(Model.)

G. J. MATSON & J. V. PHILLIPS.

LATCH.

No. 447,055. Patented Feb. 24, 1891.

Fig. 1.

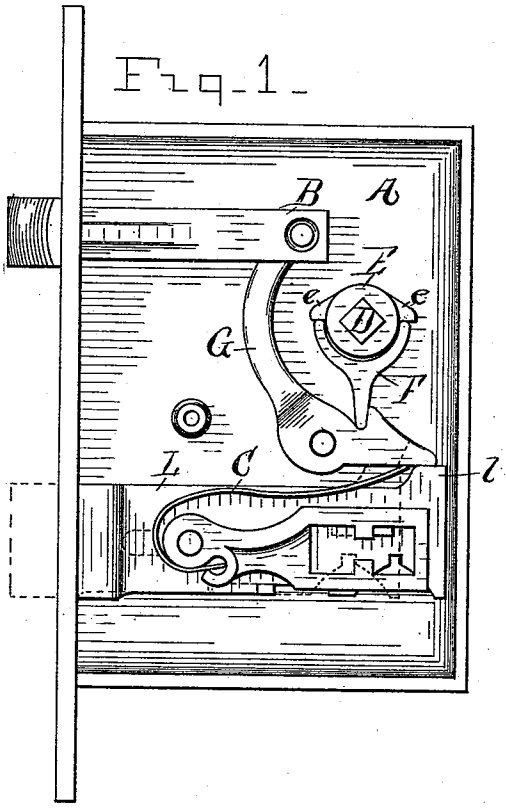


Fig. 2.

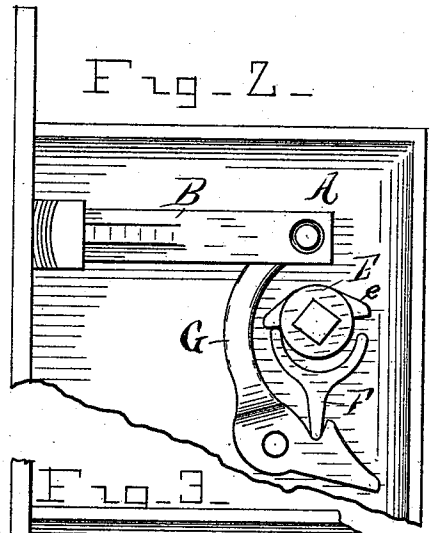


Fig. 3.

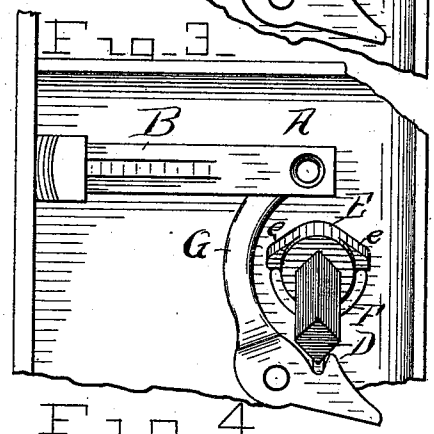
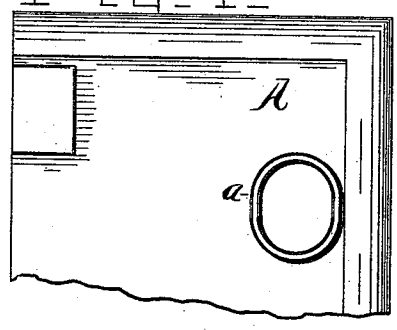


Fig. 4.



Witnesses
Edward J. Phillips
John W. Troeger

Inventors,
John V. Phillips
Truman J. Matson
By their atty. A. Bitner.

UNITED STATES PATENT OFFICE.

GERMAN J. MATSON AND JOHN V. PHILLIPS, OF NEW BUFFALO, MICHIGAN.

LATCH.

SPECIFICATION forming part of Letters Patent No. 447,055, dated February 24, 1891.

Application filed March 21, 1890. Serial No. 344,830. (Model.)

To all whom it may concern:

Be it known that we, GERMAN J. MATSON and JOHN V. PHILLIPS, both citizens of the United States of America, and residents of New Buffalo, in the county of Berrien and State of Michigan, have made certain new and useful Improvements in Locks, of which the following is a description.

This invention relates to that class of locks or latches wherein a bolt is withdrawn by turning or twisting a knob and returned automatically by a spring or by gravity upon the release thereof. It is well known to every one who has tried to open a door equipped with one of these latches with slippery hands or while holding in both hands articles which must be kept upright that the attempt is attended with great difficulty and annoyance.

It is our object to devise means whereby these latches may be operated with perfect ease, not only under the circumstances above mentioned, but even if both hands be full, by the pressure of the knee or any other portion of the body that can be brought to bear upon the door-knob. To do this we have so modified the construction of the working parts of the lock that the knob is allowed, in addition to its rotary movement, a vertical movement, and the bolt may be withdrawn either by the ordinary twisting of the knob or by pressing it up or down.

Referring to the drawings, wherein like reference-letters indicate the same or corresponding parts, Figure 1 is a side view of the entire lock or latch, the outer knob and the side plate being removed to reveal the interior. Fig. 2 is a view of certain working parts of the lock in the position which they assume when the latch is withdrawn by rotation of the knob. Fig. 3 is a similar view showing the same operation by pressing down the outer knob. Fig. 4 shows the form of the opening in the side plates of the lock.

In the ordinary door-lock two bolts are usually found—one a spring or gravity bolt operated by the knob and the other a sliding bolt moved back and forth by means of a key. These will be distinguished below by calling the former the "latch" and the latter the "bolt."

Our main improvement, as above stated, relates to the latch or spring-bolt, which is indicated in the drawings by the letter B. It is arranged in the case A of the lock in the same manner as heretofore, and the knobs, their connecting bar or shaft D, and the collar E have all become common in locks of this class. To allow the knobs the slight vertical movement required, we extend the hole in the side plate *a* of the lock downward in the shape of an elongated circle, in order that the bar D may play up and down therein; and we effect the withdrawal of the latch by means of this vertical movement as follows: The collar E, provided with the lugs or ears *e*, which are commonly in a vertical line and bear directly upon the latch or an attachment thereof, to give it a horizontal movement when the knob is rotated, is turned a quarter around, so that such ears lie in a horizontal line and bear upon a yoke F to give it a vertical movement upon the rotation of the knob, and such vertical movement is transformed into a horizontal one and communicated to the latch by means of an angle-lever G. When the knob is now rotated, as in Fig. 2, one of the ears presses down upon the yoke F, which in turn presses down the horizontal arm of the lever G, moving the vertical arm of said lever toward the right and withdrawing the latch. The spring which returns the latch upon the release of the knob is shown at C, bearing upward on the horizontal arm of the lever G. We place it here simply as a matter of convenience, as it can be utilized at this point to operate the ward of the lock in addition to the latch. Now if, instead of rotating the knob, it be pressed down or up the shaft D will pivot upon one of the side plates *a*, and, moving downward in the elongated hole of the opposite side plate, will thrust the yoke F downward and withdraw the latch precisely as before when the knob was rotated.

For certain purposes it is often desirable that the locking of the bolt of a lock should also lock the latch against withdrawal by means of the knob, and a minor feature of our invention consists in the provision made whereby the the locking of the bolt shall make it impossible to withdraw the latch by any movement of the knob. The device by which we do this is very simple, and is illustrated in Fig. 1. It consists simply of a shoulder or lug *l* upon the bolt L, which does not interfere with the

lever G when the bolt is withdrawn, but which engages with a portion thereof to prevent its movement when the bolt is thrown. In the lock shown the rear of the right-hand extremity of the lever G is cut away, as shown by dotted lines, to escape the shoulder *l* when this arm of the lever is thrown downward, the belt being withdrawn, as shown in full lines. When the bolt is thrown, as shown in dotted lines, the lug *l* is carried toward the left beyond the portion cut away, and effectually blocks any downward movement of the horizontal arm of the lever G.

We do not claim, broadly, the provision of means whereby the throwing of the key-bolt blocks the latch-bolt; but our improvement as defined below is made with a view to greater simplicity, effectiveness, and cheapness.

We claim as new and desire to secure by Letters Patent—

1. The combination, with the case, the latch-bolt, the handle D, and lever G, forming a part of the connection between the handle and the latch-bolt, of the key-bolt L, bearing a shoulder *l*, properly located to obstruct the oscillation of the lever when the bolt L is thrown, but to escape said lever when the bolt is withdrawn, substantially as described.

2. In a knob-latch, the combination of the sliding latch-bolt B, the case, the handle D, capable of rotation and oscillation in the vertically-elongated holes *a* of the case, and the collar E, yoke F, and lever G, substantially as described.

GERMAN J. MATSON.
JOHN V. PHILLIPS.

Witnesses:
H. BITNER,
JOHN W. TROEGER.