No. 861,664. PATENTED JULY 30, 1907.

C. E. LEIGHTON.

LOCK PROTECTING DEVICE.

APPLICATION FILED JULY 18, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

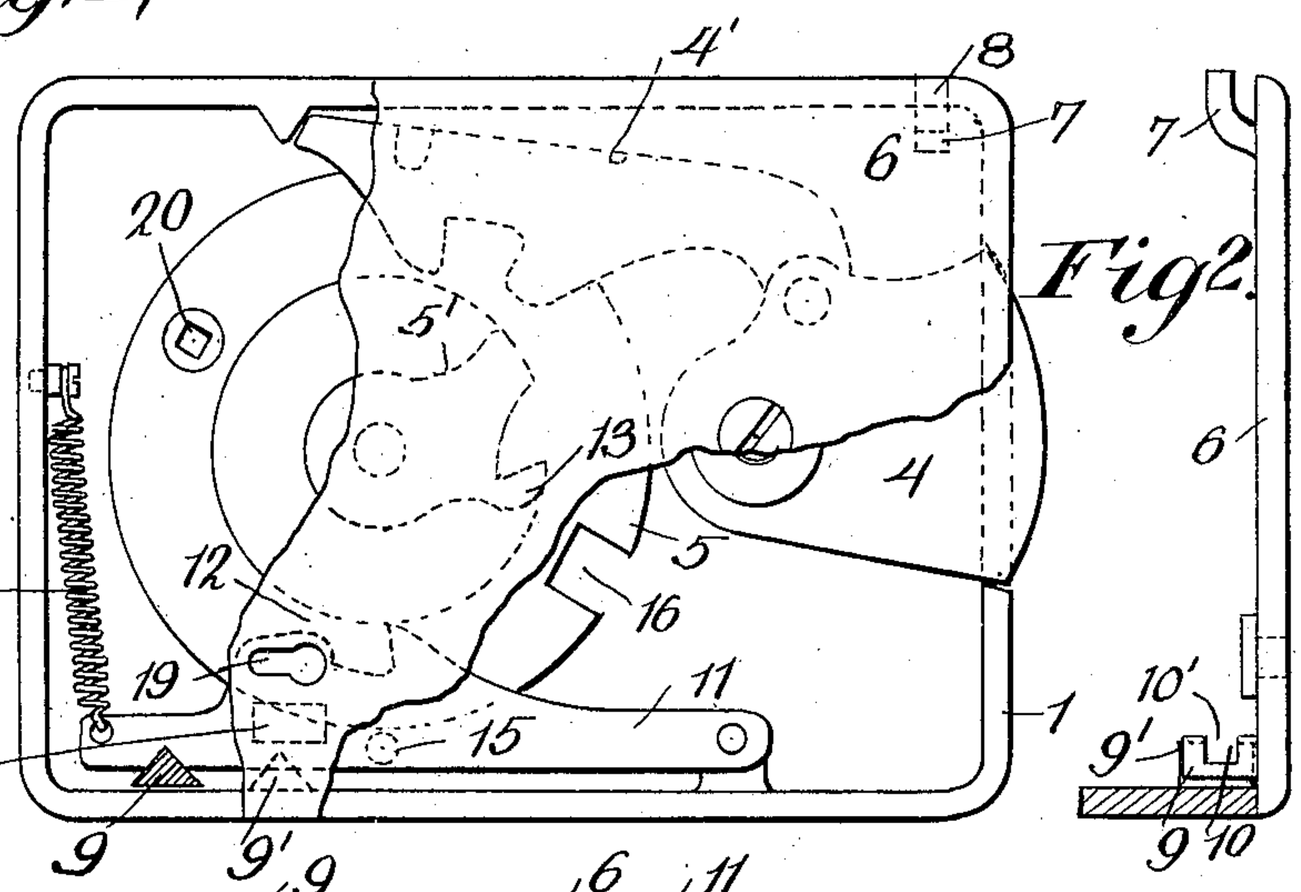


Fig. 2.

Fig. 3.

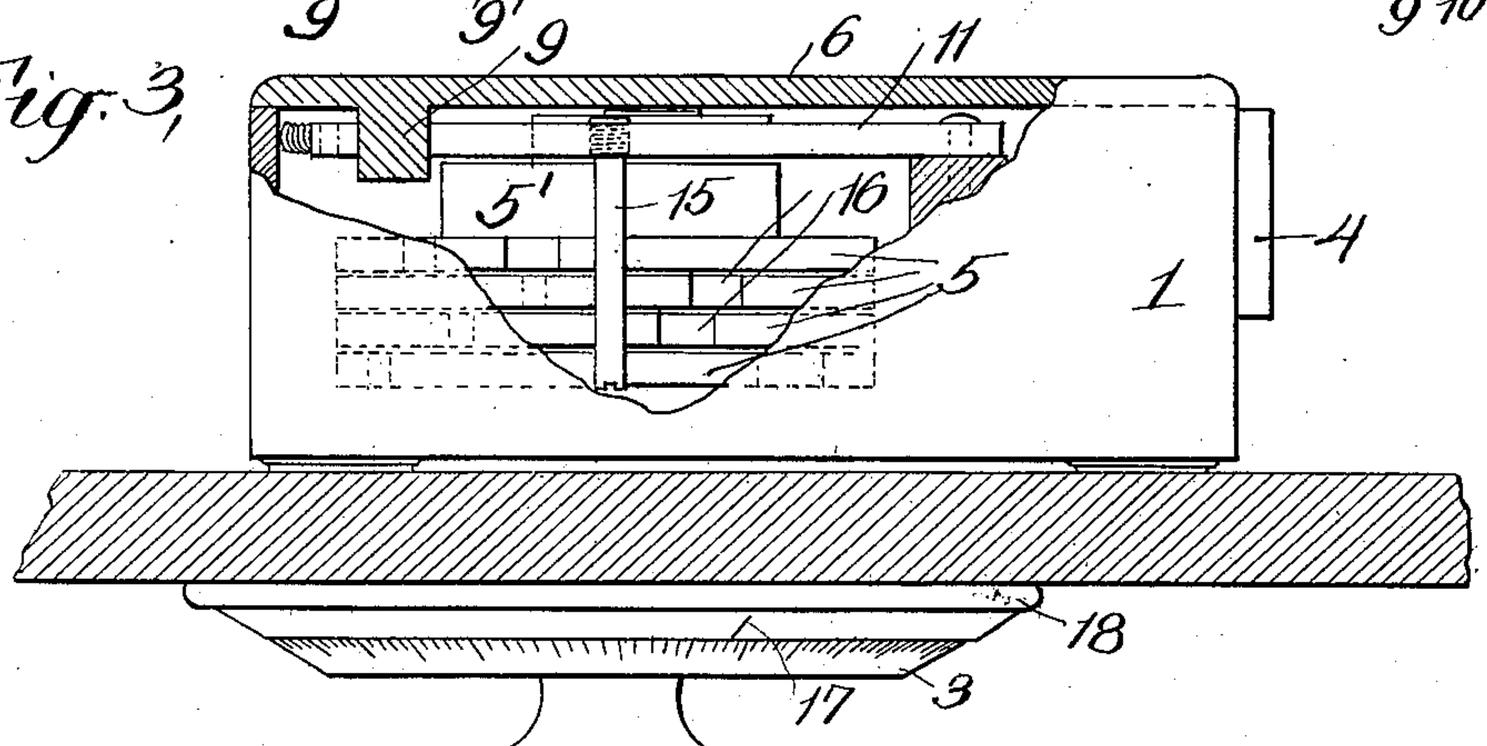
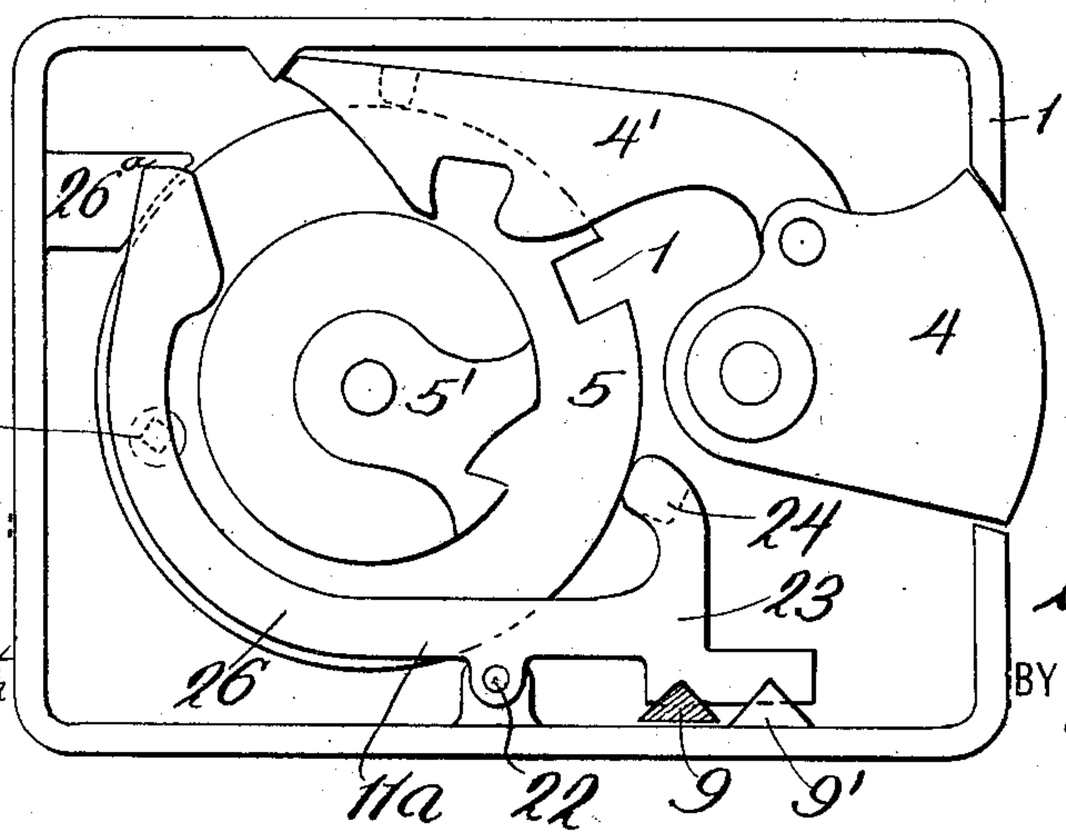


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 5,

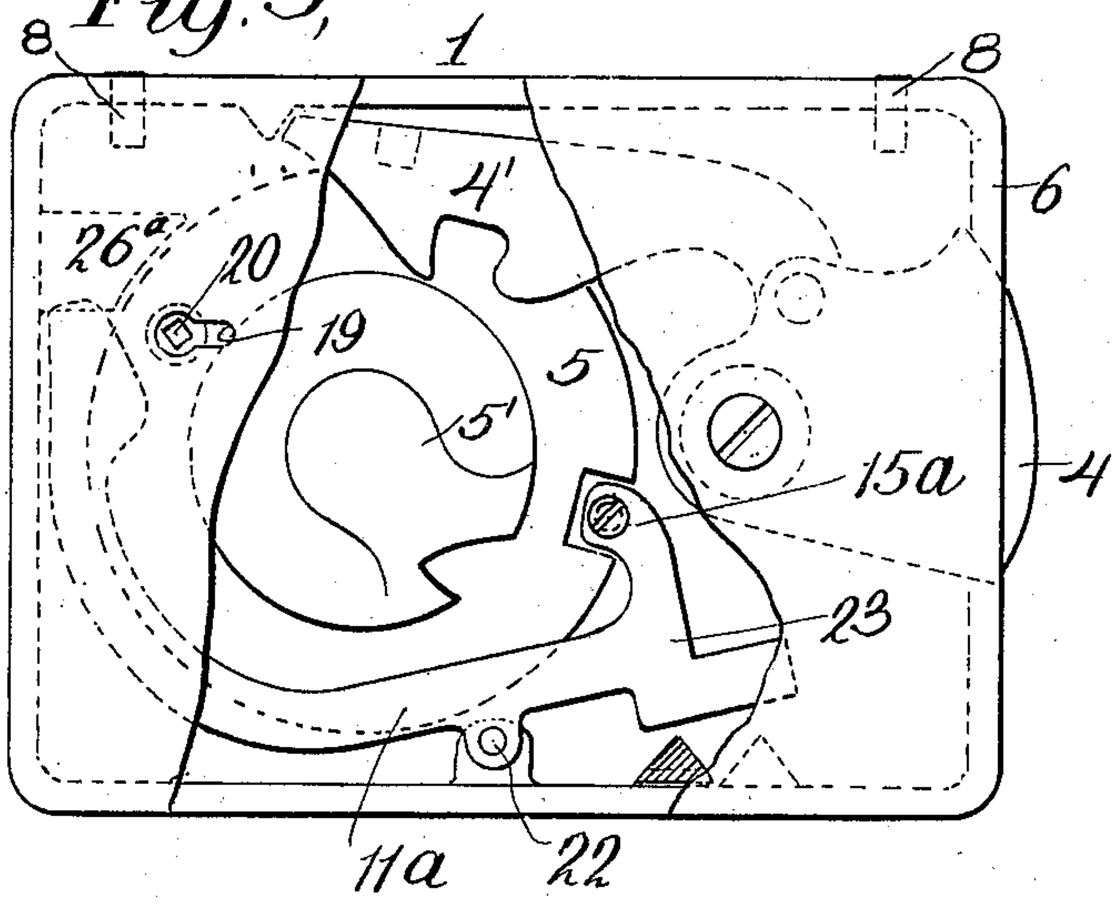


Fig. 6

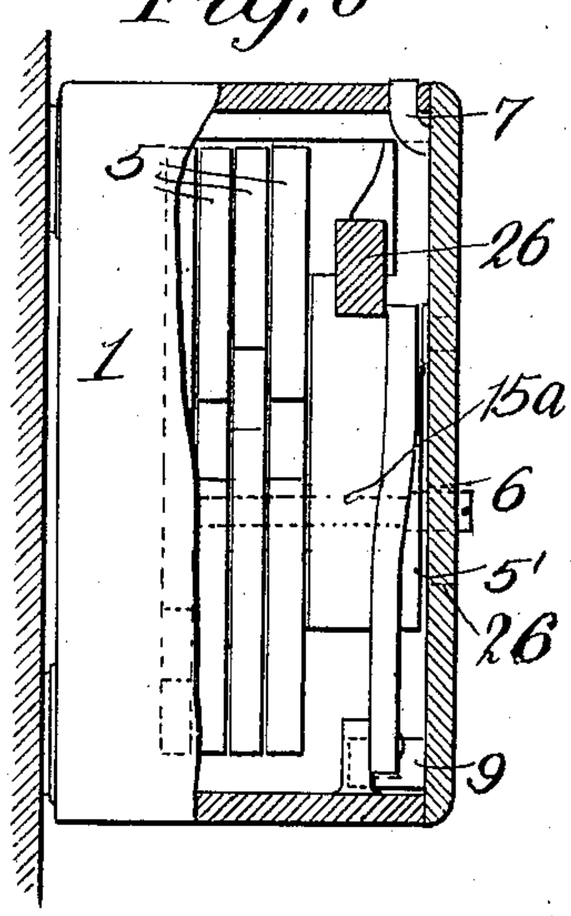


Fig. 7,

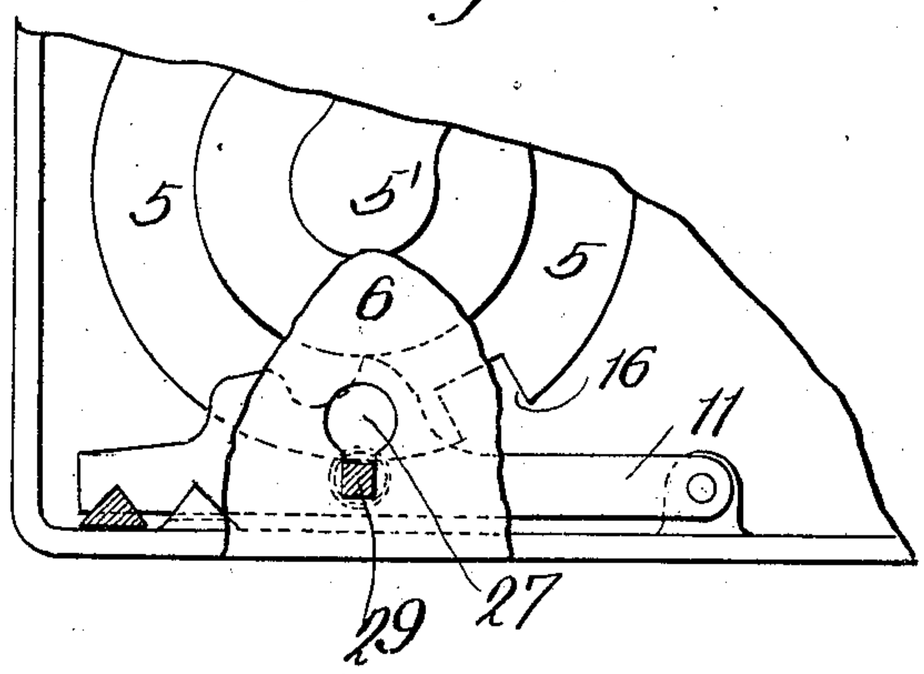
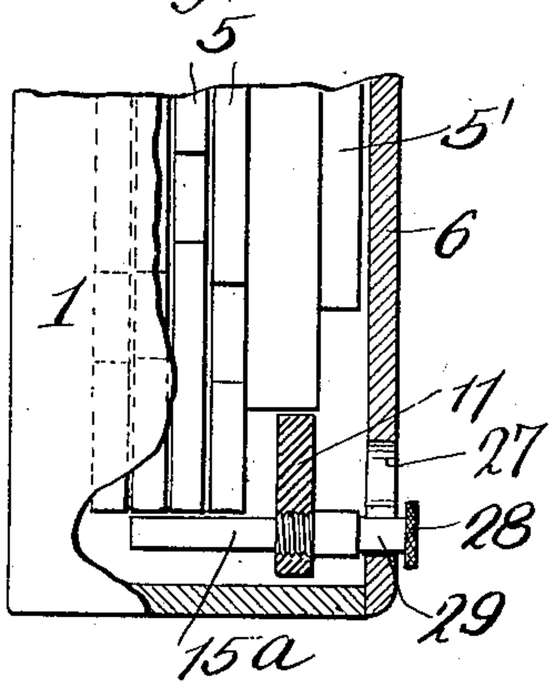


Fig. 8,



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UNITED STATES PATENT OFFICE.

CHARLES E. LEIGHTON, OF NEW YORK, N. Y., ASSIGNOR TO LEIGHTON LOCK PROTECTOR COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

LOCK-PROTECTING DEVICE.

No. 861,664. Specification of Letters Patent. Patented July 30, 1907.

Application filed July 18, 1906. Serial No. 326,722.

To all whom it may concern:

Be it known that I, CHARLES E. LEIGHTON, a citizen of the United States, residing at New York, in the borough of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Lock-Protecting Devices; and I do hereby declare the following to a be full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in lock protecting devices, and is particularly intended for use in connection with permutation locks such as are commonly used on the doors of safes and vaults, the purpose of my invention being to prevent persons who do not have the combination of the lock from gaining access to the lock case, or a part thereof, while the door of the safe or vault is open, and so to prevent such persons from learning the combination of the lock by examination thereof, or from becoming familiar with its construction, and to prevent tampering with the lock such as may lead to derangement thereof. My improved lock protecting device does not interfere with access to the lock mechanism by persons having the correct combination.

My invention consists in improved means for preventing removal of the back plate of the lock; in improved means for preventing changing of the combination of the lock; in improved means for rendering the locking device ineffective when desired, and generally more fully hereinafter described and particularly pointed out in the claims.

I will now proceed to describe my invention with reference to the accompanying drawings in which certain forms of lock protecting device embodying my invention are illustrated, and will then point out the novel features in claims.

In the said drawings: Figure 1 shows a rear view of a permutation safe lock of ordinary construction, portions of the back of the lock being broken away to show the interior mechanism. Fig. 2 shows a side view of the back plate of the lock removed. Fig. 3 shows a bottom view of the lock, a portion of the inclosing casing being broken away. Fig. 4 shows a rear view of the lock, with the back plate removed, and shows an alternative form of locking device for said back plate. Fig. 5 is a view similar to Fig. 4, except that the back plate is shown in place but partly broken away and the locking device is shown in the unlocking position. Fig. 6 is an end view of the lock shown in Fig. 5, a portion of the casing being broken away. Fig. 7 is a detail rear view of a lock such as shown in Fig. 1, indicating an alternative device for rendering the locking device inoperative when desired; and Fig. 8 is a side view of the construction shown in Fig. 7, a portion of the back plate being broken away.

Referring first to Figs. 1—3 inclusive, 1 designates a permutation lock of ordinary construction, 2 the knob thereof, 3 the dial, 4 the main bolt, 5, 5 tumblers arranged to be rotated by rotation of the knob. 4′ designates a pivoted member termed a "gate" pivoted to the bolt 4 and arranged to engage the false tumbler 5′ when permitted so to do by the tumblers 5, and thereby to withdraw the bolt 4 into the lock. 6 designates a removable back plate such as commonly provided in such locks. It is provided with claws 7 (Fig. 2) fitting into recess 8 indicated in dotted lines in Fig. 1, said claws thereby serving to hold the back plate at the top against removal. Near its lower edge said back plate is provided with a lug 9 having in it a notch 10 adapted to receive the locking member 11, and the lock case is provided with a similar lug 9′ having a notch 10′. Said locking member 11 in the form shown in Figs. 1 and 2, comprises an arm pivoted to the casing and having a notch 12 arranged to receive a cam face 13 formed on the false tumbler 5′. A spring 14 tends to pull locking member 11 upward. Said locking member is provided with a projecting pin 15, shown particularly in Fig. 3, extending transversely across the faces of the tumblers 5 and adapted to rise into the notches 16 of said tumblers when all of said notches are lined up opposite said pin 15. In normal operation of the lock the notches will not be so lined up; but when the lock is operated according to its proper combination, read with reference to a special mark 17 on the index ring 18 of the lock, the notches will be so lined up opposite pin 15, and said pin will then rise into said notches 16.

Normally, as above stated, the locking member 11 engages notch 10 of the back plate; but when said member 11 rises, as above stated, it disengages the back plate, which may then be unhooked. Member 15 is made removable from locking member 11 in order that when desired said pin may be removed, and the locking device rendered ineffective. It is desirable to do this particularly when testing the lock after changing the combination, in order that there may be no lock out in case the combination has been noted incorrectly. After the combination has been changed and the lock tested and the combination noted found correct, the pin 15 may be applied to the locking device 11 and then, upon putting on the back plate, and rotating the tumblers, the cam portion 13 of false tum-

bler 5′ will force locking member 11 down into the notch 10 of the back plate, thus holding the back plate in place.

In locks of the particular type illustrated in Figs. 1 and 2, in changing the combination a suitable key is inserted through a key hole 19 in the back plate into an orifice 20 in the tumblers, which at the time should be in line with key hole 19. If this key hole be blocked, the combination, of course, cannot be changed; and in the lock shown in Figs. 1, 2 and 3 the locking member 11 is arranged to close said key hole when in its normal locking position.

When the locking member 11 rises, as above described, its pin 15 fitting into the notches 16 of the tumblers, an aperture 21 in said member 11, which aperture is shown in dotted lines in Fig. 1, comes opposite the key hole 19 and therefore permits the insertion of a key in the said key hole.

Figs. 4, 5 and 6 illustrate an alternative form of locking device. In this form the locking device is a pawl 11[a] of peculiar construction, pivoted at 22 and having two arms, one, 23, provided with a laterally extending member 24 indicated in dotted lines in Figs. 4 and 5, adapted to enter the notches of the several tumblers, and corresponding substantially to pin 15 of Fig. 3. The other arm 26 of said pawl 11[a] extends part way around the tumblers into position to block access to the key hole 20 in said tumblers. Arm 23 of the pawl is adapted to enter a notch in a lug 9 projecting inward from the back plate, the same as does pawl 11 of Fig. 1; and the casing is provided with a projecting lug 26[a] just in rear of the end of arm 26 of said pawl, serving to strengthen said pawl against thrust of a key through key hole 19 against it. Normally arm 23 of the pawl engages the notch in lug 9 of the back plate, thus holding the back plate against removal, and arm 26 of the pawl blocks the key hole 19, preventing entrance of a key into the key hole 20 of the tumblers; when the notches of all the tumblers are lined up opposite lug 24 of the pawl, said pawl will drop by gravity, the lug 24 entering said notches and arm 26 moving out of line of the key hole 19 so that a key may be thrust through said key hole into the key hole 20 of the tumblers.

In the construction shown in Fig. 4 the locking device is rendered inoperative, when desired, by removing the pawl 11[a] bodily from the lock, which may be done after the back plate has been removed; and in the construction shown in Figs. 5 and 6 said pawl is provided with a removable pin 15[a], corresponding to the pin 15 of Fig. 1, for the same purpose.

In Figs. 7 and 8 I illustrate a form of locking device in which the pin or projection of the locking pawl which enters the notches of the tumblers, is removable through the back plate, without removing said back plate. The locking pawl 11 in this form is similar to that shown in Fig. 1, and has screwed into it a pin 15[a] adapted to engage the tumblers and to enter the notches thereof, the same as pin 15 of Fig. 3; but this pin 15[a] has a shank projecting outward through a key slot 27 in the back plate, and is provided at its end with a button 28. The portion 29 of this pin 15[a] which works in the key slot 27, is squared and fits the lower end of said key slot closely, as shown in Fig. 7. Therefore, until said pin 15[a] has entered the notches in the tumblers, it cannot be rotated and therefore the locking device cannot be rendered inoperative by the removal of the said pin. But when the notches of the tumblers have been lined up opposite pin 15[a] and said pin has entered said notches, its squared portion 29 comes into the enlarged upper portion of key slot 27, and said pin may then be unscrewed from arm 11 and removed.

What I claim is:

1. In a permutation lock, the combination with permutation mechanism, and an inclosing casing therefor having a main portion and a removable member, of a pivoted locking member mounted on one of said parts of said casing and engaging the other part thereof and provided with means engaging and controlled by the permutation mechanism of the lock, and normally preventing unlocking of said removable member; said casing comprising an aperture for the insertion of a key or other instrument, and said locking member blocking said aperture when in the locking position.

2. In a permutation lock, the combination with permutation mechanism, and an inclosing casing therefor having a removable member, of a pivoted locking member movably mounted in said casing and engaging said removable member and provided with means engaging and controlled by the permutation mechanism of the lock, and normally preventing unlocking of said removable member; said casing comprising an aperture for the insertion of a key or other instrument, and said locking member blocking said aperture when in the locking position.

3. In a permutation lock, the combination with permutation mechanism, and an inclosing casing therefor having a main portion and a removable member, of locking means for said member comprising a pivoted locking member movably mounted on one of said parts of said casing and engaging the other part thereof, and provided with a removable member engaging and controlled by the permutation mechanism of the lock, and normally preventing unlocking of said removable casing member; said casing comprising an aperture for the insertion of a key or other instrument, and said locking member blocking said aperture when in the locking position.

4. In a permutation lock, the combination with permutation mechanism, and an inclosing casing therefor having a main portion and a removable member, of a pivoted locking member engaging lugs of both said casing members and provided with means engaging and controlled by the permutation mechanism of the lock, and normally preventing unlocking of said removable member; said casing comprising an aperture for the insertion of a key or other instrument, and said locking member blocking said aperture when in the locking position.

5. In a permutation lock, the combination with permutation mechanism, and an inclosing casing therefor having a main portion and a removable member, of a pivoted locking member engaging lugs of both said casing members, one of said lugs between said locking member and said removable casing member, the other on the opposite side of said locking member, said locking member comprising removable means engaging and controlled by the permutation mechanism of the lock, and normally preventing unlocking of the said removable member.

6. In a permutation lock, the combination with permutation mechanism, and an inclosing casing therefor having a main portion and a removable member, of a pivoted locking member engaging lugs of both said casing members, one of said lugs between said locking member and said removable casing member, the other on the opposite side of said locking member, said locking member comprising means engaging and controlled by the permutation mechanism of the lock and normally preventing unlocking of said removable casing member, said locking member provided with an operating member extending to the exterior of the lock.

7. In a permutation lock, the combination with permutation mechanism, and an inclosing casing therefor having a main portion and a removable member, of a pivoted locking member engaging lugs of both said casing members and provided with a removable member, screw-connected thereto, engaging and controlled by the permutation mechanism of the lock and normally preventing unlocking of said removable casing member, and projecting through a slot in said casing and having a portion engaging the sides of said slot to prevent unscrewing of said member except when said locking member is in the unlocking position.

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

CHAS. E. LEIGHTON.

Witnesses:
H. M. MARBLE,
MAY I. TRIMBLE.