

(No Model.)

J. I. COVINGTON.  
PERMUTATION LOCK

No. 488,648.

Patented Dec. 27, 1892.

Fig. 1

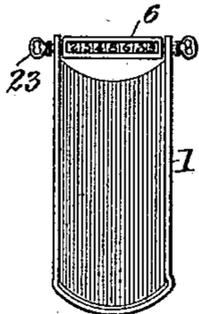


Fig. 2

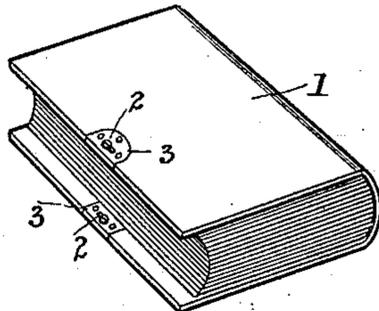


Fig. 3

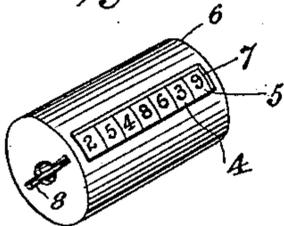


Fig. 4

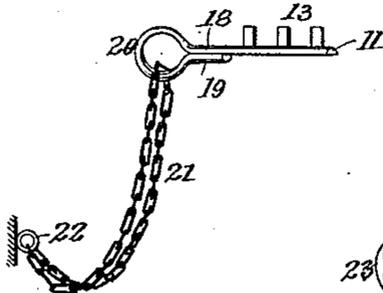


Fig. 5



Fig. 6

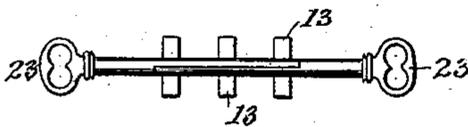


Fig. 7

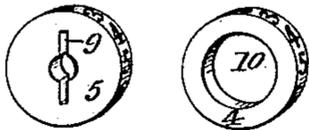


Fig. 8

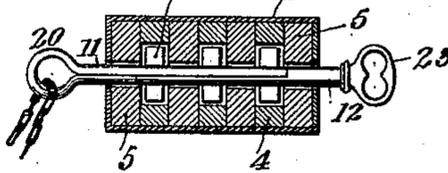


Fig. 9

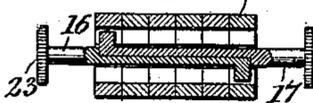


Fig. 10

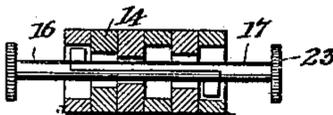
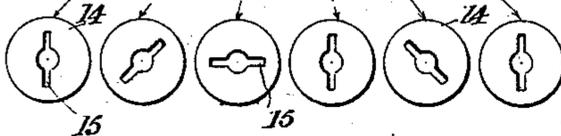


Fig. 11



Witnesses:

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# UNITED STATES PATENT OFFICE.

JOHN I. COVINGTON, OF BROOKLYN, NEW YORK.

## PERMUTATION-LOCK.

SPECIFICATION forming part of Letters Patent No. 488,648, dated December 27, 1892.

Application filed January 9, 1892. Serial No. 417,478. (No model.)

*To all whom it may concern:*

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

My invention relates to permutation locks.

The object of my invention is to construct a cheap, effective and detachable permutation lock which can be readily applied to the thing to be locked and as readily removed therefrom, and I accomplish this object by the means hereinafter described and claimed.

In the accompanying drawings forming part of this specification Figure 1 represents a book with my invention applied thereto. Fig. 2 is a perspective view of a book constructed to permit the application of the locking means thereto. Fig. 3 is a perspective view of the lock. Figs. 4 and 5 represent the two parts of the key used in connection with the lock and the means secured to the book. Fig. 6 represents the position of the two parts of the key after insertion in the lock. Fig. 7 represents the two constructions of wheels or disks used in the lock. Fig. 8 is a longitudinal cross-section of the lock, when locked with key in place. Fig. 9 represents a modified construction in which all of the wheels are alike in construction. Fig. 10 represents the modified construction in locked condition. Fig. 11 shows the varying positions of the several wheels of Fig. 10.

The lock hereinafter particularly described I have illustrated as applicable to the locking of books, but I do not, of course, limit myself to this use of the lock as it is applicable to various other objects and things.

Referring to the drawings the book, Figs. 1 and 2 has each of its two covers provided with a key hole 2 protected by a metal reinforcing piece 3 firmly riveted to each cover. These key holes are preferably located where most effective in locking the covers of the book together. The lock which I have invented to use in connection with books so constructed consists of a series of disks or wheels 4 and 5 inclosed in a cylindrical case 6 provided with a slot 7 in its side to expose to view the numbers or characters on the wheels and with a slot 8 in each end corre-

sponding in form to a cross-section of the key. The length of the cylinder will vary according to the number of wheels contained therein, the greater the number of wheels the more difficult or impossible of course to open the lock. In Figs. 3 and 8 I have shown seven wheels consisting of four wheels 5 provided with slots 9 and three wheels 4 having circular opening 10. These two sets of wheels are arranged alternately as shown, the wheels 5 being at the ends of the series. Each of the seven wheels has printed or impressed on its periphery (see Fig. 7) a series of numbers from 0 to 9 arranged consecutively. Instead of numbers, letters or other characters could be used, but numbers are preferred, and instead of using ten numbers on the periphery a less or greater number could be employed.

I employ in connection with the lock so far described a two part device which is herein for convenience called a key, it forming a member of the locking means and consisting of the parts 11 and 12, each part, if the lock embraces only three wheels as 4, being provided with three projections 13, the number of projections always corresponding to the number of wheels 4. The slots in the wheels 5 are stamped out to occupy a relative position to the position of the numbers arranged on the periphery, so that when the proper combinations is shown through the opening in the cylinder the slots 9 of all the wheels 5 may be in line with each other and with the slots 8 in the cylinder so that the key may be inserted or withdrawn therefrom. It follows from this construction that each wheel 5 can occupy but two positions that will permit insertion or removal of key, one being diametrically opposite the other, consequently each lock can be locked or opened on only two different combinations determined at the time of construction of the lock. The wheels 4 having each a circular opening sufficiently large to permit revolution of same on the key without the movement of one affecting that of the others, are, therefore, only dummies, and their relative position can be disregarded in using the lock.

The operation of the mechanism so far described is as follows: If, for example, the lock is constructed to open on the combination 2469 then the four wheels 5 are turned until

these numbers appear opposite the slot in the cylinder. The said cylinder is then applied to the book or other thing to be locked, and the two part key is inserted through the key holes 5 of the covers, in case of a book, into the cylinder until it occupies the position shown in Fig. 8 *i. e.* until the projections of the key are within the circular openings of the wheels 4 after which the wheels 5 are each turned 10 more or less as may be desired to bring their slots 9 out of line with each other and with the slots in the cylinder. The two part key cannot therefore be withdrawn until the four wheels are again turned to bring the combination 2469 into view and as the heads 23 of 15 the key cannot pass through the key holes of the covers of the book it follows that the book cannot be opened. In the construction shown in Figs. 9 to 11 the wheels 14 within the cylinder are all alike, each having formed in it the 20 slot 15. The two part key 16 and 17 used in this case has only one projection to each part, and when the wheels have all their slots in register it is inserted so that the two projec- 25 tions of the key rest in the first and last wheels in the cylinder. The four intermediate wheels can then be turned on the shank of the key to disarrange the combination as illustrated in Figs. 10 and 11. The key can be formed 30 like an ordinary key as shown in Figs. 4 and 5 or it may have a flat milled head as illustrated in Figs. 9 and 10, a retaining head or enlargement being necessary to effect the locking, said head being so located as to leave 35 a space between the same and the end of the case, or nearest wheel, sufficient, for example, to accommodate the cover of a book.

It is frequently desirable in addition to locking a book or other object to prevent its being 40 stolen or displaced and to this end I have constructed the key so as to not only permit the connection of a chain thereto, but so that the lock will co-operate therewith in preventing the removal of the chain. I split the shank 45 of the key so as to open the loop 20 of the handle as shown in Fig. 4 the two separated parts 18 and 19 being capable of being pressed apart to allow a chain 21 to pass through into the loop, and in their closed condition fitting 50 into the slot in the cylinder and thus closing the entrance to the loop 20 and preventing the withdrawal of the chain. The chain thus secured to the book may be fastened to a desk, stand or other suitable support by a staple 22 55 as shown in Fig. 4, or in any other suitable manner.

I do not in this application claim the combination with a book of a separate locking means, as I have claimed such combination in 60 an application filed October 7, 1891, Serial No. 407,974.

Having thus described my invention what I claim and desire to secure by United States Letters Patent is,

1. A lock consisting of a series of numbered 65 wheels provided with openings, and a two part key, each part of which is provided with a retaining head and is adapted to pass into the openings in said wheels, said retaining head being so located as to leave a space between 70 it and the nearest wheel when the key is inserted, substantially as described.

2. A lock consisting of a series of numbered wheels provided with openings, and a two part 75 key provided with projections, each part of said key having a retaining head and adapted to enter into the openings in said wheels, said retaining head being so located as to leave a space between it and the nearest wheel when 80 the key is inserted, substantially as described.

3. A lock consisting of a case provided with slots or key holes in its ends, a series of num- 85 bered wheels provided with openings, and a headed key adapted to be passed through the slots of the case into said wheels, the heads of said key being so located as to leave a space between the same and the ends of the case 90 when the key is inserted, substantially as described.

4. A lock consisting of a case provided with 90 slots or key holes in its ends, two sets of numbered wheels of which one set is provided with slots and the other set with circular openings, and a headed key adapted to be passed 95 through the slots of the case into said wheels, the heads of said key being so located as to leave a space between the same and the ends of the case when the key is inserted, substan- 100 tially as described.

5. A lock consisting of a case provided with 100 slots or key holes in its ends, a series of numbered wheels provided with openings, and a two part headed key provided with projec- 105 tions and adapted to be passed through the slots of the case into said wheels, the heads of said key being so located as to leave a space between the same and the ends of the case when the key is inserted, substantially as de- 110 scribed.

6. A lock in combination with a key having 110 a split shank forming an open looped handle, the said shank passing into the lock closing the opening to the loop, substantially as de- 115 scribed.

Signed at New York, in the county of New 115 York and State of New York, this 7th day of January, A. D. 1892.

JOHN I. COVINGTON.

Witnesses:

CHAS. L. WISE,  
RUDOLPH H. REDDISH.