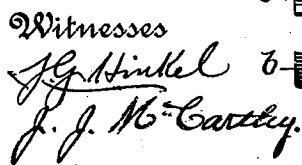


G. L. BARNEY & J. L. CLOUGH.
DOOR KNOB LOCK.

Patented Sept. 3, 1895.



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UNITED STATES PATENT OFFICE.

GEORGE L. BARNEY AND JOHN L. CLOUGH, OF INDIANAPOLIS, INDIANA.

DOOR-KNOB LOCK.

SPECIFICATION forming part of Letters Patent No. 545,668, dated September 3, 1895.

Application filed May 26, 1894. Serial No. 512,530. (No model.)

To all whom it may concern:

Be it known that we, GEORGE L. BARNEY and JOHN L. CLOUGH, citizens 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.

Our invention relates to door-knob locks, and 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 our invention consists in the various features of construction and arrangement of parts, substantially as hereinafter more particularly pointed out.

Referring to the accompanying drawings, Figure 1 is a vertical section of a device embodying our invention. Fig. 2 is a transverse section on the line 2 2, Fig. 1. Fig. 3 is a section of a modified form of plunger, and Figs. 4, 5, 6, 7, and 8 are detail views.

The invention relates to door-knobs of the general character shown, described, and claimed in an application, Serial No. 501,572, and our present invention has for its object to provide a knob with a keyless locking device, which knob can be arranged to control any ordinary latch or other locking device, and can be readily connected to and is adapted to be used with the spindles or other parts operating or controlling the locking or latching device.

The present invention consists, among other things, in providing the knob with a spring-actuated plunger controlling the clutch device, and in turn controlled by a series of locking-pins, which pins are controlled by a series of keyless locking devices, shown in the present instance in the form of push-buttons, part of them being known as "false" locking devices.

It further consists in means for operating the plunger to detach the clutch devices, as well as in the special features of construction and arrangement of the various parts hereinafter more particularly pointed out.

It will be seen that the clutch device may be in operative engagement and the knob used as an ordinary door-knob, not requiring the manipulation of the keys to turn the latch or lock, or it may be set so that the latch or lock can only be turned when the proper keyless locking devices are operated in accordance with some prearranged relation of the parts, and it will also be seen that these relations may be varied or changed from time to time, and when the proper keyless locking devices are operated the plunger will be automatically moved, so that the clutch will be engaged and the lock or latch can be turned; but when any of the false keyless locking devices are operated the plunger is prevented from moving and the lock or latch cannot be turned.

Referring to the drawings, B represents a spindle or connection or any ordinary or well-known lock or latching device, which is adapted to be operated by the knob C when the parts of the knob are properly manipulated and the clutch or other equivalent device is engaged therewith. The knob C may be of any shape or form or material, and, as shown, is provided with a shank or extension c^3 , which is provided with a ring or projection c^4 , fitting into a recess in the escutcheon D, which may be secured to the door in the usual way, and which will hold the knob in place and permit its freely turning therein, and the spindle B in this instance is shown as attached to a block c^5 fitting in the end of the shank c^3 and embraced by the ring or projection c^4 . While this shows a convenient means of attaching the knob to the lock or latch operating device, it is evident that any other well-known or equivalent means may be adopted.

Some sort of a clutching device or connection between the knob and spindle must be provided, and while various forms of clutches or similar devices may be used we have shown the spindle B as being provided with one or more projections b , forming one portion of a clutch, while the plunger (hereinafter to be described) is provided with similar projections, forming the other portion of the clutch. The knob is shown as recessed in its central portion and provided with a plunger G, comprising an enlarged portion G' and a reduced portion G^2 , which slides freely

in the neck c^3 of the knob, and the end of the reduced portion of the plunger is provided with one or more projections g , forming a clutch portion and arranged to engage with the clutch portion of the spindle when the plunger is in proper position. The plunger is normally under the stress of a spring G^3 , which in this instance is shown as fitting a reduced recess in the front hollowed portion of the knob, and bearing upon the plunger in a recess in the front end thereof, and tending to force the plunger so that the clutch devices will be engaged.

Surrounding the neck c^3 is a collar F , which is connected to the reduced portion of the plunger by any suitable means, as by a screw f passing through slots in the neck, and this collar is preferably fitted in the circular recess in the inner face of the knob adjacent to the neck, so that in its normal position it forms a practical continuation of the outline of the knob and adds to the symmetry of the device.

The movements of the plunger G are controlled by a series of keyless locking devices, which in the present instance are represented by the push-buttons H H' , which are seated in the body of the knob and project radially therefrom, and part of these are so connected as to operate as false keyless locking devices and part as true keyless locking devices. These push-buttons are shown as normally under the stress of springs H , tending to retain them in their outermost position, and are provided with spindles h' , passing through openings from the recesses in which the push-buttons are mounted into the hollow space inside the knob. Some of these spindles, as of the true keyless locking devices, do not reach entirely through this passage, while others, as of the false keyless locking devices H' , normally pass through the passages and their ends are practically flush with the inner recess of the knob.

The plunger is provided with a series of radial recesses corresponding to the passages of the keyless locking devices, and in these recesses, or a portion thereof, are arranged pins I , which are free to slide therein and are shown as supported on springs I' , which normally tend to press them outward. It will be seen that a portion of these pins, as those opposite the true keyless locking devices, normally project a part way into the passage of the push-button and operate to hold the plunger in its retracted or spring-pressed position, while others, as those opposite the false keyless operating devices H' , are normally flush with the periphery of the plunger, so that when the false push-button is pressed its spindle will enter the corresponding recess in the plunger and prevent the plunger moving to engage the clutch device. It is not, however, absolutely necessary to utilize the pins and springs in connection with the false keyless locking devices or push-buttons, as the recesses may be left open or free, as shown in

some instances, Fig. 2, although it is considered preferable to provide the false push-buttons with pins and springs in order that they may assist in deceiving any one on account of the resistance offered to the various push-buttons, as they operate exactly in the same manner as the true keyless locking devices when the springs and pins are used.

In Fig. 2 we have indicated five true keyless locking devices and the remainder are false locking devices, and it is evident that any desired number or relative arrangement of false and true locking devices may be adopted. It will also be observed that the plunger is provided with a second series of recesses i , which, however, need not be provided with locking pins or springs, but serve simply to permit the keyless locking devices to be operated and forced in regardless as to whether the knob is locked or unlocked.

In Figs. 3, 4, and 5 we have illustrated another embodiment of the plunger in which the stem G^2 is extended and has attached to its outer end a plate G^4 , on which is mounted a ring-shaped piece G^5 , having openings or recesses in its periphery to receive the pins I . In order to provide these pins with spring-supports, we provide a crown-shaped spring K , which consists, essentially, of a ring-shaped piece k , having projecting arms k' , extending under the pins I and each operating as a spring for the pin supported thereon. Some of these springs are normally bent, so as to maintain the outer ends of the pins flush with the periphery of the plunger, and some maintain them normally projecting beyond the periphery, as shown in Fig. 3, the one being the true and the other the false locking devices. When the plunger is forced forward to engage the clutch, in this instance, the spindles of the push-buttons will pass by the face of the plate G^4 , the plunger moving forward sufficiently to allow this operation.

It is quite important that the keyless locking devices may be depressed, both while the knob is locked or unlocked. Otherwise, if this was not provided for, when the door or other device to which the knob is attached is left unlocked any one could discover the correct combination of the true and false locking devices, as the false push-buttons could not be depressed, their spindles bearing on the face of the plunger, and thus the combination would become known; but by providing the additional recesses or arranging the plunger so that the push-buttons can be depressed under all conditions this feature is avoided.

While various forms of clutches may be used, we have shown in Fig. 6 a spindle having at one end one member of a clutch device, the spindle being adapted to be used in connection with the ordinary door lock or latch. Thus the spindle B has one end provided with the usual openings b' or any other well-known construction for the reception and securing of the ordinary door-knob, and

the other end is provided with a block c^5 , which forms one portion of a clutch, and in the present instance is provided with pins b , arranged to engage similar pins on the plunger of the knob. The block also serves as a means of attaching the keyless knob, as before stated.

In Fig. 7 we have shown a modification of the plunger G, wherein it is recessed in its outer end, and mounted therein is another form of spring for the pins I, it being shown in this instance as having a center piece K' , adapted to be attached to the bottom of the recess and provided with a series of bent spring-arms k^3 , which are arranged and operate in a manner apparent upon inspection.

It will be seen that our invention can be applied to ordinary door locks and latches by simply removing the ordinary spindle and substituting the spindle shown, attaching the ordinary knob to one end in the usual way, and the keyless knob to the end having the block and portion of the clutch.

While we have described and illustrated the preferred embodiment of our invention and explained the principles thereof, it will be seen that the details of construction may be varied by those skilled in the art, and we do not therefore limit ourselves to the precise construction and arrangement shown.

We are aware of applications, Serial Nos. 501,571 and 501,572, filed by George L. Barney as sole inventor, and we do not herein claim as joint inventors any of the broad features of the invention therein claimed as the invention of the said Barney.

What we claim is—

1. A knob provided with keyless locking devices, and a plunger controlled by the keyless locking devices, the plunger being provided with a series of recesses carrying pins, substantially as described.

2. A knob provided with keyless locking devices, a spring-controlled plunger, recesses in the periphery of the plunger, and spring-actuated pins mounted in the recesses, substantially as described.

3. A knob provided with keyless locking devices, a plunger, recesses in the periphery of the plunger, and spring-controlled pins mounted in the recesses, a portion of which normally project beyond the periphery of the plunger, and a portion normally within the periphery of the plunger, substantially as described.

4. A knob provided with keyless locking devices, and a plunger provided with a series of recesses carrying pins and provided with a second series of recesses adjacent the first series, substantially as described.

5. In a knob, the combination with push-buttons having spindles, a portion of which extend to the periphery of the recess in the knob, and a portion of which extend a less distance, of a plunger provided with a series of pins, a portion of which extend beyond the periphery of the plunger, and a portion of which are within the periphery of the plunger, substantially as described.

6. A knob, provided with a series of keyless locking devices, a shank, a plunger within the knob and projecting into the shank, and a collar embracing the shank and connected to the plunger, substantially as described.

7. In a knob, the combination with the spring-controlled push-buttons having spindles, of a spring-actuated plunger within the knob, the plunger being provided with recesses containing spring-actuated pins, and a collar connected to the plunger, substantially as described.

8. A knob, provided with keyless locking devices, a plunger having recesses supporting pins, and a spring comprising an annular portion having arms supporting the pins in the plunger, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

GEORGE L. BARNEY.
JOHN L. CLOUGH.

Witnesses:

N. F. THOMAS,
F. W. DOUGLAS.