No. 830,013. PATENTED SEPT. 4, 1906.

J. H. SHAW.

LOCK.

APPLICATION FILED JULY 21, 1905.

Fig. 1.

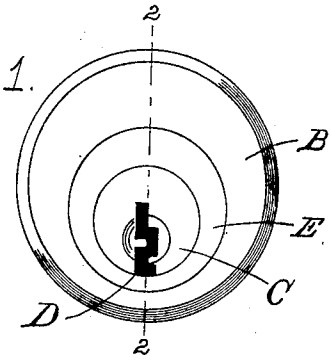


Fig. 5.

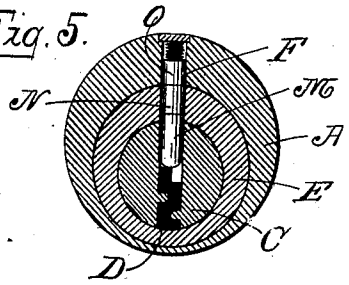


Fig. 4.

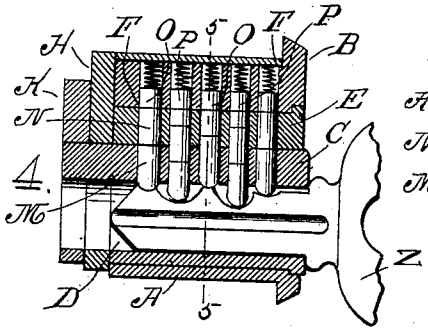


Fig. 2.

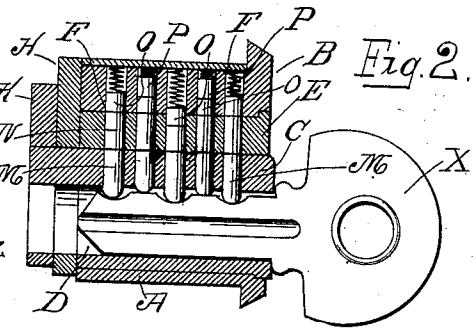


Fig. 3.

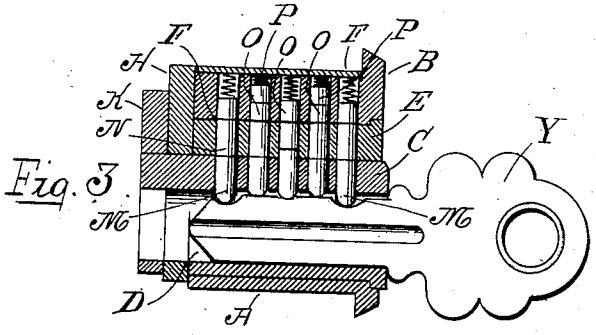


Fig. 6.

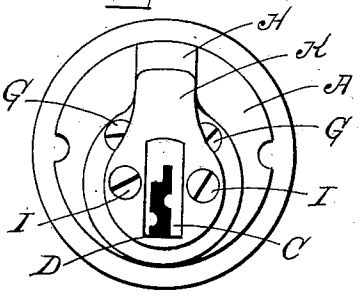


Fig. 7.

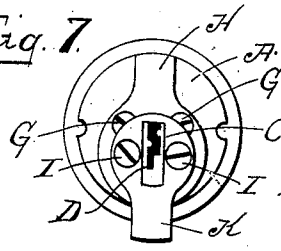


Fig. 8.

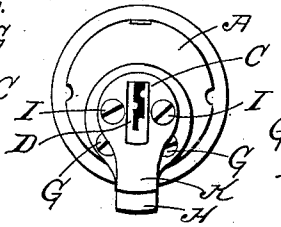
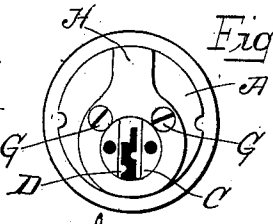


Fig. 9.



Witnesses

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UNITED STATES PATENT OFFICE.

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LOCK.

No. 830,013. Specification of Letters Patent. Patented Sept. 4, 1906.

Application filed July 21, 1905. Serial No. 270,691.

To all whom it may concern:

Be it known that I, JOHN H. SHAW, of the city and county of New Haven, State of Connecticut, have invented new and useful Improvements in Locks, of which the following is a full, clear, and exact description when taken in connection with the accompanying drawings, which form a part thereof, and in which—

Figure 1 represents a front elevation of a lock embodying my invention; Figs. 2, 3, and 4, longitudinal vertical sections on lines 2 2 of Fig. 1, showing the operation of the lock when different keys are inserted; Fig. 5, a transverse vertical section on lines 5 5 of Fig. 4; Figs. 6, 7, and 8, rear views of the lock with the dogs shown in different positions, and Fig. 9 a similar view with one of the dogs removed.

In all figures similar letters of reference represent like parts.

This invention relates to locks, and more particularly to that class of locks known as "escutcheon cylinder-locks," having a key hub or barrel adapted to be rotated by a key inserted longitudinally into the barrel. Locks of this character have been constructed so that the tumblers will permit them to be operated by a number of keys of different outline, whereby a particular lock may be operated, for example, by a room-key and by a master-key which is adapted to operate a series of locks or the locks of a floor of a building. Furthermore, a grand master-key is sometimes provided to open all the locks of a building or of several series of locks. To this end locks have been formed having a superimposed sleeve on the rotary hub or barrel, and both the sleeve and barrel carry tumblers. In this case one key rotates the barrel or hub alone and another key rotates the barrel and superimposed sleeve together. Furthermore, by the use of additional tumblers the lock may be constructed so that different forms of keys will operate the barrel and sleeve. A difficulty in the use of this superimposed sleeve has been that an enlarged size of cylinder has been necessitated, and the sleeve has not been adapted for use in the cylinder of standard size, because it has been of uniform thickness and required equal space on all sides of the hub.

The present invention has for its object the production of a novel lock of this class having a barrel and surrounding sleeve which may be used with the standard size of cylinder.

To this end the invention consists of a casing, which may be of standard size, having a sleeve mounted therein and a barrel or hub mounted eccentrically in this sleeve. The center of the sleeve is above the center of the barrel, so that there is a greater thickness in the sleeve on that side of the barrel in which the tumblers are placed. Furthermore, two bolt-operating dogs are mounted on the lock— one on the barrel and the other on the sleeve. As the axes of the barrel and sleeve are eccentric to each other, one of the bolt-operating dogs is longer than the other, so that whether the barrel or the sleeve is rotated the dog on that particular part will be the right length to engage the bolt-operating part of the lock mechanism to be actuated by the dog.

The invention therefore consists of the improvements and combinations of parts set forth and claimed hereinafter.

For a better understanding of the invention reference is had to the accompanying drawings, in which the parts designated by the letter A represent the body or cylinder of a lock, and B its face.

C designates the barrel or hub, having a longitudinal slot D of suitable form for the reception of the key X, Y, or Z extending through it.

E designates a sleeve loosely mounted in the cylinder or casing and having, as shown more particularly in Figs. 1 and 5, an eccentric bore for the barrel C. The center of the sleeve is above that of the barrel, so that the wider part of the sleeve is above the barrel. In the cylinder A are radial tumbler-pockets F, which extend through the wider portion of the sleeve and also through the barrel into the key-slot. These pockets are provided with tumbler-pins and springs. Some of the tumbler-pins are built up of three pieces M N O and some of four pieces M N O P, so arranged as to be capable of forming one racking-line between the barrel and the sleeve and two different racking-lines between the sleeve and cylinder.

Secured to the rear end of the sleeve E by

screws G or other means is a bolt-operating dog H, which rotates on the axis of the sleeve. Secured by screws I or other suitable means to the rear of the barrel C, which projects through the bolt-operating dog H, is a second bolt-operating dog K, adapted to rotate on the axis of the barrel C, which is below that of the sleeve E. The end of the bolt-operating dog K, as shown more particularly in Figs. 2, 3, 4, and 6, when in its normal position does not project as far upward as the bolt-operating dog H, but when rotated on the axis of the barrel C downward it will project the same distance below the cylinder (see Fig. 7) as the bolt-operating dog H will project when rotated on the axis of the sleeve E. (See Fig. 8.)

The operation of the lock is as follows: When a room-key—such as X, Fig. 2—is inserted in the key-slot of the barrel C, its edge will engage the tumbler-pins so that their lower racking-line will be in alinement with the upper edge of the barrel C, when the barrel may rotate independently of the sleeve E. At the same time the upper sections of the tumblers will be in such position as to prevent the rotation of the sleeve E within the cylinder. When the barrel C is rotated independently of the sleeve E, the dog K will be rotated without the rotation of the bolt-operating dog H and will assume the position shown in Fig. 7, wherein it is intended to be shown in operative position. When a key, such as Y, which is intended to represent a master-key, is inserted, the tumblers will be forced into such a position as to prevent the rotation of the barrel C independently of the sleeve E. At the same time the tumblers will be adjusted so that they form a racking-line in alinement with the upper edge of the sleeve E, and the sleeve may be rotated within the cylinder. On such a rotation the bolt-operating dogs will be brought to the position shown in Fig. 8, where both of them are projecting downward and the bolt-operating dog H is in its operative position. In this position it should be noticed that the extreme end of the dog K is above that of the bolt-operating dog H, for it is not rotated on the axis of the barrel C, but on the axis of the sleeve E. The bolt-operating dog H, however, extends the same distance below the cylinder A as the end of the bolt-operating dog K does when it is rotated independently of the bolt-operating dog H, as shown in Fig. 7. If another key, such as Z, which may represent a grand master-key, is inserted, some of the tumblers are brought into a third position, which prevents the independent rotation of the barrel C within the sleeve E, but forms a third racking-line in alinement with the upper edge of the sleeve E, so that the sleeve may be rotated within the cylinder A. Upon such rotation the bolt-operating dogs will assume the position shown in Fig. 8, as above set forth.

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

1. In a lock, the combination with a casing; of a rotary key barrel or hub; a sleeve loosely mounted in said casing to rotate therein, and having an eccentric bore for said barrel or hub; and suitable tumbler mechanism in said casing, sleeve and barrel or hub, substantially as described.

2. In a lock, the combination with a casing; of a rotary key barrel or hub; a sleeve loosely mounted in said casing to rotate therein and having an eccentric bore for said barrel or hub; tumbler recesses in the wider portion of said sleeve and in said casing and barrel and suitable tumblers therein, substantially as described.

3. In a lock, the combination with a casing; of a rotary key barrel or hub; a sleeve loosely mounted in said casing to rotate therein and having an eccentric bore for said barrel or hub; and tumbler mechanism in said casing, sleeve and barrel or hub for locking said sleeve and barrel or hub to rotate together or separately, substantially as described.

4. In a lock, the combination with a casing; of a rotary key barrel or hub; a sleeve loosely mounted in said casing to rotate therein and having an eccentric bore for said barrel or hub; bolt-operating dogs on said sleeve and barrel or hub, each of said bolt-operating dogs being adapted to rotate on the axis of the member upon which it is mounted, when said member is rotated separately; and tumbler mechanism in said casing, sleeve and barrel or hub adapted to permit the rotation of said sleeve and barrel or hub separately, substantially as described.

5. In a lock, the combination with a casing; of a rotary key barrel or hub; a sleeve loosely mounted in said casing to rotate therein and having an eccentric bore for said barrel or hub; bolt-operating dogs on said sleeve and barrel or hub; each of said bolt-operating dogs being adapted to rotate on the axis of the member upon which it is mounted, and both of said bolt-operating dogs extending equidistant when so rotated, and tumbler mechanism in said casing, sleeve and barrel or hub for locking said sleeve and barrel or hub to rotate together or separately, substantially as described.

6. In a lock, the combination with a casing; of a rotary key barrel or hub; a sleeve loosely mounted in said casing to rotate therein, and having an eccentric bore for said

barrel or hub; bolt-operating dogs on said sleeve and barrel or hub, both of said dogs being adapted to rotate on the axis of said sleeve, when said sleeve and barrel or hub are rotated together; and tumbler mechanism for locking said sleeve and barrel or hub to rotate together, substantially as described.

In witness whereof I have hereunto set my hand on the 19th day of June, 1905.

JOHN H. SHAW.

Witnesses:
WILLIAM H. KIRSCHNER,
ALICE A. WILSON.