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BATHROOM LOCK

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Fig. 1.

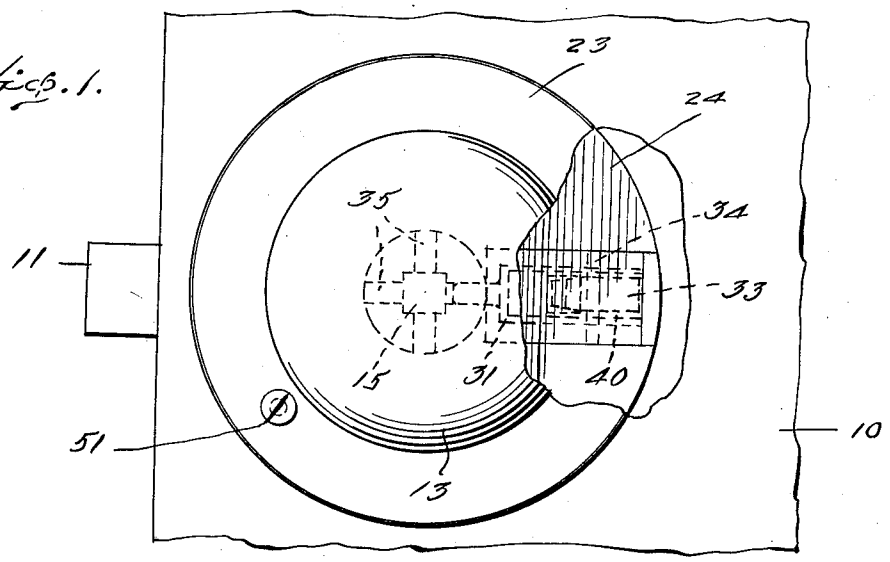
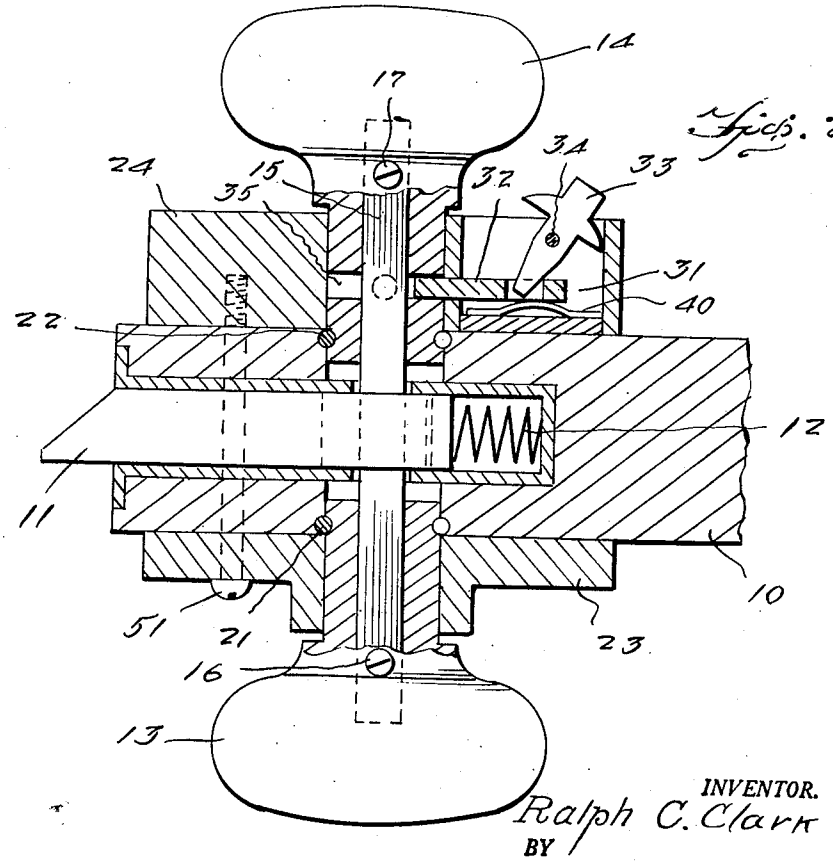


Fig. 2.



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BATHROOM LOCK

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5 Claims. (Cl. 292—359)

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This invention relates to locks, and more particularly to locks of the type that may be fastened to bathroom doors, wherein the locks may be latched from the inside.

A principal object of the invention is to provide a lock of the type described, that will be simple and economical to manufacture and easy to operate.

Another object of the invention is to provide a lock of the type described, that can be operated from the outside in case of emergency.

Further objects and advantages will appear to those skilled in the art.

Figure 1 represents an elevation of the lock as it appears from the outside, with a portion broken away.

Figure 2 is a horizontal section through a door containing the new and improved lock.

The invention, shown applied in a recess in a door 10, comprises a bolt 11 normally urged outwardly by means of a spring 12, in the usual manner. An outer door knob 13 and an inner door knob 14 are joined together on a square shaft 15 that passes through the door 10 from one side to the other. The knobs 13 and 14 are fixed to the shaft 15 by means of set screws 16 and 17, respectively. The knob 13 is so formed that it has a recess to fit within the door 10, and the recess portion of the knob 13 and the adjacent portion of the door 10 are provided with cooperating annular grooves that contain a split ring bearing member 21. The knob 14 and the contiguous portion of the door 10 are provided with a similar split ring bearing member 22.

An outside escutcheon plate 23 is positioned between the knob 13 and the door 10, and another inside escutcheon plate 24 is similarly positioned between the knob 14 and the door 10. The square shaft 15 is cammed to operate the bolt 11 in the usual manner.

The inner escutcheon plate 24 is provided with a lateral groove 31 that is parallel to the surface of the door 10. A detent 32 is adapted to ride within the groove 31. An operator 33, pivoted on a pivot 34, is adapted to operate the detent 32. The inner knob 14 is provided with a plurality of openings 35, four being shown, any one of which may be aligned with the groove 31 when the knob 14 is turned. A spring 40 bears against one side of the detent 32 and acts as a cam to keep the detent 32 in position.

It will be apparent that if the inner escutcheon plate 24 is fixed relative to the door 10, movement of the detent 32 into any one of the openings 35 in the knob 14 will fix the knob 14 in

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position and prevent rotation thereof. Under such circumstances, when the bolt 11 is out, the bathroom door can be locked from the inside by a movement of the operator 33.

The inner escutcheon plate 24 is not secured to the door 10. The outer escutcheon plate 23, however, is fixed to the door 10 by means of a single screw 51.

The single screw 51 is adapted to fasten both escutcheon plates to the door 10. This screw 51, of course, is so positioned that it does not interfere with the operation of the bolt 11.

The operation of this lock is as follows:

When the detent 32 is withdrawn from the openings 35 of the inner knob 14, either of the knobs will be able to operate the bolt 11. When the operator 33 is moved clockwise, as shown in Figure 2, the detent 32 will enter one of the openings 35 in the knob 14 to fix the latter in position. If the bolt 11 is out, the door will be locked from the inside, and the outer knob 13 will be immovable. It will be noted that in such a case the escutcheon plates 23 and 24 will be secured to the door 10 and that the knobs 13 and 14 will be fixed relative to the escutcheon plates and the door.

It happens sometimes that a person may become ill after locking himself in the bathroom, or that a child may lock himself in. It then becomes desirable, and even necessary, to open the door from the outside. In fact, some ordinances require that means be provided for opening a locked bathroom door from the outside. In accordance with the principles of this invention, it is then merely necessary and sufficient to remove the screw 51. The escutcheon plates 23 and 24 will then have no means of attachment to the door 10, and the entire assembly of door knobs, shaft 15, and escutcheon plates 23 and 24, the latter containing the latching mechanism, will rotate as the knob 13 is rotated.

It will be noted that the split rings 21 and 22 provide bearing surfaces between the knobs and the door 10. They further serve to keep the knobs in alignment relative to each other and relative to the door 10.

What is claimed is:

1. In a door lock of the type comprising a shaft extending rotatably through the door and having knobs fixed thereon at opposite sides of the door, said knobs having shanks extending along said shaft an outwardly spring pressed bolt arranged to be retracted by turning said shaft, and outer and inner escutcheon plates secured to the opposite sides of the door through which

the knob shanks extend; the improvement of means for locking said shaft against being turned by either knob, said means comprising a detent mounted on said inner escutcheon plate of one side of said shaft for radial movement toward and away from the related knob shank radial openings formed in the related knob shank into which said detent is adapted to be moved in a manner to lock said inner knob and said shaft against being turned in either direction, and an operating element pivoted on said inner escutcheon and operatively connected to said detent and adapted to be moved in opposite directions to move said detent into and out of said radial openings in said inner knob shank.

2. In a door lock of the type comprising a shaft extending rotatably through the door and having knobs fixed thereon at opposite sides of the door, said knobs having shanks extending along said shaft an outwardly spring pressed bolt arranged to be retracted by turning said shaft, and outer and inner escutcheon plates secured to the opposite sides of the door through which the knob shanks extend; the improvement of means for locking said shaft against being turned by either knob, said means comprising a detent mounted on said inner escutcheon plate at one side of said shaft for radial movement toward and away from the related knob shank radial openings formed in the related knob shank into which said detent is adapted to be moved in a manner to lock said inner knob and said shaft against being turned in either direction, and an operating element pivoted on said inner escutcheon plate at one side of said detent and operatively connected to said detent and adapted to be moved in opposite directions to move said detent into and out of said radial openings in said inner knob shank, and spring means frictionally engaged with said detent and preventing vagrant radial movement of said detent.

3. In a door lock of the type comprising a shaft extending rotatably through the door and having knobs fixed thereon at opposite sides of the door, said knobs having shanks extending along said shaft an outwardly spring pressed bolt arranged to be retracted by turning said shaft, and outer and inner escutcheon plates secured to the opposite sides of the door through which the knob shanks extend; the improvement of means for locking said shaft against being turned by either knob, said means comprising a detent mounted on said inner escutcheon plate at one side of said shaft for radial movement toward and away from the related knob shank radial openings formed in the related knob shank into which said detent is adapted to be moved in a manner to lock said inner knob and said shaft against being turned in either direction, and an operating element pivoted on said inner escutcheon plate at the outer side of said detent and operatively connected to said detent and adapted to be moved in opposite directions to move said detent into and out of said radial openings.

4. In a lock structure of the type involving a shaft having a knob fixed on an end thereof having a shank extending inwardly along the shaft, a spring pressed bolt operatively connected to the shaft and an outer escutcheon plate through which the knob shank extends, the improvement of a detent slidably mounted on said escutcheon plate at one side of said shaft for radial endwise movement toward and away from said shaft, said knob shank being formed with circumferentially spaced radial detent openings into which said detent can be moved to lock said knob and shaft against being turned in either direction, and an operating lever pivoted intermediate its ends on said escutcheon plate having an outer end extending outwardly away from said detent and an inner end engageable wth a portion of said detent, said lever being swingable in opposite directions for moving said detent into and out of engagement with detent openings in said knob shank.

5. In a lock structure of the type involving a shaft having a knob fixed on an end thereof having a shank extending inwardly along the shaft, a spring pressed bolt operatively connected to the shaft and an outer escutcheon plate through which the knob shank extends, the improvement of a detent slidably mounted on said escutcheon plate at one side of said shaft for radial endwise movement toward and away from said shaft, said knob shank being formed with circumferentially spaced radial detent openings into which said detent can be moved to lock said knob and shaft against being turned in either direction, and an operating lever pivoted intermediate its ends on said escutcheon plate having an outer end extending outwardly away from said detent and an inner end engageable with a portion of said detent, said lever being swingable in opposite directions for moving said detent into and out of engagement with detent openings in said knob shank, said lever being pivoted on said escutcheon plate at the outer side of said detent, said inner end of said lever being loosely engaged in an opening provided in said detent whereby said lever is operatively connected with said detent.

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