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DOOR LOCK

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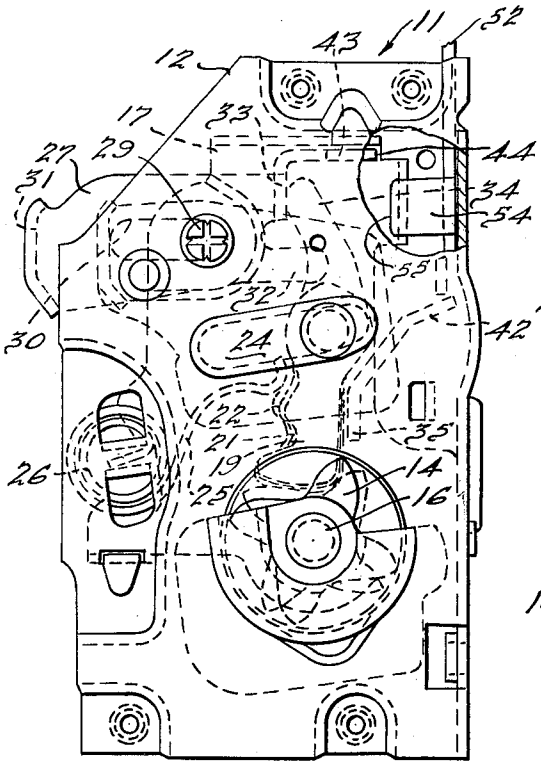


Fig. 1.

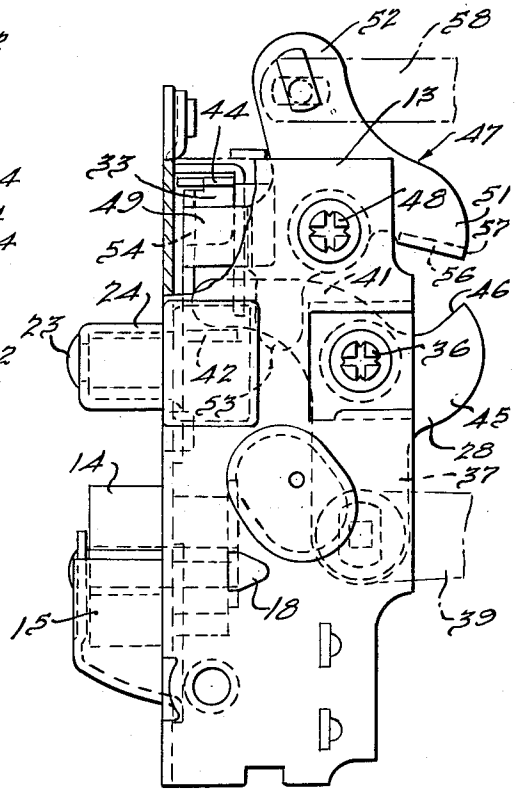


Fig. 2.

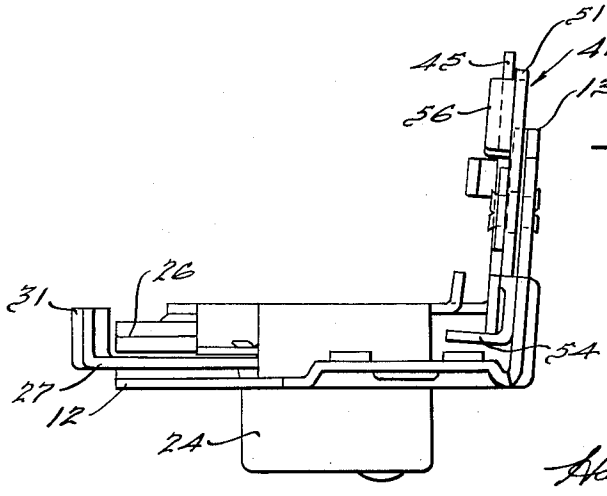


Fig. 3.

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DOOR LOCK

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1 Claim. (Cl. 292—280)

This invention relates to door locks, and more particularly to door locks having rotary latching means and of the type used on automotive vehicles.

It is an object of the invention to provide a door lock of the rotary latch type having a novel locking means for simultaneously locking the inside and outside rollbacks.

It is another object to provide an improved door lock of the above character in which the locking means for the inside and outside rollbacks is pivotally mounted on the mounting plate of the lock, whereby it occupies a minimum of space and can be easily connected to a remote lock operator such as a button on the garnish molding.

It is a further object to provide a novel door lock of the above character in which the pivoted locking member is especially adapted for simultaneously locking a slidable type of outside rollback and a pivoted inside rollback member of the type used for retracting a plurality of dogging cams which are engageable with the rotary latch of the lock.

Other objects, features, and advantages of the present invention will become apparent from the subsequent description, taken in conjunction with the accompanying drawings.

Figure 1 is a front elevational view of a rotor lock embodying the locking means of this invention, showing the slidable outside rollback and the dogging cams;

Figure 2 is a side elevational view showing the novel and improved locking means in its unlocked position, and its relation with the inside and outside rollbacks; and

Figure 3 is a top plan view of the door lock showing the configuration of the mounting plate and the pivotal support for the locking means.

The invention comprises a mounting plate generally indicated at 11 which comprises a base portion 12 and a flange portion 13. A rotary bolt member 14 of known type is rotatably supported by the mounting plate 11, and in particular the base of the mounting plate carries an outboard bearing portion 15 for supporting one end of rotor pivot 16. The opposite end of the pivot is rotatably supported by a deck member 17 which is in spaced parallel reation with the base portion 12 of the mounting plate and is secured to the mounting plate by spaced tabs 18. A plurality of dogging cams 19, 21 and 22 are pivotally supported so as to be engageable with the rotor bolt 14. As shown, the dogging cams are of slightly different dimensions so as to provide the conventional take-up action, and are supported on pivot 23. This pivot is secured between the deck plate 17 and a striker member 24 extending from the base 12 above the rotary bolt 14. A plurality of springs 25 are secured at one end 26 to the base 12 and individually engage the dogging cams 19, 21 and 22, thereby urging them into latching relation with bolt 14 in the conventional manner.

An outside rollback 27 and an inside rollback 28 are provided for moving the dogging cams into unlatching position against the action of springs 25. As shown, the outside rollback 27 is slidably supported between the

base 12 and deck plate 17, the slidable support including a pin 29 secured between the base and deck plate, the outside rollback having an elongated slot 30 within which the member 28 is disposed. The outer end 31 of the outside rollback 27 is provided with a flanged portion adapted to be engaged by a portion of the outside handle (not shown) of the door or by a member actuated by said handle. A guide extension 32 is provided at the lower inner end of the outside rollback 27 for guiding the rollback during its sliding movement.

The upper end of the outside rollback 27 is flanged as shown at 33, this flanged portion being engageable with an extension 34 on dogging cam 22, hereinafter referred to as the lifting cam. Lifting cam 22 is also provided in the conventional manner with a flanged portion 35 which is engageable with the other two cams 19 and 21 when the lifting cam is rotated clockwise as shown in Figure 1. It will therefore be seen that when the outside rollback 27 is moved to the right as shown in Figure 1, it will rock lifting cam 22 and therefore cams 19 and 21 clockwise into unlatching position away from rotary bolt 14.

The inside rollback 28 is pivotally supported on flange 13 of the mounting plate by means of a pivot 36. As shown, the inside rollback is provided with an arm 37 adapted to be connected to a link shown in dot-dash lines at 39 from a remote inside door handle (not shown). The upper end of inside rollback 28 carries an unlatching arm 41 which is disposed above a toe 42 on flange 35 of lifting cam 22. It will therefore be seen that when inside rollback 28 is rotated counterclockwise in Figure 2 by movement of link 39, the three dogging cams will be lifted out of latching engagement with the rotary bolt 14.

Both the inside and outside rollbacks are provided with locking portions, and in the illustrated embodiment the outside rollback 27 has a locking extension 43 formed as a flanged portion at the inner end of the rollback. Extension 43 has a surface 44 facing the flange 13 of the mounting plate 11, and when the outside rollback is moved to the right as shown in Figure 1, face 44 approaches flange 13. The inside rollback 28 is provided with a locking extension 45 having a shoulder 46, substantially radial with the inside rollback pivot, and when the inside rollback is rotated in a counterclockwise direction as shown in Figure 2, shoulder 46 moves upwardly and to the left, approaching base 12 of the mounting plate.

The novel and improved locking means of this invention comprises a locking member generally indicated at 47 which is pivotally secured by a pin 48 to the flange 13 of the mounting plate at the upper portion thereof. In particular, the locking member 47, as shown in the drawings, is disposed above the level of the inside rollback 28 and comprises an outside rollback locking arm 49, an inside rollback locking arm 51, a manual control arms 52, and a positioning or guiding arm 53.

The outside rollback locking arm 49 carries an outer blocking toe 54 substantially normal to the plane of the locking member and extending toward the outside rollback 27. This blocking toe is so positioned that when the locking member 47 is in its counterclockwise position as shown in Figure 2, the blocking toe will be below the level of locking extension 43 of the outside rollback, thereby allowing free reciprocating movement of the outside rollback. However, when the locking member 47 is rocked in a clockwise direction in Figure 2, the outer surface 55 of locking toe 54 is placed in obstructing relation with surface 44 of rollback extension 43. The outside rollback is therefore not allowed substantial movement, and as a result cannot retract the dogging cams into unlatching position.

The inside rollback locking arm 51 of the locking mem-

ber is provided with a transverse locking flange **56** extending from the main portion of the locking member, and flange **56** carries an edge surface **57** which is moved into obstructing relation with surface **46** of the inside rollback when the locking member is rotated clockwise from its position shown in Figure 2. Substantial movement of the inside rollback is thus prevented, and the dogging cams cannot be retracted. With the locking member **47** in the position shown in Figure 2, the flange **56** is withdrawn upwardly from its obstructing relation with the inside rollback, which is then allowed freedom of unlatching movement.

The remote operator arm **52** is adapted to be connected to a link shown in dot-dash lines at **58** from a remote button (not shown) which may be on the inside of the garnish molding of the door. Over-center means (also not shown) are preferably provided at the remote button or at another point along the linkage for holding the locking member **47** in its locking or unlocking positions. The guiding arm **53** of the locking member is positioned between inside rollback **28** and flange **13** of the mounting plate, and serves to maintain proper positioning of the parts.

The operation of the door lock will be obvious from the foregoing description. When closing the door, the rotary bolt **14** is rotated counterclockwise as shown in Figure 1 by the keeper (not shown), the dogging cams **19**, **21** and **22** rocking momentarily clockwise during this operation. After the door is latched, both the inside and outside rollbacks may be simultaneously locked by rotating the locking member **47** from its unlocking position as shown in Figure 2 clockwise into its locking position. When this is done, surface **55** of the outside rollback locking toe **54** will be in obstructing relation with surface **44** on extension **43** of the outside rollback, thereby preventing unlatching movement of the outside rollback. At the same time, edge surface **57** of inside rollback locking toe **56** will be in obstructing relation with surface **46** on the inside rollback, thereby preventing unlatching movement of this part. The invention thus provides in a rotary door lock of the type having a slidable outside rollback, a pivoted locking member which occupies a minimum of space and which securely locks both inside and outside rollbacks simultaneously and with a minimum of effort.

While it will be apparent that the preferred embodiment of the invention herein disclosed is well calculated to fulfill the objects above stated, it will be appreciated that the invention is susceptible to modifications, variation and change without departing from the proper scope or fair meaning of the subjoined claim.

What is claimed is:

In a latch mechanism for a swinging door, a mounting plate having a base adapted to lie adjacent the door jamb and a flange extending angularly from the base, a rotary multi-toothed bolt mounted on said base, a dogging member pivoted on said base above said bolt and engageable therewith, a spring urging said dogging member into a latching position with respect to said bolt, an arm extending upwardly from said dogging member, an outside rollback slidably mounted on said base, the arm on said dogging member being disposed between said outside rollback and said flange, the outside rollback being movable toward said flange and having a portion engageable with said arm to swing said dogging member into unlatching position against the action of said spring, a locking extension on said outside rollback extending past said arm toward said flange, an inside rollback pivoted on said flange, an arm on said inside rollback movable downwardly when the inside rollback is swung in one direction and engageable with said dogging member to swing the dogging member into unlatching position independently of said outside rollback, a second arm on said inside rollback having a radial edge, said second arm extending from the inside rollback pivot away from said base and being movable upwardly and toward said base when said inside rollback is swung in an unlatching direction, a locking member pivoted on said flange, the pivot of said locking member being disposed above the pivot of said inside rollback, means for swinging said locking member between locking and unlocking positions, a first arm on said locking member extending toward said base, a toe on said first locking member arm extending parallel to said base, said toe being in obstructing relation with the locking extension on said outside rollback when said locking member is in locking position whereby unlatching movement of the outside rollback is prevented, and a second locking member arm extending away from said base, said second locking member arm being in obstructing relation with the radial edge on said inside rollback when the locking member is in locking position to prevent unlatching movement of said inside rollback, movement of said locking member to its unlocking position causing said toe to move below said outside rollback extension and said second locking member arm to move above said inside rollback radial edge, whereby unlatching movement of both rollbacks is permitted.

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