July 23, 1935. R. S. GOLD 2,008,668

LOCK

Filed Jan. 6, 1933

Fig. 1.

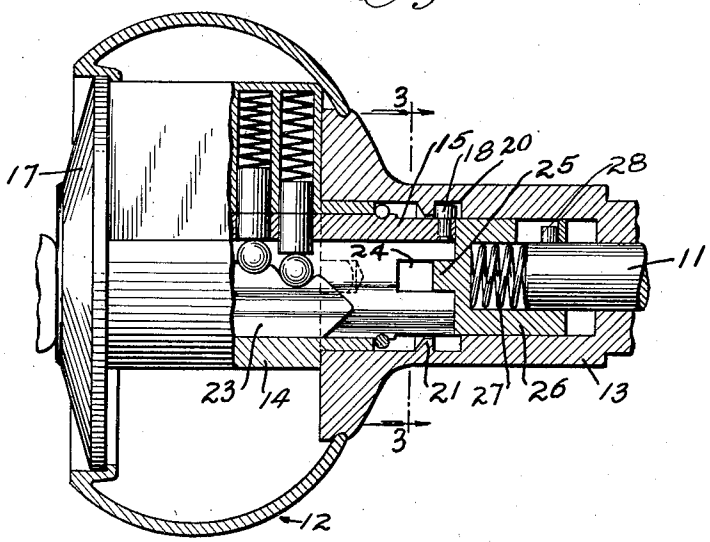


Fig. 2.

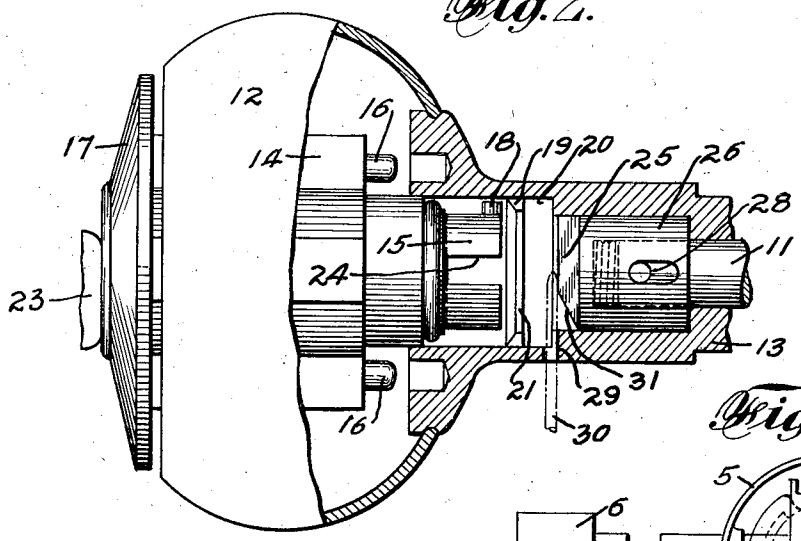


Fig. 4.

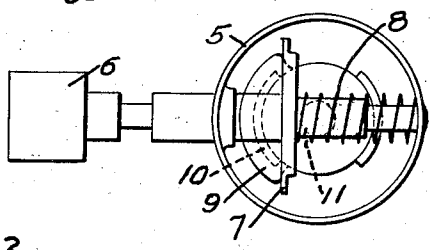
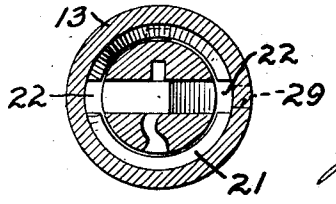


Fig. 3.



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LOCK

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Application January 6, 1933, Serial No. 650,422

11 Claims. (Cl. 70—91)

My invention relates to a lock device, and more particularly to a removable lock.

In hotels, apartment houses, office buildings, private dwellings and the like, it is often desirable to remove a lock to reset tumblers or for other purposes.

It is an object of the invention to provide simple, inexpensive means permitting ready removability of a lock or lock part from its case.

It is another object to provide a removable lock which is normally securely held in its case and which may be readily removed by means of an ordinary passkey and an external instrument.

Other objects will be hereinafter pointed out or will become apparent upon reading the specification in connection with the drawing.

In the drawing which shows, for illustrative purposes only, one preferred form of the invention—

Fig. 1 is a central vertical sectional view in partial elevation of a locking device embodied in a knob lock and illustrating features of the invention;

Fig. 2 is a top plan view in partial horizontal section of parts shown in Fig. 1, the key plug being rotated to a position at right angles to that shown in Fig. 1 and the lock partially withdrawn;

Fig. 3 is a sectional view taken substantially in the plane of the line 3—3 of Fig. 1;

Fig. 4 is a more or less diagrammatic view of a type of lock capable of use in connection with my invention.

While my invention may be employed in connection with locks and latches of different types and embodied in various types of knobs, casings, etc., the invention is illustrated in connection with a knob lock applied to a latch unit of the general type disclosed in McKinney Patent No. 1,865,128, dated June 28, 1932. Such a latch unit is partially illustrated in Fig. 4, wherein 5 designates a cylindrical latch case to be fitted in an opening in a door. The latch 6 extends from the lock case 5 and is retracted through the medium of a crosshead or retractor 7 in the latch case and is projected by means of a spring 8, as will be understood. A knob cam or rollback 9 is positioned to engage the crosshead 7 for latch retraction when the knob is turned in the usual manner. A second cam or rollback 10 is positioned to also engage the crosshead 7 for latch retraction and is actuated by a spindle 11, which is key operated. Thus, upon actuation of either of the rollbacks 9 or 10 the latch will be retracted, and when the knob is dogged against rotation by suitable means (not shown) the latch may still be retracted by means of the key actuated rollback 10.

The knob designated generally 12 may be secured to the knob rollback 9 in any suitable manner. The spindle 11, as illustrated, extends into the shank 13 of the knob and is key actuated, as will appear. A suitable lock, such as the pin tumbler lock 14, is positioned in the housing and embodies a key actuated plug 15. The lock may be non-rotatively held in the knob or other casing, as by means of dowels 16—16, as will be understood. As illustrated, the lock 14 carries a finish or face-plate 17, in this case secured thereto and closing the opening in the knob through which the lock is inserted. The lock or a lock part, such as the plug, may be held against withdrawal from the knob or casing by various means, so arranged as to securely hold the lock or lock part in place during normal actuation of the plug and arranged to permit the lock or lock part to be removed upon or after an abnormal rotative movement of the plug.

In the form shown the plug and knob shank 13 are provided with interengaging parts, such as an abutment or pin 18 carried by the plug, which may engage in rear of an abutment flange 19, which may be formed by suitably grooving the shank, as indicated at 20. Preferably such groove 20 extends completely around the knob shank, and the abutment 19 at the top is divided from a corresponding abutment 21 at the bottom by means of one or more interruptions 22—22 (Fig. 3). While one abutment, such as 19, will suffice to hold the lock in place in the described form, the lower abutment 21 is preferably provided so as to permit the lock to be used on either a right or left hand door, it being understood that when changing from a right to a left hand door the knob would be inverted, while the cylinder lock would preferably remain in its present position.

It will be clear that with the usual passkey 23 the plug 15 may be turned so as to cause the abutment pin 18 to register with one of the interruptions 22, after which the lock may be fully inserted and the plug again turned to cause the abutment pin 18 to stand behind the abutment or shoulder 19 and, so long as the plug is not again turned sufficiently far to bring the pin 18 opposite one of the interruptions 22, the lock will be securely held in the knob against withdrawal. The plug is normally held against what I term an "abnormal" rotation, that is, a rotation sufficient to permit withdrawal of the lock from

the knob, by suitable means, preferably the lock actuated part, in this case the spindle 11.

The plug and spindle are arranged to be detachably coupled together. In the form shown the plug is provided with a slot or keyway 24, while an interfitting key or tongue 25 is carried by a coupling sleeve 26, spring pressed toward the plug by means of a spring 27, and non-rotatably held to the spindle 11, as by means of the pin and slot connection 28. With the plug 15 and spindle 11 coupled together as shown in Fig. 1 it will be clear that the plug may not partake of a greater rotation than the spindle 11, and the spindle 11 is limited in its rotation by any suitable means, such as a tail piece on the crosshead 7 of the lock coming into contact with the rear of the lock housing 5, as will be understood. Thus, with the plug and spindle 11 coupled together the plug may not be turned sufficiently far during latch actuation to bring the abutment pin 18 opposite one of the interruptions 22, and the lock is securely held in the knob.

When it is desired to remove the lock from the knob the spindle and plug are uncoupled from each other so as to free the plug from the spindle 11, and the plug then may be rotated sufficiently far to free the pin 18 from the abutment 19, and the lock may be withdrawn, as heretofore indicated.

In order to permit uncoupling of the plug and spindle 11 I preferably provide the shank 13 with a small transversely extending aperture 29, for the reception of a small tool, such as a nail or the like 30, which tool engages a part of the coupling member 26, so as to withdraw the key-tongue 25 from the keyway 24. In the form illustrated the key-tongue 25 at one side is beveled off, so as to provide a cam surface 31, to be engaged by the instrument 30, so that, by a mere insertion of the instrument the coupling sleeve 26 will be withdrawn to the position shown in Fig. 2, after which the plug 15 may be freely rotated and the lock withdrawn. When it is desired to again insert the lock the plug is key turned, so as to cause the abutment pin 18 to be free of the abutment 19, after which the lock is inserted, and even though the key-tongue 25 be positioned so as to be out of register with the keyway 24, the coupling sleeve 26 will be forced rearwardly, and as soon as the abutment pin 18 is engaged behind the abutment 19, the plug may be turned and the key 25 will snap into the keyway 24. It is, of course, possible also to move the coupling sleeve 26 to its rearmost position, as shown in Fig. 2, by means of the instrument 30 before the lock is inserted in place.

It will thus be seen that I have provided means to permit ready removal of a lock or lock part from a lock casing, such as a knob. No special keys are required, since ordinary passkeys serve to rotate the key plug. No special tools are required, since an instrument, such as a nail 30, may be employed for uncoupling the plug from its actuated part, so as to permit sufficient rotation of the plug to permit disengagement of the holding means and the removal of the lock.

While only a single means, such as the abutments 18, 19, for holding the lock in place has been illustrated and shown as holding merely the plug and with it the remainder of the lock, it is to be understood that various other methods may be employed, dependent for effectiveness on a particular positioning of the key plug.

Various other modifications and changes may be made within the scope of the invention as defined in the appended claims.

I claim:

1. In a device of the character indicated, a lock case, a cylinder lock including a key actuated plug, a plug actuated part, means for holding said cylinder lock in said case in all normal rotative positions thereof, coupling means between said key plug and said plug actuated part, said coupling means being operable by means independent of the plug actuating key for uncoupling said key plug and plug actuated part, for the purpose described.

2. In a device of the character indicated, a lock case, a cylinder lock including a key plug therein, a plug actuated part, coupling means between said key plug and plug actuated part for coupling the same together, said coupling means being operable to uncouple said key plug and plug actuated part by means inserted transversely of said key plug from the outside of said lock case, and means for holding said key plug against withdrawal from said case.

3. In a device of the character indicated, a knob having a shank, a cylinder lock including a key plug in said knob, means for holding said plug in said knob in all normal rotative positions of said plug, a plug actuated part, and coupling means for coupling said part and key plug together, said coupling means being operable to uncouple said key plug and part by means insertable in an opening in said shank and accessible when said shank and knob are assembled with a door, for the purpose described.

4. In a device of the character indicated, a lock case, a cylinder lock, including an operating part carried thereby, a part to be actuated by said operating part, said parts being normally coupled together, means for limiting the movement of one of said parts whereby movement of the other part is limited, and means for securing a part of said cylinder lock in said case, said means being effective during said limited movement, said parts being actuable relatively to each other by means independent of the means for operating said operating part to uncouple said parts, for the purpose described.

5. In a device of the character indicated, a knob having a shank, a cylinder lock in said knob, means for normally holding said lock in said knob, said lock having a key actuated plug, and a plug actuated part normally coupled to said key plug for rotation therewith, said shank having means to permit the uncoupling of said key plug and plug actuated part, said means for normally holding said lock in said knob being operable to release said lock from said knob only after said plug and plug actuated part are uncoupled.

6. In a device of the character indicated, a lock case, a cylinder lock therein including a key-actuated plug, a plug-actuated part, said key plug and part being normally coupled together, and means for normally securing a part of said cylinder lock to said lock case, said lock case having an opening in the region where said key plug and plug-actuated part are coupled together, whereby an instrument may be inserted for uncoupling said key plug and plug-actuated part, for the purpose described.

7. In a device of the character indicated, a lock case, a cylinder lock including a key actuated plug, means for holding said plug in said case in all normal rotative positions of said plug, a plug

actuated part, and means for coupling said key plug and plug actuated part together, comprising a coupling member, said coupling member being movable relatively to one of said coupled parts for uncoupling said key plug and plug actuated part, said lock case having an opening affording access to said coupling member when said lock case is assembled with a door for uncoupling said key plug and plug actuated part, for the purpose described.

8. In a device of the character indicated, a knob, a cylinder lock including a key operable plug, means for securing said cylinder lock in said knob and operable to release said cylinder lock from said knob upon an abnormal rotative movement of said key plug, a plug actuated part, and a coupling member for coupling said key plug and plug actuated part to each other, said key plug when coupled being held by said plug actuated part against abnormal rotative movement, said coupling member having a cam surface and the shank of said knob having an opening for the insertion of an instrument to engage said cam surface for uncoupling said key plug from said plug actuated part, whereby said key plug may be rotated to abnormal position, for the purpose described.

9. In a device of the character indicated, a knob, a cylinder lock comprising a key actuated part, a part to be actuated thereby, one of said parts carrying a coupling member capable of movement relatively to one of said parts for coupling and uncoupling said parts, the shank of said knob having an opening for the reception of an instrument to uncouple said parts, and means for securing said cylinder lock in said knob, said means being operable to release said lock and knob upon a predetermined rotation of said plug.

10. In a device of the character indicated, a knob, a cylinder lock including a key operable plug in said knob, a spindle, and a coupling member carried by said spindle, said coupling member and key plug having keying means for keying said plug and spindle for unitary rotative movement, said key plug and a part of said knob having interengaging means for holding said cylinder lock in said knob during normal spindle operating movement of less than a complete revolution of said key plug, said interengaging parts being disengageable from each other upon movement of said key plug greater than normal movement when uncoupled from said spindle, said spindle when coupled serving to limit the rotative movement of said plug to said normal rotation of less than a complete revolution, the shank of said knob having an aperture therein for the reception of means to move said coupling member for uncoupling said key plug and spindle.

11. In a device of the character indicated, a lock case, a cylinder lock comprising a key plug therein, a plug actuated part, and a coupling member having keying means for keying said key plug and plug actuated part for unitary rotation, said coupling member having a cam surface and said lock case having an opening adjacent thereto for the reception of means to engage said cam surface for uncoupling said key plug and plug actuated part, for the purpose described.

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