

J. H. TEAGUE,
PERMUTATION LOCK,
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1,238,596.

Patented Aug. 28, 1917.

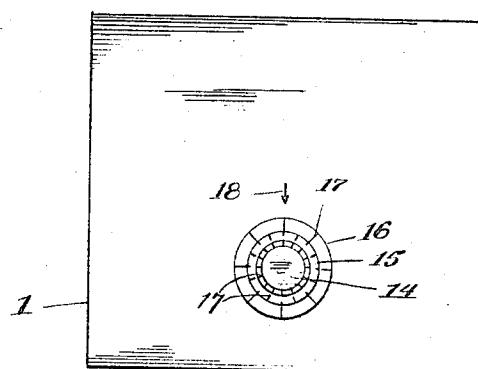
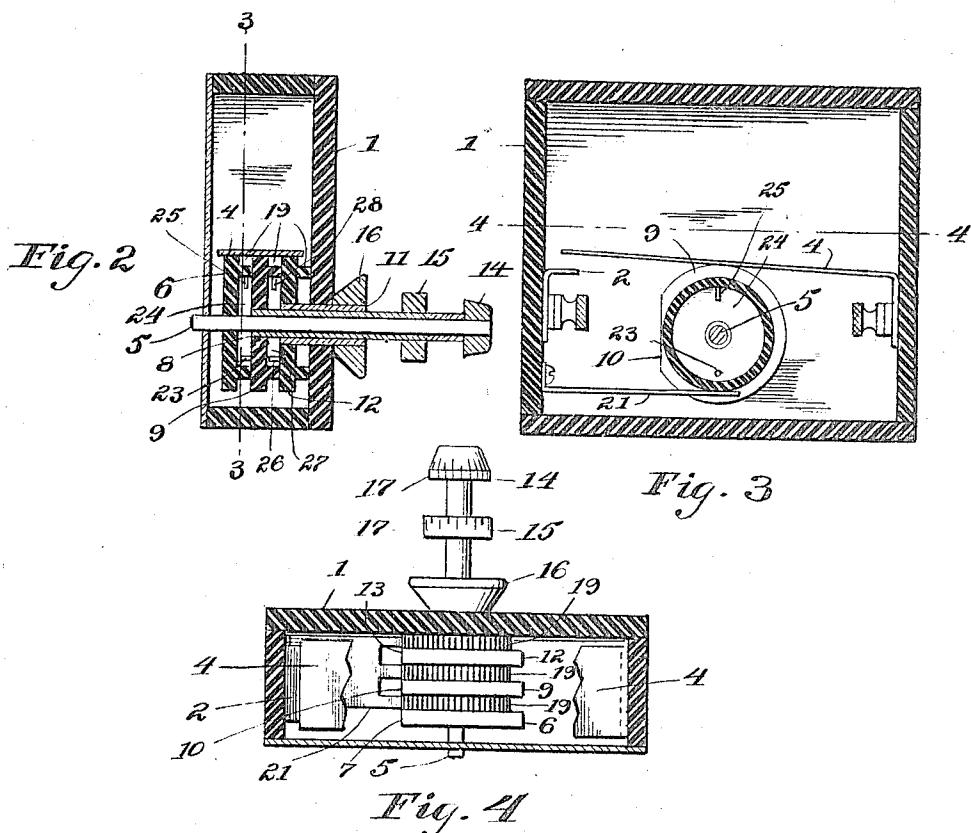


Fig. 1



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UNITED STATES PATENT OFFICE.

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PERMUTATION-LOCK.

1,238,596.

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To all whom it may concern:

Be it known that I, JOHN H. TEAGUE, a citizen of the United States of America, residing at Seattle, in the county of King and 5 State of Washington, have invented new and useful Improvements in Permutation-Locks, of which the following is a specification.

This invention relates to improvements in permutation locks and has particular application 10 to a permutation lock for controlling electric switches.

In carrying out the present invention, it is my purpose to provide a permutation lock which may be easily and quickly operated 15 by an authorized person to open or close the same, the construction and operation being such that it is extremely difficult for an unauthorized person to operate the lock.

With the above and other objects in view, the invention consists in the construction, combination and arrangement of parts hereinafter set forth in and falling within 20 the scope of the claims.

25 In the accompanying drawings;

Figure 1 is a view in front elevation of a permutation lock constructed in accordance with the present invention.

Fig. 2 is a vertical longitudinal sectional 30 view through the lock, parts being shown in elevation.

Fig. 3 is a vertical cross sectional view through the lock, parts being shown in elevation.

35 Fig. 4 is a horizontal sectional view through the lock.

Referring now to the drawing in detail, 1 designates a substantially rectangular casing designed to contain the mechanism of 40 the lock. Disposed within the casing 1 and, in the present instance, fastened to the inner surface of one side wall is a contact stud 2, while a switch blade 4 has one of its ends secured to the opposite side wall, said 45 blade having the opposite end thereof overlying the contact stud 2 and adapted to engage and disengage the latter.

Journalized in horizontally alining bearings 50 carried by the front and rear walls of the casing 1 is a shaft 5 capable of rotation and disposed below the blade 4 and fixed upon the shaft 5 adjacent to the rear end thereof is a tumbler 6 adapted to rotate with the shaft and preferably in the form of a circular disk having a portion of the periphery flattened as at 7. Surrounding the shaft 5

and capable of rotation thereon is a sleeve 8 and secured to the inner end of the sleeve 8 is a tumbler 9 arranged alongside of the tumbler 6 and preferably in the form of a 60 circular disk having the periphery formed with a flattened portion 10. Disposed concentrically of the sleeve 8 is a sleeve 11 capable of rotation upon the sleeve 8 and fastened to the inner end of the sleeve 11 65 is a tumbler 12 in the form of a circular disk having a portion of the periphery flattened as at 13. Fast upon the outer ends of the shaft 5, sleeve 8 and sleeve 11 are manipulated knobs 14, 15 and 16 respectively and 70 these knobs are provided with corresponding marks 17 respectively and the front wall of the casing is provided with a mark 18 and when the marks 17 and 18 are in certain relative positions the flattened portions 75 of the tumblers are in alinement immediately below the blade 4 so that the latter may engage the stud 2 to close the controlled circuit. On the other hand, when the marks are out of these certain relative positions 80 flattened portions of the disks are out of alinement with one another and the switch blade 4 held out of engagement with the stud 2. Thus, any person not knowing the 85 "combination", that is, the relative positions of the marks 17 and 18, will be unable to cause the blade to engage the stud.

Secured to corresponding faces of the tumblers 6, 9 and 12 are circular disks 19 respectively each of a diameter less than 90 that of the particular tumbler and having the periphery thereof milled. Engaging the milled edges of the disks 19 are spring fingers 21 respectively and these fingers 21 are carried by the adjacent side wall of the 95 casing. The fingers 21 and disks 19 act to hold the tumblers against accidental turning movement and the pressure of the fingers on the respective disks is substantially equal to the pressure of the switch blade on 100 the flattened portions of the tumblers so that the operator will be unable to manipulate the combination by sound or feeling.

In the present instance, one face of the tumbler 9 is equipped with an outwardly 105 extending pin 23 that works in a groove 24 formed in the confronting face of the disk 19 on the tumbler 6 and disposed within the groove 24 is a pin 25. Secured to one face of the tumbler 12 is an outwardly 110 extending pin 26 working within a groove 27 formed in the adjacent face of the disk

19 carried by the tumbler 9 and disposed within the groove 27 is a pin 28. By means of this construction, it will be seen that when any one tumbler is rotated through 5 a complete revolution motion will be imparted to the remaining tumblers and the latter revolved simultaneously with the first tumbler.

When the flattened portions of the peripheries of the tumblers are out of engagement with the switch blade 4, they are brought into engagement with the blade 4 by turning them to their proper positions by means of the manipulating knobs 14, 15 10 and 16. It will be noted in this regard that by reason of the pins 23, 25, 26 and 28 it is impossible to move the tumblers into proper relation with the blade 4 unless each tumbler is rotated in the proper direction relative to its adjacent tumbler. This construction not only requires that the operator know the proper positions of the tumblers, but that he also know their proper rotative 20 relation respecting each other. Thus, a double assurance against unauthorized manipulation of the lock is obtained, and by reason of the fact that a manipulating knob is provided for each tumbler, the operator may manipulate the lock with much greater 25 rapidity than would be the case, if he were forced to move the tumblers to their proper position by the manipulation of a knob connected to one of the tumbler disks.

When the tumblers are positioned so that 30 the switch is closed, the operator may open the switch quickly by simply rotating one of the disks, preferably the middle one, in either direction to move all of the tumblers to lock the switch in open position. This 35 simple method of locking the switch results from the cam like construction of each of the tumblers and the fact that the continued rotation of one tumbler will cause rotation of its adjacent tumblers.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

While I have herein shown and described 45 the preferred form of my invention by way of illustration, I wish it to be understood that I do not limit or confine myself to the precise details of construction herein described and delineated, as modification and 50 variation may be made within the scope of the claims without departing from the spirit of the invention.

I claim:

1. In a permutation lock, the combination 55 with a series of tumbler disks, of means for rotating each of said disks independently of the others, and a means for transmitting motion from each disk to its adjacent disk.

2. In a permutation lock, the combination with a series of circular tumbler disks having a portion of their peripheries flattened, of means for rotating each disk independently of the other disk, and a means for 65 transmitting motion from each disk from its adjacent disk.

3. In a permutation lock, the combination with a series of tumbler disks mounted for rotation, of a manipulating knob for each 70 disk in driving relation therewith, and pins mounted on said disks, each pin lying in the path of one of said pins mounted on the adjacent disk.

4. In a permutation lock, the combination 75 with a series of circular tumbler disks mounted for rotation and having a portion of their peripheries flattened, a manipulating knob for each disk in driving relation therewith, and pins mounted on said disk, 80 each pin lying in the path of one of said pins mounted on the adjacent disk.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN H. TEAGUE.

Witnesses:

MAY MAINWARING,
E. M. FARMER.