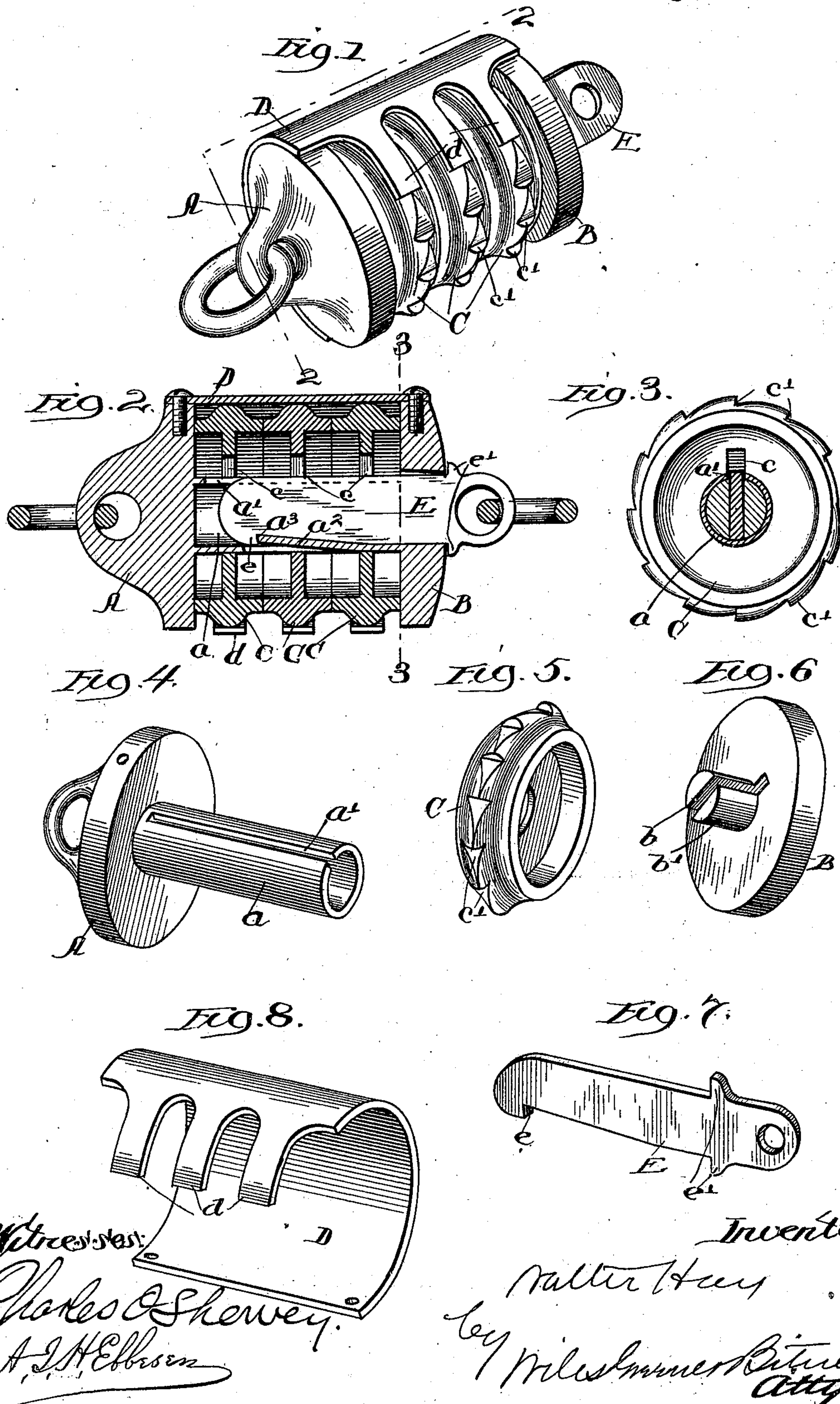


(No Model.)

W. HAY.  
PERMUTATION PADLOCK.

No. 504,034.

Patented Aug. 29, 1893.





# UNITED STATES PATENT OFFICE.

WALTER HAY, OF CHICAGO, ILLINOIS.

## PERMUTATION-PADLOCK.

SPECIFICATION forming part of Letters Patent No. 504,034, dated August 29, 1893.

Application filed August 15, 1892. Serial No. 443,179. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER HAY, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Combination-Padlocks, of which the following is a specification.

My invention relates to certain improvements in combination padlocks designed especially for bicycle riders, tourists or others who have use for a small, compact lock with which to secure their machines or small articles which they are compelled to leave for a moment which are of such a nature as to be easily carried off by a sneak thief. These improvements will be easily recognized by the following description and their essential characteristics will be defined in the appended claims.

In the drawings, Figure 1 is a perspective of a complete lock; Fig. 2 a diametrical section in line 2—2, of Fig. 1. Fig. 3 is a cross-section in line 3—3, of Fig. 2. Figs. 4, 5, 6, 7, and 8 are respectively detail perspectives of certain portions of the lock.

Looking at Fig. 1, it will be seen that the lock is made in the shape of a short cylinder composed of two end pieces A, B, shown in Figs. 4 and 6, respectively, three tumblers or independently rotatable disks C, C, C, and a partial case D, covering the tumblers C, for a portion of the way around the lock. The end A, has a hollow post  $a$ , having upon one side a slot  $a'$ , extending from end to end and upon the opposite side a lip  $a^2$  struck in from the post and terminating in a sharp edge  $a^3$ , upon its inner side. The opposite end B, is provided with a slot  $b$ , and a boss  $b'$ , adapted to enter the post  $a$ , and keep the two ends of the lock in line. A bolt E, is fitted to the slot  $b$ , which is made tapering, *i. e.*, wider at one end than at the other so that the bolt can only be inserted in one way. The bolt E, is notched near its end to form a slightly undercut shoulder  $e$ , and the tapering slot is arranged to allow the bolt to enter with this notch facing the lip  $a^2$ . The tumblers C, fit closely upon the post  $a$  and completely fill up the space between the end pieces A, B. Each of them is provided with a radial slot  $c$ , and also with a series of notches  $c'$ , about their periphery, and the guard or case D, is

provided with fingers  $d$ , of elastic material arranged to enter the notches  $c$ , and offer a slight resistance to the rotation of the tumblers which, however, may be overcome by the application of moderate force. One of the notches  $c$ , of each tumbler is considerably more extended than the others, so that it can be distinguished in the dark by the sense of touch, and in the use of the lock these extended notches are taken as the starting point for the working of the combination. When all the slots  $c$ , in the tumblers are in line, and in register with the slot  $a'$ , in the post  $a$ , it will be seen that the bolt E, can be easily disengaged from the lip  $a^2$ , by crowding it sidewise into the slots in the tumblers. When, however, any of these slots are out of register with the slot in the post, the bolt can not be so disengaged. The undercut notch in the bolt and the sharpened lip in the post  $a$ , prevent the bolt from bearing against the tumblers when an attempt is made to withdraw it, and thus furnishing a guide in picking the lock. The bolt is also provided with shoulders  $e'$ , which prevent it from being forced inward a sufficient distance to bear against the tumblers. It will thus be seen that no manipulation can furnish any guide toward solving the combination. The combination itself is determined upon in the manufacture of the lock and the slots in the tumblers so located that the turning of each one a certain number of notches from the starting point will bring this slot into proper position. The combination of the lock can be opened as well in the dark as otherwise. The starting point can be found, and the counting of the notches accomplished as well as by the sense of touch or by the clicking of the fingers as if the lock could be seen.

I do not confine myself to the precise details, but

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

1. The combination with the frame of a lock provided with a slotted post having a laterally yielding undercut catch at one side of a sliding bolt fitted to the post and having an undercut notch to engage with the catch, and a series of slotted tumblers journaled upon the post.

2. The combination with the frame of a lock, a series of slotted tumblers and a notched bolt, of a central post upon which the tumblers turn, said post being slotted upon one side and provided upon the other with a catch adapted to engage with the notch in the bolt; substantially as described.
3. The combination with the frame of a lock containing a tapering slot, of a notched bolt fitted to said slot, a series of notched tumblers and a central post upon which said tumblers turn bearing a slot upon one side and a catch upon the other adapted to engage with the notch in the bolt; substantially as described.

WALTER HAY.

Witnesses:

CHAS. O. SHERVEY,  
A. I. H. EBBESEN.