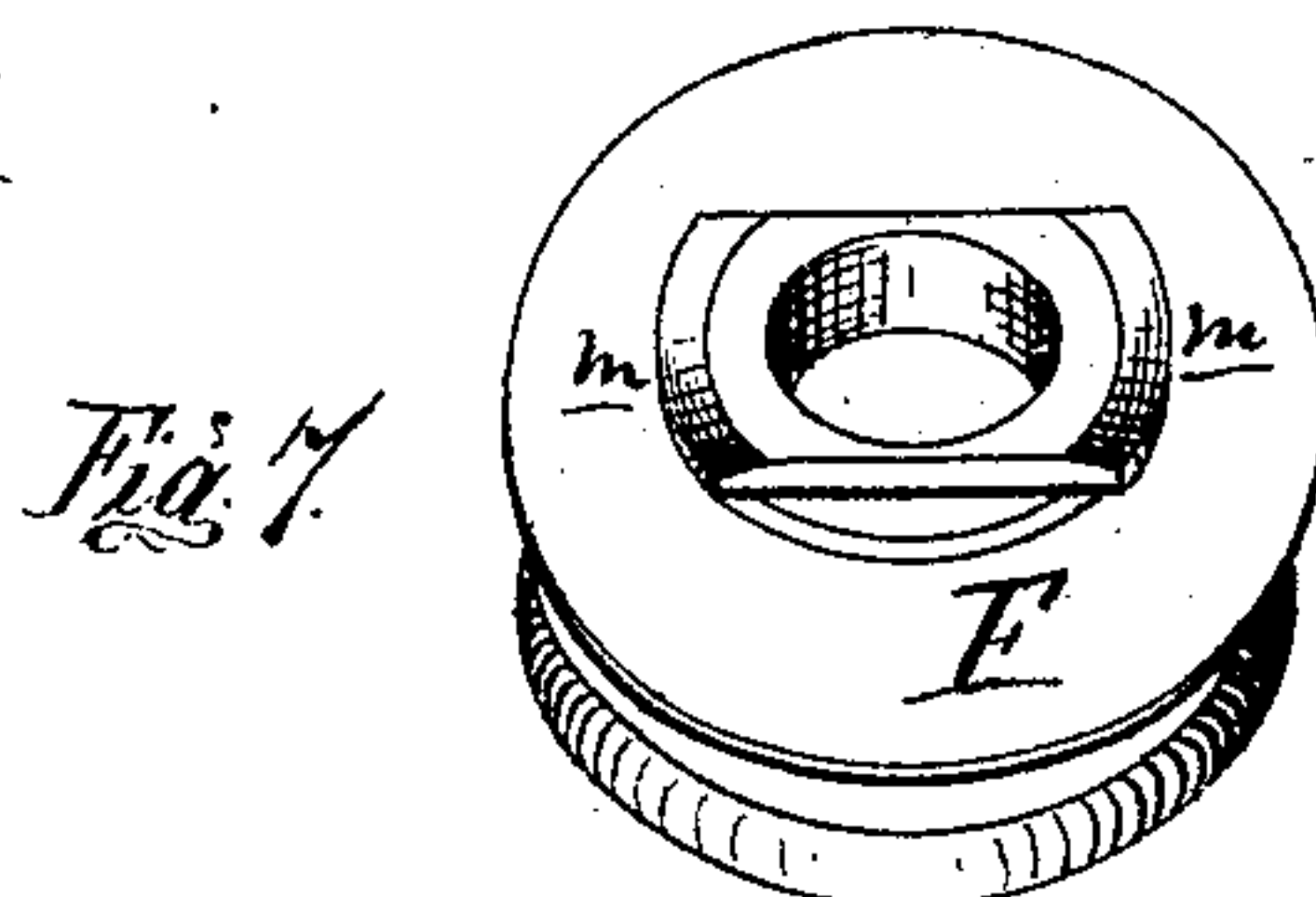
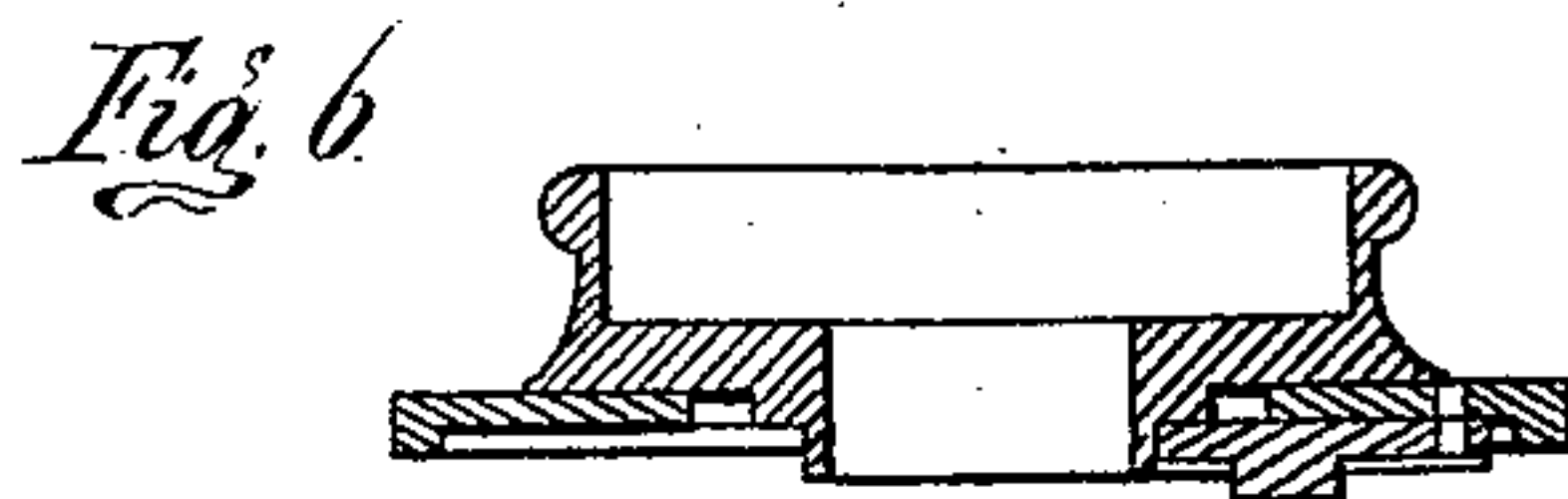
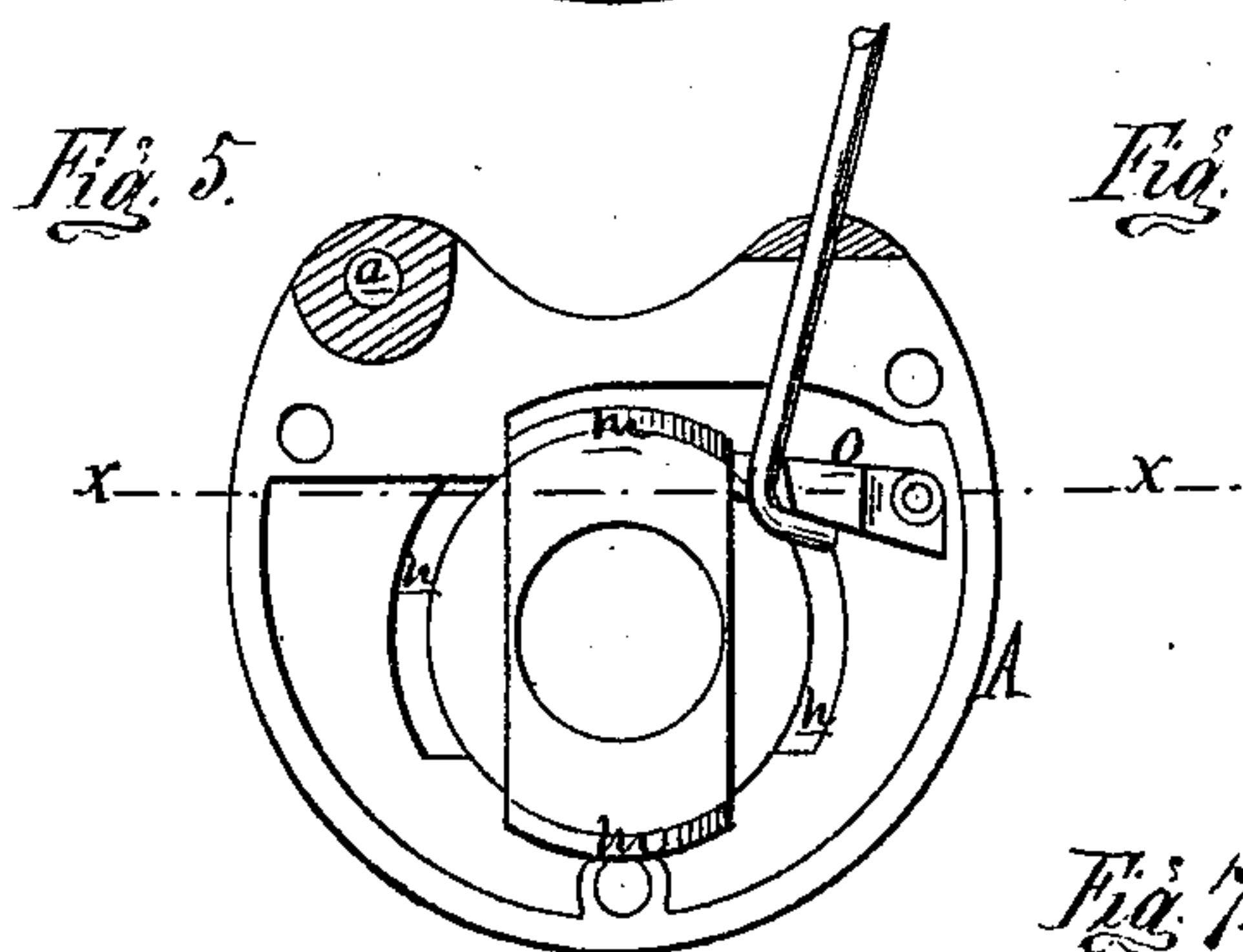
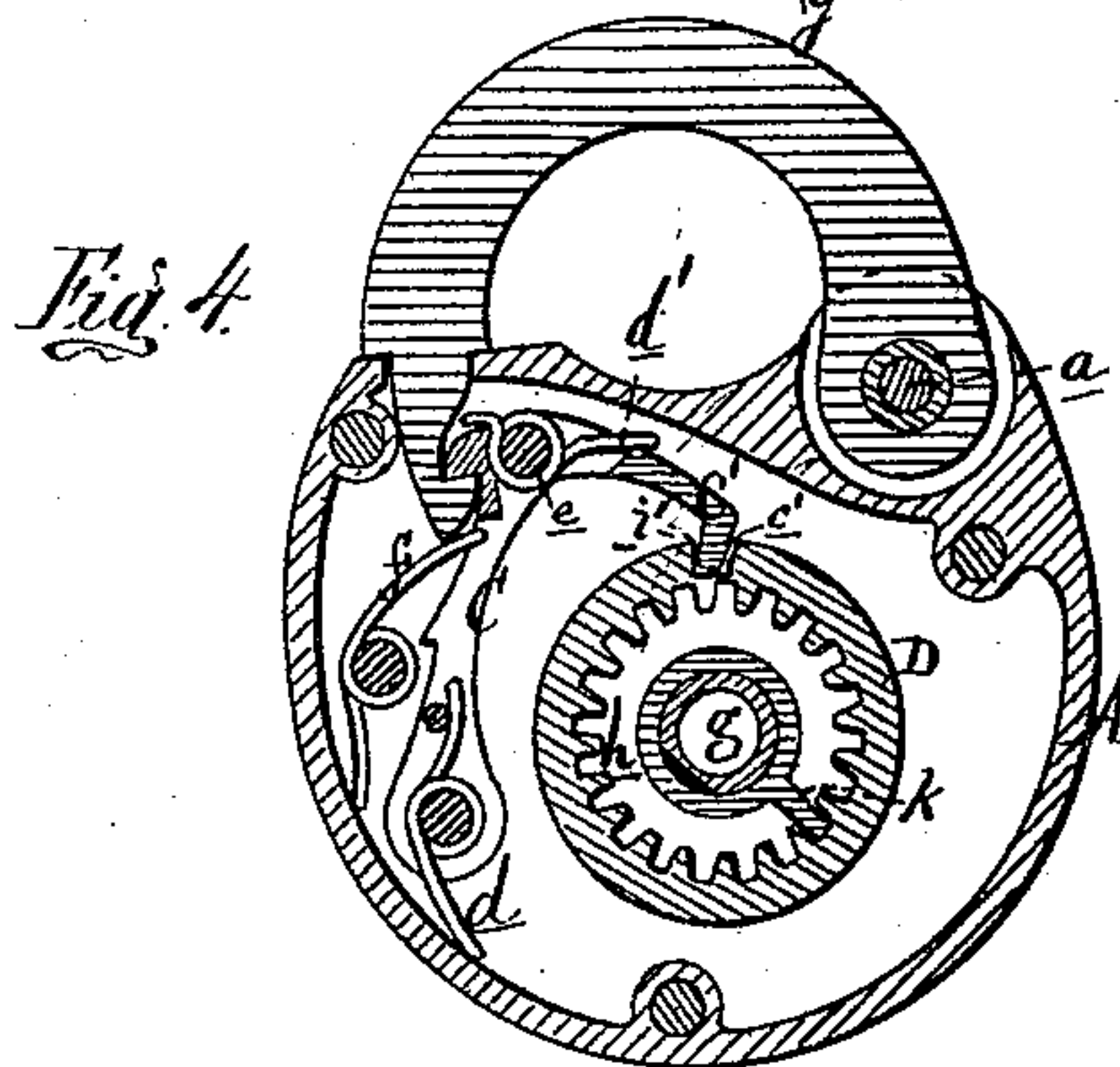
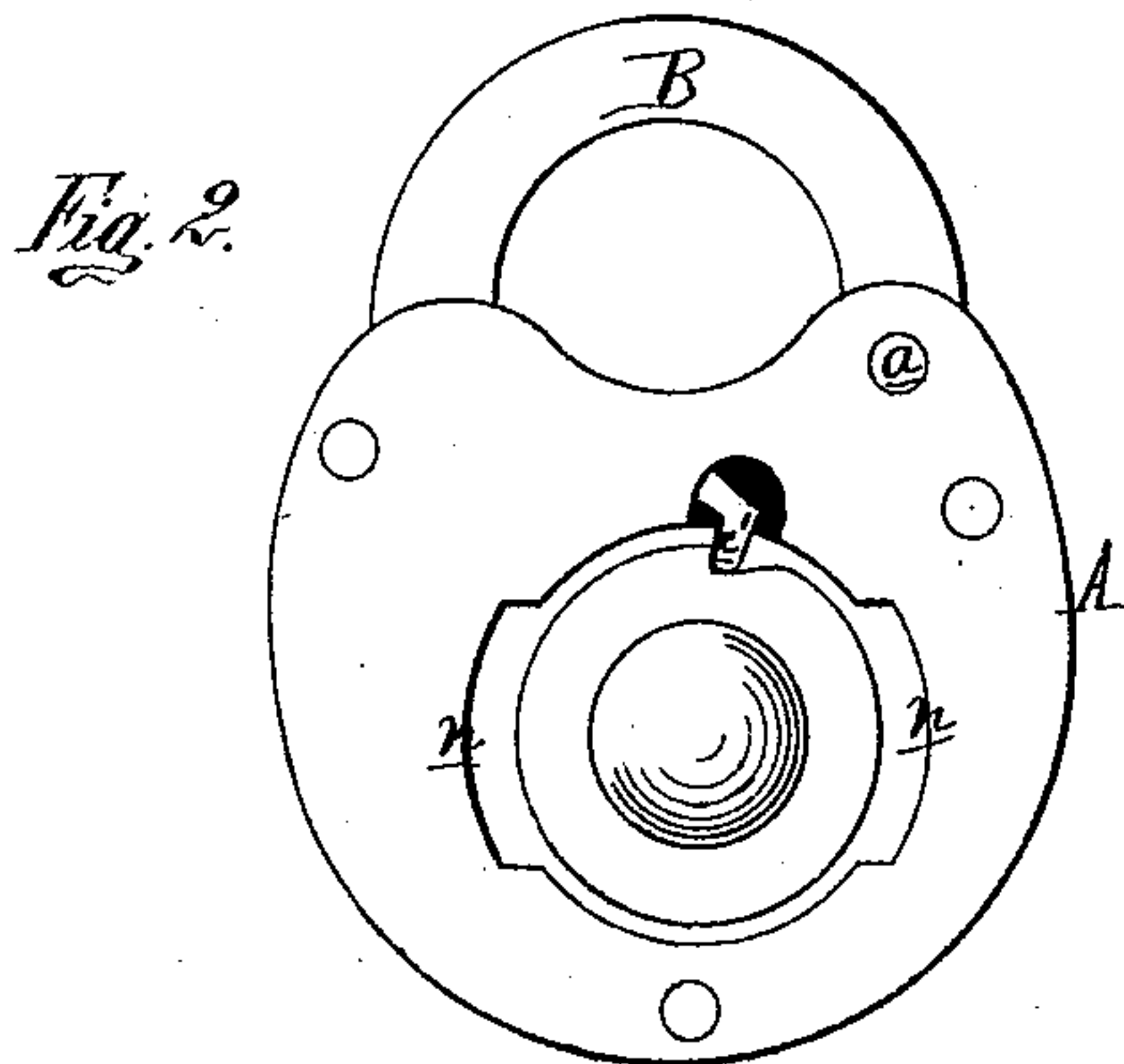
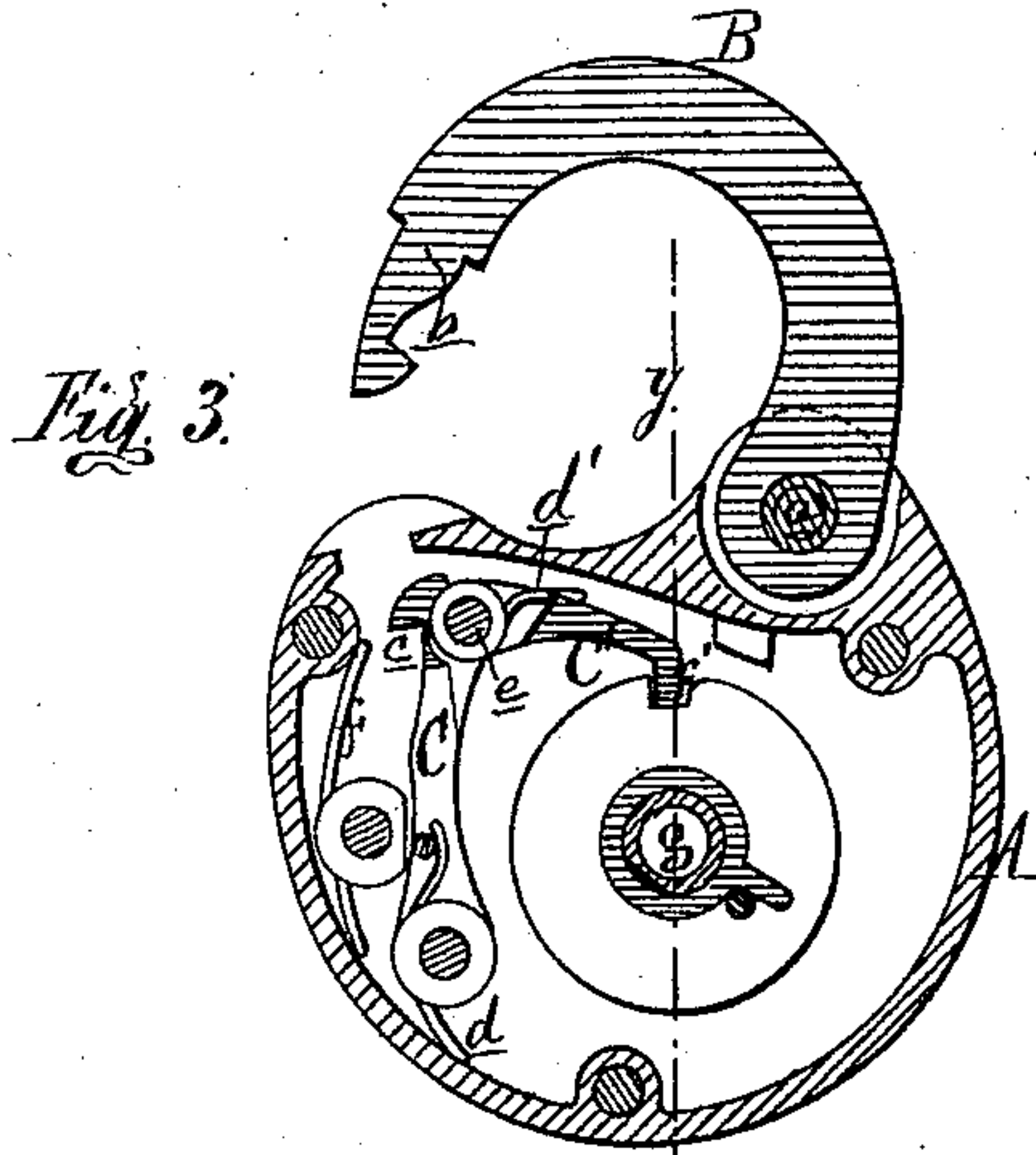
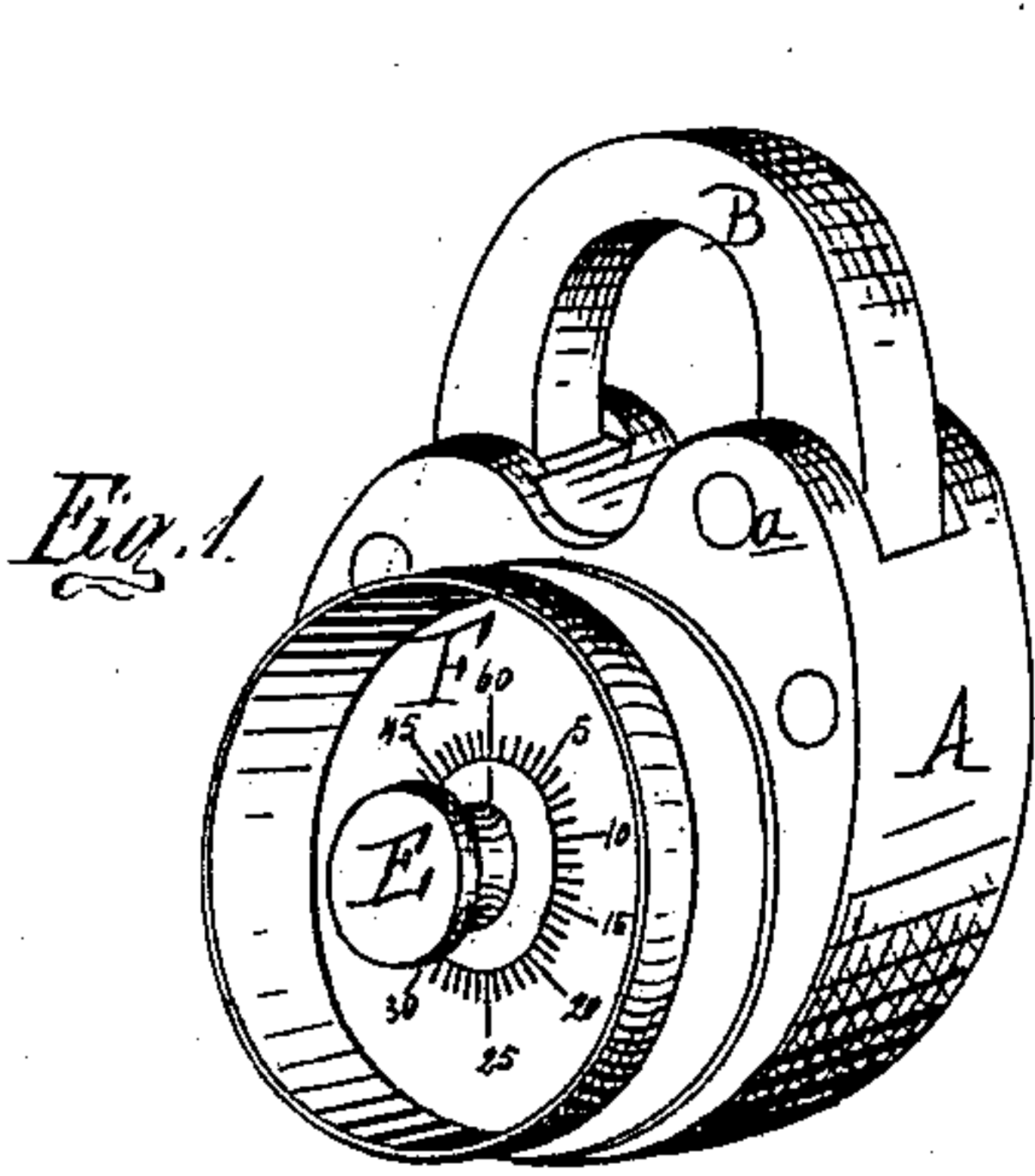


D. A. ROOT.
PERMUTATION PAD-LOCKS.

No. 183,214.

Patented Oct. 10, 1876.



Attest:
Edward Barthel.
L. F. Elbert.

Inventor:
D. A. Root
By Atty
W. S. Sprague.

D. A. ROOT.
PERMUTATION PAD-LOCKS.

No. 183,214.

Patented Oct. 10, 1876.

Fig. 8.

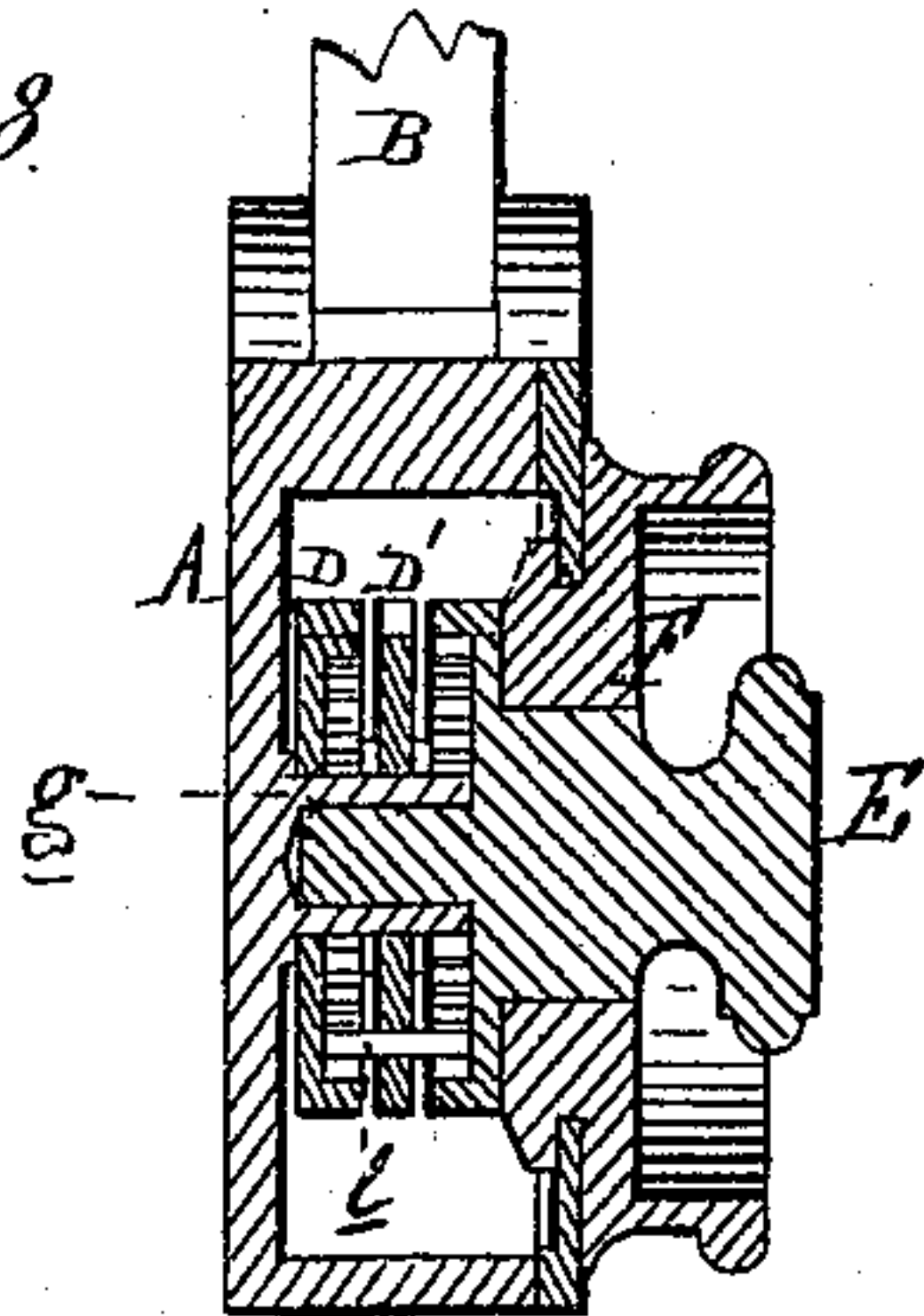


Fig. 11.

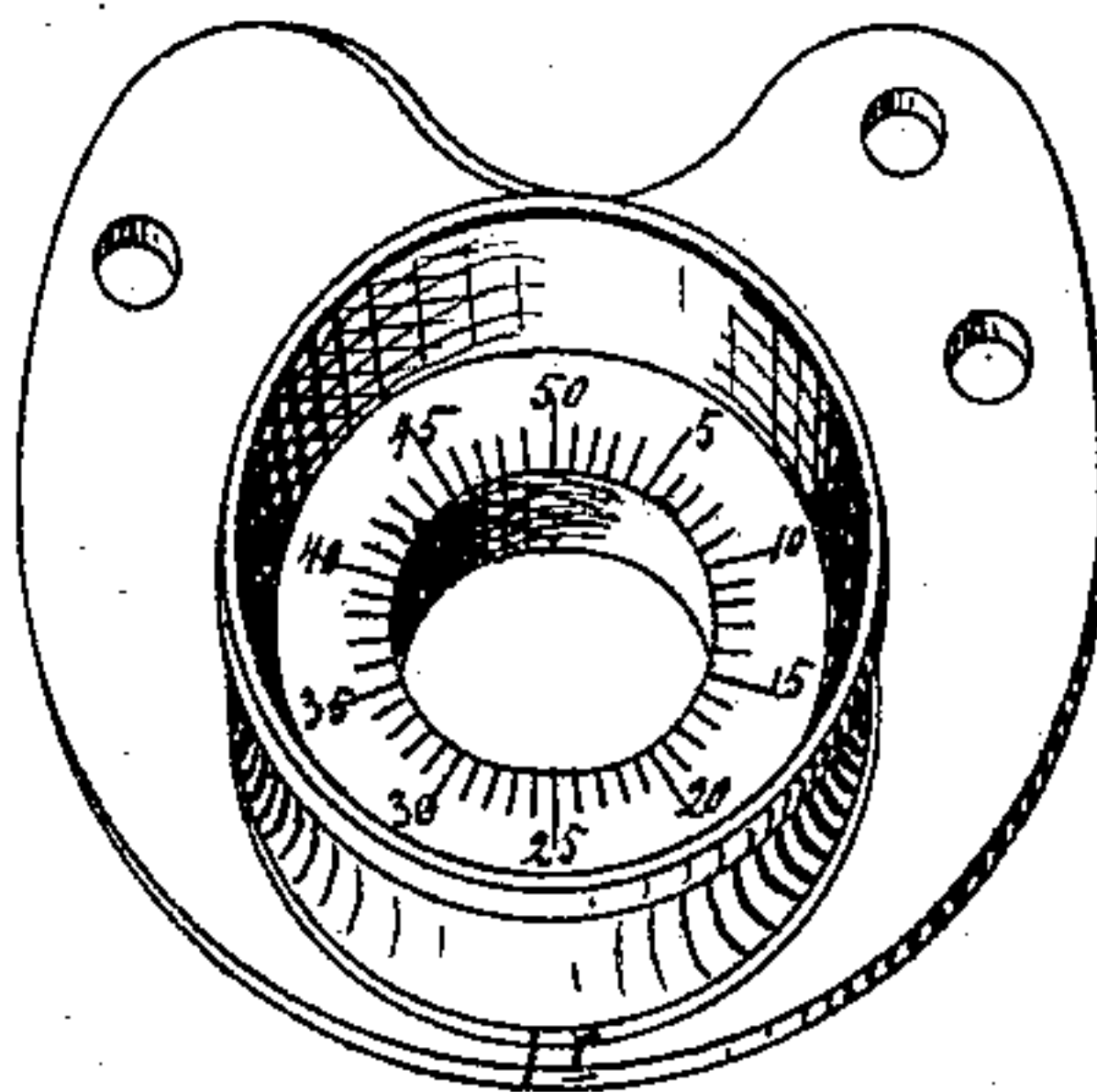


Fig. 9.

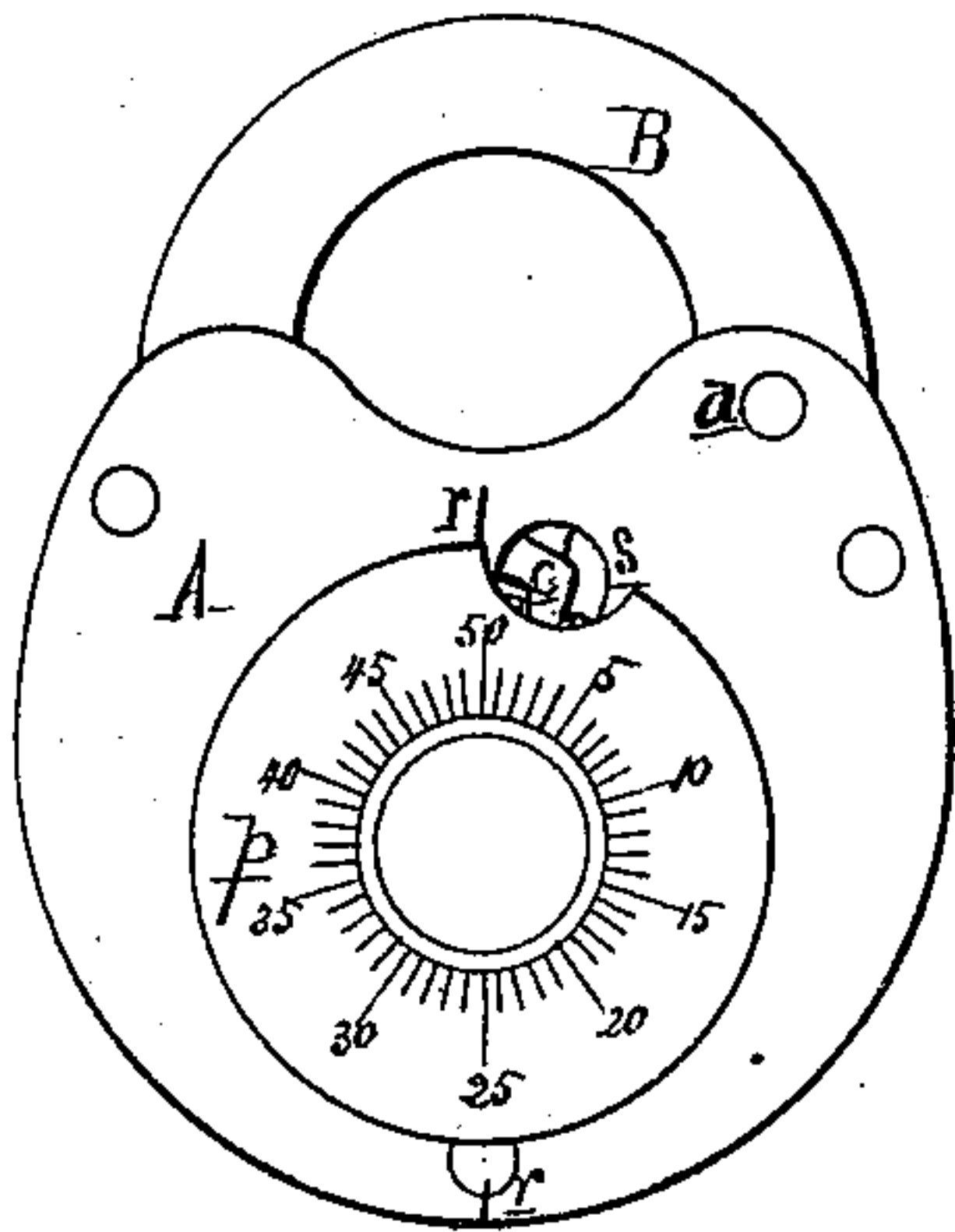


Fig. 12.

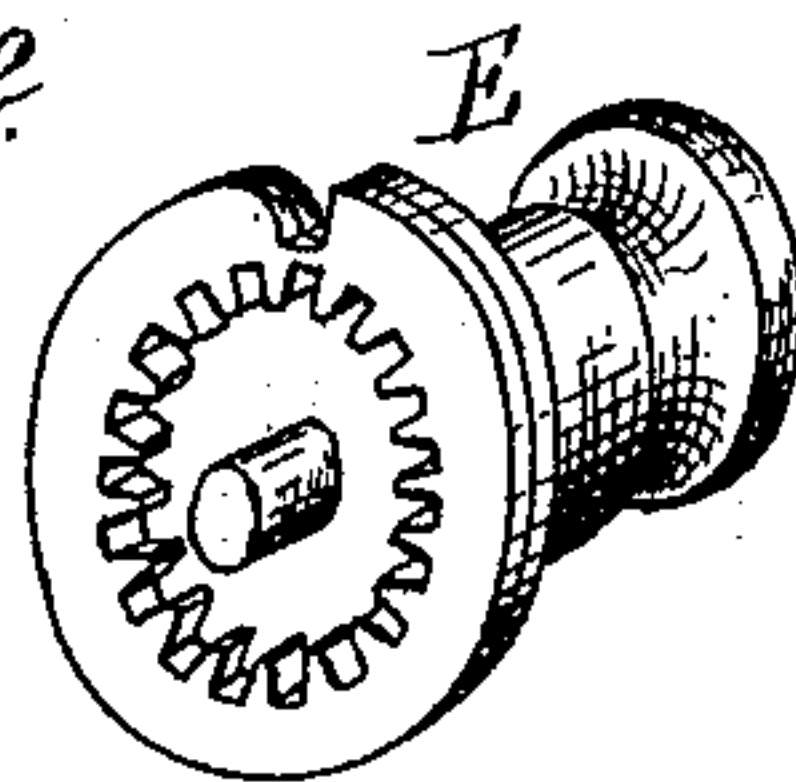


Fig. 13.

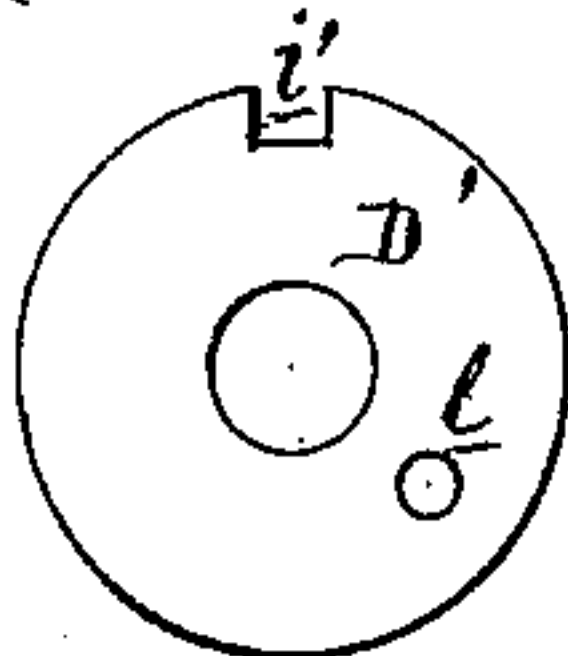


Fig. 14.



Fig. 10.

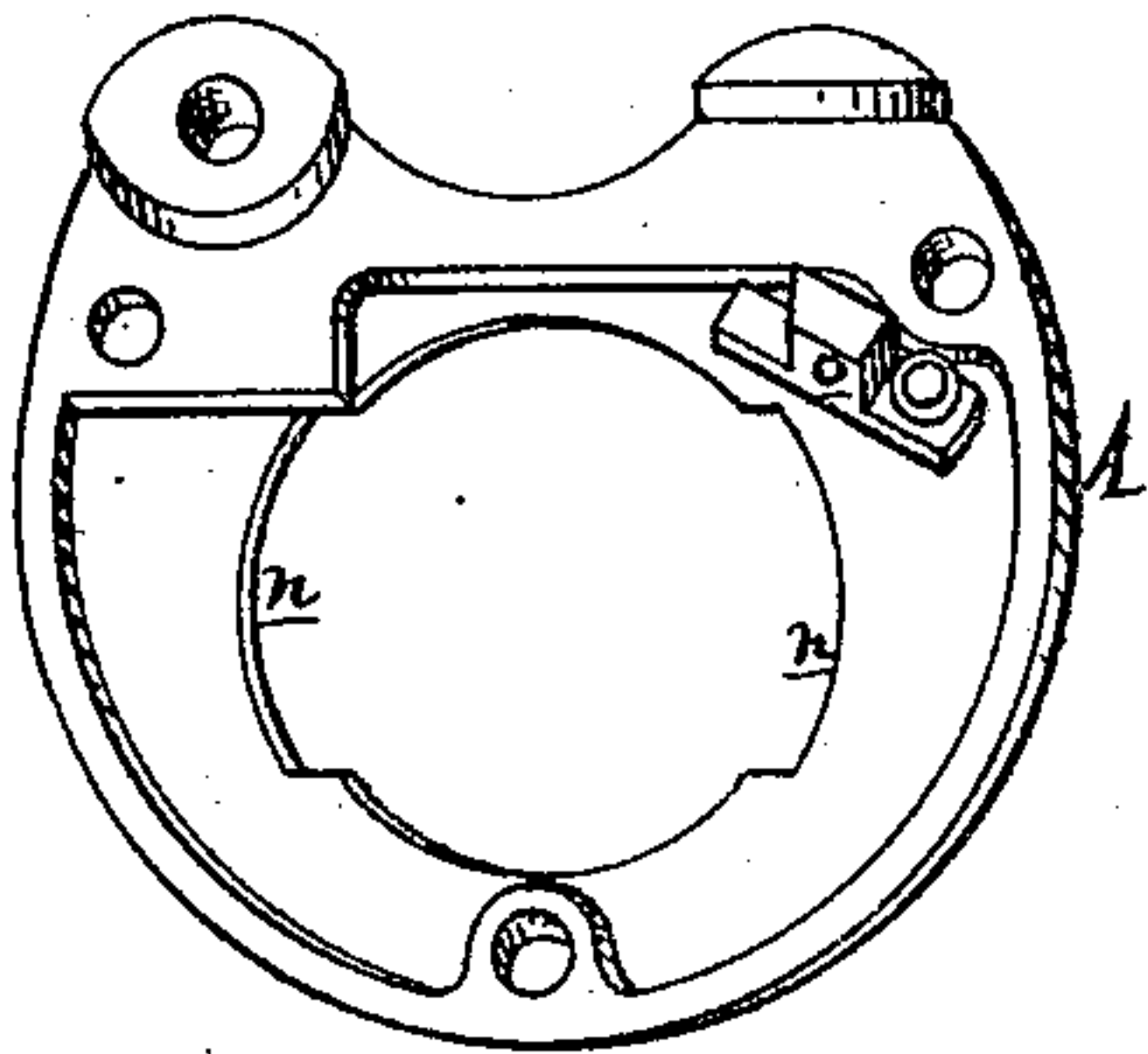
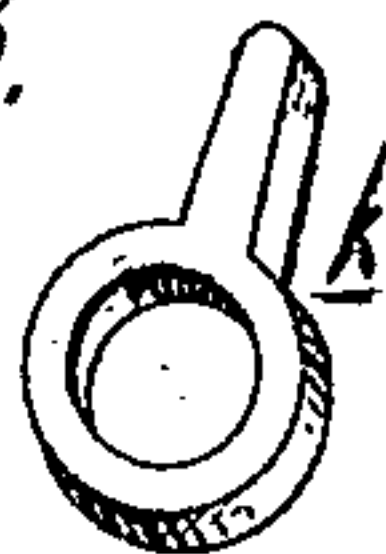


Fig. 15.



Attest:
Edward Parthel.
H. P. Elbert.

Inventor:
D. A. Root
By Atty
J. S. Sprague

UNITED STATES PATENT OFFICE.

DEXTER A. ROOT, OF BAY CITY, MICHIGAN.

IMPROVEMENT IN PERMUTATION-PADLOCKS.

Specification forming part of Letters Patent No. 183,214, dated October 10, 1876; application filed June 2, 1876.

To all whom it may concern:

Be it known that I, DEXTER A. ROOT, of Bay City, in the county of Bay and State of Michigan, have invented an Improvement in Permutation-Padlocks, of which the following is a specification:

The nature of my invention relates to an improvement in permutation-locks of the hasp and pad class, having tumbler-wheels operated by a dial-knob. The invention consists of the internally-notched tumblers and dial-knob, in combination with peculiar index-washers, for changing the combination, as fully hereinafter explained.

Figure 1, Sheet 1, is a perspective view. Fig. 2 is an elevation of the lock, with the dial removed. Fig. 3 is a similar view, but with the front plate of the case and the dial-knob removed, the hasp open. Fig. 4 is a similar elevation to the last, but showing only the inner or last tumbler in position and the hasp locked. Fig. 5 is an inside elevation of the front plate, showing a wire hook introduced under the stop-button, to raise it up to permit the dial to be turned back and taken out. Fig. 6 is a horizontal section of the same at *x x*. Fig. 7 is a rear perspective view of the dial-plate. Fig. 8, Sheet 2, is a vertical section at *y y* in Fig. 3. Fig. 9 is an elevation of the lock, with the dial-plate removed and replaced by a dial struck up on thin sheet metal, for the purpose of changing the combination. Fig. 10 is a rear perspective view of the front plate of the lock. Fig. 11 is a front perspective view of said plate and the dial-plate. Fig. 12 is a perspective view of the inner end of the knob. Fig. 13 is an elevation of a tumbler at either side. Fig. 14 is an edge view of the same. Fig. 15 is a perspective view of the index-washer.

In the drawing, A represents the case of the lock, having a hasp, B, pivoted between the lugs by a pin, *a*, passing through them, its free end being notched as at *b*, with which notch a hook, *c*, at the head of a dog, C, engages when the hasp is closed. The lower end of said dog is pivoted in the case, and it is thrown toward the entering hasp by a spring, *d*, Fig. 4. To the head of the dog C there is pivoted, by a pin, *e*, another part of the same, or a dog, C', lying nearly at a right

angle therewith. This part C' has a hook, *c'*, pendent from its free end, and rests upon the tumblers of the lock. When their notches come into line, this hook *c'* is thrown down into them by a spring, *d'*, Fig. 4. A turn of the dial-knob to the right at this time would withdraw the hook *c* from the hasp, and the latter would be thrown out of the case by a spring, *f*. At the center of the back plate there is a tubular post, *g*, flattened on one side, as seen in Fig. 4. On the post is first sleeved a tumbler-wheel, D, Fig. 4, having an internal spur-gear or notches, *h*, cut in a flange on its front edge, and a notch, *i*, in its periphery for the hook *c'* to drop into. Then an index-washer, *k*, Fig. 15, is slipped on the post, and its index allowed to engage with one of the notches in the tumbler-wheel. On this is slipped a non-rotating washer, and then a tumbler-disk, D', is slipped over the post. This disk has a notch, *i'*, cut in its periphery, and a pin, *l*, projecting from each side, to engage with the index-washers *k* at each side of it. Then a non-rotating washer is slipped on the post, and following it another index-washer, *k*. The spindle of a dial-knob, E, is then inserted in the socket of the post *g*. The base of the knob forms a third tumbler, being notched like the others, and the index-washer *k* last put on the post engages with its internally-gearred flange.

F is the dial-plate of the case, being circular, with a flange projecting to the front by which to turn it. On the back there are two projecting flanges, *m m*, which pass through enlargements *n n* in the circular opening cut in the front plate of the lock, to receive the base of the dial, when, by giving the latter a quarter-turn to the right, it will be locked to the plate. A stop-button, *o*, pivoted to the front plate, when pushed down by the hasp-point as it enters, serves as a stop to prevent the dial-plate from being turned back, unless the hasp be first thrown open and a hooked wire be inserted under the stop-button, as seen in Fig. 5, to pull it up from behind the flange *m* of said dial. When the knob is turned, the index *k* engaging with it strikes the pin *l* of the disk D', and rotates that with it until it in turn, through the lower index-washer, sets the tumbler D in motion. When the tumbler

D has its notch *i* under the hook *c* of the dog, it is left there by turning the knob to the left until the notch of the tumbler-disk *D'* is in line with it, which disk is left there by turning the knob to the right until all three notches are in line and the hook *c* drops into them, when a slight further movement to the right will free the hasp from the dog.

The changing of the combination is effected by taking off the dial-plate and tumblers and setting the index-washer points into different notches in the tumblers. To facilitate this a thin dial-plate, *p*, a counterpart of the dial proper, is provided, which is laid on the face of the case, as seen in Fig. 9, a line, *r r*, being drawn on the case to indicate its proper relative position, in which it is to be held by

the thumb of the left hand, after changing the index-washers, a peep-hole, *s*, being cut in the case-plate to allow the operator to observe at what number on the dial the index-line on the knob is opposite, as each tumbler-notch is successively brought under the hook *c'* of the dog, and thus pick up the new combination.

What I claim as my invention is—

In a permutation-padlock, the combination of the tumblers *D D'* and dial-knob *E*, all notched internally, as shown, with the index-washers *k k*, constructed and arranged substantially as described and shown.

DEXTER A. ROOT.

Witnesses:

H. F. EBERTS,
H. S. SPRAGUE.