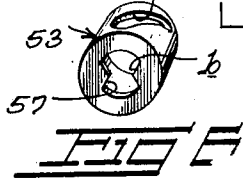
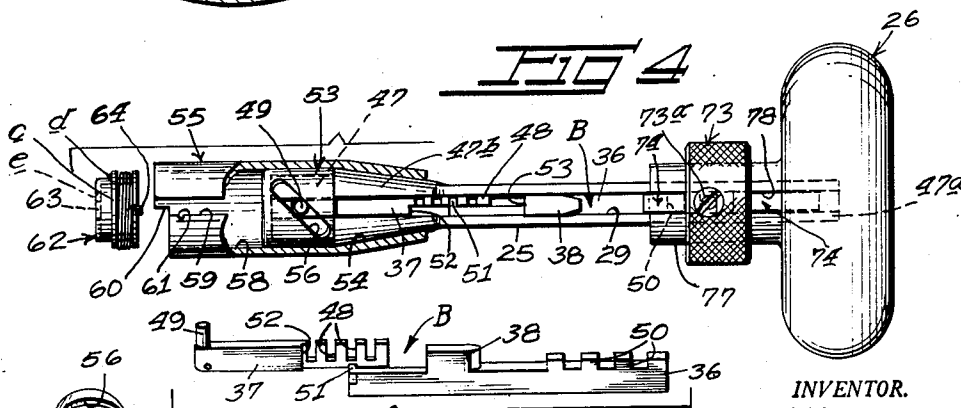
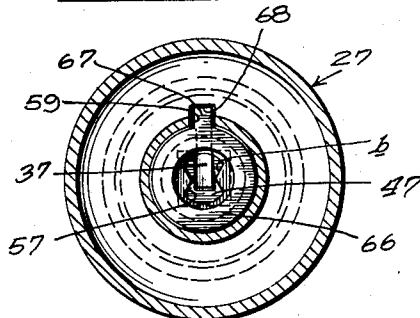
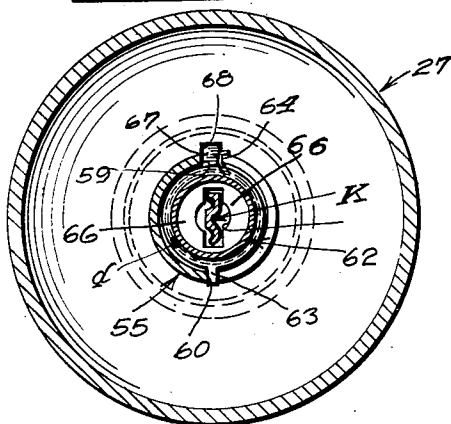


2,556,918

Filed Nov. 28, 1947



ATTORNEY

UNITED STATES PATENT OFFICE

2,556,918

LOCK

Willard F. Hampton, Hutchinson, Kans., assignor
of one-half to Ernest G. Woelzel, Hutchin-
son, Kans.

Application November 28, 1947, Serial No. 788,755

4 Claims. (Cl. 70-217)

1

This invention relates to locks of a type particularly adapted for use with doors and it is primarily an object of the invention to provide a lock of this kind which can be operated from either side of the door and wherein the mechanism is such as to permit the same to be readily adjusted as the requirements of practice may require.

Another object of the invention is to provide in a lock an operating mechanism embodying a spindle together with shiftable means carried by the spindle for normally holding the spindle against rotation, together with means for moving said shiftable means into release position to permit turning of the spindle.

A still further object of the invention is to provide a lock of this kind wherein the operating means thereof includes a spindle, shifting means carried by the spindle for normally holding the spindle against rotation and means at opposite end portions of the spindle for moving said shifting means to release the spindle for rotation.

In the drawings:

Figure 1 is a view partly in section and partly in elevation of a lock constructed in accordance with an embodiment of the invention, the associated housing being in fragment.

Figure 2 is an enlarged detailed sectional view taken substantially on the line 2-2 of Figure 1.

Figure 3 is an enlarged detailed sectional view taken substantially on the line 3-3 of Figure 1.

Figure 4 is a view partly in top plan and partly in section of the assembly illustrated in Figure 1 with certain parts omitted and the escutcheon in separated relation.

Figure 5 is a view in perspective of the key members or bars unapplied and in separated relation and

Figure 6 is a view in perspective of the spindle engaging sleeve or cap removed.

In the embodiment of the invention as illustrated in the accompanying drawings, the latch casing 10 is fragmentarily illustrated in Figure 1 and includes the fixed side plate 11 and a removable side plate 12 as is well known. The latch mechanism within the casing 10 forms no part of the present invention but is preferably of the character as comprised in my application Serial No. 788,757, filed November 20, 1947.

The side plates 11 and 12 are provided with the usual openings 23 which receive the conventional bosses 22 of the cam 21 comprised in the latch mechanism.

The cam 21 has disposed axially therethrough an opening 23a polygonal in cross section and

2

through which is disposed a spindle 25 of substantially the same cross sectional configuration. Carried by one end portion of the spindle 25 is a knob 26 and at the opposite end portion a knob

27. Provided in the opening 23a of the cam is a relative deep key way 28, which is opened at its opposite ends and continued through the bosses

22. The openings 23 are provided with the radial notches 28a registering substantially with the key way 28. The spindle 25 is of channel formation from end to end whereby is provided a channel 29 having its open side directed toward the key way 28 of the cam 21 and the channel is of substantially the same width as the key way. In

the channel 29 of the spindle 25 is slidably positioned a two part bar B comprising the elongated members 36 and 37, the inner end portions of which are overlapped. To facilitate such overlapping and to allow desired endwise movement

of the members 36 and 37, said members 36 and 37 are reduced in width in the overlapping portions as at 52. The member 37 has formed in the portion thereof which overlaps the adjacent end of the member 36, a number of recesses 48.

The adjacent end of the member 36 carries a laterally directed finger or lug 51 which is adapted for selective engagement in the notches 48. By this arrangement the effective length of the bar B can be changed to fit the mechanism to doors

of different thicknesses, as will be readily apparent. The member 36, at a desired point intermediate its ends, is provided with an upstanding lug 38 for engagement within a notch 28a upon proper endwise movement of the bar B and at which time the cam 21 is held against rotation.

The end portion of the spindle 25 with which the knob 27 is associated, is enlarged to provide a head 47, the inner or rear portion being tapered while the outer portion is substantially straight. The head 47 is cylindrical and has disposed therearound, a barrel 55 herein disclosed as having its inner portion locked to the inner tapered portion of the head 47 by a stud 54a or otherwise as may be preferred, it only being necessary that the barrel 55 rotate with the spindle 25.

The knob 27 is of a hollow type and is provided in its inner face wall with an opening a through which passes the forward portion of the barrel 55 which is of a length to extend beyond the adjacent end of the spindle 25 and terminate closely adjacent to the outer wall of the knob 27 as is clearly illustrated in Figure 1 of the drawing.

The outer straight portion of the head 47 of the spindle 25 is of a diameter less than the in-

ternal diameter of the surrounding portion of the barrel 55, whereby is provided sufficient space to receive the inner portion of the sleeve 53 which is snugly engaged within the barrel 55. The sleeve or cap 53 is provided with a diagonal cam slot 55 in which extends a cam follower finger 49 carried by the outer end portion of the bar member 37. The outer end of the sleeve 53 has disposed thereover a plate 57 having therein a key slot *b* which substantially registers with the adjacent end of the groove 29 of the spindle 25. This slot or opening *b* is adapted to receive the inserted end portion of the key K.

The outer end portion of the barrel 55 is provided with a slot 59 extending lengthwise thereof and the outer portion of the barrel 55 is cut away substantially half way therearound to provide a shoulder 60 at the side of the barrel 55 remote from the slot 59 and, as illustrated in Figure 4, substantially in the plane of the longitudinal center of such slot 59. Snugly fitted within the bore 58 of the barrel 55 are the conventional wards 66 of a character required in accordance with the key K.

A marginal portion of the slot 59 of the barrel 55 and preferably in close proximity to the outer end thereof is provided with a notch 61 in which engages an extremity of a coil spring 64. This spring 64 surrounds the inner portion of an escutcheon cap 62 which acts in a well known manner as a guide for the insertion of the key K and also as a retainer for the wards 66.

The spring 64 is herein disclosed as positioned between the outstanding peripheral flanges *d* carried by the cap 62 and spaced lengthwise of such cap. The inner extremity of the spring 64 is anchored as at *e* to the outermost flange *d*.

The outermost ward 66 is provided with an outwardly disposed lug 67 which engages through the slot 59 of the barrel 55 and extends within the internal groove 68 provided along the outstanding cuff 68' defining the opening *a* in the inner face of the knob 21. This cuff 68' is shown (Figure 1) as threading within the outer portion of a holding sleeve 71, the inner portion of which being effectively engaged with the inner tapered portion of the barrel 55.

The end portion of the member 36 which is remote from member 37 is provided therealong with the upstanding spaced fingers 50, in an intervening space of which is adapted to be received an inwardly disposed lug 75 carried by an elongated key 74. The key 74 is disposed through a collar 73 and held thereto by a stud 73a or otherwise as may be preferred and this collar 73 surrounds the outstanding cuff 77 of the knob 26, through which an end portion of the spindle 25 is disposed. This key 74 has one end portion received in a key slot 78 disposed lengthwise of the cuff 77. This key slot 78 is also continued through the inner wall of the hollow knob 26.

After the knob 26 has been properly mounted on the spindle 25, through the medium of the lug the cuff 77 is locked to the spindle 25 by a conventional binding screw 79.

The sleeve 73 is free to slide on the cuff 77 and in practice is preferably upon the inner side of a door so that when it is desired to lock the spindle 25 from the inner side of the door against turning movement, the necessary sliding of the sleeve 73 on the cuff will bring the lug 38 into a notch 28a of a plate 11 or 12.

The spring 64 is tensioned to constantly urge the cap 62 to turn in a direction to maintain the key slot therein in proper position for the

introduction of the key into the wards 66 and into the slot 57 in the outer end of the sleeve 53. When the key is inserted and turned in the proper direction, after its inner end has engaged in the slot 57, the sleeve 53 will be turned to force a side of the cam slot 56 against the cam follower finger 49 thereby causing the follower finger to shift the bar B longitudinally in a direction in channel 29, to free the lug 38 from the notch 28a. The knob and spindle may then be turned to turn the cam 21 of the lock or latch mechanism to effect the retraction of the latch. When the knob is released the spring mechanism of the lock will reverse the movement of the lock cam 21 to restore the spindle to a position where the lug 38 will be in alignment with a notch 28a and upon release of the key after the spindle has returned to this position, the spring 64 will automatically reversely rotate or turn the cap 62 and with it the key and the sleeve 53 to thereby effect the reverse longitudinal movement of the bar B and the return of the lug 38 into the notch 28a to again lock or secure the latch mechanism.

As previously pointed out when it is desired to change the position of the lug 38 from the inner side of the door in which the mechanism is mounted, this can be readily effected by shifting the ring 73 in the desired direction longitudinally on the cuff 77 of the inside knob 26. This will effect movement of the bar B through the medium of the key 74 and lug 75 carried thereby, which is engaged in one of the notches 50.

It is to be understood that the invention as herein disclosed may be varied from the details described and shown without departure from the spirit of the subjoined claims.

I claim:

1. In a door lock mechanism including a latch actuator cam rotatably mounted in a housing and having therethrough an axial passage of polygonal cross section; a spindle of the same cross sectional form as said passage and extending through the passage, said spindle having a channel formed longitudinally therein throughout its length, said cam housing having a wall provided with a notch opening into the cam passage, a bar disposed in said channel for sliding movement lengthwise of the spindle, a locking lug carried by the bar for engagement in said notch upon lengthwise movement of the bar to one position whereby to prevent turning of the spindle and the cam in the housing, a sleeve encircling the spindle at one end and having an end wall disposed over the adjacent end of the spindle, said end wall having a key receiving slot, the sleeve having a diagonal cam slot in the wall thereof disposed across the channel, a cam follower finger carried by the adjacent end of the bar and slidably engaged in said cam slot, a knob secured upon the said end of the spindle, a key guide means extending through the knob toward the said slotted end of the sleeve for facilitating the extension of a key through the knob for engagement in the slotted end of the sleeve, and a knob secured upon the opposite end of the spindle upon the side of the housing remote from the first mentioned knob.

2. A door lock mechanism of the character stated in claim 1, in which the second mentioned knob has a cuff encircling the adjacent end of the spindle, the cuff having a slot opening into the spindle channel, the bar having an end lying in the portion of the channel enclosed by said cuff and provided with a plurality of notches, a ring encircling the cuff for free movement there-

5

on, a bar lying in the cuff slot and secured to the ring, and a lug carried by the last mentioned bar for engagement in a notch in the adjacent end of the first mentioned bar.

3. A door lock mechanism of the character stated in claim 1, in which the said bar is formed in two sections disposed in end overlapping relation in the channel, one of said overlapped ends having a series of notches therein and the other one of the overlapped ends having a laterally projecting finger for selective engagement in the notches whereby the effective length of the bar may be altered.

4. A door lock mechanism of the character stated in claim 1, in which the said guide means for the key includes a relatively long barrel enclosing the end of the spindle carrying said sleeve, a slotted closure member rotatably mounted in the end of the barrel remote from the sleeve and adapted to have a key extended therethrough, and spring means coupling the said closure member with the adjacent end of the barrel to be placed under tension upon rotation of a key ex-

6

tending into the guide means whereby to effect reverse rotation of the key to its starting position upon release of the key.

WILLARD F. HAMPTON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
842,834	Hurdle	Jan. 29, 1907
1,154,499	Fischer	Sept. 21, 1915
1,358,211	Huffman	Nov. 9, 1920
1,668,553	Douglas	May 8, 1928
2,123,808	Schneider	July 12, 1938
2,268,254	Hirsh	Dec. 30, 1941
2,282,213	Ralph	May 5, 1942

FOREIGN PATENTS

Number	Country	Date
334,816	Great Britain	Sept. 11, 1930