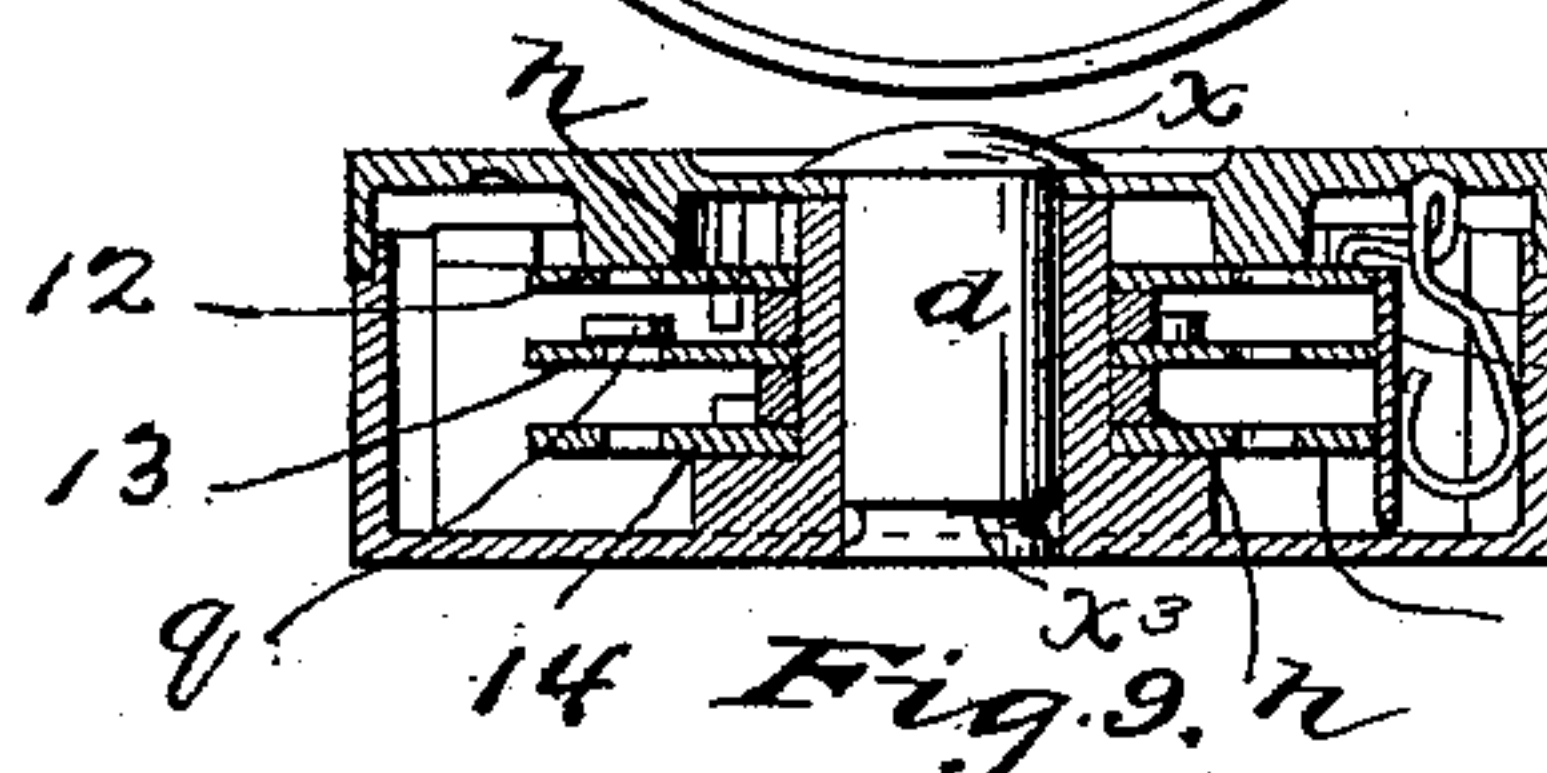
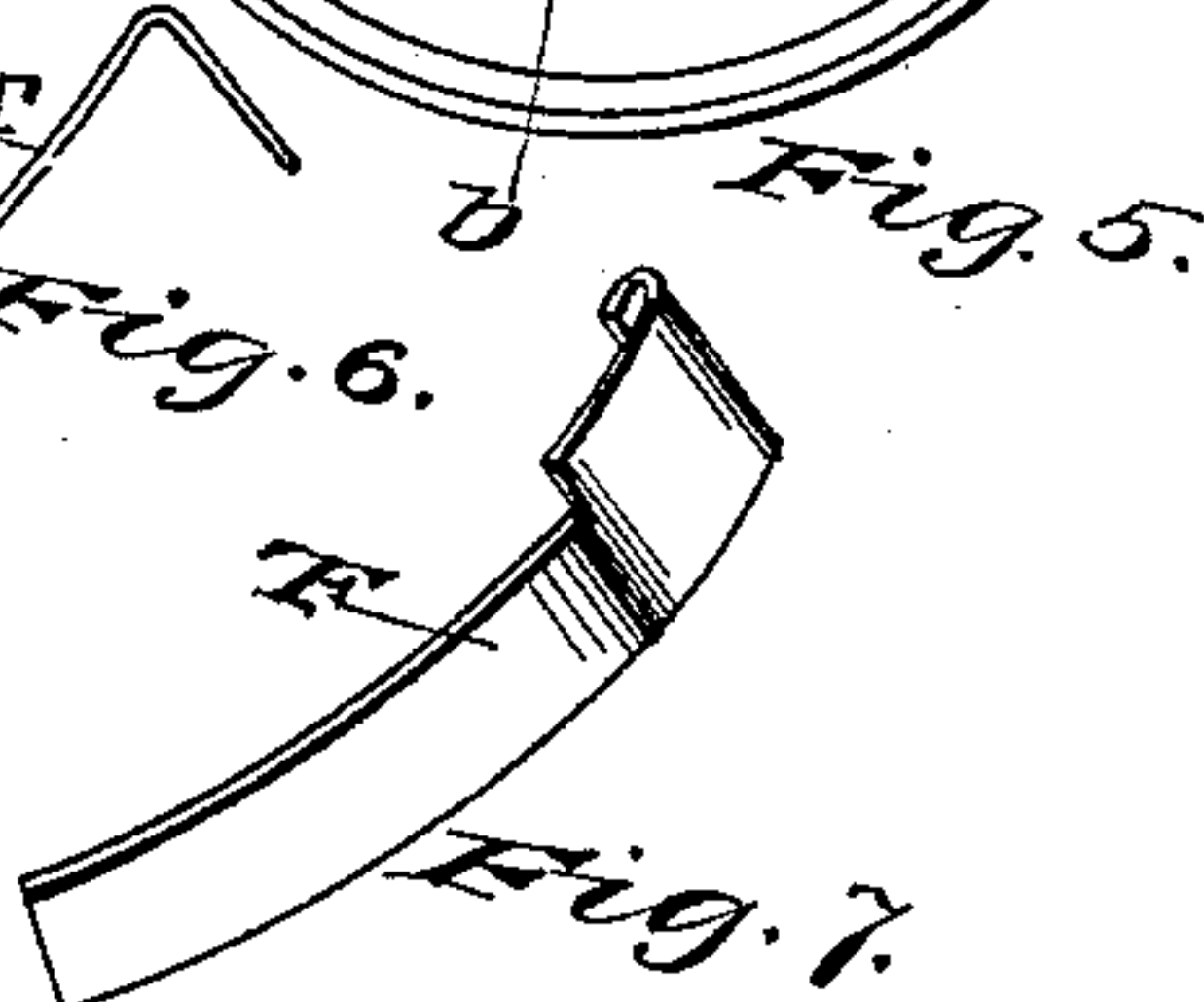
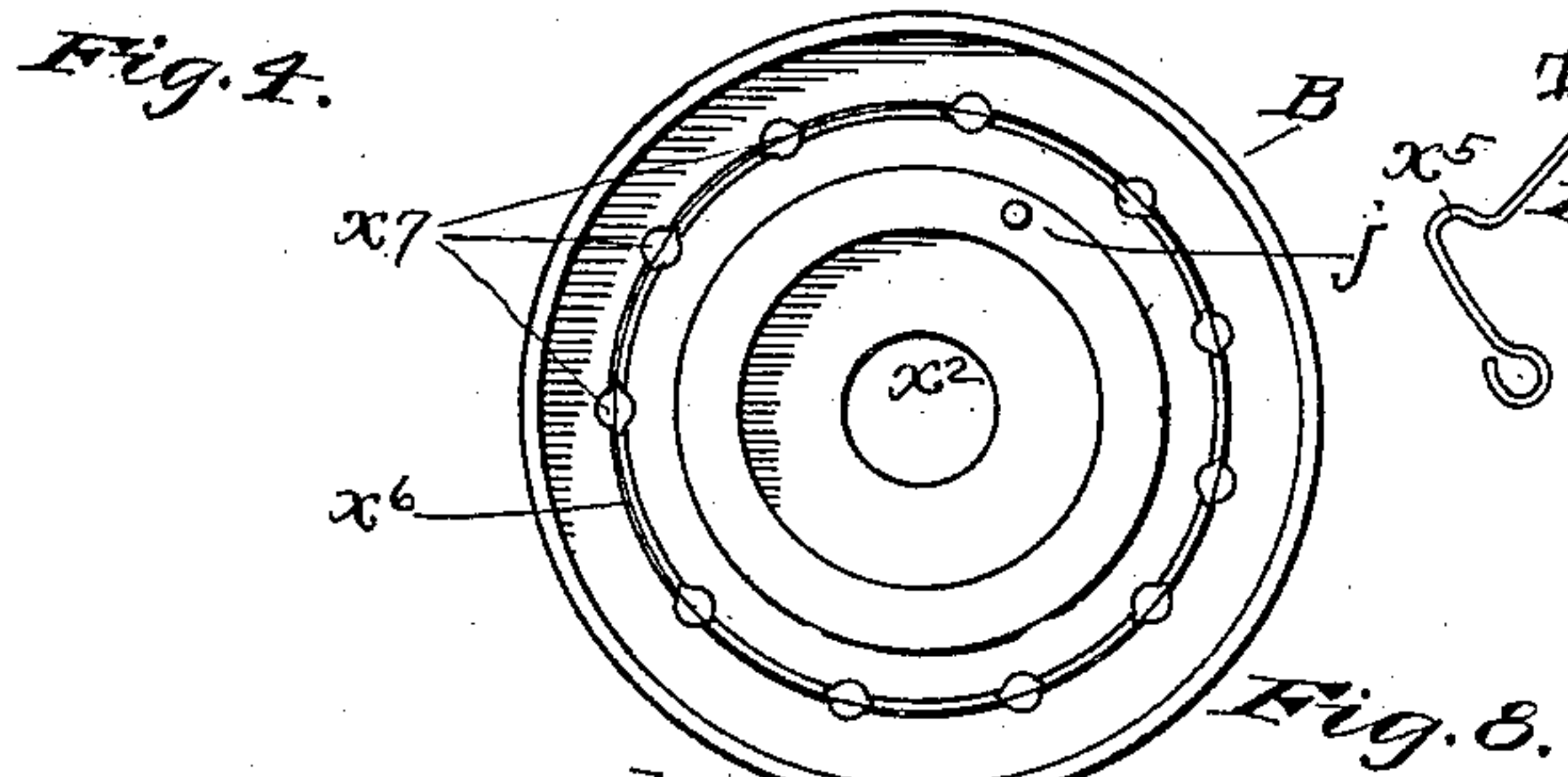
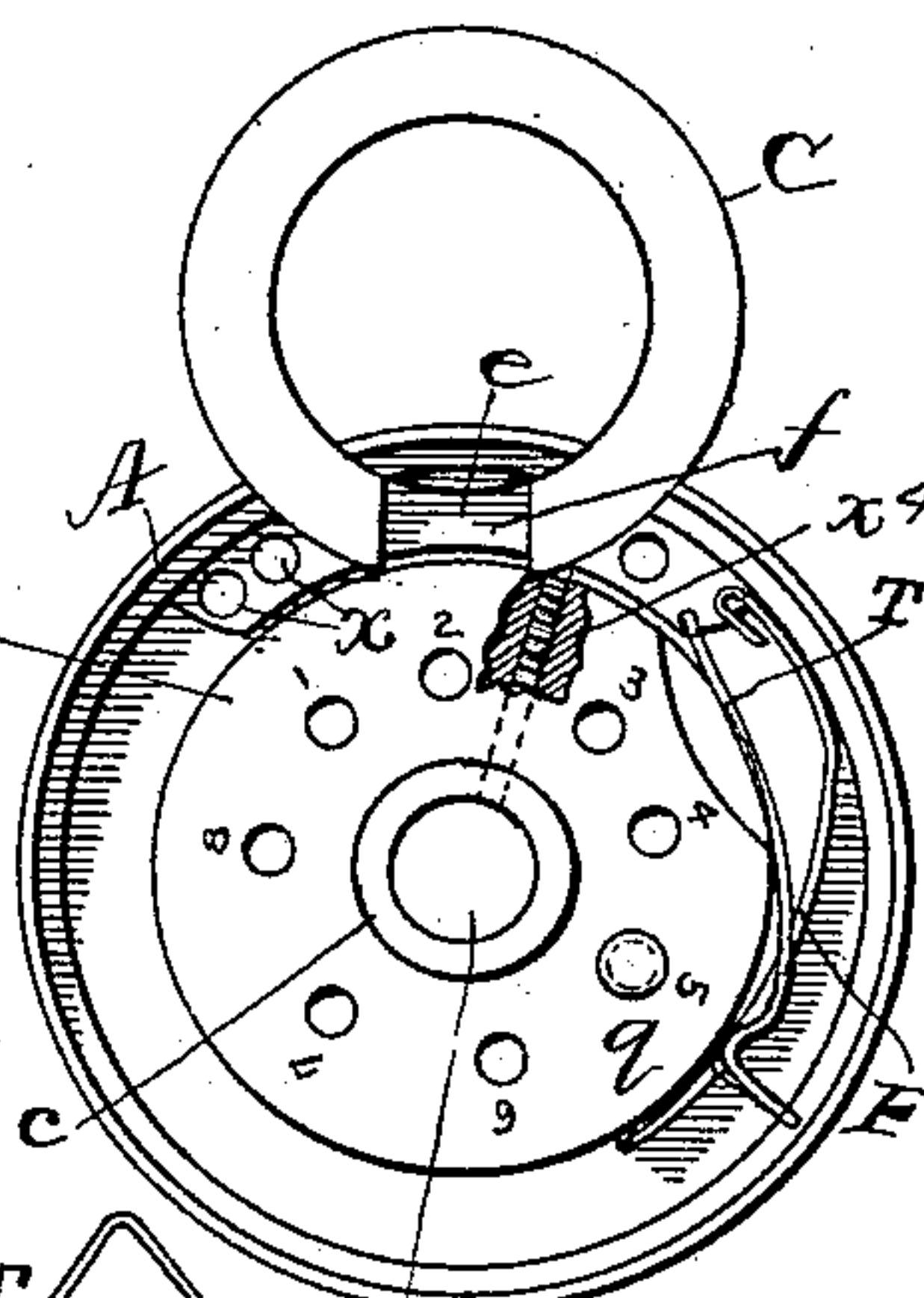
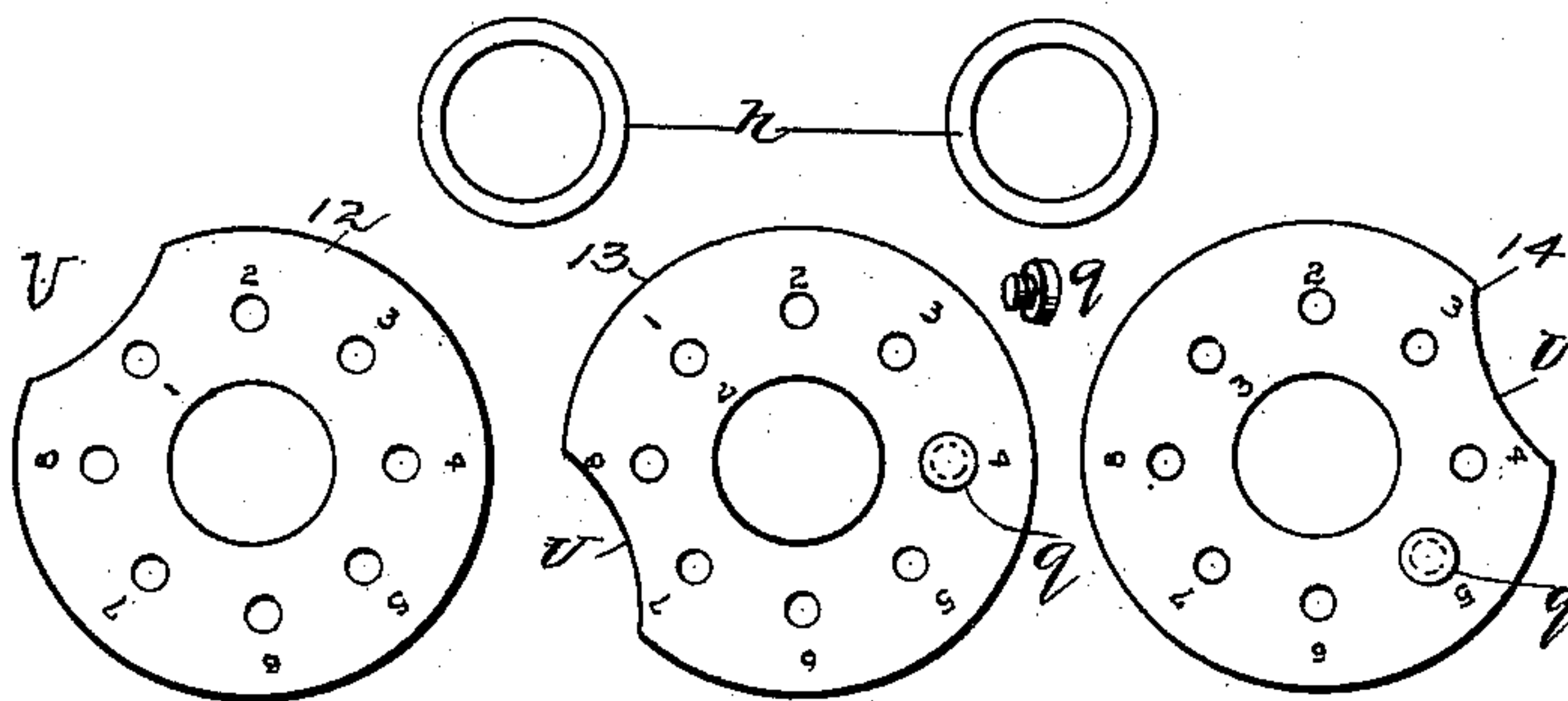
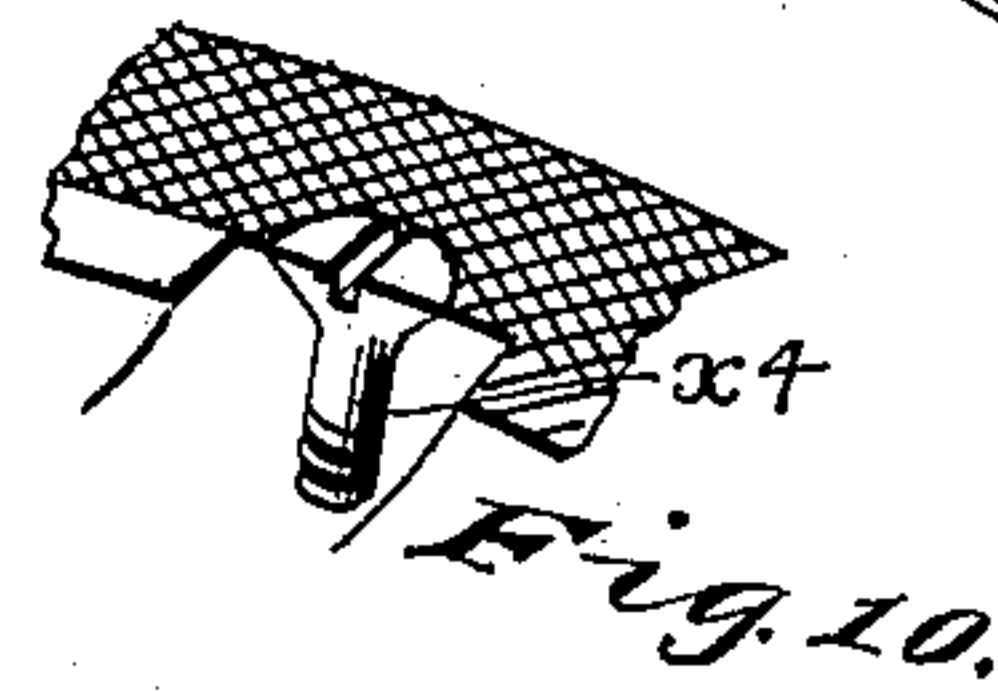
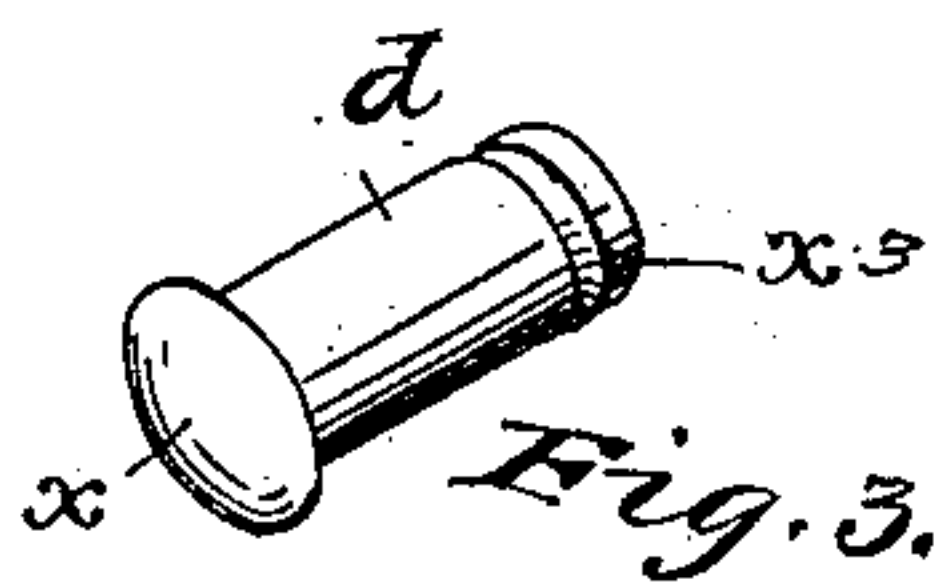
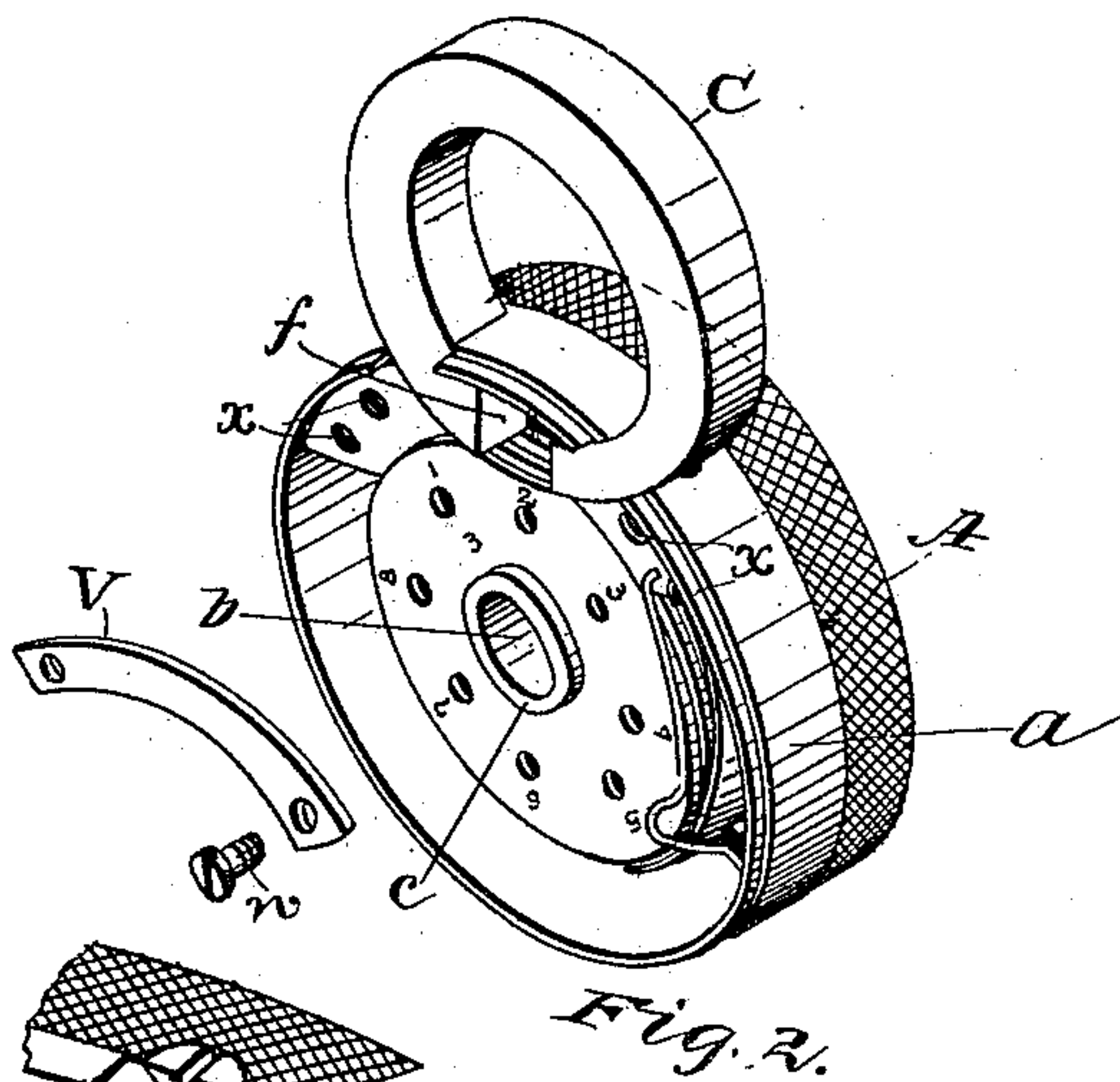
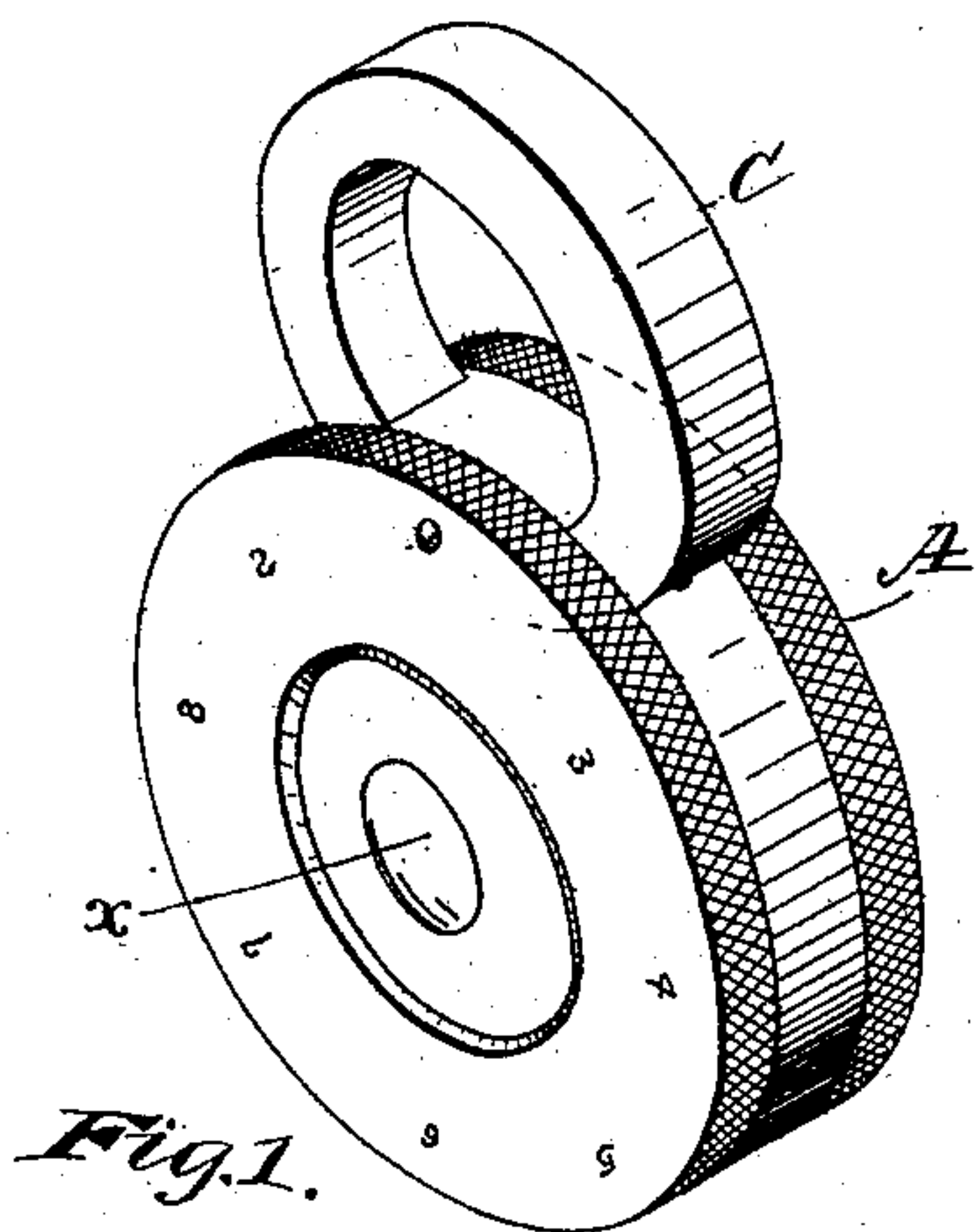


(No Model.)

J. J. DEAL.  
COMBINATION PADLOCK.

No. 486,666.

Patented Nov. 22, 1892.



WITNESSES:

E. G. Law  
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ATTORNEY



# UNITED STATES PATENT OFFICE.

JOSIAH J. DEAL, OF CANTON, OHIO.

## COMBINATION-PADLOCK.

SPECIFICATION forming part of Letters Patent No. 486,666, dated November 22, 1892.

Application filed February 27, 1892. Serial No. 422,958. (No model.)

*To all whom it may concern:*

Be it known that I, JOSIAH J. DEAL, a citizen of the United States, and a resident of Canton, county of Stark, State of Ohio, have  
5 invented a new and useful Improvement in Combination-Padlocks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

10 My invention relates to an improvement in combination-padlocks; and it consists in providing in a padlock a number of circular disks or revolving tumblers, the periphery of which may be turned into a transverse opening  
15 in the shackle-ring and thereby lock it against rotation, said tumblers having peripheral depressions that when brought into coincidence with the transverse opening in the shackle-ring will allow the shackle to be  
20 turned in the groove provided therefor in the case to bring the opening outside, when it may be removed from the staple or from whatever it may have before had a locking engagement.

25 With these ends in view my invention relates to certain features of construction and combination of parts, as will be hereinafter described, and pointed out in the claims.

30 Figure 1 of the accompanying drawings is a view in perspective of a padlock, illustrating my invention. Fig. 2 is a similar view with the cap removed, showing the tumblers in position and the side of the shackle-groove removed. Fig. 3 is a similar view of the central pin by which the cap is held in position  
35 and about which it rotates. Fig. 4 is a plan view comprising the tumblers 12, 13, and 14 and the spacing-washers and pin. Fig. 5 is a plan view looking into the lock-case from above, showing one disk or tumbler in position to lock the shackle against rotation, a  
40 portion having passed into the transverse opening of the shackle. Fig. 6 is a perspective of the click-spring. Fig. 7 is a similar view of the brake-spring; Fig. 8, a plan view of the inside of the cap; Fig. 9, a transverse section. Fig. 10 is a view of a fragment of the lock, showing the screw by which the center-pin is held in position.

45 Similar letters and numerals of reference indicate corresponding parts in all of the figures of the drawings.

For the purposes of this specification I have

shown my invention as applied to a cylindrical case, as shown in the drawings, A representing the case having an outer circular wall  
55 *a*, in which is provided a central tube *b*, that forms a spindle *c*, about which the disks or tumblers 12, 13, and 14 rotate and through which the bolt or pin *d* is passed by which the lid or cap B is loosely secured to the case A.  
60 At one side of the case A is provided a circular groove *e*, adapted to receive the shackle C, in which the shackle may be rotated. One side of the shackle is cut away to form an opening *f*, as shown in Figs. 2 and 5.

65 Referring to Fig. 5, showing the interior of the case with tumbler 14 in position to lock the shackle against rotation, having the peripheral circle or circumference turned into the opening *f* in the shackle, thus forming an  
70 arc portion in the opening to engage the ends of the shackle, the tumblers 14, 13, and 12, with the pins *g*, passing through apertures 5 and 4 in tumblers 14 and 13, respectively, and the pin *j*, passing through aperture 2 in tumbler 12, are placed upon the spindle *c*, the cap B and interposed spacing-rings *h* also being  
75 in proper position. The pins *g* and *t* will now engage with each other when the cap is rotated, as will be readily understood by those  
80 skilled in the art. With the tumblers and cap so arranged the lock will open on figures "5 4 2"—that is, turn the cap about the central pin *d* one turn to the right, stopping with figure "1" at the top station, then turn on in  
85 same direction to bring the figure "5" to the top, then turn to the left one round to bring figure "4" to the top, and then turn to the right to bring figure "2" to the top, thus forming the combination of "5 4 2"—in which operation  
90 the depressions U are brought to coincide, as shown in Fig. 2, the depressions forming the inner wall of the groove *e* in which the shackle is turned to carry the opening *f* out of the case for the purpose of unlocking or releasing the lock from the staple or post to which  
95 it may have been locked. The bar V (see Fig. 2) is placed over the side of the shackle and is secured to the case by screws, as *w*, turned into the threaded aperture *x* in the case, thus completing the groove *e*. The pin  
100 *d*, by which the cap is secured to the case, is provided at one of its ends with projecting head *x*, that extends about the cen-



tral aperture  $x^2$  in the cap B and over the edge thereof on the cap. At the other end of the pin is provided an annular groove  $x^3$  in which is turned the end of screw  $x^4$ . (See Figs. 5 and 10.) The screw  $x^4$  has one side of the head cut away, as shown, the flat side to rest against the side of the shackle, as shown in Fig. 10, by which the screw is held against rotation when the shackle is locked; and to turn the screw to remove the pin  $d$ , the shackle is unlocked and the opening turned out to a point that will permit the screw-head to pass therein to turn the screw out of the groove.

To hold the tumblers in position as placed by the turning of the cap, a brake-spring F is provided, as shown, one end of which is secured to the case, the free end to rest on the peripheral edges of the tumbler, as shown in Fig. 5. For convenience in operating the lock in the dark, a click or counting spring T is provided of the form shown, one end bent at right angle with the body to drop into an aperture in the case, the other end having a bent-up portion  $x^5$  adapted to follow the groove  $x^6$  in the under side of the cap B and to drop into the depressions  $x^7$ , by which an audible signal is produced to indicate the number of points that have been turned to or passed the top of unlocking-station.

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

1. In a permutation-padlock, the combina-

tion, with the inclosing case having a circular shackle-groove, and a shackle adapted to rotate in said groove a portion of said shackle being cut away to form an opening therein, of a plurality of disks or tumblers the peripheries of which are cut away, forming circular depressions adapted to register with the shackle-groove, the rotatable cap, and the brake-spring, substantially as described.

2. The combination, in a padlock as herein described, of the case A, having a circular groove  $e$ , a central spindle  $c$ , a plurality of tumblers having peripheral depressions to correspond with the groove  $e$  of a rotatable cap B, adapted for engagement with the disks or tumblers 12 and 13 to rotate said tumblers, and the tumbler 14 to lock or unlock the shackle in the groove  $e$ , substantially as described.

3. The combination, in a padlock, of the case A, having a circular groove, a central-apertured spindle, locking-tumblers to rotate about said spindle, springs T and F, cap B, pin S, screw  $x^4$ , by which the pin is secured in position, and the shackle, substantially as described, and for the purpose set forth.

In testimony whereof I have hereunto set my hand this 23d day of February, A. D. 1892.

JOSIAH J. DEAL.

Witnesses:

W. K. MILLER,  
CHAS. R. MILLER.