

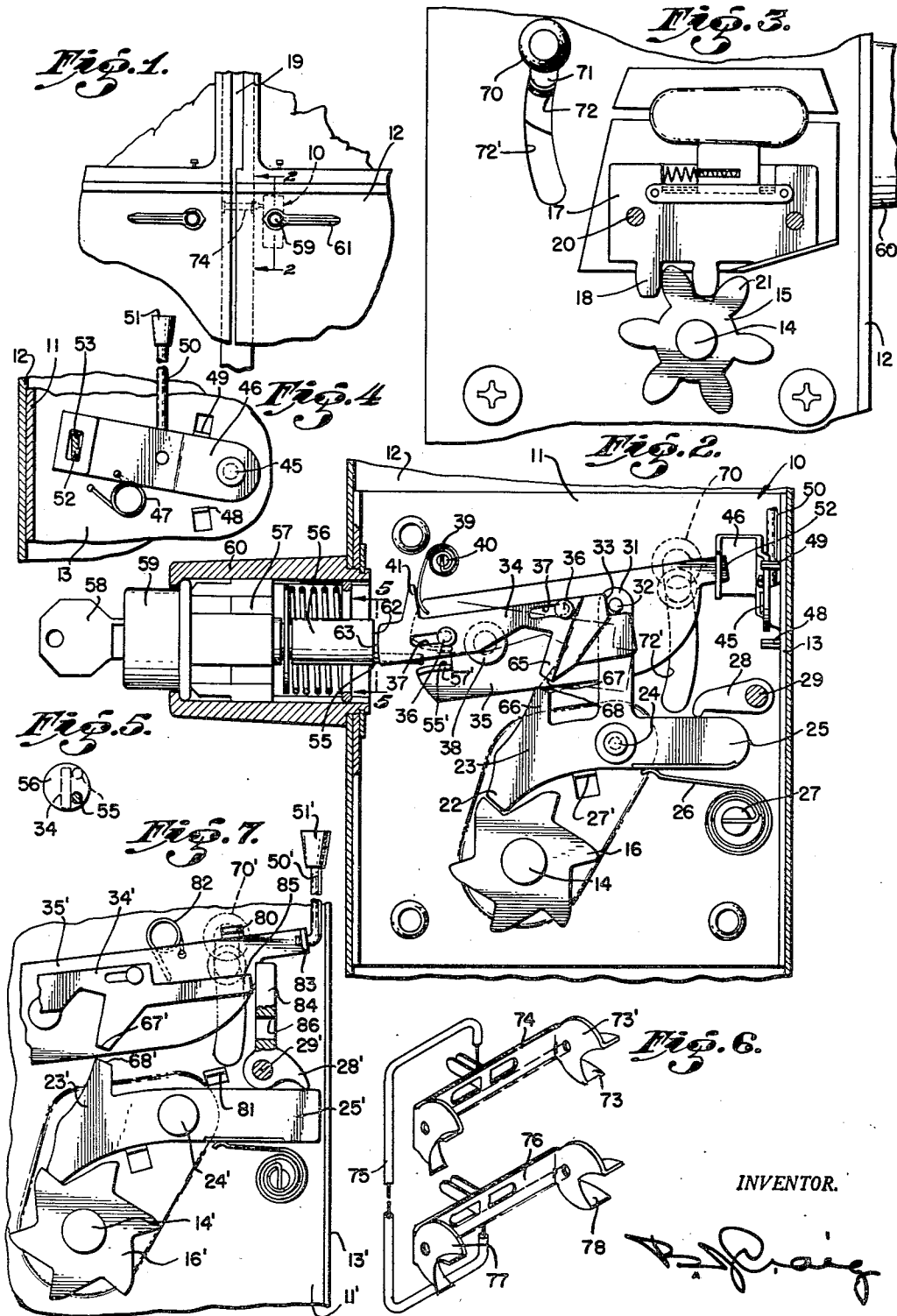
Dec. 11, 1956

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2,773,716

DOOR LATCH

Original Filed Dec. 18, 1950



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2,773,716

DOOR LATCH

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Original application December 18, 1950, Serial No. 201,284, now Patent No. 2,706,129, dated April 12, 1955. Divided and this application July 13, 1954, Serial No. 443,013

2 Claims. (Cl. 292—280)

This invention relates to a door latch.

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

An additional object of the invention is to provide a vehicle door latch wherein a dog holds a bolt in strike engaging position and wherein a movable arm is moved by an actuating member to cause the arm to shift the dog to thereby release the bolt.

Another object of the invention is to provide a door latch wherein an actuating member is movable to locked and unlocked position by operating a lock member and wherein novel 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 latch bolt releasing means.

Another object of the invention is to provide a novel push button operated door lock.

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

Fig. 1 is a fragmentary elevation showing portions of adjacent doors and a door pillar of a motor vehicle;

Fig. 2 is an enlarged section taken on line 2—2, Fig. 1, showing the invention;

Fig. 3 is a fragmentary elevation showing the opposite sides of the door latch;

Fig. 4 is an elevation partly in section showing the locking arm;

Fig. 5 is a section taken on line 5—5, Fig. 2.

Fig. 6 is a fragmentary, isometric view, showing the coincidental locking means, and

Fig. 7 is a fragmentary elevation showing a modification.

This application is a division of application Serial No. 201,284, filed December 18, 1950, now Patent No. 2,706,129, granted April 12, 1955. In said application Serial No. 201,284 the claims introduced were broadly drawn to both species of the invention and specifically to the species of Figs. 1 to 6. In the present application all claims are drawn to the species of Fig. 7 wherein a movable arm is moved by the actuating member and the arm in turn releases the bolt holding dog.

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 end member, has a bolt 15 fixed thereon and at the inner face has a ratchet member 16 fixed thereon.

The shaft 14 of the rotary bolt 15 extends through an aperture in the door 12 and coacts with a strike member

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17 which has teeth 18 thereon and 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 has another ear 25 which is engaged by a spring 26, mounted on a fastening member 27. The dog is thus normally urged to engaged position. A stop pin 27' limits the movement of the dog in one direction.

The dog 23 is shown as adapted to be rocked by an arm 28 fixed on a shaft 29 which latter is adapted to be rocked by a remote control member (not shown) 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, 1949.

The dog 23 also includes an upwardly extending arm 31 which has a pin 32 thereon which is adapted to be engaged by a shoulder portion 33 on an actuating member 34, which is shown as slidably mounted on a lock member 35 by means of a pin 36 and slots 37. The lock members 35 is pivoted on the body 11 at 38. The actuating member 34 is normally urged rearwardly in Fig. 2 by a spring 39 fastened to the body 11 at 40 and engaging a tongue 41 on the actuating member.

In order to move the lock member 35 from the full line or unlocked position shown in Fig. 2 to a locked position, the flange 13 carries a pivot pin 45 which pivotally supports a locking arm 46. The flange includes a snap over spring 47 which holds the locking arm 46 against a lower stop 48 when the latch is locked and against a stop 49 when the latch is unlocked. The locking arm 46 may be shifted by a rod 50 which is attached thereto and which has an upper finger engaging portion 51 which is accessible from within the vehicle.

The free end 52 of the lock member is disposed in a slot 53 in the locking arm 46 so that when the portion 51 is pushed downwardly the actuating member 34 will be moved from unlocked to locked position and when the portion 51 is raised the actuating member will be raised from locked to unlocked position.

The actuating member 34 may also be shifted from locked to unlocked position and vice versa by means of an arm 55 which is mounted as a crank member on the core 56 of a lock barrel 57. The crank arm 55 moves in a slot 55' in the lock member 35 and engages wings 57' on the member 35.

The lock barrel 57 is of the type which may be pushed inwardly at all times and may be actuated by a key 58 to cause the lock barrel to rotate either way from an intermediate position.

The lock barrel also includes a push button portion 59 which serves as an operating member and which protrudes from the body and can be pushed inwardly by the thumb of a hand engaging the handle 61. The end 62 of the core 56 is in line with, and abuts against, the end 63 of the actuating member 34.

From the foregoing description it will be apparent that when the push button 59 is pushed inwardly the end 62 will push the end 63 of the actuating member, thus moving the actuating member to the right in Fig. 2, so that the shoulder 33 will engage the pin 32 and will rock the dog 23 to free the bolt.

When the member 51 is pushed downwardly to move the locking arm 46 to locked position, the end 52 of the lock member which fits in the slot 53 in the locking arm 46 will move the lock member to locked position. The same locking operation may be performed by inserting and rotating the key 58 which action will rotate the crank arm 55 and the latter will shift the lock member 35.

When in locked position, inward movement of the push button will merely move the actuating member 34 to the

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right in Fig. 2, but in locked position the shoulder 33 will be below the pin 32 so that the shoulder 33 will not engage the pin 32 and there will be no movement of the dog 23.

Regardless of the position of the lock member 35—that is, regardless of whether the parts are locked or unlocked—the remote control member 29 may be operated to shift the ear 25 and thus rotate the dog 23 to released position.

In order to prevent an operator from accidentally locking himself out of the car by closing the door when the lock member 35 is in locked position, the disclosed construction includes a depending finger 65 on the actuating member 34. This finger 65, when the lock member 35 is in lower-locked-position, is disposed adjacent to a finger 66 on the dog 23. The fingers 65 and 66 have cam surfaces 67 and 68 thereon which, when the lock arm 35 is in locked position, are adjacent to each other, so that when the dog 23 is rocked by the act of closing the door the surfaces 67 and 68 will engage and will move as the dog is shifted to cause the lock arm to be raised to unlocked position.

Should the operator desire to leave the vehicle locked, he may push down on the member 51, thus moving the locking arm 46 to locked position. After this is done the operator pushes in on the push button 59. This will move the actuating member 34 to the right in Fig. 2, with the shoulder 33 passing under the pin 32, and while holding the push button in this position the operator will close the door. In the last described position of the actuating member 34 the cam 67 will be moved to the right in Fig. 2 out of the range of the cam 68 so that when the dog 23 is rocked there will be no action between the cams 67 and 68 and thus there will be no unlocking action.

In order to provide for coincidental locking for a plurality of doors, the lock member 35 is provided with a coincidental roller 70 which has a shaft 71 which may be welded at 72 to the lock member 35. The shaft 71 passes through a slot 72' in the base 11 and in the end of the door and is adapted to engage in a V-shaped slot 73 in wings 73' in a coincidental locking member 74 which is mounted in one pillar and is connected by a Bowden wire 75 to a similar locking member 76 and which has similar wings 77 with slots 78 which coact with the coincidental roller of another door.

The details of the coincidental locking system are more fully disclosed and claimed in the applicant's Patent No. 2,659,230, granted November 17, 1953.

In Fig. 7 a modification of the invention is shown. In the modification parts similar to those previously described are designated by similarly primed reference numerals.

In the modification the lock member 35' is held in up and down position against stops 80 and 81 by a snap-over spring 82. The locking arm 46 is omitted in the modification and an arm 83 is bent from the lock member 35' and is connected to a rod 50' which has a finger operating member 51' thereon.

By raising and lowering the member 51', the lock member 35' may be moved from locked to unlocked position and vice versa.

In the modification the cam arm 31 is omitted and a substantially L-shaped dog 84, fixed on the shaft 29', is substituted. A free end portion 85 on the actuating member 34' engages and rocks the arm 84, thus rotating the shaft 29' and causing the arm 28' to rock the ear 25' to free the dog 23' from the ratchet.

When the lock member 35' is in lowered—that is, locked—position the end portion 85 on the actuating member will be aligned with a slot 86 in the arm 84 so that when the push button is operated and the actuating member 34' is advanced the end portion 85 on the actuating member will enter the slot 86 and thus the arm 84 will not be rocked to door opening position.

The modified latch shown in Fig. 7 functions in the same manner as the latch previously described. As for example, when the parts are in locked position and the

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door is closed the cam 67' and cam 68' will engage and will unlock the latch. If, however, the same operation is performed while the push button is pushed inwardly the parts will remain locked. The lock member 35' includes a coincidental roller 70' similar in construction and operation to the coincidental roller 70 previously mentioned.

Having thus described the invention, I claim:

1. In a door lock, a base, a bolt pivoted on the base, a ratchet fixed rigidly on the bolt, pivotally mounted holding means engaging the ratchet and normally preventing release of the bolt, a movable operating member, an actuating member operable by said operating member, means to mount the actuating member for movement either to a locked position or to an unlocked position and for movement to and from a bolt releasing position, means to releasably maintain the actuating member in locked or in unlocked position, said operating member being movable at all times to move the actuating member, a substantially L-shaped dog pivoted on the base, said dog including one end portion engageable with the holding means for rocking the holding means to bolt releasing position, said dog including another end portion engageable with the actuating member when the actuating member is moved while it is in unlocked position, said other dog end portion being out of engagement with the actuating member when the actuating member is moved while it is in locked position, inside means to move said actuating member to and from locked position, and restoring means including a shoulder on said holding means and a coacting shoulder on said actuating member, said shoulders being engageable and operable by movement of the bolt ratchet upon a closing movement of the door, when the actuating member is in locked position, and the actuating member is also in non-releasing position to move said actuating member to unlocked position.

2. In a door lock, a base, a bolt pivoted on the base, a ratchet fixed rigidly on the bolt, pivotally mounted holding means engaging the ratchet and normally preventing release of the bolt, a movable operating member, an actuating member operable by said operating member, means to mount the actuating member for movement either to a locked position or to an unlocked position and for movement to and from a bolt releasing position, means to releasably maintain the actuating member in locked or in unlocked position, said operating member being movable at all times to move the actuating member, a dog pivoted on the base, said dog including a portion engageable with the holding means for rocking the holding means to bolt releasing position, said dog including another portion engageable with the actuating member when the actuating member is moved while it is in unlocked position, said other dog portion being out of engagement with the actuating member when the actuating member is moved while it is in locked position and consequently being ineffective to free the holding means, inside means to move said actuating member to and from locked position, means adapted to be operated from within the vehicle for directly rocking the dog to release the holding means, and restoring means including a shoulder on said holding means and a coacting shoulder on said actuating member, said shoulders being engageable and operable by movement of the bolt ratchet upon a closing movement of the door, when the actuating member is in locked position, and the actuating member is also in non-releasing position to move said actuating member to unlocked position, said shoulder on the actuating member being out of the path of movement of the holding means shoulder and being ineffective when the actuating member is in locked position and the actuating member is also in bolt releasing position to cause the dog upon a closing movement of the door to move the actuating member to its unlocked position.

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