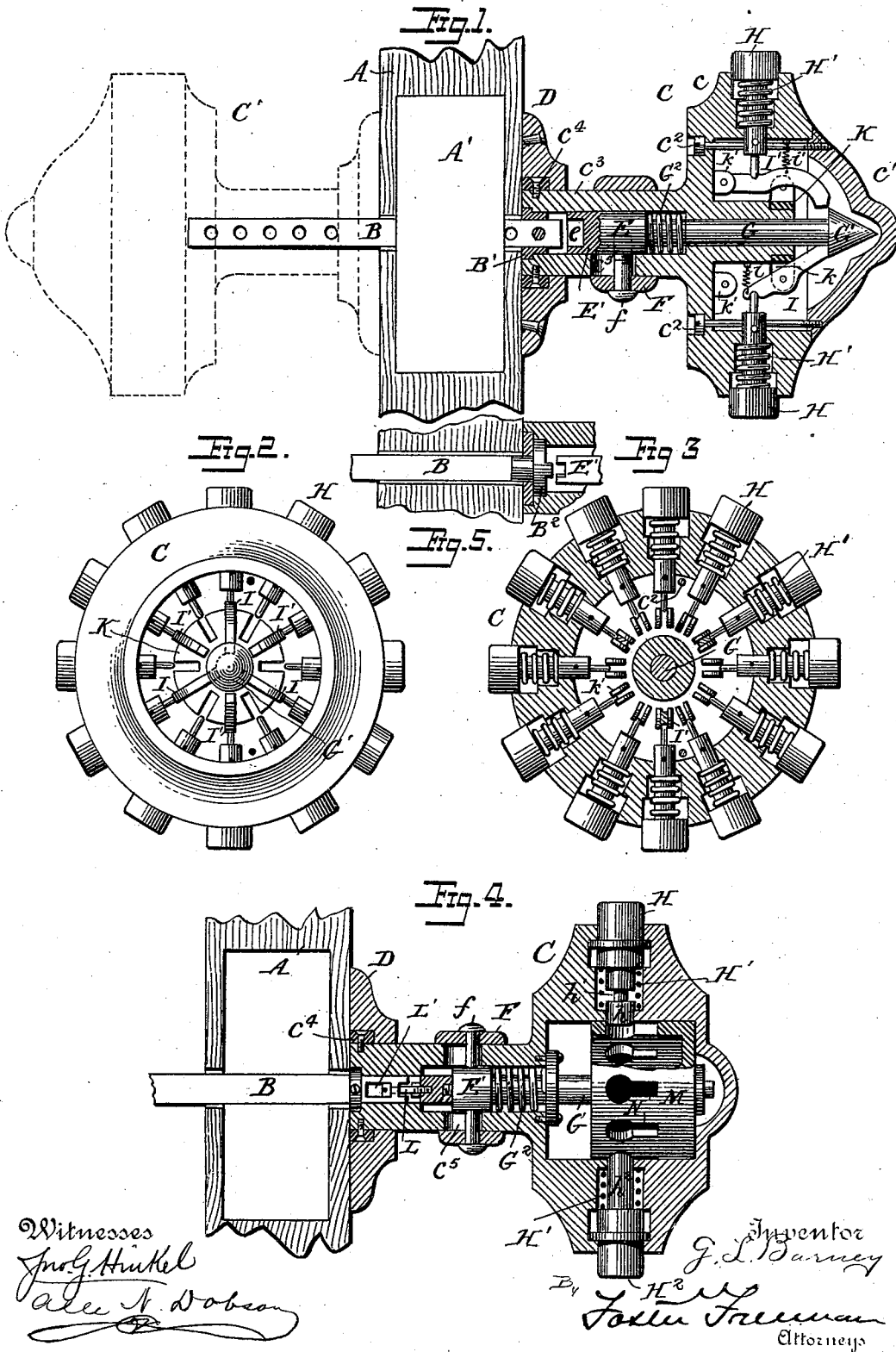


G. L. BARNEY.
DOOR KNOB LOCK.

Patented Sept. 3, 1895.



UNITED STATES PATENT OFFICE.

GEORGE L. BARNEY, OF INDIANAPOLIS, INDIANA, ASSIGNOR OF ONE-HALF
TO JOHN L. CLOUGH, OF SAME PLACE.

DOOR-KNOB LOCK.

SPECIFICATION forming part of Letters Patent No. 545,666, dated September 3, 1895.

Application filed February 26, 1894. Serial No. 501,572. (No model.)

To all whom it may concern:

Be it known that I, GEORGE L. BARNEY, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Door-Knob Locks, of which the following is a specification.

My invention relates to door-knob locks, and it has for its object to provide a door-knob with a locking device embraced within the door-knob, so that the knob is adapted to be attached to the ordinary spindles in connection with ordinary door latches or locks, and may be used to operate such latches or locks to control the movements of the door or other device to which it may be applied; and to these ends my invention consists in the various features of construction and arrangement of parts, substantially as hereinafter more fully pointed out.

Referring to the accompanying drawings, wherein I have illustrated several modifications of my invention sufficient to explain the principle thereof and enable those skilled in the art to make and use the invention, Figure 1 is a vertical sectional view of my improved knob shown as applied to a door having the usual knob on the other side. Fig. 2 is an end view, the cap-piece being removed. Fig. 3 is a vertical transverse section through the knob. Fig. 4 is longitudinal vertical section showing a modification, and Fig. 5 is a detail sectional view showing another modification.

Heretofore it has been usual to provide doors and the like with a latching device controlled by the knob or knobs, usually projecting on both sides of the door, and to provide a supplemental locking device controlled by a key, necessitating the manipulation of the lock with the key, and then the turning of the knob in order that the door may be opened. It is also old to provide a single latching or securing device and to so arrange the parts that it may be operated both by the knob or knobs and by the key, and it has been proposed to have a single latch or other locking device which may be controlled by a knob on one side, for instance, and by a key passing into an opening in the knob on the other side, so that the outer knob and key-hole are combined.

The object of my invention is to provide a

knob with a keyless locking device, which knob can be arranged to control any ordinary latch or other locking device, in that it can be attached to the ordinary spindles or other parts of the usual form of locking or latching devices, and when properly adjusted will not operate the latch, but which when the keyless locking devices are properly manipulated will engage with the spindle or other part controlling the latch, so that the latch can be operated and the door unlocked. In other words, the object is to provide a door-knob which may be made and sold as an article of manufacture, if desired, and which knob shall contain keyless locking devices, by means of which the knob may be used to release the latch or not, according to whether the locking devices are properly manipulated. It is evident that this object may be accomplished in various ways and by various details of construction and arrangement of parts; and my invention consists, broadly stated, in a knob having a keyless locking device which is adapted to be used in connection with ordinary latches to control their operation, and it further consists in such knobs having the various features of construction and arrangement of parts whereby they are capable of accomplishing the object of the broad invention.

In the present instance I have shown a door A, having what is known as a "mortise" lock or latch A', which latch is provided with a spindle B, passing through the latch and the door and adapted to have the knobs C C' secured thereto on either side of the door, so that the latch can be manipulated and the door opened or closed from the inside or outside. The knob C' in the present instance is designed to represent any usual knob as commonly employed, while the knob C embraces my invention; and while I have shown one of the most common forms of spindles B, with perforations therein, by means of which the knob can be attached thereto, it is evident that this is only given as a typical device, and any other well-known form of latch and spindle or other operating device may be used, and the knob embodying my invention could be adapted and arranged to be applied thereto in any usual way. The knob C comprises the case, which may be made up of various parts,

as $c c'$, properly secured together in any usual way, as by screws c^2 , and it may be of any shape or design desired adapted to the purposes intended. The knob is also provided with a shank or extension c^3 , which is hollow and is usually adapted to embrace the end of the spindle B and to be attached thereto; but in carrying out my invention the knob is not permanently attached to the spindle, but is secured in place on the side of the door and is arranged so that it can be connected to the spindle to operate the same or be disconnected therefrom. I have shown the shank c^3 as being provided with a ring or projection c^4 fitting in the recess of the escutcheon D, which is secured to the door in the usual way and which will hold the knob in place, although any other well-known means of attachment may be used.

Mounted in the knob or connected therewith, and in the present instance shown as arranged within the shank or extension c^3 , is some sort of a clutching device E, which is arranged under proper circumstances to engage the spindle or other portion of the latch, by means of which it can be operated, while under other conditions it will be disengaged therefrom. In the present instance, and more especially in Fig. 1, I have shown a block E' sliding in the shank and having a squared recess e in its end adapted to embrace the squared end of the spindle B, so that the latter can be turned with the knob when the clutch is in engagement therewith, but when the clutch is in the position shown in Fig. 1 will permit the turning of the knob without affecting the movement of the spindle or the operation of the latch.

In order to prevent the spindle B, of the form shown in Fig. 1, from being pushed through the door, I provide the spindle with a collar B' , which can be secured thereto in any desired way, as by a screw or pin passing through one of the holes in the spindle, and this collar will allow the manipulation of the knob C' to operate the latch without in any way affecting the knob C. The block E' is arranged to be moved in the opening in the neck by some sort of means, as by a collar F, surrounding the neck and connected to the block by a screw f , passing through a slot c^5 in the shank, although any other well-known and equivalent means of operating the block may be used. The block in this instance is connected to a plunger G, passing through the body of the knob, and this plunger is provided with some sort of a head or catch G' , by means of which the movement may be controlled in the manner hereinafter set forth, while a spring G^2 is preferably provided to force the block forward and engage the clutch with the spindle or other operating device of the latch when the locking devices are released, although of course it will be understood that instead of this automatic action of the clutch it may be operated manually when the locking devices are properly set, or may

be operated positively by the locking devices themselves, the essential feature being that when the clutch is withdrawn from engagement with the spindle or other operating device of the latch it cannot be again engaged therewith until it is released by the locking devices within, the knob being properly manipulated, so that an unauthorized or uninformed person cannot operate the latch to open the door.

Various means may be adopted for controlling the movement of the clutch—such, for instance, as a series of push-buttons arranged in the knob, which shall control directly or indirectly the movement of the clutch—and in the present instance I have shown a series of push-buttons H, received in proper sockets in the knob and provided with springs H' , to maintain them in their normal position and adapted to operate certain levers, tumblers, locking-plates, or other equivalent devices arranged between the push-buttons and the clutch. Thus in Fig. 1 I have shown two series of locking-plates I and I' , one series arranged so that when the locking-plates are in their normal position they hold the clutch in its retracted position and the other series arranged so that when the locking-plates are in their normal position they are free from the clutch and allow it to operate, but when their respective push-buttons are moved operate as locking devices, thus being in fact what may be termed “false locking-plates”—that is to say, I preferably provide the knob with some devices which normally lock the clutch and hold it in its position, and which have to be released in order to allow the clutch to engage the operating devices of the latch, while others, which I have termed the “false locking-plates,” on being operated will prevent the movement of the clutch device, and from this arrangement it will be seen that it is necessary in order to operate the knob to depress only the push-buttons controlling the locking-plates I, for if any one or more of the false locking-plates I' are operated, notwithstanding the fact that the locking-plates I have been properly manipulated, the clutch cannot be moved. While these locking-plates may be variously arranged, I have shown a ring K, adapted to be mounted in the knob and having a series of bearings k , in which the levers I are pivoted, and they are controlled by a suitable spring i , so that their tendency is to assume the position shown in Fig. 1 and to maintain this position until forced out of it by the corresponding push-button H. There may be any desired number of these locking-plates I—three being shown, for instance, in Fig. 2—and they may be arranged in any desired order or relation. The false locking-plates I' are shown as pivotally mounted at their ends in bearings k' , also arranged in the knob, and they are provided with springs i' , which tend to hold them out of engagement with the projection G' of the stem of the clutch; but it will be readily

seen that when the corresponding push-button H is depressed the free ends of the false locking-plates will move into such a position as to prevent the movement of the clutch, and it will be observed that there may be any desired number of these false locking-plates I'—three being shown, for instance, in Figs. 2 and 3. It will be observed that the combination and arrangement of these locking-plates may be readily changed by simply removing the cap c' and changing the position of the collar K or the number and arrangement of the locking-plates mounted therein and by changing the number and arrangement of the false locking-plates I', mounted in the bearings k'.

In Fig. 4 I have illustrated a modification in which the spindle B is connected to the clutch by a loose pin L, (shown in the form of a screw,) the head of which moves in a slot L' in the spindle, the end of which is recessed or otherwise formed, so as to form a part of the clutch mechanism co-operating with the movable clutch-block E'. In this arrangement, instead of the locking-plates shown in the other figures, I use a cylinder M, having in its periphery a number of openings N, the openings being shown as having slotted extensions, and the push-buttons H have on their lower ends bosses h, which are adapted to enter the circular opening in the cylinder, and a neck or cut-away portion h', which is adapted to enter the slotted portion of the opening when the button is depressed, while the push-buttons H² have stems h², which are adapted to fit the circular portions of the openings only. From this arrangement it will readily be seen that normally the bosses h engage the cylinder and hold it in position to disengage the clutch; but when the proper push-buttons are depressed, so that the necks h' correspond with the slotted portions of the openings, the clutch-block can be moved to engage the spindle and operate it. If, however, one of the false push-buttons H² is depressed, the cylinder will be held in its normal position and cannot be moved to operate the clutch-block, and it will be seen that the number and arrangement of the push-buttons may be varied, and that it will be necessary to operate the proper buttons and none others in order that the latch may be moved.

In Fig. 5 I have shown another simple means of connecting the clutch-block with the spindle B, in which the spindle is provided with a collar B², forming one portion of the clutch and adapted to engage the other portion E' of the clutch device.

From these modifications it will be seen that the details of construction of a device embodying my invention can be variously arranged and formed without departing from the spirit thereof, and it is evident that my invention does not depend upon any particu-

lar details of construction or any particular number of buttons or controlling devices or their particular arrangement.

The operation of the device will be readily understood and need not be recited in detail; but it will be observed that when it is desired to arrange the knob so that it will not operate the latch without the locking devices being properly manipulated it is only necessary to disengage the clutch-block from the spindle or other operating device and to secure it in position by the locking-levers, locking-cylinder, push-button, or other similar device, and then the turning of the knob does not operate the latch. When, however, the proper push-buttons and those only are operated, the clutch device is released and may be made to engage the spindle or other operating device either by the spring G² or otherwise, and then the latch can be operated; but if a false push-button or locking-plate is operated the clutch is still held out of engagement and the door cannot be opened.

It will be observed that while the form and structure of the knob and operating devices may be varied and variously arranged it is essential that the knob be provided with a clutching device or some equivalent thereof, with push-buttons or some equivalent thereof, and with connecting devices between the push-buttons and the clutch, by means of which it can be controlled, and these connecting devices may be arranged so that when they are properly operated the clutch will operate automatically to engage the operating devices of the latch, or otherwise.

What I claim is—

1. A knob, adapted for attachment to an ordinary lock or latch operating spindle and to turn independent thereof, provided with keyless permutation locking devices embraced within the knob and arranged to control the operation of the knob, substantially as described.

2. A knob, adapted for attachment to an ordinary lock or latch operating spindle and to turn independent thereof, provided with keyless permutation locking devices, and a clutch controlled by said devices, substantially as described.

3. A knob adapted for attachment to an ordinary lock or latch spindle and to turn independent thereof, provided with keyless locking devices embraced within the knob, a clutch, and means for moving the clutch automatically when the proper keyless devices have been operated, substantially as described.

4. A knob adapted for attachment to an ordinary lock or latch operating spindle and to turn independent thereof, provided with keyless permutation locking devices, a clutch member mounted in the knob and controlled by said keyless devices, in combination with a latch and means for operating it, and means

for attaching the knob in position to engage the said latch operating device, substantially as described.

- 5 5. The combination with a door provided with an ordinary spindle projecting through the door, of a knob provided with keyless permutation locking devices, means for securing the knob to the door with relation to the spindle so that the knob can move without operating the spindle, and a clutch device within
10 the knob arranged to engage the spindle so that it will be operated with the knob, the clutch being controlled by the keyless locking devices, substantially as described.
- 15 6. A knob provided with a series of push-buttons radially mounted in the knob, a clutch device and intermediate connections between the radial push-buttons and clutch device, for controlling the latter, substantially as described.
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7. A knob provided with a series of push-buttons and a clutch device, a plunger connected to the clutch device and locking devices controlling the plunger and controlled
25 by the push-buttons, substantially as described.
8. A knob provided with a series of push-buttons and with a clutch, a plunger connected to the clutch having an enlarged head,
30 and a series of locking devices engaging the head and controlled by the push-buttons, substantially as described.
9. A knob provided with a series of push-buttons, and a plunger, a series of locking devices normally engaging the plunger and operated to be disengaged by the push-buttons,
35 and another series of locking devices normally disengaging the plunger but operated by the push-buttons to engage therewith, substantially as described.
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10. A knob provided with a series of spring-controlled push-buttons, a plunger provided with a head, a series of locking devices normally engaging the head and operated to be
45 disengaged by the corresponding push-but-

tons, and a series of false locking devices normally disengaging the head and arranged to be operated to engage the head by the corresponding push-buttons, substantially as described.

11. A knob provided with a series of push-buttons, a plunger having a head, a ring provided with a series of bearings, a series of locking devices mounted in the ring, and bearings on the knob, and a series of locking devices connected to said bearings and extending through the bearings of the ring, substantially as described.

12. A knob provided with a series of spring-controlled push-buttons, a stem, a clutch sliding in said stem, a collar surrounding the stem and connected to the clutch, a plunger connected to the clutch, locking devices controlling the plunger and controlled by the push-buttons, and a spring for moving the
65 clutch when released by the locking devices, substantially as described.

13. A knob provided with true and false keyless locking devices, a clutch adapted to be moved into and out of operative position,
70 and means controlling the position of the clutch and controlled by the keyless locking devices, the said means being constructed to permit the operation of the locking devices whether the clutch is in operative or inoperative position, substantially as described.

14. The combination with a knob provided with keyless permutation locking devices and provided with one member of a clutch device, of a spindle adapted to fit an ordinary lock
80 or latch and having at one end the usual knob-attaching device, and at the other end a clutch member, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of
85 two subscribing witnesses.

GEORGE L. BARNEY.

Witnesses:

E. L. TIMBLIN,
J. EDW. MORRIS.