

July 18, 1933.

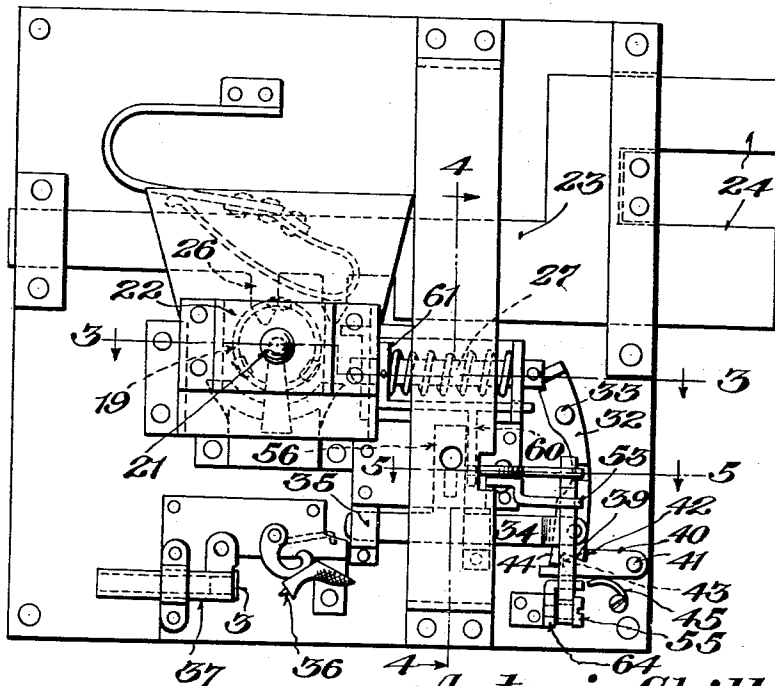
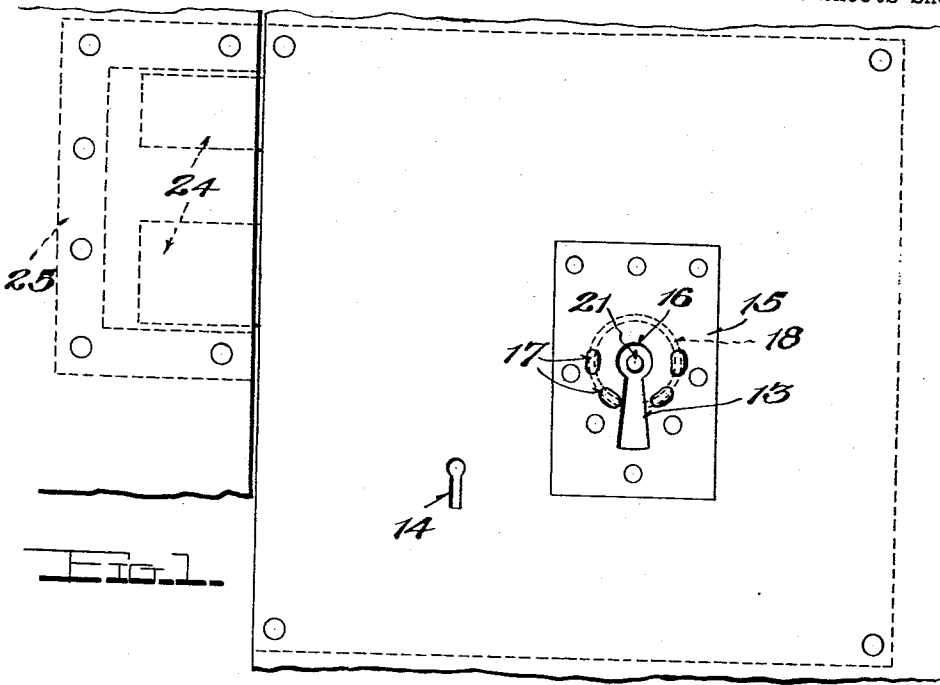
A. CHILLEMI

1,919,091

LOCK

Filed Sept. 25, 1928

2 Sheets-Sheet 1



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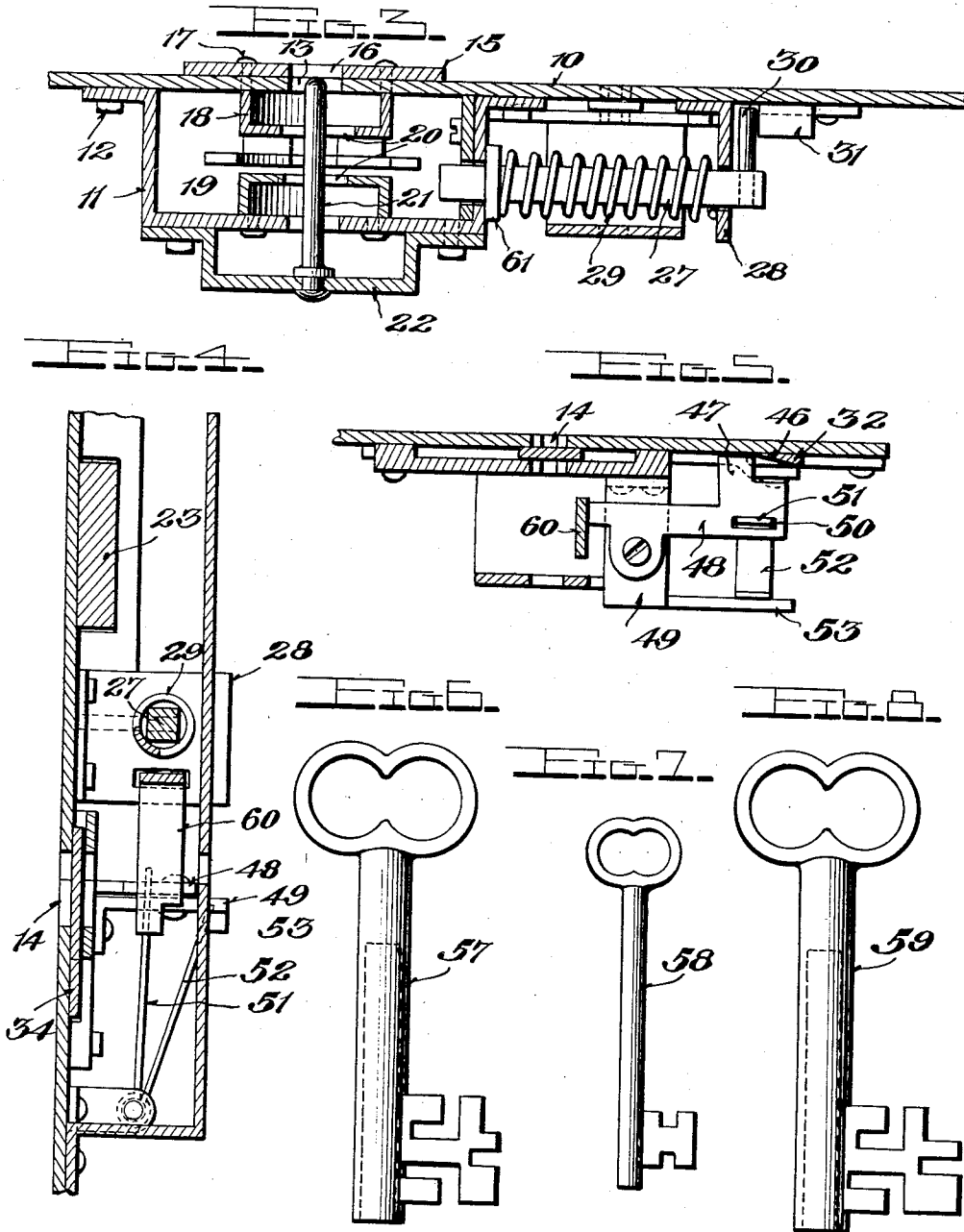
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2 Sheets-Sheet 2



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## UNITED STATES PATENT OFFICE

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## LOCK

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This invention relates to locks, and comprehends the provision of a key actuated mechanism which can only be manipulated by one in possession of the proper keys, and also familiar with the construction of said mechanism and the manner and order in which the keys must be used.

In carrying out the invention, I comprehend a mechanism constructed to lock a false key against removal after being inserted through a key hole with a view of unlocking the mechanism, thereby necessitating the use of a latch key to effect a release of the false key, before the mechanism can be successfully manipulated by the proper key insertable within the same key hole from which the false key was previously taken.

More specifically stated, I provide the lock casing with a main and auxiliary key hole, and employ a yieldably mounted latch bolt arranged with relation to the main key hole, to be engaged by a false key when inserted within the main key hole to operate the mechanism, and thereby prevent removal of the key, until the latch bolt is subsequently retracted by means of a proper key insertable within the auxiliary key hole.

Another important object resides in the provision of means for normally covering the auxiliary key hole with the locking bolt in its locked position, thus preventing the insertion of a latch key in the mechanism through the auxiliary key hole, the latter being uncovered incident to the insertion and manipulation of the false key in the main key hole, during which time the false key is automatically locked against removal.

A further object of the invention resides in the provision of an alarm which is automatically operated incident to the use of the false key in an effort to actuate the locking bolt.

Specifically stated, the alarm operating means is actuated or controlled by the means employed for locking the false key against movement within the lock, so that as the false key is initially turned in an effort to retract the locking bolt, it is engaged by means employed to hold the key against

removal from the lock, and which latter mentioned means functions to sound the alarm simultaneously with the turning of the false key.

The nature and advantages of the invention will be better understood when the following detailed description is read in connection with the accompanying drawings, the invention residing in the construction, combination and arrangement of parts as claimed.

In the drawings forming part of this application like numerals of reference indicate similar parts in the several views and wherein:

Figure 1 is a front elevation of the lock casing, showing the locking bolt in dotted lines projected in its locked position.

Figure 2 is a view with one side of the lock casing removed showing the mechanism.

Figure 3 is a sectional view taken on line 3—3 of Figure 2.

Figure 4 is a sectional view taken on line 4—4 of Figure 2.

Figure 5 is a sectional view on line 5—5 of Figure 2.

Figure 6 is a detail view of the lock key employed for operating the lock bolt.

Figure 7 is a similar view of the latch key.

Figure 8 is a similar view of the false key.

The lock constituting the subject matter of the instant invention embodies a casing, the front wall of which is indicated at 10, while the body portion of the casing is indicated at 11, and bolted or otherwise suitably secured as at 12 to the inner side of the front wall 10. The front wall is provided with a main key hole 13 and an auxiliary key hole 14, the former being arranged directly in advance and centrally of the body portion 11 of the casing, while the auxiliary key hole 14 is arranged to one side and slightly beneath the main key hole as illustrated in Figure 1. Secured to the front wall 10 is a plate 15 having a key hole 16 of the same size and shape as the key hole 13 with which it coincides, and this plate 15 is provided with openings to receive the extensions 17 of a ring-like member 18 secured to the inner

side of the front wall 10 by means of the extensions 17 just referred to. A similar ring-like member 19 is secured to the rear wall of the body portion 11 of the casing and spaced from the ring-like member 18 as clearly illustrated in Figure 3. These ring-like members have aligned centrally arranged openings 20 through which passes a pin 21, the latter being carried by a substantially U-shaped bracket 22 secured to the body portion 11 of the casing, and which pin 21 terminates within the key hole 13 as illustrated in Figure 3. This construction necessitates the use of keys of particular construction, that is to say keys having longitudinal bores to receive the pin 21 as the keys are singly inserted within the key hole 13.

Slidably supported on the front wall 10 of the casing is a locking bolt 23 which may vary in construction without departing from the spirit of the invention, but which bolt is preferably of the design illustrated in Figure 2. In other words this locking bolt 23 is preferably widened at one end and bifurcated to provide spaced extensions 24 adapted to be received by a suitable keeper 25 when projected to its active position. The shank of the bolt is provided with spaced lugs 26 which depend from the lower edge of the bolt and are used in conjunction with a key of particular design.

In addition to the lock bolt 23, the invention also makes use of a latch bolt 27 which is arranged directly beneath the lock bolt and mounted for sliding movement by a suitable bracket 28 and also by the adjacent wall of the body portion 11 of the lock casing. The latch bolt 27 is yieldably supported, being surrounded by a coil spring 29 which normally holds the bolt partly projected within the body portion 11 of the lock casing as clearly illustrated in Figure 3. This latch bolt 27 is employed for a two-fold purpose, namely to engage and hold the false key against removal from the lock mechanism, and to also operate an alarm mechanism in a manner to be hereinafter more specifically described.

For this latter mentioned purpose the latch bolt 27 supports a pin 30 which projects from one end of the bolt at a right angle thereto as shown in Figure 3, and arranged to normally engage the offset flange 31 of a lever 32 which is fulcrumed as at 33 at a point between its ends upon the inner side of the front wall 10 of the casing. Pivoted on the lever 32 slightly above the lower end thereof is a reciprocating bar 34 which slides through a suitable guide 35 and is employed to effect a release of a trigger indicated generally at 36 for the sounding of the alarm above referred to, when the reciprocating bar 34 is shifted in one direction. While the alarm may be of any suitable character without departing from the

spirit of the invention, I preferably employ an alarm comprising a barrel 37 adapted to receive and support a cap 38 which is exploded when forcibly engaged by the trigger 36. The trigger is normally arranged in its inactive position as shown in Figure 2, and is released to assume its active position through the instrumentality of the reciprocating bar 34. The lever 32 is slightly beveled at its lower edge as at 39 to engage a correspondingly beveled surface formed on a catch 40 pivoted on the front wall of the casing as at 41. This catch is also provided with shoulders 42 and 43 which are engaged by the adjacent edge of the lever 32 and also by a lug extension 44 projecting from the lower end of the lever to hold the lever in its normal inactive position, as well as to limit the swinging movement of the lever 32 in one direction. The catch 40 is influenced by a spring 45 to hold the catch operatively associated with the lever 32 as will be readily understood.

The lever 32 is also formed with a beveled or inclined surface 46 at an appropriate point in its length, over which passes an extension 47 formed on a horizontally disposed lever 48 pivoted on a suitable bracket 49 as clearly illustrated in Figure 5. In the normal position of the parts the extension 47 of the lever 48 is arranged in advance of the lever 32 to engage the adjacent longitudinal edge of the latter and thereby assist in holding the lever 32 in its normal position. The lever 48 is provided with a slot 50 to receive one branch 51 of a substantially U-shaped spring 52, the other branch of which is engaged by an arm 53 projecting from the bracket 49. The U-shaped spring is mounted on a suitable bracket 54 and held attached to the latter by a bolt 55 as illustrated in Figure 2. The spring 52 influences the lever 48 in the direction of the front wall 10 of the casing so that the extension 47 is maintained in operative relation with the lever 32, but which spring also allows the lever 48 to swing upon its pivot to release the bolt 32 when the latter is actuated by the latch bolt 27 above referred to.

The reciprocating bar 34 carries a slide 56 which normally covers the auxiliary key hole 14 with the locking bolt 23 in its locked position, so that a latch key can not be inserted within the auxiliary key hole to operate the latch bolt 27. However, when the false key 59 is inserted within the key hole 13 in an effort to retract the locking bolt 23, the latch bolt 27 is actuated in the direction of the lever 32 to manipulate the latter and thereby sound the alarm. The false key sounds the alarm and in its locked position within the key hole the bar 34 is retained in a retracted position with the slide 56 to one side of the key hole so that the latter is uncovered and open for the reception of

the auxiliary key which is employed to release the false key by its engagement, when turned, with the depending lip 60 of the bracket 61 which is carried by the latch bolt 27.

5 The keys employed with the mechanism are indicated at 57, 58 and 59 in Figures 6, 7 and 8, the keys 57 and 59 having their bit portions particularly slotted as illustrated to straddle the lugs 26 on the locking bolt 23 when inserted within the main key hole 13 and subsequently turned in either direction. The bit portion on the key 57 is smaller than the bit portion on the key 59, and therefore when the key 57 which is the true key is employed, the bit is short enough to be turned without acting on the latch bolt 27 and will rotate until contacting with the lugs 26 to thereby lock or unlock the mechanism. However, when the false key 59 is employed it will bear against the curb portion of the latch bolt 27 forcing it back against the action of the spring thereby effecting the sounding of an alarm and the key will be entrapped in the keyhole as the bit will be too long to continue rotation. In order to release the trap key, the auxiliary key 58 will be necessary as this key effects the backward motion of the latch bolt 27. Both keys 57 and 59 are provided with longitudinal bores to receive the pin 21 when inserted within the key hole 13, the pin 21 making it necessary to employ a key of this particular character. The latch key 58 is of ordinary construction and is adapted to be inserted within the auxiliary key hole 14, after the slide 56 has been shifted to uncover the key hole 14. The key 58 when inserted within the key hole 14 and subsequently turned engages a depending flange 60 formed on a bracket 61 carried by the latch bolt 27, so that when the flange 60 is shifted in one direction through the instrumentality of the key 58, the latch bolt is retracted against the influence of its spring 29.

In practice, assuming the locking bolt is in its locked position, the parts of the mechanism are arranged as illustrated in Figure 2, with the slide 56 covering the auxiliary key hole 14. The latch key 58 may be termed a secretive key, in that it is in the possession of one authorized to manipulate the lock mechanism, and familiar with the construction of the latter and the order in which the number of keys should be used. When the false key 59 is initially inserted within the key hole 13, and subsequently turned in an effort to retract the locking bolt 23, the key 59 by reason of its construction engages the adjacent end of the latch bolt 27, retracting the latter until the bit of the key passes the latch bolt, whereupon the latter springs back and locks the bit of the key 59, and thereby prevents the key from being

turned in the opposite direction so as to register with the key hole and locks the latter against removal from the lock casing. Consequently a proper key 57 can not be inserted within the key hole 13 to manipulate the lock bolt 23, until after the false key has been removed as will be readily understood. When the false key is turned within the mechanism in an effort to retract the lock bolt 23, the latch bolt is retracted as above described, and during this movement of the latch bolt, the lever 32 is moved upon its pivot in one direction forcing the lever 48 to an inactive position, and is at the same time released from the catch 40 and lever 32 so that the latter is free to move the bar 34 to trip the alarm trigger. As the lever 32 is moved through the instrumentality of the latch bolt 27, the reciprocating bar 34 is simultaneously shifted in the direction of the trigger 36, engaging the latter to effect its release and allow it to move forcibly in the direction of the cap 38. Manifestly when the cap is engaged by the trigger 36 the cap is exploded to sound an alarm, and thereby informs others in the building that some one is attempting to manipulate the lock. When the reciprocating bar 34 is actuated for this purpose, the slide 56 is simultaneously shifted to a position to uncover the auxiliary key hole 13, so that the secretive key 58 can be used by the proper person to effect a release of the false key 59 which is now locked against movement within the mechanism. The key 57 can, of course, be employed in the first instance to unlatch the lock bolt 23 without the use of the other keys.

The key 58 is now inserted within the auxiliary key hole 14 and when turned in the proper direction engages the depending flange 60 of the bracket 61 carried by the latch bolt 27, thereby retracting the latter mentioned bolt to permit the false key to be turned in an opposite direction from that in which it was initially turned, so that the false key can be removed from the lock casing. Subsequent to the removal of the false key 59, the proper key 57 is then inserted within the key hole 13 and turned in the proper direction to retract the bolt 23. The bit of the key 57 is so constructed that it singly engages the lugs 26 on the bolt 23, and retracts the bolt a predetermined distance as it engages each lug. The bolt is herein illustrated with two of said lugs, although one or any number of such lugs may be employed without departing from the spirit of the invention. After the bolt has been retracted both the latch key 58 and the manipulating key 57 may be removed, although the use of the latter is necessary to project the lock bolt 23 to its active or locked position.

While it is believed that from the foregoing description the nature and advantages

of the invention will be readily apparent, I desire to have it known that I do not limit myself to what is herein illustrated and described, and that such changes may be resorted to when desired as fall within the scope of what is claimed.

What is claimed is:

1. In a lock mechanism, a casing having a main and an auxiliary key hole, a locking bolt, means associated with said bolt in its locked position for covering said auxiliary key hole, means adapted to be engaged by a false key inserted through the main key hole to prevent removal of said key, and actuated by said key to simultaneously uncover said auxiliary key hole, and means actuated by a key insertable within the last mentioned key hole and utilized to effect a release of the false key, and means actuated by an additional key for actuating said bolt.

2. In a lock mechanism, a casing having a main and an auxiliary key hole, a locking bolt, a slide normally covering the auxiliary key hole with said bolt in its locked position, means adapted to be engaged by a false key inserted through the main key hole to prevent removal of said key, and operable to shift said slide to one side of the auxiliary key hole, and means operable by a key insertable within the last mentioned key hole and utilized to effect a release of said false key, whereby an additional key may be employed for actuating said bolt when inserted within said main key hole.

3. In a lock mechanism, a casing having a main and an auxiliary key hole, a locking bolt, means normally covering said auxiliary key hole with said bolt in its locked position, a yieldably mounted latch bolt arranged to be engaged by a false key inserted within said main key hole and prevent removal of said key subsequent to the partial turning of the latter, means actuated by said latch bolt for uncovering said auxiliary key hole, means actuated by second key insertable within said auxiliary key hole and utilized to retract said latch bolt and permit the removal of said false key, whereby an additional key is insertable within the main key hole for actuating said locking bolt.

4. In a lock mechanism, a casing having a main and an auxiliary key hole, a locking bolt, an alarm, means normally covering said auxiliary key hole with said bolt in its locked position, means adapted to be engaged by a false key inserted through the

main key hole to prevent removal of said key, and to simultaneously uncover said auxiliary key hole, means actuated by the last mentioned means for simultaneously sounding said alarm, means actuated by a second key insertable within the auxiliary key hole and utilized to effect a release of said false key, whereby an additional key for actuating the locking bolt may be inserted within said main key hole.

5. In a lock mechanism, a casing having a main and an auxiliary key hole, a locking bolt, a slide normally covering said auxiliary key hole with said bolt in its locked position, a yieldably mounted latch bolt arranged to be engaged by a false key insertable within said main key hole, and prevent removal of the key from the casing, an alarm, means actuated by said latch bolt to automatically sound the alarm, and uncover said auxiliary key hole simultaneously with the locking of the false key within the casing, means actuated by a second key insertable within the auxiliary key hole and utilized to retract said latch bolt to effect a release of the false key, whereby an additional key for operating the lock bolt may be inserted within the main key hole.

6. In a lock mechanism, a casing having a main and an auxiliary key hole, a key actuated bolt, means adapted to be engaged by a false key to prevent removal of the latter from said casing, an alarm, alarm operating means actuated by said key engaging means and including a reciprocating bar, a slide carried by said bar and normally covering said auxiliary key hole, and shifted to an inactive position incident to the sounding of the alarm, whereby a key adapted to be subsequently inserted in said auxiliary hole may be employed to actuate said key engaging means and thus effect a release of said false key.

7. In a lock mechanism, a lock bolt adapted to be operated by a proper key, means included in said mechanism for preventing removal of an improper key applied thereto, means adapted for operation by a supplemental key for releasing said removal preventing means, and means normally preventing access to said releasing means and adapted for movement by said removal preventing means to uncover said releasing means.

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