

May 22, 1923.

1,456,041

W. R. SCHLAGE

DOOR LOCK

Filed April 12, 1920

2 Sheets-Sheet 1

Fig. 1.

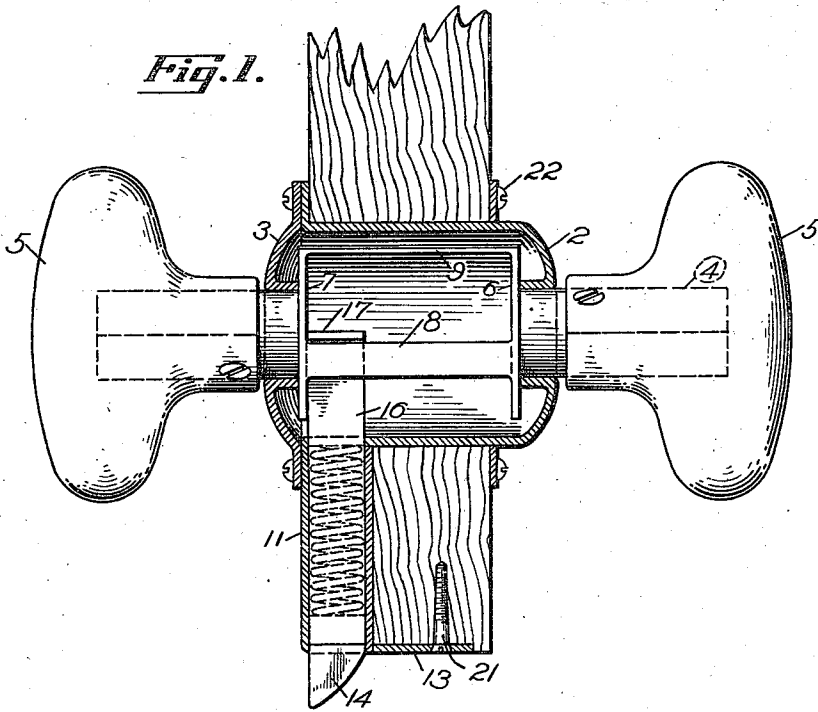
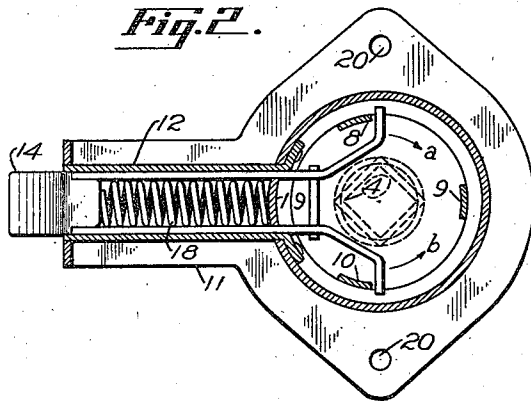


Fig. 2.



INVENTOR
WALTER R. SCHLAGE.

BY *Chas. E. Freund*

ATTORNEY

May 22, 1923.

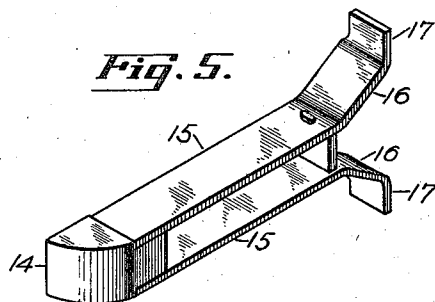
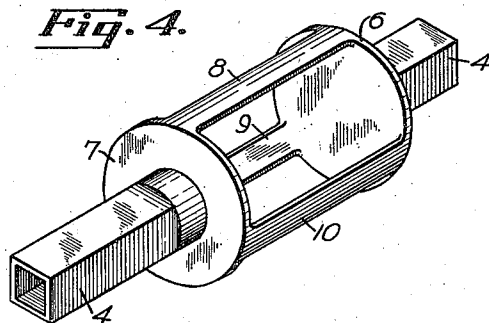
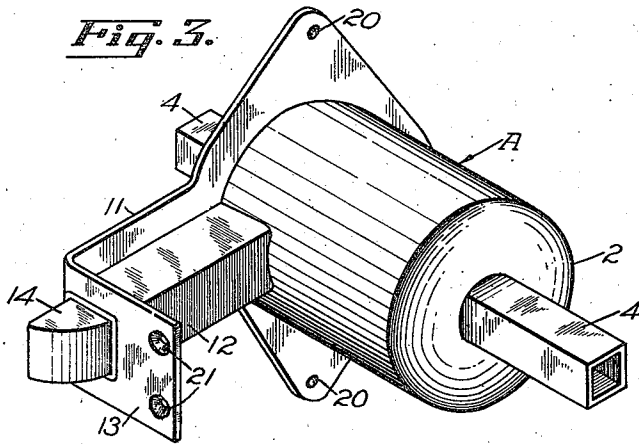
1,456,041

W. R. SCHLAGE

DOOR LOCK

Filed April 12, 1920

2 Sheets-Sheet 2



INVENTOR
WALTER R. SCHLAGE.

BY
Chas E. Townsend
ATTORNEY

UNITED STATES PATENT OFFICE.

WALTER R. SCHLAGE, OF BERKELEY, CALIFORNIA, ASSIGNOR TO SCHLAGE MANUFACTURING COMPANY, OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF CALIFORNIA.

DOOR LOCK.

Application filed April 12, 1920. Serial No. 373,042.

To all whom it may concern:

Be it known that I, WALTER R. SCHLAGE, a citizen of the United States, residing at Berkeley, in the county of Alameda and State of California, have invented a new and useful Improvement in Door Locks, of which the following is a specification.

This invention relates to a lock and especially to a lock adapted for closet and bath room doors and the like.

One of the objects of the present invention is to provide a simple, substantial, cheaply manufactured lock for closet, bath room, bed room and like doors, and particularly a lock employing a unit housing which contains the entire lock mechanism and which may be readily installed without cutting away an excess of the woodwork or otherwise weakening the door structure.

Another object of the invention is to provide a lock which requires a minimum of fitting and adjustment when installed and which will fit practically any standard door even though the thickness of the same may vary considerably.

Another object of the invention is to provide a lock housing which is cylindrical in cross section and which is secured to the door from one side only; further to provide a latch projecting and retracting spindle which is permanently supported in fixed journals in opposite ends of the lock housing, thereby permitting the use of spindles of fixed length and eliminating the necessity of adjusting the knobs.

Further objects will hereinafter appear.

The invention consists of the parts and the construction, combination and arrangement of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Fig. 1 is a central plan section showing the lock applied to the door.

Fig. 2 is a vertical cross section of the lock taken on line 2—2, Fig. 3.

Fig. 3 is a perspective view of the lock showing the knobs removed.

Fig. 4 is a perspective view of the lock spindle and barrel.

Fig. 5 is a perspective view of the latch.

Referring to the drawings in detail, A indicates a lock housing of unit construction. This housing is cylindrical in cross section and elongated as shown. One end of the housing is closed by an end plate 2,

and the opposite end by an escutcheon plate 3. Extending through the plates 2 and 3 is a knob supporting spindle 4, on the opposite ends of which are suitably secured knobs 5. Formed on the central portion of the spindle is a spindle barrel consisting of a pair of plates 6 and 7, which are connected by means of three or more arms 8, 9 and 10. The spindle barrel is provided for the purpose of retracting the latch, generally shown in Figs. 1, 2 and 5, and the connecting arms 8 and 10 are employed for this purpose as will later be described.

The escutcheon plate 3 is suitably secured to the cylindrical lock housing A and one side of the same is extended as at 11 to form a support for a latch housing 12, and for a latch plate 13. This plate is formed integral with the extension 11 and a latch 14 projects therethrough. The latch is otherwise guided by the housing 12 and is retracted by means of the spindle barrel or the arms 9 and 10 carried thereby. The latch 14 is provided with a channel shaped extension 15 and a pair of angularly disposed arms 16 which terminate in hook-like projections 17. These projections are engaged by the arms 9 and 10 and turning movement transmitted to the spindle 4 and the barrel carried thereby will therefore retract the latch regardless of whether the spindle is turned in one direction or another. For instance if the spindle is turned in the direction of arrow *a* (see Fig. 2) arm 9 will engage one of the hook-like projections and thereby retract the latch, while if movement is transmitted to the spindle and barrel in the direction of arrow *b*, the opposite arm 10 will engage one of the hook-like projections and thereby retract the latch. The latch is under all conditions normally projected by means of a spring 18 disposed within the channel member 15 and interposed between the latch 14 and a stop member 19 formed in the lock housing.

The entire mechanism consists of the cylindrical housing A, the spindle 4, upon which is formed the barrel, the latch 14 with its extending arms 16 and the spring 18. The mechanism is therefore exceedingly simple in view of the fact that comparatively few parts are employed, and also in view of the fact that all parts are positively inclosed and compactly arranged.

The lock proper when applied is installed

in the following manner: A hole is first drilled through the door with an auger or suitable tool, the hole being of a diameter which will permit the cylindrical casing A to fit snugly therein. The inner face of the door is then channeled to receive the housing 12 and the entire operation is thus completed. The lock is next applied by inserting the cylindrical housing and forcing it inwardly until the escutcheon plate 3 engages the face of the door. It is here secured by screws passing through openings 20 and a second set of screws passing through openings 21 formed in the latch plate. The lock housing A is always sufficiently long to project a slight distance through the opposite side of the door and it is therefore desirable to employ a finishing escutcheon plate which is merely employed for appearances. This plate is similar in shape to that indicated at 3 and is applied by slipping it endwise over the lock housing as indicated at 22, it being here secured by screws or similar means. The escutcheon plate 22 in no way secures the lock as removal of the screws passing through the openings 20 and 21 permits the entire mechanism to be removed, and its use is therefore only ornamental.

The present lock is exceedingly simple and compact in construction and embodies several novel features, first a unit housing cylindrical in cross section and adapted to contain the entire lock mechanism. Second, a lock housing in which the spindle is journaled in permanent bearings formed at each end thereof, that is in the plates 2 and 3. Third a spindle which is locked against endwise movement with relation to the fixed plates 2 and 3, due to the fact that the discs 6 and 7 of the spindle barrel are of larger diameter than the openings through which the spindle proper projects. Fourth, a lock housing which is adapted to be secured from one side only. Fifth, a lock housing which may be installed without cutting away an excess of the wood work or otherwise weakening the door structure, and which may be applied with a minimum of adjustment and fitting. Sixth, a lock which is adapted to fit practically any standard door even though the thickness of the same may vary considerably; this being due to the fact that the length of the cylindrical lock housing is such that it will project through the thickest possible door and will consequently project through a greater distance where thinner doors are employed. This however does not mar the appearance of the lock, nor does it in any way affect the operation of the same. Seventh, adjustment of the knobs is eliminated due to the fact that the spindle bearings are fixed in the housing proper and are never adjusted. The lock should therefore

be spoken of as a unit lock as it is completely assembled before installed and is in no way adjusted after installation.

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

1. In a lock of the character described a cylindrical shaped elongated housing open at one end and closed at the other, the closed end of said housing adapted to project through the door in which it is mounted, an escutcheon plate adapted to be secured to the door and form a closure for the open end of the housing, a second escutcheon plate slidable over a closed end of the housing and also adapted to be secured to the door, a spindle extending through the first named escutcheon plate and the closed end of the housing and journaled in said respective members, a latch carried by the housing, and means actuated by the spindle for retracting and extending the latch.

2. In a lock of the character described a cylindrical shaped elongated housing open at one end and closed at the other, said housing adapted to project through the door in which it is mounted, a latch housing forming an integral part of the cylindrical housing and disposed at right angles thereto, an escutcheon plate forming a closure for the open end of the cylindrical housing and the latch housing, one end of said plate being bent to also form a closure for the end of the latch housing, means for securing said plate to the face and to the end of the door, a latch slidably mounted in the latch housing, a spindle supported in the cylindrical housing, and means actuated by said spindle for retracting or extending the latch.

3. In a door lock of the character described a cylindrical shaped elongated housing closed at one end and open at the other, a latch housing substantially square in cross section disposed at right angles to the cylindrical shaped housing and forming an integral part thereof, an escutcheon plate adapted to form a cover for one side of the latch housing and the open end of the cylindrical housing, an escutcheon plate for the other side of the door slidable upon the closed end of the cylindrical housing, a spindle extending through the cylindrical housing and journaled at one end in the closed portion of the cylindrical housing and at the opposite end in the escutcheon plate forming a closure therefor, a latch slidable in the latch housing, and connecting means between the spindle and the latch.

4. In a lock of the character described a cylindrical shaped unit housing adapted to be secured to one side of the door and project through the opposite side of the door, said housing being open on the end by which it is secured to the door and closed at the

end which projects through the door, an escutcheon plate forming a closure for the open end of the housing, a second escutcheon plate slidable upon the closed end of the housing, independent means for securing each escutcheon plate, a spindle extending through the housing and one escutcheon plate, and a latch actuated thereby.

5. The combination with the cylindrical shaped elongated housing open at one end and closed at the other of a latch housing forming an integral part thereof, said latch housing being substantially square in cross section and disposed at right angles to the longitudinal axis of the cylindrical housing, said latch housing being open at one side and both ends, an escutcheon plate forming a closure for the open end of the cylindrical housing and also for one side and one end of the latch housing, a latch slidable in a latch housing and having one end projecting into the cylindrical housing, and a spindle supported by the cylindrical housing adapted to actuate the latch.

6. In a lock, a cylindrical-shaped, elongated housing, an escutcheon plate on one end of the housing supporting the same and adapted to secure the housing to a door, the opposite end of the housing projecting through the door, a plate forming a closure for the opposite end of the housing which projects through the door, a spindle extending through the housing and both plates and journaled in the plates, a latch carried by the housing, a pair of arms on the latch, a hook-like projection on each arm, and a pair of arms carried by the spindle engageable with the hook-like projections to retract the latch.

7. In a lock, a cylindrical-shaped, elongated housing, an escutcheon plate on one end of the housing supporting the same and adapted to secure the housing to a door, the opposite end of the housing projecting through the door, a plate forming a closure for the opposite end of the housing which projects through the door, a spindle extending through the housing and both plates and journaled in the plates, a latch carried by the housing, a pair of arms on the latch, a hook-like projection on each arm, a pair of arms carried by the spindle engageable with the hook-like projections to retract the latch, and a spring positioned between the arms, said spring being interposed between the latch proper and the lock housing and adapted to normally project the latch.

8. In a lock, a cylindrical-shaped, elongated housing, a pair of plates, one at each end thereof, enclosing the housing, one of said plates adapted to secure the lock to a door and said housing being sufficiently long to project through the opposite face of the door, a spindle projecting through the plates and the housing and journaled

therein, a pair of plates on the spindle within the housing securing the spindle against endwise movement, arms connecting said plates, a latch carried by the housing, and means on the latch engageable with the spindle arms.

9. In a lock, a cylindrical-shaped, elongated housing, a pair of plates, one at each end thereof, enclosing the housing, one of said plates adapted to secure the lock to a door and said housing being sufficiently long to project through the opposite face of the door, a spindle projecting through the plates and the housing and journaled therein, a pair of plates on the spindle within the housing securing the spindle against endwise movement, arms connecting said plates, a projection on the lock-securing plate, a latch plate on said projection, a latch housing secured to the latch plate and projection and communicating with the interior of the cylindrical housing, a latch slidably mounted in the latch housing and latch plate, a pair of projecting arms secured to the latch and extending through the latch housing, and hook-like projections on the inner ends of said arms engaging the spindle arms.

10. In a lock, a cylindrical-shaped, elongated housing, a pair of plates, one at each end thereof, enclosing the housing, one of said plates adapted to secure the lock to a door and said housing being sufficiently long to project through the opposite face of the door, a spindle projecting through the plates and the housing and journaled therein, a pair of plates on the spindle within the housing securing the spindle against endwise movement, arms connecting said plates, a projection on the lock-securing plate, a latch plate on said projection, a latch housing secured to the latch plate and projection and communicating with the interior of the cylindrical housing, a latch slidably mounted in the latch housing and latch plate, a pair of projecting arms secured to the latch and extending through the latch housing, hook-like projections on the inner ends of said arms engaging the spindle arms, and a spring interposed between the latch and the cylindrical housing.

11. In a lock of the character described, the combination with the cylindrical housing, of a pair of plates turnably mounted therein, arms connecting said plates, a spindle projection on each plate, a knob on each spindle projection, a latch, and means actuated by the spindle plate connecting arms for actuating the latch.

12. In a lock of the character described, the combination with the cylindrical housing, of a pair of plates turnably mounted therein, arms connecting said plates, a spindle projection on each plate, a knob on each spindle projection, a latch, a pair of arms on the latch, and a hook-shaped member on

the inner end of each arm engageable with the arms connecting the spindle plates.

13. In a lock, a housing having an open end, a latch housing integral therewith and having an open side, an escutcheon plate provided with an extension for closing the open end of the housing and the open side of the latch housing and means for securing the housing to a door.
14. In a lock, a housing having an open end, an escutcheon plate for closing the open end of the housing and having an extension

thereon, a latch casing integral with the housing, open on one side, and closed by the said extension, a latch, and means carried by the extension for guiding the latch.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WALTER R. SCHLAGE.

Witnesses:

W. W. HEALEY,
M. E. EWING.