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J. R. DUMONT

DOORKNOB

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Fig. 1.

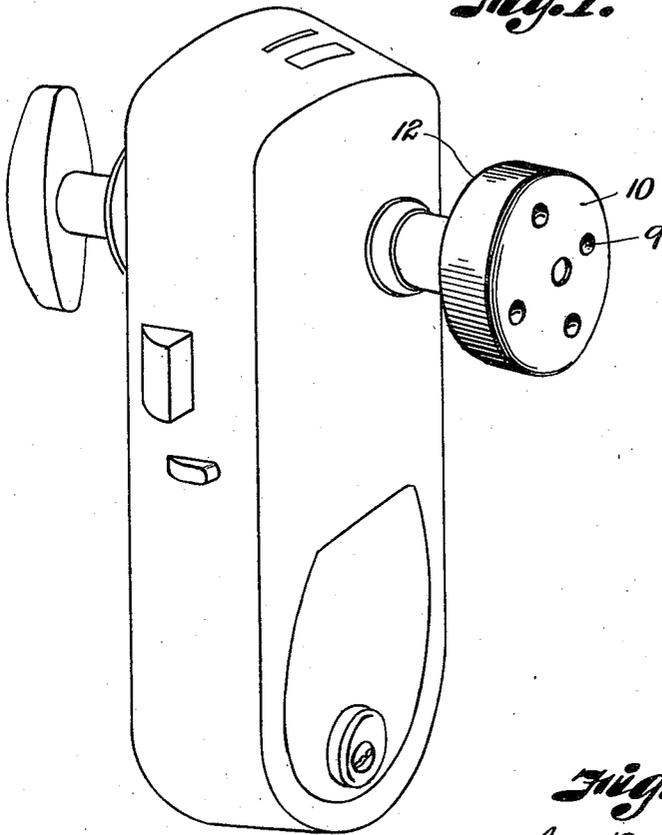


Fig. 2.

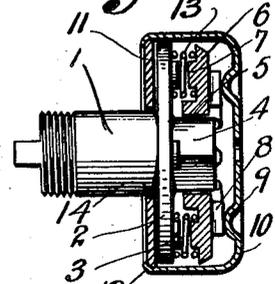


Fig. 3.

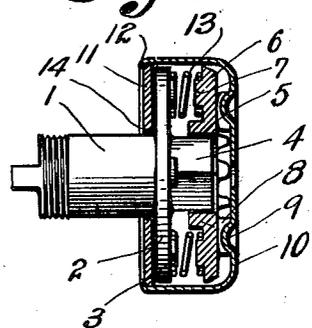


Fig. 4.

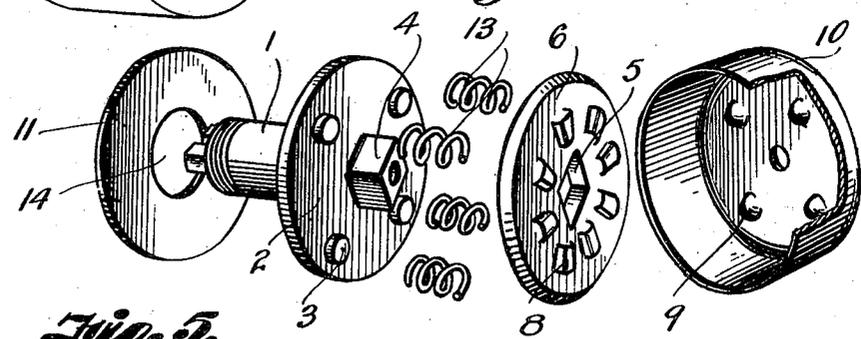
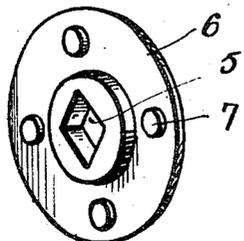


Fig. 5.



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UNITED STATES PATENT OFFICE.

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To all whom it may concern:

Be it known that I, JOSEPH R. DUMONT, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Doorknobs; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to door knobs and particularly to a door knob which may be fastened to the spindle of a lock by means of a slip clutch, the clutch being effective to maintain the knob in non-rotative relation with respect to the spindle under normal conditions but permitting the knob to turn independently of the spindle under abnormal conditions as, for example, when the spindle is obstructed in its rotative movement by the lock.

While the invention is not necessarily limited to the application to a coin-controlled lock, it is particularly designed therefor because considerable damage is done to coin-controlled locks due to the fact that after the depositor places a coin in the mechanism, he is generally insistent upon operating the lock, even to the detriment of the mechanism.

The invention is particularly designed for lavatory locks where the depositor deposits a coin, check or token in order to render the lock operative. If for any reason the lock fails to operate after the coin is deposited, the person placing the coin in the lock is liable to turn or wrench the spindle so that the interior lock mechanism becomes damaged.

According to my invention the knob to all intents and purposes would be rigid with the spindle under normal conditions. However, if the lock fails to operate, the continued turning of the knob in either direction after the spindle is arrested or after the spindle is obstructed in its turning movement will permit the knob to slip or continue to turn without disarranging any of the interior mechanism of the lock.

The invention consists in certain novel details of construction and combinations of parts, all of which will be specifically re-

ferred to hereinafter, reference being had to the accompanying drawings, in which—

Fig. 1 is a view of a coin-controlled lock to which my invention is applied. 60

Fig. 2 is a vertical, longitudinal, sectional view showing the knob in releasing or slipping position.

Fig. 3 is a similar view showing the knob clutched to the spindle. 65

Fig. 4 is a disassociated view of the parts, and

Fig. 5 is a perspective view of the inner face of the slip clutch element.

Referring now to the drawings by numericals of reference:

1 designates a spindle which may be fastened to the interior lock mechanism in any convenient manner. The spindle carries a fixed clutch disk 2 having outwardly projecting lugs 3. The disk 2 carries a centrally located annular boss 4 and the boss is adapted to enter an angular opening 5 in a clutch disk member 6. The clutch disk member 6 is provided on its inner face with lugs 7 complementary to the lugs 3 and on its outer face it is provided with clutch projections 8 adapted to engage the inwardly directed complementary clutch projections 9 on the knob 10. The knob is in the form of a hollow casing. It is preferably cup-shaped and embraces the members 2 and 6 and is loosely secured about them by a cover plate 11 which may be secured to the knob by peening over the edge 12 of the knob when the cover plate is in the position shown in Figs. 2 and 3. The clutch disk or member 6 is normally urged into clutching engagement with the clutch projections 9 by springs 13 mounted about the lugs 3 and 7 and interposed between the disks or plates 2 and 6. 95

When the parts are assembled, the clutch projections 8 are in clutching engagement with the projections 9 on the knobs. The springs 13 are strong enough to maintain the projections 8 and 9 in clutch engagement under normal conditions so that when the knob 10 is turned, the clutch plate or disk 6 will be turned. Since the clutch plate disk 6 is in angular engagement with the boss 4, the boss 4 will be turned with it and inasmuch as the boss 4 is rigid with the spindle 1, it is obvious that the spindle will be turned.

Should the spindle become stuck or obstructed from any cause, the semi-spherical shape of the projections 9 will enable them 110

to ride over the curved projections 8 so that the knob can be turned about the disk 6, it being understood, of course, that the cover plate 11 rotates with the knob since the spindle projects loosely through the opening 14 in the cover plate 11. Therefore, it will be impossible to turn the spindle 1 when its resistance is great enough to cause slippage of the knob with respect to the rest of the mechanism.

It will be observed that the projections 8 exceed in number those designated 9. In the drawings I have shown twice as many projections 8 as there are projections 9. The purpose of this is to always present a clutching portion on the disk 6 to one of the projections 9. If the projections 8 were spaced as far apart as the projections 9, there would be a loose play between the knob and the clutch disk 8 before the two could move together but constructed as shown in Fig. 4, there will be practically no play between the disk 6 and the knob.

The slip clutch arrangement between the spindle and the knob will prevent the mechanism in the lock from becoming damaged and this I find an important feature where publicly operated locks are involved.

What I claim and desire to secure by Letters-Patent is:

1. In combination with a lock spindle, a knob, and clutch connection normally locking the knob to the spindle, displaceable by the knob to permit the knob to turn independently of the spindle when the lock is abnormally restrained.

2. In combination, a spindle having a disk rigid thereon, a spring-pressed disk in spaced relation with the first-named disk

and mounted for non-rotation therewith, and a knob enclosing the disk and having projections for engaging complementary projections on the spring-pressed disk.

3. In combination, a hollow knob having inwardly directed projections, a spindle loosely secured to the knob, and a spring-pressed disk mounted to rotate with the spindle and having means engageable by the projections on the knob.

4. In combination, a spindle, a disk rigid therewith, lugs projecting from the disk, an angular boss projecting centrally from the disk, a second disk having an angular opening engaged by the angular boss, lugs on the inner face of the second disk, springs mounted between the disks and about the lugs, projections on the outer face of the second disk, and a knob engaging the disks and loosely mounted about the spindle, the knob having projections engaging the projections on the outer face of the second disk.

5. In combination, a spindle, a disk rigid therewith, lugs projecting from the disk, an angular boss projecting centrally from the disk, a second disk having an angular opening engaged by the angular boss, lugs on the inner face of the second disk, springs mounted between the disks and about the lugs, projections on the outer face of the second disk, and a knob engaging the disks and loosely mounted about the spindle, the knob having projections engaging the projections on the outer face of the second disk, the projections on the outer face of the second disk exceeding in number those extending inwardly from the knob.

In testimony whereof I affix my signature.
JOSEPH R. DUMONT.