June 16, 1931. C. V. DOYLE 1,810,468

LOCK

Filed Jan. 28, 1929

Fig. 1

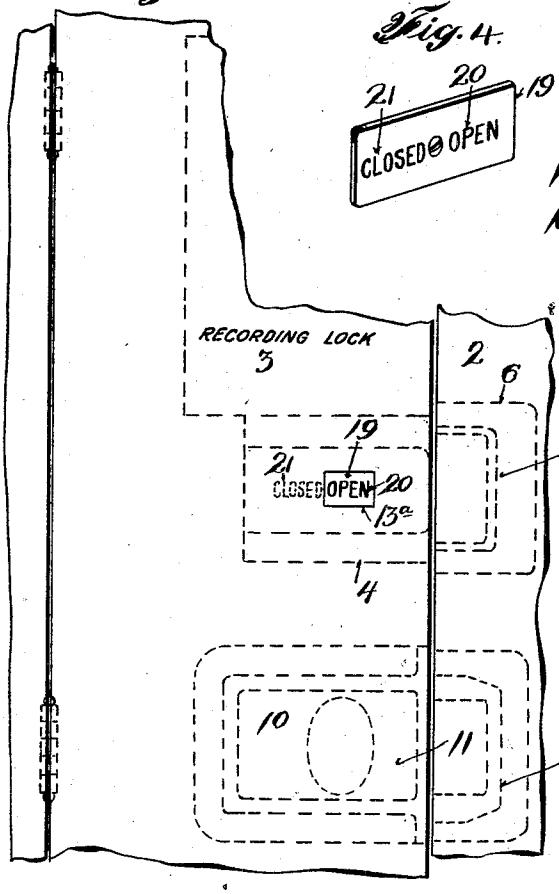


Fig. 4.

Fig. 2

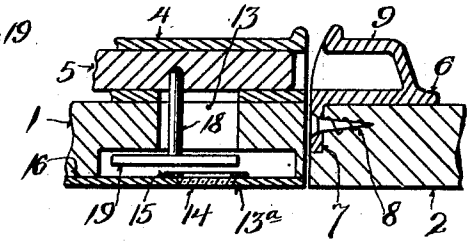


Fig. 3

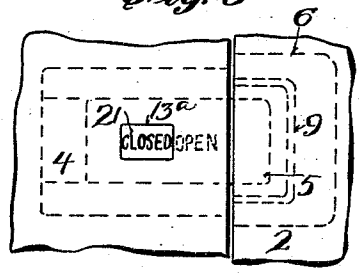


Fig. 5.

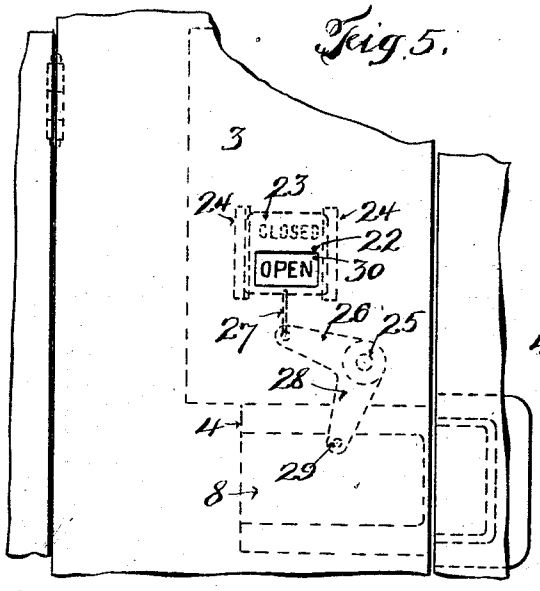


Fig. 6

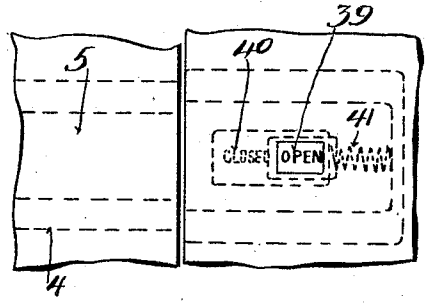
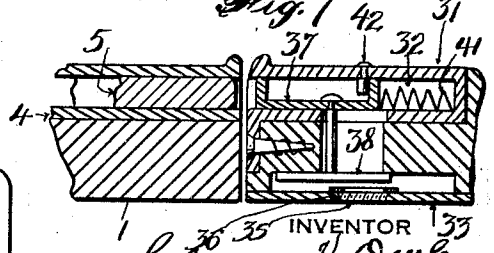


Fig. 7



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UNITED STATES PATENT OFFICE

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LOCK

Application filed January 28, 1929. Serial No. 335,452.

Recording locks are used on doors to indicate or record the periods of time during which such lock is locked. Generally there is a primary lock on the same door with the recording lock, which serves only to lock the door but not to record the operations thereof. It sometimes occurs that an employee will give the key of the recording lock to an unauthorized person with instructions to such person to operate the recording lock at a specified time, so that the employee may overstay his allotted time for absence without the excess time being recorded by the recording lock. In such instances the employee, to carry out his objective, did not have to give the unauthorized person the key to the primary lock, so that the latter person was not given access to the place protected by the locks. There have been provided combinations of recording and primary locks wherein the primary lock was dependent on its operation upon the operation of the recording lock, the purpose being to discourage the plan first described above, because the employee would not be likely to place in the hands of the unauthorized person the keys to both the recording and the primary locks. These devices have added somewhat to the complications of the locks and to the understanding of their operation. They were also very difficult to install.

The object of the present invention is to provide a recording lock which will defeat the undesirable practices referred to above as effectively as heretofore but with much simpler means for securing the results. Furthermore, the present device requires no special instructions to the person operating the lock, that is, the recording lock will be operated the same as an ordinary recording lock which is not supplied with the features of my invention.

To accomplish the defeat of improper use of the recording lock I have provided means which may be seen from the exterior of the door to which the invention is applied, which means will indicate when the recording lock is unlocked and the place is open for business. Preferably, the same means will also indicate when the recording lock is locked. Generally, and in the more complete combination of my invention, a primary lock will be used on the same door with the recording lock.

If the employee should unlock the recording lock for the purpose of recording the unlocking of the door, and leave the door protected only by the primary lock while he or she absented himself or herself, say to go for breakfast, the indicating means above referred to will indicate to anyone trying to enter the door, or in fact any member of the public within viewing range of the indicator, that the door is unlocked, (although in fact, the door is still guarded by the primary lock if there is one on the door) and it is considered that an employee will not be likely to permit this to occur and will, therefore, not operate the recording lock except in the manner intended. Nor will the employee be likely to carry out the operations through an unauthorized person acting in his or her place.

If a prospective customer should seek to enter the door when the recording lock is unlocked, and observing the open or unlocked signal while the door is still locked by the primary lock, such customer would be likely to report the fact to the owner or manager of the establishment and the fear of this happening serves to deter the employee from operating the recording lock except when the establishment is actually opened for business.

The present invention is very simple to embody in any type of recording lock, it is very inexpensive, and it does not complicate the mechanism of the lock or its operation. The application of the present device to a door is little more difficult than if the invention were not present.

In the drawings forming part of this application,

Figure 1 is a face view of a portion of a door and its frame, with my invention applied thereto, a portion of the keeper of the recording lock being broken away,

Figure 2 is a sectional view taken on the line 2—2 of Figure 1,

Figure 3 is a face view of part of the recording lock and keeper corresponding with

parts shown in Figure 1, but showing the indicator when the recording lock is locked,

Figure 4 is a perspective view of the indicator plate which is operated automatically with the operation of the recording lock,

Figure 5 is a view corresponding with Figure 1 but showing the invention in a modified form,

Figure 6 is a face view of a portion of the lock and keeper and showing the invention embodied in still another form, and

Figure 7 is a sectional view taken on the line 7—7 of Figure 6.

Referring first to the form of the invention shown in Figures 1 to 4 inclusive, I have shown a portion of an ordinary door which may be the outer door of a store, office, loft or other building. This door co-operates with the frame member 2 the locks hereinafter referred to being applied to one of these, preferably the door, whereas the keepers of the locks are applied to the frame member 2. At 3 I have indicated the main portion of a recording lock, details of the construction of the lock being omitted because the present invention requires no modification of the lock in general, the features being applicable to the bolt portion only. Any type of recording lock may therefore have the present invention incorporated with it.

There is a small box or extension 4 arranged below the main casing 3 of the recording mechanism and within this compartment there is arranged a horizontally sliding bolt 5 which is adapted to be operated by a key in the same manner as the ordinary bolt of the present type of recording lock. On the frame member 2 there is a keeper shown in the form of a plate 6 seating against the face of the door frame and having a flange 7 set into a recess in the frame and secured by the screws 8. The keeper has a housing 9 forming a pocket to receive the end of the bolt 5 when projected from the recording lock whenever the recording lock is actuated to lock the door in closed position. These features described above are all well known parts of recording locks now in general use.

It is preferred that the recording lock having the features described herein be used in conjunction with a primary lock on the same door, in which case the primary lock will be used to lock the door but not to record the periods when the door is locked or unlocked. The primary lock is shown at 10 in Figure 1 and it may consist of any type of lock suitable for locking a door, except that no recording mechanism is required. This lock has a bolt 11 adapted to be actuated by any key mechanism of well known form and the bolt is adapted to engage with the keeper 12 which is mounted on the door frame 2. In other words, the primary lock 10 attached to the same door as the recording lock, co-operates with its individual keeper 12 to lock the door in addition to or independent of the recording lock.

In the form of device shown in Figures 1 to 4 there is an opening 13 formed in the casing of the recording lock which opening registers with an opening 13*a* to the exterior of the door which is protected by the locks. There is a window for closing this opening and it is shown herein as consisting of a transparent member 14 which may be made of celluloid or glass, and it is shown attached against the outer face 16 of the door by means of a bezel 15 of the outside lock plate engaging the several edges of the transparent member. The bolt 5 of the recording lock is shown provided with a post 18 which may be made integral with the bolt or attached thereto and on the end of this post there is a plate 19 as shown at Figure 4 which is provided with the indicia to indicate to a person outside the building when the door is locked or unlocked. For this purpose I have shown the word " Open," as shown at 20 in Figure 4, applied to that surface of the plate 19 which lies adjacent the window 14.

While it is not necessary that the indicator show when the door is closed or locked I prefer to apply the word "Closed" or some similar indicia as shown at 21 in Figure 4 in line with the word "Open."

The operation of the invention in the form just described is as follows: When the employee is about to leave the premises he or she will first close the door and then throw the bolts of both the primary lock and the recording lock by inserting the usual keys in these locks and turning them so that the bolts are thrown in the same manner as if the present invention were not present. It does not matter whether the primary lock is locked first and the recording lock after it, or vice versa. When the bolt in the recording lock is thrown, the recording mechanism of this lock will be operated to indicate on a record strip the time when the door is locked, all of which will be through mechanism commonly used for that purpose. When the bolt 5 of the recording lock is thrown, that is, when it is projecting into the keeper 6—9 for the purpose of locking the door, the plate 19 moves simultaneously with the bolt and it will move across the window 14; and when the bolt 5 is fully projected into the keeper the portion of the plate bearing the word "Closed" or similar indicia will come into register with the window 14. A person on the exterior of the door will be able to read through the opening 13 and through the transparent window 14 the word "Closed" on the plate or any other indicia indicating that the door is locked. When the employee returns and desires to unlock the door he or she will again insert the key into the recording lock and turn the key to retract the bolt 5.

The recording mechanism will indicate on

the recording strip the time at which this operation is performed. When the bolt is retracted in this operation to the position shown in Figure 2, the plate 19 again moves with the bolt 5 and when the bolt reaches the retracted position the portion of the plate 19 which bears the word "Open" or similar indicia will then be in register with the window 14. At such times persons on the outside of the door will be able to read through the window 14 the word "Open" or any equivalent word indicating that the door is unlocked. If the employee should only unlock the recording lock, leaving the primary lock still locked, and then leave the premises, the "Open" indicia will remain visible to persons outside the door. A prospective customer attempting to open the door and finding it still locked by the primary lock but with the "open" matter showing through the window, will be likely to report the condition to the owner or proprietor of the premises. A suitable notice may be stamped or cast on or adjacent the recording lock, directing members of the public, if the open sign is in view while the door is still locked by the primary lock, to report immediately the fact to the owner or proprietor of the establishment. It is considered improbable that an employee will unlock the recording lock for the purpose of establishing a record of unlocking the door, and then leave the door still locked by the primary lock.

In the form of the invention shown in Figure 5, the same result is accomplished except that the plate bearing the indicia moves vertically instead of horizontally. In this case the door is provided with an opening 22 of sufficient size to expose one of the words on the sliding plate 23.

This plate is movable vertically in a pair of guides 24 attached to or formed on the under side of the outside plate of the recording lock. There is a bell crank lever pivoted on the pin 25 outside the casing 3 and in a recess in the door and one arm 26 of this lever is pivoted to a link 27 the other end of the link being pivoted to the sliding plate 23. The downwardly extending arm 28 of this bell crank lever is connected pivotally by a pin 29 with the sliding bolt 8 of the recording lock which pin travels in a slot in the casing 3. In this form of the device when the recording lock is actuated to lock the door the bolt 5 moves to the right in Figure 5 to project into the keeper and in making this movement the bell crank lever is rocked so that the arm 26 moves downwardly and this acts through the link 27 to move the plate 23 downwardly until the word "Closed" or similar indicia is in register with the window 30. When the bolt is retracted upon the unlocking of the recording lock, the bell crank lever is rocked in the opposite direction so that the plate 23 is moved upwardly until the word "Open" or similar indicia is in register with the window. The result obtained with this form of device is the same as that of the first described construction. There is the advantage, however, that the thrust or movement of the plate 23 may be greater than that of the bolt by proportioning the arms of the bell crank lever for that purpose.

In Figures 6 and 7 I have shown another modified form of the invention. In this case the indicating device is mounted in the keeper and the bolt of the recording lock is not necessarily modified for the present invention. The bolt 5 in this case, which is the bolt of the recording lock, is slidable horizontally in the casing 4 in the same manner as if the present invention were not employed.

The keeper which is attached to the frame member 2 comprises a shell 31 having a socket 32 in which the bolt 5 of the recording lock is adapted to engage for the purpose of locking the door. The plate 33 of this keeper is provided with an opening 34 which is covered by the window 35 of transparent material, and this may be held in place by the frame 36 on the inner side of the wall 33 similar to the window in the first construction. The indicating plate in this case is shown as a plate 37 having a flange 38 which slides against the rear wall of the keeper 31 and the open and closed indicia are placed on the front surface of this plate as shown at 39, 40 in Figure 6. There is a spiral spring 41 connected at one end with the plate 37 and its other end is connected with the end wall of the keeper, which spring tends to project the plate 37 toward the left or into the position shown in Figure 7 where its movement is limited by a stop screw 42. The operation of this form of the invention is as follows: When the bolt 5 of the lock is retracted or in the unlocked position, as shown in Figure 7, the plate 37 is held by the spring 41 in the left hand position, engaged with the stop pin 42 and the indicia 39 indicating that the door is unlocked is then in register with the window 35. If the recording lock is actuated to lock the door, the bolt 5 moves to the right in Figure 7 to project into the keeper and when it does so it presses against one end of the plate 37 and causes this plate to move to the right against the opposition of the spring 41 so that when the bolt is fully projected into the keeper the indicia 40 on the plate 37 indicating that the door is locked will be in register with the window 35. This form of the invention may be employed where it is desired to avoid modifying the bolt of the recording lock.

In all forms of the invention I have provided simple means for indicating from the exterior of the door when the recording lock is unlocked. The indicating means is positively operated whenever the recording lock is operated. The device is simple and does

not complicate operation of the recording lock, nor is it necessary to instruct the employee to operate either or both locks in any particular manner because they are both operated the same as if the present invention were omitted.

Having described my invention, what I claim is:

1. The combination of a closure, a primary lock, a recording lock, both of said locks being adapted to fasten the closure in the same position, said recording lock having means for recording the time at which said closure is locked and unlocked by the recording lock, and means to automatically indicate to persons exterior of said closure when the recording lock is unlocked while the closure is in its closed position.

2. The combination of a closure, a primary lock and a recording lock, both of said locks being adapted to fasten the closure in the same position, said recording lock having means to record the time at which said closure is locked and unlocked by the recording lock, and means to automatically indicate to persons exterior of said closure when the recording lock is locked while the closure is in its closed position.

3. The combination of a closure, a primary lock and a recording lock, both of said locks being adapted to fasten the closure in the same position, said recording lock having means to record the time at which said closure is locked and unlocked by the recording lock, and means to automatically indicate to persons exterior of said closure whether the recording lock is locked or unlocked while the closure is in its closed position.

4. The combination of a closure, a primary lock and a recording lock, both of said locks being adapted to fasten the closure in substantially the same position, said recording lock having means to record the time at which the closure is locked and unlocked by the recording lock, and means to positively disclose to persons exterior of said closure when the closure is unlocked by the recording lock, while the closure is in its locked position.

5. The combination of a closure, a primary lock and a recording lock, both of said locks being adapted to fasten the closure in substantially the same position, said recording lock having means to record the time at which the closure is locked and unlocked by the recording lock, and means to positively disclose to persons exterior of said closure when the closure is locked by the recording lock, while the closure is in its locked position.

6. The combination of a closure, a primary lock and a recording lock, both of said locks being adapted to fasten the closure in substantially the same position, said recording lock having means to record the time at which the closure is locked and unlocked by the recording lock, and means to positively disclose to persons exterior of said closure whether the closure is locked or unlocked by the recording lock, while the closure is in its locked position.

7. The combination of a closure, a primary lock and a recording lock, both of said locks being adapted to fasten the closure in substantially the same position, said recording lock having means to record the time at which said closure is locked and unlocked by the recording lock, and means to surely indicate to persons exterior of said closure when the closure is unlocked by the recording lock while the closure is in its locked position, said means rendering it impossible to unlock said recording lock without operating the indicating means.

8. The combination of a closure, a primary lock and a recording lock, both of said locks being adapted to fasten the closure in substantially the same position, said recording lock having means to record the time at which the closure is locked and unlocked by the recording lock, and means to surely indicate to persons exterior of said closure when the closure is locked by the recording lock, while the closure is in its locked position, said means rendering is impossible to lock the recording lock without operating the indicating means.

9. The combination of a closure, a primary lock and a recording lock, both of said locks being adapted to fasten the closure in substantially the same position, said recording lock having means to record the time at which the closure is locked and unlocked by the recording lock, and means to surely indicate to persons exterior of said closure whether the closure is locked or unlocked by the recording lock, while the closure is in its locked position, said means rendering it impossible to lock or unlock the recording lock without operating the indicating means.

10. The combination of a closure, a primary lock and a recording lock, both of said locks being adapted to fasten the closure in substantially the same position, said recording lock having means to record the time at which the closure is locked and unlocked by the recording lock, and means to surely indicate to persons exterior of said closure whether the closure is locked or unlocked by the recording lock while the closure is in its locked position, said means rendering it impossible to indicate that said closure is locked by the recording lock unless a locking operation of said recording lock is effected.

11. The combination of a closure, a primary lock and a recording lock, both of said locks being adapted to fasten the closure in substantially the same position, the recording lock having means to record the time at which the closure is locked and unlocked by

said recording lock, and means to surely indicate to persons exterior of said closure whether the closure is locked or unlocked by the recording lock while the closure is in its locked position, said means rendering it impossible to indicate a locked or unlocked condition of said recording lock unless a locking or unlocking operation of the recording lock is effected.

12. The combination of a closure, a primary lock and a recording lock, both of said locks being adapted to fasten the closure in substantially the same position, the recording lock having means to record the time at which the closure is locked and unlocked by the recording lock, and means to surely indicate to persons exterior of said closure when the recording lock is unlocked, while the closure is in its locked position, said means rendering it impossible to indicate that the closure is locked by the recording lock if an unlocking operation of said recording lock is effected.

Signed at the city, county, and State of New York, the 11th day of January, 1929.

CLARENCE V. DOYLE.