

July 15, 1969

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3,455,592

VEHICLE BODY DOOR LOCK

Filed Feb. 27, 1968

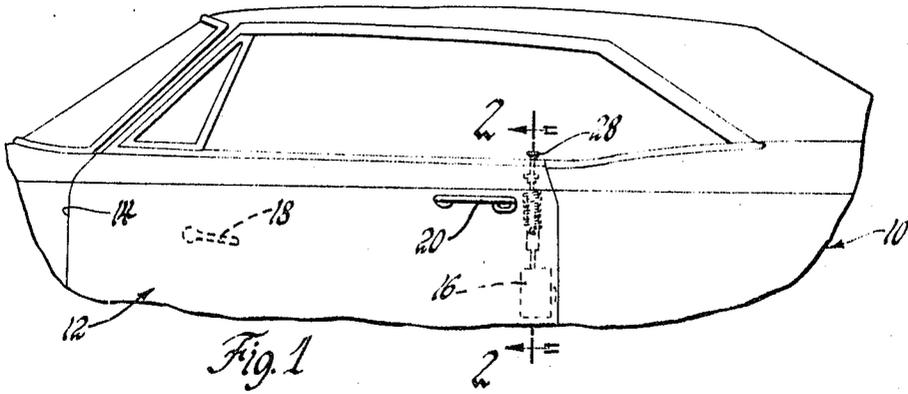


Fig. 1

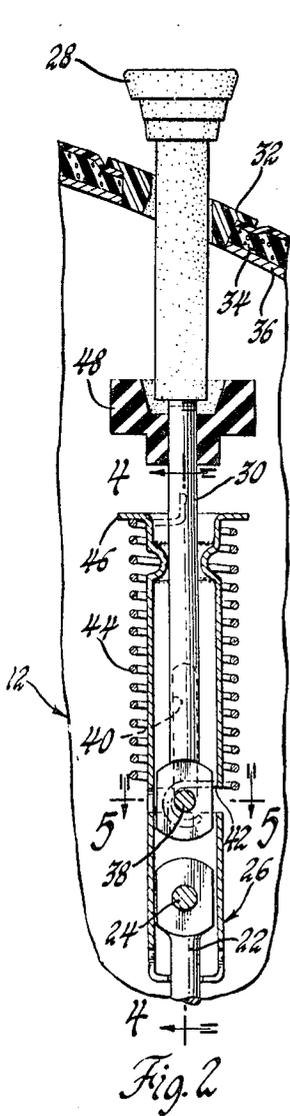


Fig. 2

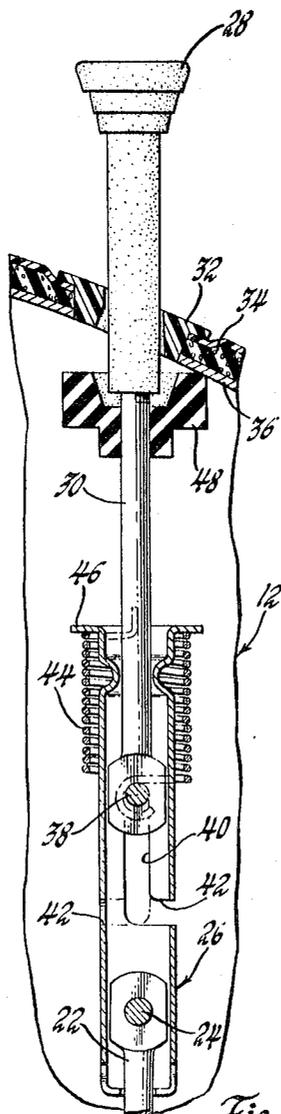


Fig. 3

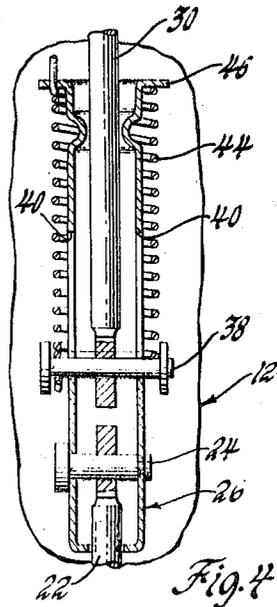


Fig. 4

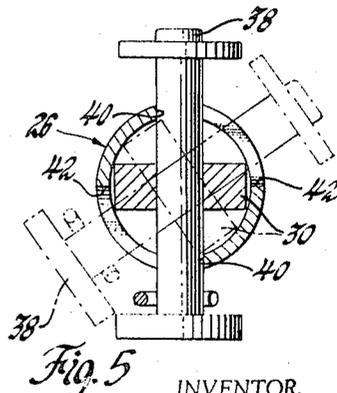


Fig. 5

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VEHICLE BODY DOOR LOCK

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 Filed Feb. 27, 1968, Ser. No. 708,570

Int. Cl. E05b 1/02

U.S. Cl. 292—347

7 Claims

ABSTRACT OF THE DISCLOSURE

An operating rod has one end connected to a locking lever of a vehicle body door lock and the other end connected to a tubular member for shifting movement with the member to move the locking lever between locked and unlocked position. The tubular member includes a pair of vertically disposed slots, each joined to a horizontally disposed slot. The garnish button is secured to a rod mounting a headed member which is movable in either the vertically disposed slots or the horizontally disposed slots. A combined torsion and compression spring is connected between the tubular member and the headed member to normally locate the headed member at the juncture of the horizontally and vertically disposed slots.

SPECIFICATION

This invention relates to vehicle body door locks and more particularly to a coupling arrangement for selectively connecting and disconnecting a manual selector and a locking lever of a vehicle body door lock.

Conventionally, vehicle body door locks include a manual selector, such as a garnish button, which is connected to the locking lever of the lock for moving the locking lever to locked position when the garnish button is depressed and to unlocked position when the garnish button is raised. The locking lever disconnects the inside and outside release means from the lock in locked position, and connects these release means to the lock in unlocked position to permit the door to be opened.

The coupling arrangement of this invention, in its preferred embodiment, automatically disconnects the garnish button from the locking lever when the garnish button is depressed. When depressed, the garnish button free-wheels with respect to the locking lever and any movement of the button to raised position has no effect to move the locking lever from locked to unlocked position. If it is desired to effect an operative connection between the garnish button and the locking lever, the garnish button must first be rotated before being raised in order to effect this connection. However, the coupling arrangement maintains an operative connection between the garnish button and locking lever when the garnish button is in raised position.

The coupling arrangement of this invention thus has several obvious advantages over the conventional arrangement by requiring that the button be rotated before being raised in order to have any effect on the locking lever.

The primary object of this invention is to provide an improved coupling arrangement for selectively connecting and disconnecting a garnish button and a locking lever of a vehicle body door lock when the locking lever is in locked position. Another major object of this invention is to provide such a coupling arrangement wherein the garnish button is normally disconnected from the locking lever when depressed and can only be connected to the locking lever by first being rotated before being raised. Yet another object of this invention is to provide an improved coupling arrangement for selectively connecting and disconnecting a garnish button and a locking lever of

a vehicle body door lock which includes means normally disconnecting the garnish button and locking lever when depressed and means maintaining the garnish button and locking lever in disconnected relationship and resisting connection thereof.

These and other objects 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 having a door lock for holding the door in closed position and a coupling arrangement according to this invention for selectively connecting and disconnecting the garnish button and the locking lever of the lock, with the garnish button being shown in depressed position;

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

FIGURE 3 is a view similar to FIGURE 2 showing the garnish button in a freewheeling position;

FIGURE 4 is a sectional view taken generally along the plane indicated by line 4—4 of FIGURE 2; and

FIGURE 5 is an enlarged sectional view taken generally along the plane indicated by line 5—5 of FIGURE 2.

Referring now particularly to FIGURE 1, a vehicle body designated generally 10 includes a front door 12 hinged at its forward edge 14 to the body for swinging movement between a closed position, as shown, and an open position, not shown. A conventional door lock 16 is provided to hold the door 12 in closed position. This lock includes a locking lever, not shown, which may be selectively and alternately placed in either locked or unlocked position in order to selectively and alternately disconnect the inside and outside release means 18 and 20, respectively, from the lock or connect these release means to the lock to release the lock and thereby open the door.

The locking lever of the lock 16 has connected thereto the lower end of a shiftable rod 22. The upper flattened end of this rod is pivotally connected by a pin 24 to a tubular member 26 so that the member 26 will shift with the rod 22 but cannot rotate relative to the rod since the rod itself is held against rotation by its connection to the locking lever. A conventional garnish button 28 is threadedly secured to one end of a rod 30. The garnish button is movable within a bushing 32 which is secured to the interior trim pad 34 of the door 12 and extends through the inner panel 36 of the door. The lower end of the rod 30 slidably mounts a double headed abutment or pin 38 which extends through the tubular member 26 and has the shank thereof movable either within a pair of diametrically opposite, vertically disposed slots 40 in the tubular member 26 or within a pair of circumferentially extending horizontal slots 42, each of which extends in the same rotative direction from the lower end of one of the slots 40.

A coil combined torsion and compression spring 44 surrounds the tubular member 26. The upper end of the spring seats on a flange 46 of the member 26 and is secured to this flange by having a bent end thereof extending through an aperture in the flange. The lower end of the spring is hooked over the shank of the pin 38 and normally biases the pin 38 downwardly within the slots 40 and counterclockwise within the slots 42 so as to normally hold the shank of the pin 38 at the junctures of the slots 40 and 42 as shown in FIGURES 2 and 5, regardless whether the garnish button is depressed, as shown in FIGURE 2, or raised, not shown.

When the garnish button 24 is depressed as shown in FIGURE 2, it is believed apparent that any upward movement of the garnish button, as illustrated in FIGURE 3, will compress spring 44 but have no effect on the locking lever of the lock 16 since the shank of the

pin 38 will merely move upwardly within the slots 40 without moving the member 26 or the locking lever. A plastic stop 48 is secured to the rod 30 and engages the inner panel 36 of the door 12, as shown in FIGURE 3, to limit the upward movement of the garnish button before the shank of the pin 38 engages the upper end of the slots 40 to thereby ensure that there will be no movement of the locking lever. Thus, when the garnish button is in a depressed position and the locking lever is in locked position, the garnish button freewheels or shifts independently of the locking lever when raised.

It is desired to move the locking lever to its unlocked position and thereby connect the inside and outside release means to the lock, the garnish button 28 must first be rotated before it is raised. When the garnish button is slightly rotated against the torsional action of the spring 44, the shank of the pin 38 will be moved from its full line position of FIGURE 5 to its dotted line position as shown therein so as to be disposed completely within the slots 42 and out of the slots 40. After this initial rotational movement, upward shifting movement of the garnish button will shift the member 26 upwardly and in turn move the locking lever to unlocked position. The garnish button 28 must be held in its rotated position while being raised, otherwise the spring 44 will return pin 38 to its full line position shown in FIGURE 5 and immediately disconnect the rod 30 from the member 26.

When the garnish button is in its raised position, not shown, the shank of the pin 38 will, of course, be located in slots 40 and 42 as shown in FIGURE 2 so that the garnish button can be depressed without being first rotated to thereby move the locking lever to locked position. Thus the additional requirement that the garnish button be rotated before being shifted applies only when it is desired to raise the garnish button and move the locking lever to unlocked position and does not apply when it is desired to move the locking lever to locked position.

Thus this invention provides an improved coupling arrangement for selectively connecting and disconnecting a garnish button and a locking lever of a vehicle body door lock.

I claim:

1. A coupling arrangement for vehicle body door locks comprising, in combination, a shiftable and rotatable lock operator, a shiftable member connected to a locking lever for moving the locking lever between locked and unlocked positions, first means operatively connecting the operator and the shiftable member for unitary shifting movement in one rotational position of the operator, and second means providing a lost motion connection between the operator and the member in another rotational position of the operator and permitting shifting movement of the operator independently of movement of the member.

2. A coupling arrangement for vehicle body door locks comprising, in combination, a shiftable and rotatable garnish button, a first member connected to a locking lever for moving the locking lever between locked and unlocked positions, a second member connected to the garnish button for shifting and rotational movement therewith, first means operatively connecting the first and second members in one rotational position of the garnish button for unitary shifting movement to move the locking lever to unlocked position, and second means providing a lost motion connection between the first and second members in another rotational position of the garnish button and permitting shifting movement of the

garnish button and the second member independently of movement of the first member and the locking lever to maintain the locking lever in locked position.

3. The combination recited in claim 2 wherein the first means includes a slot in one member located laterally of the direction of shifting movement of the first and second members and an abutment on the other member located within the slot in the one rotational position of the garnish button to connect the first and second members for unitary shifting movement.

4. The combination recited in claim 2 wherein the first and second means include a first slot in one member located laterally of the direction of shifting movement of the members, a second slot in the other member located generally parallel to the direction of shifting movement of the members, and an abutment on the other member located within the first slot in the one rotational position of the garnish button to connect the first and second members for unitary shifting movement and located within the second slot in the other rotational position of the garnish button to disconnect the first and second members and provide the lost motion connection.

5. The combination recited in claim 4 including resilient means normally locating the abutment within the second slot.

6. The combination recited in claim 4 wherein the first and second slots extend from a common juncture and resilient means are provided to normally locate the abutment at the juncture and resist movement thereof in either slot relative to the juncture.

7. A coupling arrangement for vehicle body door locks comprising, in combination, a shiftable and rotatable garnish button, a garnish rod connected to a locking lever for moving the locking lever between locked and unlocked positions upon shifting movement of the rod, an annular member connected to the rod and including a pair of aligned spaced slots extending generally parallel to the direction of shifting movement of the rod and a pair of slots extending generally laterally to the direction of shifting movement of the rod, each being joined at a juncture to one of the first slots, an abutment on the garnish button rotatable to a position within the second slots upon rotation of the garnish button to one rotative position to connect the garnish button and the garnish rod for unitary shifting movement in one direction to move the locking lever to unlocked position, rotation of the garnish button to another rotative position rotating the abutment to a position within the first slots for shifting movement therewithin upon shifting movement of the garnish button to disconnect the garnish button and the garnish rod, and resilient means operatively connected between the abutment and the annular member for normally locating the abutment at the juncture of the first and second slots and resisting rotational movement of the abutment into the second slots and shifting movement of the abutment within the first slots.

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