Jan. 13, 1948. W. R. SCHLAGE 2,434,288

DOOR LOCK

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Fig. 1.

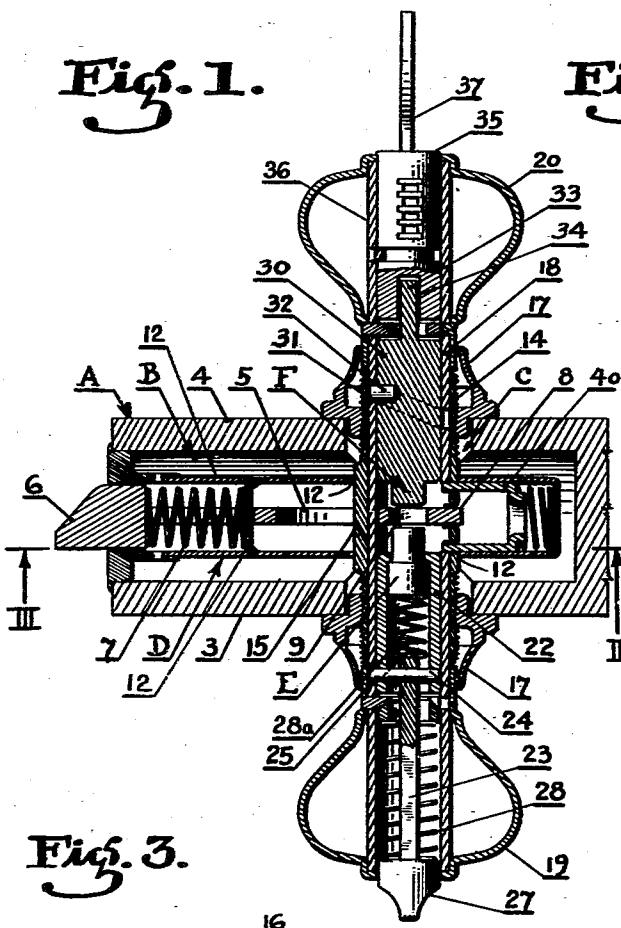


Fig. 2.

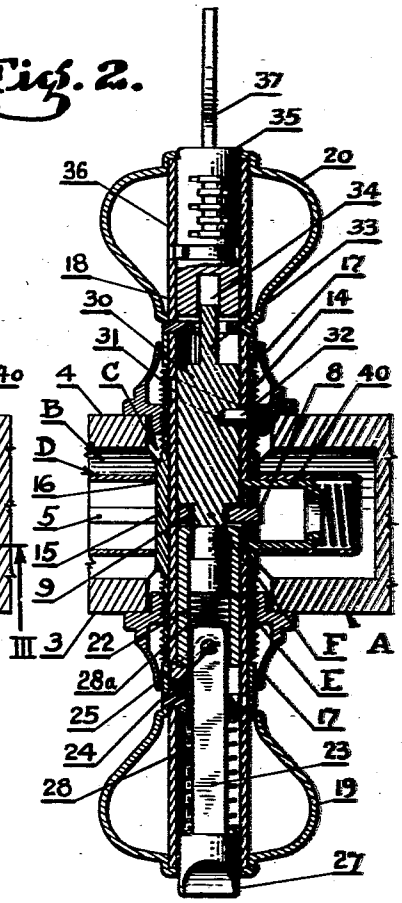
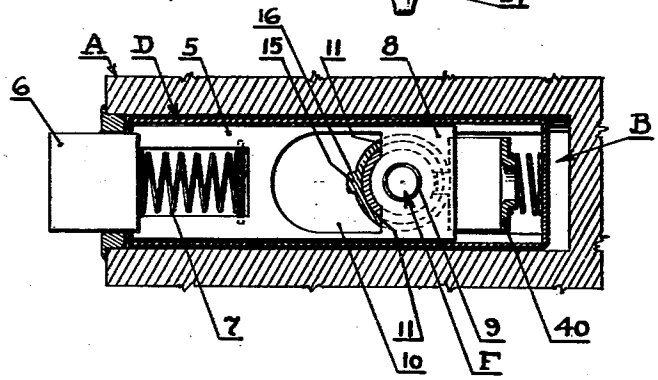


Fig. 3.



INVENTOR.
Walter R. Schlage.

BY

Thomas Eastberg.
ATTORNEY

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Fig. 4.

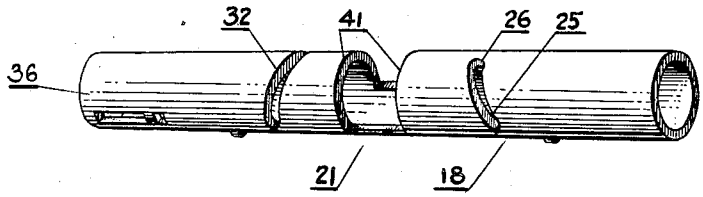


Fig. 5.

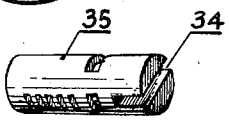


Fig. 6.

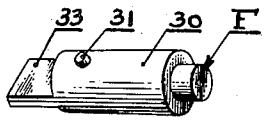


Fig. 7.

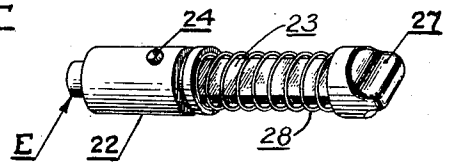


Fig. 8.

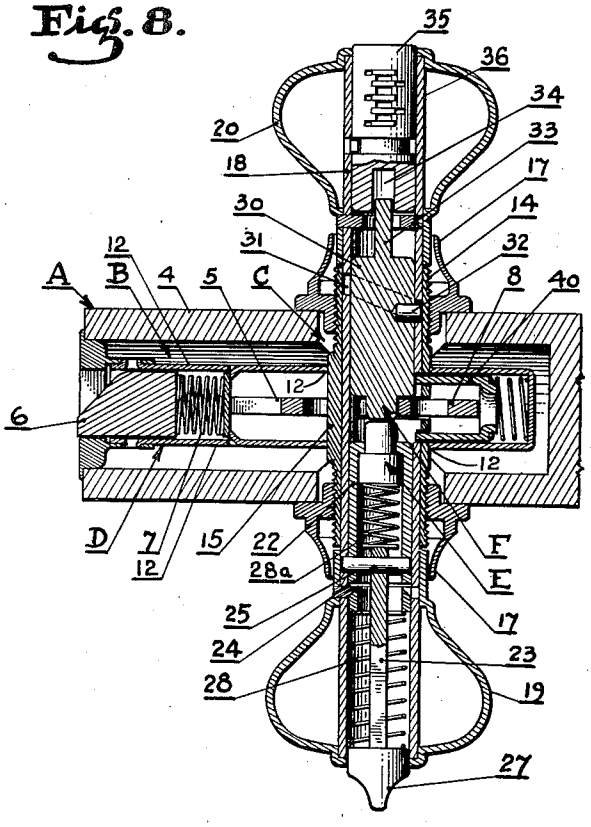
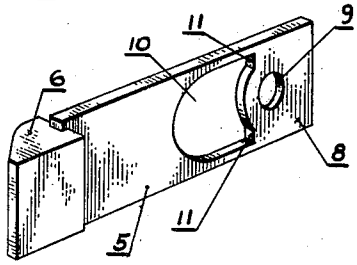


Fig. 9.



INVENTOR.
Walter R. Schlage.

BY

Thomas & Castberg.
ATTORNEY.

Patented Jan. 13, 1948

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UNITED STATES PATENT OFFICE

2,434,288

DOOR LOCK

Walter R. Schlage, Burlingame, Calif.; Anna Schlage, executrix of said Walter R. Schlage, deceased, assignor to Schlage Lock Company, San Francisco, Calif., a corporation of California

Application May 27, 1944, Serial No. 537,643.

4 Claims. (Cl. 70—150).

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This invention relates to door locks and especially to that type known as intercommunicating door locks.

The object of the present invention is generally to improve and simplify the construction and operation of locks of the character described; to provide a door lock in which the latch bolt may be dogged against operation either in its extended or retracted position; to provide means operable from either side of the door for rendering the dogging mechanism operative or inoperative; to provide a door lock in which there are two independently operative dogging members, one operable from one side of the door and one from the other side, said dogging members being engageable with a keeper forming a part of a retractor plate which actuates the latch bolt and said keeper when engaged by either dog dogging the latch bolt either in its extended or retracted position; to provide a dogging mechanism which is not only capable of dogging the latch bolt in its extended or retracted position but which is also capable of rendering the spindle inoperative; to provide a door lock having two dogging members which are operable to dog the latch bolt either in a projected or retracted position, one of said dogging members being spring actuated and the other positively actuated; and further, to provide a door lock in which the dogging members may be either key or manually actuated or both.

The invention is shown by way of illustration in the accompanying drawings, in which

Fig. 1 is a horizontal section of the door lock showing it in position in a door, said view showing the dogging members in retracted position;

Fig. 2 is a view similar to Fig. 1 showing one dogging member in dogging position and the other dogging member in position to be projected into the keeper when the other dog is retracted;

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

Fig. 4 is a perspective view of the spindle;

Fig. 5 is a perspective view of the key actuated cylinder;

Fig. 6 is a perspective view of the dogging member which is actuated by the key mechanism;

Fig. 7 is a perspective view of the resiliently mounted dogging member and the push button whereby it is actuated;

Fig. 8 is a view similar to Fig. 1 showing the latch bolt dogged in its retracted position; and

Fig. 9 is a perspective view of the retractor plate and the latch bolt secured thereto.

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Referring to the drawings in detail, and particularly Figs. 1, 2 and 3, A indicates a portion of a door in which are bored, or otherwise formed, two holes indicated at B and C. The hole B is bored from the outer edge and is disposed centrally of and parallel to the inner and outer faces of the door indicated at 3 and 4. The hole C is bored on the same plane and at right angles to hole B and opens through the inner and outer faces of the door. Insertable in hole B is a latch bolt housing generally indicated at D and mounted in the housing is a retractor plate 5 on the outer end of which is secured a latch bolt 6 which is normally maintained in projected position by means of a spring 7. The rear end 8 of the retractor plate has a hole 9 formed therein and as such functions as a keeper for one or another of a pair of dogging members hereinafter to be described. An elongated opening 10 is also formed in the retractor plate and at the rear end of the opening are a pair of shoulders 11—11 which cooperate with a roll-back member hereinafter to be described.

Extending through the transverse opening C and through openings formed in the side walls 12—12 of the latch bolt housing in a spindle receiving and supporting housing 14. The spindle housing is tubular in form, it has a key or rib 15 formed on its exterior midway of its length and this rib engages notches 16 formed in the side walls 12—12 of the latch bolt housing (see Fig. 3), thereby securing the spindle housing against rotation with relation to the latch bolt housing when inserted and the spindle housing in turn securing the latch bolt housing against removal from the hole B. The spindle housing is secured against endwise removal from hole C by threading its opposite ends and applying escutcheon plates 17—17.

Extending through and journalled in the spindle housing and the escutcheon plates is a tubular spindle 18, see Figs. 1, 2, 4 and 8, and secured on one end thereof is an inner door knob 19 and on the other end an outer knob 20. The spindle is cut away midway of its length to form a roll-back member 21 which engages the shoulders 11—11 formed on the retractor plate, hence, by rotating the spindle by means of either of the knobs 19 or 20, the roll-back member will engage one or another of the shoulders 11 and cause retraction of the retractor plate and the latch bolt 6 secured thereto and spring 7 will automatically project the retractor plate and latch bolt and restore the spindle and knobs to normal position when the knob is released. The

lock mechanism so far described may be employed for various purposes, but is in this instance intended for use in intercommunicating doors, and as this is the case means are provided for dogging the retractor plate and latch bolt against operation from either or both sides of the door. Two dogging members indicated at E and F are employed. They are both mounted within the spindle and either of them may be projected into engagement with the keeper to dog the latch bolt against operation or both may assume a retracted position if it is desired to open the door from either side.

The dog E is mounted within a sleeve **22**, see Figs. 1, 2 and 7. A flat bar **23** enters the outer end of the sleeve and is secured to the sleeve by a cross-pin **24**. One end of the pin projects into a cam-shaped slot **25** formed in the spindle and this slot terminates in a seat **26**, see Fig. 4. A combination push and turn button having a finger piece **27** formed at its end is secured to the outer end of the bar **23** and normally assumes the position shown in Fig. 1 as a spring **28** is interposed between the button and the sleeve. However, by grasping the button and pushing it inwardly with a partial rotary movement until the pin **24** seats in the recess **26** formed at the inner end of slot **25**, sleeve **22** will be moved from the position shown in Fig. 1 to that shown in Fig. 2 and if dog F assumes the retracted position shown in Fig. 1 dog E will enter the keeper and dog the latch bolt **6** against operation. On the other hand, if dog F assumes the dogging position shown in Fig. 2, dog E will merely recede within sleeve **22** and will automatically be projected into engagement with the keeper at the moment dog F is retracted as it is actuated by a spring **28***a*.

To render dog E inoperative it is only necessary to grasp button **27** and rotate it to position the cross pin at the outer end of slot **25** or to assume the position shown in Fig. 1.

The operation of the dog F is similar but differs in that it is key actuated. The dog F is formed on the inner end of a plug **30**, see Figs. 1, 2 and 6. This plug carries a pin **31** and that projects into a cam-shaped slot **32** identical in shape to the slot **25** previously described. The outer end of the plug terminates in a blade **33** and this projects into a slot **34** formed in the inner end of a cylinder **35** which is mounted in a housing **36**. A pin tumbler type of key actuated lock is shown in which **36** is the housing and **35** the cylinder into which the key **37** is inserted. When the key is inserted the tumblers part and the core or cylinder **35** may then be rotated and when it is rotated it obviously rotates the plug **30** due to its engagement with the blade **33**. The rotation imparted is of course limited by the length of the slot **32** and when the pin **31** reaches the inner end thereof plug F will be projected and will extend through the opening **9** formed in the keeper.

In other words, it will assume the position shown in Fig. 2 and the latch bolt will accordingly be dogged in its extended position. It may also be dogged in its retracted position as shown in Fig. 8.

By key actuation dog F may be retracted or projected at will. Similarly, the dog E may be projected or retracted through means of the button **27**, thus the latch bolt **6** may be dogged against operation from either one side or the other of the door, and, in fact, both dogs may be moved to dogging position as shown in Fig. 2. For instance, when the dog E is moved from the position shown in Fig. 1 to that shown in Fig. 2 it will recede within its sleeve if dog F assumes the position shown in Fig. 2. On the other hand, it will obviously project into the opening of the keeper if dog F is retracted. If dog F assumes the position shown in Fig. 2 and the sleeve of the dog E is moved inwardly, dog E will obviously recede, hence, if dog F is released or retracted dog E will automatically project into engagement with the keeper and the latch bolt will still remain dogged so that a person located on the key actuated side of the lock cannot open the door except when the dog E is moved to retracted position.

An anchor member is generally indicated at **40**. The inner end of this member extends into the cutaway portion of the spindle and engages shoulders **41**—**41** formed by the cutaway portion. Its only function is that of securing the spindle against endwise removal from the spindle housing. This feature forms no part of the present invention and is therefore neither claimed nor specifically described, and while this and other features of the invention are more or less specifically illustrated, I nevertheless wish it understood that various changes in form and proportion may be resorted to within the scope of the appended claims; similarly that the materials and finish of the several parts employed may be such as the experience and judgment of the manufacturer may dictate or varying uses may demand.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In a door lock, a retractor plate, a latch bolt secured to the retractor plate, a spindle cooperating with the retractor plate to retract the latch bolt, a keeper on the retractor plate, a pair of dogs within the spindle one on each side of the keeper, one of said dogs being resiliently mounted, means for moving the other dog into engagement with the keeper to dog the latch bolt in its extended position, and means for moving the resiliently mounted dog into engagement with the dog which engages the keeper so that the resiliently mounted dog may be outwardly projected into engagement with the keeper when the other dog is disengaged from the keeper.

2. In a door lock, a retractor plate, a latch bolt secured to the retractor plate, a spindle cooperating with the retractor plate to retract the latch bolt, a keeper on the retractor plate, a pair of dogs within the spindle one on each side of the keeper, a sleeve within the spindle in which one dog is resiliently mounted, means for moving the other dog into engagement with the keeper to dog the latch bolt in its extended position, and means for moving the sleeve with the resiliently mounted dog therein into engagement with the dog which engages the keeper so that the resiliently mounted dog may be automatically projected into engagement with the keeper when the other dog is disengaged from the keeper.

3. In a door lock, a retractor plate, a latch bolt secured to the retractor plate, a spindle cooperating with the retractor plate to retract the latch bolt, a keeper on the retractor plate, a pair of dogs within the spindle, one on each side of the keeper, one of said dogs being resiliently mounted, means for moving the other dog into engagement with the keeper to dog the latch bolt in its extended position, means for moving the resiliently mounted dog into engagement with the dog which engages the keeper so that the resiliently mounted dog may be outwardly projected into engagement with the keeper when the other dog is disengaged from the keeper, and means for rendering the

resiliently mounted dog inoperative to engage the keeper.

4. In a door lock, a retractor plate, a latch bolt secured to the retractor plate, a spindle cooperating with the retractor plate to retract the latch bolt, a keeper on the retractor plate, a pair of dogs within the spindle, one on each side of the keeper, a sleeve within the spindle in which one dog is resiliently mounted, means for moving the other dog into engagement with the keeper to dog the latch bolt in its extended position, and means for moving the sleeve with the resiliently mounted dog therein into engagement with the dog which engages the keeper so that the resiliently mounted dog may be automatically projected into engagement with the keeper when the other dog is disengaged from the keeper, said means also adapted

to maintain the sleeve with the resiliently mounted dog therein in a retracted position where the resiliently mounted dog is rendered inoperative.

WALTER R. SCHLAGE.

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