J. H. SHAW.

INDICATOR LOCK.

APPLICATION FILED JULY 29, 1913.

1,152,443. Patented Sept. 7, 1915.

Fig. 1.

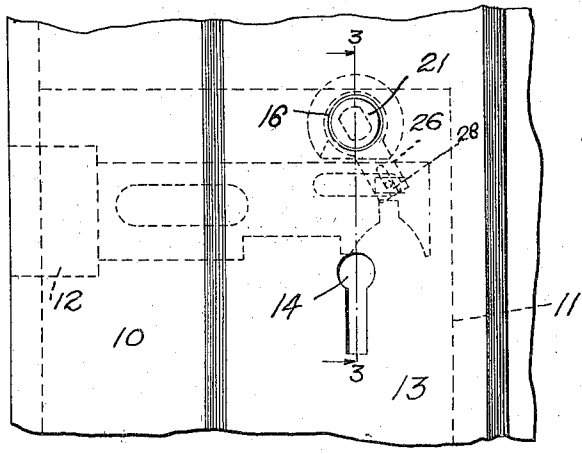


Fig. 3.

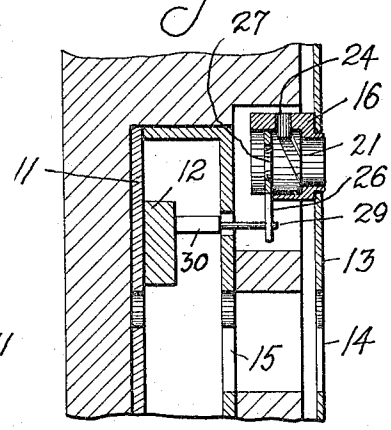


Fig. 2.

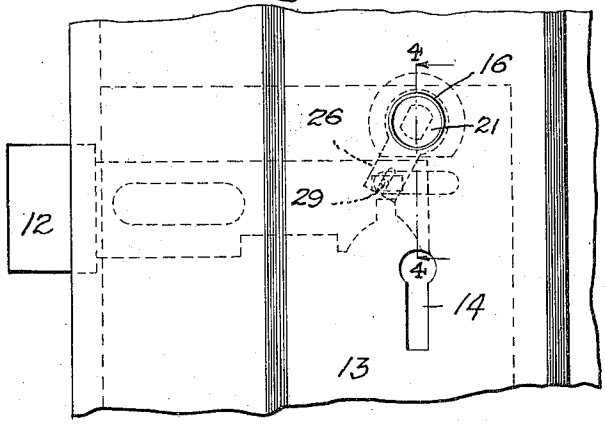


Fig. 4.

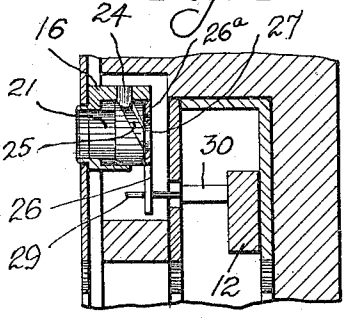


Fig. 8.

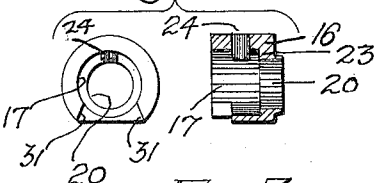


Fig. 6.

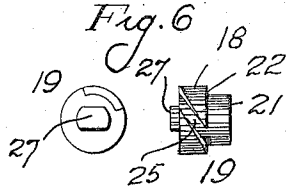


Fig. 5.

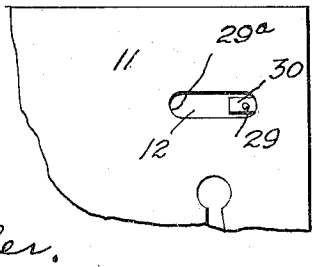
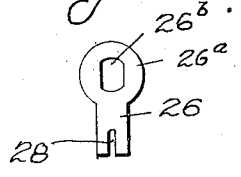


Fig. 7.



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UNITED STATES PATENT OFFICE.

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INDICATOR-LOCK.

1,152,443. Specification of Letters Patent. Patented Sept. 7, 1915.

Application filed July 29, 1913. Serial No. 781,800.

To all whom it may concern:

Be it known that I, JOHN H. SHAW, a citizen of the United States, residing in the city and county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Indicator-Locks, of which the following is a full, clear, and exact description.

This invention relates to locks which are furnished with means for indicating whether the door is locked or unlocked, and it refers more especially to a lock for hotel corridor doors having an indicator which can be read by feeling or touch as well as visually.

The indicating mechanism of my invention is particularly well adapted to indicate at a point on the outside escutcheon the position of the outside bolt in a two-bolt lock of the general type illustrated in Letters Patent No. 898,434 granted to Sargent & Company on September 15, 1908, as assignee of William J. Carroll. Nevertheless, certain features of my improvements may be used to advantage in other applications or connections.

The primary object of the invention is to provide simple, effective mechanism for translating the movements of the bolt into corresponding movements, in a direction depthwise of the door, of an indicating member or plunger associated with the outside escutcheon.

To this and other ends, the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawing: Figure 1 is a fragmentary outside elevation of a door equipped with an indicator lock embodying my invention, showing the bolt in its retracted position, Fig. 2 is a similar view showing the bolt in its protracted position, Fig. 3 is a section on line 3—3 of Fig. 1, looking in the direction of the arrows, Fig. 4 is a section on line 4—4 of Fig. 2, looking in the direction of the arrows, Fig. 5 is a fragmentary view of the lock case, Fig. 6 is a detail of the indicating member or plunger, Fig. 7 is a detail of the plunger arm or crank, and Fig. 8 is a detail of the bushing or housing in which the plunger is mounted.

Referring to the drawing, the door 10 is shown equipped with a mortise lock 11 having a dead bolt 12. This lock is not shown in detail but the bolt 12 may be the outside bolt of a two-bolt lock constructed in accordance with Patent No. 898,434 mentioned above. The outside escutcheon 13 is provided with a keyhole 14 for the insertion into the keyhole 15 of the lock case of a key adapted to operate the bolt 12 in the usual manner.

Mounted in the outside escutcheon 13 at a point adjacent the bolt 12 is a bushing or housing 16, shown in detail in Fig. 8. This bushing is provided with a large bore 17 at the rear part adapted to receive the cylindrical body portion 18 of an indicating member or plunger 19, shown in detail in Fig. 6. The bushing 16 is provided at the forward end with a smaller bore 20 adapted to receive a cylindrical extension 21 on the plunger 19. The junction of the body portion 18 of the plunger with the extension 21 forms a shoulder 22 adapted to coöperate with a corresponding shoulder 23 of the bushing formed at the junction of the large bore 17 with the smaller bore 20, whereby the forward movement of the plunger relative to the escutcheon is limited. A pin 24 driven into the side wall of the bore 17 fits an inclined groove 25 in the body portion of the plunger in such a manner that as the plunger is turned on its axis, it will be advanced or retracted in the bushing with reference to the outer face of the escutcheon. This turning movement of the plunger is imparted to the same by means of an arm or crank 26 on the plunger suitably connected to the bolt. In the form shown, the arm 26 has a head 26^a provided with an opening 26^b adapted to fit non-rotatively a projection 27 on the rear end of the plunger. The free end of the arm 26 is provided with a forked or slotted portion 28 adapted to fit slidably on a pin 29 carried by a tumbler stump 30 or other projection on or actuated by the bolt 12. The oscillatory movement of the arm 26 is limited in both directions by stop surfaces 31 at the lower part of the socket which surfaces are formed by cutting away the plunger socket to a certain extent at its lower portion. In other words, the plunger socket

extends over the arm 26 to such an extent as to limit the oscillating movement of said arm. In the form shown, the parts are so arranged and constructed that when the arm 26 is at one limit of its movement, the portion 21 of the plunger 19 has its outer end substantially flush with the outer surface of the escutcheon, while when the arm 26 is at the other limit of its movement, said portion 21 of the plunger will be retracted from the outer escutcheon face to such an extent as to create what is in effect a depression in the escutcheon, as shown in Fig. 4. The pin 29 extends out of the lock case through a clearance opening 29ª, as shown in Fig. 5, and is arranged parallel to the axis of the bushing.

The operation of the lock is substantially as follows: In the position shown in Fig. 1, the bolt 12 is retracted and the indicating plunger is substantially flush with the outer escutcheon surface, as previously described. Any one familiar with the operation of the particular lock shown in the drawing, will know from this position of the plunger that the bolt 12 is retracted. As the bolt is protracted by the key, the pin 29 will move with the bolt in a straight line and will swing the arm 26 in such a direction as to withdraw the plunger from the outer face of the escutcheon, as previously described, owing to the engagement of the pin 24 with the oblique groove 25 of the plunger. In this operation the forked or slotted portion 28 of the lever 26 permits such lever to slide along the pin 29 to a certain extent, as will be understood. Any one familiar with the operation of this particular lock will be advised by the retracted position of the plunger that the bolt 12 has been protracted. When the corridor is dark or poorly lighted, the chambermaid may readily determine the position of the plunger by feeling the escutcheon or to be more exact, by placing her thumb or finger over the mouth of the bushing or housing 16. If the mouth of the bushing is filled up the bolt 12 is retracted, and if the finger encounters an opening or depression at the mouth of the bushing, the bolt is in its protracted position.

Of course, I do not limit myself to a construction in which the substantially flush position of the plunger corresponds to the retracted position of the bolt and wherein the retracted position of the plunger corresponds to the protracted position of the bolt, as an obvious reversal of this arrangement would be within the scope of my invention. Moreover, the particular positions assumed by the plunger are immaterial in those aspects of the invention which concern especially the connection of the bolt with a plunger or other member having a screw movement in the escutcheon.

Without limiting myself to the construction shown, I claim:

1. The combination with a lock having a bolt, of an escutcheon, a plunger having a screw movement in said escutcheon, and means of connection between the plunger and the bolt and independent of the bolt operating means for actuating the plunger by the movement of the bolt; substantially as described.

2. The combination with a lock having a bolt, of an escutcheon, a plunger having a screw movement in said escutcheon, and means of connection between the plunger and the bolt and independent of the bolt operating means for actuating the plunger by the movement of the bolt, said plunger having one end withdrawn rearwardly from the escutcheon when the bolt is in one position to create a depression in the escutcheon; substantially as described.

3. The combination with a lock having a bolt, of an escutcheon, a housing or bushing carried by the escutcheon, a plunger having a screw movement in said housing or bushing, a projection on the bolt extending out of the lock case, and means of connection between said projection and said plunger including a plunger actuating member mounted to move in a plane parallel to the door and adapted to engage said projection on the bolt; substantially as described.

4. The combination with a lock having a bolt, of an escutcheon, a bushing carried by the escutcheon, a plunger mounted in said bushing and having an oblique groove, a pin extending through the bushing wall into said groove, and an arm on the rear end of said plunger fitting over a projection on the bolt; substantially as described.

5. The combination with a lock having a bolt, of an escutcheon, a bushing carried by the escutcheon, a plunger mounted in said bushing and having an oblique groove, a pin extending through the bushing wall into said groove, and an arm on the rear end of said plunger fitting over a projection on the bolt, said bushing being cut away at the rear portion to present stop surfaces to limit the movement of said arm; substantially as described.

6. The combination with a lock having a bolt, of an escutcheon, a housing or bushing on said escutcheon, a plunger having a screw movement in said housing or bushing, an arm or crank on the rear end of said plunger, and a projection on the bolt having a sliding connection with said arm or crank; substantially as described.

7. The combination with a lock having a bolt, of an escutcheon, a housing or bushing carried by said escutcheon, a plunger mounted to move lengthwise of said housing or

bushing, said bolt having a projection thereon extending out of the lock case, and means of connection between said plunger and said bolt including an arm on the plunger mounted to swing in a plane parallel to the door and having a sliding fit relative to the projection on said bolt, substantially as described.

In witness whereof, I have hereunto set my hand on the 26th day of July 1913.

JOHN H. SHAW.

Witnesses:
W. N. THOMAS,
BERTHA RAY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."