D. D. FRIX.

LOCK.

APPLICATION FILED JUNE 15, 1917.

1,321,298.

Patented Nov. 11, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

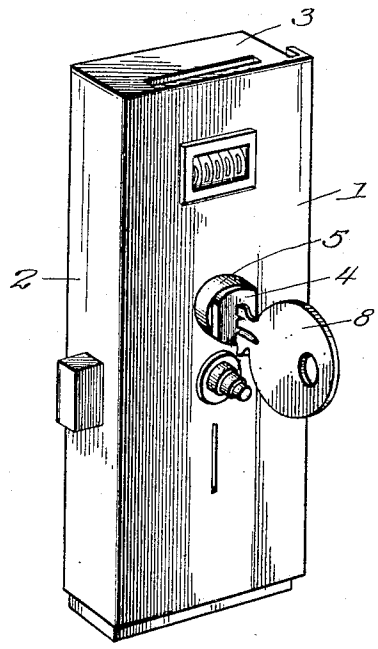


Fig. 2.

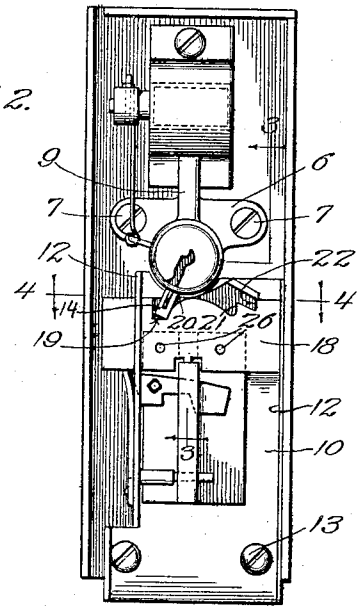
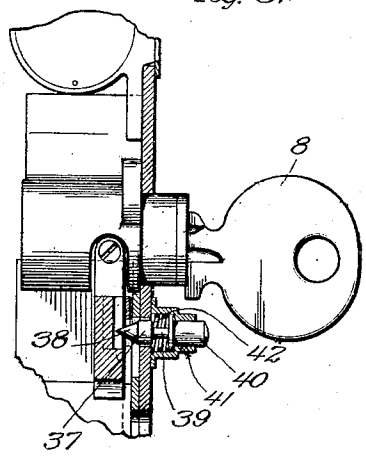


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

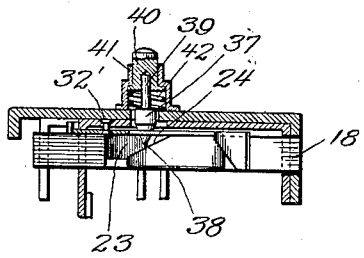


Fig. 5.

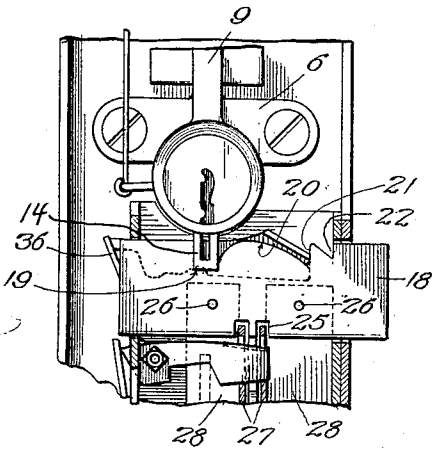


Fig. 6.

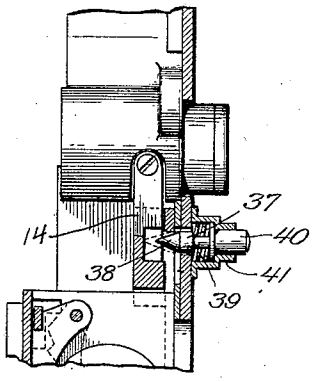


Fig. 7.

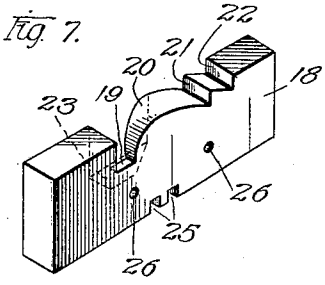
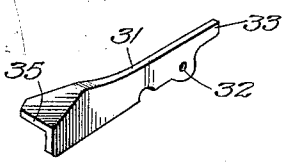


Fig. 8.



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UNITED STATES PATENT OFFICE.

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LOCK.

1,321,298. Specification of Letters Patent. Patented Nov. 11, 1919.

Original application filed May 11, 1916, Serial No. 96,796. Divided and this application filed June 15, 1917. Serial No. 174,861.

To all whom it may concern:

Be it known that I, DON D. FRIX, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Locks, of which the following is a description.

My invention belongs to that general class of devices known as locks, and has among its objects the production of a lock of the kind described that is simple, convenient, durable, efficient, compact, and satisfactory, for use wherever found applicable. The invention has particularly as an object the production of a lock which is especially suitable for use upon parcel checking lockers or compartments, wherein parcels to be checked may be placed in the locker, and upon deposit of a proper token, the lock may be thrown to lock the locker, the depositor withdrawing the key and taking the same as his check. When he desires he may return to the locker to insert his key and unlock the same, leaving the key secured in the lock for the next user. The key in the preferred type of lock mentioned cannot be withdrawn or the device locked without his depositing a coin. The present invention relates to a construction wherein it is necessary to perform an extra operation before the key can be actuated to unlock the device, regardless of whether or not it is a coin-controlled lock. For further reference and description of the parts shown in the drawings, and not referred to herein, reference may be made to my pending application, Serial No. 96,796, filed May 11, 1916, of which this is a divisional application.

Many other objects and advantages from those herein stated will be obvious to those skilled in the art from the disclosure herein given.

To this end my invention consists in the novel construction, arrangement and combination of parts herein shown and described, and more particularly pointed out in the claims.

In the drawings, wherein like reference characters indicate like or corresponding parts,

Figure 1 is a perspective view of a complete lock, with the bolt thrown into locking position, the front side of the lock being shown;

Fig. 2 is a rear elevation of the same, the bolt retracted;

Fig. 3 is an enlarged sectional view taken substantially on line 3—3 of Fig. 2;

Fig. 4 is a sectional view taken substantially on line 4—4 of Fig. 2;

Fig. 5 is a view similar to a portion of Fig. 2, but slightly enlarged, and the bolt thrown to locking position;

Fig. 6 is a view similar to Fig. 3, the bolt thrown;

Fig. 7 is a perspective view of the latch bolt; and

Fig. 8 is a perspective view of the bolt locking pawl.

Referring to the drawings, in which only the preferred form of the device is shown, and as applied to a coin-controlled lock, and to which use it is not limited, 1 represents a suitable body plate, which may be flanged at 2 and 3, it being understood that the body plate may be secured to the door frame or door of the locker or compartment, in any suitable manner. Ordinarily with a coin-controlled lock the same is placed on the door frame in such position that the latch bolt 18 may engage the free edge of the door or part carried thereby. Broadly speaking, my invention consists in its entirety in an improved construction in a key-controlled or actuated mechanism, or equivalent mechanism, such as a combination lock for controlling the locking or unlocking operation of the latch bolt, and my independent or supplemental mechanism for independently controlling the operation of the latch bolt.

In the construction shown I have provided a well known type of key-controlled mechanism, consisting of a rotatable barrel 4, arranged within a casing 5, the casing being preferably provided with a plate or flange 6, which may be secured to the back side of the lock plate by screws 7, or their equivalents for the purpose. As will be noted, the barrel 4 and the casing also, if desired, project through to the front side of the part 1, so that the key 8 may be inserted thereat. The casing is provided with suitable tumblers coöperating with tumblers in the barrel 4, which tumblers are manipulated or controlled by the key. This part of my device is a well known type of lock mechanism, and as any equivalent may be

employed, it is not necessary to describe the construction and operation of the same, other than to say that by inserting the key the tumblers are so alined or manipulated that the barrel 4 is or may be turned. The casing 5 is shown extended as at 9 to form a chamber for the tumblers referred to.

Arranged on the back of the plate 1, and carrying the lock bolt 18, is a plate 10, which is preferably flanged as at 11 and 12 at each side, the same being secured to the body 1 by screws 13, or their equivalents for the purpose. The lock bar 18 is slidably carried by the flanges of the plate 10 and flange 2 of the plate 1. The flanges 11 and 12 are each provided with an opening 17, and the flange 2 of the body plate with an opening 16 in alinement therewith, the same carrying the bar or bolt 18, and permitting the same to move out into the position shown in Figs. 1 and 8. The lock bolt is actuated by the part 14, carried by the barrel 4, or equivalent means.

The preferred construction of the latch bolt 18 may be best understood by referring to Figs. 6 and 10. The same is shown with a notch 19 for engagement with the part 14, the same having one side slightly rounded as at 20. The same is also notched or formed with shoulders 21 and 22 on the top face. At the back the same is notched or recessed as at 23 and formed with an inclined or cam face 24. The same is also preferably notched as at 25, and it may be provided with holes 26 for the attachment of the coin receptacle (not described).

Arranged adjacent the lock bar, as shown between the lock bolt and the plate 10, is a pawl or dog 31, which is shown in perspective in Fig. 8. This dog is provided with an opening 32, through which may be extended a pin 32′ (see Fig. 4) pivotally securing the same in place. The dog 31 is provided with an end 33 arranged to cooperate with the spring 36, and with an extension forming a shoulder 35, arranged to coöperate with the shoulders 21 and 22 of the latch-bar.

Preferably carried by the plate 1, and projecting therethrough, is a member 37, the same being tapered as at 38, and arranged to extend into the recess 23, or coöperate with the inclined or cam face 24 on the latch-bar. Member 37 is formed with an extended end 39, and may be operated or controlled in any suitable manner. As most clearly shown in Figs. 1, 4 and 6, the same is arranged to coöperate with a push button 40, which is arranged in the part 41 carried by the plate 1, a spring 42 operating to normally maintain the push button 40 in the position shown in the above figures. It may be mentioned that the push button shown is substantially like any of the well known push buttons, and after the same has been pushed in, a releasing spring returns it to its normal out position. The purpose of the push button is to force the member 37, and particularly the cam or beveled end 38, into the recess 23, and co-acting with the dog 31, it will raise the same substantially into the position shown in Fig. 2, this being more fully explained in the operation of the device. The cam face 24 returns the same to out position, when the latch-bolt is retracted.

The operation of the device may be briefly described as follows:

Assuming that the lock is unlocked, so that the parts are as shown in Figs. 2, 3 and 4, with the latch-bolt retracted within the device so that the door of the compartment or locker to which the lock may be applied, may be opened or closed without interference. Assuming that it is desired to lock the cabinet or locker, in which case the door is closed and the key turned. In case of a coin-controlled lock, the operation of the key might require the insertion of a coin before the latch bar was operated, for example as is set out in my application referred to, and unnecessary to describe the same herein.

As the latch bolt 18 is moved, the dog 31 drops to engage the first shoulder 22, so that the bolt cannot be retracted by the key. Continued movement of the key throws the latch bolt to its extreme position, and dog 31 engages the shoulder 21 on the latch bolt. In the lock shown, the key at this time may be withdrawn, the tumblers co-acting to lock the barrel carrying the locking member 14, against movement. The user of the locker may then use the key as his check, leaving his possessions securely locked in the compartment or locker. When he desires to re-possess himself of his property he returns to the compartment and inserts the key. It is necessary, however, in the construction shown for him to first push the button 40, thereby moving the member 37, so that the end 38 will move and extend into the recess 23, and engage the dog 31. This movement of the button causes the dog 31 to be raised, as indicated in Fig. 2, clearing the shoulders 21 and 22. The key may then be turned to retract the bar, as shown in Fig. 2. As it is retracted, cam face 24 engages the end 38 on the member 37, returning the same to its outward position.

In the lock shown, as soon as the bar is retracted, the same will be locked against further movement until another coin is deposited. It will be noted that with the construction described it is necessary to perform some operation more than the mere operation of the key, before the device may be unlocked. The reason for this is that with coin-controlled locks or keys, occasion-

ally the party using the locker deposits his coin and locks the compartment, and then even before withdrawing the key, or perhaps immediately after withdrawing it, thinks of something that he desires to put in or remove from the locker, and unless a guard was provided, would likely unlock the device. His coin having been deposited in the till, it will be impossible for him to again lock the same without inserting a new coin, and in such case he may feel that he has been imposed upon and paid his money without obtaining any return for it. By requiring him to push the button he is forcibly reminded by this before operation, that the complete cycle or operations for which he has paid his money is finished. This is the primary object in having it manually controlled rather than having it controlled automatically, as for example by first requiring the withdrawal of the key. It is also not so apt or likely to get out of order or become disarranged. It likewise has an advantage on locks of this type, as it is impossible to retract the bolt in an endeavor to take out the token. It will be noted that I have shown the spring 36 for controlling the dog 31. The weight of the dog itself would tend to cause it to return to operative engaging positions upon movement of the bolt. In describing the device I have referred particularly throughout the preceding description to its application to coin-controlled locks. I have not done this with the intention of implying that its use is so confined, but rather because it is such a desirable adjunct to a lock of that type.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence I do not wish to be understood as limiting myself to the exact form, construction, arrangement and combination of parts herein shown and described or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:—

1. In a lock of the kind described and in combination, a plate, a lock bar slidably carried thereby, actuating and controlling mechanism for said bar, means for automatically preventing the retracting of said lock bar after an initial movement thereof toward its operative locking position, manually operable means for releasing said first mentioned means after each movement of the lock bar to operative locking position.

2. In a lock of the kind described and in combination, a plate, a lock bar slidably carried thereby, actuating and controlling mechanism for said bar, means for automatically preventing the retracting of said lock bar after an initial movement thereof toward its operative locking position, manually operable means projecting to the front side of the plate, for releasing said first mentioned means after each movement of the lock bar to operative locking position.

3. In a lock of the kind described and in combination, a plate, a lock bar slidably carried thereby, actuating controlling mechanism for said bar, and means for automatically preventing the retracting of said lock bar after an initial movement thereof toward its operative locking position, comprising a pawl arranged to engage the bar, and means controllable from the front face of the plate for disengaging said pawl and bar after each movement of the bar to locking position.

4. In a lock of the kind described and in combination, a plate, a lock bar slidably carried thereby, actuating controlling mechanisn for said bar, and means for automatically preventing the retracting of said lock bar after an initial movement thereof toward its operative locking position, comprising a pawl arranged to engage the bar, and means for disengaging said pawl and bar, consisting of a pin projecting through the plate to the front face thereof, and formed on its inner end to co-act with the pawl.

5. In a lock of the kind described and in combination, a plate, a lock bar slidably carried thereby, actuating controlling mechanism for said bar, and means for automatically preventing the retracting of said lock bar after an initial movement thereof toward its operative locking position, comprising a pawl arranged to engage the bar, and means for disengaging said pawl and bar, consisting of a pin projecting through the plate to the back from the front face thereof, and formed on its inner end to co-act with the pawl, said bar formed with a cam face thereon arranged to co-act with said pin, whereby the pin is automatically retrieved upon the retracting of the bar.

6. In a lock of the kind described and in combination, a plate, a lock bar slidably carried thereby, means for normally preventing the retracting of said lock bar from its operative position to its inoperative position, comprising a pawl arranged to engage said bar, resilient means for normally maintaining said pawl in engagement therewith, after an initial movement of the lock bar, and manually operable means at the opposite side of said plate for releasing said pawl as desired.

7. In a lock of the kind described and in combination, a plate, a lock bar slidably carried thereby, means for normally preventing the retracting of said lock bar from its operative position to its inoperative position, comprising a pawl arranged to engage said bar, resilient means for normally maintaining said pawl in engagement

therewith, after an initial movement of the lock bar, and means at the opposite side of said plate for releasing said pawl as desired, comprising a pin extending through said plate, a push button at the exterior side of the plate arranged to co-act with the pin, means for retrieving said button, and means for retrieving said pin.

8. In a lock, a plate, a locking bar member movably arranged on the said plate, key controlled actuating mechanism for said locking bar member, said mechanism constructed to receive the key at the front side of the plate, in combination with automatically operable means for preventing a retracting of the locking bar member after an initial movement thereof toward its operative locking position, and manually operable means projecting to the front side of the plate for releasing said automatically operable means as desired.

In testimony whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

DON D. FRIX.

Witnesses:
ROY W. HILL,
CHARLES I. COBB.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."