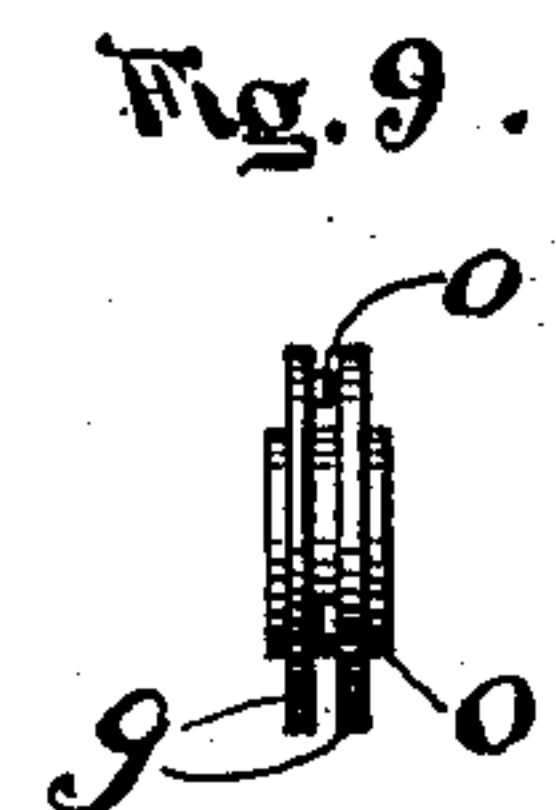
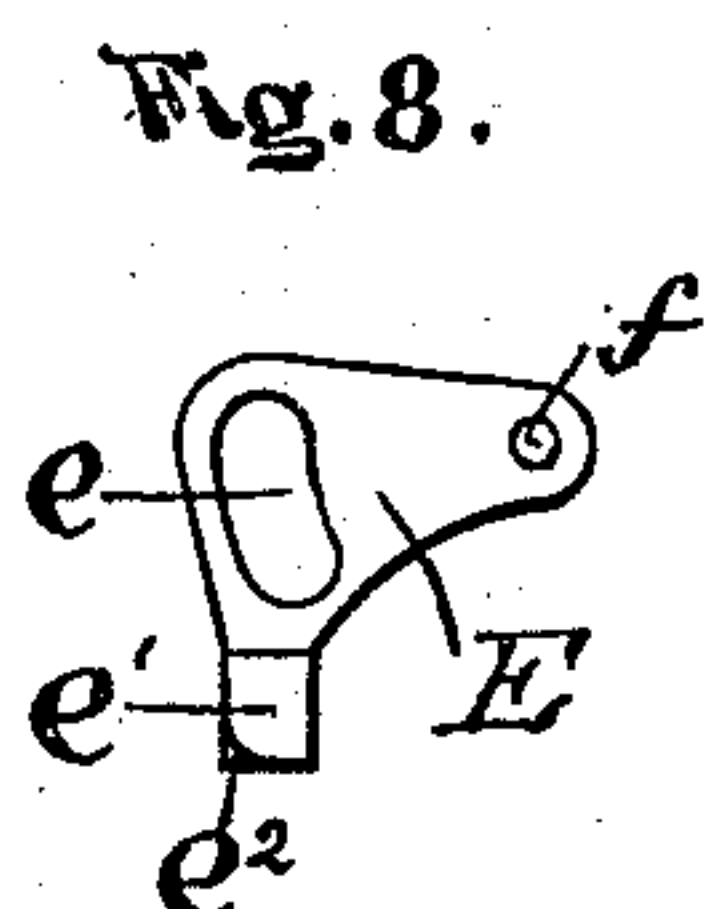
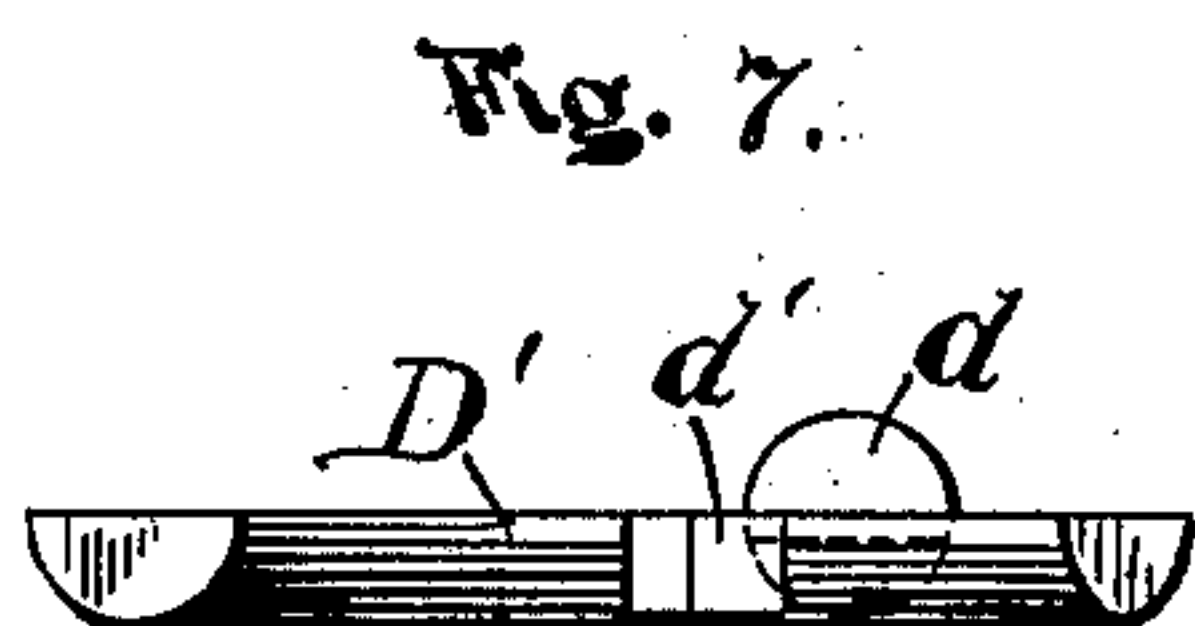
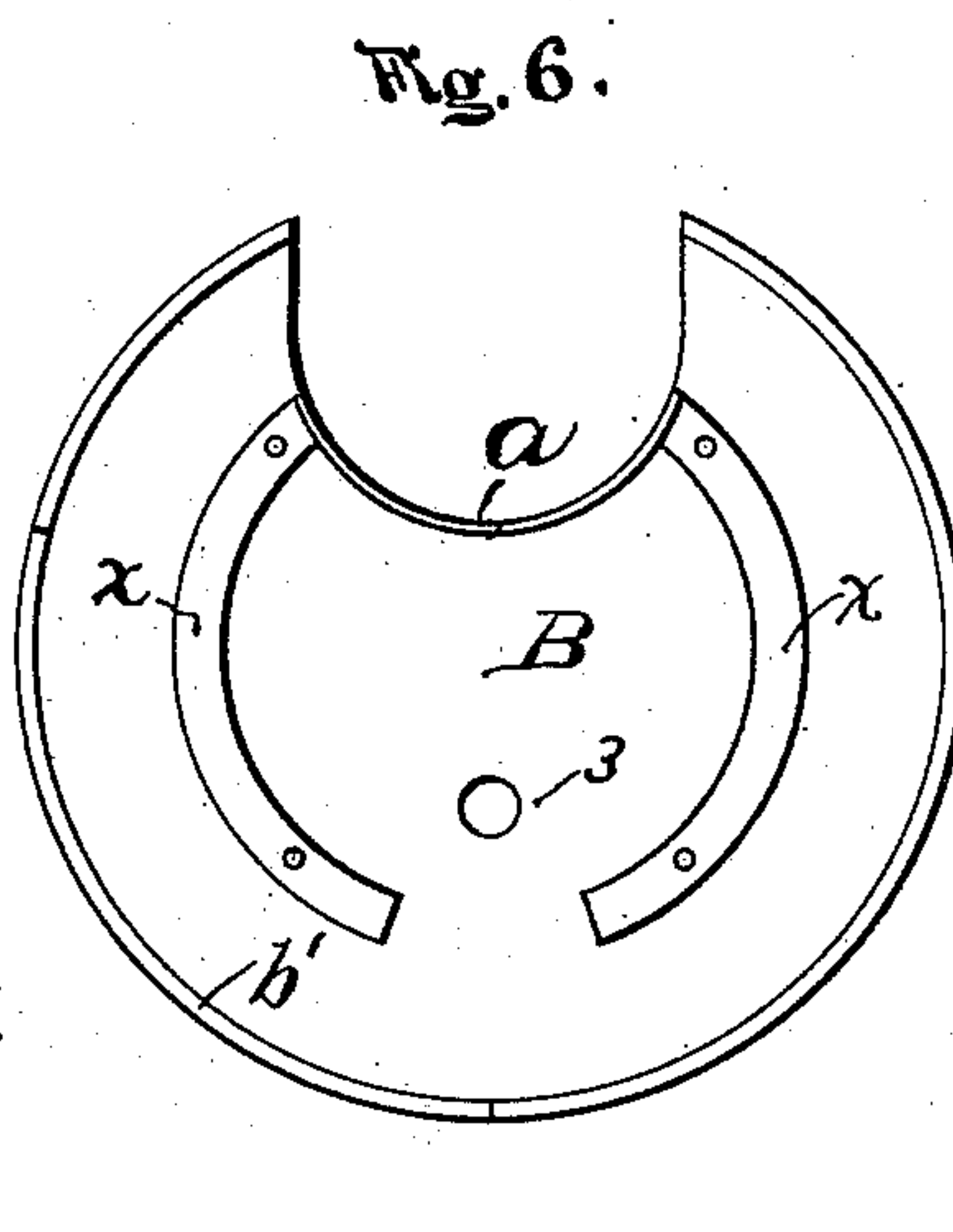
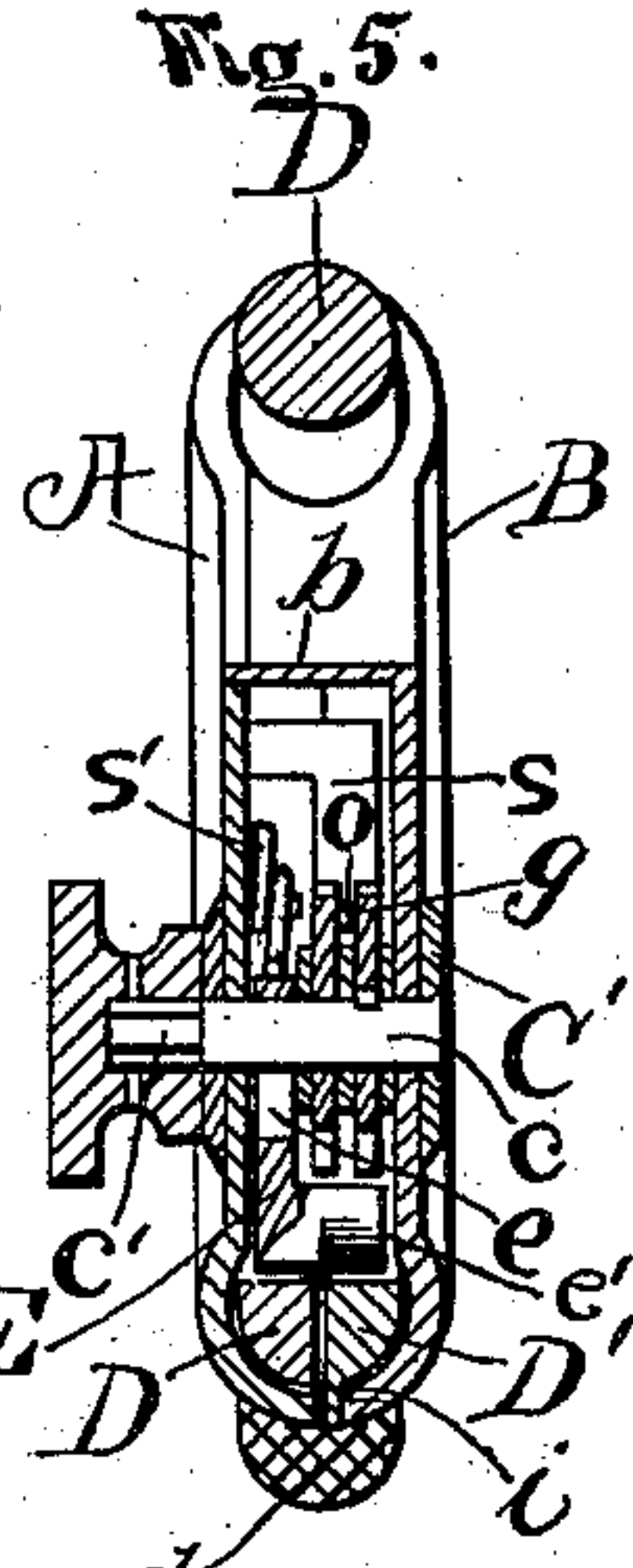
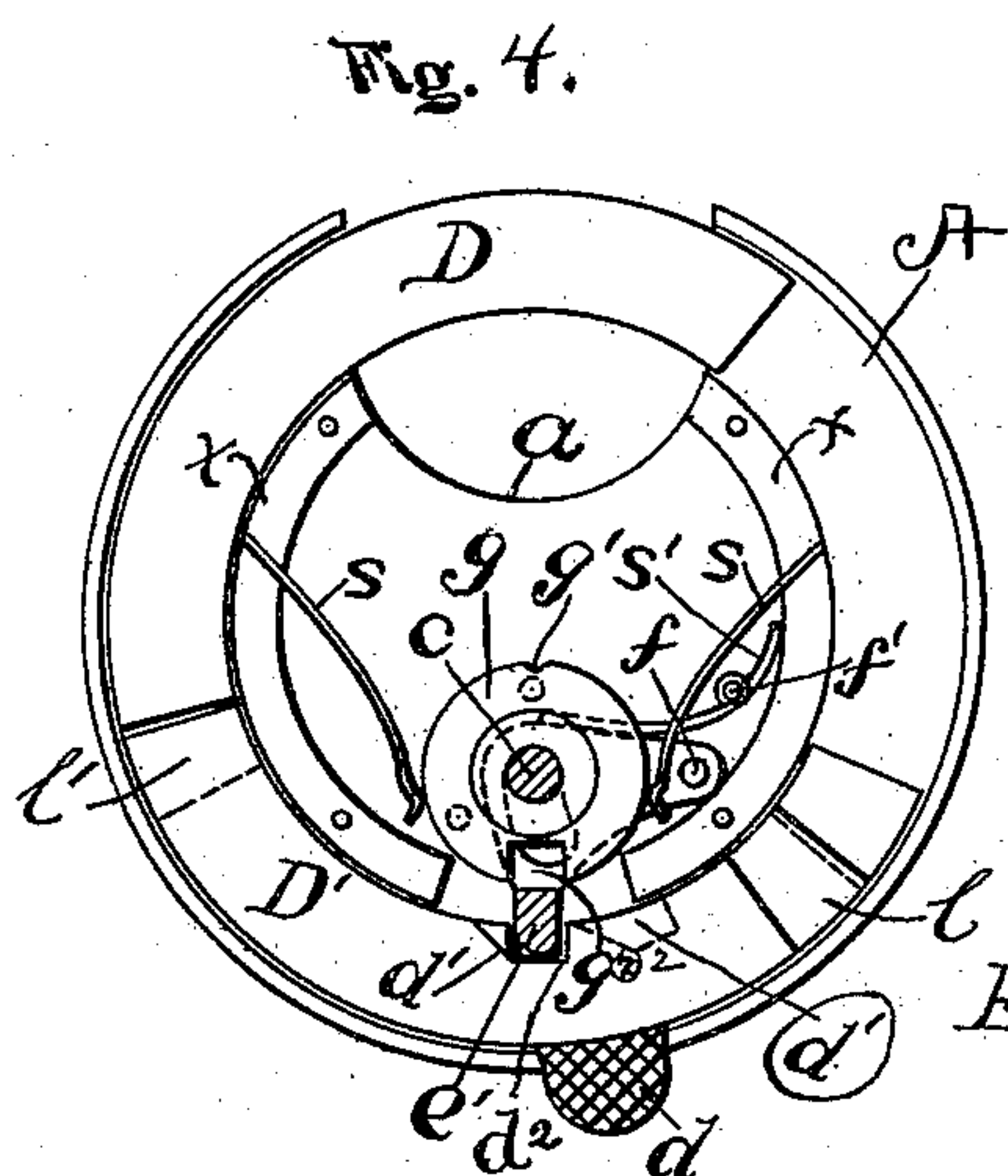
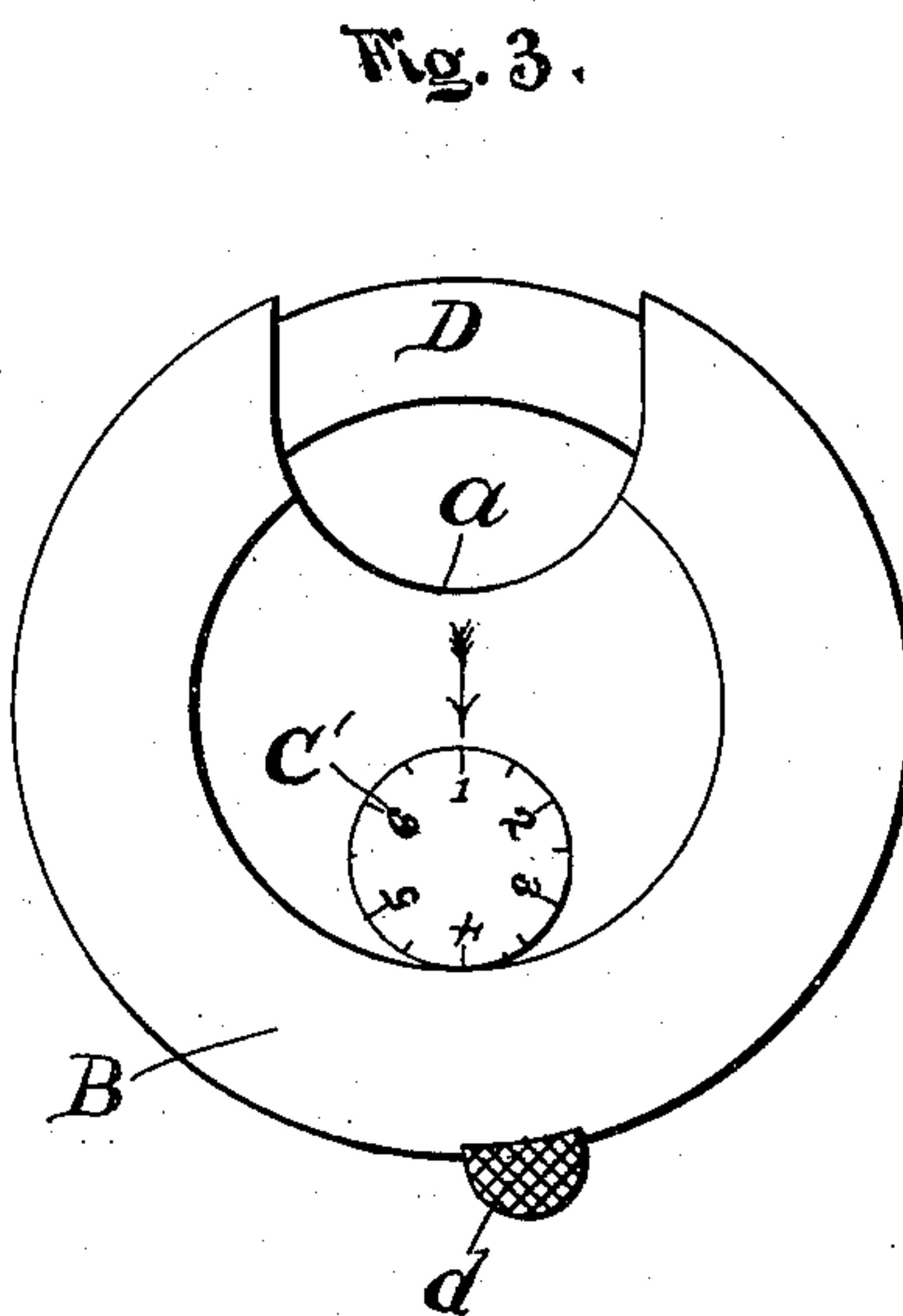
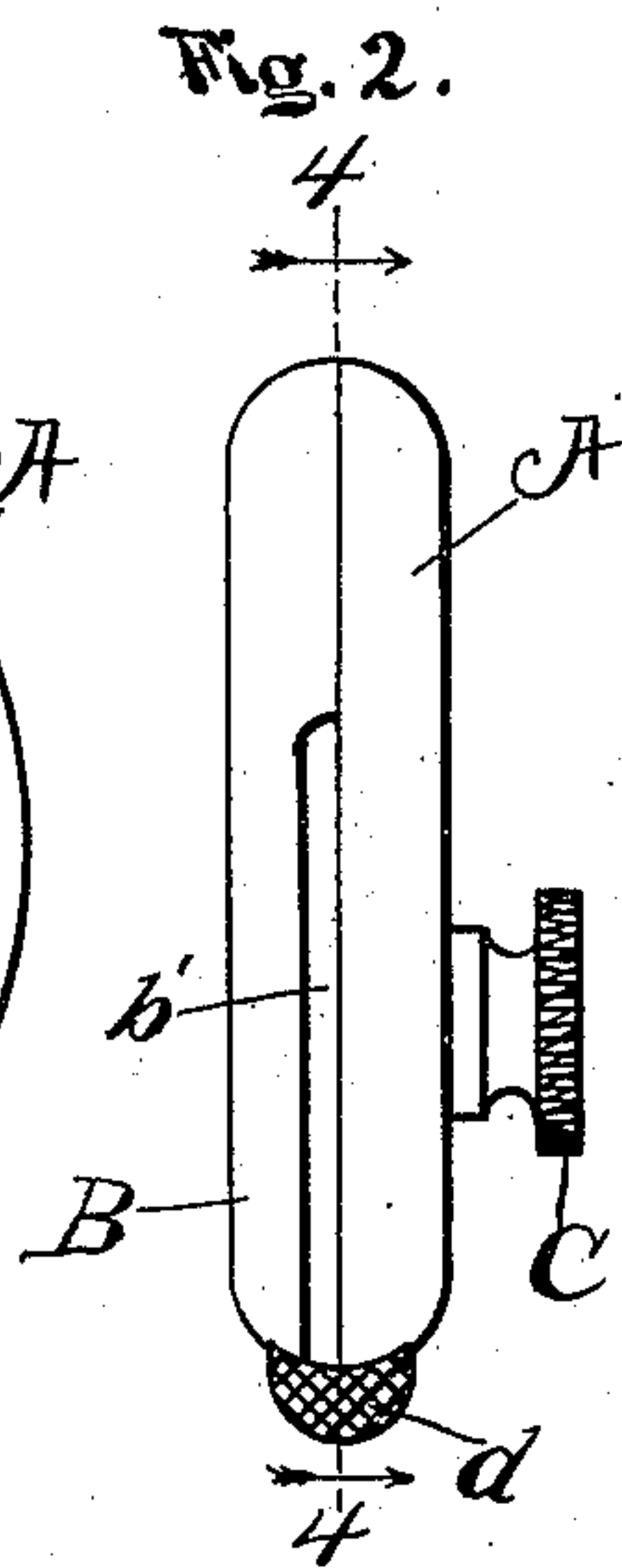
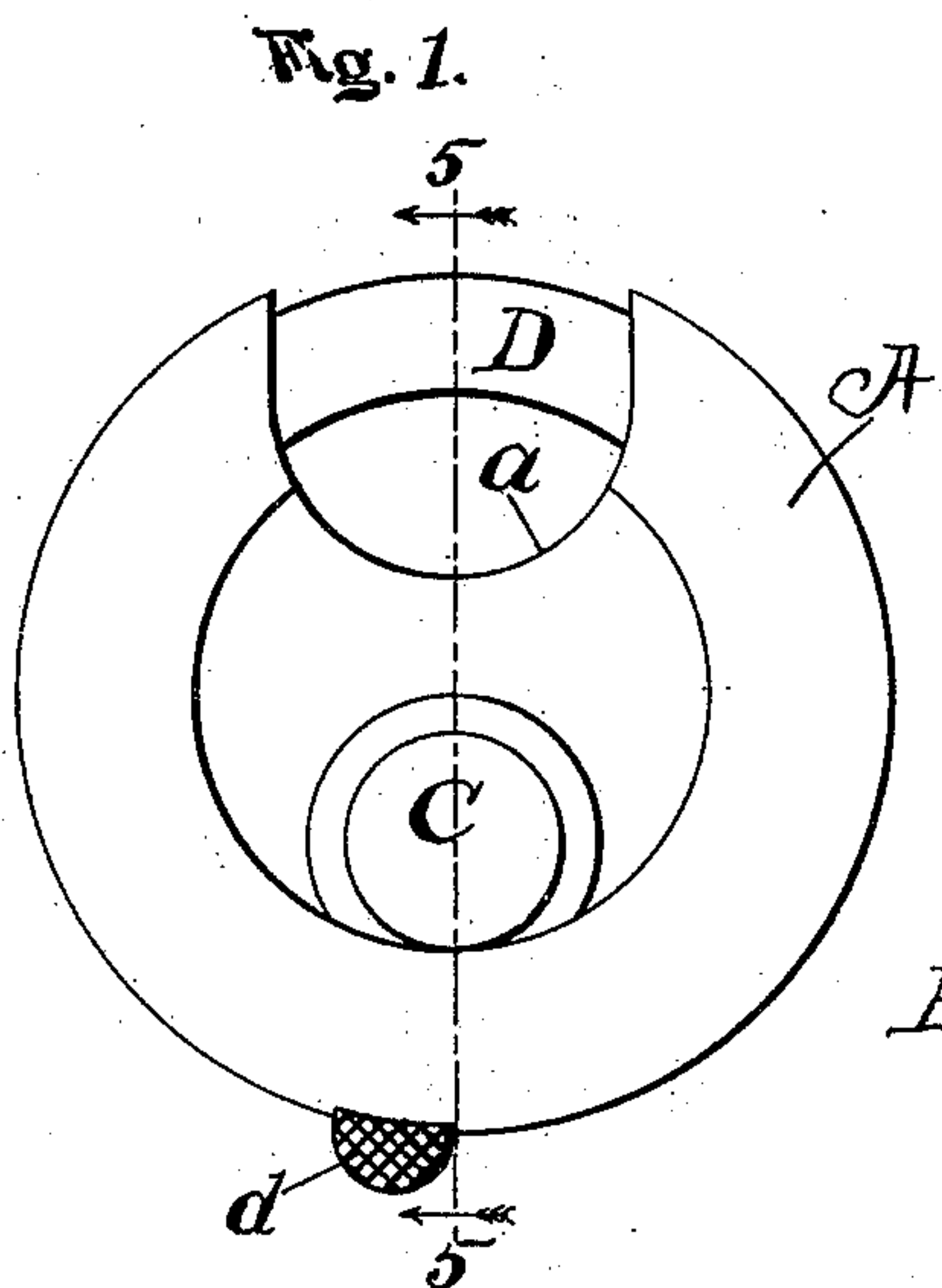


(No Model.)

I. M. JOHNSON.
PERMUTATION PADLOCK.

No. 596,596.

Patented Jan. 4, 1898.



Witnesses:

E. G. Acker.
Louise Johnson

Inventor.

Thos. M. Johnson

By C. A. Bishop

Att'y.

UNITED STATES PATENT OFFICE.

ITHUEL M. JOHNSON, OF CHICAGO, ILLINOIS.

PERMUTATION-PADLOCK.

SPECIFICATION forming part of Letters Patent No. 596,596, dated January 4, 1898.

Application filed March 5, 1897. Serial No. 626,087. (No model.)

To all whom it may concern:

Be it known that I, ITHUEL M. JOHNSON, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented a new and useful Improvement in Permutation-Padlocks, of which the following is a specification.

My invention relates to a class of keyless locks in which the locking mechanism consists of an arrangement of movable parts hidden from view and operated by a knob and numbered dial from the outside, the operator remembering the combination of figures upon which the lock is set to open.

The object of my improvement is to provide a simple easily-operated lock. As in former locks, the knob is set on the figured dial, so that the thumb and fingers hide the figures from view, making it difficult to see them. With my improvement the dial is on one side and the knob on the other. I attain these objects by a mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side view showing the reverse side of the case, showing the knob and locking-bolt as it appears when locked. Fig. 3 is an obverse side view showing the dial and thumb-knob d . Fig. 2 is a perpendicular edge view showing the slot b' and thumb-knob d . Fig. 4 is a view of the lock with the obverse case removed, showing the interior working parts. Fig. 5 is a vertical sectional view on line 5 5, Fig. 1, showing all parts. Fig. 6 is an inside view of the obverse side of case. Fig. 7 is a horizontal view of the operating-bar D' , showing the notch d' and thumb-knob d . Fig. 8 is a front view of the tumbler and locking-pawl e' . Fig. 9 is a view of the disks, showing the interfering pins O .

Similar letters and figures refer to similar parts throughout the several views.

The casing $A B$ may be made of any suitable metal and is constructed in two sections, circular in form, divided in halves (see Figs. 2, 4, and 4) parallel with its plane. A half-round groove is formed in each half around its circumference. The outer edge of said groove is raised up somewhat higher (shown at i , Fig. 5) than the inner edge, leaving a half-round groove in the circumference and a flat surface in the center, providing a hollow space

for the mechanism when the two parts are placed together. I then cut a notch a in the edge radially, the bottom curved, and the sides parallel.

The bolt D is made round, of the size to fit the groove, and is bent to conform to the said groove. About three-quarters of the circumference of the groove in length, beginning a quarter of an inch from right-hand end, the bolt is cut away at $l l'$, Fig. 4, for a quarter of its length and half its thickness on a plane coincident with the circumference, leaving a flat surface. A square notch d^2 is then cut on the inner edge of the bolt. A half-round piece of the same diameter as the bolt D' , Fig. 7, bent to conform to the circle of the bolt, is then fitted to the flat surface and made one-quarter inch shorter than the cut space on said bolt, with left-hand end resting against the shoulder on the bolt, leaving a space at the other end. A notch d' is then cut in it, corresponding with the notch in the bolt d^2 . The notch in this operating-bar D' is cut with one corner square and the other one is cut on a bevel d' , Fig. 4, inclining toward the longer part, forming a wedge or cam. A thumb-knob d is fixed on the outer edge of said bar opposite to the notch, completing the bolt D . The bolt is now placed in the groove in the obverse half of case, with operating-bar on top, as seen in Fig. 4. A tumbler E , L-shaped, is pivoted to the lower half of case at f and is provided with a curved slot e in the shorter arm. To the lower part of the shorter arm a pawl e' is fixed, with three square corners and one round, e^2 , Fig. 8. At right angle to the plane of said tumbler a spring S' is fixed to the case f' , pressing downward against the upper edge of said tumbler. Holes are made in the upper and lower case near the center, acting as bearings for a spindle. (See 3, Fig. 6.) The spindle c is provided with a flat dial C' , with figures or letters thereon fixed at one end. The opposite end has a thread cut thereon to receive the actuating-knob C . The spindle is placed through the hole in the case and the curved slot in the tumbler. A disk g , having a radially-cut square notch g^2 in its edge, is fixed to the spindle, resting on the tumbler. Then a small washer is placed on the spindle against the disk. Then an-

other disk, provided with a square notch g^2 on one edge and a V-shaped notch g' , Fig. 4, on the opposite edge, with a short pin o , Fig. 9, in its face, is placed loosely on the spindle.

5 Two springs S are fixed to each side of the case near the groove. Said springs are provided with V-shaped projections at the point where they rest against the disk on each side. (See Fig. 4.)

10 The object of the V-shaped notch and V projections on the springs are to deceive any one who tries to discover the combination by the sense of feeling when turning the knob and to prevent the loose disk from moving
15 except when acted upon by the interfering pins O .

The obverse half of case B has a portion of the rim cut away at b' , Figs. 2 to 6, in such a manner as will form a slot in the side, as seen
20 at Fig. 2, beginning near the place where the thumb-knob protrudes.

The curved pieces XX are bearings through which the rivets are placed to hold the lock together.

25 Place the upper half of the case on top of the works as they now lie, with the spindle through the bearing prepared for it, screw the thumb-knob on, then rivet the case together at convenient places, and the lock is ready
30 for use.

To operate the lock, turn the dial side of the lock toward your face. Then turn the knob to the right one turn until the first figure upon which the lock is set comes opposite to
35 the arrow-point on the case. Then turn to the left until the second figure comes to the arrow-point. Then push the thumb-knob connected with the operating-bar along the slot. The beveled notch in the bar will act as a cam as
40 the bar slides back along the flat surface to the position shown by the broken lines in Fig. 4 and force the locking-pawl out of the notch in the bolt and at the same time move the bolt around in the groove, leaving the lock
45 open.

To close the lock, reverse the operation, and when the notches in the bolt and bar come together the spring S' on the tumbler will force the locking-pawl into the notches. Then

turn the knob once around to waste the combination. 50

Having described my invention, I am aware that permutation-locks are not new, and I do not claim the permuting-disks nor the knob-controlled spindle, broadly. Neither do I
55 wish to confine myself to two disks, as three or four may be used.

What I claim, and wish to secure by Letters Patent, is—

In a permutation-padlock, the bolt with a
60 square notch cut in its inner side near the lower end, one-half of said bolt being cut away longitudinally one-quarter of its length leaving a small part uncut at the lower end,
65 the operating-block half-round bent to conform to the shape of said bolt provided with a notch cut in the inner edge near the lower end, the lower corner of said notch left square, the other cut at an angle, the thumb-knob
70 fixed to the outer edge of said block opposite to the notch, the L-shaped tumbler pivoted to the case provided with a curved slot in the shorter arm cut on an arc described from the pivot, a pawl fixed to the lower end of said
75 arm adapted to engage the notches in said bolt and block, the spring f , having one end fixed to the case the other end bearing along the upper edge of said tumbler, in combination with the circular inclosing case, permut-
80 ing-disks, said disks provided with radially-cut square notches in the edges, and V-shaped indentures also in the edges of said disks opposite to the square notches, the two springs fixed to the case adapted to engage the V-
85 shaped indentures, the disks actuated by a knob-controlled spindle placed in the center of the case at right angle with the plane of case extending through the slot in the tumbler and both sides of the case, a knob fixed to
90 one end of said spindle, a dial provided with figures or letters, fixed to the opposite end adapted to rotate with said knob and spindle, substantially as described.

ITHUEL M. JOHNSON.

Witnesses:

LOUISE JOHNSON,
M. E. GREGG.