3 Sheets—Sheet 1.

H. W. MORGAN.

TILL-ALARMS.

No. 195,631. Patented Sept. 25, 1877.

Fig. 1.

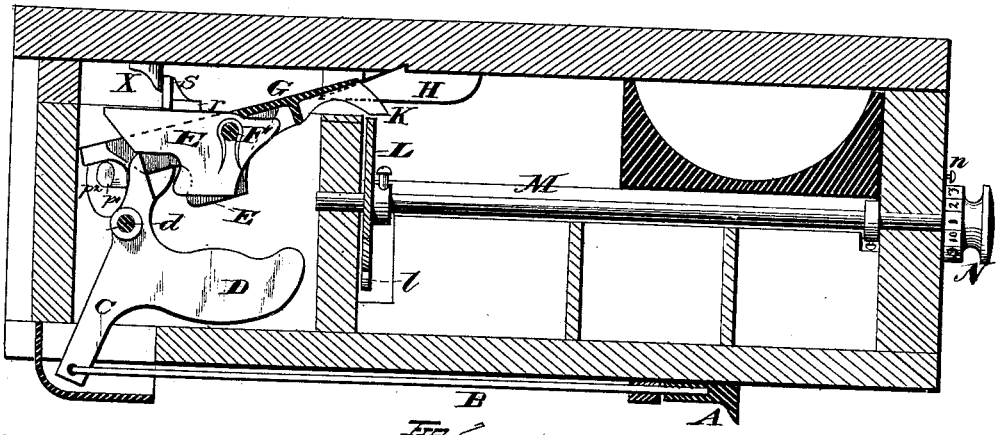
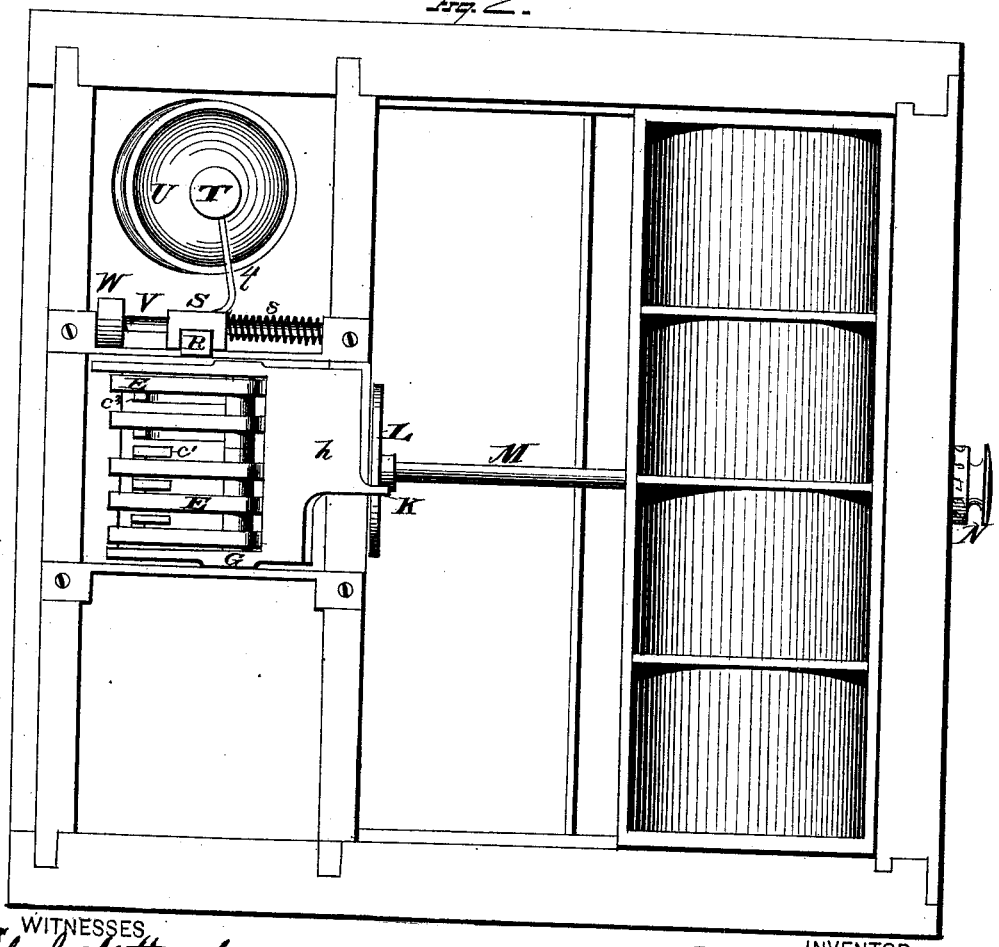


Fig. 2.



WITNESSES

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3 Sheets—Sheet 2.

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Fig. 3.

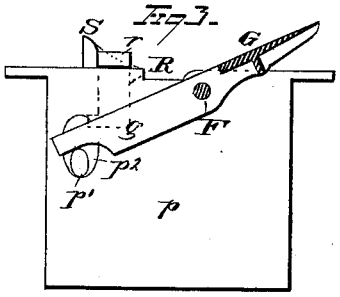


Fig. 4.

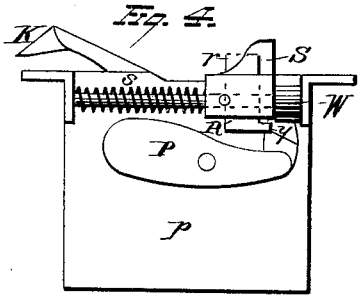


Fig. 5.

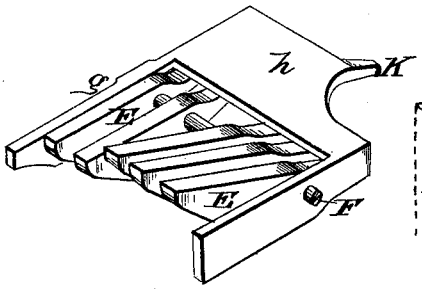


Fig. 6.

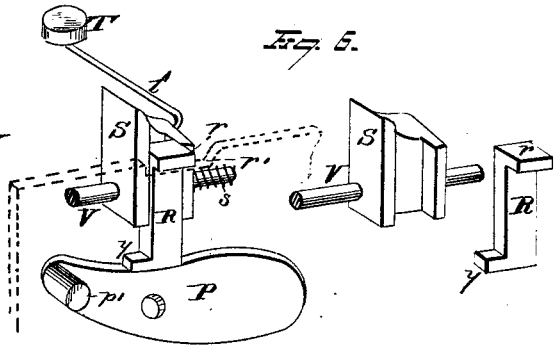
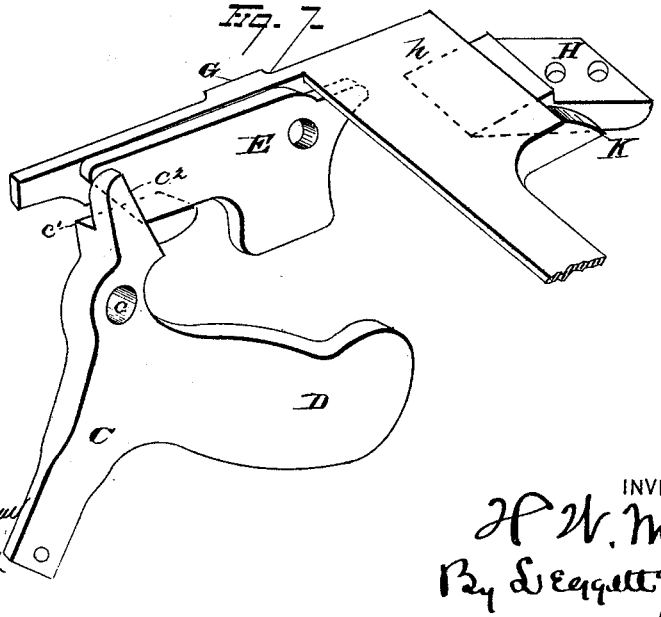


Fig. 7.



WITNESSES

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3 Sheets—Sheet 3.

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TILL-ALARMS.

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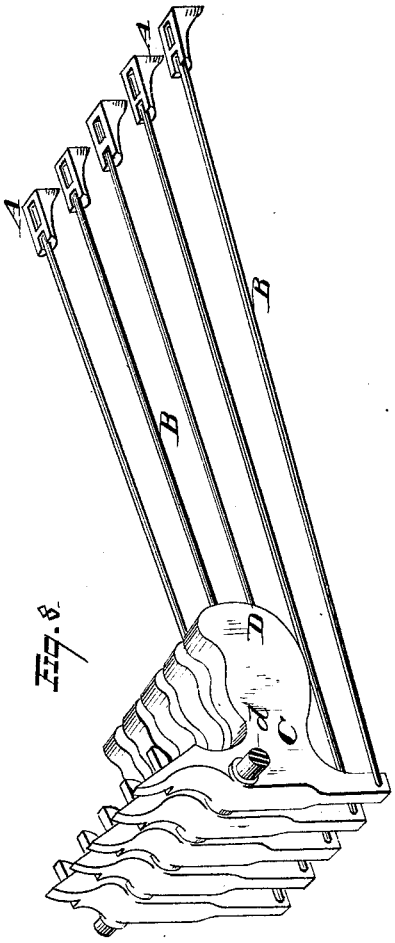

Fig. 8.

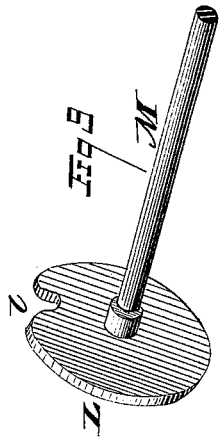

Fig. 9.

WITNESSES

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UNITED STATES PATENT OFFICE.

HENRY W. MORGAN, OF FLORENCE, MASSACHUSETTS.

IMPROVEMENT IN TILL-ALARMS.

Specification forming part of Letters Patent No. **195,631**, dated September 25, 1877; application filed August 21, 1877.

To all whom it may concern:

Be it known that I, HENRY W. MORGAN, of Florence, in the county of Hampshire and State of Massachusetts, have invented certain new and useful Improvements in Drawer-Locks; and I do hereby 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in automatic or combination drawer-locks; and is designed to afford a mechanism which will securely lock a drawer, and will be difficult to be tampered with, or to have its combination detected, thus preventing the drawer from being opened by unauthorized parties.

In constructing my lock, I make the levers which actuate the tumblers so that their own gravity, in relation to their pivotal support, will be such as to cause them to return to their former position after having been actuated by the finger-keys and connecting mechanism to operate the tumblers.

In connection with the levers thus made to return to their former position after being operated without the use of recoil-springs, I use a locking-plate adapted to be operated by the tumblers, either to lock or unlock the drawer. It is made independent of the tumblers, and acts in connection with a suitable catch fastened above it to the under side of the counter, or the top cover of the drawer, and with which it engages in locking the drawer. The object of this is to further aid in preventing detection of the lock-combination, since, if it were not placed upon the rear ends of the tumblers, the extra pressure required to draw out the finger-keys in the combination would serve to discover such combination, it being understood that the levers operating the tumblers in the combination have to raise the heavy end extremities of such tumblers, while the levers engaging with the tumblers not in the combination only have to allow the beveled ends of their respective tumblers to slide upon inclines, formed upon their own upper body portions. By placing the locking-plate so that it rests upon the shorter end extremities of the tumblers which are in the combination, and is free from the tumblers out of the combination, this inequality of pressure required to operate the different keys is counterbalanced, and the force necessary in drawing out the keys is constant and the same for all.

A further point of prominence consists in a locking-disk adapted to be placed in such connection with the said locking-plate that, by setting the disk at a certain point, the locking-plate may be operated to unlock the drawer, while, if such registered combination is not made, the keys are inoperative to unlock the drawer.

I also provide a cam, arm, or lever, which is adapted to be operated by the locking-plate when the latter engages with its stop-catch, and, in connection with a spring-pressed bell-handle, gives an alarm of the ineffectual attempt to open the drawer.

Referring to the drawings, Figure 1 is a view, in longitudinal section, of a drawer locked by my lock, and showing the latter also in part section. Fig. 2 is a plan view of a drawer provided with my lock. Fig. 3 is an inner side elevation of a part of the lock detached from a drawer, and showing the arrangement of the locking-plate to operate the lever or projecting lug of the cam which actuates the alarm. Fig. 4 is a view of the opposite side of the lock-casing from that of Fig. 3. Fig. 5 is a detached view, with certain parts of the lock not shown. Fig. 6 shows parts in detail. Fig. 7 shows the locking-plate and connecting parts in detached perspective view. Fig. 8 is a detached view, in perspective, of the system of levers supported upon their pivotal rod, together with the finger-keys and connections. Fig. 9 is a detail view of the recessed locking-disk, with a portion of its connecting-rod.

The finger-keys A, wire connections B, and their drawer attachments may be made as shown in the drawing, or in any other desired manner. As my invention is independent of the same their purpose is answered, provided they suitably operate the levers C, to which the wire connections are respectively secured. These levers are made each with the front extension D, which may be in any other form

than that shown, provided only it is so made with reference to the pivotal supporting-point *c* of the lever as to cause the latter to swing downward and forward when hung upon said pivotal point. This front formation is to give such weight to that part of the body of the lever in front of its supporting-point that the constant position of the lever will be thereby determined to swing downward and forward. The two reversely-inclined faces c^1 c^2 formed upon the upper extremity of the lever will be thereby allowed to respectively engage with one of the tumblers E in locking or unlocking the combination, and thereupon immediately returning to its former position.

The tumblers are pivoted upon a suitable cross-rod or support, F, and the snaps *f* are also placed upon the latter, each one either to the right or left of its respective tumbler, accordingly as the latter are to be put in the active combination, which unlocks the drawer, or the passive combination, which serves to lock the drawer, if unwarrantably operated.

These tumblers also operate as gravity-arms, in connection with the reversely-inclined faces on the extremities of each lever with which they respectively engage, their pivotal support bearing a similar relation to the proportionment of their weight, as is the case with the levers C, having their weighted front extensions D so far out of vertical line with the rod *d*, upon which the levers are hung.

The locking-plate G is supported loosely upon the cross-rod F, or, if desired, may have each of its two arms, *g*, respectively pivoted to the frame-work casing of the lock, the object being fully answered by making it as a piece independent from the tumblers.

Any suitable forward projection, *h*, is formed thereon, provided only it is adapted to engage with a catch, H, which latter may be of any desired construction, and formed, fastened, or in any manner connected to the under side of the counter or fixed top-cover to the drawer, beneath which the drawer slides.

This catch is adapted to rest upon the front extremities of those tumblers which are in the active combination, and as it is supported upon said shorter extremities of the tumblers forward of their pivotal point of support, it is made of such gravity relative to its own pivotal bearing that it falls by reason of its own weight as the said front extremities of the tumblers are lowered under the engaging action of their opposite extremities with the levers C. According as the tumblers are arranged upon their supporting-rod, as governed by the intermediate placing of the snaps *f*, so as to be in horizontal line with either one of the reversely-inclined faces c^1 or c^2, so the tumblers are correspondingly put into active lock-combination or placed in the passive or inactive combination. A lug or finger projection, K, is formed upon the lower front body of the locking-plate, and is adapted to fit into a recess, *l*, made in the periphery of the disk L, which latter may be suitably secured to the cross frame-work of the drawer.

This disk is operated by the rod M, suitably provided with a handle, N, and figures, letters, or other symbols are placed on the latter; and the disk may be adjusted upon its rod, so that by suitably bringing the recess *l* of the disk in line to receive the registering projection of the locking-plate, the said plate may pass in horizontal line beneath its locking-stop H.

Instead of having a single recess in the disk, two or more may be used; and instead of adjusting the disk upon its supporting-rod, in order to place its recess in line with any predetermined symbol-point of the handle, the reverse may take place, and the handle adjusted to correspond with the disk's recess.

A pointer, *u*, is used to aid in bringing the indexed handle into proper position to unlock the disk, which is secured to the outer side of the drawer end. In this instance, too, a reverse arrangement of parts may be made. Thus, the pointer may be secured to the handle, and a circular registering-plate be secured to the drawer end.

The alarm mechanism may be placed either to the right or the left of the locking mechanism, and is made as follows: A cam-lever, P, is pivoted to the wall *p* of the frame-work of the lock-casing, opposite to the side against which the arm *g* of the locking-plate slides in vertical movement as the plate is operated by the tumblers. A lug or projection, p^1, on the extremity of this cam-lever passes through a hole or opening, p^2, in the said wall *p*, and is engaged by the arm *g* as the locking-plate is caught by its stop H. This engagement causes that portion of the cam-lever on the opposite side of its pivotal point from that engaging with arm *g* to raise the locking-pin R, so as to release its top lug *r* from out the recess *r'* of the wall *p*. This allows the slide S to yield to the recoil pressure of spring *s*, and, as the hammer-handle *t* of hammer T is rigidly fixed to this slide, the bell U is struck forcibly by the hammer as the slide is urged along its supporting-rod V. A piece of rubber, bound spring, or other resilient material, *w*, is also placed upon this rod at its extremity, or in suitable position to receive the impact of the slide after it has advanced sufficiently far to allow the alarm to be sounded.

The locking-pin is adapted to automatically set the spring-pressed slide in readiness to be sprung by falling of its own weight into its locking-recess *r'* under the engagement of the slide with the stop X, secured to the lower side of the counter or top cover of the drawer, in a horizontal line therewith, and adapted by its position relative to said slide to force the latter forward as the drawer is closed, so as to allow the pin R to drop into its locking-recess.

The pin is formed with a right-angular projection, *y*, adapted to come in contact with

the under side of the slide fixed upon its rod, so that after the pin has been raised sufficiently for its locking-lug *r* to clear recess *r'* it will be prevented from rising farther, and be thus kept from displacement.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the oscillating locking-plate and the horizontal tumblers, of the vertically-swinging levers, said levers being formed with the front weighted extensions, as described, whereby they tend to maintain a certain definite position upon their pivotal support without the use of springs, substantially as described.

2. The combination, with the horizontal tumblers, pivoted upon a suitable support, of the oscillating locking-plate, the latter having front vertical bearing upon the body portions of the tumblers, which are forward of said pivotal support, substantially as described.

3. The combination, with the tumblers, of the locking-plate, pivoted to the tumbler-supporting rod, and adapted to be operated by tumblers either in or out of the lock-combination in respectively unlocking and locking the drawer, substantially as described.

4. The combination, with the oscillating locking-plate adapted to be operated by the tumblers in a combination-lock, and formed with the finger-projection, of the disk, provided with a recess to register with the said finger-projection in unlocking the drawer, substantially as described.

5. The combination, with the locking-plate having side arms, respectively pivoted to the tumbler-supporting rod, and provided with the forward projecting finger, of the recessed disk, located within the drawer, and the connecting-rod having an indexed handle and suitable registering devices, substantially as described.

6. The combination, with the locking-plate and its oscillating arm, of the spring-pressed hammer and intermediate connections, substantially as described.

7. The combination, with the locking-plate arm and the pivoted cam-lever, adapted to be engaged therewith, of the locking-pin, spring-pressed slide, and the alarm mechanism, substantially as described.

8. In a drawer-alarm, the combination, with the pivoted cam-lever and spring-pressed slide, carrying the bell-hammer, of the locking-pin, adapted to fit into a recess formed in the upper wall-body of the lock-casing or lock-supporting frame-work, substantially as described.

9. The combination, with the spring-pressed slide, of the stop secured to the under side of the counter or fixed cover of the drawer, and adapted to automatically set the alarm upon closure of the drawer, substantially as described.

10. In a drawer-alarm, the loose or independent locking-pin, made with the right-angular projection on its upper side body, in combination with the lock-casing, formed with a recess adapted to receive the said projection and automatically lock the spring-pressed slide, substantially as described.

11. The combination, with the catch secured to the under side of the counter or drawer top, the oscillating locking-plate provided with side arm extension, and the cam-lever formed with a right-angular stud, of the lock-casing or partition-wall, which indirectly supports the said locking-plate, and which is provided with an opening in its rear body, adapted to allow of the vertical movement therein of the said cam-lever stud, substantially as described.

12. In a drawer-alarm, the combination, with the spring-pressed slide and cam-lever, of the locking-pin, provided with the projection formed right-angularly on its lower side body, and adapted to prevent the said pin from undue vertical rise, substantially as described.

13. In a drawer-alarm, the combination, with the locking-pin, of the spring-pressed slide, made with a vertical recess in its side body, adapted to receive the said pin, substantially as described.

14. In a drawer-alarm, the combination, with the spring-pressed slide and the partition-wall, provided with a recess in its upper body, of the locking-pin, loosely secured between the wall and slide, said pin having right-angular studs formed, respectively, on different sides of its upper and lower body sides, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 17th day of August, 1877.

HENRY WESLEY MORGAN.

Witnesses:
OLIVER EDWARDS,
H. P. DIBBLE.