M. L. MORGAN.

Till-Lock Alarms.

No. 155,331. Patented Sept. 22, 1874.

Fig. I.

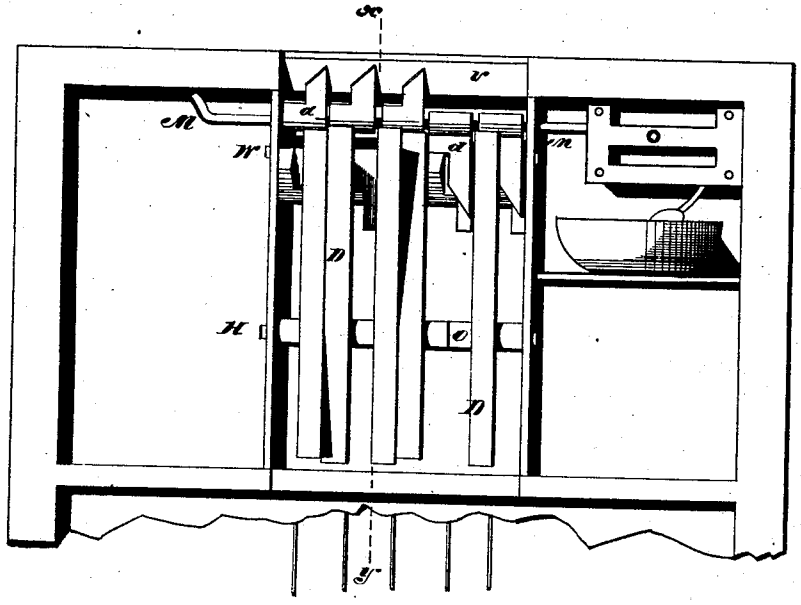
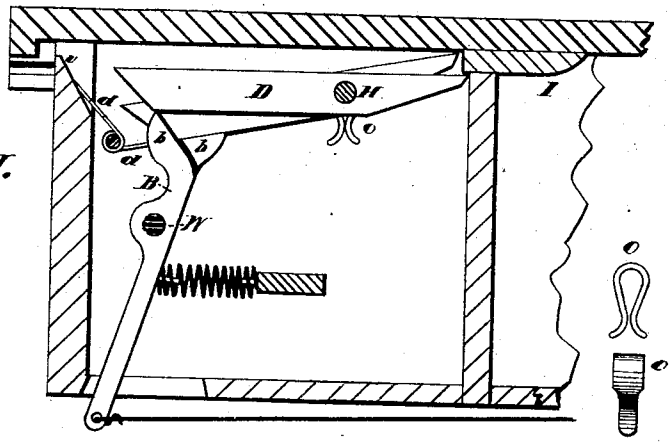


Fig II.



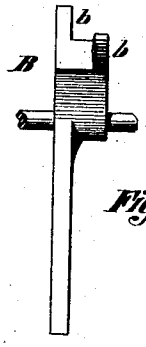


Fig. III.

Fig IV.

Witnesses

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UNITED STATES PATENT OFFICE.

MILO L. MORGAN, OF NORTHAMPTON, MASSACHUSETTS.

IMPROVEMENT IN TILL-LOCK ALARMS.

Specification forming part of Letters Patent No. **155,331**, dated September 22, 1874; application filed August 7, 1874.

To all whom it may concern:

Be it known that I, MILO L. MORGAN, of Northampton, Hampden county, State of Massachusetts, have invented an Improved Till-Lock Alarm, of which the following is a specification:

My invention relates more particularly to improvements on the till-alarm lock for which patent was granted me April 28, 1874, No. 150,179; and which consists, generally, of a series of levers, hinged to one side of their centers upon a common axis, to have their longer ends rest by their weight upon the ends of a corresponding set of levers hinged below them, so that the swinging of one of the lower levers, by the pulling of the key connected to it, will cause the shorter end of the upper lever, resting upon it, to catch or release a stop upon the lid of the drawer, as is determined by the position of a reversible dog forming the end of each lower lever, the number of the co-operating levers so constructed determining the number of combinations possible, and the levers being so arranged, relatively to the rod connected with the alarm, as to sound it when the drawer is pulled or any wrong key; and my improvements relate to the form of construction of the lower or supporting levers, and, in connection with them, to the provision for changing the relative positions of the upper levers upon their axis, and for rigidly connecting, at will, any number of the lower ones with the rod operating the alarm.

In the drawings, Figure I is a plan view. Fig. II is a cross-section on the line *x y*, and Figs. III and IV are detail views.

It will be seen that, in the patented device before mentioned, the position of a reversible dog on the end of a lower lever determined whether the movement of said lever, through the pulling of the key attached, would lower the end of a horizontal lever to be out of the way of a stop upon the lid of the drawer, or raise the end to come against the stop; and it is evident that, to change the combination upon which the lock was set, it was necessary to reverse one or more of the dogs; but I have found that to form the levers with reversible dogs, or, in other words, in sections, weakens them, as the dogs are liable to work loose, and cannot be easily changed from the position of the levers in the lock, and it is difficult to construct the dogs so that they can be at the same time easily changed and firmly secured; so that to obviate these difficulties, as well as to largely increase the number of combinations possible with the same number of levers, I construct the lower levers as shown in Fig. III—that is, each lever B has two lugs, *b b*, extending in such relation to each other that the upper lever D will, when bearing upon one lug, be moved one way by the swinging of the lever B, but will have its movement reversed by bearing upon the other lug of the same lever, so that the position of any lever, D, upon its axis H determines whether, upon being moved, it is to be swung up to catch the stop I, or lowered out of its way. The space taken up by each lug upon the bearing-rod W corresponds to that occupied by a lever, D, upon the rod H, and the number of levers D and B being the same, the spaces upon rod H opposite spurs upon levers B not in use to support one of the levers D, is occupied by a snap, O, sprung upon rod H, of the width of a lever, D, as seen in Fig. I; the number of snaps O and levers D together equaling the number of the spurs *b*, so that it will be seen that the relative positions of the levers D upon their rod H forms the combination, and that, with one lever, D, bearing upon each lever B, the same variations in the combinations are possible as with a lock having reversible dogs, while the levers D and snaps O are easily shifted upon their rod, and are not liable to become deranged; but when two levers, D, are made to bear upon one lever, B, a new series of combinations is introduced, as follows: When the two levers D D are arranged to rest upon the lugs *b b* of one lever, B, there is no moment when the pulling of the key operating the lever B would allow both of the shorter ends of the levers D D to clear the stop I, so as to allow the drawer to be withdrawn, one or the other always being raised to oppose the stop; but by pulling the drawer itself a short distance before pulling the key, the lever D, that is out of the way of the stop I, which is the one in a horizontal position, is brought under the stop, to be held by it from being raised at this end from the lowering of

the lug beneath its other end, while upon pulling the operating-key the other lever D of the pair is lowered to permit the drawer to be slid clear of the stop. The departure of the end of the raised lever D from the perpendicular occupied by the end of the horizontal one leaves a small portion of the latter exposed to pass under the stop I.

By introducing this arrangement of levers into a group arranged to bear singly upon levers B, a new element of difficulty is brought to oppose the picking of the lock, as the operation of manipulating the keys to unlock the drawer becomes a continuous one, the keys influencing single levers D having to be kept pulled until the drawer is slid into the position requiring the keys to be moved operating double levers D; this is shown in Fig. II.

In order that the alarm may be sounded by the movement of any lever B, I hinge upon the alarm-rod M the pieces *d d d*, corresponding in number to the levers B, and formed to ride upon and engage with the levers B when thrown in with them, to form a rigid connection to the alarm-rod, but which, when disconnected with the levers, ride upon an adjacent inclined surface, *v*, those disconnected offering no opposition to the free play of the rod through those connected to the levers; and it will be seen that they may be arranged, if desired, to sound the alarm upon the drawer being opened, as well as upon an unsuccessful attempt being made, or may be arranged to entirely disconnect the alarm from the rest of the mechanism.

What I claim is—

1. The levers D, adjustable upon their axis H, in combination with the levers B, when constructed to vary the action of the levers D by their change of position upon their axis, substantially in the manner and for the purpose set forth.

2. In combination with the rod H, the levers D and snaps O, having their positions upon the rod H interchangeable, and together filling its bearing-surface, in the manner and for the purpose set forth.

3. The arrangement, upon the alarm-rod, of the connections *d d*, &c., to ride upon the surface *v* when not swung to engage the levers B.

MILO L. MORGAN.

Witnesses:

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JOSEPH HAYDEN.