(No Model.)

A. H. GLEDHILL.

COMBINATION LOCK.

No. 551,955. Patented Dec. 24, 1895.

Fig. 1.

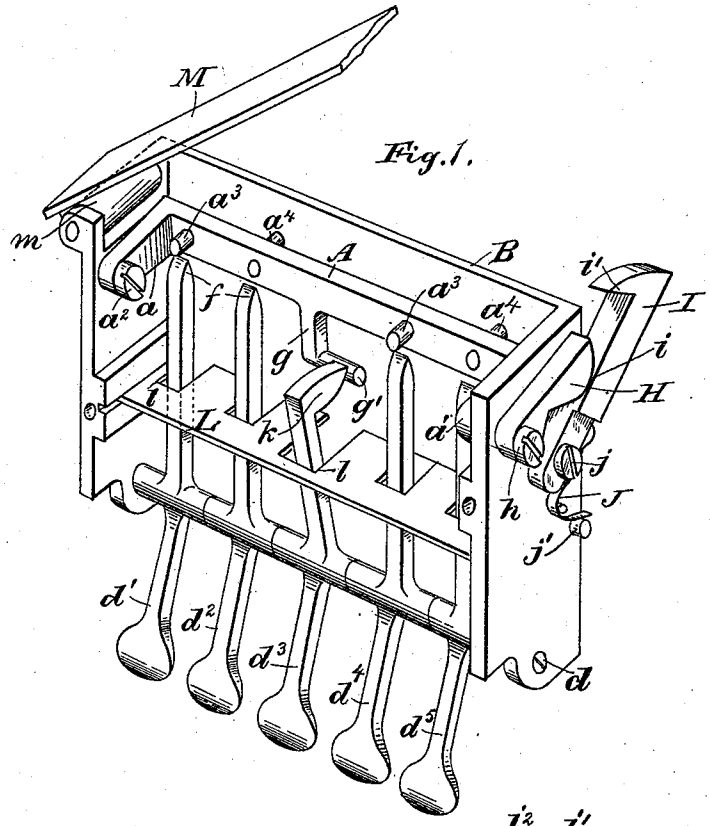
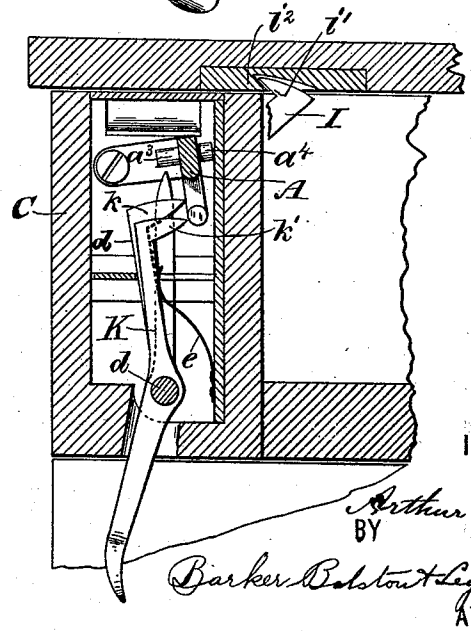


Fig. 2.



WITNESSES:

INVENTOR

Arthur H. Gledhill

BY

Barker, Bolstou & Legendre

ATTORNEY

UNITED STATES PATENT OFFICE.

ARTHUR H. GLEDHILL, OF HALIFAX, ENGLAND, ASSIGNOR TO WILLIAM T. BLAINE, OF RUTLAND, VERMONT.

COMBINATION-LOCK.

SPECIFICATION forming part of Letters Patent No. 551,955, dated December 24, 1895.

Application filed April 4, 1895. Serial No. 544,510. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR H. GLEDHILL, a subject of the Queen of England, residing at Halifax, in the county of York, England, have invented certain new and useful Improvements in Combination-Locks, of which the following is a full, clear, and exact specification.

The object of my invention is to construct a combination-lock to open which shall depend upon the proper manipulation of two or more sets of keys.

With these objects in view, Figure 1 is a perspective view of the complete lock with a set combination and in position in a drawer; and Fig. 2 is a vertical side section of Fig. 1, placed in the front of a drawer and showing also an improvement omitted from Fig. 1.

In the annexed specification, A represents a bar having lateral arms a a', each pivoted as at a^2, preferably inside of a casing B, which is located in a recess formed in the front cross-piece C of a drawer. This lock may of course be placed in any connection so that it will work properly, as it can be employed to lock other movable things than drawers.

The bar A is provided with a number of pins a^3 a^3 a^4 a^4, which pins are adapted to fit snugly, but not immovably, in the said bar, which latter is bared for the purpose of thus holding the said pins.

Below the bar A on a rod d, arranged parallel therewith, are pivoted levers d' d^2 d^3 d^4 d^5, having each a key end which is adapted to extend below the bottom of a drawer, or be otherwise exposed, for the purpose of manipulation. The opposite end of each of these levers is held in normal position, all at one side of the bar A, by means of a spring e, having a bearing on each of the said levers. These levers are located each with their ends, which ends are tapered or inclined as at f, directly to one side of the bar A and underneath certain of the pins, which pins, when set in one position in the bar A, will be directly in the line of the tapered ends f of the key-levers when the latter are in normal position, or entirely out of the line of the said levers when in opposite position in the said bar A.

An arm g, bearing a frictional bar g', projects from the under side of the bar A, and upon a pivot h, which is secured to and extends from the arm a' of the said bar A, turnably, through a hole in the casing B, is secured a pawl or lever H, which lever, at the point i, has frictional contact with a lock or catch-lever I, which is pivoted at its free end with a catch or hook i', and at its other end is pivoted at j to the casing B. A spring J, here shown, supported by means of the pins j', is secured between the said casing and the said lever I to hold the latter in normal position and in engagement with a lock-recess (see Fig. 2) formed in a catch-plate i^2, which is preferably embedded in or secured to the stationary construction, to which the movable part bearing the lock becomes engaged. On the end of the lever d^3 is formed or attached an angular piece k, having its under surface inclined or curved upwardly toward its end. A second lever K, having a similar end and incline k' of the lever K, is arranged in position a little below the position of the incline k' of the lever d^3. It is readily seen that a series of these levers d^3 k may be added, the inclines of each of which levers could be arranged at different distances from the bar g'. Thus the said lock would be comprised of two series of combination-levers, which forms an important feature of this invention.

A rigid bar or a plate L is arranged to be in contact with the aforesaid levers, when the latter are in normal position, to arrest the said levers at such position, slots l being here shown in the plate L for that purpose.

A cover or lid M, preferably hinged, as shown at m, to the casing B, is adapted to be screwed or otherwise fastened down to the said casing B, but may be raised for purpose of inspection of the lock, or to change the combination thereof. This latter result is accomplished by simply shifting the pins a^3 a^4 to one side or the other of the bar A.

The bar A being held in normal position by the action of the spring J, through the mechanism described, assuming that the drawer with the lock is closed and caught, and that the pins are arranged as shown in Fig. 1, the action to open the said drawer would be as fol-

lows: Should any or all of the key-levers in different combinations be manipulated, and one of the levers d^2 or d^5, whose set-pins a^4 a^4 project on the forward side of the bar A, be manipulated at the same time, no disengagement of the lock would take place, as the said last-mentioned levers would be moved into the line of movement of the said pins, so that the bar A could not be moved when operated upon by the lever or levers d^3 or K, the other levers d' d^4 being, when in normal position, under the pins a^3 a^3. If, however, the keys d' d^4 are manipulated, it will be readily seen that the bar A, unobstructed by any levers or pins, will have a free path to move in, and that if the lever d^3 is then manipulated its incline k' will, by gliding over the bar g', actuate the bar A, which, through the pivot h and pawl H, will disengage the lock-lever I at its catch i' from the catch-plate i^2, and thus the said lock is freed from the construction to which it was attached. As previously stated, two or more second combination-levers like d^3 K may be incorporated in the said construction, the action in such case being that one of the said second combination-levers would cause the bar A to be actuated to a position, though not sufficient to disengage the lock, where a second lever of approximately like construction would actuate the said bar A to disengage the said lock, or move the said bar into operative position for a third similar lever, and so on in numbers, which would disengage the said lock.

I am aware of other ways and modifications for accomplishing the aforesaid results, so do not therefore limit myself to the exact construction set forth.

What I therefore claim, and desire to secure by Letters Patent, is—

1. In a combination lock, the bar A, having its two ends turned at an angle and pivoted in a suitable inclosing frame, the extension g' projecting from the lower edge of the bar, and a locking mechanism operated by one of the pivots of the bar, combined with a shaft placed below the bar, actuating keys, pivoted upon the shaft, and a lever, also pivoted on the shaft and having its upper end shaped so as to catch over the projection and turn the bar upon its pivots substantially as shown.

2. An angular or bent bar, pivoted at both of its ends, and having an extension on its lower edge, movable pins placed in the bar, a pivoted key or lever for each pin, and a key or lever for engaging with the extension on the bar, combined with a locking mechanism that is operated by the bar, substantially as described.

3. An angular, or bent bar, pivoted at both of its ends, and provided with a series of perforations, and an extension on its lower edge, pins adjustable in the openings, and a pivoted lever or key for each pin, combined with a pivoted lever which catches over the extension on the bar; a lever connected to one end of the pivots of the bar, and a spring actuated catch which is operated by the lever, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 19th day of December, 1894.

ARTHUR H. GLEDHILL.

Witnesses:
THOMAS MOORHOUSE,
SAML. SCHOLFIELD.