2 Sheets—Sheet 1.

P. SHELLENBACK.

COMBINATION LOCK.

No. 190,088. Patented April 24, 1877.

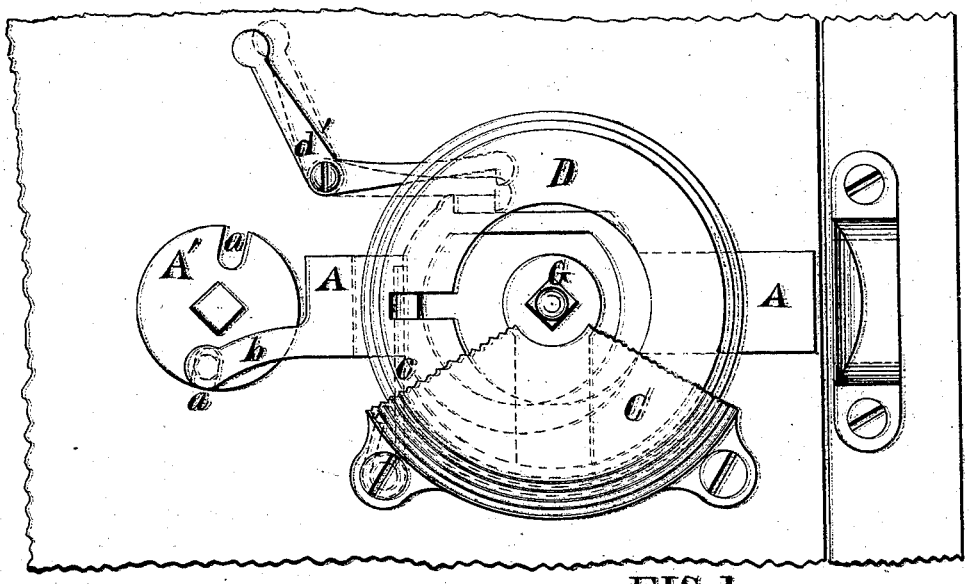


FIG. 1.

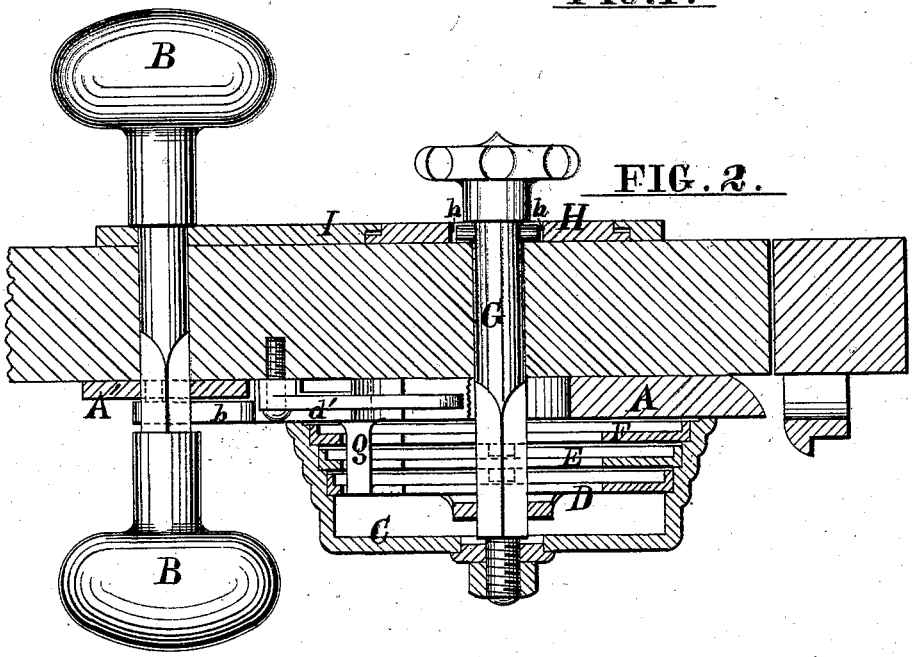


FIG. 2.

WITNESSES.

Jas. L. Norris.

Robt. C. McKinney.

INVENTOR.

Peter Shellenback.

2 Sheets—Sheet 2.

P. SHELLENBACK.

COMBINATION LOCK.

No. 190,088. Patented April 24, 1877.

FIG. 3.

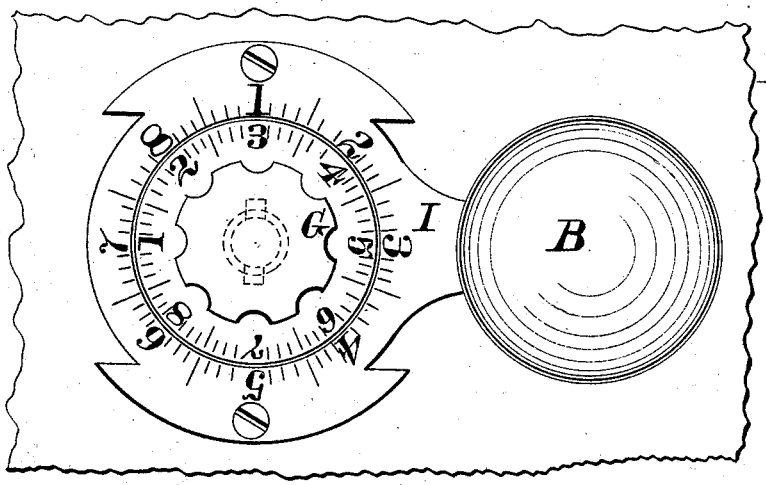


FIG. 7.

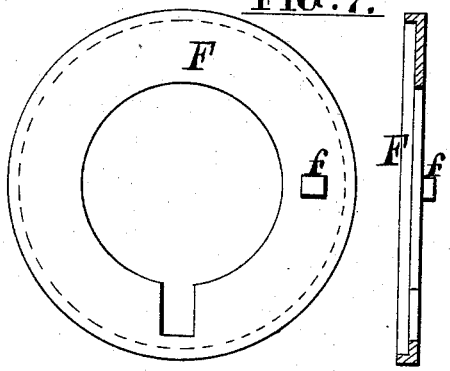
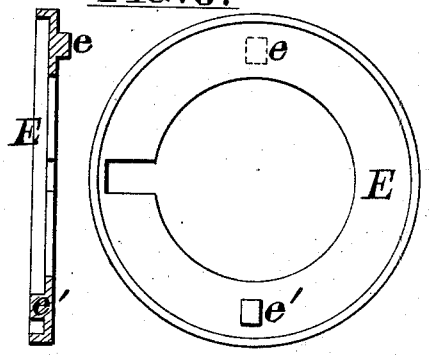


FIG. 6.



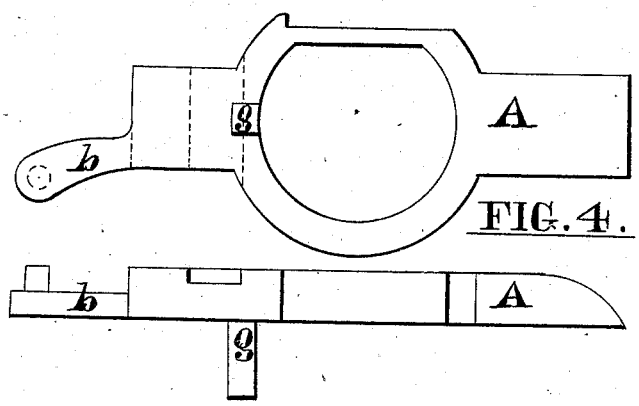


FIG. 4.

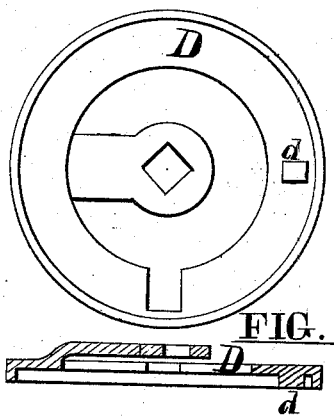


FIG. 5.

WITNESSES.

E. E. Moore

Robt. C. McKinney

INVENTOR.

Peter Shellenback.

UNITED STATES PATENT OFFICE.

PETER SHELLENBACK, OF HAMILTON, OHIO, ASSIGNOR TO JOSEPH A. MORRIS AND WILLIAM E. DRAYER, OF SAME PLACE.

IMPROVEMENT IN COMBINATION-LOCKS.

Specification forming part of Letters Patent No. **190,088**, dated April 24, 1877; application filed June 3, 1876.

To all whom it may concern:

Be it known that I, PETER SHELLENBACK, of the city of Hamilton, county of Butler and State of Ohio, have invented certain new and useful Improvements in Combination-Locks; and I declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to a form of combination-lock applicable to house-doors or similar purposes. It consists of a series of slotted rings, which are operated by a small knob and spindle, by means of which they are brought into position to permit the drawing of the bolt. The proper position of the rings is indicated by suitable marks upon a dial-plate, and corresponding marks upon the knob which operates the rings. The bolt has a rectangular motion, and is operated by a secondary spindle.

My invention consists, secondly, in the use of a catch by means of which the outward movement of the bolt may be limited, so that the position of the rings will remain unchanged, and the door may be opened and closed as with an ordinary lock.

Figure 1 of the drawings is a rear elevation of the lock with the case partly removed. Fig. 2 is a sectional plan, showing the rings in position for operating the bolt. Fig. 3 is a front elevation, showing the dial and plate by means of which the various combinations are indicated. Figs. 4, 5, 6, and 7 show the rings and bolt in detail.

A is the bolt, and B B are the knobs for moving it. Upon the knob-spindle is a disk, A′, having notches *a a*, into one of which a pin upon the arm *b* of the bolt extends, and by means of which the bolt is reciprocated. C is the case, inclosing the rings D, E, and F, each of which has a separate bearing in the case, and each has a notch into which the tongue *g*, upon the bolt A, must enter, to allow the latter to be drawn back. The ring D has a piece extending to the center, having a square opening through which the spindle G passes, and by means of which the ring is turned. The ring D has a pin, *d*, on its upper side, which moves the ring E by contact with a pin on it, and this ring E, in turn, moves the ring F in a similar manner. H is a movable dial, and I a dial-plate, forming an index by means of which the combination is set. A pin through the spindle G enters a slot, *h*, in the movable dial, causing the dial to revolve with the spindle. A number of slots, similar to *h*, should be made in the dial, in order to increase the number of combinations that may be formed. A spring, *c*, is provided to hold the bolt forward. A catch, *d′*, is arranged to preserve the combination, when desired. At its end is a small hook, which, when placed in the position shown in dotted lines, acts as a stop, against which a projection on the bolt comes in contact, so that, while permitting the bolt to be reciprocated, it cannot be moved far enough to draw the tongue *g* out of the notches in the rings.

A dial, H, and plate I may be placed on the inner side of the door, or an opening may be made in the case C, so that the rings may be seen, and upon them marks may be made to indicate when they are in proper position for drawing the bolt.

The operation of the lock is as follows: The parts being in the proper position for operating the bolt, as shown in Fig. 2, a key may be arranged for resetting the rings, after they have been thrown out of position, by drawing the spindle G back, so that the pin which passes through it will be drawn out of the slot *h*. The dial H may then be turned until any figure or letter upon it will coincide with any figure or letter upon the plate I. These letters will then form the key by means of which the rings may be reset. Each time the dial H is thus turned its position relative to the position of the rings will be changed, hence forming a different combination. The slots *h*, made in the dial H, will admit of its being placed in four different positions. The bolt being thrown forward, the rings are placed out of position by turning the spindle G a few times in either direction.

We will suppose the figure 3 on the dial, and the third division to the right of 1 on the plate I, or $1\frac{3}{8}$—the divisions being eighths. To unlock the door, turn the dial H by means of the knob and spindle G, until the figure 3

on the dial coincides with the third division to the left of the one selected for the key on the plate I—in this case the figure 1. Then turn the dial H entirely round once, until 3 on the dial and 1 on the plate again coincide. This revolution causes the pin *d* on the ring D to come in contact with the pin *e* upon the ring E, and the pin *e'* on the ring E comes in contact with the pin *f* on the ring F, turning the ring F until it is brought into proper position. Then turn the dial H to the left one complete revolution, and on until 3 on the dial coincides with $5\frac{5}{8}$ on the plate I. This motion will place the ring E in proper position. Then turn the dial back to the right until 3 on the dial coincides with the division on the plate forming the key $1\frac{3}{8}$. This will place the ring D in position. The rings are now all in position, so that the tongue *g* may enter the notches, allowing the bolt to be drawn back.

Such being the construction and operation of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the bolt A with the tongue *g*, the notched rings D E F, and the catch *d'*, for limiting the outward movement of the bolt, substantially as shown and described.

2. The combination of the bolt A, knobs and spindle B B, disk A', case C, rings D E F, knob and spindle G, movable dial H, and dial-plate I, constructed and arranged to form a combination-lock, and operating in the manner substantially as described.

PETER SHELLENBACK.

Witnesses:
E. E. MOORE,
ROBT. C. MCKINNEY.