

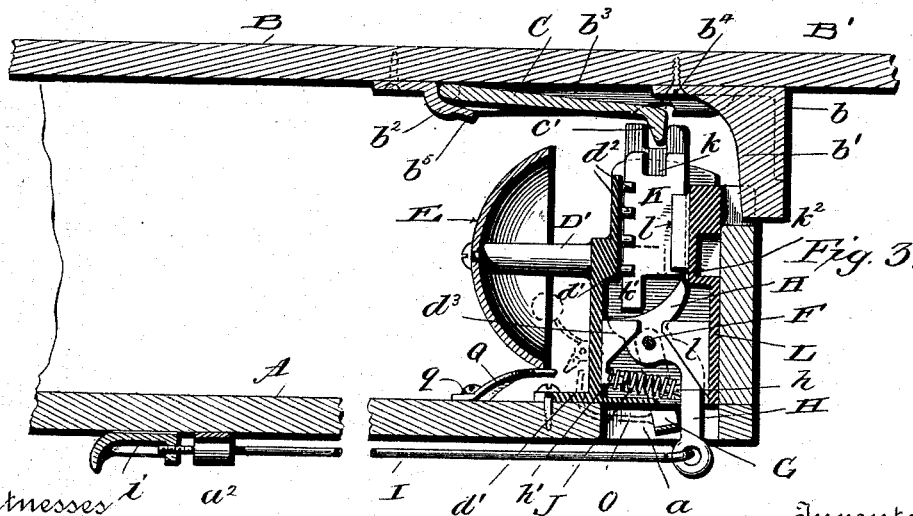
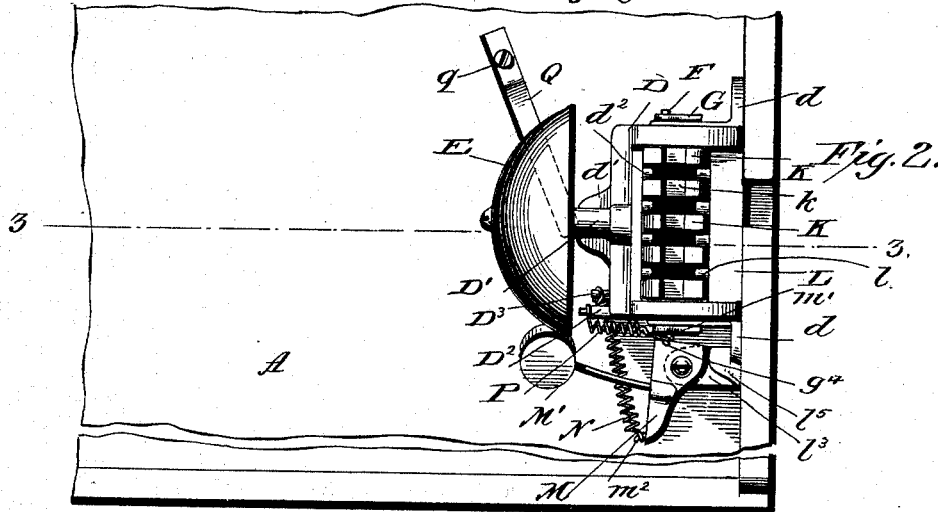
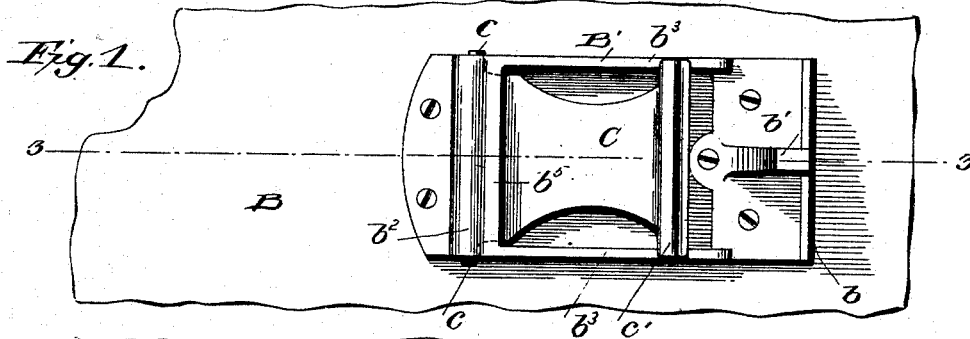
(No Model.)

2 Sheets—Sheet 1.

C. H. MORFORD.
TILL LOCK AND ALARM.

No. 522,692.

Patented July 10, 1894.



Witnesses
L. C. Mills
E. A. Bond

Inventor:
Chas. H. Morford
by *E. S. Stocking*
Attorney

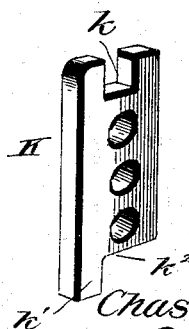
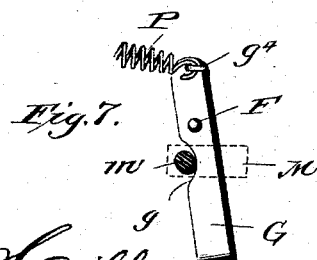
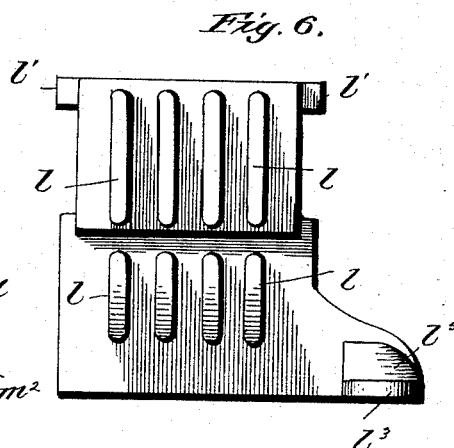
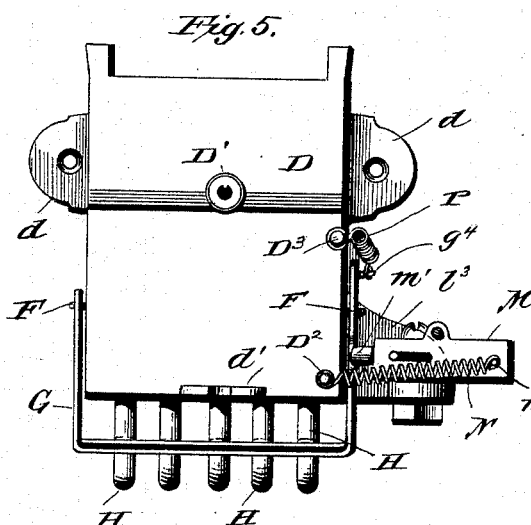
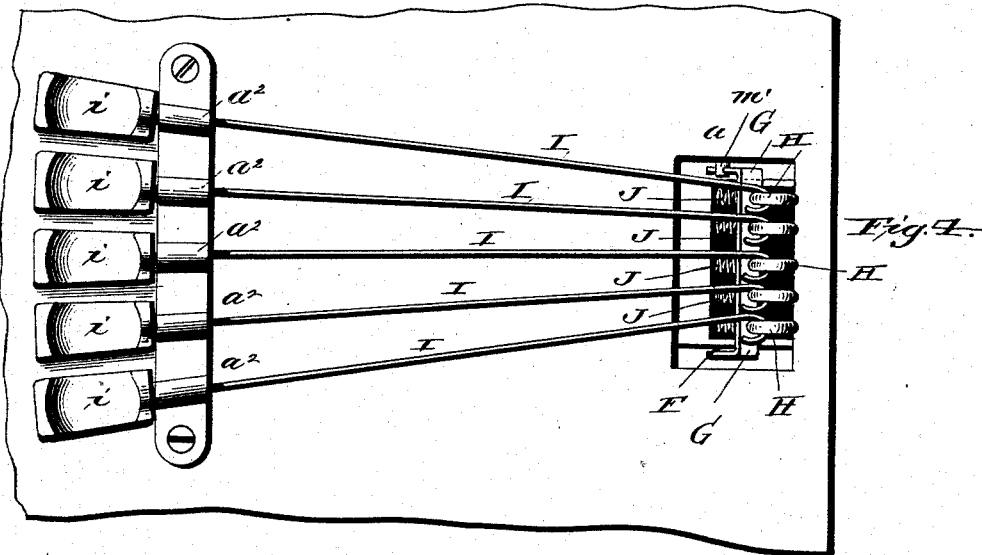
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UNITED STATES PATENT OFFICE.

CHARLES H. MORFORD, OF ALLENTOWN, PENNSYLVANIA.

TILL LOCK AND ALARM.

SPECIFICATION forming part of Letters Patent No. 522,692, dated July 10, 1894.

Application filed November 8, 1893. Serial No. 490,377. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. MORFORD, a citizen of the United States, residing at Allentown, in the county of Lehigh, State of Pennsylvania, have invented certain new and useful Improvements in Till Locks and Alarms, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in till locks and alarms, and it has for its objects among others to provide an improved, simple and cheap combination lock having provisions whereby an alarm
15 will be sounded upon the manipulation of any one or more of the levers or pulls, no matter whether the right combination be used or not. This I accomplish by the employment of a universal bail mounted for movement in a path to be traversed by the levers
20 connected with the pulls so that as each lever is moved it must of necessity actuate the bail, and the bail in turn operates the alarm.

Another object of the invention is to provide
25 vide for the ready change of the combination which is accomplished by so mounting the tumblers or keys that they may be easily taken from their bearings or guides and reversed, and these tumblers or keys are so
30 constructed and arranged that should the proper combination be worked and at the same time a pull operated that is not in the combination it will project its tumbler into
35 of the path of the latch and prevent the opening of the drawer. The parts are all compactly arranged so as to occupy the minimum space, and are separately held in their assembled relation by a plate which is held in place by the screws or other means employed for securing the lock to the drawer. I provide a
40 muffler which may be thrown into operative position when it is desired to muffle the sound of the bell.

Another and an important object of the invention is to mount the bell upon a stud projecting from the lock case in front of the same whereby drawer space is saved, the bell being practically within the cross area of the lock case; the alarm mechanism is also so
50 mounted as to occupy but little space and thus leave as much of the available space of the drawer as possible unoccupied.

I also aim at improvements in the minor details of construction as will be apparent as the description proceeds. 55

Other objects and advantages of the invention will hereinafter appear and the novel features thereof will be specifically defined by the appended claims.

The invention is clearly illustrated in the 60 accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is an under plan view of the top of the case or drawer. Fig. 2 is a top plan 65 view of the lock and alarm mechanism shown in position in the drawer. Fig. 3 is a vertical longitudinal section on the line 3—3 of Figs. 1 and 2 with the parts in their relative positions. Fig. 4 is a view looking at the under 70 side of the drawer. Fig. 5 is a front view of the lock detached and with the bell removed. Fig. 6 is a view looking at the inside of the back plate which is removed. Fig. 7 is a side elevation of the universal bail with the 75 alarm lever shown in dotted lines with its lug in section. Fig. 8 is a perspective view of one of the locking keys or tumblers removed.

Like letters of reference indicate like parts throughout the several views. 80

Referring now to the details of the drawings by letter, A designates a cash or money drawer of any desired construction except as hereinafter specified.

B is the top or fixed part beneath which the 85 drawer is designed to slide. It has secured thereto near its rear end a plate B' which has at its extreme rear portion a depending flange b as seen best in Fig. 1 and centrally with a lug b' as seen in Figs. 1 and 3. Near its front 90 end this plate is formed with a transverse socket b² within which is mounted for free and easy movement the pintles c of the latch C which is preferably a gravity latch as seen in Fig. 3 and its rear end terminating in the 95 transverse depending tapered portion c' as seen best in Fig. 3. The side flanges b³ of the plate or casting B are notched as seen at b⁴ to receive this free end of the latch when the latter is in its uppermost position. This 100 latch should be mounted so as to move freely and it is limited in its downward movement by the lip or flange b⁵ on the plate or casting B as will be understood from Fig. 3.

D is the lock case formed with lugs d for the reception of the screws or other means which secure it in position to the base of the drawer within the same as seen in Figs. 2 and 3, and preferably with a lug d' by which it is or may be held to the bottom of the drawer as seen in Fig. 3. The front wall of this case is formed with a laterally projecting stud D' upon which is suitably mounted, detachably 10 or otherwise, a bell E which by preference, is of a width not greater than the width of the case so as to occupy as little of the space of the drawer as possible. This front wall is further provided with the studs D^2 and D^3 15 for a purpose which will soon appear.

The inner face of the front wall of the lock case is provided with an offset or shoulder d' above which are the pins or projections d^2 which serve as spacers and guides for the 20 tumblers or keys, and below this offset is another set of pins or projections d^3 which serve as guides and spacers for the levers as will be understood from Fig. 3.

F is a transverse shaft held in the side walls 25 of the lock case with its ends projecting, and upon these projecting ends is loosely mounted the universal bail G which is substantially U-shaped with its transverse portion extended below the bottom of the lock case as 30 seen in Fig. 3 and normally standing in a position to be engaged by each and all of the levers as they are operated. The bail projects through an opening a in the bottom of the drawer as seen in Fig. 3 and through 35 which opening the lower ends of the levers also project as is shown in the same figure. The bail is provided upon the front face of one of its vertical portions with a curved notch g as seen best in Fig. 7 and in which is 40 engaged the lug on the bell-hammer lever as is shown in said Fig. 7.

H are the levers fulcrumed on the shaft F and having their vertical portions extended through an opening in the bottom of the lock case and through the opening a in the bottom 45 of the drawer, as seen in Fig. 3, and bearing against the rear edge of the cross portion of the bail; their extreme lower ends are connected in any suitable manner with the pulls 50 I, the connection being preferably such as to allow of ready separation when desired, and these pulls extend substantially parallel with the bottom of the drawer upon the under side thereof, being guided near their outer ends 55 by suitable guides a^2 which preferably are formed by a corrugated strip secured to the under side of the bottom of the drawer as seen best in Fig. 4. Their outer ends are 60 provided with the finger holds i which may be detachably connected therewith as for instance as seen in Fig. 3. The upper ends of the levers extend substantially horizontally as seen in Fig. 3 and are preferably somewhat curved as is also seen in said figure.

65 J are springs arranged between the levers below their pivots and the front wall of the lock case; they are shown as held at one end

on the lug or projection h of the lever and a lug or projection h' on the lug d^3 on the front wall of the lock case, but they may be otherwise held if desired.

K are the tumblers or keys which are substantially of the form seen best in Fig. 8, being substantially rectangular as seen in said figure and having at one end a centrally dis- 75 posed notch k and at the other end an extension k' at one edge forming a flat shoulder or bearing k^2 as is also best seen in said view. These tumblers are loosely placed in position each independent of the other and may be as many in number as may be required; I have 80 shown five in this instance but this number may be varied at will; there is one tumbler for each pull and lever. The tumblers are mounted for free movement in a vertical 85 plane and are guided in their movements by the lugs, pins or projections d^2 on the front wall of the case and the projections or lugs l on the front face of the back plate L which is detachably held against the rear edges of 90 the side walls of the lock case and provided with lugs l' at the upper end which fit in corresponding openings in the rear of the lock case and is held in place by the securing of 95 the case in its place and thus all the parts of the lock are held in position simply by the means which secure the case to the rear end of the drawer.

The back plate is provided with a forwardly-extending lug l^3 on which is pivotally 100 mounted the lever M which carries the bell hammer M' and which is provided upon its face adjacent to the side of the case with a spring-actuated sliding pin m' which is designed to be engaged by the bail as the latter 105 is moved as seen in Fig. 7 where the pin is shown as engaged in the notch of the bail. N is a spring connecting the lug m^2 on the lever M with the lug or projection D^2 on the front wall of the lock case as seen best in 110 Fig. 5, and P is another spring connecting the lug D^3 on the front wall of the lock case with the lug or projection g^4 on the upper end of one of the vertical portions of the universal bail G as is shown in Figs. 2, 5 and 7. 115

Instead of arranging the bell hammer and its lever as above described I may sometimes arrange it as indicated by dotted lines in Fig. 3 where it is shown as behind the bell, the lever being designed to be actuated by the 120 movement of the bail through the intervention of an arm O which is attached to the bail as shown in said Fig. 3.

Q is a muffler which consists of an arm or bar pivotally held at one end as at q to the 125 bottom of the drawer and normally held away from contact with the bell but which may be readily thrown around so as to come in contact with the bell and muffle the sound when desired. A projection l^5 on the lug l^3 serves 130 to limit the movement of the lever M.

With the parts constructed and arranged substantially as above specified the operation is as follows:—One, two or more of the tum-

blers are placed in position to form a combination, and when a tumbler is so placed that the extension *k'* thereof is toward the rear of the lock case the tumbler will be held in its uppermost position by the rear end of the lever beneath that tumbler, as seen in Fig. 3 where the second tumbler is thus held; but when the tumbler is so placed that its extension is at the front the tumbler will drop to its lowest position so that its notch will be out of the path of the latch as seen by the tumbler at the side. So it will be seen that when the lock is set on any particular combination the tumblers thereof will be held in their uppermost position and the tooth portion of the latch will engage therein and prevent opening of the drawer. Now to open the drawer it is necessary to pull upon the pulls connected with the levers beneath the tumblers which moves the levers and allows the tumblers which were held up thereby to fall and then the latch will be free of the notches of the tumblers and the drawer may be opened. But should the pull of any other lever but those beneath the tumblers on which the lock is set be pulled the tumbler of that pull will be forced up and its notch will be thrown into the path of the depending portion of the latch which will thus hold the drawer against being opened. The combination may be easily and quickly changed by simply taking out one or more of the tumblers and reversing them, that is so placing them that where the extension was at the front it will be at the rear, or vice versa. It will thus be seen that the exact pulls of the levers of the tumblers on which the lock is set, and those alone, must be actuated simultaneously in order to enable one to open the drawer. It will also be understood that every time any one of the levers is operated the bail must be moved and as the bail is moved the alarm is sounded, and the parts are so ar-

ranged that the bell is struck before the lever reaches the limit of its movement so that the alarm is sounded before the tumbler reaches such a position as to clear its notch from the latch.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

What I claim as new is—

1. In a till lock and alarm, the combination with the bell, of a muffler therefor mounted for movement into contact with or away from the bell, substantially as specified.

2. The combination with the levers mounted on a common shaft, of a universal bail mounted on the same shaft with a portion in the path of the levers or pulls, as set forth.

3. The combination with a gravity latch, of a plurality of pivoted levers mounted on a common shaft, vertically-movable reversible tumblers supported on the levers and having notches at their upper ends, the pulls connected with the levers, the universal bail mounted on the same shaft with the levers with a portion in the path of said levers and the alarm actuated by the movement of said bail, as set forth.

4. The combination with the drawer, the pivoted levers and their shaft, of a universal bail loosely mounted on said shaft and passed through an opening in the bottom of the drawer, the levers having their upper ends extended horizontally, the pulls connected with said levers, and the tumblers removably and loosely supported on the upper ends of said levers, substantially as specified.

In testimony whereof I affix my signature, in presence of two witnesses.

CHARLES H. MORFORD.

Witnesses:

HARVEY J. T. GOOD,
HENRY D. GOUNDIE.