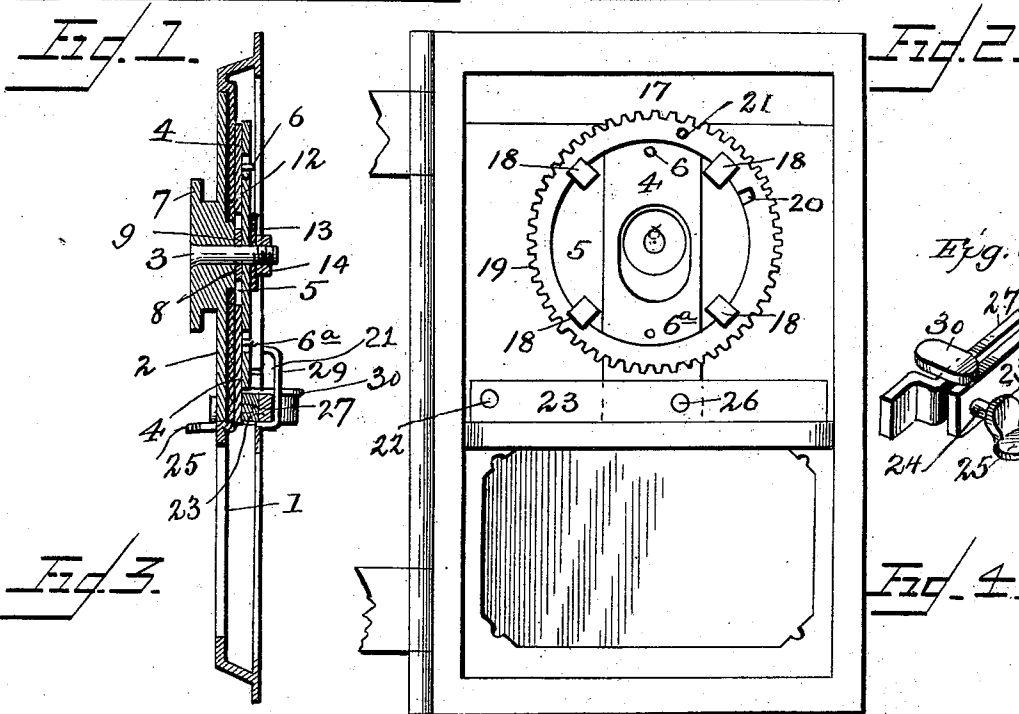
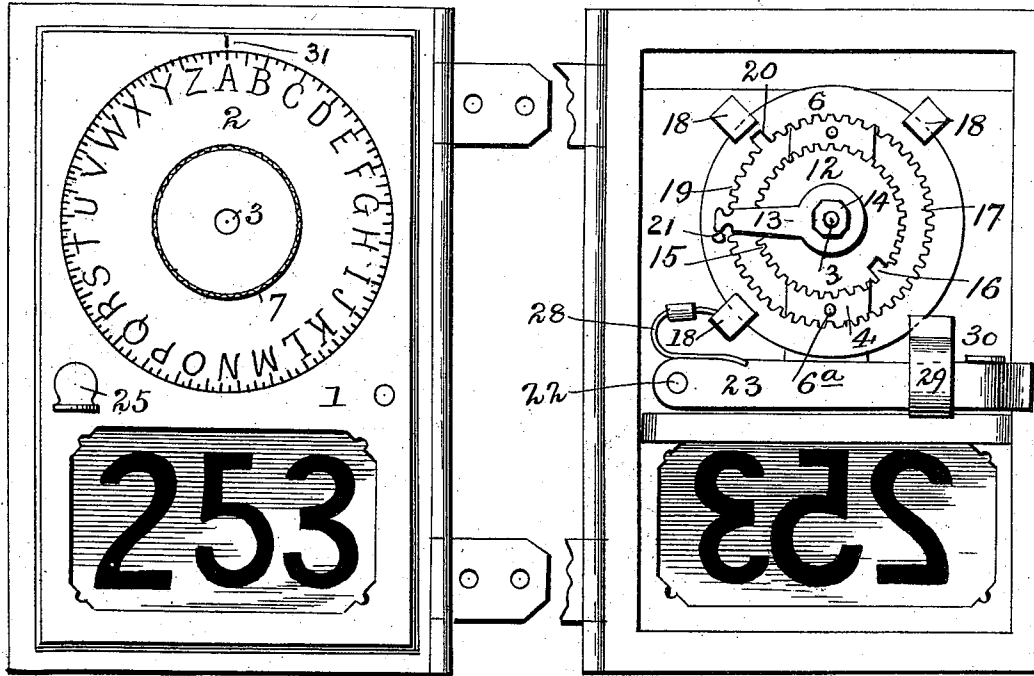


(No Model.)

T. D. MORRIS.
PERMUTATION LOCK.

No. 510,514.

Patented Dec. 12, 1893.



WITNESSES:
F. L. Ourand.
W. L. Coombs.

INVENTOR:
Thomas D. Morris,
G. Louis Rogers, Esq.
Attorneys.

UNITED STATES PATENT OFFICE.

THOMAS D. MORRIS, OF SEWARD, NEBRASKA.

PERMUTATION-LOCK.

SPECIFICATION forming part of Letters Patent No. 510,514, dated December 12, 1893.

Application filed February 6, 1893. Serial No. 461,186. (No model.)

To all whom it may concern:

Be it known that I, THOMAS D. MORRIS, a citizen of the United States, and a resident of Seward, in the county of Seward and State of Nebraska, have invented certain new and useful Improvements in Permutation-Locks; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in permutation locks, the object being to provide an improved construction, whereby I obtain superior advantages with respect to simplicity, economy, and efficiency in operation.

The invention consists in the novel construction and combination of parts, herein after fully described and claimed.

In the accompanying drawings: Figure 1 is a view of a door of a letter-box, with my improvements applied thereto. Fig. 2 is an inside view of the same. Fig. 3 is a central vertical section. Fig. 4 is an inside view, the spindle, the tumbler, and pivoted bolt being removed, and also showing a modification in the construction of the annulus or ring. Fig. 5 is a detail view of the locking bolt and lever.

In the said drawings the reference numeral 1, denotes the front casing of the lock, formed with an annular recess in which the dial 2 is seated, as usual. The dial is provided with a series of graduations or radial lines on its front face, marked with the letters of the alphabet or numbered in the ordinary manner. In the present case, letters are employed. Seated in a rectangular recess in the inner side of the lock case is a vertically reciprocating plate 4, having a slot 5, at or near its center, which registers with the aperture through which the spindle passes. This plate is provided with two aligned studs or pins 6 and 6^a, one above and the other below the slot 5. The spindle which also passes through said slot, at its outer end is provided with a milled head 7, by which it may be rotated. It is also provided with a hub 8, fitting in the aperture in the case, a washer 9, an intermediate tumbler 12, an arm 13, and a nut 14, which fits upon the end of the spindle which

is screw-threaded for that purpose. This nut serves to hold the arm and tumbler securely on the spindle and prevents rotation of the same. The periphery of the tumbler is formed with a series of teeth 15, corresponding with the graduations on the dial, and with a notch 16, with which the stud 6^a is adapted to engage.

Concentric with the tumbler and connected with the casing is an annulus or ring 17, which is held to the casing by means of cleats 18, but which allows the same to rotate. Upon one of its edges this ring is formed with teeth 19, also corresponding with the graduations of the dial, and with a notch 20, and a stud or pin 21.

Pivoted to a stud 22, at one side of the lock is a lever 23, which extends to the opposite side of the lock and is provided with a pin 24, extending through a slot in the casing and on the outside thereof is provided with a finger-hold 25. This lever is connected with the vertically sliding plate 4, by means of a pin 26. Also pivoted to the stud 22 is a bolt 27 extending across the lock and having its free end bent so as to engage with a catch (not shown) on the box case. The bolt or latch is provided with a spring 28, a guide 29, and a plate 30, against which the lever 23 strikes when actuated by the finger piece, and disengages the latch from the catch.

The operation will be readily understood. The combination is set by loosening the nut on the spindle and then turning the tumbler and annulus until the notches therein register with the studs or pins on the sliding plate. The nut is then screwed home so as to firmly secure the tumbler and arm on the spindle, so that they will rotate therewith. If the door be now closed the latch will strike and engage with the catch of the door frame and by turning the spindle 2 the tumbler and annulus will be rotated throwing the lock out of combination and the bolt will be prevented from being disengaged from its catch until the notches in the tumbler and annulus are again brought into alignment with the studs on the sliding plate.

To unlock the lock, supposing the combination to be set on the letters M and G the spindle is turned to the right until the letter M on the dial registers with the line or point 31. This will cause the arm 13 to strike the

pin 22 on the annulus and move the latter so that the notch therein will register with the upper stud on the plate 4. The spindle is then turned backward until the letter G comes opposite the mark 31, when the notch in the tumbler will register with the lower pin or stud on said plate. The lever 23 can then be actuated by the finger-hold or piece and the bolt disengaged from its catch.

10 In the modification shown in Fig. 4, the notch and teeth are shown upon the outer edge or periphery of the annulus and the cleats engaging with the inner edge thereof. This however, is immaterial as it is simply a
15 change of location. It is obvious also that the teeth on the tumbler and annulus may be dispensed with, without changing the character of the invention.

Having thus described my invention, what
20 I claim is—

1. In a permutation lock the combination with the casing having an aperture therein, the dial, the spindle to which the dial is secured, the tumbler connected with said spindle having a notch in its periphery and the
25 arm also connected with said spindle, of the sliding plate having a slot and aligned studs

or pins at opposite sides of the slot, the rotatable annulus having a notch in one edge and a pin or stud, and a bolt and operating lever, 30 substantially as described.

2. In a permutation lock the combination with the casing having an aperture therein, the dial, the spindle to which said dial is secured, the tumbler connected with the spindle having a notch in its periphery, and the
35 arm connected with said spindle, of the sliding plate having a slot and aligned studs or pins at opposite sides of the slots, the rotatable annulus having a notch in one edge and
40 a pin or stud, the pivoted lever pivotally connected with said sliding plate, and extending outside the lock case, and the pivoted spring actuated bolt or latch, having a plate against which said lever is adapted to strike, sub-
45 stantially as described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

THOMAS D. MORRIS.

Witnesses:

R. P. ANDERSON,
HEZEKIAH ELLIOTT.