March 11, 1924. 1,486,552

F. M. SWANSON

LATCH

Filed Nov. 25, 1922

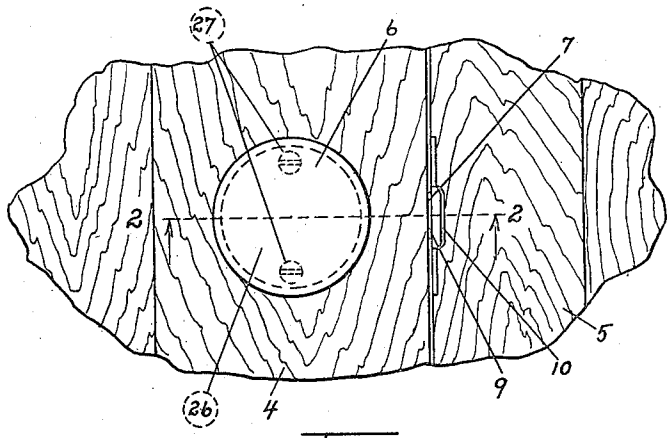


FIG. 1.

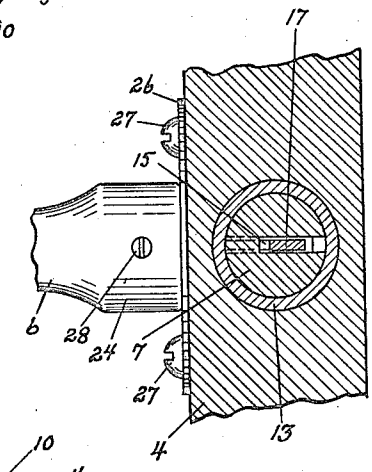


FIG. 3.

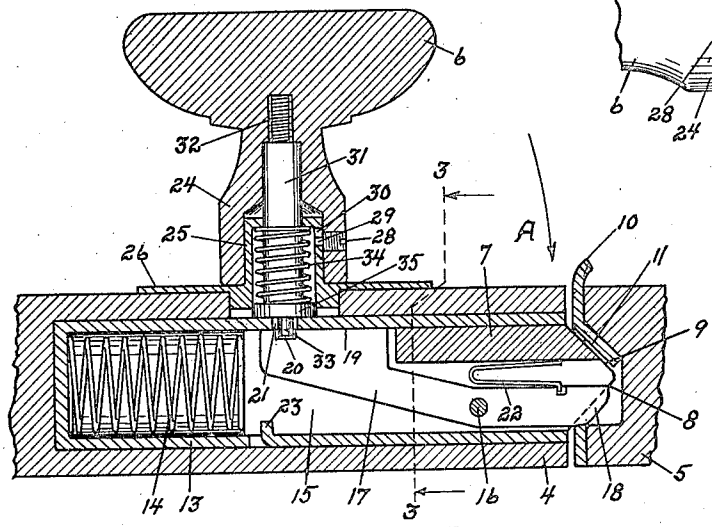


FIG. 2.

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UNITED STATES PATENT OFFICE.

FRANK M. SWANSON, OF MINNEAPOLIS, MINNESOTA.

LATCH.

Application filed November 25, 1922. Serial No. 603,180.

To all whom it may concern:

Be it known that I, FRANK M. SWANSON, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Latches, of which the following is a specification.

This invention relates to builders' hardware and the main object is to provide a practical and efficient door latch especially adapted for use in small doors, such as in cabinets, cupboards, buffets and lockers. Further objects will be disclosed in the course of the following specification and are embodied in the structure illustrated in the accompanying drawing, wherein:

Fig. 1 is a plan elevation of a portion of a door and frame in which a latch embodying my invention is mounted.

Fig. 2 is an enlarged sectional view on the line 2—2 in Fig. 1.

Fig. 3 is a sectional elevation of the device on the line 3—3 in Fig. 2.

Referring to the drawing more specifically and by reference characters 4 designates a door which is mounted on hinges (not shown) to swing shut into a frame 5, in the direction of the arrow A in Fig. 2, the knob or handle 6 being on the outer side of the door.

The door is releasably held shut by a sliding bolt 7 whose outer end is provided with two inclined end faces 8 and 9 which slidably engage against projecting portions 10 and 11, respectively, of a latch plate 12, secured in the frame 5. The bolt 7 is slidably retained in a cylinder 13, which in turn is frictionally secured in the door, and is normally held in an extended position (as shown in Fig. 2) by a spring 14 engaging against its rear end.

The bolt 7 is provided with a horizontal longitudinal slot 15, in which is pivotally mounted, as at 16, a lever 17, whose outer end 18 projects slightly beyond the inclined end face 8 of the bolt. The inner end of the lever 17 is provided with a straight edge 19 which rests normally against the cylinder 13, and in this edge portion is provided a notch 20, which registers with a perforation 21 in the cylinder 13, when the bolt is in normal position. A spring 22, of any suitable construction, tends to hold the inner end of the lever against the cylinder and the outer end extended away from the bolt face 8. An ear 23 is punched from the cylinder 13 into the slot 15 so that the bolt will be prevented from turning.

The hand engaging member or knob 6 has a substantially hollow shank 24 which is slidably seated on the collar 25 of a plate 26 which is secured by screws 27 on the door 4 adjacent to the latch members 7 and 13. The sliding movement of the knob 6 is limited by a small pin 28, which is secured in the shank 24 and has a peg 29 which slidably engages a slot 30 in the collar 25.

A releasing member 31 is firmly secured in the knob 6, as at 32, and is provided, at its inner end with an extension 33 which guides in the perforation 21 and normally engages the lever notch 20, and while so doing prevents any longitudinal movement of the bolt 7. A spring 34 is interposed between the outer end of the collar 25 and a flange 35 formed integral with the member 31, and it tends at all times to hold the knob close to the door and to keep the extension 33 in engagement with the notch 20.

The operation and use of the device may be briefly described as follows:

When the door is shut, as shown, it cannot be accidentally opened as by vibration, nor can it be opened by pressure exerted against its inner side, which is a common fault with the ordinary friction catches so universally used, because of the fact that the lever 17 being engaged by the member 33 will not permit the bolt 7 to slide back in the cylinder 13. The only way the door can be opened is to pull the knob 6 out as far as the slot 30 will allow the peg 29 to move. This will free the member 33 from the notch 20, and will allow the bolt 7 to slide in when the knob is pulled hard enough so that the bolt face 9 by engaging the extension 11 will cause the bolt to move in and thus free the door. It is not necessary to rotate the knob at any time. As soon as the door is swung out the knob is spring pressed back against it, by spring 34, and at this time, also, the spring 14 pushes the bolt 7 out until the lever notch 20 again snaps into engagement with the member 33, thus holding the bolt in its normal position.

To close the door it is only necessary to push it shut, for in so doing the lever end 18 will, by striking the plate portion 10, release the bolt 7 and allow it to be pushed by the plate back into the cylinder until the door is shut, when the spring 14 will push it out again into normal position.

It is understood that suitable modifications may be made in the general design and structural details of the device as here shown and described, provided, however, that such modifications come within the spirit and scope of the appended claims. Having now therefore fully shown and described my invention what I claim to be new and desire to protect by Letters Patent is:

1. In a door latch of the character described, a bolt slidably mounted in the door, and normally projecting from one edge thereof, a lever pivotally mounted in said bolt and extending with one end beyond said projecting end of the bolt, means for engaging the other end of the lever to hold said bolt in a normally projected position, a knob slidably mounted on the door, and means operative by pulling said knob for disengaging said lever.

2. In a door latch of the character described, a bolt slidably mounted in the door, spring means for yieldingly holding said bolt in normally extended position, a knob mounted on the door and slightly movable in respect thereto, a bolt locking device movably mounted within the bolt and extending forwardly thereof for releasably locking the bolt in said extended position, and means operative by an extracting movement of the knob for releasing said locking device.

3. In a door latch of the character described, a bolt slidably mounted in the door, said bolt having a longitudinal slot, a spring pressed lever pivotally mounted in said bolt slot, and normally extending beyond the edge of the door, a hand engaging member mounted on the door so as to be slightly movable to and from the same, means for yieldingly retaining said member close to the door, and a device operative by a movement of the member for engaging said lever.

4. In a device of the character described, a cylinder, a bolt slidably mounted therein, a bolt releasing member mounted in the bolt, a hand engaging member mounted near the cylinder and adapted to move toward and away from the same, said member having means normally engaging said bolt releasing member when in proximity to said cylinder.

5. A door latch comprising a bolt slidably mounted in the door and normally projecting therefrom, means within the lever for locking the bolt in said normal position, a hand engaging member slidably mounted on and yieldingly retained against the door, and means operative by pulling said member away from the door to release said bolt locking means and allow the bolt to be retracted into the door.

6. A device of the character described consisting of a cylinder, a spring pressed bolt slidably mounted in and normally projecting from the cylinder, a spring engaged lever mounted in said bolt and having a notch in its rear end, a hand engaging member slidably mounted at right angles with respect to said cylinder, and a device operative by said member for releasably engaging in said lever notch.

In testimony whereof I affix my signature.

FRANK M. SWANSON.