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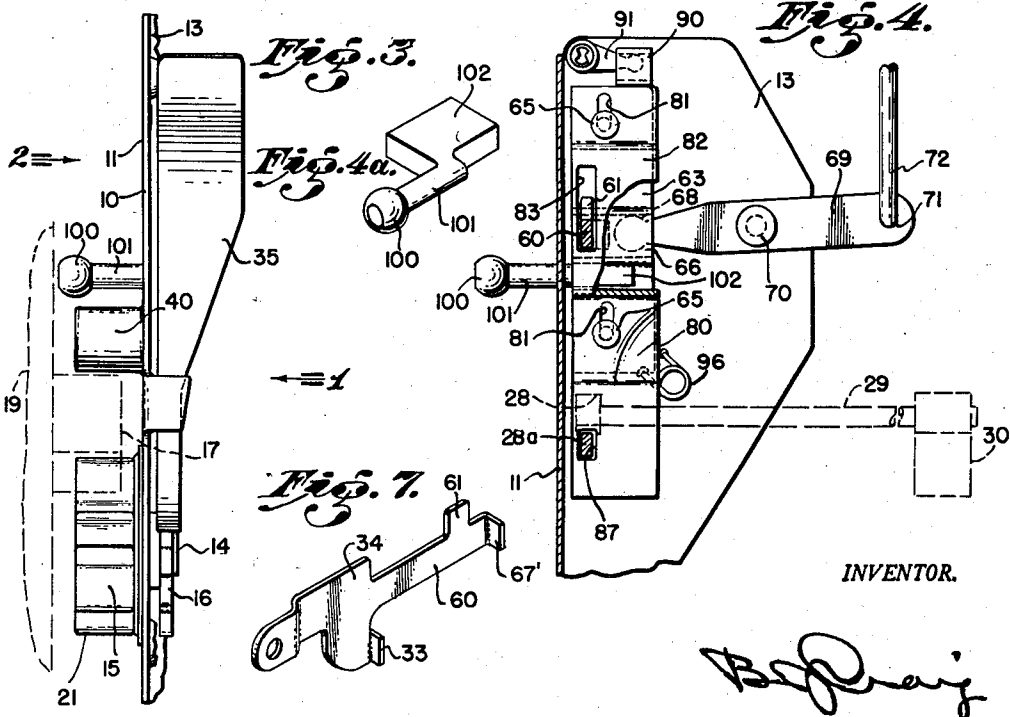
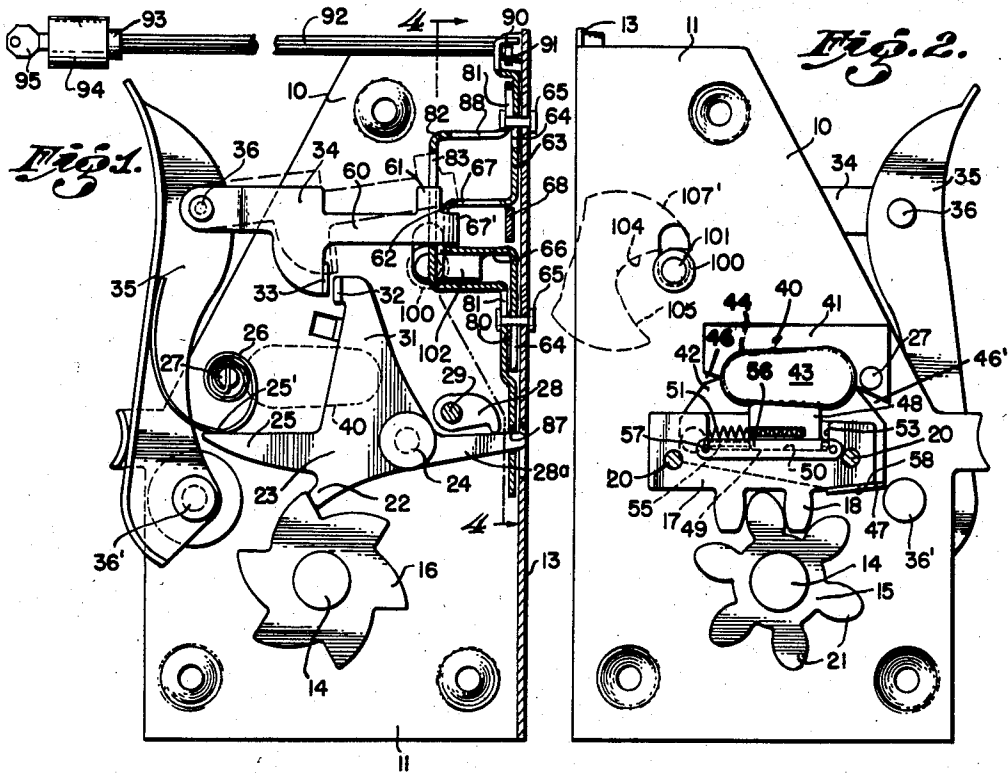
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DOOR LOCK ABUTMENT

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2 Sheets-Sheet 1



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## DOOR LOCK ABUTMENT

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Original application December 18, 1950, Serial No. 201,281, now Patent No. 2,705,882, dated April 12, 1955. Divided and this application September 27, 1954, Serial No. 458,480

1 Claim. (Cl. 16—85)

This invention relates to a vehicle door lock abutment structure.

The general object of the invention is to provide an improved abutment or wedge structure for use with a vehicle door lock by means of which the door of a motor vehicle may be held securely in closed position.

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

Fig. 1 is a side elevation, partly in section, looking in the direction of the arrow 1 of Fig. 3;

Fig. 2 is a view similar to Fig. 1, looking in the direction of the arrow 2 in Fig. 3 and showing the opposite side of the door lock;

Fig. 3 is a front elevation of the door lock;

Fig. 4 is a section taken on line 4—4, Fig. 1;

Fig. 4A is an isometric view, showing the coincidental lock member;

Fig. 5 is a horizontal, sectional view showing the door lock and associated door and pillar;

Fig. 6 is an isometric view of the dovetail member, and

Fig. 7 is an isometric view of the actuating member.

This application is a division of application Serial No. 201,281 filed December 18, 1950, now Patent No. 2,705,882, dated April 12, 1955.

Referring to the drawings 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 from the free edge of the door 12 and coacts with a strike member 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 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 fixed on a shaft 29. The arm 28 engages an arm 28<sup>a</sup> on the dog 23. The arm 28<sup>a</sup> 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 has a bent end tongue 32 which is adapted to be engaged by a tongue portion 33 on an actuating mem-

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ber 34, which is shown as mounted on a release arm 35 by means of a pivot pin 36. The release arm 35 is pivoted on the body member 11 at 36' and is engaged and urged to non-releasing position by the free end 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 push member 37, which is 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 portion 33 to engage the portion 32 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 structure disclosed includes an abutment or wedge member 40 which consists of a one piece stamping bent up to form an upper planar base or attaching portion 41 and an intermediate planar base portion 42 from which an engaging or protuberance member 43 is punched up. At each end thereof the base portion 41 is separated from the base portion 42 by a V-notch 46'. This member has an upper and a lower half whose ends terminate at slots 46' and provide an inwardly extending face portion 44 and a lower flange or face portion 45 as well as a planar top portion 46. Through the upper portion 41 the fastening member 27 extends. The pivot member 24 extends through the lower portion 42. The abutment also includes an inclined flange or upstanding face portion 47 which is perpendicular to the base portion 42.

The bottom portion of the member 43 is engageable by a dovetail wedge 48 on the strike. The wedge 48 has a planar lower face 49, slidably engaging a face 50 on the strike 17. A spring 51 partly disposed in a hole in the wedge member normally urges the dovetail wedge member to the right in Fig. 2 towards a shoulder 53 on the strike. The strike 17 has a groove 54 which engages a bead 55 on the dovetail wedge. A cover member 56, which may be spot welded 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 58 on the strike 17.

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 15 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 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 member 43 until the door is closed, whereupon the spring 51 will gradually urge the dovetail wedge 48 forwardly as the parts "settle" to a 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 21 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 32 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 from the full line position in Fig. 1 to the broken line position in this figure and in doing this the portion 33 on the actuating member will be raised above the portion 32 on the dog so that movement of the actuating member by the push button 38 will not release the ratchet.

To effect the locking operation the actuating member 34 is provided with a forwardly extending portion 60,

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from which a tongue 61 extends upwardly. The end of the portion 60 fits in a slot 62 in a locking member 63 which includes slots 64 which receive guide pins 65 fastened on flange 13 to reciprocatingly mount the lock member.

The lock member 63 includes a U-shaped portion 66 which projects forwardly and in which the slot 62 previously mentioned is arranged. The upper wall of the U-shaped portion 66 has a slot 67 through which the free end of the portion 60 slides. The end of the portion 60 is bent over to form a tongue 67 which prevents upward movement of the portion 60 into the slot 67.

The U-shaped portion 66 is engaged by an enlarged rounded portion 68 on a locking arm 69 which is pivoted as at 70 on the flange 13. The locking arm 69 includes an aperture 71 which receives a push member 72 which extends to the window moulding of the door, thus permitting the arm 69 to be rocked.

When the member 72 is pushed downwardly, the portion 68 will be raised, thus raising the U-shaped portion 66 and raising the lock member 63. This will cause the actuating member 34 to be raised so that the portions 32 and 33 will be out of alignment, whereupon when the actuating member 34 is moved to the right in Fig. 1, the dog 23 will not be rocked, in other words, there will be a locking action.

In order to prevent the user from accidentally locking himself out of the vehicle and also to provide means for readily locking the vehicle door when it is so desired, the present construction includes a lock operating member 80 which has slots 81 slidably on the pins 65 previously mentioned. The member 80 includes a U-shaped outstanding portion 82 which is disposed about the U-shaped portion 66 but is spaced therefrom. This U-shaped portion 82 includes a slot 83 in which the forwardly extending portion 60 on the actuating member 34 is disposed.

The slot 83 is longer than the combined length of the tongue 61 and the portion 60 of the actuating member 34 so that there is a space above the upper end of the tongue 61, as shown in Fig. 1 when the parts are unlocked. When the actuating member 34 is moved to the locked position, the upper end of the tongue 61 will be adjacent to the upper end of the slot 83.

When the actuating member is in locked position and the lock operating member 80 is moved downwardly, the lock operating member will engage the tongue 61 and will rock the actuating member 34 downwardly to unlocked position.

In order to move the lock operating member 80 downwardly to unlocked position whenever a door is closed, the free end of the arm 28<sup>a</sup> on the dog 23 fits in a slot 87 in the lower end of the lock operating member 80 and an aligned slot in the flange 13. Thus when the door is closed the bolt 15 will be rotated and the ratchet 16 will also be rotated so that the dog 23 will be rocked about its pivot 24, thus moving the arm 28<sup>a</sup> downwardly, thereby causing the upper wall of the slot 83 to engage and pull down the tongue 61 to thereby pull the actuating member 34 downwardly to unlocked position.

If, however, when the actuating member 34 is in locked position, that is in the broken line position in Fig. 1, and is held inwardly by pushing on the push button 38 as the door is being closed, the dog arm 23<sup>a</sup> will move the lock operating member 80 downwardly but since the tongue 61 will have been moved inwardly beyond the slot 83 and into the path of a slot 88 in the top wall of the U-shaped portion 82 so that downward movement of the member 80, when tongue 61 and slot 88 are aligned, will not cause movement of the actuating member 34, and the latter will be left in broken line-locked position.

Thus it will be seen that by placing the latch in locked position and shutting the door while the actuating member 34 is in the dotted line-locked-position shown in

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Fig. 1, there will be an unlocking action, but if while this member 34 is in locked position and is pushed inwardly, as by its operating push button while the door is being closed, the parts will remain locked.

From the foregoing description it will be apparent that the actuating member 34 may be moved up and down from unlocked to locked position and vice versa without moving the lock operating member 80 and that when the actuating member 34 moves, the lock member 63 will be moved up and down.

To move the lock member up or down from without the vehicle a U-shaped upper end 90 of the locking member 63 is engaged by a crank member 91 mounted on the flange 13. This crank member 91 is adapted to be rocked by a lock bar 92 which is rotatable with the core 93 in a barrel 94 of a lock when the proper key 95 is inserted and turned. The keyhole for the key 95 is accessible from without the vehicle door so that access is afforded to the user who has the proper key.

The lock member 63 is held in either its up or its down position by means of a snap-over spring 96 (Fig. 4) which engages the lock member and the flange 13.

To provide for coincidental locking of doors on the same side of the vehicle a coincidental locking roller 100 is arranged on a shaft 101, which latter includes an offset body portion 102, shown as secured as by welding at 103 to the lower face of the U-shaped portion 66. The roller 100 is adapted to engage the upper or lower wing 104 and 105, respectively, of a coincidental locking control member which is indicated generally at 106 and which includes a body 107 from which a pair of tongues 108 extend.

The tongues 108 pass through a slot 109 in the pillar and are accessible within the vehicle for movement up and down to effect the locking and unlocking action. The body 107 includes tongues 107' from which the wings 104 and 105, previously mentioned, are bent. The control member 106 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 107 serve to coincidentally lock adjacent doors.

Doors on opposite sides of the vehicle may be coincidentally locked as by a Bowden wire 113 which is suitably secured to the control members 106. To cause simultaneous action the Bowden wire is coupled to the control member 106 as shown at the upper left hand portion of Fig. 5 to the upper side of the control member. The other end of the Bowden wire is connected to the opposite control member at the lower side thereof. Thus control members on opposite sides of the vehicle both simultaneously move in the same direction.

The coincidental locking control members 106 on the pillar take the position of the shafts 101 on closed doors. The control members 106 move to locked or unlocked position as each door is closed and opened. The snap-over springs 96 serve to hold the coincidental locking control members in position. Inertia of the moving parts carries coincidental control members 106 over center so that the springs 96 take over and pull the parts to fully locked or unlocked position.

Having thus described the invention, I claim:

The combination with an abutment member for use on a vehicle which includes a body member having a door opening and having a swinging door member for closing the opening, said abutment member being adapted to be secured to one of said members, said abutment member including an intermediate base portion having a front face, said base portion being planar and being provided with upper and lower opposed jaw forming portions which are disposed above and below the base portion and are integral with and are rigid continuations of the base portion, one of the jaw forming portions of the abutment member having a jaw surface disposed perpendicular to the front face of the base portion, the other

jaw forming portion including a protuberance which has a top, closed ends and closed sides, one of the sides of the protuberance comprising a fixed jaw surface at least a part of which is inclined, the other side of the protuberance having an attaching portion thereon, said last mentioned portion being adapted to be secured to said one member, of holding means which is adapted to be secured to the other of said members and which is provided with a part immovable relatively thereto and movable between the jaw forming portions of the abutment member, at least a portion of the perpendicular jaw surface being inclined for engagement with the immovable part of said holding means which passes over the base portion as it moves to engaged position, and includes a dovetail wedge mounted on and slidable relative to the holding means, the sliding dovetail wedge including a surface which engages the inclined surface of the other

jaw forming portion of the abutment member in wedging relation thereto, the jaw surfaces maintaining the holding means in a predetermined vertical position, a portion of one of said jaw forming portions constituting a guiding part against which the holding means will engage and slide along before said holding means comes to engaged position.

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