

Dec. 27, 1927.

1,654,489

E. L. TEICH

KNOB OR HANDLE LOCK

Filed Feb. 19, 1927

2 Sheets-Sheet 2

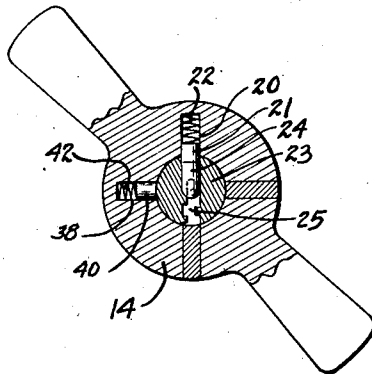


Fig. 6

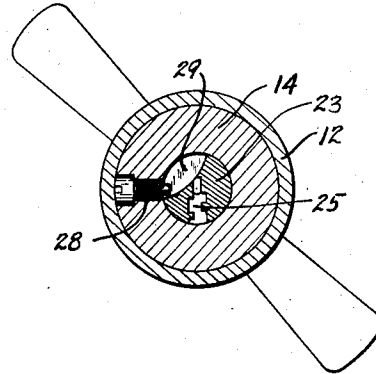


Fig. 7

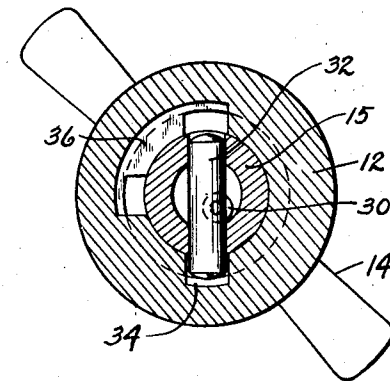


Fig. 8

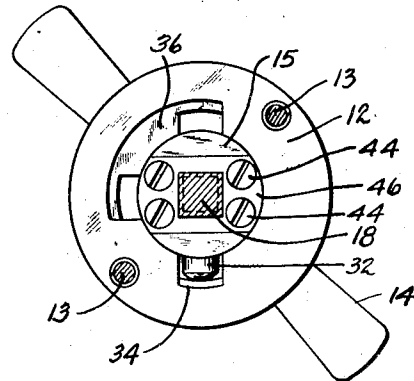


Fig. 9

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KNOB OR HANDLE LOCK.

Application filed February 19, 1927. Serial No. 169,468.

My invention relates to locks and has special reference to knob or handle locks that are particularly adapted for use on cabinet doors.

5 An object of the invention is to provide a novel and improved lock of this character.

Another object of the invention is to provide a lock of the character indicated in which the key may be withdrawn from the
10 lock with the handle left unlocked so that the latch-bolt or bolts on the door may be freely thrown and retracted as desired in opening and closing the door, and of course
15 as to lock the latch-bolts in latching position.

The several features of the invention, whereby the above mentioned and other objects may be attained, will be clearly understood from the following description and
20 accompanying drawings, in which:

Figure 1 is a front elevation of my improved lock and a portion of a cabinet door to which it is applied, the door having a
25 three-point latching device with the parts thereof shown in latched position;

Fig. 2 is a rear elevation of the door illustrated in Fig. 1, but showing the parts of the latching device in unlatched
30 position;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a view in perspective of a lock-bolt forming a component part of the lock;

35 Fig. 5 is a view in perspective of the operating spindle for the latching device; and

Figs. 6, 7, 8 and 9 are transverse sectional views taken on the lines 6—6, 7—7, 8—8 and 9—9, respectively, of Fig. 3.

40 My improved lock is shown applied to a cabinet door 2, having a three-point latching device of a common construction. As shown this latching device is provided with a rotatable hub 4 having a laterally projecting lug or latch-bolt 6, and latch-bolts
45 8 that are in the form of flat rods having their inner ends pivotally connected with ears on the hub 4 and their upper ends extended through and guided by straps 10 secured adjacent the upper and lower edges of
50 the door. With this type of three-point latching device, upon turning the hub 4 in a

counter clockwise direction, the latch-bolt 6 may be swung beyond the longitudinal edge of the door, and the latch-bolts 8 projected
55 beyond the upper and lower edges of the door so as to latch the door as shown in Fig. 1, and upon turning the hub 4 in the opposite direction the three latch-bolts may be retracted, as shown in Fig. 2.

The lock is provided with an escutcheon or rose 12 which, when used in connection with a three-point latching device as above described, is secured by screws 13 on the front side of the door opposite the hub 4,
60 and is further provided with a knob or handle 14 having a cylindrical shank that extends through and is mounted for turning movement in the rose 12. The inner end of the handle shank is provided with a reduced
70 portion 15, forming a shoulder 16 arranged adjacent a shoulder 17 on the inner surface of the rose. The rear end of the shank is provided with a rearwardly extending spindle 18 which is square in cross section and
75 extends through a clearance slot in the cabinet door 2. The hub 4 of the three-point latching device is mounted on this spindle and is held thereon by a lock-nut 19, which holds the hub against the rear side of the
80 door. With this construction it will be apparent that by turning the knob or handle 14, the three latch bolts of the latching device may be projected and retracted into and out of latching position, as above described.

85 The shank of the handle 14 constitutes a cylinder of a pin tumbler lock having the usual pin tumbler chambers 20 in which are mounted the pins 21 and coiled springs 22 serving to press the pins inwardly toward
90 the center of the shank. A key-operated plug 23 is mounted for turning movement in an axial bore in the shank and carries the pin tumbler sections 24. This plug is provided with the usual key-way 25 for the
95 key 26. A stop screw 28 is screw-threaded through an aperture in the cylindrical handle shank, and the key-operated plug is provided with a slot 29 which receives the inner end of the screw, the turning movement of the key-operated plug into and out
100 of locking position being limited by the engagement of the end walls of the slot 29 with the screw 28. A stud or pin 30 is se-

cured in a socket in the rear end of the key-operated plug, and has its rear end arranged eccentrically to the axis of the plug and received in a transverse notch 31 in a lock-bolt 32 which extends through a transverse aperture in the reduced portion 15 of the handle shank. When the handle is in door-latching position as shown in Figs. 1 and 3, one end of the bolt 32 is arranged opposite to a locking notch 34 in the rose, so that upon turning the key-operated plug 23 in a counter-clockwise direction by means of its key 26, the eccentric pin 30 will act to shift the bolt 32 to project said end thereof into said notch. The end of the bolt substantially fits between the side walls of the notch 34 so that when it is projected therein the handle is securely locked from turning movement, and thus the bolts of the three-point latching device are held in latching position. To unlock the lock, the key-operated plug is given a quarter turn in the reverse direction which, through the eccentric pin 30 acts to shift the lock-bolt 32 to retract its end from the locking notch 34, whereupon the handle may be turned to release the latch-bolts of the three-point latching device and the cabinet door may be opened. When the bolt 32 is thus shifted to disengage its end from the locking notch 34 its other end is projected into an elongated notch or slot 36 in the rose 12. This notch 36 is of suitable length to permit the required quarter turning movement of the handle in a clockwise direction to release the latching device. The end walls of the notch 36 are so positioned that when the handle is turned in a counter-clockwise direction to door-latching position, the projecting end of the bolt 32 by engagement with the left hand end wall of the notch 36 accurately limits the movement of the handle so as to position the other end of the pin opposite to the locking notch 34, it being then merely necessary to give the key-operated plug a quarter turn to project the bolt 32 into the locking notch 34 to lock the handle as above described.

Except as hereinafter described, the parts above referred to may be and preferably are the same as the corresponding parts of the lock described and claimed in my Letters Patent, No. 1,611,391, dated December 21, 1926, to which reference may be had for a full and complete description of the same.

In the lock of said Letters Patent when the door is once opened and the key is withdrawn, the latch-bolts are thrown into latching position and they cannot again be retracted to permit the door to be closed without using the key; and also when the door is once closed it cannot be again opened without using the key to retract the latch-bolts. In my present construction as illustrated in the drawings, however, the key

may be withdrawn from the lock with the handle left unlocked so that the latch-bolts may be freely thrown and retracted as desired in opening and closing the door, the key being used merely for the purpose of locking and unlocking the door. One advantage of this construction is that a person in authority could unlock the handle, for instance in the morning, and thereafter any one may open the door to enter, and when desired may close the door and turn the handle to throw the latch-bolt or bolts of the door into latching position, without locking the handle. The handle may then be turned to retract the latch-bolts without using the key, the handle remaining unlocked. Later in the day, the authorized person may, by means of the key, lock the handle and thus lock the door closed. To provide for this, the handle shank is provided with a second set of pin tumbler chambers 38 which are so arranged that the pin tumblers carried by the key-operated plug are positioned in alinement with them when the plug has been turned in a clockwise direction to unlock the handle, this unlocking movement of the key-operated plug being limited by the engagement of one end wall of the slot 29 therein with the stop screw 28 as above described. The set of pin tumbler chambers 38 are of the same construction as the pin tumbler chambers 20, they being provided with the pins 40 and coiled springs 42 corresponding to the pins 21 and springs 22. Thus the pin tumbler chambers 38 permit the key to be removed and inserted when the key-operated plug has been turned to unlocked position. With this construction it will be apparent that the handle may, if desired, be maintained unlocked after the key has been withdrawn so that it may be freely turned to project and retract the latch-bolts when the door is either opened or closed; and of course the handle may when desired be locked by using the key so as to lock the latch-bolts in latching position.

In order to permit the pins and springs in the two sets of pin tumbler chambers to be readily inserted, it is necessary to permit access to the two sets through opposite ends of the handle shank, respectively. To provide for this, the axial bore in which the key-operated plug is mounted extends completely through the handle shank, and the latch-operating spindle 18, instead of being made integral with the shank, is detachably secured to the inner end of the shank by means of screws 44 which extend through apertures in a rectangular flange 46 on the forward end of the spindle and is screw-threaded into holes in the end of the shank. With this construction it will be apparent that the pins and springs may be inserted in the two sets of pin-tumbler chambers 20

and 38 and then, after the key-operated plug and lock-bolt 15 have been applied to the shank as above described, the spindle 18 may be secured in place. Thus by making the spindle 18 separate from the shank the parts of the lock carried by the shank may be easily assembled.

As will be evident to those skilled in the art, my invention permits various modifications without departing from the spirit thereof or the scope of the appended claims.

What I claim is:

1. A lock of the class described having, in combination, a handle having a shank, a latch-bolt connected with said shank and adapted to be projected and retracted by turning the shank, a rose in which the shank is mounted for turning movement into and out of a predetermined angular position, means comprising a key-operated plug mounted for turning movement in said shank into either of two predetermined angular positions with relation to the shank, locking tumblers for locking the plug to the shank when the plug is in either of its said predetermined angular positions and the key is withdrawn therefrom, and means associated with the plug for locking the shank to said rose when the shank is in said predetermined angular position and the plug is in one of its said predetermined angular positions, and for unlocking the shank from

the rose upon turning the plug into its other predetermined angular position.

2. A lock of the class described having, in combination, a handle having a shank, a latch-bolt connected with said shank and adapted to be projected and retracted by turning the shank, a rose in which the shank is mounted for turning movement into and out of a predetermined angular position, and means comprising a key-operated plug mounted for turning movement in said shank into either of two predetermined angular positions with relation to the shank, pin tumblers mounted in the key-operated plug and two sets of pin tumbler chambers mounted in the shank for locking the plug to the shank when the plug is in either of its said predetermined angular positions and the key is withdrawn therefrom, and means comprising a lock-bolt associated with the plug for locking the shank to said rose when the shank is in said predetermined angular position and the plug is in one of its said predetermined angular positions, and for unlocking the shank from the rose upon turning the plug into its other predetermined angular position.

In testimony whereof, I have signed my name to this specification this 17th day of February, 1927.

ERNEST L. TEICH.