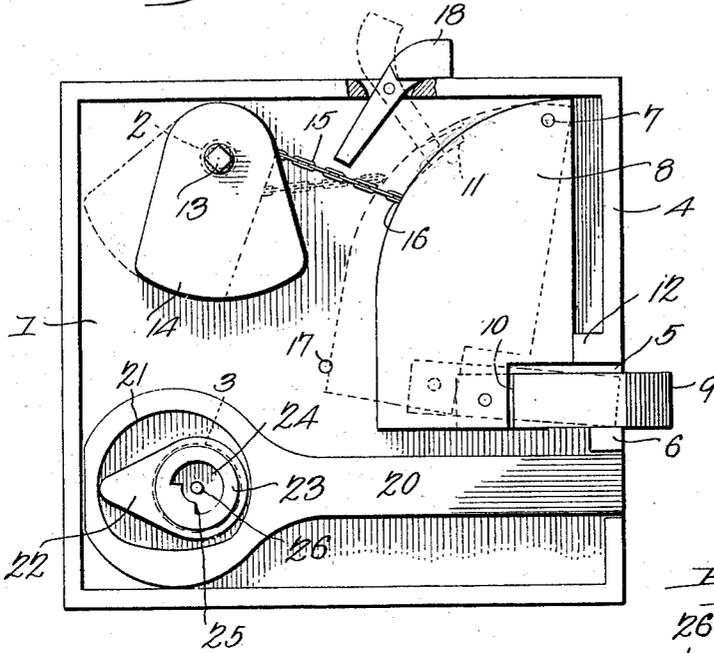


J. MILLS.  
LOCK.

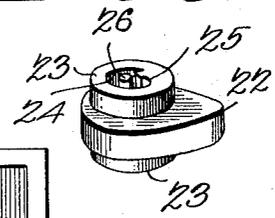
APPLICATION FILED JULY 28, 1903.

NO MODEL.

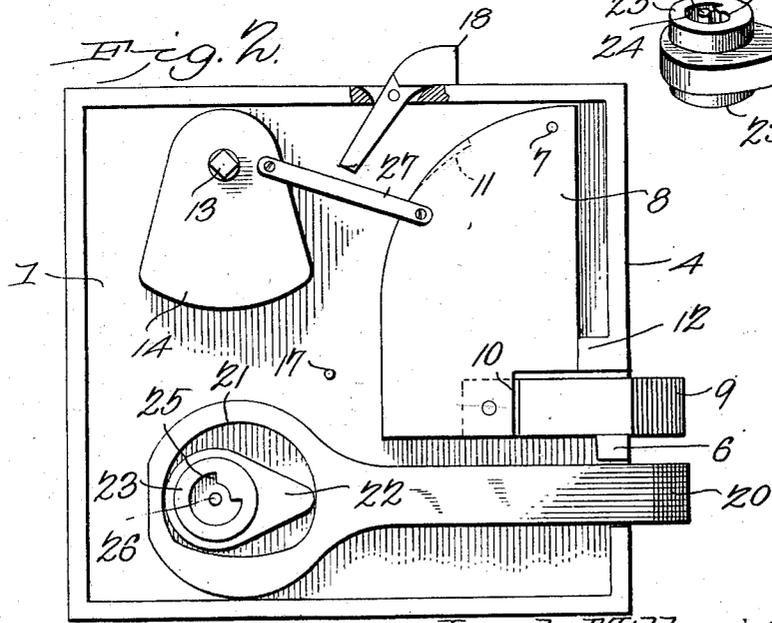
*Fig. 1.*



*Fig. 3.*



*Fig. 2.*



Witnesses  
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# UNITED STATES PATENT OFFICE.

JOSEPH MILLS, OF MARIETTA, OHIO.

## LOCK.

SPECIFICATION forming part of Letters Patent No. 748,202, dated December 29, 1903.

Application filed July 28, 1903. Serial No. 167,351. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH MILLS, a citizen of the United States, residing at Marietta, in the county of Washington and State of Ohio, have invented a new and useful Lock, of which the following is a specification.

This invention relates to springless locks; and the object thereof is to produce a lock in which the inherent weakness due to the presence of a spring as means for actuating the latch is completely obviated and a gravity-actuated latch of simple construction and positive operation which is not susceptible of derangement substituted in lieu of any of the ordinary forms of spring-operated latch.

In the accompanying drawings, illustrative of the invention, there is shown a practical embodiment thereof adapted for construction in the form of a surface-lock or a mortise-lock by very slight modifications, which will be hereinafter fully pointed out.

In the drawings, Figure 1 is a side elevation of the lock with the side of the casing removed to show the internal construction of the lock. Fig. 2 is a detail view showing a modified form of connection between the latch-weight and the knob-shaft. Fig. 3 is a view in perspective of the eccentric for operating the locking-bolt.

Referring to the drawings, in which corresponding parts are designated by the same characters of reference, 1 designates one of the side plates of the casing, provided near the top with an opening 2 for the knob-shaft and near the bottom with a larger opening 3 for the cylindrical extensions of the eccentric by which the locking-bolt is actuated.

4 designates a rim at the margin of the plate 1, against which a plate corresponding in configuration to plate 1 is secured to complete the lock-casing. The rim 4 is provided with an opening 5 for the passage of the latch and the locking-bolt, which are separated by a lug 6, secured upon the plate 1. At the upper forward corner of the plate 1 is provided a pivot-pin 7, upon which is suspended for oscillatory movement a weight 8, preferably of substantially quadrantal form and cut away at the lower forward corner to permit the attachment of the pivoted latch 9, the rear end of which is reduced in thickness for insertion into a recess 10 and the forward end of which

is beveled in the ordinary manner. Upon the upper portion of the curved back of the weight 8 is formed a notch 11, whose utility will hereinafter be described, and there is secured upon the plate 1, near the forward margin thereof and just above the latch 9, a stop 12 to limit the forward swing of the weight upon its pivot.

As the weight 8 is pivoted at the upper forward corner and the center of gravity thereof lies considerably to the rear of the point of suspension, it is obvious that the weight will normally rest in contact with the stop 12, keeping the beveled forward end of the latch 10 protruded beyond the rim 4 of the lock-casing and in position to engage with a keeper of any suitable form. (Not shown.)

In order to retract the latch 10 to permit the opening of the door upon which the lock is mounted, a knob-shaft 13 is rotatably mounted in the opening 2 and is provided with an oval weight 14, rigidly secured thereto. The weight 14 holds the shaft normally in the position shown in Fig. 1, and a connection is provided between the weight 14 and the weight 8, consisting, preferably, of links 15, engaging eyes 16, inserted into the back of the weight 8 and the forward surface of the weight 14, respectively, as shown in Fig. 1. The links 15 are of such length that when the latch 9 is in operative position the weight 14 will be held by the links in the pendent position shown in Fig. 1. The point of attachment of the link to the weight 14 is such that when the shaft 13 is rocked in either direction the weight 8, upon which the latch 9 is pivoted, will be retracted to withdraw the latch from operative position. The rearward movement of the weight 8 when actuated by rotating the shaft 13 is limited by contact with a stop 17, provided at a suitable point on the plate 1.

When it is desired to use the latch as a locking-bolt, a pivoted dog 18, which is mounted in the upper portion of the rim 4, will be thrown into the position indicated in dotted lines in Fig. 1 and the lower end thereof will be brought into engagement with the notch 11, formed upon the rear surface of the weight 8. The dog 18 when in operative position lies substantially normal to the curved surface of the weight 8, and conse-

quently does not have any tendency to be thrown out of operative position by the rearward movement of the weight. In order to further insure the retention of the dog in operative position when it is desired to use the latch as a locking-bolt and also to prevent the dog from being accidentally thrown into operative position, the upper end thereof is disposed at an angle to the rest of the dog and is weighted, as shown, so that when in inoperative position the weighted end rests upon the upper surface of the upper portion of the rim 4 and when in operative position the weight lies to the rear of the pivot upon which the dog is supported.

The locking-bolt 20 is placed in the lower part of the casing and is provided at the rear with an enlargement having an opening 21 therein of oval configuration, within which operates an eccentric 22. The eccentric 22 is preferably provided with a lateral cylindrical extension 23 upon either side thereof, which forms a trunnion upon which the eccentric is supported in the opening 3 in the plate 1 and the corresponding opening in the other side plate of the lock-casing. (Not shown.) Each of the cylindrical extensions is recessed on the end, as at 24, to permit the entry therinto of a key of suitable size and shape, and the movement of the eccentric is brought about by contact of the side of the key with shoulders 25, provided at one side of each recess. In the form of the invention illustrated there is a central guide-pin 26 in each of the recesses 24, upon which the key, which will have a hollow shaft, will turn.

When the eccentric 22 is turned into the position shown in solid lines in Fig. 1, the lock-bolt 20 will be protruded beyond the rim 4 of the lock-casing and will be positively held in that position. When the eccentric is turned through an arc of one hundred and eighty degrees, the bolt will be retracted, as shown in dotted lines in the same figure.

If desired, the link connection between the weight 8 and the weight 14 may be dispensed with, and a plate 27, of thin metal, may be secured upon the two weights by means of small screws or other fastening means, as shown in Fig 2.

In the form of the invention described in the preceding paragraphs, in which the pivoted dog is used to form means for using the latch 9 as a locking-bolt, it is intended that the lock will be mounted upon the surface

of a door, so that the dog may be accessible; but if the lock is intended for use as a mortise-lock the dog 18 will be dispensed with and the locking-bolt 20 alone will be used when it is desired to positively fasten the door.

While the lock has been shown as adapted for use only upon doors opening in one direction, it may easily be adapted for use upon doors opening in the opposite direction by merely removing the pivot upon which the latch 9 is supported, turning the latch over, and reinserting the pivot. By so doing the beveled face of the latch will be disposed on the side opposite to that upon which it is shown and will be adapted for use upon doors opening in a direction opposite to that for which the latch is adapted when in the position shown in the drawings.

While the lock as above described and illustrated represents the preferred form of the embodiment of the invention, it is to be understood that various changes in the form, proportions, and exact mode of assemblage of the elements may be resorted to without departing from the spirit of the invention or sacrificing the advantages thereof.

Having thus described the construction and operation of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination in a lock, of an eccentrically-mounted weight, a latch pivoted to said weight at the lower forward corner thereof, a rotatable shaft, an eccentrically-mounted weight upon said shaft, and a flexible connection between the last-named weight and the first-named weight.

2. The combination in a lock, of a suitable casing, a weight of substantially quadrantal contour mounted within said casing at its upper forward corner, a latch pivotally attached to said weight at its lower forward corner, a gravity-controlled pivoted locking-dog adapted to engage said weight, a rotatable shaft, a weight rigidly mounted thereon, and a link connection between the weight on the rotatable shaft and the first-mentioned weight.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOSEPH MILLS

Witnesses:

N. E. KIDD,  
DAVID H. THOMAS.