March 11, 1941. E. G. SIMPSON 2,234,810

DOOR LOCK

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Fig. 1.

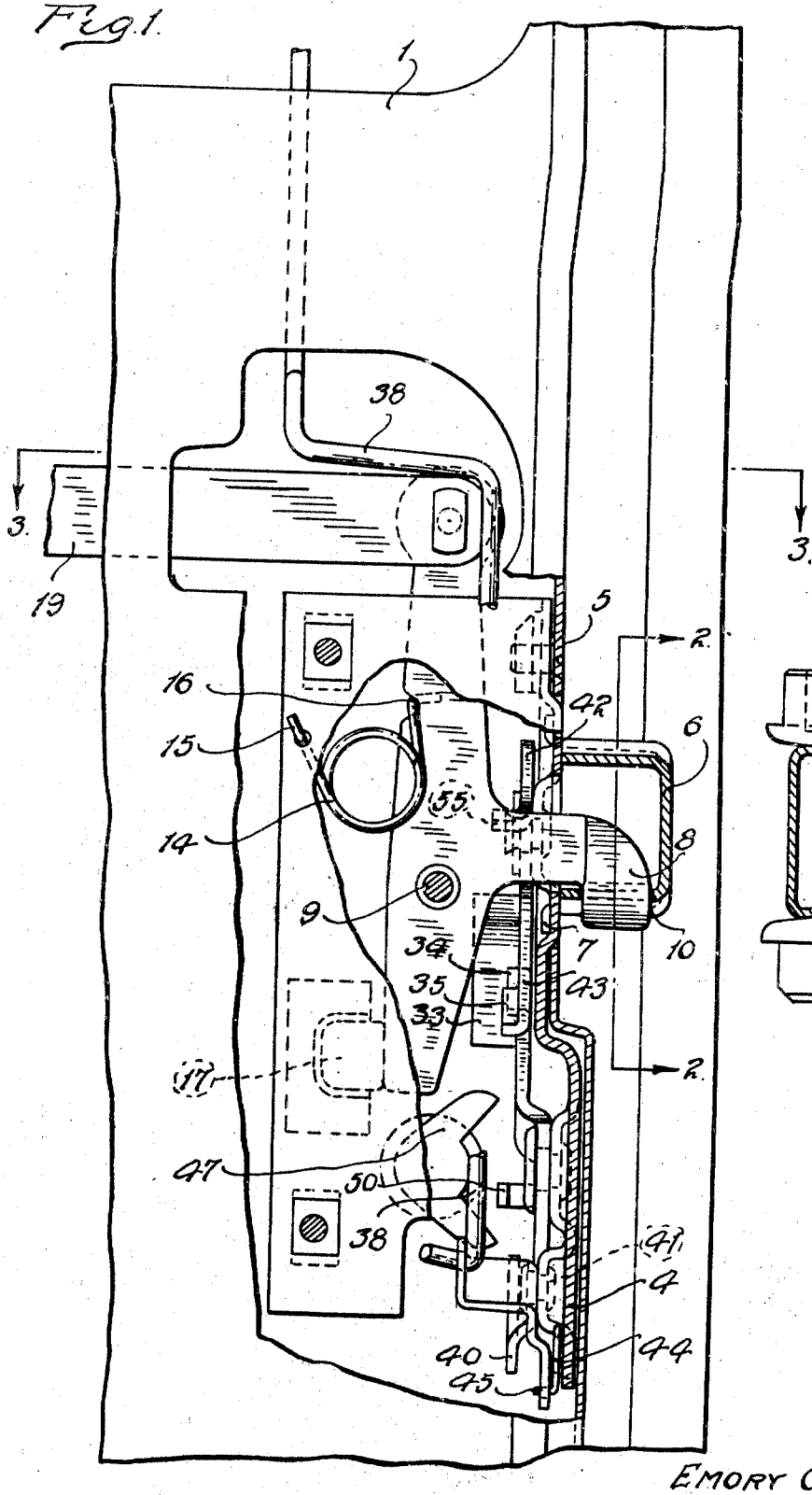
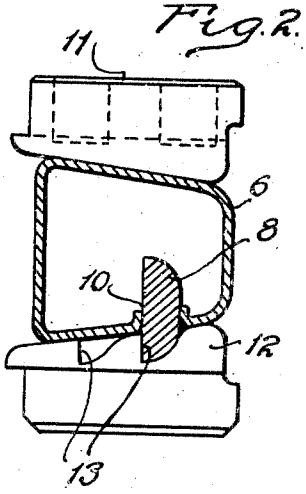


Fig. 2.



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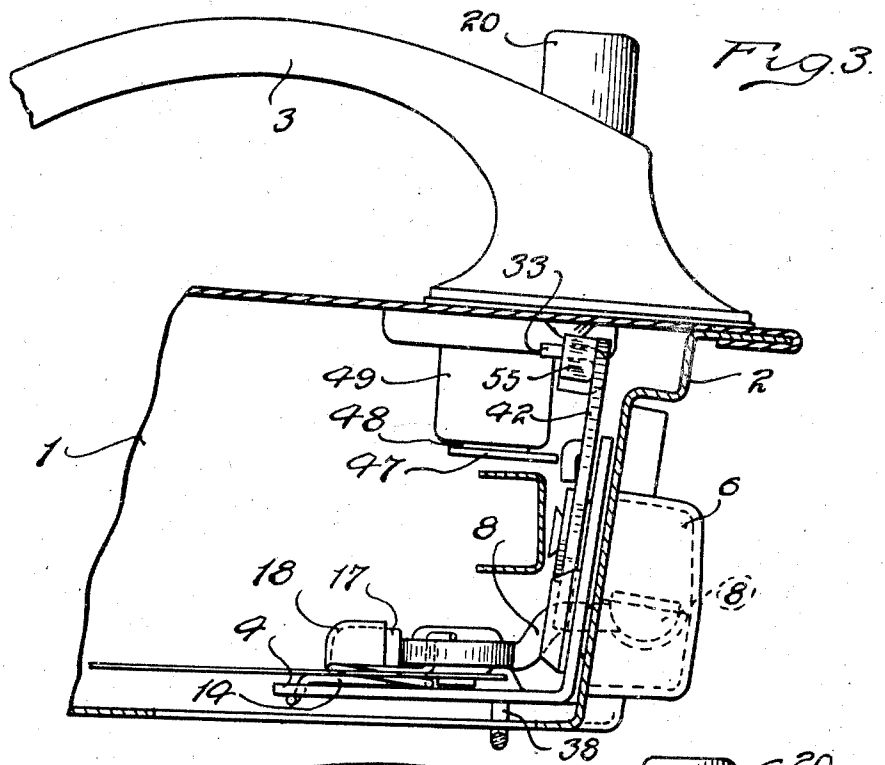


Fig. 3.

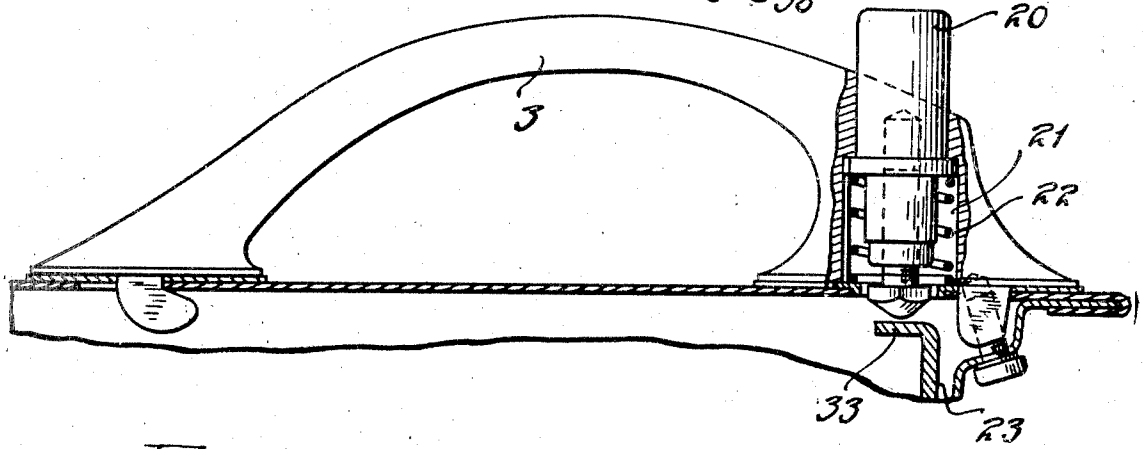


Fig. 10.

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Fig. 4.

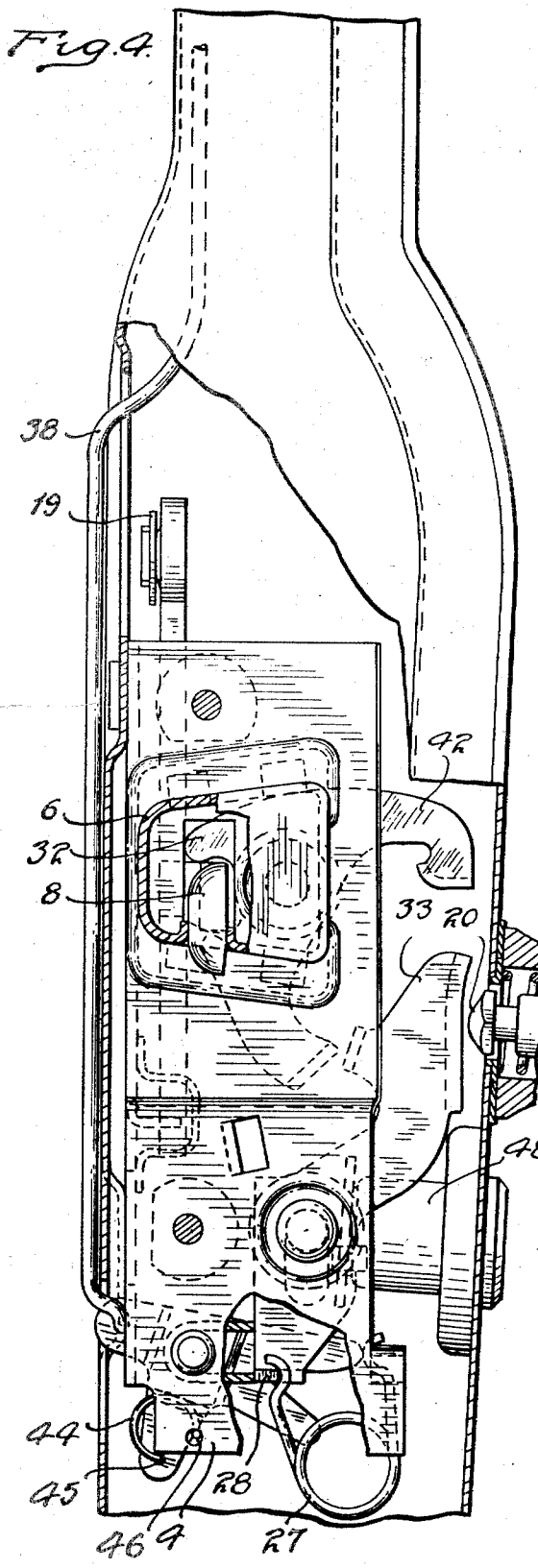
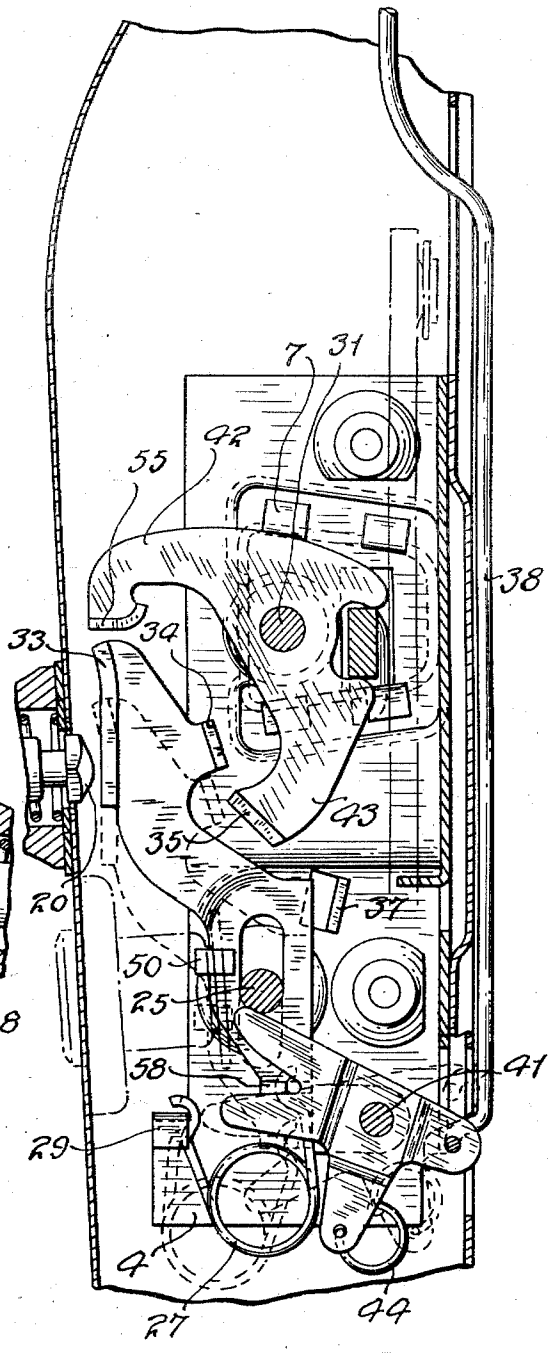


Fig. 8.



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Fig. 5.

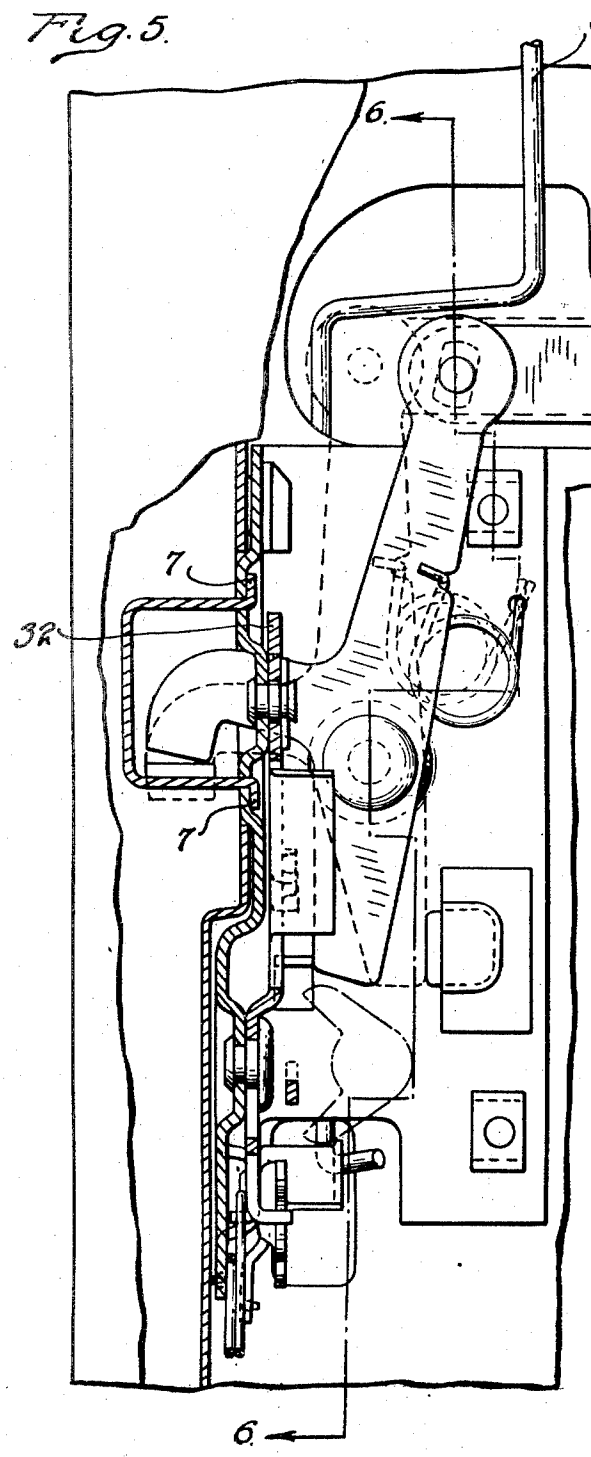
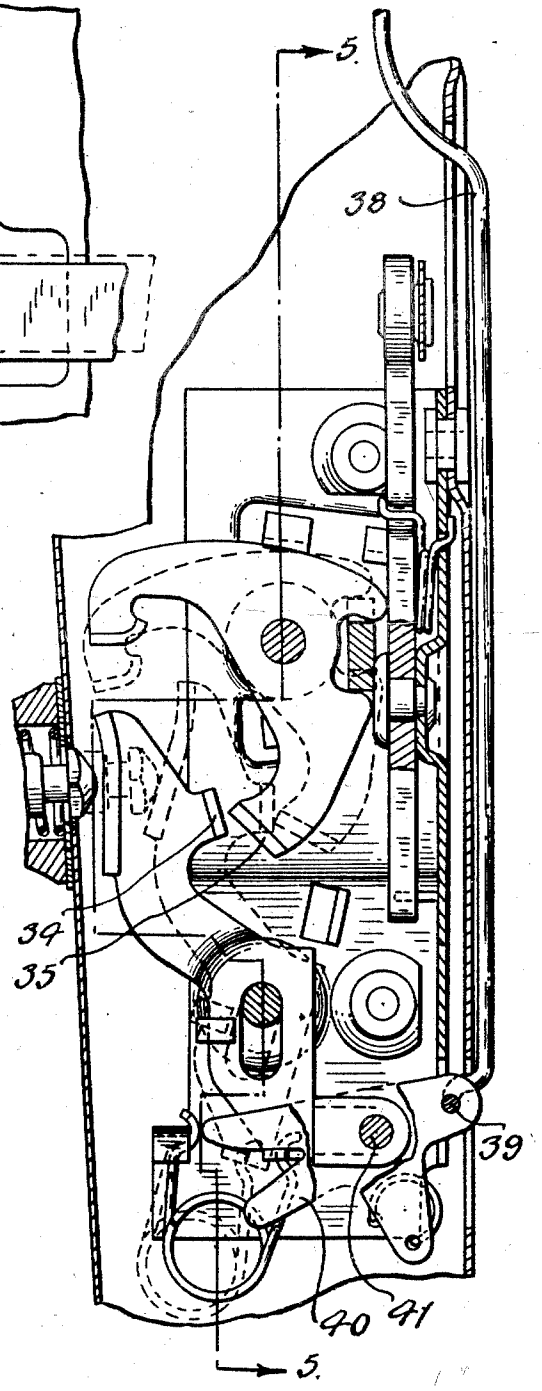


Fig. 6.



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Fig. 7.

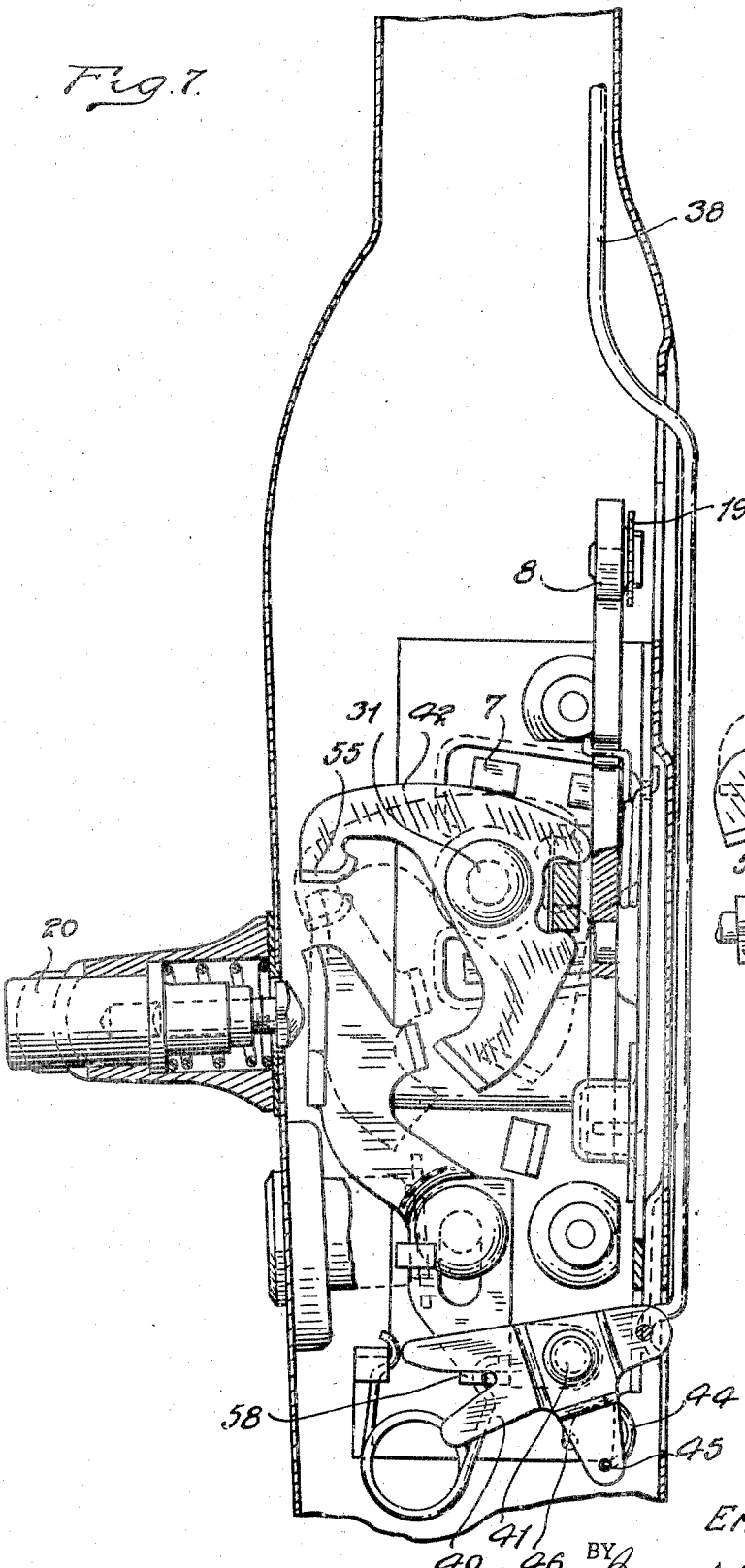
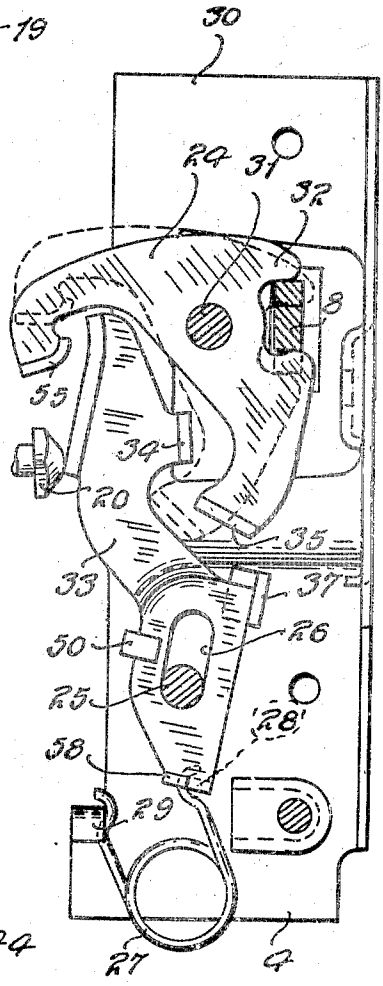


Fig. 9.



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Patented Mar. 11, 1941 2,234,810

UNITED STATES PATENT OFFICE

2,234,810

DOOR LOCK

Emory Glenn Simpson, Detroit, Mich., assignor to Ternstedt Manufacturing Company, Detroit, Mich., a corporation of Michigan

Application January 3, 1939, Serial No. 248,949

3 Claims. (Cl. 292—221)

This invention relates to a door lock and is more particularly concerned with a combined door lock and dovetail.

A combination door lock and dovetail is not new, see the patent to Streberger, Patent No. 987,651, March 21, 1911. It is the object of this invention to improve upon the general type of combined door lock and dovetail shown in this Streberger patent. More particularly the invention contemplates a combined door lock and dovetail in which the bolt is retracted from without the door by means of a push button and in which a simple arrangement is provided for disconnecting the push button from the bolt so that the door can be locked either with or without a key.

In the drawings:

Fig. 1 is an inside fragmentary view of a vehicle door with portions broken away showing the combined door lock and dovetail assembled to the the door.

Fig. 2 is a section along the line 2—2 of Fig. 1 which also shows the combined latch striker and dovetail socket member adapted to be mounted upon the body jamb pillar.

Fig. 3 is a section along the line 3—3 of Fig. 1.

Fig. 4 is a fragmentary view partly in section looking at the door lock pillar face with part of the pillar broken away to show the position of the door lock in the door.

Fig. 5 is a vertical section through the door lock and door lock pillar to which the lock is assembled taken along the line 5—5 of Fig. 6.

Fig. 6 is a vertical section along the line 6—6 of Fig. 5.

Fig. 7 is a view similar to Fig. 6 showing the position of the retractor when the latch bolt is projected and the outside push button is effective to retract the bolt.

Fig. 8 is a view similar to Fig. 7 showing in full lines the position of the lock parts when the outside push button is ineffective to retract the bolt.

Fig. 9 is a detail showing of the rollback and shiftable connector between the rollback and push button.

Fig. 10 is a fragmentary horizontal section through the door, outside door handle and push button.

Referring more particularly to the drawings there is shown a vehicle door 1 having a door lock pillar 2 and a fixed outside door handle 3. The lock is mounted on an angular frame 4 which is secured by screws 5 to the inner face of the door lock pillar 2. The male or wedge member 6 of the dovetail takes the form of a hollow metal stamping secured to the lock frame 4 by a plurality of integral lugs 7 which pass through openings in the lock frame and are clinched over as shown in Fig. 5.

The latch is provided with a bolt member 8 pivoted to the latch frame 4 by pin 9. The latch bolt 8 projects through an opening 10 in the dovetail wedge member 6.

When the door is closed the male member 6 of the dovetail interengages the shoe members 11 and 12 of the dovetail socket member which is adapted to be mounted on the body jamb pillar. The lower shoe member 12 is provided with steps 13 behind which the bolt head interengages when the door is closed. The bolt 8 is held in projected position by the spring 14, one end of which is secured to the latch frame as at 15 and the other end of which engages the bolt as at 16. A rubber bumper block 17 is carried in the cage 18 which is secured to the latch frame, Fig. 3. The lower end of the bolt 8 abuts the bumper 17 which insures quiet operation of the latch bolt.

The latch bolt is retracted from inside the door by the draft link 19. The latch bolt is retracted from without the door by means of a push button in the form of a plunger 20 which is slidably mounted in the cylindrical opening 21 in the fixed door handle 3. The push button 20 is normally held projected by the compression spring 22 which is also housed within the opening 21. In the retraction of the latch bolt the push button 20 operates through a connector 23 and rollback 24. The connector 23 is shiftably mounted on the selvage plate 30, i. e., that portion of the lock frame 4 which is secured along the inside face of the door lock pillar 2, by pin 25 which passes through the elongated opening 26 in the connector 23. The connector 23 is normally held against the inner end of the push button 20 by the spring 27, one end of which is secured to lug 28 on the lower end of the lever 23 and the other end of which abuts a lug 29 turned out of the latch frame 4.

The rollback 24 comprises a lever pivotally mounted on the selvage plate 30 of the lock frame by pin 31. The rollback 24 is provided with a yoke portion 32 which interengages the bolt 8. When the shiftable connector 23 is in lowered position so that the pin 25 supports the connector 23 in the top portion of the elongated slot 26, as shown in Fig. 6, then if the push button 20 is pressed inwardly it will act through flange 33 on the connector 23 to swing the connector 23 clockwise, as viewed in Fig. 6. As the connector swings clockwise, flange 34 on the connector 23 contacts flange 35 on the rollback 24 and swings the rollback counterclockwise thereby swinging the bolt to retracted position, as shown in full lines Fig. 5, to disengage the bolt from the keeper 12.

When it is desired to lock the lock, that is, render the push button 20 ineffective to retract the bolt 8, then it is only necessary to shift the connector 23 upwardly to the position shown in

Fig. 9 whereupon the pin 25 engages the connector 23 in the lower portion of the elongated slot 26. The connector can be raised from within the body by the push and pull rod 38, the lower end of which is connected as at 39 to a yoke 40 which is pivotally mounted by pin 41 on the selvage plate 30. The yoke 40 straddles the lug 58 which is turned outwardly from the connector 23. When the push rod 38 is moved downwardly to the position shown in Fig. 8, then the connector 23 is raised so that flange 34 is offset from flange 35 on the rollback. If the push button 20 is now pressed inwardly, then connector 23 is rotated clockwise until it abuts the stop lug 37 struck out of selvage plate 30, but since flange 34 is offset from flange 35 the rollback 24 is not rotated and the upper portion of the connector 23, including the lug portion 36, merely swings idly between arms 42 and 43 of the rollback 24.

If the rod 38 is raised to the position shown in Fig. 6, then the connector 23 is again lowered into operative position where it operatively connects the rollback 24 with the push button 20. The yoke 40 is yieldably held in each of its positions by the snap over-center spring 44 one end of which is secured to the yoke as at 45 and the other end of which is secured to the selvage plate 30 as at 46.

The connector plate 23 can be raised and lowered from without the door by a double armed pawl 47 which is rotatably supported on the inner end of the cylinder plug 48 which is journaled in the plug casing 49 of any conventional key controlled cylinder lock. The housing 49 is supported on the outer panel of the door. The pawl 47 straddles a lug 59 turned outwardly from the connector 23. Pawl 47 can be turned counterclockwise, as viewed in Fig. 1, by means of a key from without the door to raise the connector 23 and thereby render the push button 20 ineffective to retract the bolt and the pawl 47 can be turned clockwise, as viewed in Fig. 1, to lower the connector 23 and thereby render the push button effective to retract the bolt.

If, while the door is closed, the rod 38 is lowered to raise the connector 23 to the position shown in Fig. 9 so that the outside push button 20 is ineffective to retract the bolt, then the door cannot be opened without automatically returning the connector 23 to lowered position. This is achieved as follows: When draft link 10 is retracted to swing bolt 8 and release the same from the striker 12, then rollback 24 is rotated counterclockwise, Fig. 8. At this time flange 55 on arm 42 contacts the upper end of the connector 23 and depresses the same to lowered position, as indicated in the dotted lines Fig. 8.

Locking of the door without the use of a key may be effected as follows: While the door is open the rod 38 is lowered which through yoke 40 raises the connector to raised position, as shown in Fig. 8. The operator now presses inwardly on push button 20 which swings the connector 23 clockwise into contact with lug 37, as shown in Fig. 9. While maintaining the push button 20 pressed inwardly, the door is now closed. As the latch bolt rides over the striker 12 it acts to swing the rollback 24 from the dotted line position shown in Fig. 9 to the full line position, but since the flange 55 on the arm 42 is now offset from the upper end of the connector 23 the flange 55 swings idly by the connector and the connector 23 remains in raised position. As soon as the door is closed the bolt 8 swings into projected position and thereby again raises the rollback 24 to the dotted line position shown in Fig. 9 and the door lock is now locked, i. e., push button 20 is ineffective to retract the bolt.

The retractor is herein referred to as "set" when it is in lowered position, shown in full lines Fig. 6, so that the push button upon being depressed will act through the retractor and rollback to retract the bolt. The retractor is herein referred to as "released" when it is in raised position, as shown in full lines Fig. 8, so that depressing of the push button causes lug 36 to swing idly between arms 43 and 42 of the rollback and the push button is ineffective to retract the bolt.

I claim:

1. A door lock comprising a lock frame, a retractable bolt adapted to be retracted by a striker plate in the closing of the door, a rollback for said bolt, a positive connection between the rollback and the bolt whereby retraction of the bolt by the striker plate swings the rollback, a push button, and a shiftable connector between said push button and said rollback shiftable into set and released positions, said shiftable connector when released lying in the path of movement of the rollback whereby in the closing of the door the latch bolt upon being retracted acts through the rollback to shift the retractor to set position and thereby render the push button effective to retract the bolt.

2. A door lock comprising a lock frame, a retractable bolt adapted to be retracted by a striker plate in the closing of the door, a rollback having a plurality of arms, a positive connection between the rollback and the bolt whereby retraction of the bolt by the striker plate swings the rollback, a push button, and a shiftable connector between said push button and said rollback shiftable into set and released positions, said shiftable connector when released lying in the path of movement of the one arm of the rollback whereby in the closing of the door the latch bolt upon being retracted acts through the said arm of the rollback to shift the retractor to set position, said shiftable connector when in set position operatively connecting the push button and the other arm of the rollback whereby depressing of the push button acts through the connector and said other arm of the rollback to retract the bolt.

3. A door lock comprising a lock frame, a retractable bolt adapted to be retracted by a striker plate in the closing of the door, a rollback having a plurality of arms, a positive connection between the rollback and the bolt whereby retraction of the bolt by the striker plate swings the rollback, a push button, and a shiftable connector between said push button and said rollback shiftable into set and released positions, a pin and slot mounting for pivotally and shiftably mounting the connector on the latch frame, said shiftable connector when released lying in the path of movement of the one arm of the rollback whereby in the closing of the door the latch bolt upon being retracted acts through the rollback to shift the retractor to set position, said shiftable connector when in set position operatively connecting the push button and the rollback whereby depressing of the push button acts through the connector and rollback to retract the bolt, and resilient means for yieldably holding the connector in set and released positions.

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