

J. J. MURPHY.

DOOR LATCH.

APPLICATION FILED SEPT. 12, 1910.

993,788.

Patented May 30, 1911.

2 SHEETS-SHEET 1.

Fig 1

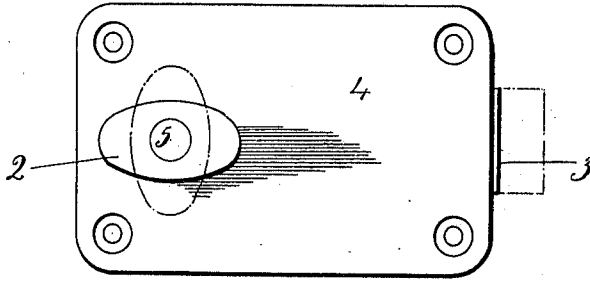


Fig 2

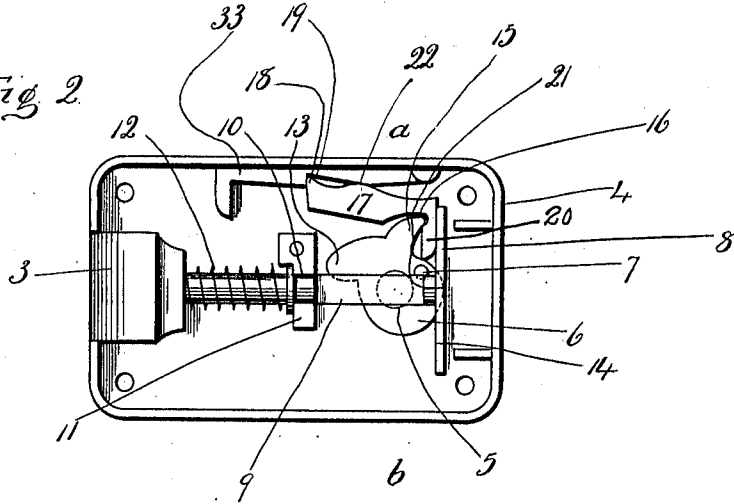
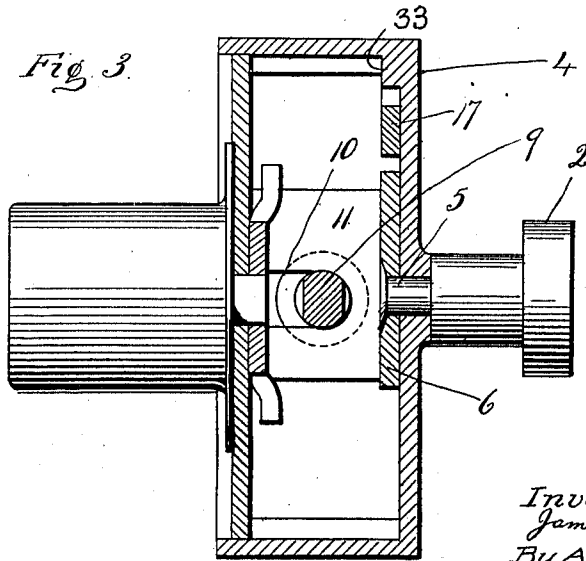


Fig 3



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2 SHEETS-SHEET 2.

Fig. 4.

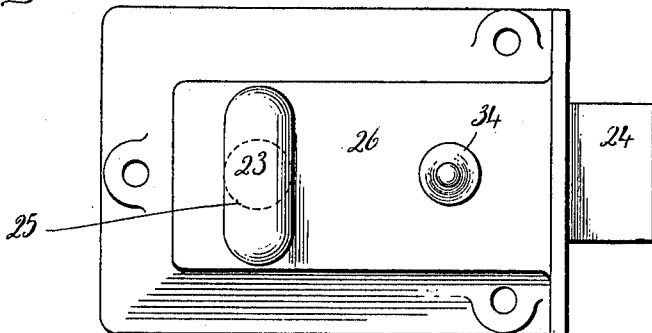


Fig. 5.

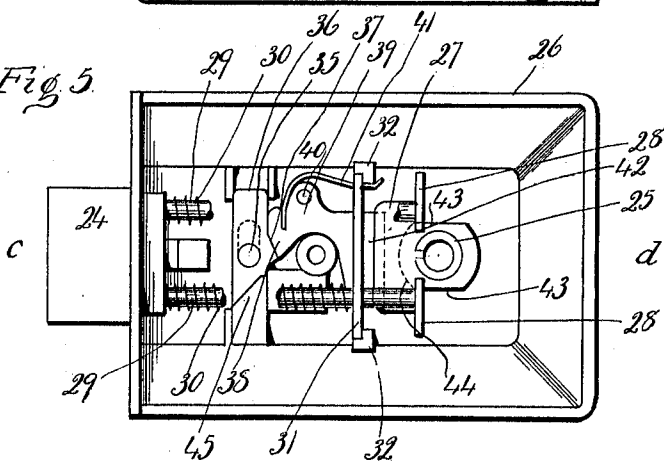


Fig. 7.

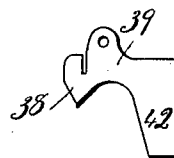
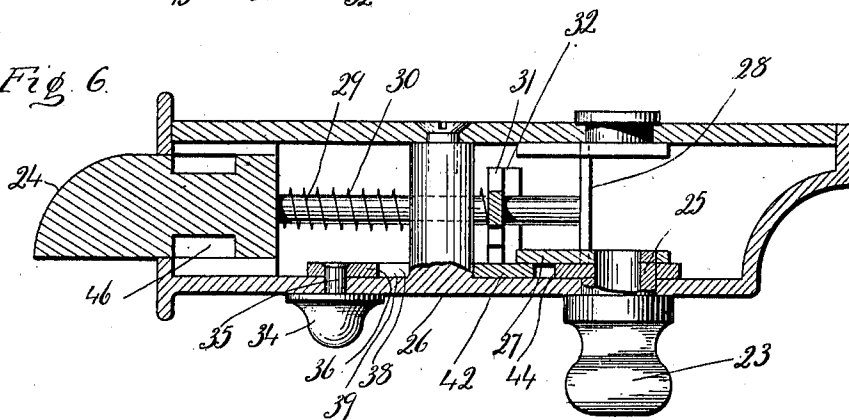


Fig. 6.



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DOOR-LATCH.

993,788.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed September 12, 1910. Serial No. 581,472.

To all whom it may concern:

Be it known that I, JAMES J. MURPHY, a citizen of the United States, residing at Terryville, in the county of Litchfield and State of Connecticut, have invented a new and useful Improvement in Door-Latches; and I do hereby declare the following, when taken in connection with the accompanying drawings and the characters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1 a view in elevation of a door-latch constructed in accordance with my invention. Fig. 2 a reverse view thereof with the back or cover of the lock-case removed. Fig. 3 a view of the door-latch in vertical section on the line *a—b* of Fig. 2 and drawn on an enlarged scale. Fig. 4 a view in elevation of another door-latch constructed in accordance with my invention, showing a modified form thereof. Fig. 5 a view thereof in rear elevation with the back or cover removed. Fig. 6 a view of the door-latch in longitudinal section on the line *c—d* of Fig. 5 and drawn on an enlarged scale. Fig. 7 a detached view of the pivotal locking-lever of the door-latch illustrated in Figs. 4, 5 and 6.

My invention relates to an improvement in that class of door-latches known as "night latches" on account of their provision with means for throwing the latch-bolt "off" and "on", so that the door may be left unguarded during the day and guarded at night. When the latch is thrown "off", the door may be pushed open or operated by a handle of any description without the trouble of turning the knob of the latch at each time. Night latches of this character are commended by their convenience, but open to the grave objection, as heretofore constructed, that when thrown "off" they are apt to be forgotten and the door left unlocked at a time when it should be locked.

The object of my present invention is to provide night latches of the character described, with knobs constituting visual indicators to show at a glance whether the latch is thrown "off" or thrown "on", so as to reduce the chance of leaving the door unlocked and unguarded.

With these ends in view my invention

consists in a night-latch having certain details of construction and combinations of parts as will be hereinafter described and pointed out in the claims.

In carrying out my invention as herein shown, I employ an oval or elongated knob 2 combined and arranged with the mechanism of the latch so that when the latch-bolt 3 is thrown "off" the longer axis of the knob will be located in a horizontal position and parallel with the lock-case 4; while on the other hand, when the latch-bolt is "on" the longer axis of the knob 2 will stand in a vertical plane as shown by broken lines in Fig. 1. The striking difference presented to the eye by the knob 2 when in its horizontal position, and when in its vertical position will signify at a glance whether the bolt 3 is thrown "off" or thrown "on", the horizontal position being the "danger" position and the vertical position being the "safety" position. In this way the knob 2 on account of its peculiar form and arrangement, will act as a telltale. It is necessary, of course, that the lock mechanism or latch shall be constructed so as to hold the knob 2 in its thrown "off" position in which it acts as a telltale. The particular throw-off mechanism may, however, be varied. As shown, the knob 2 is attached to the outer end of a shank or stem 5 the inner end of which has mounted upon it, a flat, sheet-metal roll-back cam 6 located within the case 4 and provided with a retracting-pin 7 engaging with a retracting-plate 8 mounted at a right angle upon the inner end of the shank 9 of the latch-bolt 3. The said shank 9 passes through a slot 10 in a bridge 11 cast integral with and rising from the bottom of the case 4. A helical spring 12 encircling the outer end of the shank 9 and interposed between the latch-bolt 3 and the bridge 11, exerts a constant effort to project the latch-bolt 3 into its open position. The said cam 6 is also formed with a nose 13 which engages with the said retracting-plate 8 at about the point 14 for the retraction of the latch-bolt 3 against the tension of the spring 12 when the knob 2 is turned in one direction. When the knob 2 is turned in the opposite direction, the retracting-pin 7 engages with the plate 8 and correspondingly retracts the bolt 3. When, however, the bolt 3 is retracted by the pin 7 the finger 15 on the cam 6 enters a notch 16 in a loose slid-

ing and rocking dog 17 and retracts the same until the nose 18 at its forward end snaps into a locking-notch 19 formed in a rib 33 cast upon the bottom of the case 4 close to the upper edge thereof, the nose 18 being lifted into the said notch 19 by the bearing of the upper end of the plate 8 against the outer edge of the arm 20 of the said dog 17, the said plate 8 being at all times drawn forward against the said arm 20 by the force of the spring 12. In this position the latch-bolt 3 is "dogged", since the dog 17 is now virtually interposed between the forward shoulder of the notch 18 and the upper portion of the retracting plate 8, whereby the bolt 3 is prevented from being shot forward by the power of the spring 12. The bolt being so held, is thrown "off", as the expression is, since it is held in its retracted or retired or inoperative position. The door to which the latch is applied may be now opened and closed without any reference to the latch. But at this time the knob 2 is held in its horizontal or danger position, and indicates at a glance to any one looking at the door when the same is closed, that the latch is thrown "off" and is not guarding the door. Otherwise, the door being closed, one could not tell by glancing at the lock whether the latch was "off" or "on"; and if the latch was in fact "off" when it was supposed to be "on", the house would be left unguarded. The latch is thrown "on", by simply turning the knob 2 back to its safety or vertical position. In doing this a slight additional effort in turning the knob causes the rounded surface 21 of the cam to act against the extreme lower end of the finger 20 of the dog 17, whereby the same is caused to rock upon its high point 22 as upon a center. This rocking action forces its nose 18 out of the locking-notch 19. The bolt being no longer "dogged" is now moved forward by its spring 12, and the knob 2 takes its safety or vertical position showing at a glance that the latch is "on". It will thus be seen that by combining a knob of oblong form with the "throw-off" mechanism of a door-latch, the knob may be made to subserve the secondary function of a visual signal indicating whether the latch is "off" or "on"; and therefore whether the door to which it is applied is guarded or unguarded.

In the alternative construction shown by Figs. 4 to 7 of the drawings, the door or night-latch is provided with an oblong knob 23 combined with, and arranged with reference to the mechanism of the latch so that when the latch-bolt 24 is thrown "on" the knob will stand in its vertical or safety position; while on the other hand when the latch-bolt 24 is thrown "off", the knob will occupy its horizontal or danger position. The said knob 23 is, to this end, fixed

in proper position upon the outer end of a tubular stem 25 mounted in the lock-case 26 and furnished at its inner end with a retracting-plate 27 commonly called a "roll-back", the ends of this plate being respectively adapted to engage with two retracting figures 28 respectively fixed to the extreme inner ends of two bolt-shanks 29 which correspond in size and length, and have their outer ends embedded in the latch bolt 24. Helical springs 30 encircling the outer ends of the shanks 29 are interposed between the base of the latch-bolt 24 and a pressure-bar 31 through which the shanks 29 pass and the ends of which are engaged with upright lugs 32 cast into the lock-case 26. The turning of the knob 23 in either direction, will cause the complete retraction of the bolt 24 which will be immediately thrown out into its locking position by the springs 30, when the hand is removed from the knob 23, unless the bolt when fully retracted is thrown "off" by the operation of a throw-off button 34 located upon the same side of the lock-case 26 as the knob 23 and furnished with a short stem 35 to the projecting inner end of which is riveted a locking-slide 36 confined to vertical movement in a right line at a right angle to the major axis of the case 26. This slide 36 is formed upon its inner edge with a cam-like nose 37 which acts upon the arm 38 of a pivotal locking-lever 39, hung upon a pin 40, having a spring 41, and formed with a depending locking-arm 42 coacting with either one or the other of two flat locking-faces 43 located opposite each other on a locking-washer 44 mounted on the stem 35 and located just under the roll-back or retracting-plate 27. The parts described are constructed so that only when the bolt 24 is fully retracted, (and therefore when the knob 23 is in its horizontal position indicating that the latch is "off", and therefore indicating danger), can the throw-off button 34 be lifted for moving the slide 36 upward, whereby its nose 37 operates the pivotal locking-lever 39 and swings the edge of its locking-arm 42 into engagement with one or the other of the locking-faces 43 of the locking-washer 44, whereby the knob 23 is held in its horizontal position which indicates that the bolt is "off", and that the door is unguarded. At the same time, the lifting of the slide 36, as described, enters a lug 45 upon its lower end into a notch 46 in the bolt 24 so as to positively hold the same in its retracted position. As long as the slide 36 is allowed to remain in its elevated position, the bolt 24 will be thrown "off", and the knob 23 will be held in its horizontal or danger signaling position. To throw "on" the bolt 24, it is necessary to press down upon the button 34 which moves the slide 36 downward and permits the

spring 41 to act to turn the locking-lever 39 upon its pivot 40 whereby the locking-arm 42 of the lever 39 is disengaged from one or the other of the two locking-faces 43 of the washer 44, thus releasing the knob 23 and the bolt 24 to the action of the springs 30.

It will be seen that in both of the night-latches shown and described, the position of the knob shows at a glance whether or not the door to which the latch is applied is guarded; that is to say, the position of the knob shows at a glance whether the latch is thrown "off" or "on", whereas this point cannot be determined in latches as at present constructed without trying the door if it be closed.

I claim:—

1. In a night latch, the combination with a latch-bolt, of a shank therefor, a retracting plate secured to the inner end of the shank at a right angle thereto, a roll-back cam provided with a retracting-pin and with a retracting-nose co-acting with the retracting-plate for retracting the bolt, a knob having the said cam connected with it, the said knob being positioned with respect to the bolt and cam so as to stand in a danger-indicating position when the bolt is retracted and in a visually different position when the bolt is projected, and a dog adapted at one end to engage with the lock-case, and at the other end to coact with the roll-back cam and retracting-plate for

dogging the bolt in its retracted position and also for holding the knob in its danger-indicating position as long as the bolt is held in its retracted position.

2. In a night latch, the combination with the case thereof, of a bolt, a bolt-shank, a retracting-plate attached to the inner end of the bolt-shank at a right angle thereto, a roll-back cam coacting with the said retracting-plate to retract the bolt when the cam is turned in either direction, a knob connected with the said roll-back cam and positioned with respect to the said latch-bolt and the cam so as to stand in a danger-indicating position when the bolt is retracted, and in a visually different position when the bolt is projected, and a loose, sliding rocking-dog adapted to coact with the lock-case to hold the bolt in its retracted position and the knob in its danger-indicating position as long as the bolt is held in its retracted position, one end of the said dog being formed with a finger which is interposed between a finger of the cam and one end of the retracting-plate.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

JAMES J. MURPHY.

Witnesses:

OTIS B. HOUGH,
GEO. LANGDON.