

(No Model.)

M. FRANKEL.
PERMUTATION LOCK.

No. 351,026.

Patented Oct. 19, 1886.

Fig. 1.

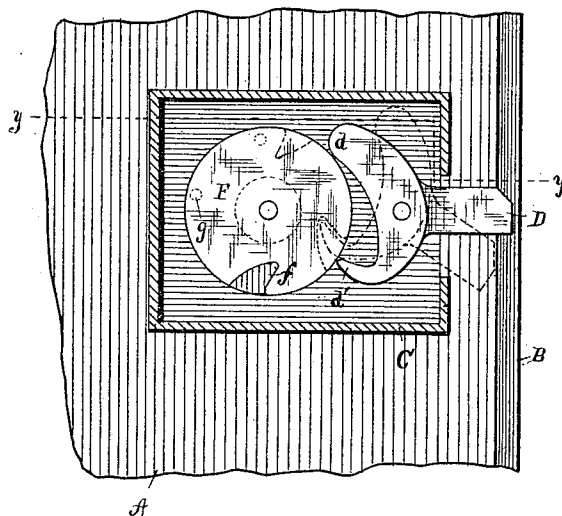
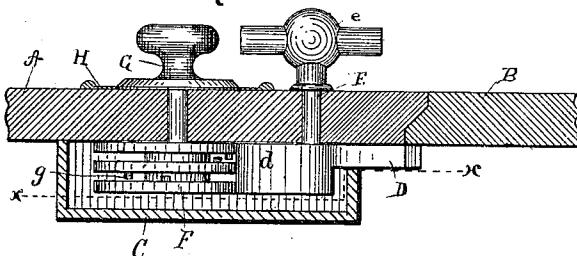


Fig. 2.



Witnesses
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PERMUTATION-LOCK.

SPECIFICATION forming part of Letters Patent No. 351,026, dated October 19, 1886.

Application filed March 13, 1886. Serial No. 195,066. (No model.)

To all whom it may concern:

Be it known that I, MAX FRANKEL, a citizen of the United States, and a resident of Greenport, in the county of Suffolk and State of New York, have invented certain new and useful Improvements in Permutation-Locks, of which the following is a specification.

The object of my invention is to provide a permutation-lock of simple and inexpensive construction, which is especially adapted for use upon cash-boxes, drawers, deed-boxes, safes, &c.; and it consists, essentially, in the peculiar construction of the tumblers, vibrating bolt, and dogging device acting in combination with them, whereby the retraction of the bolt by force is prevented until the tumblers are set, and when the tumblers are set and the bolt thrown in the unlocked position it tends to keep the tumblers set.

In the accompanying drawings, forming part of this specification, in which like parts are indicated by similar reference-letters wherever they occur, Figure 1 is a vertical section taken through line *x x* of the lock-case, Fig. 2, which figure is a transverse section taken through line *y y* of Fig. 1.

I have shown my invention as applied to a small safe-door, which is represented by A, the jamb of the door being represented by B. To the inside of the door is secured the case C, which may be an open box of any light metal housing secured to the inside of the door. One end of the box is slotted, and through this opening the bolt D protrudes to engage the inner edge of the jamb B when in the locked position, as seen in full line, Fig. 1. This bolt D, as shown in the drawings, is secured to the spindle E, which is provided at the outer end with the customary cross-head or handle, *e*. This pivoted bolt has an upwardly-projecting arm, *d*, and a lower hooked arm, *d'*. The ends of these arms when the bolt is locked, as in the position shown in full line in Fig. 1, are in close proximity to the peripheries of the tumblers F, of which there may be any desired number—three being shown in the drawings—either the inner or outer one of which is fixed upon the lock-arbor, to turn with the dial-knob G, and the other tumblers being loosely journaled upon the arbor, and having engaging-pins *g*, as is

common in permutation-locks. Each of the tumblers is provided with a hooked notch, *f*, to receive the hooked end *d'* of the bolt D when the notches of the tumblers are in line in front of it. When the hooked arm *d'* enters these notches, the bolt D is in the unlocked position, as seen in dotted line, Fig. 1.

It will be seen that so long as the notches *f* in the tumblers are not "set up" or brought in line the arms *d d'*, bearing against the peripheries of the tumblers, prevent the bolt from being thrown from the locked position by force.

While I have shown the vibrating bolt secured upon the spindle E, to be thrown in the locked or unlocked position by the handle *e*, it is obvious that it may be pivoted on a stud inside of the door, and the arbor E and its handle omitted, as the bolt would fall by gravity into the notches so soon as the notches in the tumblers are brought in line in front of its arm or fence *d'*. By making the arm *d'* with not so much of a hook as shown the bolt can be thrown in its locked position by the driving-tumbler; but I prefer to make the arm *d'* hooked, as shown, to engage in the hooked notches of the tumblers *e* when the door is unlocked, so that the combination will be fastened when the lock is opened.

The index H, which is secured upon the outside of the door, is of the usual construction used with combination or permutation locks, spaced and numbered or lettered in the usual manner. This, with the dial and its knob, are so well known that no specific description of them is necessary.

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

The combination, in a permutation-lock, of the tumblers F, having notches *f*, the pivoted bolt D, provided with the arm *d*, and hooked arm *d'*, adapted to enter said notches when the same are brought in line and hold the tumblers in the unlocked position, the said arms *d* and *d'* serving to dog the bolt against unlocking, substantially as shown and described.

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Witnesses:

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