G. HAMILTON.
Permutation-Padlock.

No. 196,224. Patented Oct. 16, 1877.

Fig. 1.

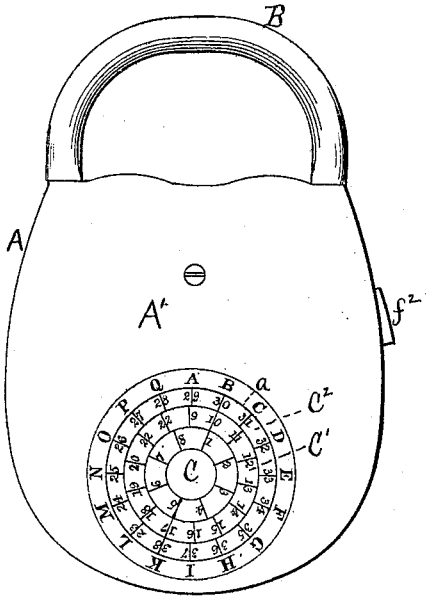


Fig. 2.

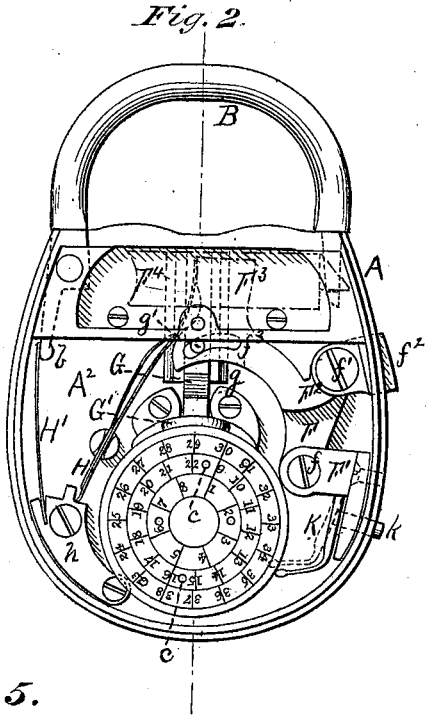


Fig. 5.

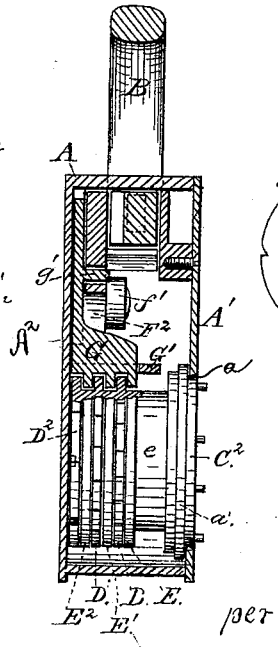


Fig. 3.

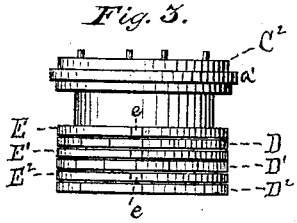
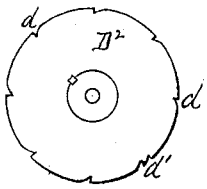


Fig. 4.



Witnesses:
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John K. Jones.

Inventor:
George Hamilton.
per Edwin James.
Attorney.

G. HAMILTON.
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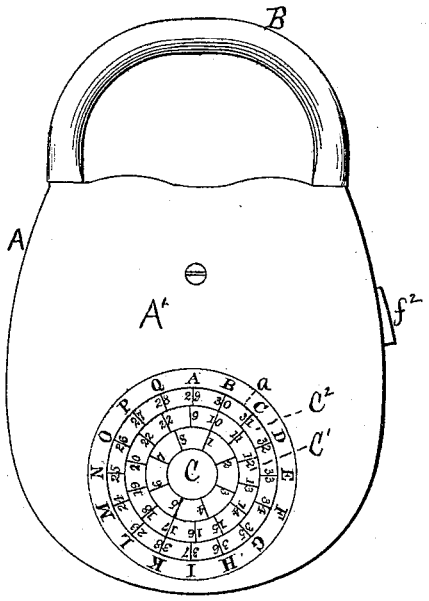


Fig. 2.

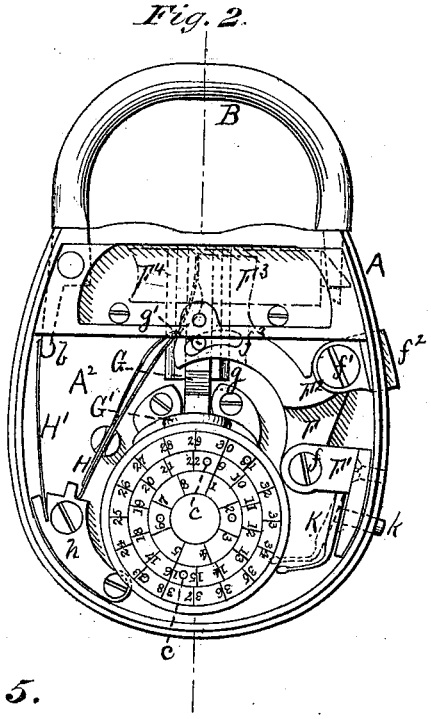


Fig. 5.

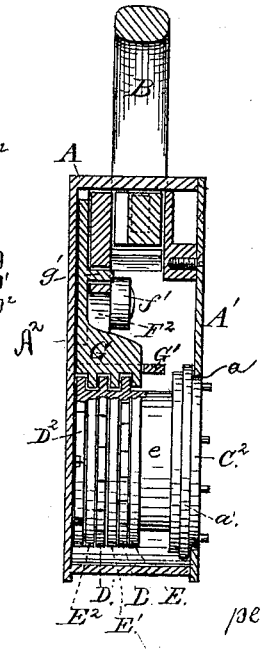


Fig. 3.

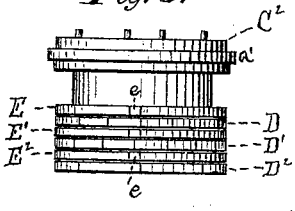
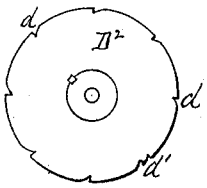


Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE HAMILTON, OF MEADVILLE, PENNSYLVANIA.

IMPROVEMENT IN PERMUTATION-PADLOCKS.

Specification forming part of Letters Patent No. **196,224**, dated October 16, 1877; application filed August 21, 1877.

To all whom it may concern:

Be it known that I, GEORGE HAMILTON, of Meadville, in the county of Crawford and State of Pennsylvania, have invented an Improved Permutation-Padlock, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, and the letters of reference marked thereon, making part of this specification, in which—

Figure 1 is a top-plan view. Fig. 2 is a top-plan view, the face-plate being removed. Fig. 3 is a side view of the tumblers and disks. Fig. 4 is a top-plan view of one of the disks. Fig. 5 is a vertical sectional view.

The nature of my invention consists in a novel arrangement of mechanism in a permutation-padlock whereby the padlock can be opened or fastened, and the combination also ascertained at night or in the dark, as more fully hereinafter described.

The construction and operation of my invention are as follows:

A is the lock-case, and B the bow to hold onto a staple, both of which are constructed out of any suitable material. In the face A^1 of the lock-case is cut a circular orifice, *a*, around the periphery of which is arranged a series of letters. To the lower face A^2 of the case A, and inside of the same, is secured a pin or step. Upon this pin are journaled the tumblers, notched plates, and index-rings, the top of the series being provided with an annular flange, *a'*, upon which rests the face A^1. D D^1 D^2 are disks which are connected, respectively, with the index-rings C C^1 C^2. The cylinder which connects each one of these disks D D^1 D^2 and rings C C^1 C^2 forms, as it were, a sleeve, upon which the tumblers E E^1 E^2 work. These cylinders are contained within each other, the tumblers being arranged thereon in such manner that they will turn with them unless prevented, as hereinafter described, when the combination is to be changed. On each of the index-rings C C^1 C^2 are arranged, at proper distances, a series of figures, while on the periphery of the disks D D^1 D^2 are cut notches *d*, arranged at proper distances, and equal in number to the spaces contained on the respective index-ring with which it is connected. These disks D D^1 D^2 are also each provided with a double notch, *d'*. Around the index-rings, and on the face-plate A^1, at proper distances apart, are arranged a series of letters. To each of the index-rings are secured two pins, *c c*, at equal distances apart, which, in connection with the key, enable the cylinders connecting the index-rings and the disks to be turned, and thus operate the tumblers E E^1 E^2. These tumblers E E^1 E^2 are each provided with a notch, *e*. F is a curved arm, which is pivoted at *f* to a lug, F^1, secured to the side of the lock-case A. This circular arm F is provided with two projecting arms, F^2 F^3. To the arm F^2 is pivoted, at f^1, the thumb-piece f^2, which extends out beyond the side of the case, passing through a hole cut in the same for that purpose. The arm F^3 operates the latch F^4, working in a recess cut in the under face of the same. In the upper section of the arm F is cut a curved slot, f^3. F^4 is the latch, which is supported on suitable bearings secured to the case. This latch is provided with a recess, in which works the arm F^3, by means of which the latch is moved backward and forward. G is the depending catch, which works between cleats *g g*, secured to the case, and has a free movement up and down. This catch is provided with a pin, *g'*, which works in the slot f^3, and also with teeth at its lower section, said teeth corresponding in number to the tumblers employed. These teeth are separated a distance apart equal to the width of the disks D D^1 D^2. G' is an arched slotted guide-plate secured to the lower plate of the lock, and in the slot of which the lower end of the catch G travels. H is a spring, which has its bearing in a lug, *h*, located on one side of the case. The free end of this spring presses against the arm F^3. The tension of this spring is constantly exerted to push the latch forward and keep the lock fastened. H' is another spring, which has its bearing also in the lug *h*, while its free end presses against the end *b* of the bow B. K is a spring, which is bent nearly at a right angle at its lower section, and has its bearing in the lug F^1. *k* is a pin which passes through a hole cut in the side of the case. The end of this pin rests against the spring K. In the drawing but one spring is shown. The number of springs, however, that are used must be equal to the number of disks.

The operation is as follows: When the lock

is fastened, to open the same the index-rings must be turned until the combination is complete. This will bring the notches *e e* of the tumblers E E^1 E^2 under the teeth of the catch G. By then pressing on the thumb-piece f^2 the teeth enter the notches in the tumblers, while the pin *g'* travels in the slot f^3. This causes the arm F^3 to move backward, which carries the latch F^4 and opens the lock. To change the combination, the lock is unfastened, and the teeth of the catch G held in the notches *e e* of the tumblers by pressing upon the thumb-piece f^2. This prevents the tumblers from turning. The key is then used on the index-rings C C^1 C^2, turning them to any numbers desired, and opposite to any letter, when a new combination is obtained. To use the signal so as to be enabled to unfasten the lock in the dark, the pin *k* is pressed in, which forces the free end of the spring K in contact with the disk D. Then the index-plate C is turned to the right, by means of the key, until the double notch *d d'* is reached, counting the ticks, and then turned back again the same number of ticks, when the combination is complete. This operation applies equally to as many springs as may be used, the notches on the disks being equal in number to the spaces between the figures on the index-rings C C^1 C^2. The pin *k* may be so constructed that the touch will indicate when the double notch is reached, or the sound may be depended on entirely.

The tension of the spring K is such that pressure has to be applied to the pin *k* to overcome the same and allow the point of the arm of the spring to come in contact with the disk. To prevent the pin *k* from being thrown out of the case it may be constructed with a shoulder at the point where it meets the inside of the lock-case, or a pin may be inserted in the pin *k* at that point; or any other mechanical contrivance that will answer the purpose may be used.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a permutation-padlock, the index-rings C C^1 C^2 and disks D D^1 D^2, connected together as described, tumblers E E^1 E^2, arm F, having slot f^3, thumb-piece f^2, catch G, having teeth and pin *g'*, arm F^3, spring H, and latch F^4, the whole constructed, combined, and arranged to operate substantially as described.

2. In a permutation-padlock, the index-rings C C^1 C^2 and disks D D^1 D^2, connected together as described, said disks being constructed with notches *d d'*, tumblers E E^1 E^2, arm F, having slot f^3, thumb-piece f^2, catch G, having teeth and pin *g'*, arm F^3, spring H, latch F^4, spring K, and pin *k*, the whole constructed, combined, and arranged to operate substantially as described.

In testimony whereof I have hereunto signed my name to this specification in the presence of two subscribing witnesses.

GEORGE HAMILTON.

Witnesses:

THOMAS M. MCFARLAND,

CHARLES W. STUART.