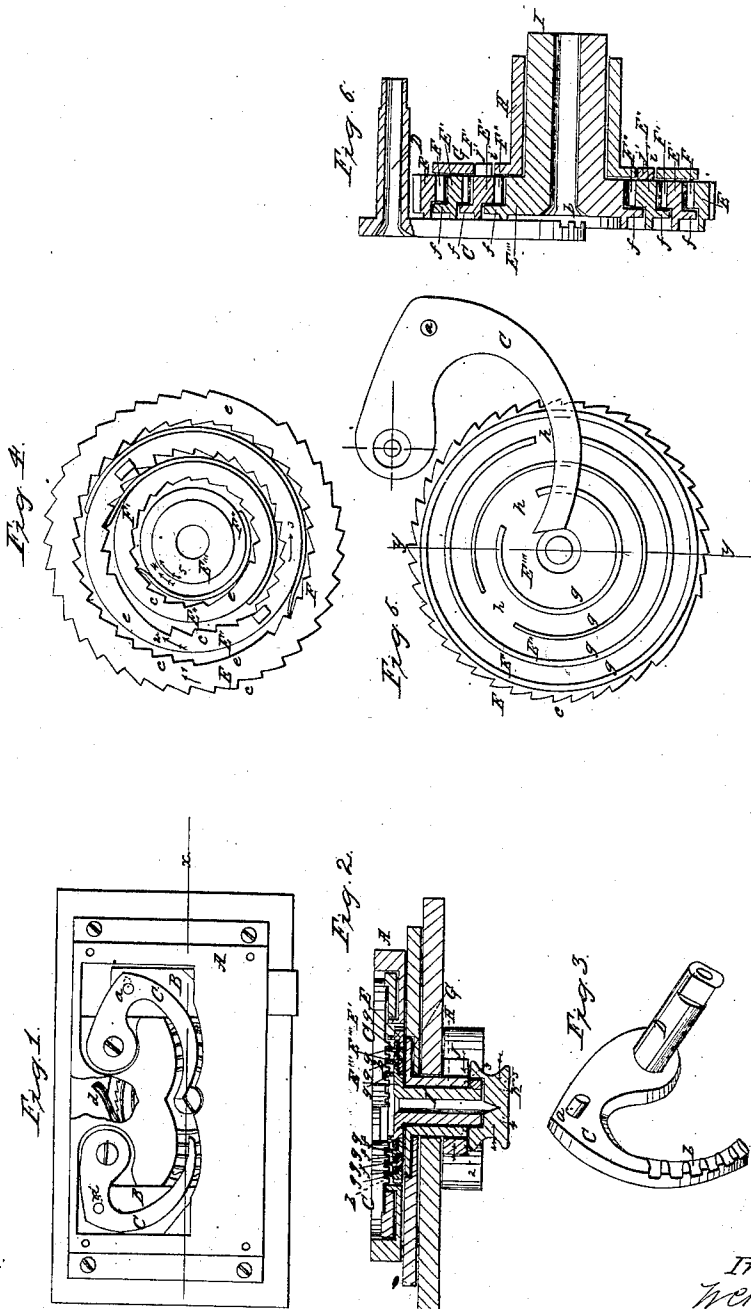


N. C. Bussey,
Permutation Lock.

N^o 49,712.

Patented Sep. 5, 1865.



Witnesses:
John Smith
Wm. Brown

Inventor:
N. C. Bussey
By [Signature]

UNITED STATES PATENT OFFICE.

WILLIAM C. BUSSEY, OF JACKSON, CALIFORNIA.

LOCK.

Specification forming part of Letters Patent No. 49,712, dated September 5, 1865.

To all whom it may concern:

Be it known that I, W. C. BUSSEY, of Jackson, in the county of Amador and State of California, have invented a new and Improved Burglar-Proof Lock; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a rear view of my invention; Fig. 2, a section of the same, taken in the line *xx*, Fig. 1; Fig. 3, a detached perspective view of one of the arms by which the bolts are moved; Fig. 4, an outer-face view of the ratchets by which the tumblers are adjusted; Fig. 5, an inner-face view of the same; Fig. 6, a section of Fig. 5, taken in the line *yy*.

Similar letters of reference indicate like parts.

This invention relates to a new and improved lock of that class in which a series of rotating annular tumblers are employed; and it consists in a novel arrangement of such tumblers in connection with arms (one or more) connected with one or more bolts, substantially as herein shown and described, whereby an extremely simple and efficient burglar-proof lock is obtained.

A represents the case of the lock, which may be of any suitable or desirable form, and containing, in the present instance, two bolts, B B, one of which is shown thrown out from case A to the position it occupies when the lock is in a locked state. These bolts are operated—thrown out and drawn into the case A—by means of arms C C, which are of curved form, as shown in Figs. 3 and 5, and have tubular arbors D at one end, which pass through the outer plate of the lock-case, and have knobs applied for the convenience of turning them, said arms being connected by pins *a* with the bolts B, the pin-holes in the bolts being somewhat oblong, in order to admit of the pins *a* making the necessary curvilinear movement from the arbors D as centers, and to operate or move the bolts. The dotted lines in Fig. 1 show the form of the pin-holes. The inner surfaces of the arms C C, at or near the ends which are opposite to those where the arbors

D are attached, are notched or grooved transversely, as shown at *b* in Fig. 3.

E E' E'' represent three rings, which are placed one within the other and allowed to turn freely. The outer ring, E, is provided with ratchet-teeth *c*, both at its outer and inner sides, (see Fig. 4,) while the other two rings are provided with ratchet-teeth *c'* at their inner sides only. The outer sides of the rings E' E'' have each a spring-pawl, F F', attached. The pawl F of the ring E' engages with the teeth *c* at the inner side of E, while the pawl F' of the ring E'' engages with the teeth *c'* at the inner side of the ring E'. Within the ring E'' there is a cylinder, E''', which has a spring-pawl, F'', attached to its periphery, said pawl engaging with the teeth *c'* at the inner side of the ring E''. The teeth of the ring E', it will be seen, have a reverse position to those of the ring E'', and the outer ring, E, is prevented from turning in one direction by means of a pawl, *d*, secured within the lock-case. Each set of teeth of the several rings is provided with a long tooth, *e*, the object of which will be presently explained.

The several rings E E' E'', as well as the cylinder E''', are provided with flanges *f*, to admit of the rings and cylinders forming an overlap with each, so that they will be kept in place, (see Fig. 6,) and the inner surfaces of the rings and cylinder are each provided with an annular ledge, *g*, said ledges forming tumblers. These ledges have each a break or recess, *h*, in them, as shown clearly in Fig. 5. These annular tumblers *g* fit in the notches *b* of the arms C C, through the medium of which the bolts B B are moved, and the ledges *g* prevent the movement of said arms and bolts. The only way in which the bolts can be moved is to turn the rings E E' E'' and cylinder E''' so that the several recesses *h* of the tumblers will be brought in line with each other and the arm C, and the latter may then be moved, and consequently the bolt connected with it. These tumblers are moved or adjusted so that one bolt may first be moved and then the other. Some locks may be constructed with one bolt only. Two, however, will make a more secure lock. The several rings E E' E'' and cylinder E''' are turned as follows: G is a circular plate, having two holes, *i i*, made in it to receive pro-

jections *jj* on the ring *E''*. This plate *G* has a hollow arbor, *H*, attached to it, which passes through the outer plate of the lock and encompasses a spindle, *I*, which is attached to cylinder *E'''*. The hollow arbor *H* is connected by a feather and groove with an annular knob, *J*, through which the spindle *I* of cylinder *E'''* passes, said spindle having a knob, *K*, secured to its outer end by a feather and groove. The ring *E* is turned in the direction indicated by arrow 1 by turning the arbor *H* in the direction of arrow 2, the pawl *F* of ring *E'* catching into the inner teeth of *E*. (See Fig. 4.) The ring *E'* is turned separately or without *E* by turning the arbor *H* in an opposite direction, as indicated by arrow 3. The spring *E''* is turned by turning the spindle *I* in the direction indicated by arrow 4, the pawl *F''* of cylinder *E'''* engaging with the teeth of ring *E''*, while the cylinder *E'''* is moved separately without *E''* by turning the spindle *A* in the opposite direction, as indicated by arrow 5. The large tooth of each ring or set of teeth is for the purpose of indicating the position of the several rings and turning them in the proper place, the click of the pawls, in passing over the short teeth, enabling the operator to adjust the rings properly, the number of clicks being counted from the large tooth.

The rings may be set and turned by figures or by the letters of the alphabet, or by words

Various modes may be devised for enabling the recesses *h* to be brought in line with each other, and I do not confine myself to any particular mode.

This arrangement admits of an indefinite number of changes being made. The lock at the same time may be constructed at a moderate cost.

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

1. The employment or use of a series of rings, *E E' E''*, and a cylinder, *E'''*, provided respectively with teeth and pawls, and also with annular tumblers *g*, to operate in connection with notched arms *C*, through which the bolts *B* are moved, substantially as and for the purpose set forth.

2. The peculiar construction of the arms *C*, applied to the bolts *B*, and arranged with the tumblers *g*, to operate in the manner substantially as and for the purpose set forth.

WILLIAM C. BUSSEY.

Witnesses:

J. G. HIGH,

W. E. TURNER.