

J. LOCH.
 Tumblers for Permutation-Locks.
 No. 200,070. Patented Feb. 5, 1878.

Fig. 1.

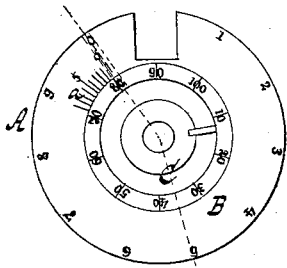


Fig. 2.

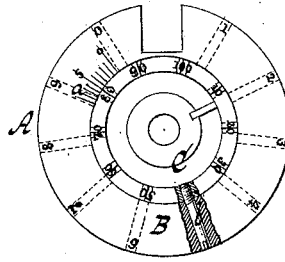


Fig. 3.

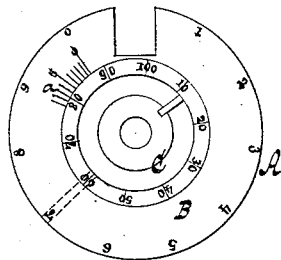
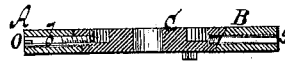


Fig. 4.



Witnesses.

Otto Schufeland
 Chas. Kahlers.

Inventor

Joseph Loch.
 by
 Van Gantvoord & Klauff
 his attorney.

UNITED STATES PATENT OFFICE.

JOSEPH LOCH, OF NEW YORK, N. Y.

IMPROVEMENT IN TUMBLERS FOR PERMUTATION-LOCKS.

Specification forming part of Letters Patent No. **200,070**, dated February 5, 1878; application filed June 29, 1877.

To all whom it may concern:

Be it known that I, JOSEPH LOCH, of the city, county, and State of New York, have invented a new and useful Improvement in Tumblers for Combination-Locks, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figures 1, 2, and 3 are face views of my tumbler, showing the same set for different combinations. Fig. 4 is a transverse section of the same.

Similar letters indicate corresponding parts.

This invention consists in the combination, in a tumbler for combination-locks, of two disks, one working within the other, a number of radial holes in the outer, and a corresponding number of radial screw-sockets in the inner or carrier disk, a series of marks or lines on the face of the inner disk, each mark corresponding in position to one of the radial screw-sockets, a segmental scale marked on the outer disk near its inner edge, and a series of figures or characters marked on the face of the outer disk, each figure corresponding in position to one of the radial holes in said disk, so that by means of the scales, the radial holes, the radial screw-sockets, and a single screw, the tumbler can be readily adjusted in a great variety of positions for a large number of different combinations.

In the drawing, the letter A designates a tumbler for a combination-lock, which is composed of an outer disk, B, and an inner or carrier disk, C, this latter being fitted into a circular hole in the center of the former, so that it can be freely turned round in either direction. The outer disk B is provided with ten radial holes, marked with the figures 1 2 3 4 5 6 7 8 9 0, while the inner disk is provided with ten radial screw-sockets, which are indicated by lines marked with the figures 10 20 30 40 50 60 70 80 90 100. The distances between the screw-sockets are alike throughout; but the distance between the radial holes 0 and 1 in the outer disk is different from the distances between the successive radial holes 1 and 2, 2 and 3, &c., and the position of the radial holes 1 2 3 is such that only one of

them can be made to coincide at one and the same time with one of the screw-sockets in the inner disk. On the face of the outer disk is marked a scale, *a*, which serves to adjust the inner disk in the desired position.

If, for instance, the mark 80 on the inner disk is brought to coincide with the mark 0 on the scale *a* (see Fig. 1) the radial hole *o* in the outer disk coincides with the screw-socket 80 in the inner disk, and by inserting a screw, *b*, Fig. 4, through the radial hole *o* into the screw-socket 80, the two disks are secured in the desired position.

When the mark 80 on the inner disk is turned to coincide with the mark 5 on the scale *a*, Fig. 2, the radial hole 5 coincides with the screw-socket 40, and the two disks can be secured in this position.

When the mark 80 on the inner disk is turned to coincide with the mark 7 on the scale *a*, Fig. 3, the screw *b*, on being inserted through the radial hole 7, meets the screw-socket 60 in the inner disk.

From these examples it will be readily seen that by means of the scale *a*, the radial holes in the outer disk, and the screw-sockets in the inner disk, my tumbler can be adjusted for one hundred different figures; and if two or more of my tumblers are combined, a very large number of combinations can be produced.

It is obvious that the number of radial holes in the outer disk and the number of screw-sockets in the inner disk may be increased or decreased; but I have selected the number indicated in the drawings, so as to make my tumbler easily understood with the aid of the ordinary decimal system.

I do not claim as my invention a tumbler composed of two disks, one working within the other, such not being my invention.

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

The combination, in a tumbler for combination-locks, of two disks, one working within the other, a number of radial holes in the outer and a corresponding number of radial screw-sockets in the inner disk, a series of marks or lines on the face of the inner disk, each mark corresponding in position to one

of the radial screw-sockets, a segmental scale marked on the outer disk near its inner edge, and a series of figures or characters marked on said outer disk, each figure or character corresponding in position to one of the radial holes in this disk, all constructed and operating substantially in the manner herein shown and described.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

JOSEPH LOCH. [L. S.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.