Dec. 8, 1931. W. E. WREAD 1,835,130

LOCK

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Fig. 1

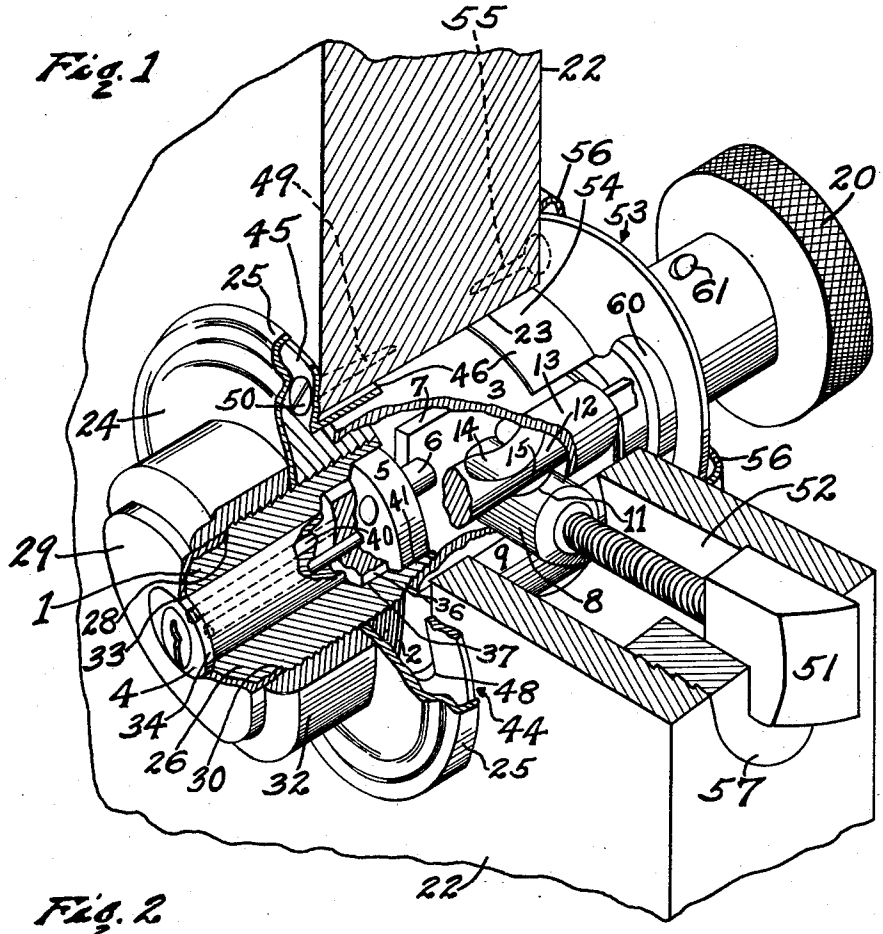


Fig. 2

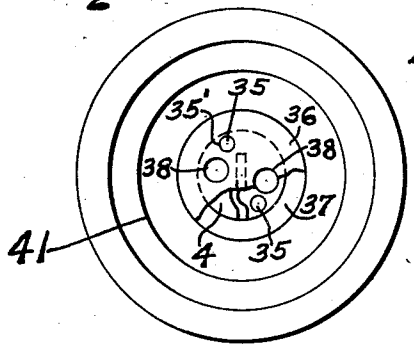


Fig. 3

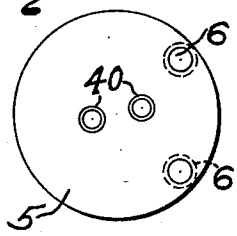
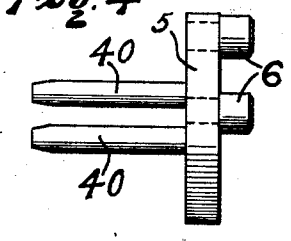


Fig. 4



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LOCK

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Fig. 5

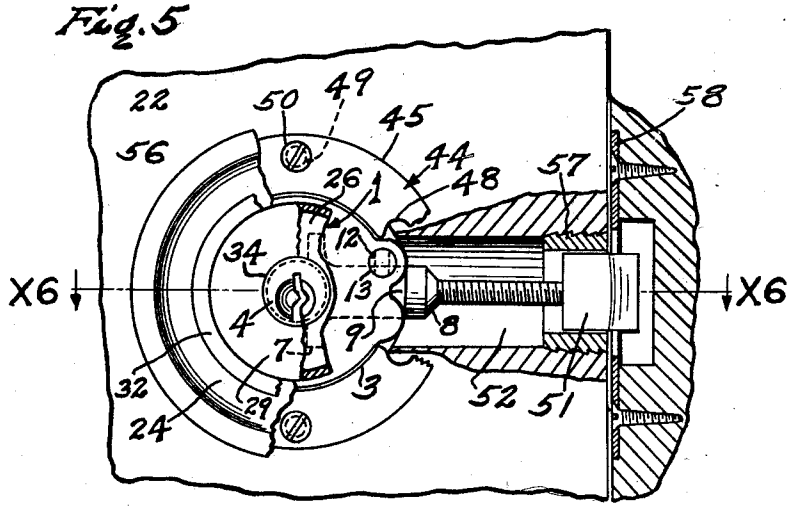


Fig. 7

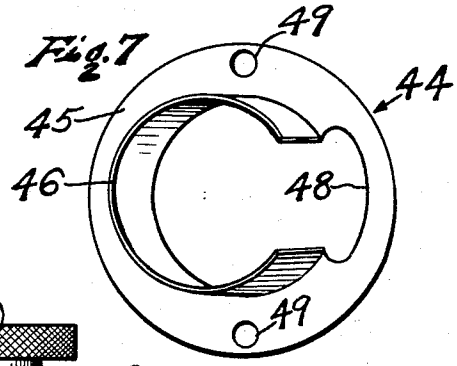
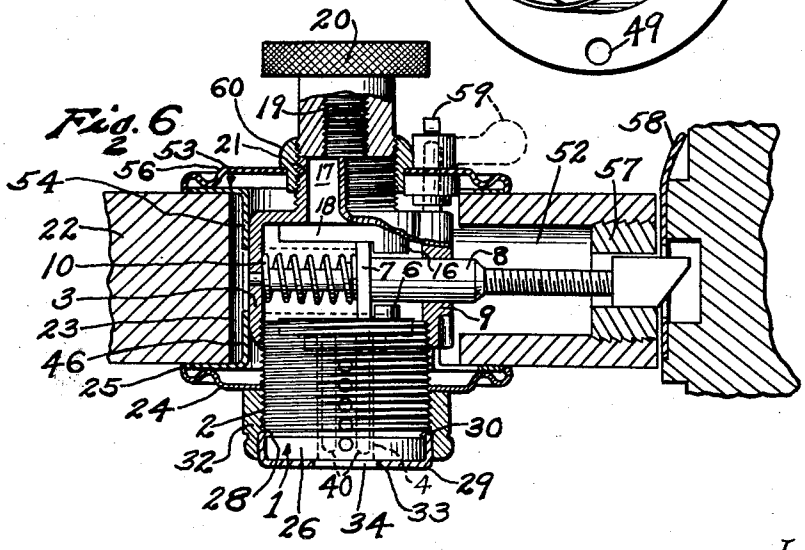


Fig. 6



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Patented Dec. 8, 1931 1,835,130

UNITED STATES PATENT OFFICE

WILLIAM E. WREAD, OF LOS ANGELES, CALIFORNIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO McKINNEY MANUFACTURING COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA

LOCK

Application filed October 8, 1927. Serial No. 224,972.

This invention relates to a novel arrangement of parts whereby to secure a closure against being opened by burglars.

The invention further relates to that class of locks having no knob on the outer side of the door and operated by a knob on the inner side of the door, and made burglar proof by a paracentric key and keyhole in the ward barrel, the keyhole of which is open to the outside of the door.

An object is to make a night latch adapted to be installed in the door instead of on the surface of the door, thus to give a more dressy appearance than is possible with night latches heretofore in common use.

Some of the advantages gained are that the striking plate is seated in the jamb and is concealed by the closed door and cannot be removed or tampered with when the door is closed, and that said striking plate does not mar the casing.

An object is to provide a night latch installation in which the outside finish may be varied at small expense so as to match with any form of hardware finish that is placed on the remainder of the building with which the night latch is provided, and so that the exposed parts may be of polished brass or other fine material and of any design, expensive or otherwise.

An object is to provide an inexpensive and superior latch lock that is interchangeable with any type of knob, either large or small, and that can be used in a compact installation with a nonlockable latch, making it a cheap form of a single fixture comprising both a non-lockable latch and a night latch.

Another object is to provide means whereby the installed night latch will be immovably fixed to the closure in which it is installed, and to provide for convenient and accurate adjustment of the night latch mechanism with reference to the sides of the closure and the center of the opening through which the bolt operates.

A further object is to produce a night latch of the character above stated which can be made almost exclusively of stampings and die castings.

An object is to provide a simple and convenient means whereby the latch bolt may be locked in extended position and also may be locked in retracted position.

An object of the invention is to make provision whereby equal partial revolution of the bolt retracting element in either direction will move the bolt to the same extent.

In order to accomplish this object, I have located the ward barrel centrally of the cylinder.

By this arrangement it is easier for the householder to center the key in the keyhole in the dark.

Cheapness of manufacture, ease of assembly and ease and cheapness of installation are further objects of this invention.

In carrying out this invention, I employ elements of construction and features of arrangements that are described and claimed in my application, Serial No. 133,632, filed September 4, 1926 (now Patent No. 1,720,642).

Other objects, advantages and features of invention may appear from the accompanying drawings, the subjoined detailed description and the appended claims.

In the accompanying drawings I have shown a present preferred embodiment of the invention wherein

Figure 1 is a broken perspective view partly in section showing a night latch unit with cylinder lock in place in a closure, a fragment of which is shown.

Fig. 2 is a fragmental view of the inside ends of the lock cylinder and ward barrel and its washer, and the inner faces of the front finish.

Fig. 3 is a view of the inner face of the cam disk removed from the cylinder.

Fig. 4 is an edge view of the disk shown in Fig. 3.

Fig. 5 is a fragmental elevation together with fragments of the closure and door jamb and striking plate in section.

Fig. 6 is a plan view partly in section on line $x6$, Fig. 5.

Fig. 7 is a perspective view of the inner side of an anchor plate detached.

The main cylinder 1 corresponds practically to well known main cylinders of cylinder locks; the same having a threaded portion

2 which is screwed into the housing 3 and thereby fastened in place.

The ward barrel 4 is journalled in the main cylinder and is operatively connected by any suitable means with a disk 5 provided with tappet operating pins 6 arranged near the perimeter of the disk 5.

7 is a tappet inside the housing and provided on one of its sides with a bolt connection 8, which is fixed thereto, and is held non-revolvable thereby and extends through a guide 9 in the housing.

The bolt connection 8 is normally projected into latching position by a spring 10 acting on the tappet 7. Said housing, tappet, spring and bolt connection correspond to those described and claimed in my application for bolt operating mechanism for locks and latches, Serial No. 133,628, filed on the 4th day of September, 1926 (now Patent No. 1,720,638).

The bolt connection 8 is provided on one side with a notch 11 to engage a revolvable locking pin 12 that is mounted in a pinway 13, and said pin is notched at 14 on one side to accommodate the cylindrical portion of the bolt connection 8, so that when the pin is turned with its notch toward the bolt connection, said connection is free to be operated by the spring and tappet.

The web 15 of the pin at the notch 14 is arranged to intercept the bolt connection 8 by fitting into the notch 11 therein when said connection is in its projected or locking position; and the said web 15 intercepts the end of the bolt connection 8 when the bolt is retracted.

By this arrangement, the bolt may be locked either in the retracted or in the locking position by simply turning the pin 12, when the bolt is in position for such locking. By this means the bolt becomes a dead bolt when the pin is turned to cause the web to engage in the notch 11; and the bolt cannot be operated by the tappet from either side either with a key or by a knob when thus locked by the pin web.

The tappet 7 is also operated by an arcuate lug 16 having rounded ends and mounted on a disk 18 that is fixed to a hub 17 of the knob spindle 19 to which the knob 20 on the inner side of the door is attached. The housing 3 is provided with a threaded hub 21 adapted to extend outside of the door closure 22 when the lock is in place in the hole 23 bored through the closure from side to side to receive the lock.

The finish plate 24 on the outside of the lock surrounds the threaded cylinder 1, and is provided with a cylindrical flange 25 to hold the web of the finish plate away from the closure to accommodate an anchor plate hereinafter described.

The outer end of the lock cylinder has a head 26 of less diameter than the threaded portion 2 of such cylinder; and said cylinder has a notch 28 between its head 26 and its threaded portion 2. 29 is a finishing cap fitted over the head and having its inner rim inserted into and hooked in the notch by pressing or spinning. The notch is preferably annular, extending entirely around the barrel; and the annular hook or retainer 30 is preferably the inturned edge of the cylindrical cap wall so that the cap is immovably fixed to the cylinder and closes the threads of the threaded portion thereof.

32 is an internally threaded finishing collar screwed onto the cylinder from the inner end thereof and tight against the finishing cap.

The collar 32 is internally threaded at its inner end and the outer end is reamed out to seat the cap 29 so that the outer face of the cap may be disposed flush with the outer end of the collar when the collar is fully screwed out; that is to say, the reamed out chamber is practically equal in depth to the depth of the cap.

The annular finish plate 24 encircles the cylinder and has its outer face engaged by the inner end of the collar; and the flange of the finish plate fits upon the side of the closure 22.

The finishing cap 29 has a central orifice 33 and the ward barrel 4 is provided at its outer end with a slight flange 34 in the usual manner journalled in the orifice, and the inner end of said barrel is provided with means, as the two studs 35 to extend through holes 35′ in the stop washer 36 fitting in a cavity 37 in the inner end of the cylinder; and the washer 36 is secured to the end of the ward barrel by the studs 35 extending through the washer and riveted so that the washer prevents the barrel from coming out of the cylinder.

The barrel is provided with two holes 38 and the tumbler disk 5 is provided with two pins 40 extending into said holes, and the end of the lock cylinder is chambered at 41 to receive the disk.

The pins 6 are preferably cylindrical and are adapted and arranged to act upon the tappet.

44 is an anchor plate consisting of a flat annulus 45 to fit upon the outer face of the closure, and a collar 46 to fit in the hole 23 bored through the closure to receive the lock.

The annulus 45 is provided with an inner notch 48 on one side which cuts away the collar at that place, and said annulus is provided with holes 49 to receive screws 50 that secure the annulus of the anchor plate to the door.

The parts just described are assembled on the door after the anchor plate has been secured thereto. The anchor plate is secured to the door with its notch on the side toward which the bolt 51 will be extended, and the

closure is provided with a bolt hole 52 through which the bolt extends.

In installing the lock, the assembled parts are brought to the outer side of the door closure and the housing with its normal contents viz., the spring, the tappet and the parts operated thereby are then inserted through the anchor plate, and in order to do this it is necessary to push in the bolt connection so that it will pass through the anchor plate and into the transverse hole 23.

Then the inside anchor plate 53 is slipped over the housing, and its collar 54 is inserted into the transverse hole and the anchor plate is then secured to the closure by means of the screws 55. Then the inside finish plate 56 is applied in position against the closure; then the shank of the bolt 51 is inserted through the bolt hole 52 and is screwed into the bolt connection.

Then the guide 57 is placed over the bolt and turned to bring the bolt into proper position to slidingly engage the striking plate 58 when the closure is being shut, and is then driven into the edge of the closure.

Then the inside finish plate 56 is brought into position with its pin handle 59 over the inside end of the lock pin, and the knob nut 60 is then screwed onto the hub of the housing. At this time the workman will relatively adjust the ring collar on one side and the knob nut on the other side by screwing them relatively to each other to bring the bolt connection into position to properly aline the bolt with its guide so that it will work freely and true, and will also bring to bear the two finish plates and bind them firmly against the door.

Then the knob 20 will be screwed home positively on the threaded knob spindle. and secured by set screw 61.

While I have shown and described a present preferred embodiment of the invention, it is to be distinctly understood that the same is not limited thereto but may be otherwise variously embodied within the scope of the following claims.

I claim:

1. In combination with a bolt retracting tappet; a lock cylinder provided with a central bore having a ward barrel, and with a centrally arranged washer bearing at the inner end of the bore and a centrally arranged disk bearing at the inner end of the cylinder; a centrally arranged washer in the washer bearing and fixed to the ward barrel; a disk journalled in the centrally arranged disk bearing and provided with means non-rotatably connecting the disk with the ward barrel, and also provided with cams adapted to operate the bolt retracting tappet.

2. A latch comprising a lock cylinder having a central bore and a ward barrel mounted in said bore and provided with a keyhole to receive a key, whereby the keyhole is located near the center of the barrel; and means for mounting the cylinder in a door; said means being adapted to hold the outer end of said cylinder in position projecting beyond the side face of the door so as to assist one in the dark, in finding the keyhole in the disk.

3. A lock comprising a cylinder having an externally threaded portion and a cylindrical outer terminal of less diameter than such threaded portion; said cylinder being provided with a groove between said reduced outer end and the threaded portion of the cylinder; an annular cap on the reduced end of the cylinder, the inner ends of the cap being caught in said groove; a ring screwed onto the cylinder and against the inner end of the cap; a finish plate on the barrel; and an anchor plate surrounding the cylinder and adapted to be fixed to a door closure and adapted to be covered by the finish plate.

4. A lock having an externally threaded cylinder and a reduced outer terminal of less diameter than said threaded portion, said cylinder provided with a groove between the reduced outer end and the externally threaded portion; an annular cap on the reduced end of the cylinder, and being wedged in said groove; a collar threaded onto the cylinder and engaging against the inner end of said cap; a finish plate on the cylinder; an anchor plate surrounding the cylinder; a centrally arranged disk bearing at the inner end of the cylinder; a centrally arranged washer fixed to the cylinder; a disk journalled in the centrally arranged disk and means non-rotatably connecting the disk with the cylinder.

5. In a fixture of the class described having a bolt and bolt-actuating means, the combination of a lock cylinder, a ward barrel mounted in a central bore in said cylinder, barrel retaining means seated in said cylinder and secured to said barrel, a rotatable disk seated in said cylinder adjacent said barrel retaining means, connections between said disk and said barrel to impart rotation to said disk when said barrel is turned, and means on said disk to operate said bolt-actuating means.

6. In a fixture of the class described having a bolt and bolt-actuating means, the combination of a lock cylinder provided with a central bore and stepped seats at its inner end, a ward barrel rotatably mounted in said bore, a washer secured to said barrel in the inner seat of said cylinder, a rotatable disk seated in the outer seat in said cylinder, connections between said disk and barrel to impart rotation to said disk when said barrel is turned, and means on said disk to operate said bolt-actuating means.

7. In a fixture of the class described having a bolt and bolt-actuating means, the combination of a lock cylinder having a central bore with stepped seats in its outer end, a ward

barrel rotatably mounted in the bore of said cylinder, a barrel retaining washer secured to said barrel seated in the inner seat of the lock cylinder, a disk rotatably mounted in the outer seat in said cylinder, coupling pins on said disk to detachably connect said disk and barrel, and projections on said disk to engage and operate said bolt-actuating means.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 30th day of August, 1927.

WILLIAM E. WREAD.