O. C. RIXSON.

LOCK.

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1,316,327.

Patented Sept. 16, 1919.

Fig. 1.

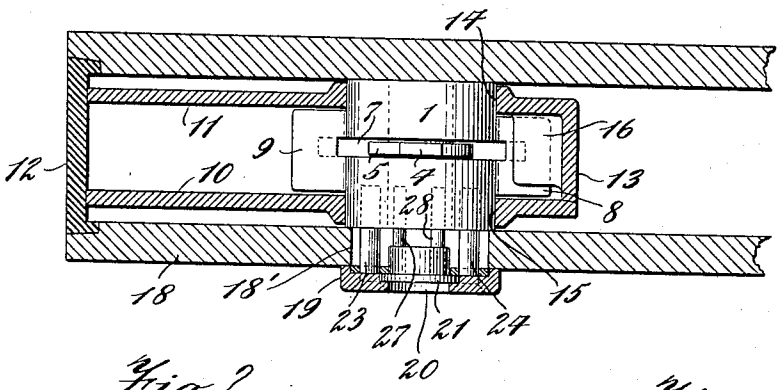


Fig. 2.

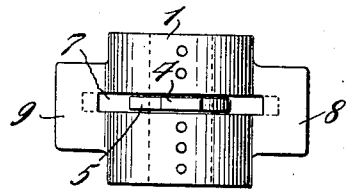


Fig. 4.

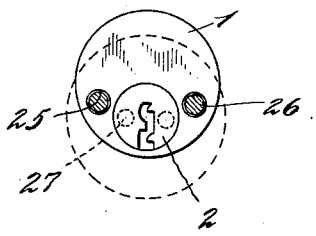


Fig. 3.

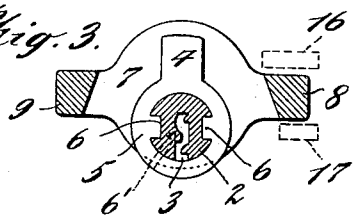


Fig. 6.

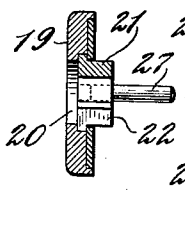
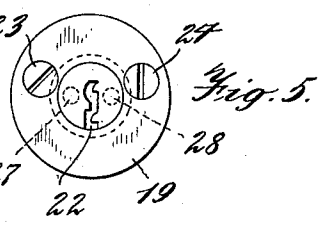


Fig. 5.



WITNESS:

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LOCK.

1,316,327. Specification of Letters Patent. Patented Sept. 16, 1919.

Application filed November 30, 1918. Serial No. 264,832.

To all whom it may concern:

Be it known that I, OSCAR C. RIXSON, a citizen of the United States, residing at New Rochelle, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Locks, of which the following is a full, clear, and exact description.

This invention relates to locks and has special reference to that type of lock with which is commonly associated a key mechanism contained in a detachable casing.

The key mechanism referred to usually comprises a series of pin tumblers and a rotatable key-way plug carrying a cam, is usually cylindrical in form, and is ordinarily associated with a mortise lock by passing it through a circular opening in one of the side plates of the mortise lock and allowing it to extend through a corresponding circular opening in the structure of the door so that the round head or face of the tumbler cylinder will be exposed upon the outside of the door to receive the key. These pin tumbler locks or cylinders have ordinarily been provided with an external screw thread and the opening in the side of the mortise lock has been provided with a corresponding thread into which the tumbler lock is screwed, the tumbler lock being finally held in position by a set screw which passes through the face plate of the mortise lock and enters a groove in the shell of the tumbler lock to prevent it from being unscrewed from its seat. A defect in such construction resides in the fact that the set screw can be easily removed when the door is open, or by applying a wrench to the exposed head of the tumbler lock and using a little force it can be twisted to cut off the end of the set screw, whereupon, in either case, the tumbler lock can be unscrewed and removed from the door. With this cylinder lock removed from the mortise lock and the door, an opening is afforded through which the finger, or a suitable instrument, can be inserted to throw the main bolt of the door. A cylinder lock thus associated with a mortise lock must be removed from its seat in the mortise lock before the latter can be either inserted in or removed from the mortise because it projects laterally from the frame of the mortise lock and engages with the lateral opening in the structure of the door.

My invention is designed to afford a construction, whereby it becomes impossible to remove the pin tumbler lock from the mortise lock without first removing the mortise lock entirely from the door and also renders it unnecessary to remove the pin tumbler lock when either applying the lock to the door or removing it therefrom.

In the accompanying drawings, wherein my invention is illustrated;

Figure 1 is a section through that portion of a door containing the mortise lock, the section passing through the mortise lock and showing the pin tumbler lock seated therein;

Fig. 2 is a plan of the pin tumbler lock;

Fig. 3 is a central transverse section of the pin tumbler lock;

Fig. 4 is a front elevation of the tumbler lock proper;

Fig. 5 is a face view of a disk or escutcheon for the tumbler lock; and

Fig. 6 is a section through the center of Fig. 5.

The pin tumbler lock consists of the cylinder 1 provided with the usual eccentrically-arranged plug 2 in which the keyhole and passage 3 is formed, this plug being adapted to rotate within a cylindrical seat in the main cylindrical frame. 4 is a cam or crank arm adapted to be rotated with the plug 2 to actuate the bolt mechanism of the mortise lock. This cam is usually attached to the rear end of the plug outside of the main cylinder, but in the present case it is carried at the middle part of the plug. For this purpose the cam is provided with a ring 5 having two inwardly projecting lugs 6, 6, which enter two grooves, respectively, extending longitudinally of the plug, and to hold the cam in position upon the plug a lateral screw 6′ is passed through the ring into the plug. In order that the cylinder 1 may accommodate this cam at its mid location upon the plug, it is provided with a transverse slot 7, which extends across the entire diameter of the cylindrical frame and is of a width to permit the easy swing of the cam therethrough. In order to hold the two extremities of the cylindrical frame 1 together, notwithstanding this transverse slot, the frame is provided with two lateral protuberances 8 and 9 which form rigid connections between the two ends of the cylinder.

The mortise lock comprises the usual rectangular casing formed by the side plates 10 and 11, the face plate 12 and the flange 13. To accommodate the tumbler lock, the two

face plates 10 and 11 are provided with concentric openings 14, 15, in which the extremities of the cylindrical frame 1 fit, the total length of the frame of the tumbler lock being such that its end faces will be substantially flush with the outer faces of the side plates 10 and 11. In order to hold the tumbler lock firmly in this seat, the mortise lock casing is provided with two parallel lugs 16 and 17 between which the protuberance 8 is confined. With the cylinder lock thus associated with the mortise lock, it will be seen that the two locks cannot be separated without removing the mortise lock from the door and then removing one of the side plates 10 or 11. The pin tumblers, indicated by 50, are arranged in a row and for practical purposes are five in number, three being located on one side of the cam and two on the other. When thus associated the length of the cylinder is necessarily limited to the thickness of the casing of the main lock and in order to mount the cam 4 at the end of the cylinder and provide for its swing within the casing of the main lock, the cylinder would have to be further shortened to such an extent that there would not be sufficient space left for the five tumblers. As a means of carrying out my invention, therefore, I have devised the plan described of placing the cam at an intermediate point in the cylinder and locating the two terminal tumblers at the respective ends of the cylinder. This arrangement affords ample accommodation for the five tumblers and the cam, besides providing for the secure mounting of the cylinder in the main lock casing.

To afford access for the key to the pin tumbler lock, a circular opening 18′ is provided in the structure of the door 18 axially with the key plug 2 of the tumbler lock. This opening is to be covered by an escutcheon plate or disk 19 in the center of which is a circular orifice 20 in which is fitted to rotate a short cylindrical plug 21 having a keyhole 22 of the same pattern as the keyhole of the plug 2 and arranged in line with the latter so that when the key is passed through the plug 21, it will be accurately guided thereby into the keyhole 3 of the plug 2. When the escutcheon plate with its plug 21 is applied to the opening in the door, the plate itself is secured to the head of the lock 1 by means of two screws 23 and 24, which pass into threaded holes 25 and 26, respectively, in the lock. At the same time the short guiding plug 21 is secured to the main key plug 2 by means of pins 27, 28, which pass through the short plug and into the end of the key plug. In this way the guiding plug 21 and the key plug are held in fixed relation to each other. By this means of attaching the escutcheon plate with its short plug 21 to the tumbler lock, any thickness of the door structure is compensated for by the screws and pins which may enter to a greater or lesser extent into the head of the main lock.

It will be seen that any attempt to operate the lock without a key, by removing the escutcheon plate is defeated by the fact that access to the mechanism of the mortise lock is barred by the presence of the cylinder lock, which as before stated, cannot be removed without removing the mortise lock from the mortise.

I claim:

1. The combination of a mortise lock, a second lock mounted in the frame of the mortise lock and removable therewith from the mortise, and an escutcheon detachably connected with and spaced from the said second lock.

2. The combination with a lock provided with a rotary plug having a passage for a key of an escutcheon spaced therefrom and provided with a rotary member having a key passage and detachably connected with said plug.

3. The combination with a lock provided with a rotary plug having a passage for a key of an escutcheon therefor provided with a rotary member having a key passage, the escutcheon and rotary member being respectively detachably connected with the lock and plug.

4. The combination of a mortise lock having openings in its casing, and a second lock mounted in said casing and extending into said openings and having lateral lugs engaging the inner faces of the casing to prevent the removal of the second lock from the casing of the mortise lock.

5. A lock comprising a cylindrical body in two parts separated by a space in a transverse plane, lateral lugs bridging said space and connecting the parts together, a rotary key plug common to both parts, a cam carried by the plug and swinging in said space, and a series of radial tumblers intersected by said space.

6. The combination of a mortise lock having a casing provided with two concentric circular openings in its opposite side plates and with a pair of spaced lugs adjacent said openings, and a cylindrical lock mounted in said casing with its extremities projecting into said openings respectively and provided with a lug confined between the said two lugs in the casing to prevent the rotation and dismounting of the cylinder lock.

7. The combination with a mortise lock, of a second lock located within the casing of the mortise lock and removable therewith from the mortise, said second lock provided with a rotary plug having a passage for a key, and an escutcheon for said second lock provided with a rotary member having a key passage and spaced from the second lock.

8. The combination with a mortise lock, of a tumbler lock located within the casing of the mortise lock and removable therewith from the mortise, said tumbler lock comprising a cylindrical key plug having a passage for a flat key, a single series of pin tumblers radially disposed with respect to the plug and arranged parallel to each other and in the same plane, and a flat key having a line of bitting on one edge only.

9. The combination with a mortise lock, of a tumbler lock located within the casing of the mortise lock and removable therewith from the mortise, said tumbler lock comprising a cylindrical key plug and a series of pin tumblers radially disposed with respect to the plug and arranged parallel to each other and in the same plane, and a roll-back carried by the plug and arranged in a plane intersecting the series of pin tumblers.

10. The combination with a mortise lock, of a tumbler lock bodily removable therefrom and having a cylindrical key plug and a single series of pin tumblers radially disposed with respect to the plug, arranged parallel to each other and in the same plane, said tumblers being located wholly within the frame of the mortise lock when the tumbler lock is associated therewith.

In witness whereof, I subscribe my signature.

OSCAR C. RIXSON.