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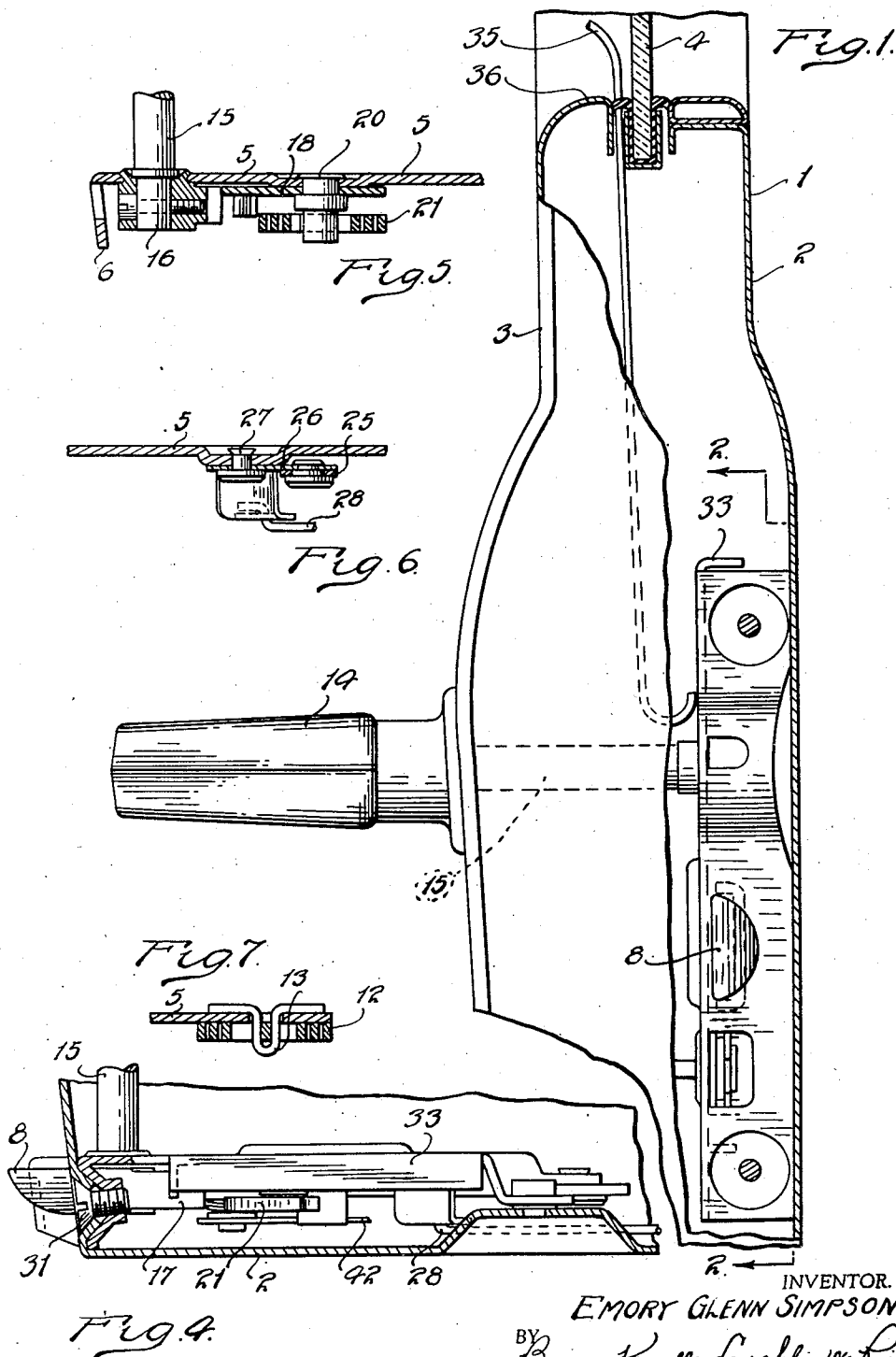
E. G. SIMPSON

2,299,353

DOOR LOCK

Original Filed June 3, 1939

3 Sheets-Sheet 1



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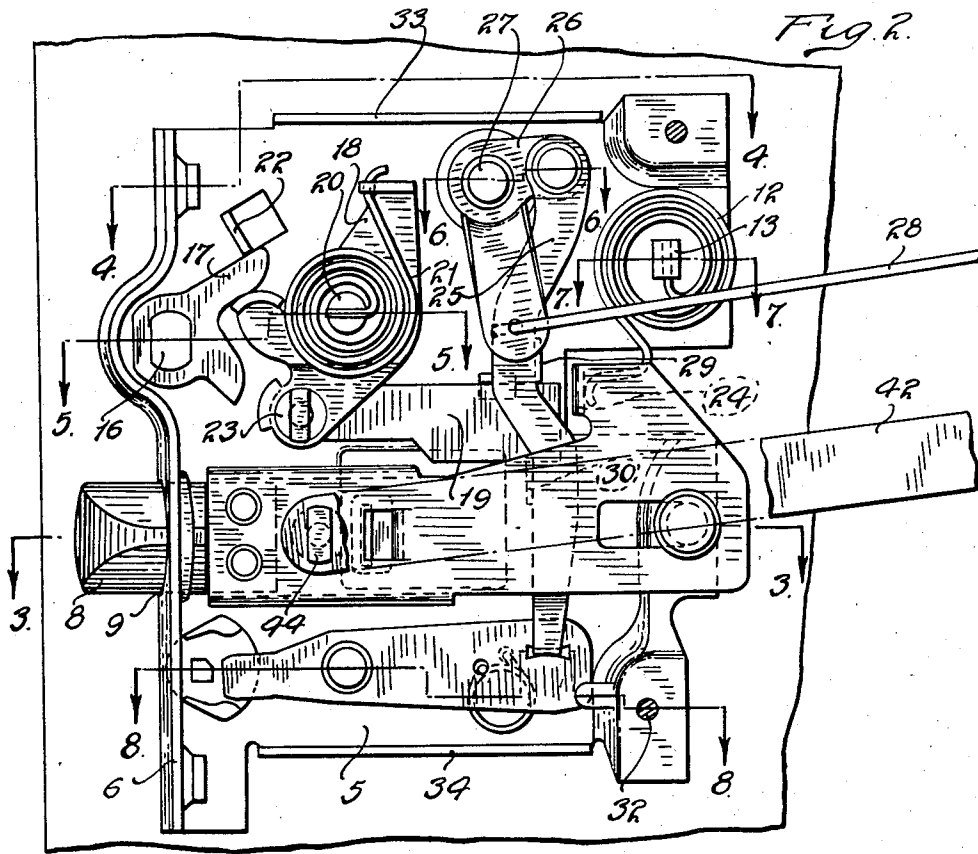
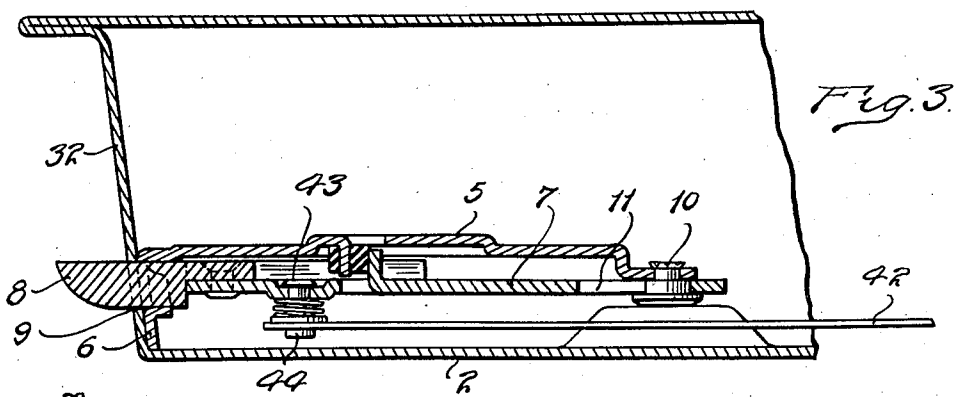
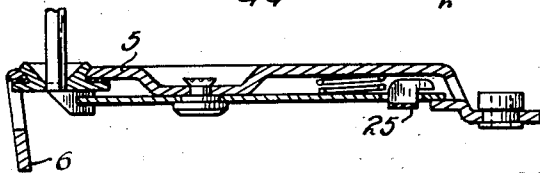
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DOOR LOCK

Original Filed June 3, 1939

3 Sheets-Sheet 2



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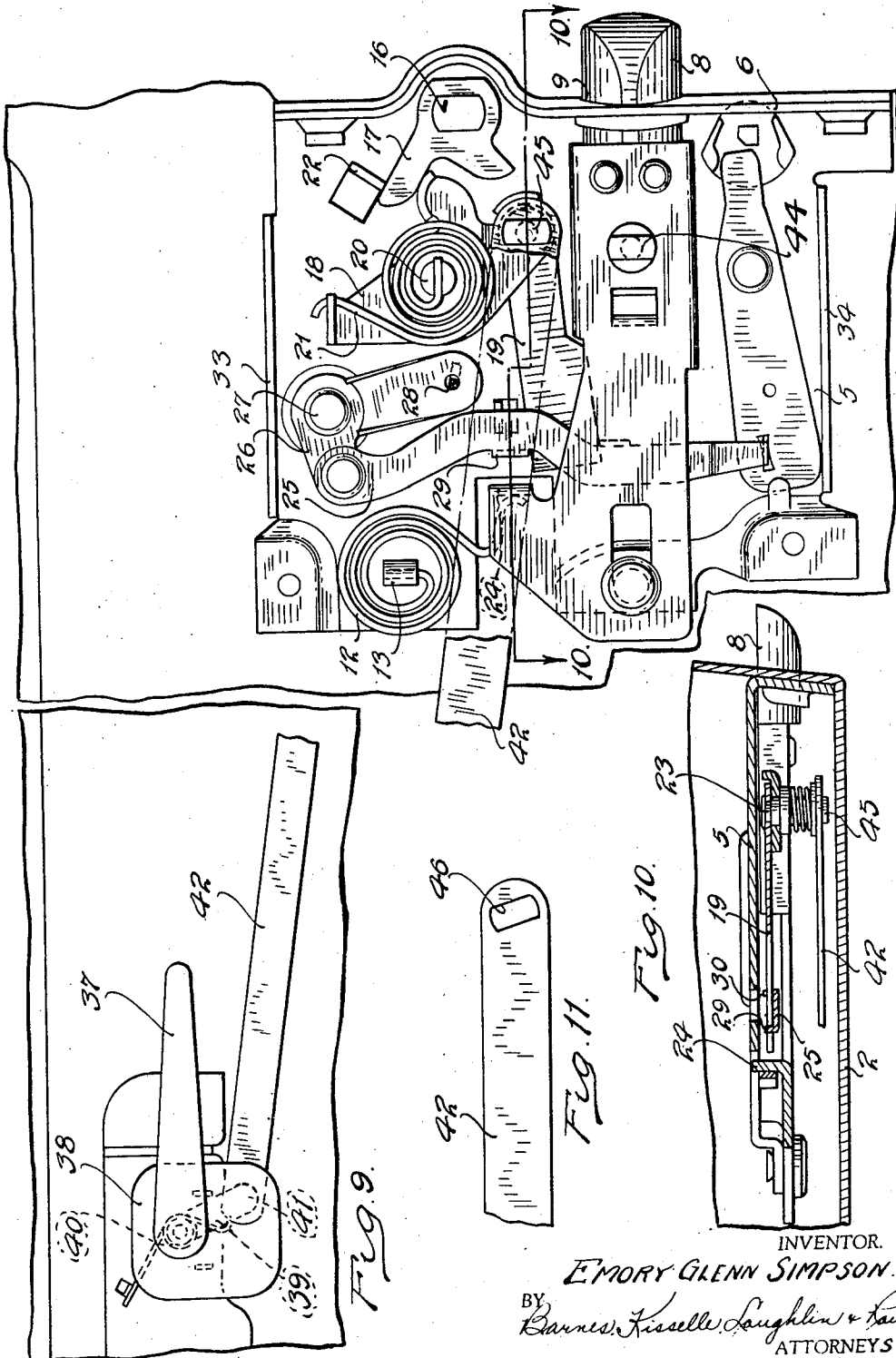
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UNITED STATES PATENT OFFICE

2,299,353

DOOR LOCK

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277,224. Divided and this application Septem-
ber 20, 1940, Serial No. 357,522

3 Claims. (Cl. 292-164)

This invention relates to a door lock and more particularly to an automobile door lock. This application is a division of application Serial No. 277,224, filed June 3, 1939.

The automobile door locks at present in use consist of two types. The first type is exemplified by the door lock shown in the Andersen-Bowlus Patent 2,039,873 wherein when the door is locked, the outside handle and rollback are disconnected from the latch bolt so that the handle semi-free wheels and is ineffective to retract the bolt. In the other type of door lock now in use, the door is locked by dogging the outside rollback so that the outside handle cannot be turned. This type of lock is exemplified by the Surprenant Patent 1,771,737.

Both of these locks can be unlocked by inserting a wire into the window well between the window glass and the reveal. By means of such wire the shiftable retractor in the first type of lock and the dogging pawl in the other type of lock can be thrown to released position, that is, in the first type of lock the outside door handle is again connected with the bolt so that turning of the outside handle retracts the bolt and in the second type of lock the pawl is disengaged from the outside rollback so that the outside handle can turn to retract the bolt.

It is an object of this invention to overcome this defect present in automobile door locks. This object has been achieved by reversing the lock frame or plate so that the working parts of the lock are mounted between the frame and the inside door panel. With this arrangement the latch frame not only supports the working parts of the lock but also serves as a cover plate making the operative parts of the lock inaccessible to a wire inserted into the window well as above described.

Not infrequently accidents have happened by a passenger accidentally striking the remote or inside door handle, or by unauthorized manipulation of the inside door handle by children, so that the door flies open and the passenger or child falls out of the car. It is old in the art to remedy this defect by connecting the inside door handle to the shiftable retractor in the lock of the Andersen-Bowlus patent so that it optionally can be disconnected from the bolt and thus made ineffective to retract the bolt. Many car owners do not like this arrangement. Therefore the motor car manufacturer is faced with the problem of manufacturing two types of locks, the one in which the remote or inside door handle is always effective to retract the bolt and the other in which the inside handle can be optionally disconnected from the bolt.

It is the object of this invention to produce a single type of lock which at the option of the car owner can be arranged so that the remote or inside handle is always effective to retract the

bolt or the same lock can be arranged so that the remote handle optionally can be disconnected from the bolt so that it is ineffective to retract the bolt.

In the drawings:

Fig. 1 is an elevation of the unhinged or free end of the door partly broken away to show the mounting of the lock within the door.

Fig. 2 is a detailed elevation of the lock.

Figs. 3, 4, 5, 6, 7, and 8 are sections along the lines 3-3, 4-4, 5-5, 6-6, 7-7 and 8-8 of Fig. 2.

Fig. 9 is a detail view of the lock and inside remote handle arranged so that optionally the inside handle can be disconnected from the bolt.

Fig. 10 is a section along the line 10-10 of Fig. 9.

Fig. 11 is a fragmentary detail of the remote handle draft link.

Referring more particularly to the drawings there is shown a door having a window well 1 bounded on the inside by metal door panel 2 and on the outside by door panel 3. The window glass is designated 4.

The lock comprises a back plate 5 having a selva plate 6 and a latch bolt 7. The head 8 of the bolt projects through and is slidably guided in the aligned openings 9 in the selva plate and door pillar. The tail of the bolt is supported on the plate 5 by rivet 10 which slidably engages the tail of the bolt in slot 11. The bolt is yieldably projected by the torsion spring 12 fixed to the latch plate by the clip 13.

The outside door handle 14 is provided with a spindle 15, the inner end of which is fixed in the opening 16 of the outside rollback 17. The outside rollback acts through lever 18 and shiftable retractor 19 to retract the bolt. Lever 18 is pivotally supported by pin 20 which is fixed to the latch plate. A torsion spring 21 tends to rotate the lever 18 clockwise, Fig. 2, and hold the rollback 17 against the stop lug 22 struck out of the latch plate 5. The shiftable retractor 19 is pivotally secured to the lower end of lever 18 by pin 23 (Figs. 2 and 10). When the retractor 19 is in the position shown in Fig. 2, clockwise rotation of the outside rollback 17 rotates lever 18 counterclockwise thereby moving retractor 19 to the right. In moving to the right retractor 19 engages an abutment in the form of a lug 24 on the tail of the bolt, thereby retracting the bolt. The lever 19 can be swung downwardly to the position shown in Fig. 9 which disconnects the outside rollback from the bolt. In this position when the outside rollback is turned the retractor 19 travels by and does not engage the abutment 24 and the outside handle 14 is ineffective to retract the bolt. This principle is shown in the Andersen-Bowlus Patent 2,039,873.

The retractor 19 can be shifted from the position shown in Fig. 2 to the position shown in

Fig. 9 or vice versa by the plate 25 which is pivotally connected at its upper end to one arm of the bell crank lever 26. The bell crank lever 26 is pivoted on the latch plate by pin 27. The other arm of the bell crank is pivotally connected to the push and pull rod 28 by means of which the bell crank can be swung to raise or lower plate 25. Plate 25 is provided with lugs 29 and 30 which contact the top and bottom edges of retractor 19. Thus when the plate 25 is slid downwardly, retractor 19 is disengaged from abutment 24 and is ineffective to retract the bolt. When plate 25 is slid upwardly from the position shown in Fig. 9, the retractor 19 is returned to the position shown in Fig. 2, where, by engagement with abutment 24, it is effective to retract the bolt.

It will be noted particularly by reference to Figs. 2 and 3 that all of the above described parts of the lock which are supported on the frame 5 are positioned between the frame 5 and the inside door panel 2 when the lock is secured in the window well. It should be further noted that the selva plate 6 contacts the inside face of the inside door panel 2 and serves to space the lock frame 5 from the inside door panel. Further, the lock bolt is mounted on the frame 5 so that the curved face of the bolt head 8 faces away from the latch plate 5 rather than toward it as in the locks heretofore and presently used.

The lock is secured in the window well by bolts 31 which pass through the door pillar and are screwed into tapped openings in the selva plate and by bolts 32 which turn into brackets provided therefor on the inside door panel 2. The lock plate is also provided along its top and bottom edges with horizontal flanges 33 and 34 which, like the plate 5, serve as shields to prevent access from above or below to the working parts of the lock mounted on the plate 5.

Fig. 1 nicely illustrates the thief-proof feature of the lock. By way of example, a wire 35 is shown projected into the window well 1 through the space between the glass 4 and the outside reveal 36. Due to the shielding action of the lock plate 5, the wire cannot be engaged with the shiftable retractor 19. Thus the wire 35 is ineffective to shift the retractor 19 from locked position, Fig. 9, to bolt retracting position, Fig. 2.

The lock is provided with an inside door handle 37 of the remote type. The handle 37 is fixed to a spindle 40 which is journaled in a support plate 38. The lever 39 is fixed to the spindle 40 and pivotally connected as at 41 with the remote draft link 42. As shown in Fig. 9 the handle 37 is in normal or non-bolt retracting position. A headed pin 43 is riveted to the bolt. Pin 43 is provided with an enlarged head 44 identical with the enlarged head 45 on pin 23. Pins 23 and 43 are equidistant from pivot 41 when the handle is in normal position, shown in Fig. 9. The end of the draft link 42 remote from pin 41 is provided with a slot 46 just sufficiently larger than the periphery of heads 44 and 45 (which are of equal size) so that heads 44 and 45 can be passed through the opening 46 and either pin 23 or 43 interengaged with link 42. The slot 46 in link 42 is positioned so that it will be offset from the heads 44 and 45 when the link 42 is interengaged with either one or the other of pins 23 or 43 to prevent disengagement of the two members.

In view of the above it will be noted that a single draft link 42 can be optionally connected either to pin 23 or pin 43. When connected to pin 23, which, as above described is the pin which pivotally connects retractor 19 to lever 18, it is

obvious when the retractor 19 is swung to the position shown in Fig. 9 that the remote handle 37 is disconnected from the bolt 7 and ineffective to retract the same. Turning of the remote handle 37 will merely cause the shiftable retractor 19 to pass by and not engage abutment 24. When draft link 42 is optionally connected with pin 43, then the remote handle 37 is connected to the bolt and turning of the remote handle 37 will retract the lock bolt.

In view of the above the manufacturer need make but one complete standard lock assembly including the lock, remote handle and draft link of standard size. Depending on the choice of the purchaser of the car the link 42 can be connected directly to the bolt through pin 43 if the purchaser desires the remote handle to always retract the bolt. If the purchaser desires for safety reasons optionally to make the remote handle ineffective to retract the bolt, then the link 42 is connected to pin 23. In the latter case whenever the retractor is fixed so that it is disengaged from abutment 24, then the remote handle is ineffective to retract the bolt.

I claim:

1. A door lock having a retractable latch bolt, a shiftable retractor shiftable into one position where the retractor is effective to retract the bolt and shiftable into another position where the retractor is ineffective to retract the bolt, a handle movable into and out of its normal position, a connection on the said shiftable retractor, a connection on the said bolt, a draft link pivotally connected to the said handle, the connections on the said retractor and bolt being equidistant from the pivotal connection between the draft link and the handle when the handle is in normal position, and means on the end of the draft link interengageable optionally and independently with one or the other of said connections whereby the handle is optionally connectable by the same draft link directly to the bolt independently of said retractor or directly to the said retractor.

2. A door lock having a retractable latch bolt, a shiftable retractor shiftable into one position where the retractor is effective to retract the bolt and shiftable into another position where the retractor is ineffective to retract the bolt, a lug on said bolt, a lug on said retractor, a draft link having a socket for engagement either with the lug on the retractor or the lug on the latch bolt whereby when the link is connected to the bolt the draft link can retract the bolt without moving the retractor.

3. In a door lock having a lock plate, a retractable bolt mounted on the lock plate, outside retracting means including a shiftable retractor shiftable in one position to connect the outside retracting means with the bolt and shiftable in another position to render the outside retractor ineffective to retract the bolt, an inside door handle, a connection fixed on the retractor, a second connection fixed on the bolt, a draft link connected at one end to the inside door handle and means on the other end of the draft link optionally and independently interengageable with either the first or second connection whereby when the draft link is connected to the second connection the latch bolt can be retracted without movement of the retractor both when the retractor is in bolt retracting position and when the retractor is in a position where it is ineffective to retract the bolt.

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