

(Model.)

2 Sheets—Sheet 1.

H. R. TOWNE.
LOCK.

No. 419,384.

Patented Jan. 14, 1890.

Fig. 6.

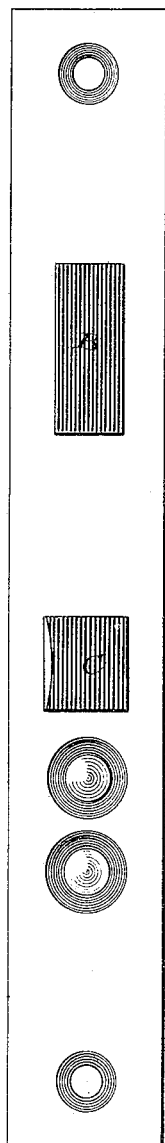


Fig. 7.

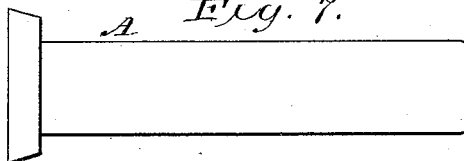


Fig. 1.

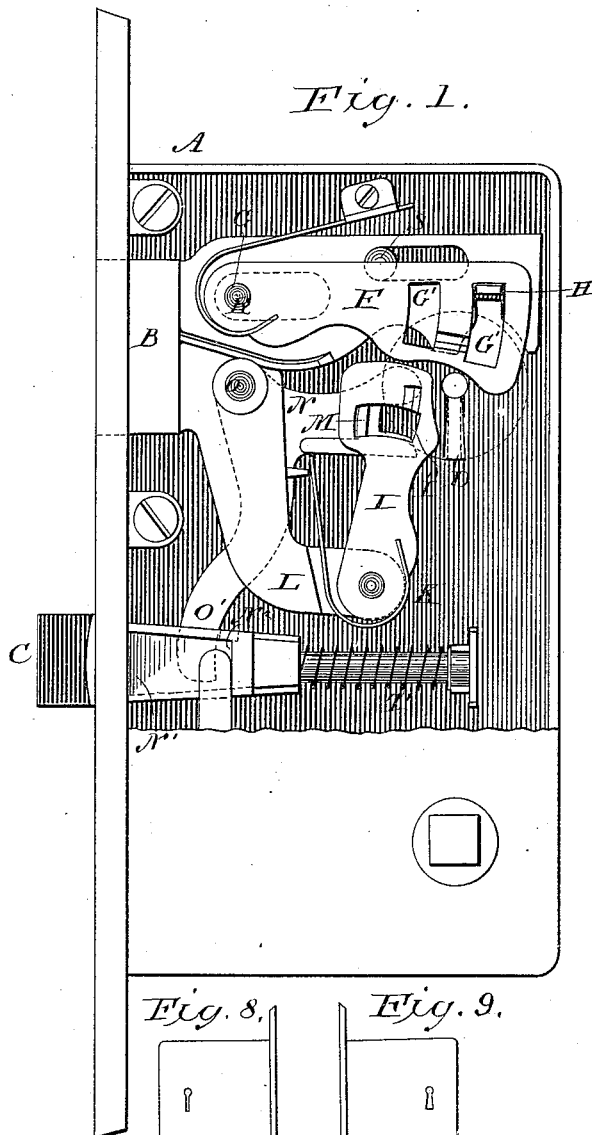


Fig. 8.

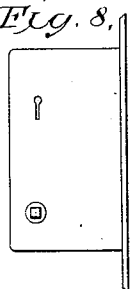
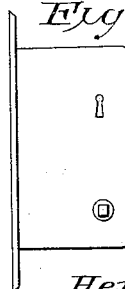


Fig. 9.



Witnesses

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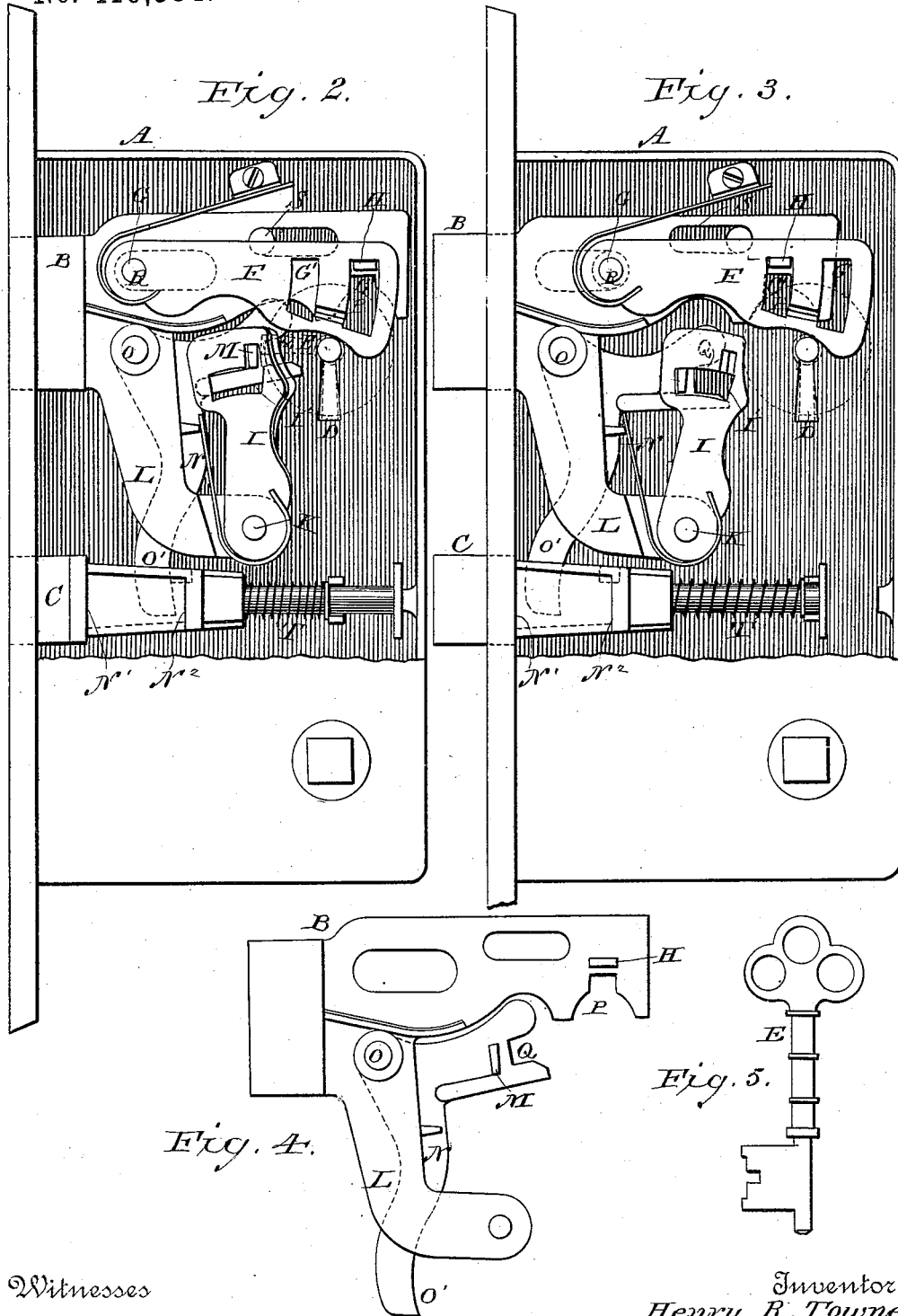
(No Model.)

2 Sheets—Sheet 2.

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Witnesses

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UNITED STATES PATENT OFFICE.

HENRY R. TOWNE, OF STAMFORD, CONNECTICUT, ASSIGNOR TO THE YALE
& TOWNE MANUFACTURING COMPANY, OF SAME PLACE.

LOCK.

SPECIFICATION forming part of Letters Patent No. 419,384, dated January 14, 1890.

Application filed April 19, 1889. Serial No. 307,674. (Model.)

To all whom it may concern:

Be it known that I, HENRY R. TOWNE, of Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Locks, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to that class of locks which are provided with what may be called "primary" and "secondary" bolts—that is, locks which are provided with two bolts so arranged that when both are in the locked position the primary bolt must be retracted before the secondary bolt can be retracted. It is not always necessary that the primary bolt should actually engage with the locking-plate, but may in some cases be contained entirely within the lock-case and serve only in some way to prevent the retraction of the secondary bolt until the primary bolt shall have been acted on by its key. In this construction perhaps the primary bolt may be better called a "dog" or "carrier;" but its function, so far as it relates to the secondary bolt, is always the same. The primary and secondary bolts are actuated from the same key-hole; but the lock may be so arranged that the primary and secondary bolts may be actuated by the same or by different keys, as may be preferred. The most general uses to which locks thus organized are put are for fastening front doors of houses or other doors where what is called a "night-latch" is desirable. These locks are usually provided with a dead-bolt or primary bolt, which is shot forward at night, while for day use the door is closed by the latch or secondary bolt, which is operated by a knob from the inside and requires a key to open it from the outside. In common locks in use for this purpose two keys are usually provided—one for operating the dead-bolt and one for the latch-bolt. This arrangement is not convenient, however, because when the occupant of a house is absent late at night, during which time the security of the dead-bolt is desirable, it is necessary for him to carry separate keys both for the dead-bolt and the latch-bolt, in order to be able to enter the house when he returns. It is therefore very desirable that for this purpose both the dead-bolt

and the latch-bolt should be operated by the same key, and this result has been accomplished in the well-known Yale front-door lock, wherein the tumbler mechanism is contained in a separate escutcheon or tumbler-case. In said Yale lock the same key will, by continued revolution, operate both the dead-bolt and the latch-bolt, thus enabling the lock to be deadlocked while the occupant is away, and enabling the occupant by the use of one key to unlock both bolts and enter the house on his return. My invention accomplishes this very desirable result for the first time in that class of locks where the bolt dogging and actuating mechanism is contained within the lock-case proper, and thus provides the same convenience for this class of locks which has heretofore been provided by the Yale lock, or that class where the tumbler mechanism is contained in a separate and independent escutcheon or tumbler-case.

I have illustrated in the drawings only one species of key and the ordinary flat spring tumblers in common use and a dead-bolt and a latch-bolt organized together in a lock; but this lock only serves as one example of embodiment of my invention, and a variety of forms of tumblers, keys, or wards, and any species of bolts, whether dead-bolts or latch-bolts, of ordinary character may be used, and, as will be explained below, the primary bolt may be so constructed that its head will not project beyond the face of the lock, but will act simply as a carrier or actuator for the dogging and actuating mechanism of the secondary latch or bolt. While, therefore, I describe in detail only the particular embodiment of my invention shown in the drawings, it is understood that the principle of my invention extends to the formal modifications or substitution of well-known parts, above referred to.

An additional feature resulting from my construction is obtained from the fact that when the primary bolt is shot forward by the key the secondary bolt, even though it may be a latch-bolt, may be deadlocked, thus giving some additional security.

In the accompanying drawings, Figure 1 is a plan view of my improved lock, with a cap-

plate removed, showing the main bolt in the unlocked position and the latch-bolt in the locked position. Fig. 2 is a similar plan view, but showing the two bolts in the unlocked position. Fig. 3 is another similar view, but showing the two bolts in the locked position. Fig. 4 is a view of the main bolt and bell-crank lever detached. Fig. 5 is a view of a key. Fig. 6 is a view of the lock-case of a mortise-lock detached. Fig. 7 is an end view of the lock-case of a mortise-lock. Fig. 8 shows the outside key-hole of the lock, and Fig. 9 the inside key-hole a little larger to admit the larger key.

Referring to the letters upon the drawings, A indicates a lock-case; B, a dead-bolt, which may be called the "primary bolt;" C, a spring latch-bolt or secondary bolt; D, a key-hole, and E a key. For the two bolts I provide independent sets of tumblers, the primary set F being pivoted at G and adapted by their gatings G' to receive the primary bolt-fence H and dog the bolt both in the locked and unlocked position, as shown. Now, it is evident that to accomplish the objects which I have in mind—namely, to enable the primary and secondary bolt of a lock to be operated successively, while each shall be dogged by its own set of tumblers—I must provide means whereby the key can operate one set of tumblers before it is brought into contact with the other. To do this I carry both the tumbler mechanism and the key-actuating mechanism of the secondary bolt upon the primary bolt. In the drawings these parts are carried on an extension or arm of said bolt; but it is evident that the bolt may be made in various forms to accomplish this result. The necessary thing is that when the primary bolt is in the locked position the tumbler and actuating mechanism of the secondary bolt shall be out of the path of the key, and when the primary bolt is retracted its motion shall necessarily bring the tumbler and actuating mechanism of the secondary bolt into the path of the key, so that the same key or another one, as may be preferred, may operate the secondary set of tumblers and bolt.

In the drawings, the secondary set of tumblers I are pivoted at K upon an extension of the bolt L and adapted by their gatings I' to receive the fence M and dog or prevent the movement of the bell-crank lever N, pivoted at O upon the primary bolt or carrier. This bell-crank lever is adapted in turn to dog or deadlock the secondary bolt by one of its arms O' bearing against the shoulder N'.

N² is another shoulder on the secondary bolt, against which the bell-crank lever O' bears when turned on its pivot to retract the bolt.

Referring to Fig. 4, P indicates the talon or key opening in the primary bolt for receiving the key-wing, provided with the usual bearings for the wing to impinge against to cast or retract said bolt. Q indicates the talon-opening in one arm of the bell-crank

lever N to receive the key-wing, and provided with bearings for the wing to impinge against and turn said bell-crank lever on its pivot to retract the secondary bolt. R and S are guideways running in guide-slots in the primary bolt, as is usual, and T is the secondary bolt-spring.

The operation of my improved lock when thus constructed is as follows: Suppose both bolts to be thrown in the locked position, as shown in Fig. 3. The secondary tumblers and bell-crank lever N will then be out of reach of the key-wing, because they will have been carried forward bodily with the primary bolt, and both bolts will be deadlocked. This is so because the tumblers F dog the primary bolt and the bell-crank lever N dogs the secondary bolt. As the bell-crank lever is pivoted to the primary bolt or carrier and is dogged or held from turning on its pivot by the secondary tumblers I, it follows that as long as the primary bolt is dogged in the locked position the secondary bolt will be also; and it follows, further, that as the secondary tumblers are out of reach of the key the primary tumblers must first be acted upon by the key, and in case it is attempted to pick the lock the primary set must be first picked and the bolt retracted before the secondary set can be picked and the secondary bolt retracted. Now, if the key be inserted and turned in the direction of the arrow to act on the tumblers F it will retract the primary bolt, which will carry with it the secondary tumblers and bell-crank lever into the path of the key; but the secondary bolt or latch will still remain in the locked position until the key be again turned or a differently-bitted key be inserted and turned so as to operate the secondary tumblers and bell-crank lever to retract the secondary bolt.

It is evident from the foregoing that, so far as its relations to the secondary bolt are concerned, it is immaterial whether the primary bolt projects beyond the lock-case or not, because thus considered it is merely a carrier or actuator for the purpose of bringing the actuating mechanism of the secondary bolt into and out of the path of the key; and it is also evident that the primary tumblers may be set to a key of one bitting, while the secondary set may be set to the bitting of another key, so that two different keys may be required to lock or unlock the lock, which may necessitate the presence of two persons for this purpose where it is desirable.

When the primary bolt is in the retracted position, the secondary bolt may continue to be operated by its proper key without reference to the primary bolt.

An additional security and convenience may be attained in this lock by so constructing the inside and outside key-holes that the proper key may enter either; but an extra key, which may be made to enter the inside key-hole to operate the bolt, cannot be inserted in the outer key-hole. It will be possible,

therefore, to provide a servant with an extra key for a front-door lock which will operate the lock from the inside, but not from the outside, and which, therefore, could not be handed to a confederate to enable the door to be opened from the outside. This result may be accomplished by using a key for the inside which would be too large to enter the outside key-hole or in other ways.

- 10 The most general use to which the lock could be put, in case the primary bolt were used simply as a carrier, and where the two sets of tumblers might be set to different bittings, would be for safe-deposit boxes. It is
- 15 customary with safe-deposit companies to require the presence of both the custodian and the box-renter when it is desired to open any box. This could be accomplished by my invention by setting up the primary tumblers
- 20 to one bitting, so that the custodian having retracted the primary bolt or carrier would simply set the secondary tumblers into position to be operated upon by the key of the box-renter. For locks of this class two bolts
- 25 would be unnecessary, so that for this purpose only a carrier would be required for the secondary tumblers.

30 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is the following:

1. In a lock-case, the combination of two bolts, two sets of tumblers, and a lever carried on one of said bolts, the lever being

dogged by one set of tumblers and being connected with the other bolt which it operates, whereby both bolts may be operated through one key-hole, substantially as set forth. 35

2. In a lock, a primary bolt or carrier which carries the tumbler and actuating mechanism of the secondary bolt into and out of the path of the key, so that the secondary bolt cannot be actuated by the key until the primary bolt or carrier is in the unlocked position. 40

3. A lock provided with two keys of different size or shape, and having on one side a key-hole adapted to receive either key, and on the other side a key-hole adapted to receive only one of said keys, substantially as set forth. 45

4. In a lock-case, the combination of a bolt or carrier having tumblers, another bolt, and mechanism connecting the two bolts, said mechanism itself provided with tumblers, substantially as set forth. 50

5. The combination, in a lock-case, of the primary bolt or carrier B, the tumblers F, the secondary bolt or latch C, and the tumblers I and lever N, carried on or by the primary bolt B. 55

In testimony of all which I have hereunto subscribed my name. 60

HENRY R. TOWNE.

Witnesses:

SCHUYLER MERRITT,
GEO. E. WHITE.