No. 858,744. PATENTED JULY 2, 1907.

J. MURPHY.

PERMUTATION LOCK.

APPLICATION FILED APR. 20, 1907.

Fig. 1

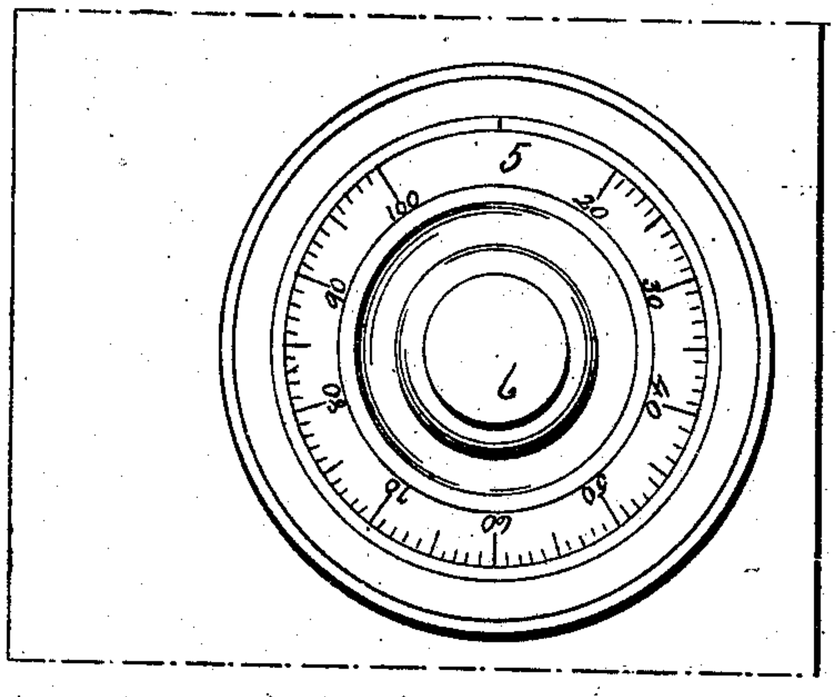


Fig. 3

Fig. 2

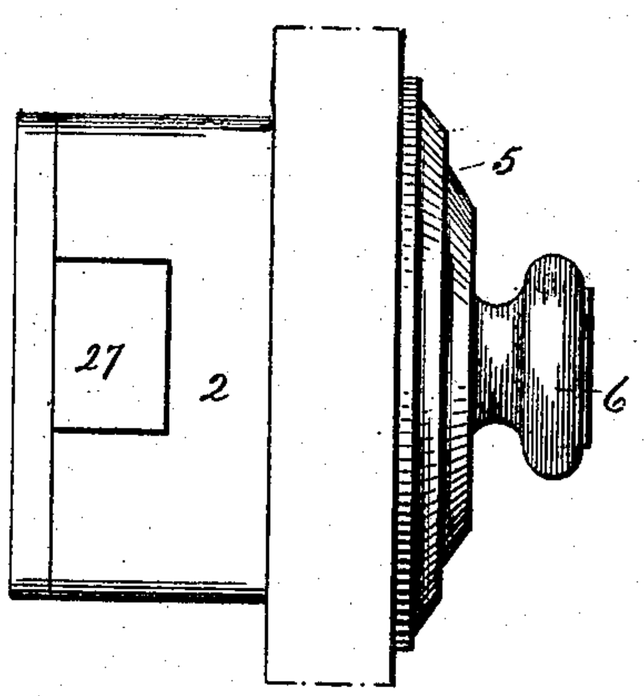
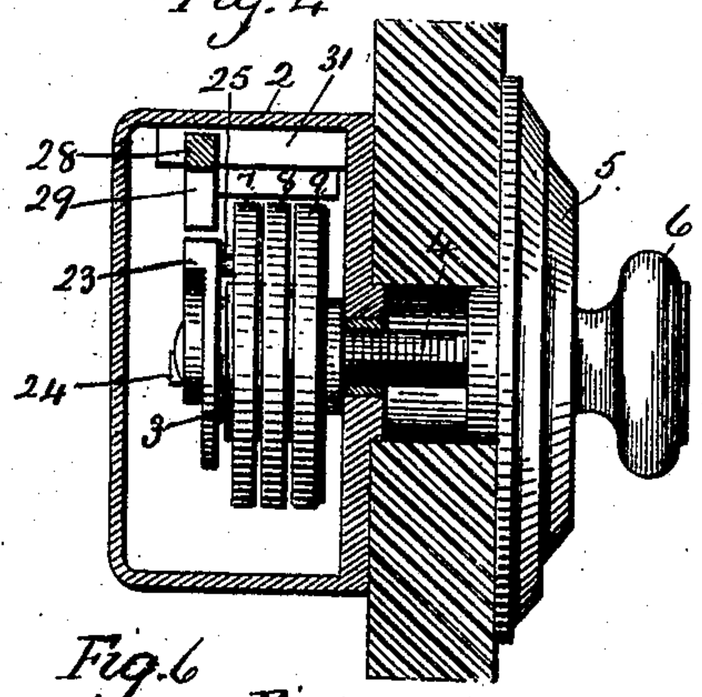


Fig. 4



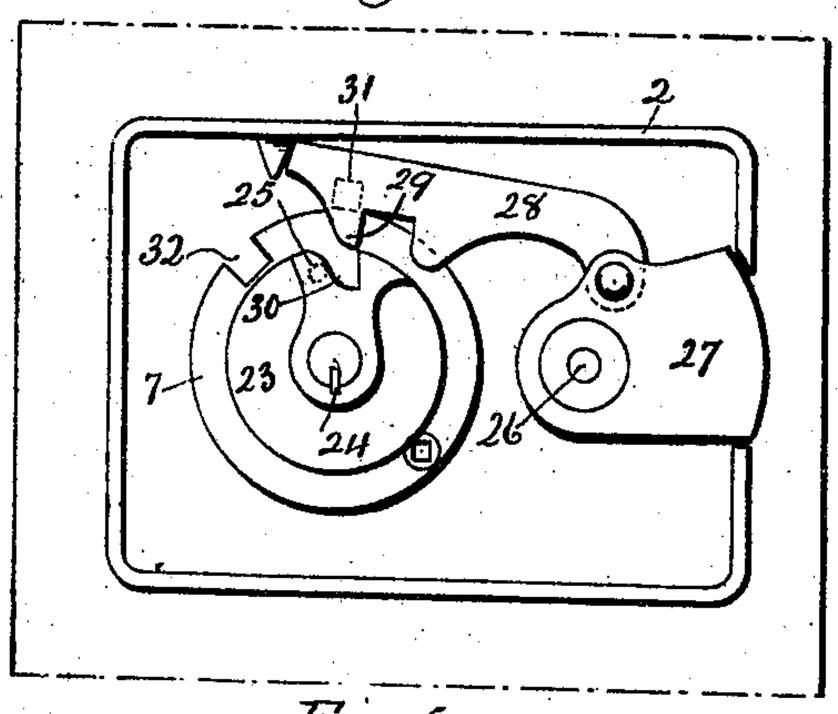


Fig. 5

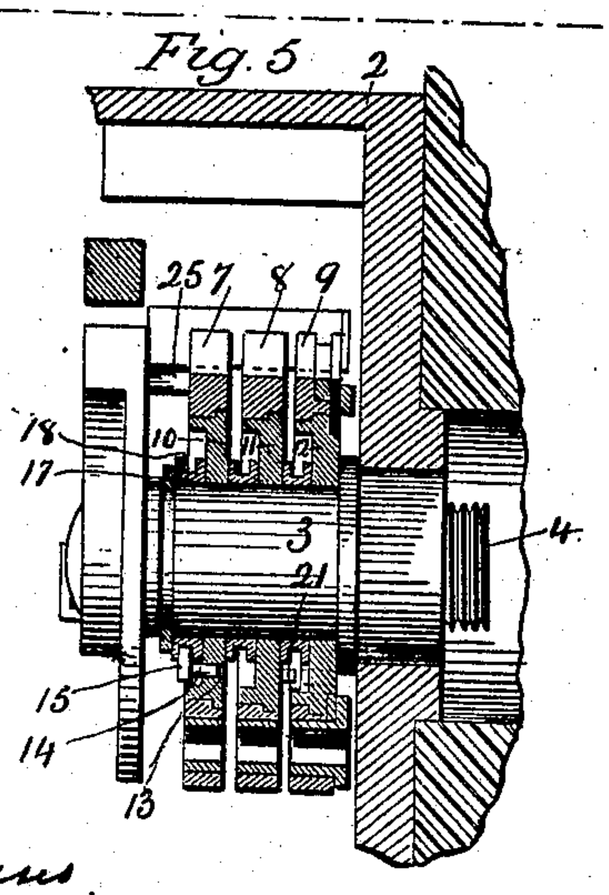


Fig. 6

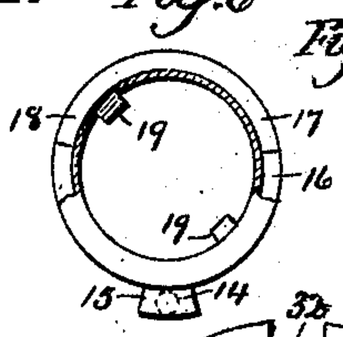


Fig. 7

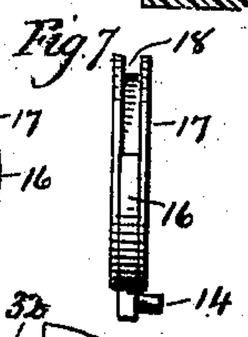


Fig. 8

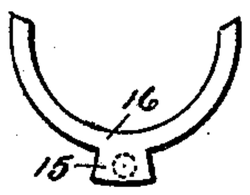


Fig. 9

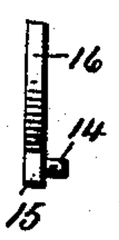
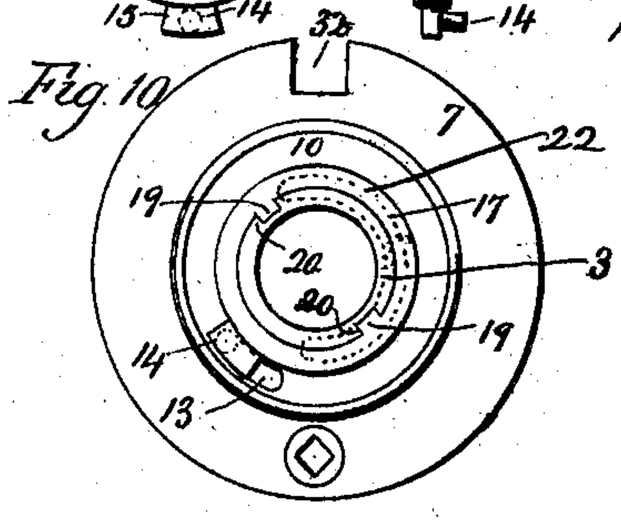


Fig. 10



Witnesses.
J. H. Shumway
C. J. Reed.

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Inventor.
Batts Seymour & Earle
Attys.

UNITED STATES PATENT OFFICE.

JAMES MURPHY, OF TERRYVILLE, CONNECTICUT, ASSIGNOR TO EAGLE LOCK CO., OF TERRYVILLE, CONNECTICUT, A CORPORATION.

PERMUTATION-LOCK.

No. 858,744. Specification of Letters Patent. Patented July 2, 1907.

Application filed April 20, 1907. Serial No. 369,301.

To all whom it may concern:

Be it known that I, JAMES MURPHY, a citizen of the United States, residing at Terryville, in the county of Litchfield and State of Connecticut, have invented a new and useful Improvement in Permutation-Locks; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1 a face view of the dial of a permutation lock constructed in accordance with my invention. Fig. 2 a side view of the lock and dial-mechanism shown as mounted upon a door. Fig. 3 a rear view of the lock mechanism with the cap of the case removed. Fig. 4 a sectional view showing the edges of the permutation wheel-tumblers when the locking bolt is in its closed position. Fig. 5 a broken sectional view illustrating the manner in which the permutation wheel-tumblers and fly-carriers are mounted on the hub. Fig. 6 a plan view partially in section of one of the fly-carriers with the fly mounted therein. Fig. 7 an edge view of the same. Fig. 8 a plan view of one of the flies detached. Fig. 9 an edge view of the same. Fig. 10 a plan view of one of the permutation wheel tumblers with its adjacent fly-carrier and fly.

This invention relates to an improvement in permutation locks, the object being a simple arrangement of parts whereby the permutation wheel-tumblers may be readily turned as desired without the possibility of accidentally being thrown out of position whereby one permutation wheel-tumbler is not liable to be thrown out of position by the rotation of the next adjacent wheel-tumbler; and the invention consists in the construction and arrangement of parts as will be hereinafter described and particularly recited in the claims.

In carrying out my invention, I have shown it applied to a permutation lock of substantially usual form comprising a case 2 in which the lock mechanism is arranged, a hub 3 fixed in the case and through which the central spindle 4 passes, the spindle being connected with a dial plate 5 having a knob 6 by which it may be turned, the dial having marks or graduations indicating the extent to which it is to be turned for the movement of the permutation wheels. Mounted upon the hub 3 are a series of permutation wheel-tumblers 7, 8 and 9, these tumblers having centers 10, 11 and 12 which may be adjusted in the tumblers either by hand or by key, both methods being common in permutation locks and not here requiring description. These centers are free to turn upon the hub and are made thinner than the tumblers so as to provide space between the tumblers. These centers are also formed with slots 13 to receive studs 14 formed on lugs 15 of semi-circular flies 16, these flies being mounted in fly-carriers 17 which consist of rings having annular grooves 18 in their edges to receive the flies 16. On the inner faces of these rings are lugs 19 which extend into longitudinal grooves 20 formed for them in the hub 3 and so that the fly carriers are held against rotation, the flies being free to turn in them. These centers are also formed with rearwardly extending pins 21 which are positioned to engage with the lugs 15 of the flies 16. A series of permutation tumblers with their centers and adjacent fly-carriers with the flies are mounted upon the hub 3 and secured thereon against longitudinal movement by a spring ring 22 or by any other approved means. Mounted upon the inner end of the central spindle 4 is a disk 23, this disk being turned onto the spindle and engaged therewith by a key 24. This disk has an inwardly extending pin 25 adapted to engage with the fly which operates the inner disk. Mounted in the case upon a stud 26 is a locking bolt 27 connected with which is a locking-dog 28 having a finger 29 to engage with a notch 30 in the disk 23 and with an inwardly extending arm 31 which is adapted to enter notches 32 formed in the peripheries of the several tumblers when such tumblers are brought into predetermined position. The rotation of the central spindle turns the disk 23 and the engagement of its pin 25 with the lug 15 of the next adjacent fly causes that fly to turn its tumbler. The pin 21 on this center co-operates with the next adjacent fly and so on. When the spindle has been turned in one direction or the other to bring the notches 32 in line the locking arm drops into it and the finger 29 engages with the notch 30 so that the rotation of the disk 23 will turn the bolt 27. By thus forming the fly-carriers the faces of the flies are held out of contact with the permutation tumblers so that as these flies are turned they will not turn the tumblers except when it is desired to do so, and so that each tumbler may be turned in the required direction to the desired extent and then will remain in such position while the other tumblers are being turned to their proper positions.

I claim

1. In a permutation lock, the combination with a fixed hub, of a series of revolving wheel-tumblers mounted thereon, non-rotatable fly-carriers also mounted on said hub, and flies mounted in the carriers, substantially as described.

2. In a permutation lock, the combination with a fixed hub, of a series of revolving wheel-tumblers mounted

thereon, annular non-rotatable fly-carriers also mounted on the said hub and formed with peripheral grooves, and flies mounted in said grooves.

3. In a permutation lock, the combination with a fixed hub, of a series of revolving wheel-tumblers mounted thereon and having adjustable centers, a corresponding number of annular, peripherally grooved non-rotatable fly-carriers mounted on the said hub, and semi-circular flies mounted in said grooves and respectively arranged to co-operate with the several wheel-tumblers, substantially as described.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

JAMES MURPHY.

Witnesses:
R. J. PLUMB,
OTIS B. HOUGH.