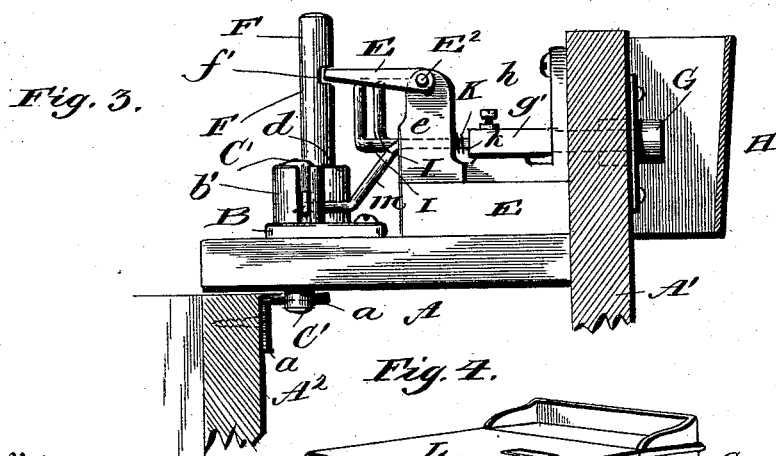
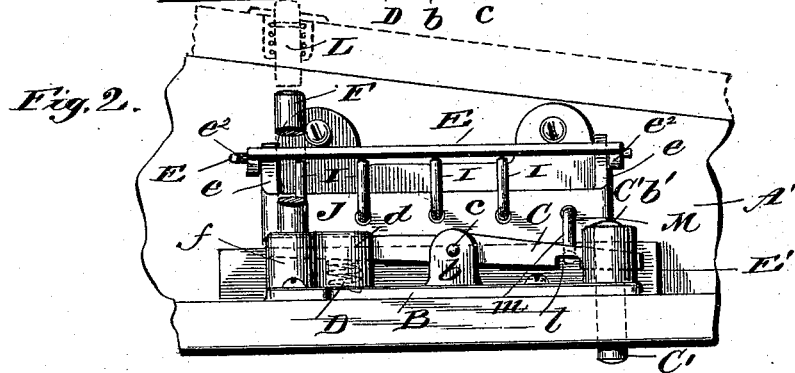
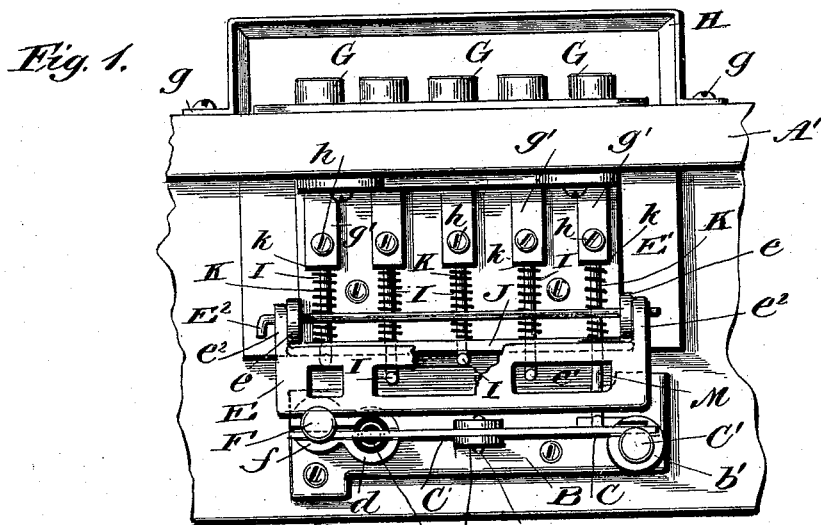


(No Model.)

C. H. MORFORD.
PERMUTATION LOCK.

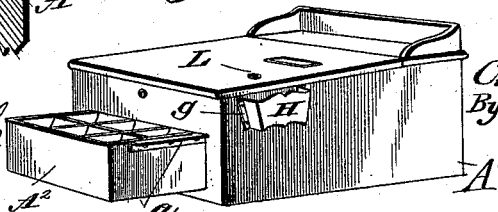
No. 494,154.

Patented Mar. 28, 1893.



Witnesses

L. C. Hill
E. H. Bond



Inventor:

Chas. H. Morford.
By *E. R. Stocking*
Attorney

UNITED STATES PATENT OFFICE.

CHARLES H. MORFORD, OF ALLENTOWN, PENNSYLVANIA.

PERMUTATION-LOCK.

SPECIFICATION forming part of Letters Patent No. 494,154, dated March 28, 1893.

Application filed July 9, 1892. Serial No. 439,531. (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 Locks, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in combination locks and as it is designed primarily for use in connection with cash recorders it will be described and shown in such connection, it being understood however that the invention is in no way limited to such application.

The invention has for its object among others the provision of a combination lock in which the combination can be easily and quickly changed, the parts few in number and those readily assembled and durable and efficient in operation, and the push-pins hidden from view so that an observer cannot detect the combination. I provide a plurality of push-pins, and a lever carrying a bolt which normally holds the drawer against movement outward, and an interposed part coacting with the pins to prevent movement of the lever whereby the drawer cannot be opened until the requisite movements have been made to actuate the interposed part and permit movement of the lever which actuates the bolt and allows the drawer to be thrown out.

In one of its forms the invention includes a part carried by one of the push-pins to engage and operate the lever. In this instance the push-pin carrying the said part is brought into the combination and must be operated simultaneously with the other push-pins in the combination. The operating parts of the lock are arranged upon a platform or support above the cash drawer which latter is provided with a plate with which the bolt engages to hold the drawer locked.

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 accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which

Figure 1 is a top plan of my improve-

ment with a portion broken away. Fig. 2 is an elevation thereof with a portion broken away. Fig. 3 is an end elevation with portions in section. Fig. 4 is a perspective view, on a smaller scale, of a cash recorder case with the present improvement applied.

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

The parts constituting my present invention are designed to be supported upon a suitable support, in this instance shown as supported upon the platform A of a cash recorder of any suitable construction, arranged within a suitable case A' and provided with a cash drawer A² designed to be thrown outward by a spring in the usual way and hence not shown. The drawer has affixed thereto upon its outer side a strip *a* preferably of the form shown and terminating a short distance from the outer face of the drawer as seen in Fig. 4.

B is a casting secured to the platform or support A and between ears or lugs *b* on this casting is pivoted as at *c* the lever C which at one end carries a vertical bolt C' which works through a vertical opening in the platform and its lower end normally projecting as seen in Figs. 2 and 3 to engage the front end of the strip *a* on the drawer as shown in Fig. 3, the said bolt preferably being located and working in a casing *b'* one side of which is cut away as seen in Fig. 3 and the end of the lever being arranged to work somewhat loosely in a horizontal passage in the bolt. This end of the lever is normally held down so that the end of the bolt will be projected by a spring D which is arranged between the under side of the other end of the lever and the platform or some other fixed part and preferably located within a suitable casing *d* on the casting B as seen in Figs. 1 and 2.

E is a horizontal plate pivotally mounted at its ends in suitable uprights or ears *e* on a plate E' on the platform and this plate is provided with a longitudinal slot *e'*. The preferable manner of pivotally mounting this plate is by forming it with extensions *e*² through which and through the ears *e* passes a rod E² having one end bent as seen in Fig. 1 so that the plate can be easily detached when desired by the simple removal of the said rod. This plate is connected with the lever C by means of a vertical pin F the lower

end of which works in a suitable socket *f* on the casting B and has a passage in which the end of the lever is somewhat loosely engaged, the said pin having upon its opposite side a passage *f'* in which the edge of the plate E is also loosely engaged as seen best in Fig. 3.

G is a plurality of push-pins slidingly arranged in a horizontal plane and working through openings in the side wall of the case A' as seen in Figs. 1 and 3, their ends projecting beyond the wall of the case to be operated by the fingers, and in order to cover up these ends of the push-pins and prevent anyone from seeing them and the combination which opens the drawer I provide a shield H which consists of a sheet metal plate bent to form three sides and with attaching lugs *g*; it is secured to the outer wall of the case over the ends of the pins leaving room for the insertion of the fingers from either the top or the bottom as will be best understood from Fig. 3. These pins within the case are provided with rectangular portions *g'* which are bored longitudinally and within these bores are arranged the pins I the inner ends of which are turned upward at right angles to their length and these vertical up-turned ends are of such a length as to normally substantially touch the under side of the plate E when the latter is in its normal position, as seen in Fig. 2. These pins I are adjustably held within their sockets as by set screws *h* so that they can be readily adjusted to change the combination by throwing the pins in or out as may be desired. The pins work through openings in the vertical portion of the plate J as seen best in Fig. 2, and are provided with springs K which surround the pins and are held between shoulders *k* thereon and the inner face of the said vertical plate J as seen in Fig. 1.

In practice with the parts constructed and arranged as above set forth and applied to a cash recorder any desired number and any one or more of the push-pins may be arranged to constitute the combination; as shown the first and third push-pins are arranged to normally lock the parts; these pins are adjusted so that the vertical portions of the pins I are normally in contact with the under side of the plate E while the others are in line with the slot in said plate as shown in Fig. 1. The plate is held up by the spring exerting its influence upon the lever which in turn pushes the lever and consequently the plate upward and the other end of the lever downward with its bolt in engagement with the strip *a* on the drawer as seen in Fig. 3. When the first and third push-pins are pressed inward the vertical portions of the pins carried thereby will come coincident with the slot in the plate E and the plate can then be depressed. This may be done by a push-pin L arranged vertically in line with the upper end of the pin F and designed to contact therewith and thus force the end of the lever down and withdraw

its bolt from engagement with the strip *a* on the drawer as seen in Fig. 2, or one of the push pins, that at the end nearest the end of the lever carrying the bolt, may be provided with a lever-operating device such as a pin M working through a hole in the vertical plate J and its inner end designed to engage under the end of the lever and raise it so that the bolt will be disengaged from the strip on the drawer. A spring is arranged to draw this pin back when pressure is removed therefrom. The end of this pin may be tapered or beveled and the lever may be provided with a notch *l* to receive it if necessary as shown in Fig. 2. In some cases where the push-pins are upon a higher plane than the lever it will be necessary to provide the pin M with a downward bend as seen at *m* in Fig. 3. The push-pins in the combination and the vertical push-pin or the horizontal one carrying the lever-raising pin must be operated simultaneously, when the draw will fly open by the action of its spring in the usual manner.

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. The combination of a plurality of push pins, a lever arranged at right angles to the push-pins, and an interposed removable part constructed and arranged to coact with the pins to prevent movement of the lever.

2. The combination of a plurality of push pins, a lever arranged at right angles to the push-pins, an interposed removable part constructed and arranged to coact with the pins to prevent movement of the lever, and having engagement with the said lever.

3. The combination of a plurality of push-pins, a lever arranged at right angles to the push-pins, an interposed removable part constructed and arranged to coact with the pins to prevent movement of the lever, and a lever-operating device carried by one of the pins.

4. The combination of a lever, a plurality of push-pins, and a slotted interposed pivoted removable part constructed and arranged to coact with the pins to prevent movement of the lever.

5. The combination of a plurality of push-pins, a lever, an interposed pivoted removable part constructed and arranged to prevent movement of the lever, and a vertically-movable push-pin constructed and arranged to actuate the lever when said part is free to move.

6. The combination of a plurality of push-pins, a lever, an interposed pivoted removable part normally held against movement by said pins, and a vertically-movable push-pin connected with the lever and engaged by said interposed part.

7. The combination of a plurality of push-pins, a lever carrying at one end a bolt and at the other a vertical push-pin, and a pivoted removable part interposed between the pins and lever and engaging the vertical push-pin.

8. A plurality of push-pins, a slotted pivoted removable part normally held against movement thereby, a lever carrying at one end a bolt and a vertical part carried by the lever and engaged by the pivoted part and a drawer with a plate located and arranged to be engaged by said vertical part.

9. The combination of a plurality of independently adjustable push-pins having their ends extended at right angles to their length, a lever, and an interposed part pivotally mounted parallel with the horizontal portion of the pins and constructed and arranged to coact with the pins to prevent movement of the lever.

10. The combination with a plurality of push-pins having their ends extended at right angles to their length, and a lever, of an interposed part pivotally mounted parallel with the horizontal portion of the pins and coacting with the pins to hold the lever against movement, and a lever-actuating device coacting with the pins, as set forth.

11. The combination with the lever and the push-pins having their ends extended at right angles to their length, of a pivoted slotted interposed part mounted pivotally, in a substantially horizontal plane to coact with the lever and pins, as and for the purpose specified.

12. The combination with the lever and its bolt, of the push-pins having vertical inner portions, the pivoted slotted plate horizontally

arranged and connected with the lever, and the adjustable pins for engaging said plate, as set forth.

13. The combination of a pivoted slotted plate, horizontally arranged and a lever with a bolt, and connected with the plate, and push-pins having adjustable vertical portions for coaction with said plate, as set forth.

14. The combination with the lever carrying a bolt, of a pivoted slotted plate horizontally arranged and connected with the bolt-lever, push-pins mounted for coaction with said plate, and a drawer having a strip for engagement with the bolt, as set forth.

15. The combination of a spring-actuated pivoted lever and a bolt carried thereby, a vertical part connected with the lever, a pivoted slotted plate horizontally arranged and connected with said vertical part, and a plurality of push pins having portions for coaction with the plate.

16. The combination with push-pins, a lever, a bolt carried thereby, and a lever-actuating device, of a removably pivoted slotted horizontal plate mounted between the pins and lever as and for the purposes specified.

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

CHARLES H. MORFORD.

Witnesses:

JAMES M. HOCK,
CHRISTIAN WELL.