axis for an outside operating lever or member 96. Member 96 includes upper and lower apertured lateral flanges 98 and 100 which pivotally and slidably receive the shaft 92 to mount member 96 thereon. A tension spring 102 interconnects the member 96 and the flange 90 of plate 18 to continually bias the member 96 in a clockwise direction, as viewed in FIGURE 2, with the member 96 being located against the action of the spring 102 in its inoperative or nonoperating position as shown by engagement of a lateral tab or boot 104 thereof with one end of an arcuate slot 106 provided in the flange 94 of plate 18.

Member 96 is adapted to be engaged at any one of a plurality of places thereon by a push rod 108 which is operated by conventional push button means 110, FIGURE 1, incorporated in an outside handle 112 secured to the outer panel of the door 14. Since the member 96 is elongated vertically and extends substantially the full depth of the lock 16, the handle 112 may be positioned at various vertical places on the outer panel of the door 14 without requiring repositioning of the lock 16.

The flange 98 of the member 96 includes an upwardly offset foot 114 which is adapted to selectively engage an upwardly extending offset foot 116 of the detent 66, and a downwardly offset foot 118 which is received between the legs of a forked inside locking lever 120 pivotally mounted at 122 on the plate 28. The locking lever 120 is movable between an unlocked position, as shown in FIGURES 2 and 3, and a locked position, as shown in FIGURE 4, in a manner to be described, and is selectively and alternately held in either of these positions by an overcenter type coil torsion spring 124 hooked between the plate 28 and the locking lever. The locking lever is moved between these positions by a forked inside operating lever 126 which is pivotally secured at 128 to a lateral flange 130 of plate 28 and straddles a foot or leg 132 of the locking lever. The lever 126 is connected by a

is located in opposition to the foot 116 of the detent 66, and when the locking lever 120 is in its locked position, as shown in FIGURE 4, the foot 114 of lever 96 is located above the foot 116 of the detent.

When the locking lever is in its unlocked position, depression of the push button means 110 will shift rod 103 inwardly of door 14 and swing the lever 96 counterclockwise, as viewed in FIGURE 2, to move the foot 114 into engagement with the foot 116 of the detent 66 and swing the detent counterclockwise, as viewed in FIGURE 3 to move the foot 70 thereof out of engagement with the foot 72 of the bolt 24 and thereby permit the spring 53 to move the bolt to its unlatched position. When the locking lever is in its locked position, swinging movement of the member 96 will result in the foot 114 swinging past the foot 116 without engagement therewith so that the bolt remains in latched position.

From the foregoing description, it will be noted that the outside operating lever or member 96 both swings and shifts about a single vertical axis defined by the pin 92 but is effective to release the detent 66 upon swinging movement thereof only when disposed in its unlocked position of FIGURE 3.

The inside operating means includes a conventional remote handle 138 which operates a shiftable rod 140 interconnecting the handle and an inside operating lever 142 pivoted at 144 on the flange 94 of plate 13 and engageable with the depending foot 104 of member 96 to swing the member 96. The remote handle 138 is effective only to release the detent 66 when the member 96 is in its unlocked position of FIGURE 3.

The lock 16 further includes the features of keyless locking and automatic undogging. Automatic undogging is accomplished by depressing the garnish button 136 when the door is in an open position so as to move the member 96 from its unlocked position of FIGURE 3 to its locked position of FIGURE 4 and thereafter closing the door 14. As the door 14 closes, the foot 70 of the detent 66 will successively ratchet past the feet 74 and 72 of the bolt 24 so that the detent will intermittently swing counterclockwise. When the detent 66 first swings counterclockwise, a lateral foot 146 thereof, which extends lateral to the tab 30, will engage a laterally extending tab or boot 148 of the member 96 to shift the member 96 downwardly of the plate 13 and move the member from its locked position of FIGURE 4 to its unlocked position of FIGURE 3 and in turn also move the locking lever 120 from its locked position to its unlocked position.

Keyless locking is accomplished in the same manner except that the push button means 110 is depressed and held during closing movement of the door so that the boot 148 of the member 96 is moved outwardly from underneath the boot 146 of the detent 66 so that the latter cannot engage the former as the detent ratchets past the bolt 24 when the door is closed.

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

What is claimed is:

1. A closure latch comprising, in combination, support means including a main support plate having upper and lower laterally disposed portions, latch means mounted on said plate for movement between latched and unlatched positions, detent means for holding said latch means in latched position, shaft means on said laterally disposed portions defining a generally vertically disposed axis extending therebetween, an outside operating member mounted on said shaft means for sliding movement therealong between first and second positions relative to said plate and swinging movement thereabout in either of said positions, means coupling said member to said detent means in one of said positions to release said detent means

upon swinging movement of said member, and means for shifting said member between said first and second positions.

2. A closure latch comprising, in combination, support means including a main support plate having upper and lower laterally disposed portions, latch means mounted on said plate for movement between latched and unlatched positions, detent means for holding said latch means in latched position and including an abutment, shaft means on said laterally disposed portions defining a generally vertically disposed axis extending therebetween, an outside operating member mounted on said shaft means for sliding movement relative thereto between first and second positions and swinging movement relative thereto in either of said positions, an abutment on said operating member located in opposition to said detent means abutment in said first position and engageable therewith to release said detent means upon swinging movement of said operating member, and means for moving said operating member from said first position to said second position to move said operating member abutment out of opposition to said detent means abutment.

3. A closure latch comprising, in combination, support means including a main support plate having upper and lower laterally disposed portions, latch means mounted on said plate for movement between latched and unlatched positions, detent means for holding said latch means in latched position and including a pair of abutments, shaft means on said laterally disposed portions defining a generally vertically disposed axis extending therebetween, an outside operating member having upper and lower laterally disposed portions pivotally and slidably mounted on said shaft means to mount said member on said plate for sliding movement between first and second positions relative thereto and swinging movement relative thereto in either of said positions, and a pair of abutments on said operating member, one being located in adjacent opposition to one of said detent means abutments in said first position and engageable therewith to release said detent means upon swinging movement of said operating member, the other of said operating member abutments being located in adjacent opposition to the other of said detent means abutments in said second position and being engageable thereby to move said operating member from said second position to said first position upon movement of said detent means relative thereto.

4. A closure latch comprising, in combination, support means including a main support plate having upper and lower laterally disposed portions, latch means mounted on said plate for movement between latched and unlatched positions, detent means for holding said latch means in latched position and including an abutment, shaft means on said laterally disposed portions defining a generally vertically disposed axis extending therebetween, an outside operating member having upper and lower laterally disposed portions pivotally and slidably mounted on said shaft means to mount said member on said plate for sliding movement between first and second positions relative thereto and swinging movement relative thereto in either of said positions, an abutment on one of said laterally disposed portions located in opposition to said detent means abutment in said first position and engageable therewith to release said detent means upon swinging movement of said operating member, and means for moving said operating member from said first to said second position to move said operating member abutment out of opposition to said detent means abutment.

5. A closure latch comprising, in combination, support means including a main support plate having upper and lower laterally disposed portions, latch means mounted on said plate for movement between latched and unlatched positions, detent means for holding said latch means in latched position and including an abutment, shaft means on said laterally disposed portions de-

fining a generally vertically disposed axis extending therebetween, an outside operating member having upper and lower laterally disposed portions pivotally and slidably mounted on said shaft means to mount said member on said plate for sliding movement between first and second positions relative thereto and swinging movement relative thereto in either of said positions, a pair of abutments on one of said laterally disposed portions, one being located in opposition to said detent means abutment in said first position and engageable therewith to release said detent means upon swinging movement of said operating member, and inside locking means engageable with the other of said operating member abutments for moving said operating member from said first to said second position to move said one operating member abutment out of opposition to said detent means abutment.

6. A closure latch comprising, in combination, support means including a main support plate having upper and lower laterally disposed portions, latch means mounted on said plate for movement between latched and unlatched positions, detent means for holding said latch means in latched position and including an abutment, shaft means on said laterally disposed portions defining a generally vertically disposed axis extending therebetween, an outside operating member having upper and lower laterally disposed portions pivotally and slidably mounted on said shaft means to mount said member on said plate for sliding movement between first and second positions relative thereto and swinging movement relative thereto in either of said positions, a pair of abutments on one of said operating member portions, one being located in opposition to said detent means abutment in said first position and engageable therewith to release said detent means upon swinging movement of said operating member, inside locking means engageable with the other of said operating member abutments for moving said operating member from said first to said second position to move said one operating member abutment out of opposition to said detent means abutment, another abutment on the other of said operating member portions, and inside operating means engageable with said another

abutment to swing said operating member in said first position thereof and release said detent means.

7. A closure latch, comprising, in combination, support means including a main support plate having spaced laterally disposed portions, latch means mounted on said plate for movement between latched and unlatched positions, detent means for holding said latch means in latched position, means on said laterally disposed portions defining an axis extending therebetween, an actuating member mounted on said axis for sliding movement therealong between first and second positions relative to said plate and swinging movement thereabout in either of said positions, said actuating member including a lever portion extending substantially the full distance between said flange portions and adapted to be engaged by outside actuating means at any point therealong for swinging said member about said axis, said actuating member further including spaced upper and lower portions, one of said portions being located in adjacent relationship to said detent means when said actuating member is in said first position for release of said detent means upon swinging movement of said actuating member and being located out of adjacent relationship to said detent means when said actuating member is in said second position, the other of said portions being located so as to be engaged by inside operating means when said actuating member is in either of said positions, and means on said actuating member adapted to be engaged by said detent means when said actuating member is in said second position thereof and said detent means moves relative to said actuating member to move said actuating member to said first position thereof wherein said one portion of said actuating member is located in adjacent relationship to said detent means, and means for moving said actuating member between said first and second positions thereof independently of said detent means.

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