

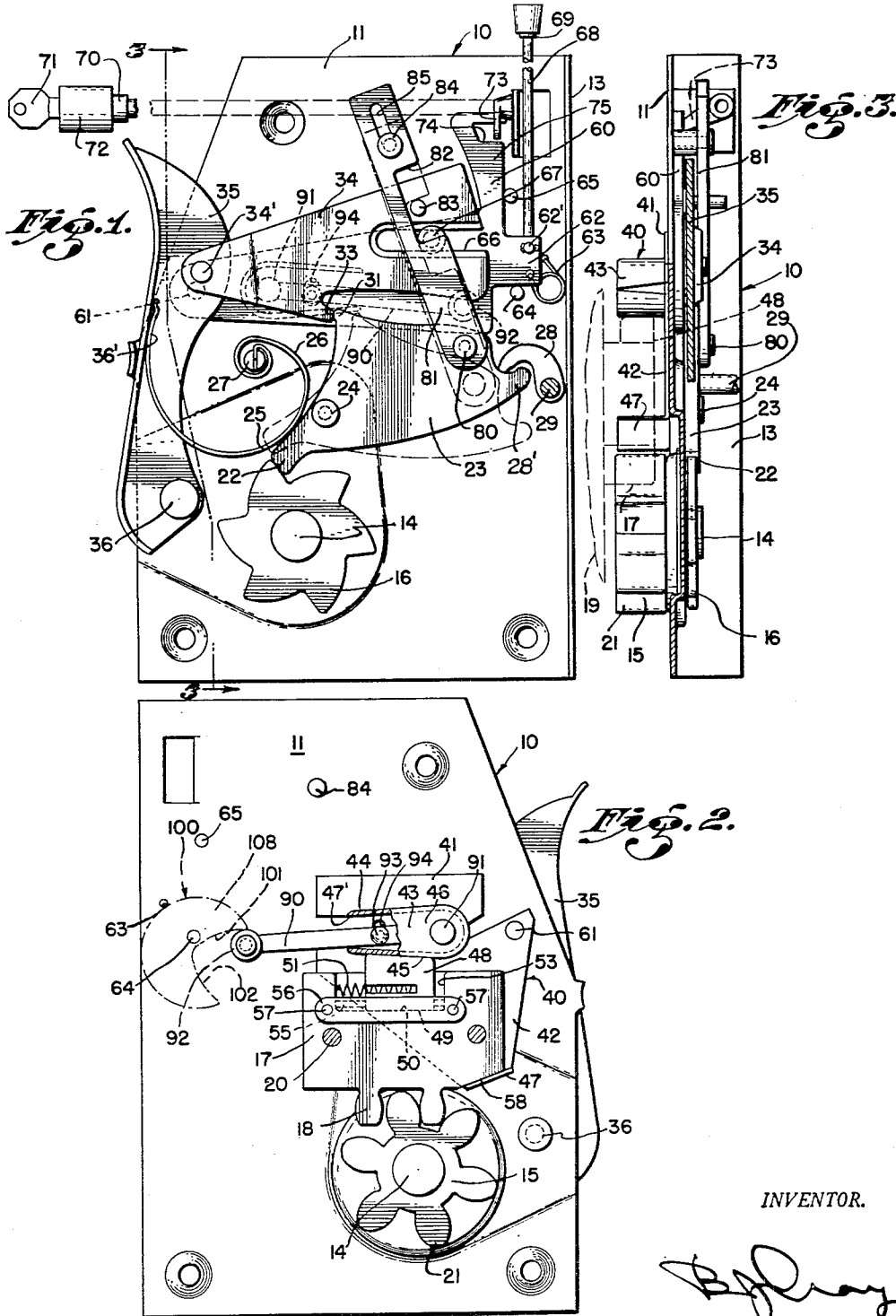
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DOOR LOCK

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DOOR LOCK

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1 Claim. (Cl. 70—264)

This invention relates to a door lock.

The general object of the invention is to provide an improved vehicle door lock by means of which one or more of the doors of a motor vehicle may be held securely in locked position.

A more specific object of the invention is to provide a novel coincidental door locking system for locking a plurality of doors wherein novel lock members are employed.

A further object of the invention is to provide a novel coincidental door locking system wherein the coincidental locking member is mounted on the pivoted locking element of a latch.

Another object of the invention is to provide a novel door latch wherein a pivoted actuating member is movable to locked and unlocked positions by operating a pivoted lock member and wherein means is provided by means of which closing of the door will either unlock the door if the parts are locked or permit the door to remain locked if it is closed while the parts are locked.

Another object of the invention is to provide a novel dovetail construction for locks.

Another object of the invention is to provide a novel coincidental locking door lock.

Other objects of the invention will be apparent from the following description taken in connection with the accompanying drawings, wherein:

Fig. 1 is a front view of a door lock embodying the features of my invention;

Fig. 2 is a rear view of the door lock;

Fig. 3 is a section taken on line 3—3, Fig. 1;

Fig. 4 is a horizontal section taken through a vehicle door and pillar and showing the door lock and coincidental locking parts in section, and

Fig. 5 is a perspective view of the dovetail member.

Referring to the drawing by reference characters, the invention is shown as embodied in a vehicle door latch which is indicated generally at 10. As shown the latch includes a body 11, adapted to be secured to a vehicle door 12. The body 11 includes a flange 13.

The body 11 supports a rotatable shaft 14 which, on the outer face of the body, has a bolt 15 fixed thereon and at the inner face has a ratchet member 16 fixed thereon.

The rotary bolt 15 projects beyond the end of the door 12 and coacts with a strike member 17 which has teeth 18 thereon and 17 is secured to the door pillar 19 by fastening members 20. The rotary bolt includes teeth 21 which engage the teeth 18.

The ratchet 16 is adapted to be engaged by an ear 22 on a dog 23 which is shown as pivoted at 24 to the body 11. The dog is engaged by an intermediate portion 25 of a spring 26, mounted on a fastening member 27. The dog is thus normally urged to engaged position.

The dog 23 is shown as adapted to be rocked by an arm 28 which engages an ear 28' on the dog. The arm 28 is fixed on a shaft 29 which latter is adapted to be rocked by a crank 30 which is adapted to be actuated by a remote control member on the inside of a door. The remote control member may be similar to the remote control member shown in Craig Patent 2,450,372, granted September 28, 1948.

The dog 23 also includes an upwardly extending arm 31 which is adapted to be engaged by a tongue portion 33 on an actuating member 34, which latter is shown as mounted on a release arm 35 by means of a pivot pin 34'. The release arm 35 is pivoted on the body 11 at 36 and

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is engaged and urged to non-releasing position by the free end 36' of the spring 26.

The construction is such that when the release arm 35 is pushed inwardly (to the right in Fig. 1) as by a latch bolt releasing push member 37, operated by a push button 38 on a door handle 39, the actuating member 34 will be moved to the right in Fig. 1, causing the tongue 31 to engage the tongue 33 of the dog 23 to rock the dog so that the ear 22 will be shifted to clear the ratchet 16 and to allow the shaft 14 to rotate to thus free the bolt 15.

The strike 17 coacts with a wedge member 40 which preferably consists of a one piece stamping bent up to form an upper portion 41 and a lower portion 42 from which a wedge 43 is punched up. This wedge member includes a top portion 44 and a bottom portion 45 as well as a top 46. Through the lower portion 42 the fastening member 20 extends. The wedge member includes an inclined flange 47 which is perpendicular to the lower portion 42. The outer end of the wedge member is open as at 47'.

The bottom portion of the wedge member 40 is engageable by a dovetail wedge 48 on the strike. The wedge has a planar lower face 49 slidably engaging a face 50 on the strike. A spring 51 normally urges the dovetail wedge to the right in Fig. 2 towards a shoulder 53 on the strike. The dovetail wedge 48 has a groove 54 which engages a bead 55 on the strike 17. A cover member 56, which may be spot welded or riveted to the strike as at 57, prevents removal of the dovetail wedge but allows it to slide.

The wedge member flange 47, which is inclined, engages a similarly inclined face on the strike 17. The dovetail wedge 48, as the door is closed, engages the lower face 45 of the wedge member 40 and is constantly urged forward by the spring 51, thus producing a camming action and forcing the strike face 58 against the flange 47 to hold the parts in tight engagement.

As the door is closed the strike member teeth 18 engage the teeth 21 on the rotary bolt and as a result the rotary bolt will be rotated to the position shown in Fig. 2 so that the ear 22 on the dog 23 engages one of the ratchet teeth 16 and is held in engagement therewith by the spring portion 25 previously described.

While the parts are moving to the position shown in Fig. 2, the dovetail wedge member 48 will be first forced to the left in Fig. 2 by engagement with the lower face 45 of the wedge member 40 until the door is closed, whereupon the spring 51 will gradually urge the dovetail wedge 48 forwardly as the parts "settle" to position wherein the inclined face 58 on the strike 17 engages the flange 47 in wedging relation. This wedging action will cause the teeth 18 to engage the teeth 19 firmly, with no up or down play, thus holding the door securely in closed position.

When closed, the door may be opened by pushing on the button 38 to rock the release arm 35 and to thereby shift the actuating member 34 to the right in Fig. 1. This will cause the portions 33 and 31 to engage to rock the dog 23 and thereby free the ratchet 16.

To lock the latch against opening from without the vehicle, the actuating member 34 is moved upwardly from the position in Fig. 1, and in doing this the portion 33 on the dog so that movement of the actuating member by the push button 38 will not release the ratchet.

To effect this locking operation a lock member 60 is employed. This lock member is mounted by a pivot 61 on the base 11. A forwardly projecting tongue 62 on the lock member is engaged by a snap-over spring 63 to hold the lock member in down-unlocked-position, as shown in Fig. 1, against a stop member 64 or in-uplocked position against a stop member 65.

The actuating member has a slot 66 therein, which slidably receives a pin 67 on the lock member and the construction is such that when the lock member is raised or lowered the pin 67 and consequently the actuating member 34 will be raised or lowered.

When the lock member is in the position shown in Fig. 1 movement of the push button 38 will cause the

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dog 23 to release the ratchet 16 so that the bolt is released so that the door may be opened.

When, however, the lock member 60 is in raised position so that the tongue 62 contacts the stop 65 the tongue 33 on the actuating member will have been raised above the arm 31 on the dog 23 and when in this position operation of the push button will merely cause the tongue 33 to ride idly over the arm 31 so that the dog will not be rocked. Thus a locking action is provided. To bring the parts into locked position from inside the vehicle, the tongue 62 pivotally supports a rod 68 as at 62'. The rod 68 may be bent (not shown) and extends to the interior of the vehicle and may be raised and lowered by a finger engaging member 69 to effect the locking and unlocking action.

To move the parts to locked position from without the vehicle, a lock rod 70 is provided. The rod 70 is adapted to be operated by a key 71 which operates in a lock barrel 72. The rod 70 has a crank arm 73 thereon fitting in a slot 74 in an arm 75 carried by the locking member 60. When the key is turned the crank 73 will move the lock member 60 from locked to unlocked position and vice versa.

To prevent an operator from unintentionally locking himself outside the vehicle, the dog 23 pivotally supports at 80 an operating member 81 which extends upwardly over the lock member 60 and has an elongated notch 82 therein in which a pin 83 on the actuating member is normally positioned. A pin 84 on the base 11 moves in a slot 85 in the operating member to maintain the operating member and lock member in proper relation.

The operation of the operating member is as follows: when the door is closed and the lock member 60 is in raised or locked position the pin 83 is adjacent the upper wall of the notch 82. When in this position as the door is closed the shaft 14 will be turned, thus swinging the dog 23 and pulling the operating member downwardly so that the upper wall of the notch 82 moves the pin 83 downwardly and in doing this moves the actuating member from its upper to its lower position, in other words, it moves the actuating member from locked to unlocked position.

Suppose that the vehicle operator wishes to lock the vehicle without the use of a key: To do this the lock member is moved to the upper position by lifting the finger member 69. As the door is being closed the push button 38 is pushed inwardly. This movement of the push button rocks the release arm 35 and moves the actuating member to the right in Fig. 1 so that the pin 83 on the actuating member is then beyond the path of travel of the upper end of the notch 82 so that when the dog 23 moves the operating member downwardly, the pin 83 will not be engaged by the operating member and thus the actuating member will not be moved downwardly. In other words, the actuating member will remain locked.

To provide for coincidental locking, a coincidental locking arm 90 is pivotally mounted at 91 on a rivet which passes through the wedge member 40. The arm 90 passes through the open end 47' of the wedge member and at its free end carries a roller 92. Intermediate the length of the arm 90 a pin 93 is provided. This pin projects through the body 11 and engages in a slot 94 in the lock member 60 and the construction is such that when the lock member 60 is moved up and down or vice versa the pin 93 will be moved up and down and will carry the arm 90 and the roller 92 up and down.

To provide for coincidental locking of doors on the same side of the vehicle and on opposite side of the vehicle, each pillar is provided with a coincidental locking control member 100 which has upper and lower wings 101 and 102 at each end, the wings being disposed on tongues 108 on a body 104 from which a pair of tongues

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105 extend through a slot 106 in the pillar and are accessible from within the vehicle for movement up and down to effect the locking and unlocking action.

The control member 100 is mounted on a shaft 110 which is supported in brackets 111 removably secured to the inside of the pillar as by suitable screws 112. The wings with the integral connecting body 104 serve to coincidentally lock adjacent doors.

Doors on opposite sides of the vehicle may be coincidentally locked as by a Bowden wire 113 which suitably connects the control members 100. The Bowden wire is coupled to the control member 100 at A in Fig. 4 at the upper side of the control member. The other end of the Bowden wire is connected as at B to the lower side of the other control member. Thus control members on opposite sides of the vehicle both simultaneously move in the same direction.

Having thus described my invention, I claim:

In a door lock, a base, a bolt pivoted on the base and engageable with a strike, a ratchet on the bolt, bolt holding and releasing means engaging the ratchet to normally prevent release of the bolt, a release member, means pivotally mounting one end of the release member on the base for movement to and from bolt releasing position, a slidable push button having an end portion disposed adjacent to the other end of the release member and operable to rock the release member to bolt releasing position, an actuating member, means pivotally mounting the actuating member on the release member, said actuating member being movable about the axis of its pivotal mounting to locked and unlocked positions, means whereby said actuating member causes release of the bolt holding and releasing means when the actuating member is bodily moved by the release member to releasing position while the actuating member is in unlocked position, said last mentioned means being ineffective to cause release of the bolt holding and releasing means when the release member is bodily moved while the actuating member is in locked position, a pivoted locking member, means to limit movement of the locking member in each direction, said locking member and said actuating member including interengaging portions whereby movement of said locking member about the axis of its pivot moves the actuating member to and from locked position, means to hold the locking member in either locked or in unlocked position, means accessible from within the vehicle for moving the locking member from locked to unlocked position and vice versa, an arm pivoted on said base, key operated means to rock the arm, said arm having a free end portion, means connecting the free end portion of said arm and said locking member whereby rocking of said arm moves the locking member from locked to unlocked position, said key operated means being mounted independent of and spaced from the latch bolt releasing push button, said bolt holding and releasing means including an ear, an arm pivoted adjacent to said ear and having an end portion engaging said ear, and remote control means within the vehicle for locking said last mentioned arm to shift said ear and move the bolt holding and releasing means to bolt releasing position.

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