April 8, 1924. 1,489,588

N. O. BILLINGS

KEYLESS LOCK

Filed May 19, 1921

FIG. 2

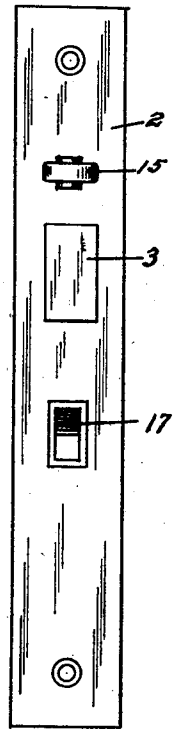


FIG. 1.

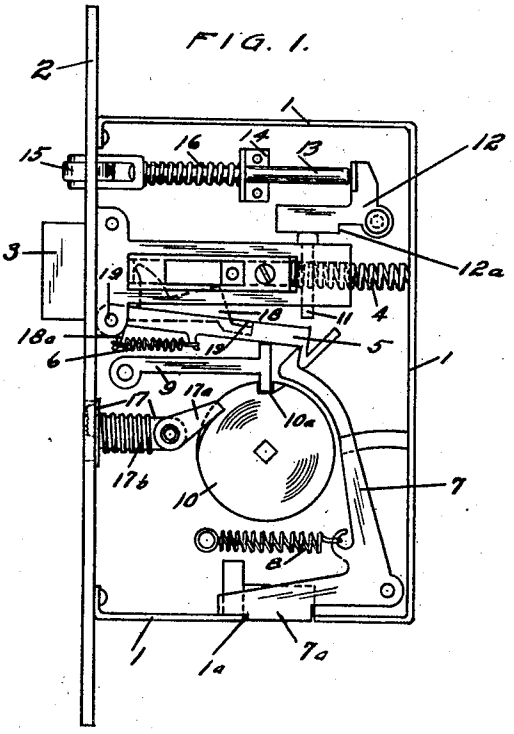


FIG. 5.

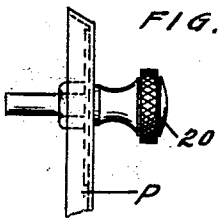


FIG. 3.

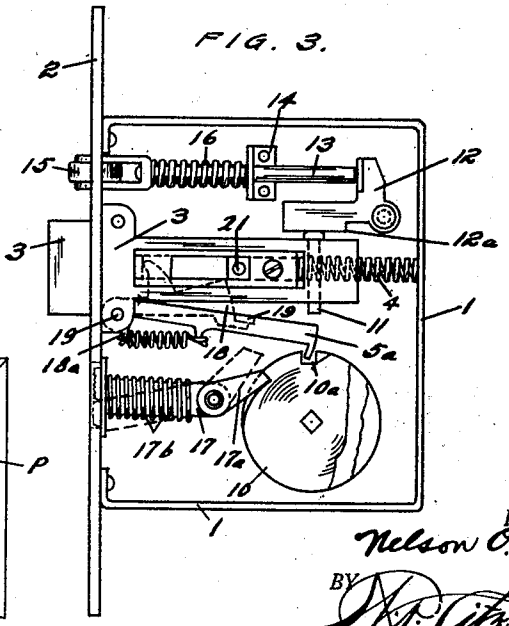
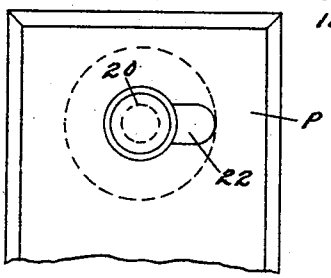


FIG. 4.



INVENTOR.
Nelson O. Billings
BY
D. P. Siegenberg
ATTORNEYS

Patented Apr. 8, 1924. 1,489,588

UNITED STATES PATENT OFFICE.

NELSON O. BILLINGS, OF SEATTLE, WASHINGTON.

KEYLESS LOCK.

Application filed May 19, 1921. Serial No. 470,332.

To all whom it may concern:

Be it known that I, NELSON O. BILLINGS, a citizen of the United States, residing in the city of Seattle, county of King, and State of Washington, have invented certain new and useful Improvements in Keyless Locks, of which the following is a specification.

My invention relates to door locks and has for its principal object to provide an improved lock which can be easily manipulated from the inside by latch or bolt knob, which can be operated from the outside by the manipulation of a knob and combination discs, and which, when the bolt has been held within the lock, has means for automatically tripping the bolt when the door is shut so that the bolt will be automatically moved out into its operating position.

In order to explain my invention, I have illustrated one form thereof on the accompanying sheet of drawings, which I will now describe.

Figure 1 is a side view of my improved lock with the cover plate removed;

Figure 2 is an edge view thereof;

Figure 3 is a view similar to Fig. 1 without the latch through the bottom, and on which a bolt knob is used;

Figure 4 is an outside view of the cover plate with bolt latch for moving the bolt; and

Figure 5 is an edge view thereof.

Referring in detail to the drawings, the usual lock housing 1, is provided with the edge plate, 2. The lock bolt, 3, is slidably mounted therein, with a spring 4, for normally holding the bolt extended. Pivotally connected to the bolt, is a latch hook 5, having a spring, 6, for normally holding it down, as indicated. A pivoted bell-crank latch, 7, hooks at its upper end under the end of the member 5, as shown, and at its lower end, said bell-crank latch 7 is provided with an extension, 7^a, which projects through an opening 1^a, in the bottom of the housing 1, as shown. A spring 8 normally holds said bell-crank latch in normal locking position. By pressing upwardly on the extension 7^a, at the bottom of the housing, 1, the lock bolt 3 is moved back into the housing and the door on which the lock is mounted can be opened.

A second pivoted member, 9, having a T-shaped end, is mounted in the housing, with its T-shaped end resting on a plurality of discs, or tumblers, as 10, having notches 10^a adapted to be moved into register with each other, whereupon the T-shaped end of said member 9, drops into said notches, as shown in the drawings. When said member 9 is raised to ride on the edges of said discs 10, by turning said discs in a well known manner, said member 9 lifts the member 5, out of hooked engagement with the upper end of the member 7. The raising of the member 5, lifts a pin, 11, through the inner end of the bolt 3, and this pin 11, in turn, lifts one end of an angle member, 12, pivoted in the frame or housing, as shown. This member is provided with a notch, 12^a, adapted to catch the head of the pin 11, when the bolt is pressed inwardly sufficiently, and thus hold said bolt in the housing. Mounted in the upper part of the housing is a plunger rod, 13, extended through a bracket, 14, and provided on its outer end with a roller, 15, adapted when the door is closed, to be pressed inwardly into the housing. The inner end of said rod engages and rocks the member 12 in such a way as to lift the lower arm thereof and thus free the head of the pin 11, and permit the lock bolt 3 to be thrust outwardly by its spring 4. The rod 13 is provided with a spring, 16, which normally holds it in the position indicated and yet allows it to be moved inwardly when the door is closed, as will be readily understood. A shiftable latch member 17, is mounted in the edge of the lock, and has an inner arm, 17^a, adapted to engage in a notch, 10′ in the disc 10, to prevent said disc from being turned in one direction, or to serve as a stop, when said arm is down. A tension spring 17^b is mounted on said member to hold it in adjusted positions.

Pivotally mounted in the bolt, is a dog, 18, shown in dotted lines, with its lower corner pivoted on the pin, 19, in the bolt, and having on its pivoted end a hook, 18^a, to which is connected one end of the spring 6, the other end of which connects to the member 5, as shown. The member 5 is a double member, between the sides of which said dog 18 fits loosely. The upper fork of the dog, 18, bears against the bolt, 3, as indicated, while its lower innermost fork, underlies a cross or connecting part, 19, on the upper edge of the member 5. The member 18 is to prevent the bolt from being pried back when the door is locked.

In Fig. 3 the same lock is shown and the same parts are similarly indicated. The member, 5^a, however is slightly different from

the member 5 in Fig. 1, in its disc engaging end, as will be clear. In this form of lock, the latch through the bottom of the housing is omitted, and instead, I provide a small knob, 20, Figs. 5 and 4, the stem of which is connected with the bolt, at 21, through a slot, 22, in the inside cover plate, P, Fig. 4, whereby the locking bolt 3 can be moved inwardly, into unlocking position, by moving the small knob 20 to the right, as will be clear.

Thus I have provided in combination with the bolt of a door lock, means for holding the bolt drawn into the lock, with means for automatically releasing it when the door is closed, and I have also provided in combination with said bolt, means for moving it manually from the inside, as well as means for moving it in the usual way by means of a knob combination. This latter means being old, is not shown in detail.

What I claim as new and desire to protect is,—

1. In a lock of the character referred to, a housing, a bolt slidably mounted therein, a spring for normally holding said bolt extended, a member pivoted to said bolt for moving it into said housing, means manually operable on said member for moving said member and said bolt, movable latching means carried by said bolt and cooperating with latching means in said housing for automatically holding said bolt drawn into said housing, means projecting from said housing for automatically releasing said latching means and said bolt, and means for locking the bolt in its outer position, substantially as described.

2. In a lock of the character referred to, a casing, a bolt slidable therein, an arm pivoted at one end to said bolt and moving therewith, manually operable means for engaging the other end of said arm for moving said bolt, a pin movably mounted through said bolt and adapted to be moved by said pivoted arm, and latch means adapted to be engaged by the upper end of said pin, for holding said bolt withdrawn into said casing.

3. In a lock of the character described, a casing, a bolt slidable therein, an arm pivoted at one end to said bolt and moving therewith, manually operable means for pulling on said arm to move said bolt, said manually operable means being also adapted to lift the free end of said arm, a pin through said bolt positioned to be lifted by said arm when lifted, latch means in said casing adapted to engage with the upper end of said pin for holding said bolt in said casing, and means for automatically tripping said latch means to release said pin and bolt.

Signed at Seattle, King County, Washington, this 16th day of April, 1921.

NELSON O. BILLINGS.

Witnesses:
C. J. SMITH,
M. B. PHILLIPS.