

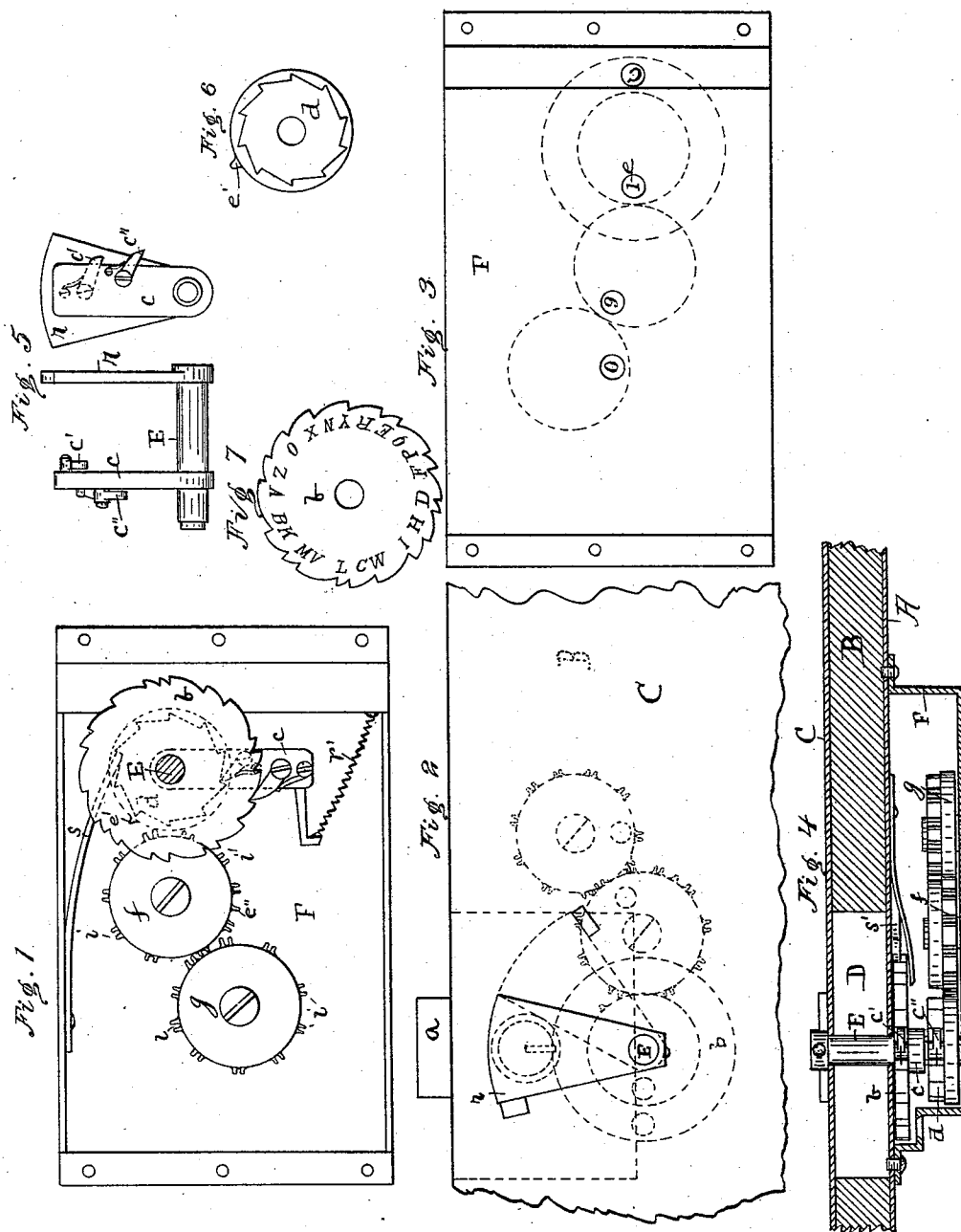
(No Model.)

C. SMYTH.

MECHANISM FOR DETECTING OPENING OF LOCKS.

No. 530,133.

Patented Dec. 4, 1894.



WITNESSES:

J. E. Jesseyman.
O. H. Maude

INVENTOR

Charles Smyth.

BY

R. J. McCarty
ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES SMYTH, OF DAYTON, OHIO.

MECHANISM FOR DETECTING OPENING OF LOCKS.

SPECIFICATION forming part of Letters Patent No. 530,133, dated December 4, 1894.

Application filed February 8, 1894. Serial No. 499,555. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SMYTH, of Dayton, county of Montgomery, State of Ohio, have invented a new and useful Improvement in Mechanism for Detecting the Opening of Locks; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improved mechanism for detecting the unauthorized opening of locks.

The invention may be applied to the locks of various articles, but it is more especially designed for use on the locks of cash registers.

The object of the invention is to provide certain and reliable means for ascertaining whether or not said locks have been opened.

To this end said improved mechanism consists of a series of wheels bearing numerical and alphabetical characters that are made visible through sight openings, and of other adjunctive mechanism, all of which will be described in the specification and is shown in the annexed drawings, of which—

Figure 1 is a view of the mechanism with the plate A removed and showing the shaft E in section, and the relative positions of the wheels; Fig. 2, a view of a lid with parts thereof broken away, showing in dotted lines, the lock, key-hole and wheels; Fig. 3, a rear view showing in dotted lines the wheels with certain characters thereon visible through sight openings in the rear case; Fig. 4, a horizontal section through part of the front of the lid, and the rear case inclosing the mechanism, the lock being removed in this view; Fig. 5, detached, detail views of the shaft carrying the ratchet pawls and the key-hole plate; Fig. 6, a detached detail view of the ratchet wheel by which the primary transfer is made; Fig. 7, a detached detail view of the irregular ratchet toothed wheel upon which the alphabetical characters are stamped.

In the specification, similar letters of reference will indicate corresponding parts throughout the several views.

A designates a plate attached to the inner side of the front portion of the lid B, and C is a similar plate attached to the outer side of said lid, and between which plates a recess D is provided for the lock, the bolt (a) of which, is shown, projected to a locked position in Fig. 2. E is a shaft loosely journaled in said plates, upon the inner end of which, is loosely mounted a ratchet wheel (b) having stamped on its inner face in irregular order, the letters of the alphabet. It will be noted, the ratchets formed on the wheel (b) are likewise irregular. This arrangement of said teeth and letters is an important feature of my invention and will again be referred to hereinafter.

(c) designates an arm rigidly mounted on the inner end of the shaft E, having a ratchet pawl (c') that engages with the ratchet teeth on wheel (b).

(d) denotes a ratchet wheel having numbers in regular order from 1 to 9 stamped upon its inner face, and which are visible one at a time through the sight opening (e). See Fig. 3. This wheel is loosely mounted upon the shaft E and adjacent to the arm (c) so that said wheel is engaged by the ratchet pawl (c') mounted on the inner side of the arm (c). (e') is a tooth projecting from the periphery of this wheel, which upon every revolution of said wheel, moves an adjacent wheel (f) which in turn, upon a complete revolution, moves with the tooth (e') a further wheel (g). These wheels (f) and (g) are mounted on the inner side of the inclosing case F, which is secured to the plate A, and are provided with facial letters similar to those on wheel (d) and peripheral teeth (i) arranged in pairs, between which, the teeth (e') and (e'') engage to move said wheels.

(r) is a key-hole plate rigidly attached to the outer end of the shaft E. This plate normally covers the key-hole, as is shown in full lines in Fig. 2, by the spring (r') which may be attached to the shaft E or arm (c) in any suitable manner. Detents (s) and (s') are used to prevent the wheels (b) and (d) from being rotated backward when the arm (c) and plate (r) are being carried to their normal position under tension of the spring (r').

It will be observed that the wheels (b) and (d) are rotated by the ratchet pawls on the

arm, only in one direction, and that movement is imparted to them whenever the key-hole plate (*r*) is slid away from the key-hole.

The following briefly illustrates the working of the device:—When the lid is locked, the wheels have been previously set to exhibit certain characters through the sight openings; an example of which is shown in Fig. 3, a note of which is made. Should an attempt be made to open the lid, the removal of the plate (*r*) from the key-hole will necessarily have to take place. This will rotate the ratchet wheels (*b*) and (*d*) the numerical characters on the latter wheel being changed to appear at their sight opening in the progressive order, while the alphabetical characters on the wheel (*b*) appear irregularly—see Fig. 7—and the movement of said wheel is correspondingly irregular owing to the variation in the ratchet teeth thereof. The result is that while the wheels bearing the numerals might possibly be made to re-exhibit the same characters at their respective sight openings, by considerable effort in turning the wheels, the irregular arrangement and construction of the wheel (*b*) renders a return of the same letter a far more difficult if not an impossible task, as the person manipulating the apparatus is not supposed to know the order in which the letters are arranged, or the extent of each movement of the wheel. Therefore he would have to rely altogether upon chance, in an effort to get all of the wheels back to their former positions. It will thus be seen that the wheel (*b*) is designed to puzzle those who are not familiar with the combination or arrangement of the letters thereon, and the variations in the extent of its movements. The person or persons having authority over the apparatus upon which the device is used, are of course familiar with this wheel, therefore may know what letter will appear at its sight opening upon every movement of said wheel.

45 Having described my invention, I desire to secure by Letters Patent—

1. The herein described mechanism for detecting the opening of the lids of cash registers or other apparatus, consisting of a shaft with a key-hole plate, and an arm rigidly attached thereto, said plate normally closing the key-hole of a lock, a wheel having irregularly disposed ratchet teeth on its periphery, and characters on its face, said characters being placed thereon in irregular order, a ratchet wheel of smaller diameter provided with characters on its face, both of said wheels being loosely mounted on said shaft, ratchet pawls pivoted on said arm whereby said wheels are rotated when the key-hole plate is moved from the key-hole, and different characters are thereby made to appear through sight openings beneath the lid, substantially as herein described.

2. The combination of the shaft with the key-hole plate, and the arm, rigidly mounted thereon, ratchet pawls pivoted on said arm, the wheel (*b*) provided with irregular teeth, and characters stamped in irregular order on its face, the ratchet wheel (*d*) bearing characters upon its face, both of said wheels being loosely mounted on the shaft, substantially as described.

3. The combination of the shaft with the key-hole plate, and the arm rigidly attached thereto, ratchet pawls pivoted to said arm, the wheel (*b*) provided with irregular peripheral ratchet teeth, and irregularly stamped characters on its face, and the toothed wheels (*f*) and (*g*) bearing characters upon their faces, the wheel (*f*) being actuated by the wheel (*d*) upon one revolution thereof, and the wheel (*g*) being actuated upon one revolution of the wheel (*f*), substantially as herein described.

In testimony whereof I have hereunto set my hand this 27th day of January, 1894.

CHAS. SMYTH.

Witnesses:

R. J. MCCARTY,
S. A. DICKSON.