

(Model.)

C. A. VOLKE.  
PERMUTATION PADLOCK.

No. 345,340.

Patented July 13, 1886.

Fig. 1.

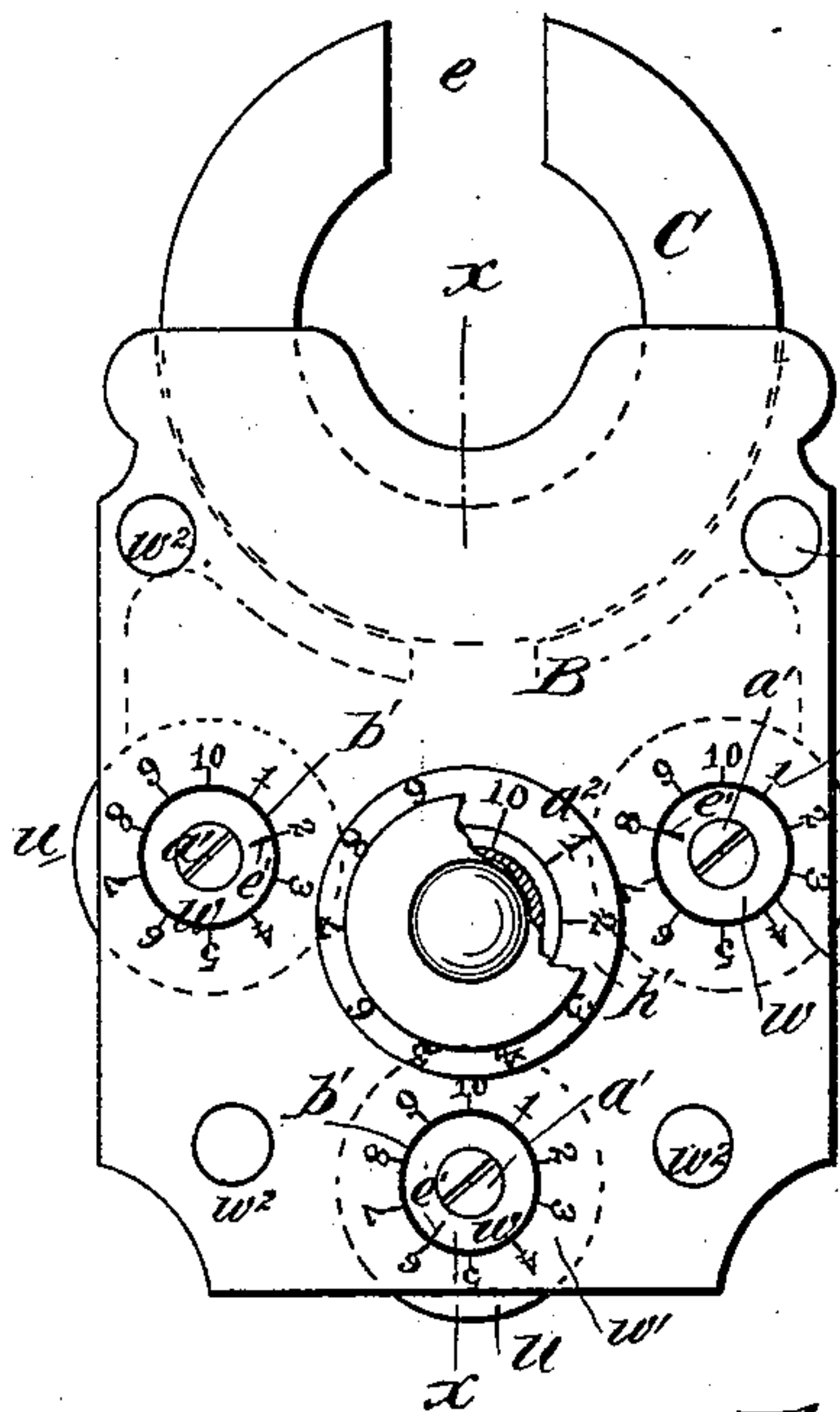


Fig. 2.

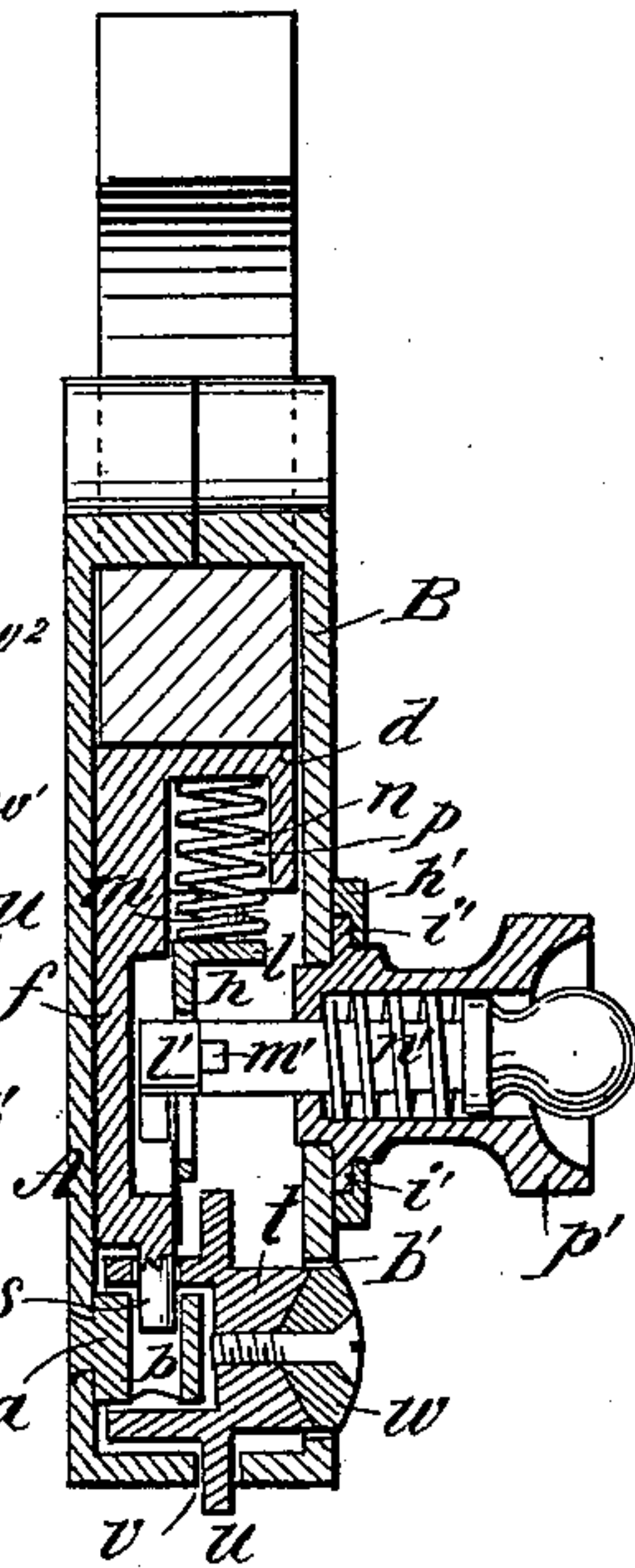


Fig. 3.

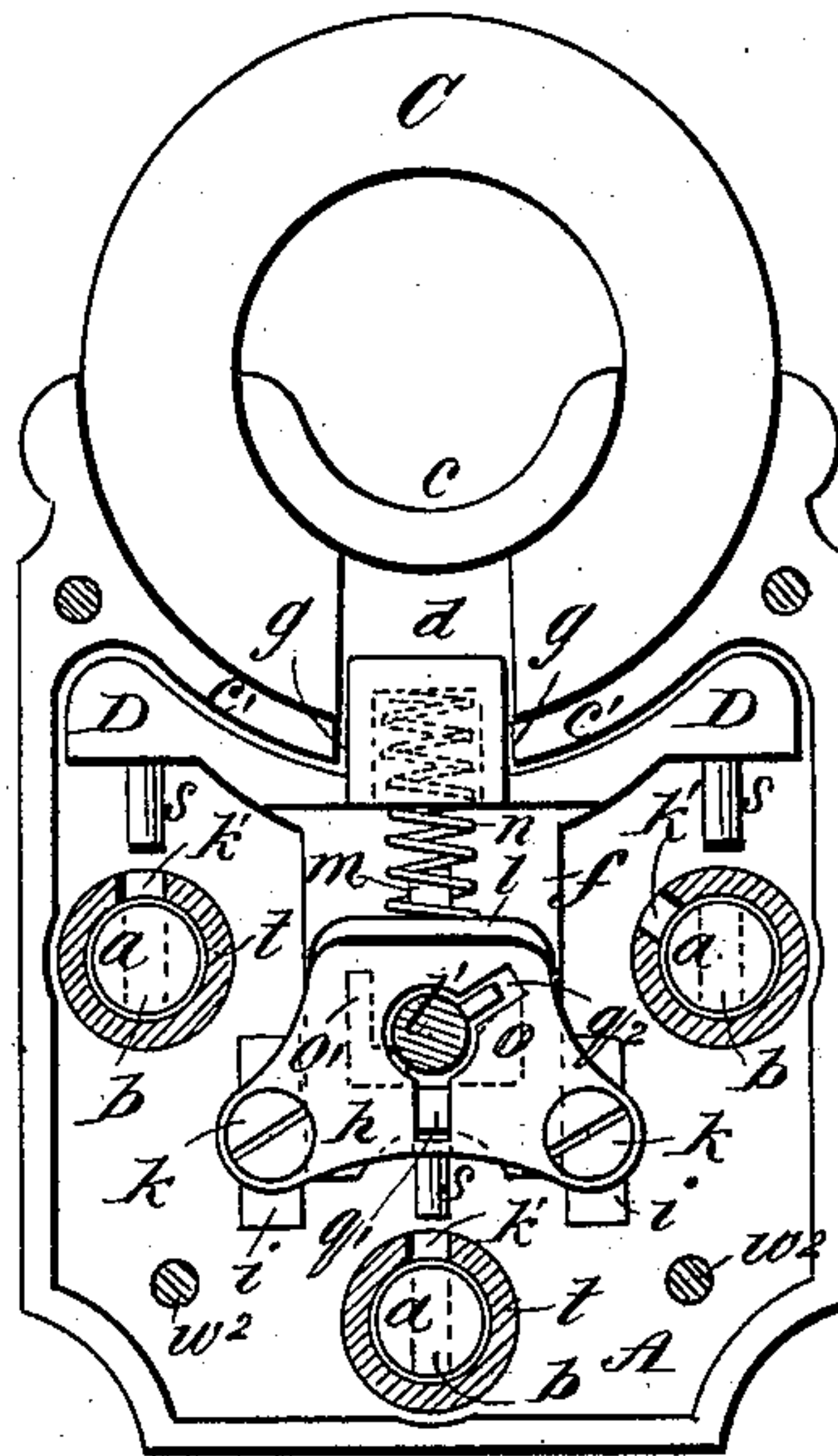


Fig. 4.

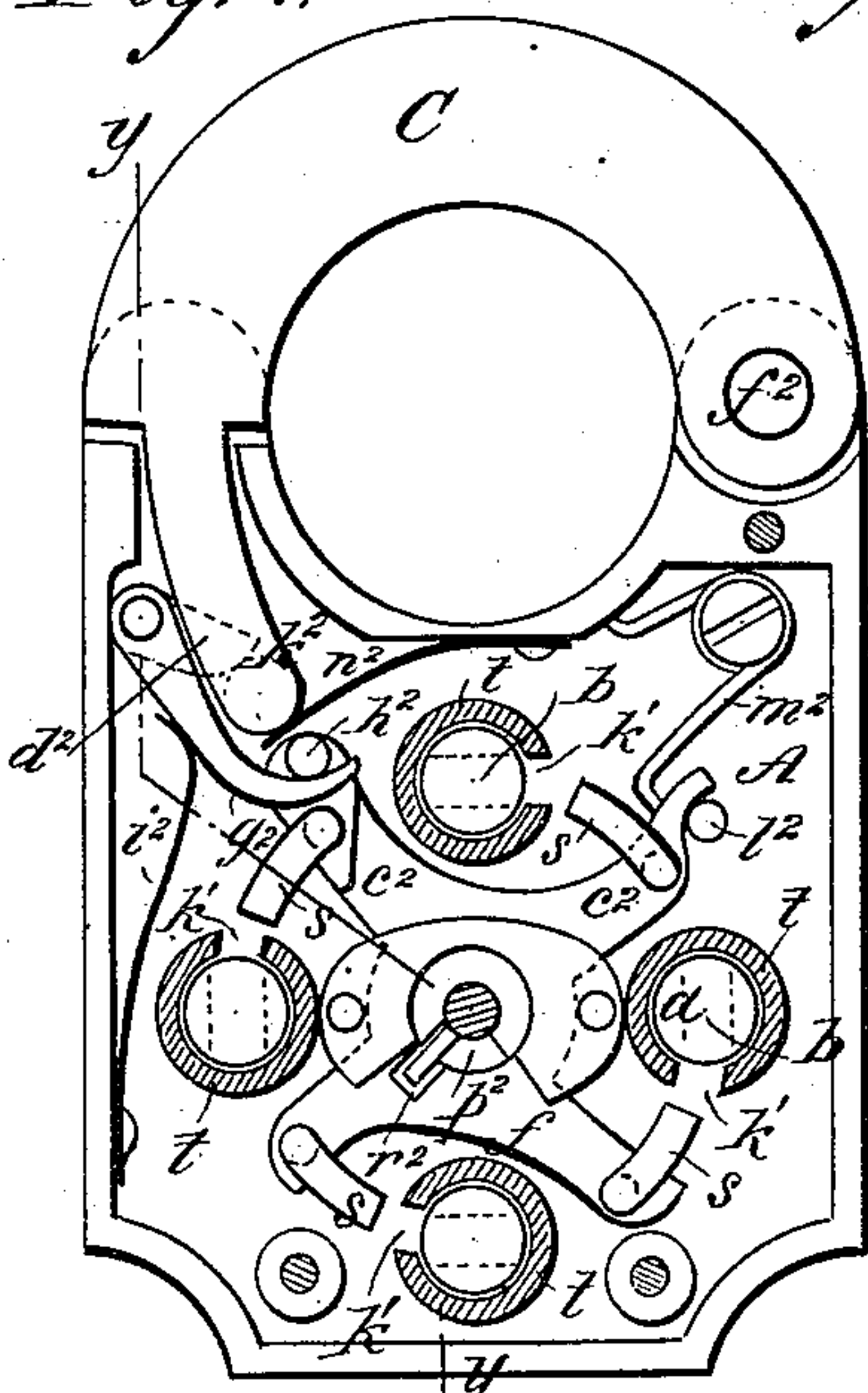
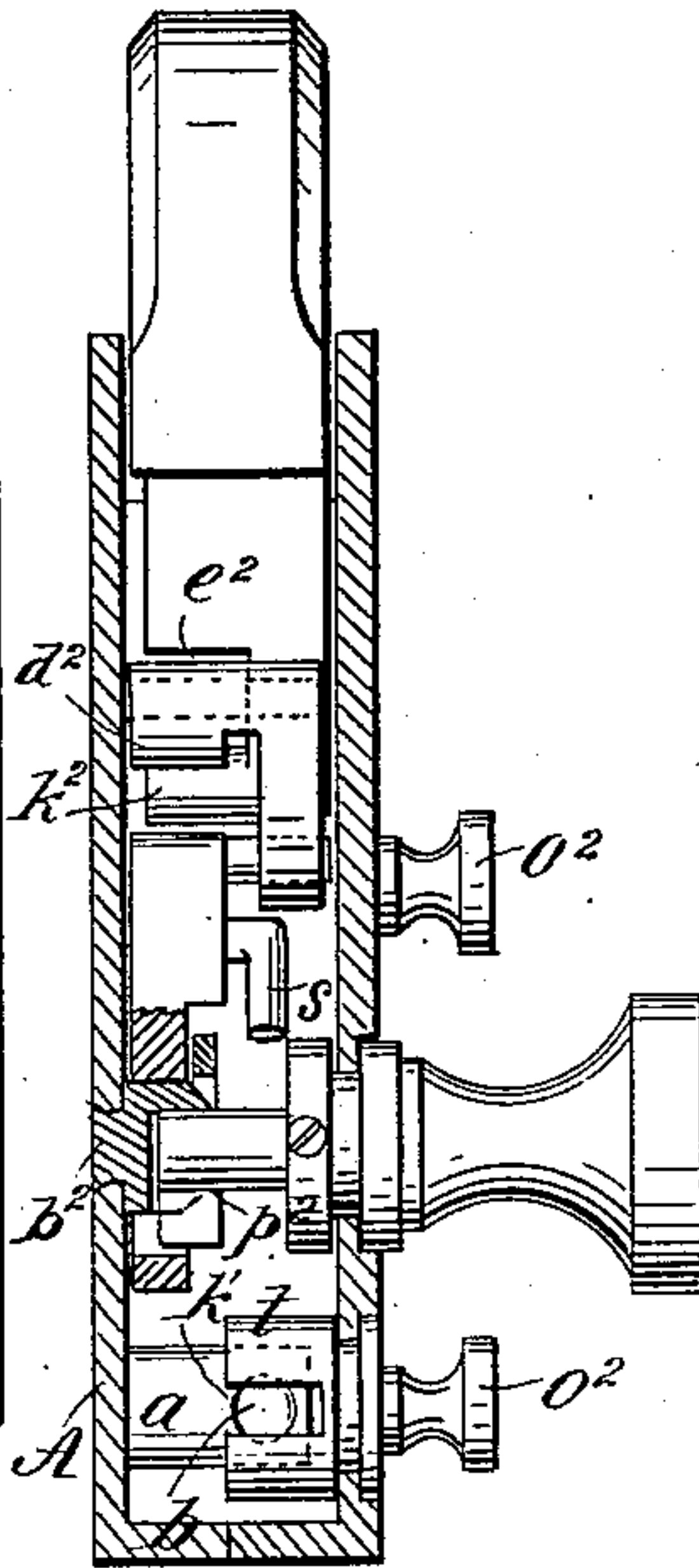


Fig. 5.



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# UNITED STATES PATENT OFFICE.

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## PERMUTATION-PADLOCK.

SPECIFICATION forming part of Letters Patent No. 345,340, dated July 13, 1886.

Application filed July 23, 1885. Serial No. 172,421. (Model.)

*To all whom it may concern:*

Be it known that I, CHARLES A. VOLKE, of Stapleton, in the county of Richmond and State of New York, have invented a new and Improved Permutation-Padlock, of which the following is a full, clear, and exact description.

My invention relates to the construction of permutation-padlocks; and it consists in certain novel features of construction of the lock mechanism, as will be hereinafter described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a face view of a padlock, showing a portion of the thumb-piece cut away to disclose the pointer. Fig. 2 is a sectional view on line *x x*, Fig. 1, showing the position of the parts when unlocked. Fig. 3 is a view of the interior of the rear half of the padlock-case. Fig. 4 is a face view of a modified form of locking mechanism, the front plate of the case being removed to disclose the form and arrangement of the parts. Fig. 5 is a sectional view on line *y y*, Fig. 4.

A represents the back plate, and B the face-plate, of a padlock-case. Studded to the back plate, A, are the short posts *a a*, which are slotted at *b b*, for a purpose to be hereinafter fully explained.

Referring now to Figs. 1, 2, and 3, wherein I have illustrated my preferred form of construction, it will be seen that the circular bow or shackle C rides between two concentric ridges, *c c'*, that are cast upon the plate, the ridge *c'* being centrally cut away at *g*, to permit the bolt or locking-dog *d* to pass through it to enter the opening *e* in the shackle C in order to lock the same in position. The bolt *d* is made integral with a plate, *f*, which rests directly upon the plate A, and is arranged to slide up and down thereon, being guided by lugs *i i* and the approaching ends of the ridge *c'*, between which, as before stated, the bolt *d* passes, and also by the ridges or lugs *o o'*, that are formed on the upper side of the plate and bear against the under side of a retaining-plate, *h*, that reaches over the plate *f*, and is secured in place by means of the screws *k k*,

which pass through the plate A and engage with the lugs *i i*. To the upper edge of the plate *f*, which is twined over to form a shoulder, *l*, there is secured a short post, *m*, which holds one end of a spiral spring, *n*, the other end of said spring entering a socket, *p*, formed in the bolt *d*, the action of the spring being to force the bolt upward through the opening *g* and into engagements with the shackle C. The plate *f* has two projecting arms, D D, which carry pins *s s*, a third pins being attached to the lower side of the plate itself. These pins *s* are all in line with the slots *b*, formed in the posts *a*, being so arranged for a purpose to be presently explained. The face-plate B is formed with concentric ridges to correspond with the ridges *c c'*, that are formed on the plate A, as best shown in dotted lines in Fig. 1. The posts *a a* are each surrounded by a cap, *t*, slotted at *k'*, upon which cap there is formed a collar, *u*. The periphery of this collar *u* is milled or serrated, and projects through a slot, *v*, formed in the outer rim of the face-plate B, as seen best in Fig. 2. To the tops of the caps *t* are secured pointer-plates *w*, connected to the caps by screws *a'*, said pointer-plates being formed to fit within openings *b'*, which are made for their reception in the face-plate B. Around the openings *b'* there are arranged a number of marks, which are either numbered or lettered to form the dials *w'*, so that the points *e'* of the pointer-plates *w* may be brought into register with such of the marks upon face-plate B as will bring the slots *k'* and *b* in register, so that if the plate *f* should be depressed the pins *s* could enter the slots named, and thus permit the bolt *d* to be drawn from engagement with the bow or shackle C. To about the center of the plate B there is secured a circular collar, *h'*, provided with a groove, within which there rides a flange, *i'*, that projects from a thumb-piece, *p'*, the shank of which passes through the plate B, as shown best in Fig. 2. A square or angular opening is formed in the bottom of this thumb-piece, and through this opening the correspondingly-formed shank of the key *l'* passes. Near the lower end of the shank of the key *l'* there is a lug, *m'*, which is normally held against the under side of the thumb-piece *p'* by a spiral spring, *n'*, arranged as shown in Fig. 2. The plate *h*



is slotted, as shown at  $q'$ , in order that the key  $l'$  may be passed through it to be brought into engagement with the lug  $o$  on the plate  $f$ , so that by turning the thumb-piece  $p'$  the plate  $f$  and bolt  $d$  may be moved to the position shown in Fig. 2, it of course being understood that this movement of the plate and bolt could not be made unless the slots  $b$  and  $k'$  were in register. In order to depress the plate  $f$ , the key  $l'$  must be inserted in the opening  $q^2$  of the slot  $q'$ , and in order that the key may be turned so as to slip directly into the opening I make a dial,  $a^2$ , on the collar  $h'$ , and place a point on the base of the thumb-piece  $p'$ , which is brought into line with such point on the dial  $a^2$  as will bring the key in position to enter this opening  $q^2$ . The plates A and B are riveted together by rivets  $w^2 w^2$ , but before being so united the slots  $b$  and  $k'$  are brought into register, and the parts of the lock moved to the position shown in Figs. 1 and 2. After the plates are riveted together the position of the points upon the dials on the plate B are carefully noted, so that when the parts are sprung and the slots  $k'$  and  $b$  thrown out of register, they can be returned thereto when it is desired to open the lock.

If at any time it is desired to change the original combination, all that is necessary is to loosen the screws  $a'$ , turn the plates  $w$ , and refasten said plates, carefully noting the changed position of the pointer  $e$  upon the dial.

In the construction shown in Figs. 4 and 5 the plate  $f$  revolves about a central post,  $b^2$ , that is studded to the casing A, the pins  $s$  in this case being carried by radial arms  $c^2$ . The shackle C is pivotally connected to the case by studs  $f^2$ , and the catch-arm is slotted at  $e^2$  to form the tooth  $k^2$ , with which the locking-dog  $d^2$  engages. This dog  $d^2$  is pivotally mounted in the case and carries a downwardly-projecting arm,  $g^2$ , which engages with a lug,  $h^2$ , on the plate  $f$ . A spring,  $i^2$ , that is secured to the case, bears against the arm  $g^2$  and tends to elevate the dog  $d^2$  to bring it into engagement with the tooth  $k^2$ . The plate  $f$  is normally held against the limit-pin  $l^2$  by the spring  $m^2$ , while the spring  $n^2$  acts to throw up the catch-

arm of the shackle when its tooth  $k^2$  is released from engagement with the dog  $d^2$ . The caps  $t$  project directly through the face-plate B, and are provided with thumb-pieces  $o^2$ , the pointer being on the cap-plate and the dial on the face-plate B. The key  $p^2$  is in this case shown as being rigidly secured to its thumb-piece and as resting in a slot,  $r^2$ , formed in the plate  $f$ . The caps  $t$  having been turned to the position shown in Fig. 4, the plate  $f$  may be turned on its pivotal point, so that the pins  $s$  will enter the slots  $k'$  and  $b$ , and this movement of the plate will, through the medium of the stud  $h^2$ , depress the arm  $g^2$ , and thereby withdraw the dog  $d^2$  from engagement with the tooth  $k^2$ , when the spring  $n^2$  will act to throw the catch-arm of the shackle out of the case.

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

1. In a permutation-padlock, the combination, with the case and its bow or shackle, of a plate,  $f$ , locking-dog  $d$ , pins  $s$ , slotted posts  $a$ , caps  $t$ , formed with slots  $k'$ , and a manipulating device consisting, essentially, of a key,  $l'$ , and thumb-piece  $p'$ , substantially as described.

2. In a permutation-padlock, the combination of the following elements, viz: case and shackle C, plate  $f$ , carrying dog  $d$ , and pins  $s$ , plate  $h$ , formed with post  $m$ , spring  $n$ , slotted posts  $a$ , and slotted caps  $t$ , substantially as described.

3. In a permutation-lock, the combination of the following elements, viz: case and shackle C, plate  $f$ , carrying dog  $d$  and pins  $s$ , plate  $h$ , post  $m$  and spring  $n$ , slotted posts  $a$ , caps  $t$ , formed with slots  $k'$ , and a key,  $l'$ , substantially as described.

4. The combination, with the plate  $f$ , locking-dog  $d$ , pins  $s$ , and a plate,  $h$ , guiding the same, of a thumb-piece,  $p'$ , provided with a pointer or mark, a key,  $l'$ , spring  $n'$ , and a dial,  $a^2$ , substantially as described.

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Witnesses:

EDWARD KENT, Jr.,  
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