Oct. 31, 1944. E. J. BAUME 2,361,734

KNOB CONTROLLED NIGHT LATCH

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Fig. 1

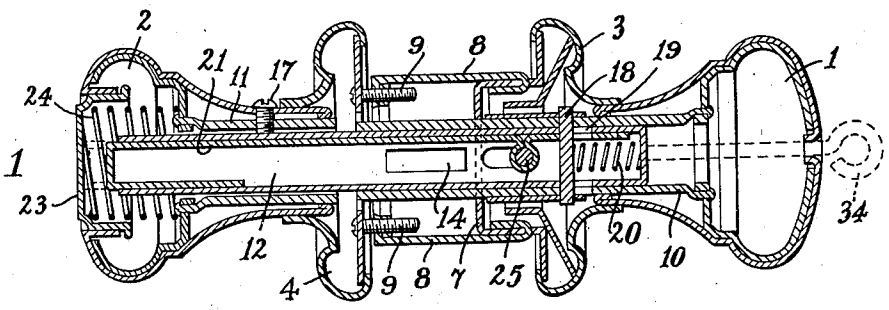


Fig. 2

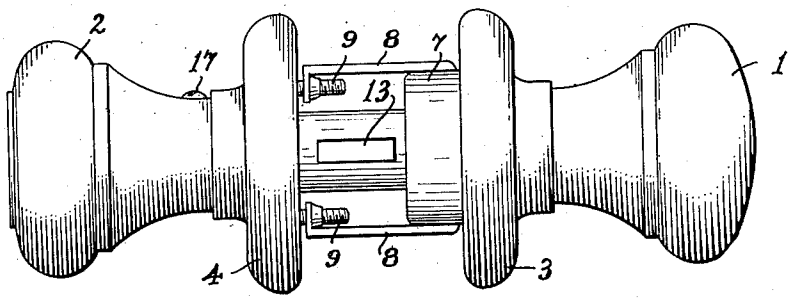
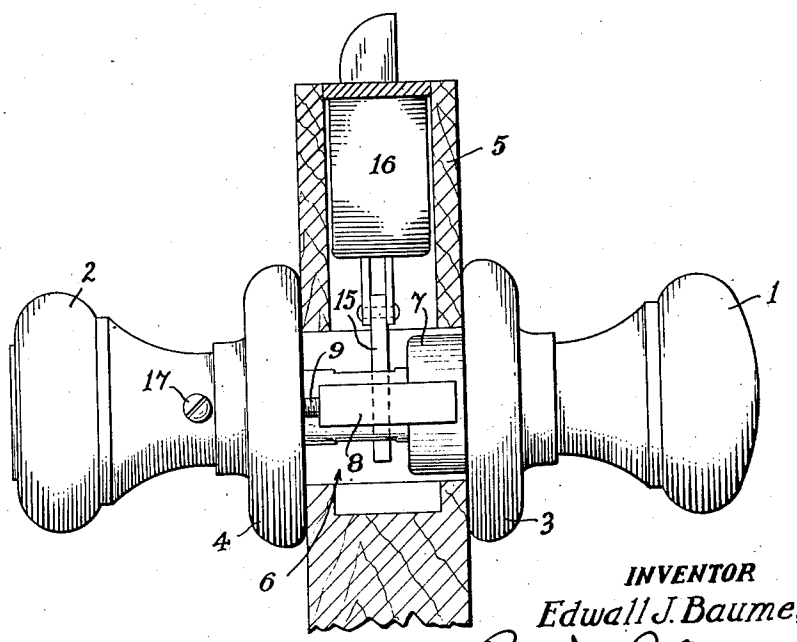


Fig. 3



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Fig. 4



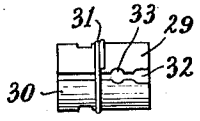


Fig. 5

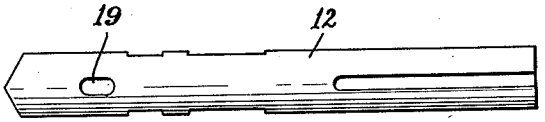


Fig. 6

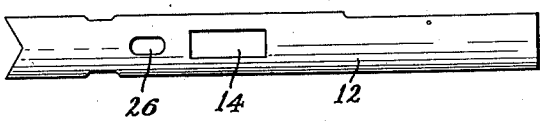


Fig. 7

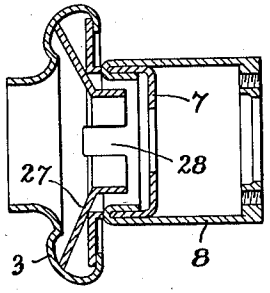


Fig. 8

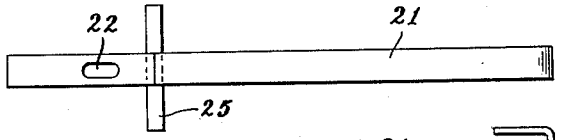


Fig. 9

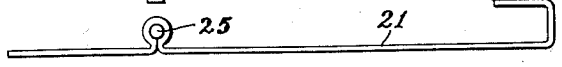


Fig. 10

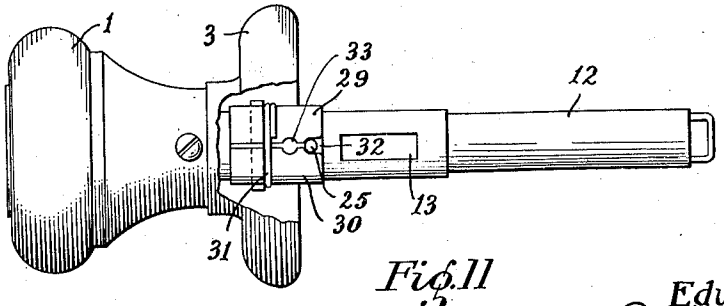


Fig. 11

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KNOB CONTROLLED NIGHT LATCH

Edwall J. Baume, Long Beach, Calif.

Application July 20, 1942, Serial No. 451,524

10 Claims. (Cl. 292—359)

This invention relates to an novel knob controlled night latch, particularly for door latches.

An object of my invention is to provide a novel knob controlled night latch wherein a control in one of the knobs of the latch will latch the knob spindle to a stationary member thus holding the knobs against rotation.

Another object of my invention is to provide a novel knob controlled night latch of the character stated in which the latching element, providing the night latch, is released by pulling outwardly on one of the knobs.

A feature of my invention resides in providing a knob controlled night latch of the character stated which can be quickly and easily assembled in a door in drilled bores in the door, and further in a novel means of assembling the escutcheons.

A further object of my invention is to provide a knob controlled night latch of the character stated which is simple in construction, inexpensive to manufacture and effective in operation.

Other objects, advantages, and features of invention may appear from the accompanying drawings, the subjoined detailed description, and the appended claims.

In the drawings

Figure 1 is a longitudinal sectional view of the knob assembly.

Figure 2 is a side elevation of the knob assembly.

Figure 3 is a side elevation of the knob assembly in position in a door, the door being shown in section.

Figure 4 is a plan view of one of the clutch plates.

Figure 5 is a plan view of the clutch plates in assembled position.

Figure 6 is a side elevation of the knob spindle.

Figure 7 is a side elevation of the same, taken at right angles to Figure 6.

Figure 8 is a transverse sectional view of one of the escutcheons.

Figure 9 is a side elevation of the latching arm.

Figure 10 is a plan view of the latching arm.

Figure 11 is a side elevation of one of the knobs with parts broken away to show the clutch plates.

Referring more particularly to the drawings, the numeral 1 indicates the outside knob and 2 the inside knob. The outside escutcheon plate 3 and the inside escutcheon plate 4 are assembled on each side of the door 5 and in a transverse bore 6 of said door. The knobs 1 and 2 can turn freely in the escutcheons 3 and 4, respectively, under normal conditions. However, when the night latch is applied as will be subsequently described, the knobs are latched to one of the escutcheons, this latch being engageable and releasable manually as will be subsequently described. The escutcheons 3 and 4 are non-rotatably mounted on the door 5 in the following manner. A cup 7 is fixedly mounted on the escutcheon 3, and a pair of arms 8—8 project inwardly from the cup 7 and are fixedly attached to said cup. Screws 9—9 extend through the escutcheon 4 and are threaded into the inner ends of the arms 8—8, thus securely pressing the escutcheons 3 and 4 against the door and non-rotatably holding these escutcheons. A sleeve 10 is fixedly attached to the knob 1 at one end and projects inwardly a sufficient distance so that it can engage the door latch operating mechanism which will be further described.

A short sleeve 11 is attached at one end to the knob 2 and projects inwardly until it practically engages the inner end of the sleeve 10, as shown in Figure 1. A cylindrical spindle 12 fits within the sleeves 10 and 11 and is also slidable longitudinally to act as a control which will be further described. The sleeve 10 is provided with a slot 13 and this slot matches a slot 14 in the spindle 12 for the purpose of receiving a latch actuating finger 15, this finger in turn being connected to a usual and well-known door latch 16. Rotation of either of the knobs 1 or 2 will cause rotation of the sleeve 10 or the spindle 12, thus rotating the finger 15 and actuating the latch 16 in order that the door can be released when desired. The knob 2 is connected to the spindle 12 by means of the setscrew 17. This setscrew extends through the knob and the sleeve 11 and seats against the spindle.

A pin 18 extends through the sleeve 10 and thence through the spindle 12 for the purpose of connecting this sleeve to the spindle and causing these parts to rotate together when the knob 1 is turned. The pin 18 extends through elongated openings 19 in the spindle 12 to permit limited longitudinal movement of the spindle. A spring 20 bears against the pin 18 and against the closed end of the spindle 12, thus normally holding the spindle in what might be termed retracted position. An operating arm 21 extends into the spindle 12 from the inner knob end. This operating arm is also provided with an elongated opening 22 through which the pin 18 passes. This elongated opening permits the operating arm to move longitudinally for the purpose of engaging and disengaging the night latch. A spring-pressed button 23 is mounted in the knob 2 and is normally pressed outwardly by the spring 24. The control arm 21 assumes the po-

sition shown in dotted lines in Figure 1, when the night latch is not engaged. By pushing inwardly on the button 23, this control arm is pushed inwardly to engage the night latch. A latching pin 25 is fixedly mounted on the control arm 21, preferably by bending this control arm around the pin substantially as shown. The control pin 25 extends transversely through the spindle 12 which is slotted as shown at 26 to permit longitudinal movement of the pin.

The escutcheon 3 is formed with a latching disk 27, and this disk is formed with a pair of diametrically spaced slots 28, in which the pin 25 is moved when the control arm 21 is pushed inwardly. When the pin 25 enters the slots 28, the spindle 12 is latched to the stationary escutcheon 3 and thus the knobs 1 and 2 are held against rotation and the latch 16 cannot be operated. The knob 2 has a limited longitudinal movement in the escutcheon 4. By pulling outwardly on the knob 2, the spindle 12 is caused to engage the end of the control arm 21, thus moving the control arm outwardly and pulling the pin 25 out of the slots 28. The knobs 1 and 2 are then free to rotate and operate the latch 16. In order that the pin 25 may be restrained in either the latched or unlatched position, I provide a pair of semi-cylindrical clutch plates 29—30 which encircle the sleeve 10 and are yieldably pressed against the sleeve by a circular spring 31. The plates 29—30 are provided with complementary open-ended slots 32, and a notch 33 spaced therefrom. In released position the pin 25 rests in the matching slots 32, and in latched position, this pin is held in the latch grooves 33, thus the pin 25 is held in either latched or unlatched position and is prevented from being accidentally moved out of either of these positions.

The spring 31 is rather light and consequently the night latch can be either set or released without a great deal of effort. A key 34 which consists merely of a straight pin may be used to engage the closed end of the spindle 12 and push this spindle inwardly, thus releasing the pin 25 from its latching position, enabling the door to be then released from the outside.

Having described my invention, I claim:

1. A knob controlled night latch comprising a pair of knobs, a spindle extending between said knobs and operatively connected thereto, a stationary member, manually operated latching means extending from one of said knobs, means on said stationary member engageable by said latching means, and a button in one of said knobs to actuate said latching means, and one of said knobs being attached to said spindle, said spindle being longitudinally movable by said knob and said spindle engaging said latching means on longitudinal movement to release said latching means from its latching position.

2. A knob controlled night latch comprising a pair of knobs, a tubular spindle extending between said knobs and rotatable thereby, a fixed escutcheon, said escutcheon having a notch therein, a pin adapted to enter said notch, a control arm within the spindle extending from the pin to one of the knobs, and means for operating said arm from one of the knobs.

3. A knob controlled night latch comprising a pair of knobs, a tubular spindle extending between said knobs and rotatable thereby, a fixed escutcheon, said escutcheon having a notch therein, a pin adapted to enter said notch, a control arm extending from the pin and within the spindle, said control arm extending to one of the knobs and operable from said knob, and a button in said knob engageable with the end of said control arm to actuate the same, said spindle being longitudinally slidable, one of the knobs being attached to the spindle whereby the spindle may be moved longitudinally, said spindle engaging said arm on longitudinal movement of the spindle to retract said pin from said notch.

4. A knob controlled night latch comprising a pair of knobs, a spindle extending between said knobs and operatively connected thereto, a stationary member, manually operated latching means extending from one of said knobs, means on said stationary member engageable by said latching means, and a button in one of said knobs to actuate said latching means, and clutch means engaging said manually operated latching means whereby said last named means is held in engaged and disengaged position.

5. A knob controlled night latch comprising a pair of knobs, a tubular spindle extending between said knobs and rotatable thereby, a fixed escutcheon, said escutcheon having a notch therein, a pin adapted to enter said notch, a control arm extending from the pin and within the spindle, said control arm extending to one of the knobs and operable from said knob, and clutch means engaging said pin whereby the pin is held in notch-engaging and disengaging position.

6. A knob controlled night latch comprising a pair of knobs, a longitudinally movable spindle extending between said knobs and rotatable thereby, a pair of fixed escutcheon plates, one of said escutcheon plates having a notch therein, a pin movable into and out of said notch, an arm extending from the pin to one of the knobs, a button in the last-named knob engageable with said arm, and clutch means engaging said pin in engaged and disengaged position, one of said knobs being secured to the spindle and adapted to move said spindle longitudinally, and a connection between said spindle and the arm so that on longitudinal movement of the spindle the pin is moved from engaged to disengaged position.

7. In a latch construction, a pair of knobs, a a hollow latch operating spindle interconnecting said knobs, a lost-motion connection in said spindle whereby one of said knobs may be axially shifted relative to the other, means mounted within said spindle operable from one of said knobs to secure said spindle against latch releasing operation, and means responsive to axial movement of one of said knobs causing release of said spindle securing means.

8. In a latch construction, a hollow, rotatable latch operating spindle, a knob connected to said spindle by a lost-motion connection whereby the spindle may be shifted axially relative to the knob, a second knob directly connected to said spindle, means carried within said spindle adapted to engage a fixed part to secure the spindle against rotation, means in said second knob for causing said securing means to engage said fixed part, and means responsive to axial shift of said second knob rendering said securing means inoperative.

9. In a latch construction, a fixed escutcheon, a rotatable knob, a spindle, a lost-motion connection between said spindle and knob, spring means normally urging said spindle toward said knob, a second knob directly connected to said spindle whereby the spindle may be axially

shifted away from said rotatable knob in opposition to said spring means, means extending from said spindle adapted to cooperate with said escutcheon to prevent rotation of said rotatable knob, means controllable from said second knob adapted to cause said rotation preventing means to become effective, means for retaining said rotation preventing means in effective position, and means responsive to axial shift of said spindle by said second knob to render said rotation preventing means ineffective.

10. In a latch construction, a fixed escutcheon, a rotatable knob, a spindle, a lost-motion connection between said spindle and knob, spring means normally urging said spindle toward said knob, a second knob directly connected to said spindle whereby the spindle may be axially shifted away from said rotatable knob in opposition to said spring means, a shiftable latching means having a part extending from said spindle adapted to cooperate with said escutcheon to prevent rotation of said rotatable knob, means controllable from said second knob adapted to cause said latching means to become effective, friction means for retaining said latching means in effective position, and lost-motion means responsive to axial shift of said spindle by said second knob to render said latching means ineffective.

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