

(No Model.)

T. W. McGRATH.
COMBINATION LOCK.

No. 470,438.

Patented Mar. 8, 1892.

Fig. 1.

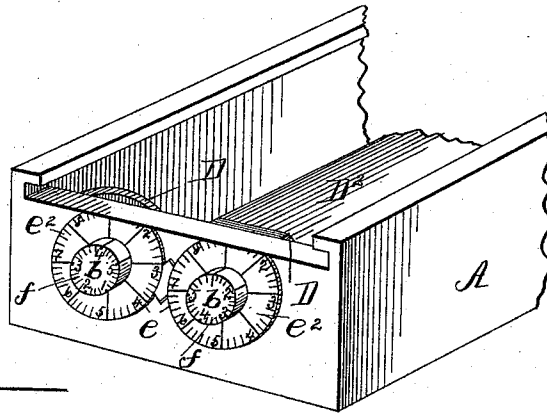


Fig. 2.

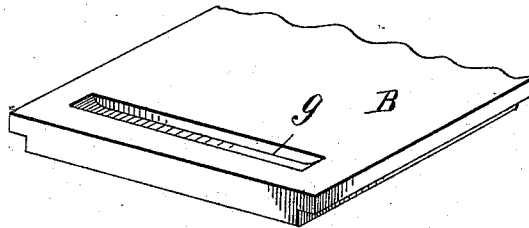


Fig. 3.

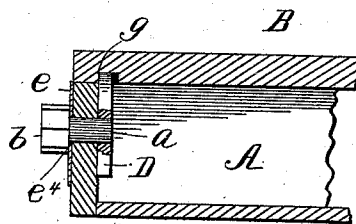
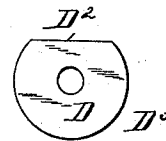


Fig. 4.



Witnesses
W. H. Courtland
J. S. Kilham.

Inventor.
Timothy W. McGrath
by T. F. Bourne
his attorney

UNITED STATES PATENT OFFICE.

TIMOTHY W. McGRATH, OF BROOKLYN, NEW YORK.

COMBINATION-LOCK.

SPECIFICATION forming part of Letters Patent No. 470,438, dated March 8, 1892.

Application filed August 7, 1891. Serial No. 401,978. (No model.)

To all whom it may concern:

Be it known that I, TIMOTHY WILLIAM McGRATH, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Combination-Locks, of which the following is a specification.

My invention relates to that class of locking devices known as "combination-locks," in which the bolt is unlocked through the medium of a certain combination of letters, marks, or numbers.

The object of my invention is to provide a simple, secure, and durable lock consisting of few parts and which will be very cheap to manufacture.

The invention consists in the novel details of improvement and the combination of parts that will be more fully hereinafter set forth, and then pointed out in the claim.

Reference is to be had to the accompanying drawings, forming part hereof, wherein—

Figure 1 is a partly-broken perspective view of a box having my improvements applied. Fig. 2 is an inverted plan view of the cover. Fig. 3 is a central longitudinal sectional view showing the parts in the locked position, and Fig. 4 is a face view of the locking-disk.

In the accompanying drawings I have shown my invention as applied to a box A to hold its cover B closed.

My invention contemplates the combination of two or more, preferably two, of said locking devices, as shown in Fig. 1, which consist of the disk D, shown carried on the spindles *a*, the dial-knobs *b* being rigidly connected to said spindles. Each dial-knob is provided with a marked or numbered portion or dial *f*, formed upon or rigidly attached thereto, so that when the dial-knob *b* is rotated the dial *f* and parts *a* and D revolve. The disks D are cut away at D² on one edge to reduce their diameter at that point, and the remainder D³ of the periphery of the disks is to enter a groove or engage a projection *g*, (shown on the door or cover B or the part to be held,) whereby the latter cannot be moved unless the cut-away parts of the disks both coincide with the groove or projection *g*.

e is a stationary dial-plate, shown carried on the box A and having on its face two lettered

or numbered dials *e*² and being provided with two apertures *e*⁴ to admit the spindles *a*. By this means the dial-plate is held in position by the spindles only without extra parts, whereby a saving in expense is effected. This stationary dial-plate, although preferably made in one piece, may be made in two plates, having one dial *e*² on each plate.

The spindles *a* are shown journaled in the side of the box A, and the disks D are concealed within the box, while the operating-knobs *b* are on the outside. I prefer to provide the knobs *b* with a less number of figures or characters than the dial-plates *e*, so that only one combination of figures can be made at once, the others remaining out of line. By thus graduating the stationary and rotating scales differently an indefinite number of combinations can be made and the combinations of the spindles can be entirely different, and this with the use of but a single scale on each spindle and stationary dials for each. If only one scale were used, as heretofore, only a number of combinations corresponding to the number of figures on the single scale could be used, thereby greatly limiting the number of combinations possible to make; but by having a stationary and a rotating scale a very great number of combinations can be made.

To open the lock, the disks D must be turned by rotating the knobs *b* until the correct number combinations are reached upon the dials, when the cut-away parts D² on both disks will coincide or be parallel in line with the groove or projection *g*, and the groove or projection *g* will be then completely disengaged from the disks and the cover be free to open. A partial revolution either to the right or left of either or both disks then relocks the parts, as the part D³ then encounters the groove or projection *g*.

It will be observed that by using the disks D correspondingly cut away at D² both the latter places must coincide in line with the obstruction on the cover before the latter will open and that if either disk is turned slightly the cover will be locked.

The construction of parts is very simple, yet effective in use, and the cost to manufacture is very slight, so that the locks can be placed

on cheap articles, such as "scholars' companions," (pencil-boxes,) and cigar and stamp boxes.

It will be understood that when I speak of
5 a box and its cover I mean any device to which the invention is applicable, as it is capable of use on drawers, doors, windows, and many other articles. It is evident that the disks could be carried on the cover and
10 the obstruction *g* be on the box with the same result.

Having now described my invention, what I claim is—

15 In a combination-lock, the combination of two or more lock-disks *D*, each having a spindle *a*, and dial-knob *b*, having scales, the parts *D* and *b* being rigidly connected together and each capable of being rotated independ-

ently in holes provided in the article to be locked, and a single stationary dial-plate *e*,
20 formed of one piece of material and having corresponding holes to receive the spindles *a*, separate scales on said plate surrounding said holes to coact with the scales on the dial-knobs *b*, and a groove or the like *g* in the
25 cover, whereby the dial-plate is supported and held in position by the spindles *a*.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 3d day of August, 30
1891.

TIMOTHY W. McGRATH.

Witnesses:

T. F. BOURNE,

JAMES M. TULLY.