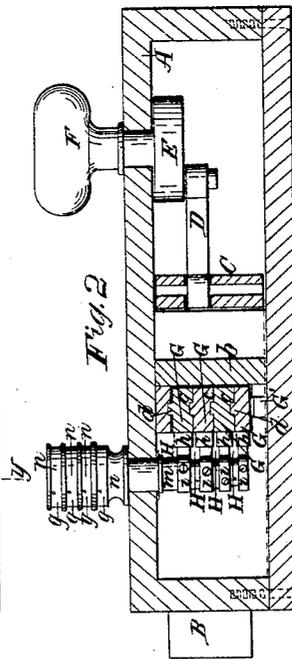
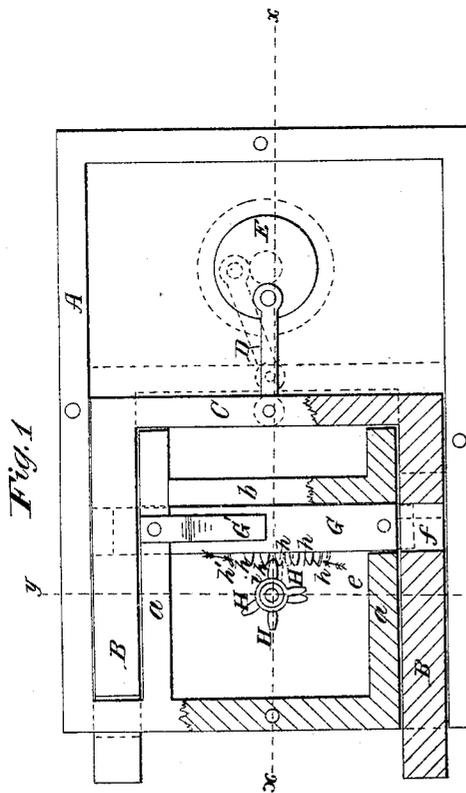
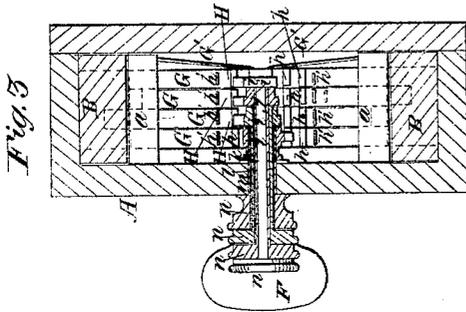


*J. A. Braden,
Permutation Lock.*

No 20,476.

Patented June 8, 1858.



UNITED STATES PATENT OFFICE.

JOSEPH A. BRADEN, OF LA GRANGE, GEORGIA.

IMPROVED LOCK.

Specification forming part of Letters Patent No. 20,476, dated June 8, 1858.

To all whom it may concern:

Be it known that I, JOSEPH A. BRADEN, of La Grange, in the county of Troup and State of Georgia, have invented a new and Improved Lock; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is an internal view of a lock constructed according to my invention. Fig. 2 is a horizontal section of the same, taken in the line *x x*, Fig. 1. Fig. 3 is a transverse section of the same, taken in the line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in the employment or use of a series of slides provided with teeth or racks and arranged relatively, as hereinafter shown, with a bifurcated bolt into the parts of which the ends of the slides work or pass, the above parts being used in connection with a series of bits attached to separate arbors placed one within the other and operated by means of keys or knobs, the whole being constructed and arranged as hereinafter shown, whereby the lock is rendered unpickable and at the same time perfectly simple in construction and not liable to get out of repair.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents the case of the lock, which is constructed of metal in the usual quadrilateral form. The bolt is formed of two bars B B, and is consequently a bifurcated or double bolt, the two bars B B being connected at their inner ends by a bar C. The bar C is connected by a rod D to a crank-pulley E on the end of the shank of the knob F. By this means the bars B B are moved in and out by turning the knob. The bars B B work one at the upper and the other at the lower end of the case A and between the top and bottom plates of the case and longitudinal plates *a a*. (See Figs. 1 and 3.) The inner ends of the plates *a a* are connected by a bar *b*.

G represents a series of slides which are placed one over the other and fitted together, as shown clearly in Fig. 2, each slide having a longitudinal recess *c* made in it at one side at its center and a longitudinal ledge or pro-

jection *d* at the opposite side, the ledge or projection of one slide fitting in the recess of its adjoining one. The ends of the slides G pass through openings *e* in the plates *a a*. Corresponding openings *f* are made in the bars B B, said openings *f*, when the bars are thrown outward, registering with the openings *e* in the plates *a a*. (See Fig. 1, in which one of the bars B and plates *a* are bisected vertically and longitudinally.) The slides G are made of such a length that when adjusted centrally with the case their ends will be flush with the outer edges of the openings *e* in the plates *a a*. On the outer surface of the outer slide G springs G' bear to keep the slides in proper place.

To the front side of each slide G a series of teeth *h* are attached. Five teeth *h* are shown. In addition to the teeth *h* on each slide there are two yielding or elastic teeth *h' h'*. These yielding teeth are placed one at each end of the teeth *h*, as shown clearly in Fig. 1. These teeth *h'* are so constructed that each will yield or give in one direction only, as indicated by the arrows, said teeth being perfectly rigid in the opposite direction.

H represents a series of bits which are attached to bosses *i*. These bosses are each attached to arbors *j k l m*, which are fitted one within the other, as shown clearly in Fig. 3, each arbor being allowed to turn independently of the others. Each arbor passes through the outer plate of the lock, and each is provided at its outer end with a knob or thumb-wheel *n*. The bits H are so placed that one will be opposite each slide G, and the bits are placed at such a distance from the teeth *h* of the slides that the bits will gear into them and move the slides as the bits are turned.

The bars B when shoved outward from the case A are retained in that state by the slides G, which are moved promiscuously, so that their ends will project into the openings *f* of the bars, some of the slides fitting in one bar and some in the other, and in order to shut the bars back into the case A the slides G must all be so moved that their ends will be flush with the outer edges of the openings *e* in the plates *a a*. This is effected by having a mark *g* on each knob or wheel *n* coinciding with the position of its bit H, and then when the lock is locked the person must note the

movement he gives each slide by counting the turns of the knob or wheel n , through which it was moved, or an index-plate may be attached to the outer plate of the lock in order that the position of each slide may be noted by the person who locks the lock. This being done, the same person of course can move the slides in proper positions, so as to liberate the bars B, and therefore allow them to be moved back by turning the knob F. The elastic teeth h' are to prevent the bits H being stopped when the slides have been moved the full extent of their movement in one direction, the teeth h' yielding to the action of the bits. When, however, the bits act upon the teeth in the opposite direction—that is, the direction in which the slides can move—the teeth h' will not yield or give and the slides will be moved, the teeth h' acting in the latter case as stationary teeth. By means of the yielding cogs the positions of the slides are prevented from being discovered or being tampered with, the bits being al-

lowed to turn completely around any number of times.

I would remark that one or more series of slides G may be used, and the lock therefore may be made as complex as desired and placed entirely beyond the reach of burglars. I would also remark that the slides G may be arranged in any proper way, so as to prevent them from getting out of proper position.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The slides G, placed relatively with the bars B B, as shown, and provided with the stationary teeth h and yielding teeth h' , in combination with the bits H, placed on separate arbors and arranged to operate as and for the purpose set forth.

JOSEPH A. BRADEN.

Witnesses:

O. S. MAFFETT,

HENRY O. STANLEY.