No. 743,355. PATENTED NOV. 3, 1903.

H. B. WALBRIDGE.

LOCK.

APPLICATION FILED FEB. 2, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

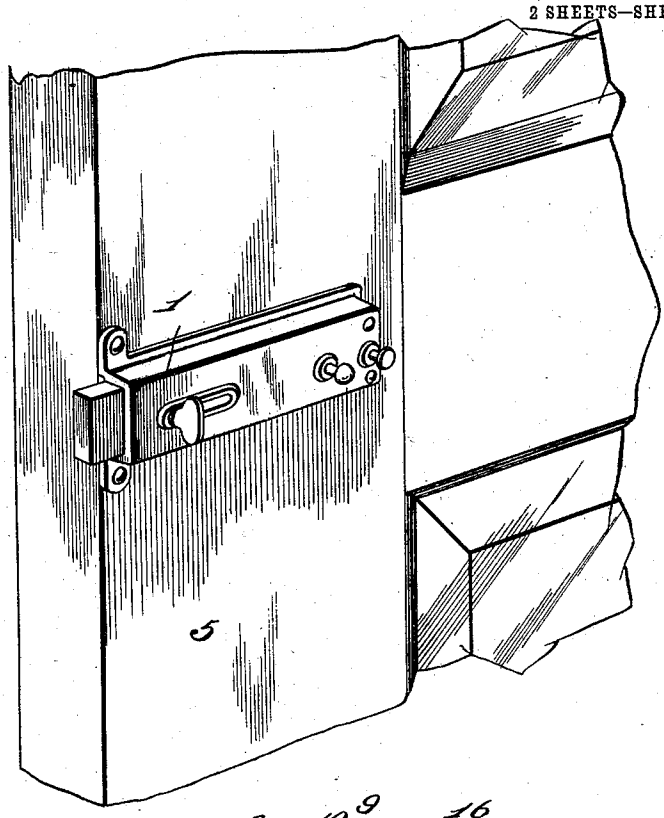


Fig. 2.

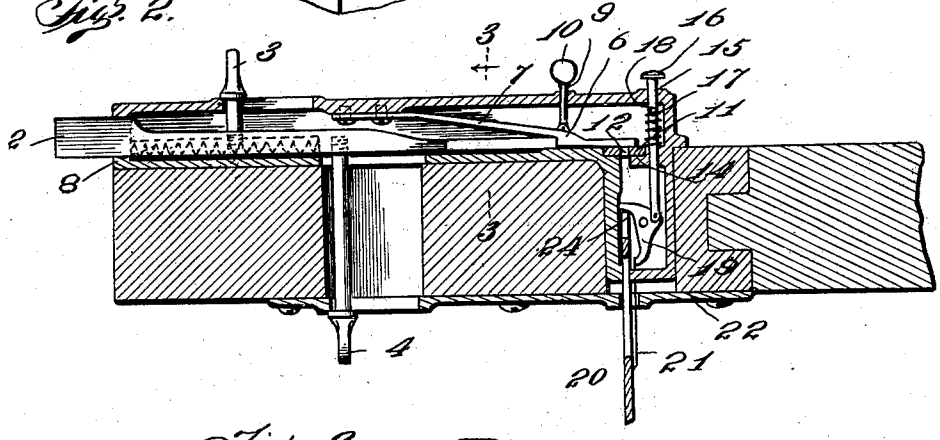
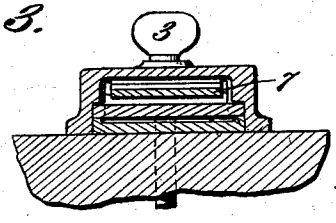


Fig. 3.



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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 4.

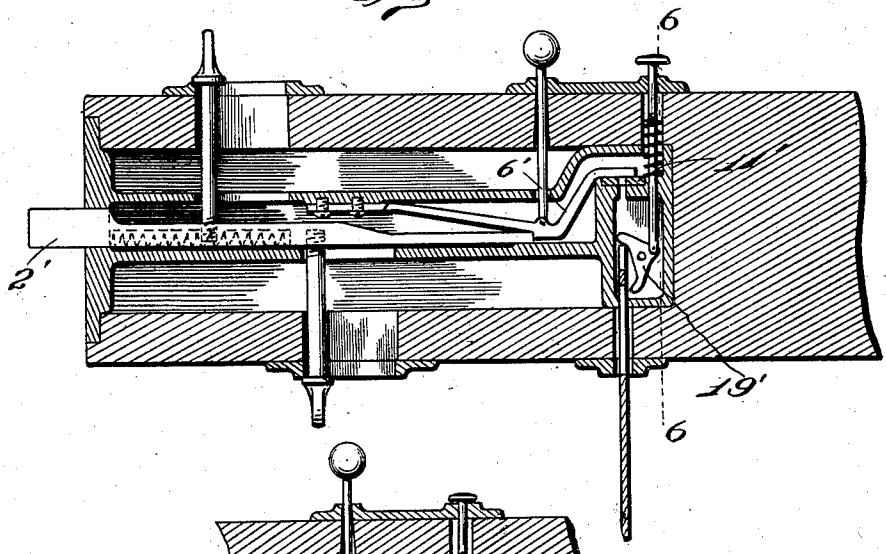


Fig. 5.

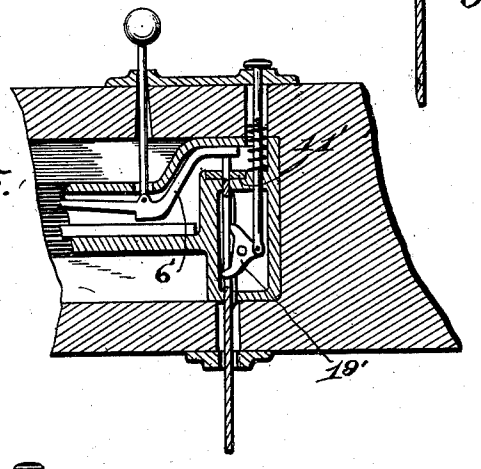


Fig. 6.

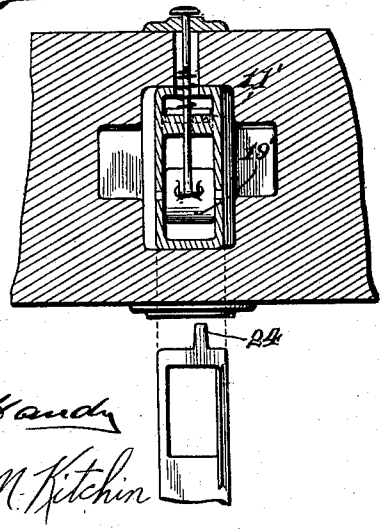
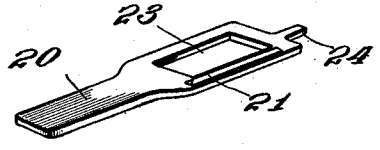


Fig. 7.



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No. 743,355. Patented November 3, 1903.

UNITED STATES PATENT OFFICE.

HENRY B. WALBRIDGE, OF WASHINGTON, DISTRICT OF COLUMBIA.

LOCK.

SPECIFICATION forming part of Letters Patent No. 743,355, dated November 3, 1903.

Application filed February 2, 1903. Serial No. 141,538. (No model.)

To all whom it may concern:

Be it known that I, HENRY B. WALBRIDGE, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in locking mechanism, and particularly to devices for preventing the releasing of the lock except by the particular key designed for that purpose.

The object in view is the provision of means in combination with a lock for permitting the release of such lock by the key only particularly designed for the purpose and adapted to retain an improperly-constructed key against removal after insertion, whereby only one attempt can be made at releasing such lock by a false key.

With this and other objects in view the invention consists in certain novel constructions, combinations, and arrangements of parts, as will be hereinafter described and specifically claimed.

In the accompanying drawings, Figure 1 represents a perspective view of a lock embodying the features of the present invention applied to a door. Fig. 2 represents a longitudinal horizontal section taken through the lock and fragment of door disclosed in Fig. 1. Fig. 3 represents a transverse section taken on a plane of lines 3 3 of Fig. 2 looking in the direction of the arrow. Fig. 4 represents a similar view to Fig. 2, showing an embodiment of the present invention in the form of a mortise-lock. Fig. 5 represents a fragmentary section disclosing the engaging pawl in its key-retaining position. Fig. 6 represents a transverse section taken on the plane of line 6 6 of Fig. 5 and looking in the direction of the arrow. Fig. 7 represents a perspective view of a key designed to operate one of the present improved locks.

In the use of any of the common forms of locks any number of attempts may be made at introducing a key, and each time a false key is inserted the fact that it will not operate the locks indicates that the same is not of the correct type, and such key may be removed and another one tried, and so on until the properly-shaped key is introduced, whereupon the locking mechanism may be operated.

Ordinarily when unauthorized persons are endeavoring to release some locking mechanism it is to be presumed that they will not on first trial introduce the particular key necessary for such release, and my present improvement contemplates the production of means for engaging the first key introduced within the locking mechanism and positively retaining the same against withdrawal, so that but one attempt at releasing the lock can be made. As will hereinafter appear, if the proper key is introduced certain mechanism is provided whereby the same may be released by the party so introducing the key; but if the improper key is introduced the person introducing the same cannot by any possibility remove such key or have an opportunity to try a second key.

In order to attain the valuable functions of a lock operated as suggested, I employ the elements disclosed in the accompanying drawings, in which—

1 indicates any suitable housing, and 2 a lock-bolt within the housing and provided with laterally-projecting fingers 3 and 4, extending to opposite sides of the door 5 to which the lock is applied or to any device which is designed to be locked, whereby when the bolt 2 is released the same may be moved as may be desired by the operation of said fingers 3 and 4. A suitable detent 6 is carried by an actuating-spring 7, which spring is preferably fixed to the housing 1 and normally retains such detent in the path of movement of the bolt 2 for preventing retraction of the same, any suitable spring 8 being arranged between the front portion of the housing 1 and the shoulder in the bolt 2 for normally pressing the same rearwardly and for retracting the same when released from its engagement with the detent 6, a suitable rod 9 projecting through the housing 1 and being pivoted to the detent 6 and formed with a handle 10 for effecting such release by outward movement of such handle.

Arranged beneath and extending trans-

versely of the rear end of the detent 6 is positioned a plate 11, which is apertured, as at 12, registering with an aperture 13, left between division-wall 14 and one of the side walls of the housing 1. This plate guards the entrance to the locking mechanism, and its aperture will permit only the proper key to reach the detent 6. Outside of the plane of detent 6 is arranged a rod 15, which projects through the housing 1 and is preferably provided at its outer end with an operating-button 16. The rod 15 passes through the division-wall 14 and is surrounded by a coil-spring 17, engaging such division-wall at one end and at the other end engaging a lug 18 on said rod 16, whereby the rod is normally retained at the extreme of its outward thrust. The inner end of the rod 16 is pivoted to a double-acting pawl 19, which pawl in turn is pivotally mounted within a portion of the housing 1 and is provided with a front and rear nose.

In operation I employ a key 20, specially constructed for operating a particular lock. This key is provided with at least two features peculiar to its given lock, one of which is any desired given shape of longitudinal bead 21, designed to fit within and pass readily through the aperture formed within the escutcheon 22. The portion of the housing 1 inclosing the pawl 19 is apertured in alinement with the aperture in the escutcheon 22, whereby the key introduced through said escutcheon may pass through such aperture and beneath the forward nose of the pawl 19. The key 20, as best seen by reference to Fig. 7, is apertured at 23 and formed with an operating-finger 24, projecting forwardly. The finger 24 upon the key 20 being introduced into the lock will engage the rear nose of pawl 19 and cause such pawl to swing upon its pivot, moving the rear nose out of the path of movement of the key and the forward nose into the aperture 23. Here it is suggested that if the key were not apertured the front nose of the pawl 19 would engage the body of the key and prevent the rear nose from moving out of its path, whereby such key could not be introduced, thereby eliminating the danger of operation of the present form of lock by means of a wire or rod. As the key is moved inwardly the finger 24 passes through space 13 and through aperture 12, engaging the detent 6 and raising the same out of the path of the rear end of bolt 2, whereby such bolt is free to be retracted, and under the action of spring 8 the lock is released automatically. It will now be observed that the aperture 12 in plate 11 must be in alinement with the finger 24, or, in other words, such finger must be positioned upon the particular key 20 for registering with the aperture 12. Slight variations in the position of aperture 12 and in the position of finger 24 may be made in the different locks of the present type, whereby no two keys will be designed to operate the same lock, further differences between the keys being made by alterations in the shape and sizes of the longitudinal bead 21. Should an improper key be introduced into the lock, the same would move past the pawl 19, but the finger 24 not being in alinement with aperture 12 would not actuate to release the lock, and the rear nose of the pawl 19, which had moved out of the way to permit the passage of the key, would be returned to its normal position by means of spring 17, whereby such nose would extend within the aperture 23 and prevent the retraction of the key. This action is also caused when the correct key is introduced; but the correct key may be readily released by the party inserting the same upon opening the door by simply pressing upon the button 16 and withdrawing the key, the pawl 19 being actuated by such pressure upon the button 16.

Although I have shown a flat spring 7 for retaining the detent 6 in position, of course it will be understood that any other form of spring may be substituted and that many other alterations may be made within the spirit and scope of the invention.

When it is desired to apply the present improved lock within the mortise within a door, I contemplate altering the exact arrangement slightly for saving of space laterally. As disclosed in Fig. 2 of the drawings, the section of the housing inclosing the pawl 19 is extended at right angles to the main portion of the housing; but in the construction illustrated in Figs. 4, 5, and 6 of the drawings the corresponding portion of the housing is arranged centrally transverse the main portion thereof and approximately a thickness of the main portion of the housing is saved in lateral space, whereby only a comparatively narrow mortise need be formed in a door for introducing the lock. In the mortise construction the elements employed operate exactly as described and are only altered sufficiently to adapt them for the particular shape of housing necessitated by the use to which the lock is applied. The detent 6′ of this construction is bent laterally and then rearwardly and across an aperture in plate 11′ for facilitating the positioning of the pawl 19′ approximately in the longitudinal plane of the bolt 2′ for effecting the retention of said bolt in its given position similar in every respect to that described with reference to the disclosure in Figs. 1, 2, and 3.

The plate 11 or plate 11′, as the case may be, is removably fixed to the walls of its inclosed housing, and in the manufacture of the present improved locks a given plate may be constructed to correspond to a given key and the keys and plates applied to any of the locks, all of the other elements of each of the locks being the same, except for the aperture accommodating bead 21, which aperture need be varied only in certain series, a key and plate indicating the particular lock and the form of aperture for the bead 21 indicating the series.

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

1. A locking mechanism, comprising a bolt, means for holding the same in its locked position, an oscillating guard member controlling the key-entrance to said lock, the said oscillating member engaging and preventing removal of any key that is inserted in the key-entrance.

2. A locking mechanism comprising a bolt, means for locking the same, the casing of the bolt being provided with a key-passage leading to the said locking means, and an oscillating guard member controlling the said passage, the said member permitting the key to be inserted but preventing its withdrawal.

3. A locking mechanism comprising a locking means, and an oscillating member permitting the longitudinal introduction of a key to the locking means but preventing its withdrawal.

4. A locking mechanism comprising a locking means, provided with a key-passage in which a key may be inserted for actuating the same, an oscillating guard member permitting the longitudinal insertion of a key but preventing its withdrawal, and means independent of the key for releasing the said key.

5. In a locking mechanism, the combination with a reciprocating bolt, of a locking member for holding the same in its locked position, the locking mechanism being provided with a passage-way by which a key may reach the locking mechanism, and a guard-plate extending over said passage-way and provided with an opening for admitting the proper key to said locking member, the said guard-plate preventing other keys from reaching said locking member.

6. A locking mechanism comprising a casing having a lock-compartment, a bolt arranged therein, a locking member engaging the said bolt, a key-controlling mechanism mounted in a separate compartment from the locking mechanism, the two compartments being connected by a suitable aperture, a projection on the locking member for covering the said aperture, the said member being arranged so that it may be pushed away from the said aperture by the end thrust of a suitable key, the key-controlling mechanism regulating the admission and removal of said key, substantially as described.

7. In a locking mechanism, the combination with a reciprocating bolt, of a detent for holding it in its locked position, a guard-plate for controlling the entrance of a key to remove said detent, the said guard-plate being provided with one or more apertures for admitting a proper key, and means for retaining any key inserted in said locking mechanism.

8. A locking mechanism, comprising a reciprocating bolt, a spring-detent for holding the bolt in its locked position, one end of said detent projecting over the keyhole of the locking mechanism, a guard-plate having suitable apertures arranged over its keyhole for preventing the admission of any but the proper key to the lock, an oscillating detent for holding the key within the lock after it is inserted, and means for oscillating the detent to release said key.

9. A locking mechanism comprising a locking means and an oscillating member guarding the approach thereto, the said member having a projection at one end for preventing the insertion of an imperforated key or bar and a projection at the other end for preventing the removal of a key that may be inserted.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

HENRY B. WALBRIDGE.

Witnesses:
E. T. FENWICK,
JOHN L. FLETCHER.