March 5, 1968 A. VELAVICIUS 3,371,948

CLOSURE LATCH

Filed Feb. 9, 1966

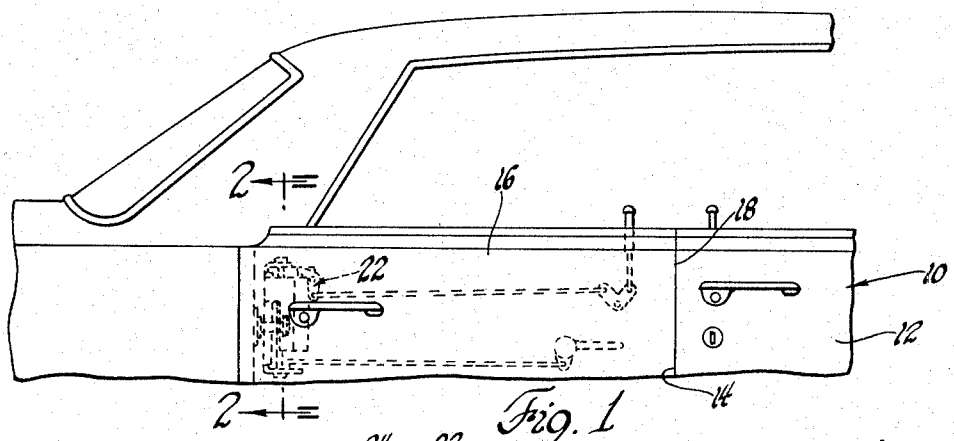


Fig. 1

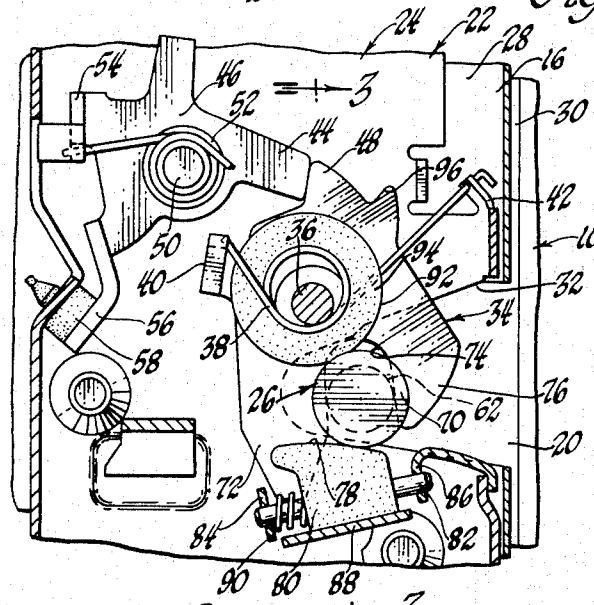


Fig. 2

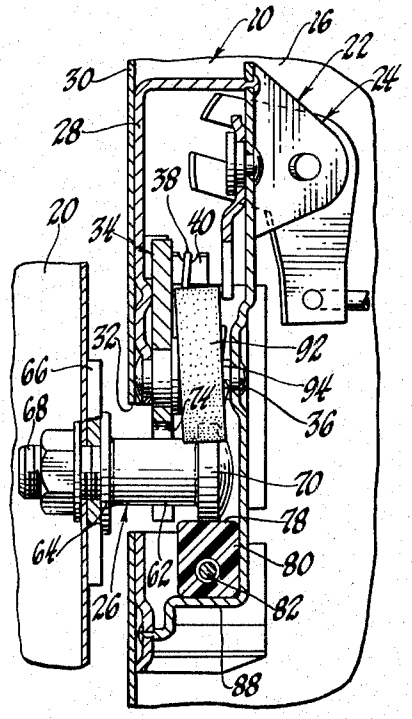


Fig. 3

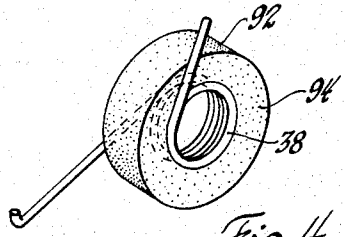


Fig. 4

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United States Patent Office 3,371,948
Patented Mar. 5, 1968

3,371,948

CLOSURE LATCH

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Filed Feb. 9, 1966, Ser. No. 526,092
4 Claims. (Cl. 292—216)

ABSTRACT OF THE DISCLOSURE

A door lock includes a latch frame and a fork type bolt is pivotally mounted on this frame by a pivot stud for movement between latched, unlatched and intermediate latched positions. A coil torsion spring surrounds the pivot stud and is interconnected between the latch bolt and the frame to bias the bolt to unlatched position. A releasable detent is engageable with either one of two shoulders of the bolt to retain the bolt in latched or intermediate latched positions.

A striker pin includes a shank and an unlatched flanged head. When the bolt is in either latched position, the shank of the striker is received within the bolt throat and the flanged head of the striker is engaged by both a spring biased wedge and a torus of mechanical rubber to locate the shank of the striker within the bolt throat. The torus is supported by the coils of the torsion spring which surround the bolt pivot.

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

One feature of this invention is that it provides a closure latch including a latch bolt having a bolt throat, an annular striker received within the bolt throat when the bolt is in latched position to retain a closure member in closed position, and first and second means engageable with spaced portions of an annular head of the striker to clamp the striker between the first and second means and locate the striker within the bolt throat. Another feature is that one of the means is a resiliently biased wedge member and the other means is a resilient member. A further feature of this invention is that the resilient member is mounted on the spring which biases the bolt to unlatched position.

These and other features of the closure latch 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 closure latch according to this invention;

FIGURE 2 is an enlarged view taken generally along the plane indicated by line 2—2 of FIGURE 1;

FIGURE 3 is a view taken generally along the plane indicated by line 3—3 of FIGURE 2; and

FIGURE 4 is a perspective view of a portion of FIGURE 2.

Referring now to FIGURE 1 of the drawings, a vehicle body designated generally 10 includes a front door 12 hinged adjacent its forward edge for movement between open and closed positions and latched at its rearward edge 14 to the body center pillar, not shown, by suitable latch means, not shown. The rear door 16 is hinged adjacent its forward edge 18 to the body center pillar for movement between open and closed positions and is latched at its rearward edge to a body pillar 20, FIGURE 3, by a closure latch designated generally 22 according to this invention and including latch means 24 and striker means 26.

The closure latch shown in FIGURES 2 and 3 is substantially the same as that shown in Gergoe et al. 3,149,866. Accordingly, only those details necessary for an understanding of this invention will be particularly described. Latch means 24 includes a frame 28 which is mounted on the rear wall or lock pillar 30 of door 16. Both the frame 28 and the door are provided with a slot 32 for a purpose to be later described.

A bolt 34 is pivotally mounted by pin 36 on the frame 28 for movement between a latched position, as shown, and an unlatched position, not shown. A coil torsion spring 38, FIGURE 4, is coaxially pivoted with the bolt 34, with one leg thereof engaging a tab 40 of the bolt and another leg thereof engaging a tab 42 of frame 28 to bias the bolt to unlatched position. The bolt is held in latched position, as shown, by the engagement of a foot 44 of a detent member 46 with a latching shoulder 48 of the bolt. The detent 46 is pivoted at 50 on the frame 28 and a coil torsion spring 52 interconnects a tab 54 of the detent and a tab, not shown, of the frame to bias the detent clockwise and bias the foot 44 thereof toward the bolt 34. The detent 46 is located by the engagement of a tab 56 thereof with a rubber bumper 58 of the frame 28.

Inside and outside operating means are provided to move the detent 46 counterclockwise of its position shown to permit the spring 38 to move the bolt 34 to unlatched position. The details of these inside and outside operating means are shown in the aforenoted Gergoe et al. 3,149,866.

The striker means 26 includes an annular member 62 having a flange 64 which seats against a spacer member 66. A threaded portion 68 of member 62 extends through openings in the spacer 66 and the pillar 24 to receive a nut and thereby mount the member 62 on the body pillar in a position wherein the member 62 projects laterally of the pillar and laterally of the wall 30 of door 16. The member 62 further includes an enlarged annular flange or head 70.

Assume now that the door is in open position, the bolt 34 is in unlatched position, and the door is moved toward closed position. The annular member 62 will first engage the inner leg 72 of bolt 34 to swing the bolt clockwise about the pivot 36 and move within the slot or throat 74 of the bolt, which is provided by both the inner leg 72 and the outer leg 76 thereof. The slot 32 in the door wall 30 and frame 28 permits the member 62 to move within the door and into engagement with the bolt. As the door continues to move toward closed position, the head 70 of member 62 will engage the wedging surface 78 of a wedge 80. The wedge 80 is slidably mounted on a guide pin 82 which is secured between spaced inner and outer walls 84 and 86 of the latch frame 28. The lower surface of the wedge rides on a wall 88 of the frame and the wedge is normally biased by spring 90 outwardly of the frame or to the right and into engagement with the wall 86 of the frame. As the annular head of the bolt engages the wedging surface 78, it will move the wedge inwardly or to the left, and then move into engagement with the outer annular surface 92 of a resilient annular member 94 as the door moves to fully closed position and the bolt 34 moves to fully latched position as shown.

Member 94 is mounted on the body of the torsion spring 38 generally coaxially with the spring and the bolt 34. It will be noted with reference to FIGURE 2 that the surface 92 of member 94 engages the annular head 70 generally opposite the engagement of this head by the wedging surface 78 to thereby vertically locate the member 62 within the slot 74 of bolt 34. The inner and outer legs 72 and 76 of the bolt locate the member 62 horizontally of the body but, of course, permt vertical movement of the member 62 within the slot 74. This

vertical movement is prevented by the members **76** and **86**. Thus, when the bolt **34** is in latched position as shown, bolt **34** locates the door **16** horizontally with respect to the body door opening and the wedge **80** and resilient member **94** locate the door vertically within the door opening.

The wedge **80** and member **94** further provide an anti-rattle means and also provide a take-up for production tolerances since it is difficult to locate the annular member **62** in the same longitudinal position within the slot **74** in mass produced automobiles. Preferably the member **94** is formed of mechanical rubber or an equivalent material and the wedge **80** is formed of nylon so as to be less deformable than the member **94**.

It will also be noted with reference to FIGURE 2 that the bolt **34** includes an intermediate latching shoulder **96**. When this shoulder is engaged by the foot **44** of detent **46**, bolt **34** is in an intermediate latched position. In this position of the bolt, the head **70** of member **62** has initially engaged the wedge **80** and has moved this wedge slightly inwardly or away from the wall **86** of the frame **28**. The head **70** has also initially engaged the surface **92** of member **94** so that the wedge **80** and member **94** function in this position of the bolt as well as in the fully latched position of the bolt as shown.

Thus, this invention provides an improved closure latch.

I claim:

1. In combination with a closure member movable between open and closed positions with respect to a support member, a closure latch comprising, in combination, a latch bolt mounted on one of the members for movement between latched and unlatched positions and including a bolt throat, an annular striker mounted on the other member and received within the bolt throat in the latched position of the bolt, the striker having an annular head, first means mounted on the one member and engageable with one portion of the striker head when the striker is received within the bolt throat, and second, resilient means mounted on the one member and engageable with a circumferentially spaced portion of the striker head to clamp the striker head between the first and second means and prevent relative movement of the striker within the bolt throat in the latched position of the bolt.

2. The combination recited in claim **1** wherein the first means include wedge means having a wedging surface thereof engageable with the one portion of the striker head.

3. The combination recited in claim **1** wherein the bolt is pivotally mounted on the one member for movement between latched and unlatched positions, resilient means bias the bolt between the positions thereof, and the second means is mounted on the resilient means.

4. The combination recited in claim **3** wherein a coil torsion spring is coaxially mounted with the bolt pivot to bias the bolt between the positions thereof, the first means includes a wedge mounted on the one member and engageable with the one portion of the striker head and the second means includes a resilient annular member mounted around the torsion spring and engaging the spaced portion of the striker head.

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