(No Model.)

M. JACKSON & F. SOLEY.

KNOB LATCH.

No. 601,077. Patented Mar. 22, 1898.

FIG. 2.

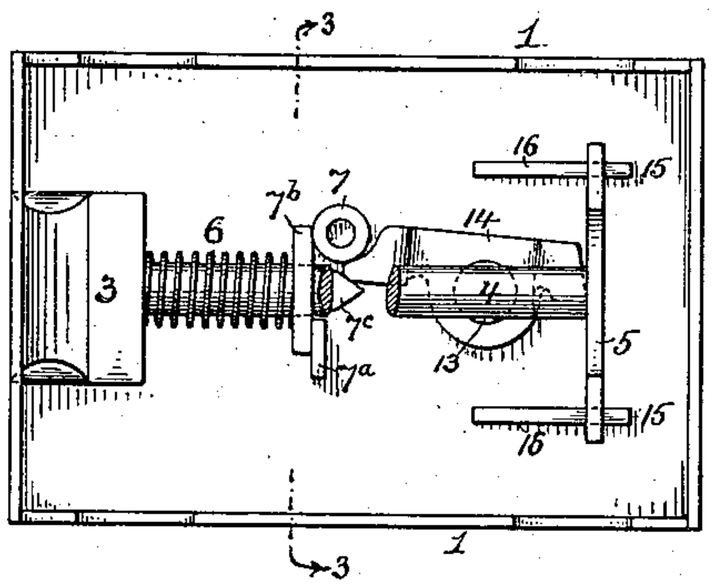


FIG. 5.

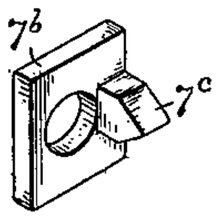


FIG. 1.

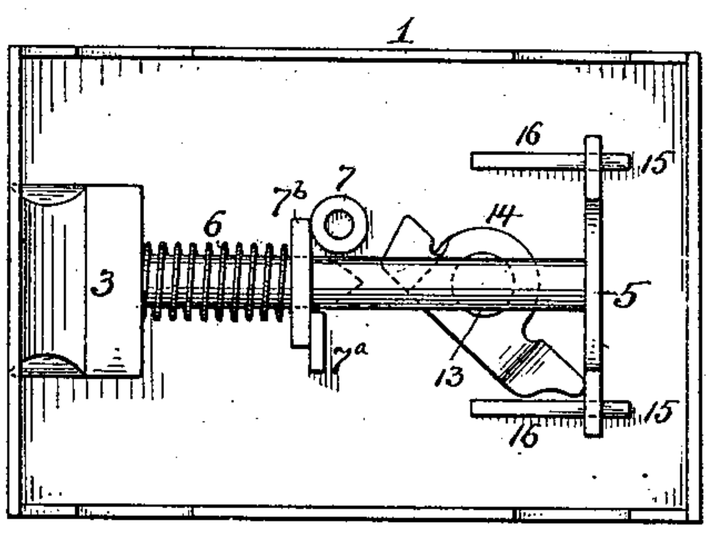


FIG. 4.

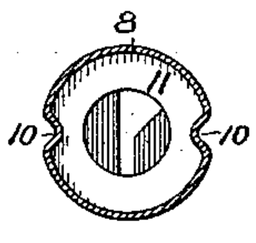


FIG. 7.

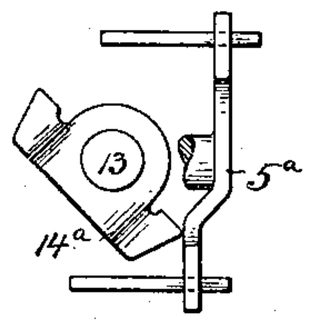


FIG. 8.

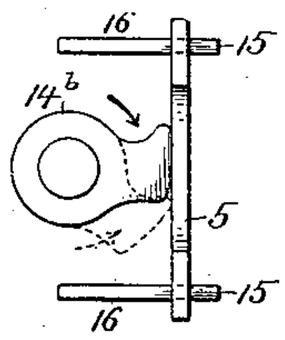


FIG. 3

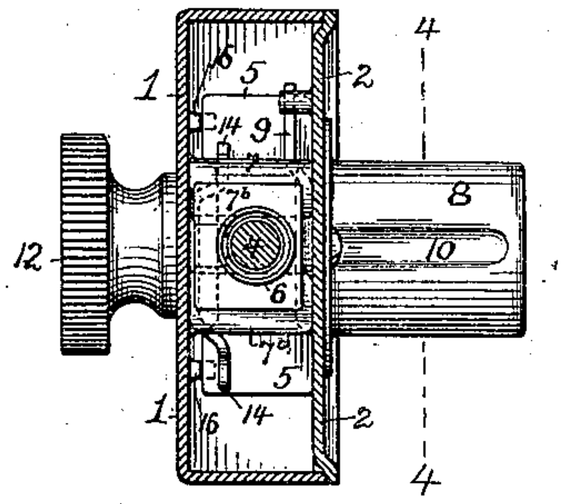
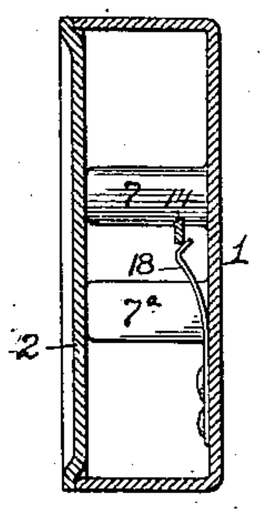


FIG. 6.



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Howson & Howson

UNITED STATES PATENT OFFICE.

MILTON JACKSON AND FRANK SOLEY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO THE D. K. MILLER LOCK COMPANY, OF SAME PLACE.

KNOB-LATCH.

SPECIFICATION forming part of Letters Patent No. 601,077, dated March 22, 1898.

Application filed December 17, 1896. Serial No. 616,039. (No model.)

To all whom it may concern:

Be it known that we, MILTON JACKSON and FRANK SOLEY, citizens of the United States, and residents of Philadelphia, Pennsylvania, have invented certain Improvements in Knob-Latches, of which the following is a specification.

One object of our invention is to so construct a latch-lock that the latch can by manipulation of a single knob be either withdrawn temporarily, so as to unlock the door, or can be retained in the retracted position, so as to permit the door to remain unlocked.

A further object of our invention is to simplify and cheapen the construction of the casing which carries the tumblers and washers of the lock mechanism.

These objects we attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a view of a lock with the inner face-plate removed and showing the knob-lever in position to temporarily withdraw the latch. Fig. 2 is a similar view showing the knob-lever in position to retain the latch in the retracted position. Fig. 3 is a transverse section of the complete lock on the line 3 3, Fig. 2. Fig. 4 is a transverse section through the lock-tumbler casing on the line 4 4, Fig. 3. Fig. 5 is a perspective view of one of the parts of the lock; and Figs 6, 7, and 8 are views illustrating modifications of the invention.

1 represents the casing of the lock; 2, the back face-plate; 3, the latch-bolt; 4, the latch-bolt spindle; 5, the transverse bar at the inner end of said latch-bolt spindle; 6, the spring for projecting the latch-bolt; 7 and 7^a, lugs projecting inwardly from the casing of the lock, and 7^b a plate bearing against said lugs and serving as a bearing for the inner end of the latch-bolt projecting spring.

Secured to the inner face-plate of the lock is a casing 8, carrying the tumblers and washers of the lock mechanism, said mechanism operating a lever 9, which acts upon the bar 5 of the latch-bolt stem, so as to withdraw the latter. The casing 8 is made of thin sheet metal and has its opposite sides indented, as shown at 10 10, Fig. 4, so as to form internal ribs for engagement with notches in the washers 11 in order to prevent turning of the same when the tumblers are moved by the action of the key. It will be understood that the diameter of the tumblers is less than the diameter of the washers, so that they can turn freely between the internal ribs of the casing 8.

Projecting from the casing of the latch is the usual knob 12, whereby the latch-bolt is retracted; but the spindle 13 of this knob has at the inner end a lever 14 with arms of different lengths, one of the arms being so long that when the latch-bolt spindle is fully retracted and the transverse bar 5 of the same is in contact with the stops 13 at the inner ends of the guide-ribs 16 the point of contact of said arm and bar will be some distance below the center of the knob-spindle, as shown in Fig. 1, so that as soon as the hold upon the knob is released the latch will be thrown forward by the spring 6, the long arm of the lever 14 being carried forward by the bar 5. When, however, the knob is turned so as to cause the short arm of the lever 14 to bear against the bar 5, the long arm of the lever will, when the said bar is fully retracted, strike against the lug 7 in the lock-casing and the contact-point between the short arm of the lever 14 and the bar 5 will then be either directly in line with the center of the knob-spindle or slightly below the same, so that forward pressure of the bar 5 upon the short arm of the lever cannot move the latter. Hence the latch-bolt will be retained in the retracted position. It will thus be seen that by moving the knob 12 in one direction—for instance, to the right—so as to cause the long arm of the lever 14 to act upon the bar 5, the latch-bolt will be retracted and will be held in the retracted position so long as pressure continues to be exerted upon the knob; but as soon as said knob is relieved from pressure the latch-bolt will be projected by its spring; but on turning the latch-bolt in the opposite direction—for instance, to the left—the short arm of the lever 14 will act upon the bar 5 and will retain the latch-bolt in the retracted position even after the knob is relieved from pressure. Turning of the knob in one direction therefore serves to withdraw the latch-bolt temporarily, as in unlocking the door,

while turning the knob in the other direction serves to both retract and retain the latch-bolt in order to permit the door to remain unlocked, the use of a special catch for retaining the latch-bolt in the retracted position being rendered unnecessary.

To prevent accidental displacement of the knob-lever when the same is adjusted to the position shown in Fig. 2, as well as to insure movement of the lever to such an extent as to cause its short arm to properly act upon the bar 5, we form on or secure to the inner side of the plate 7^b a beveled lug 7^c, Fig. 5, which is struck by the long arm of the lever 14 as the latter is moved to the position shown in Fig. 2, the action of the lever upon the lug serving to force forward the plate 7^b against the pressure of the spring 6 until the end of the arm has passed the highest point of the lug, whereupon the latter resumes its normal position and engages with the arm, so as to prevent accidental back movement of the lever, the lug and plate again yielding, however, when sufficient force is exerted to move the lever 14 backward from the position shown in Fig. 2. The spring 6 thus serves the double purpose of actuating the bolt 3 and imparting movement to the retaining-catch for the knob-lever. A special spring having a raised portion for engaging with the long arm of the lever 14 may, however, be employed, if desired, as shown, for instance, at 18 in Fig. 6. In either case there is at the termination of the movement of the lever to the position shown in Fig. 2 an abrupt stoppage of such movement and a sharp snap which indicates both to the touch and hearing of the person manipulating the knob the fact that the lever has reached its final position.

Although we prefer in all cases to provide the knob with a lever having arms of different lengths, the same result might be attained, as shown, for instance, in Fig. 7, by the use of a lever 14^a, having arms of the same length, the bar 5^a on the latch-bolt having in this case portions in different planes, so as to permit of the turning of one arm of the lever to or slightly beyond the center, while preventing the other arm of the lever from reaching this position, or a lever 14^b, having but a single arm, may in some cases be used either with a straight bar 5, as shown in Fig. 8, or with an offset bar such as shown in Fig. 7, the arm when used in combination with the straight bar being so formed that it can be moved so as to carry its contact-point to or beyond the the axial line in one direction, but not in the other.

The general feature common to all of the constructions shown is that the contact-point of the latch-bolt and knob-lever is at a different distance from the plane of the knob-lever axis in one adjustment than it is in the other.

Having thus described our invention, we claim and desire to secure by Letters Patent—

1. The combination in a knob-latch, of the latch-bolt having a spindle with transverse bar at the inner end, stops for limiting the retraction of said bar, and the knob-lever having one portion, which, when the transverse bar is fully retracted, is arrested by contact with said bar before it can be brought into line horizontally with the axis of said knob-lever, and another contact portion, which, when the bar is fully retracted, can be moved into line horizontally with said axis, substantially as specified.

2. The combination in a knob-latch, of the latch-bolt, the knob having a two-armed lever, and a stop on the lock-casing for limiting the movement of said lever in one direction, substantially as specified.

3. The combination in a knob-latch, of the latch-bolt, the knob having a two-armed lever for acting on said bolt, and a spring-catch for acting on one arm of the lever, and retaining it in position, substantially as specified.

4. The combination in a knob-latch, of the latch-bolt, a knob having a two-armed lever, a stop for arresting the movement of one arm of said lever, and a spring-catch which said arm of the lever passes on approaching the stop and which, after such passage, serves to retain the lever, substantially as specified.

5. The combination in a knob-latch, of the latch-bolt, a knob having a two-armed lever, a plate with lug for engaging one arm of the lever, and a spring acting both upon said plate and upon the latch-bolt, substantially as specified.

6. The combination of the tumblers and washers of the lock, with the sheet-metal casing having its opposite sides indented so as to form internal ribs for engagement with notches in the washers substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

MILTON JACKSON.
FRANK SOLEY.

Witnesses:
GEORGE L. BATTERSBY,
HARRY F. SMITH.