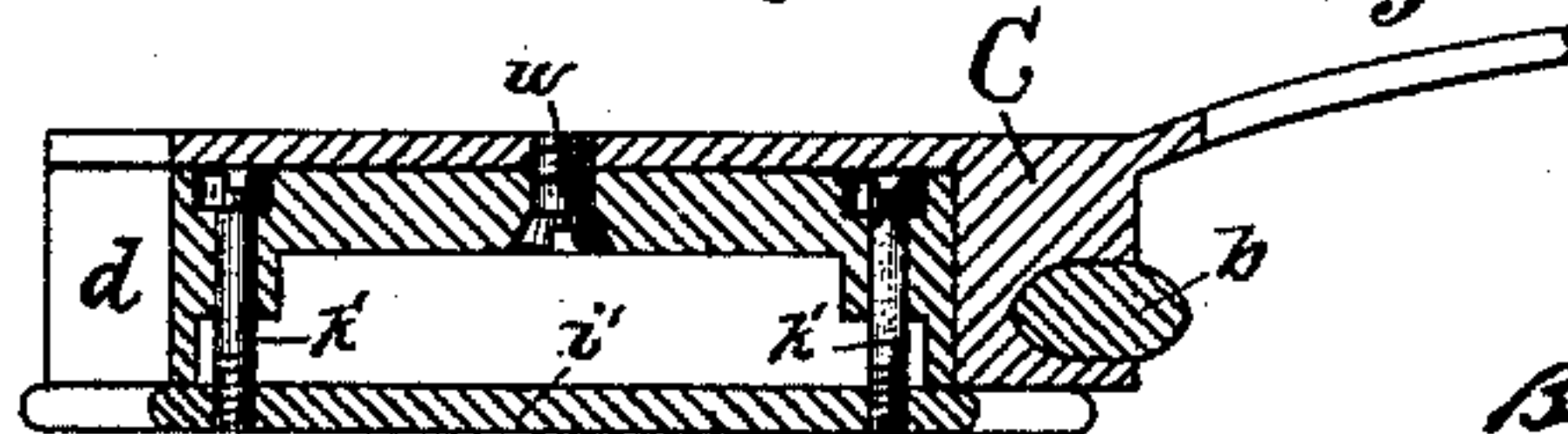
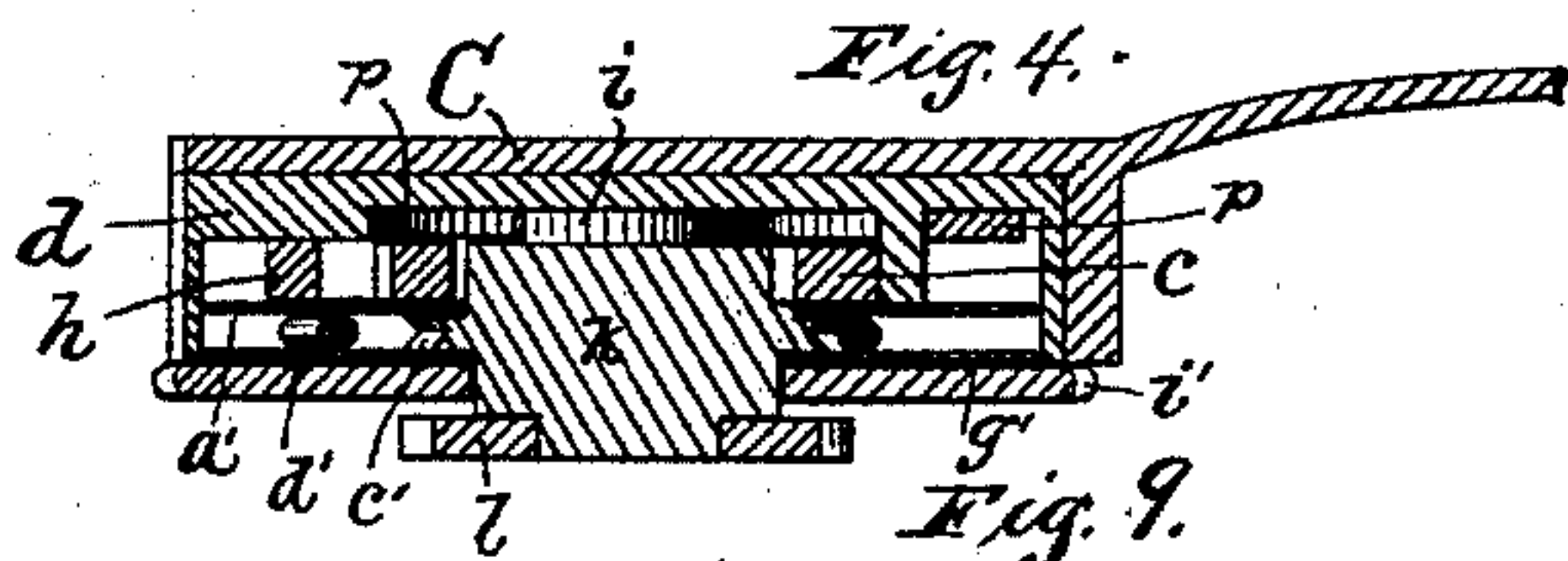
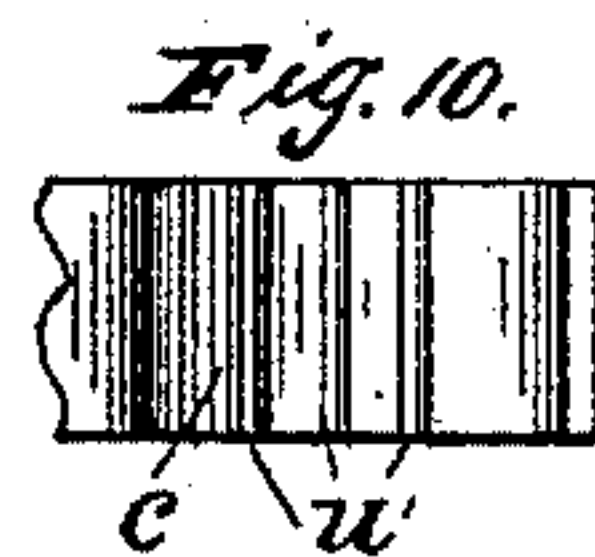
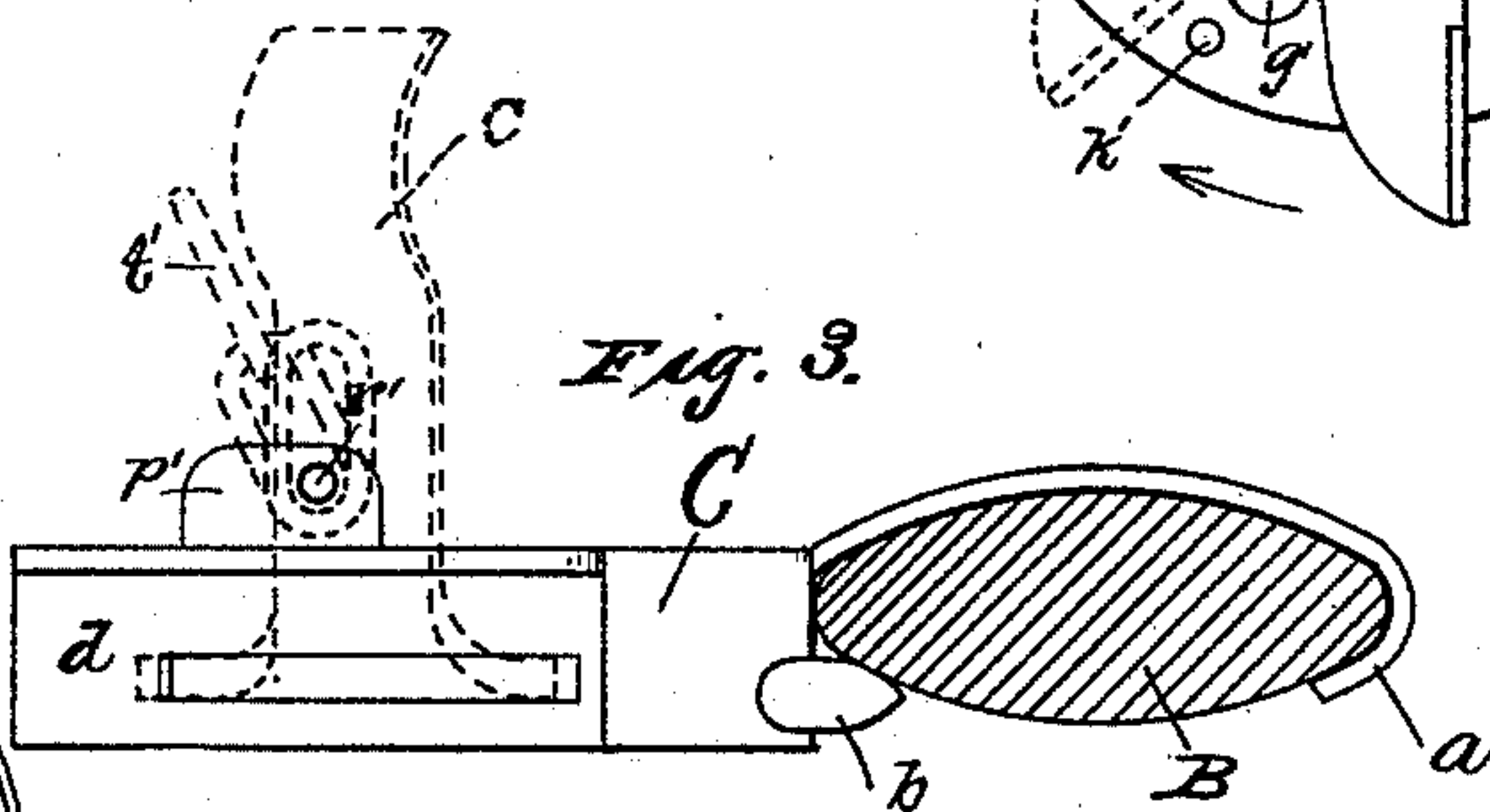
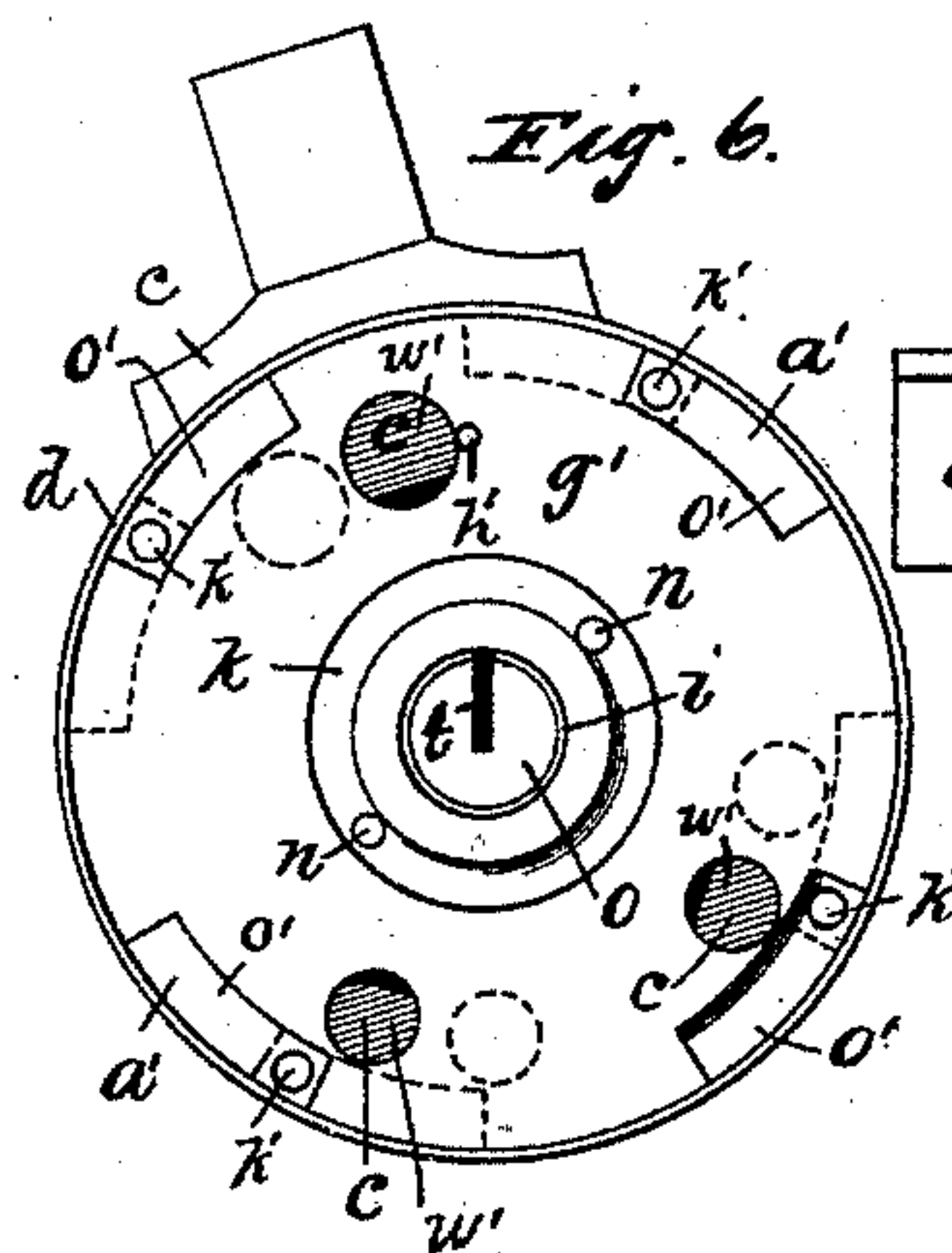
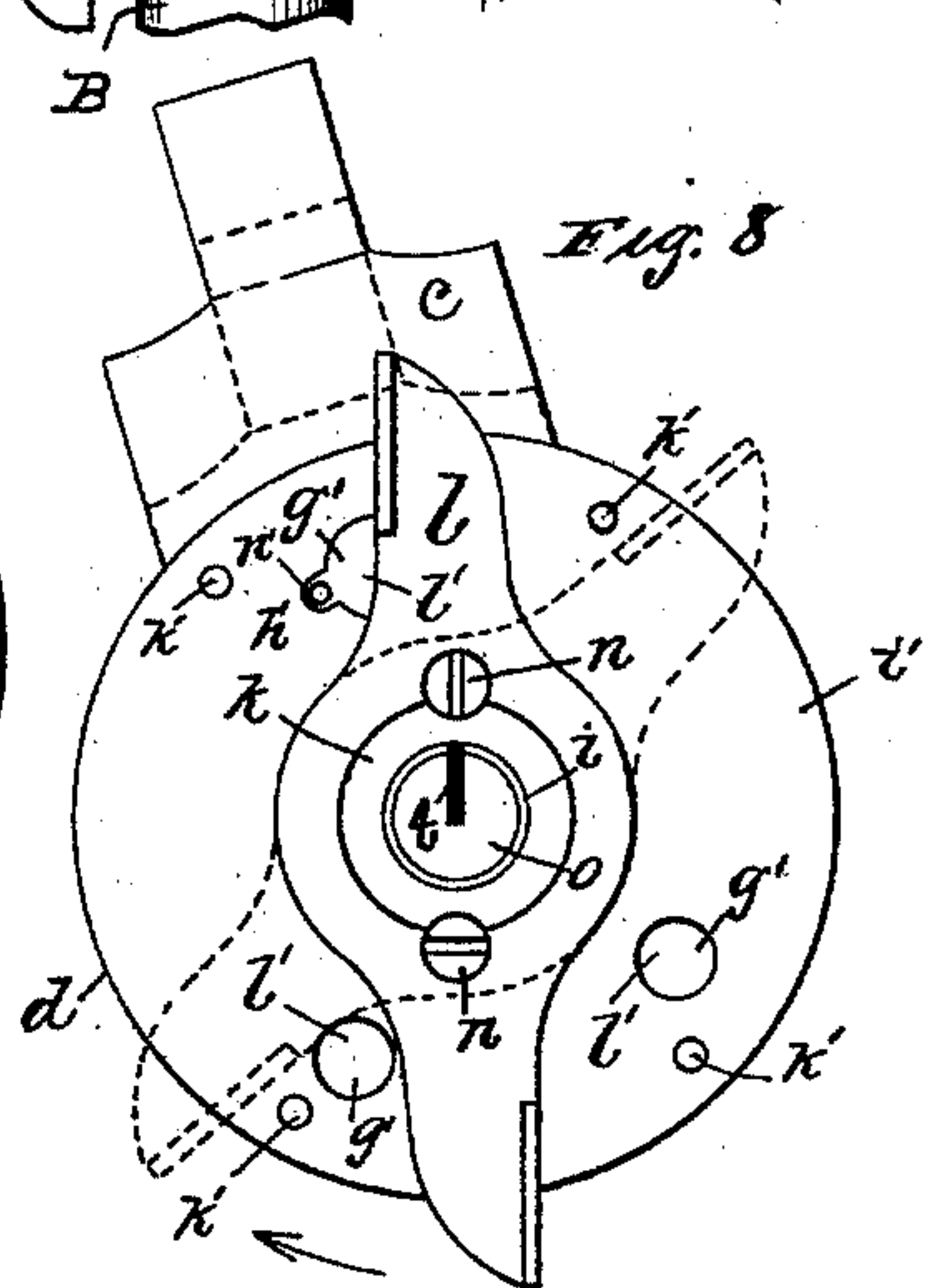
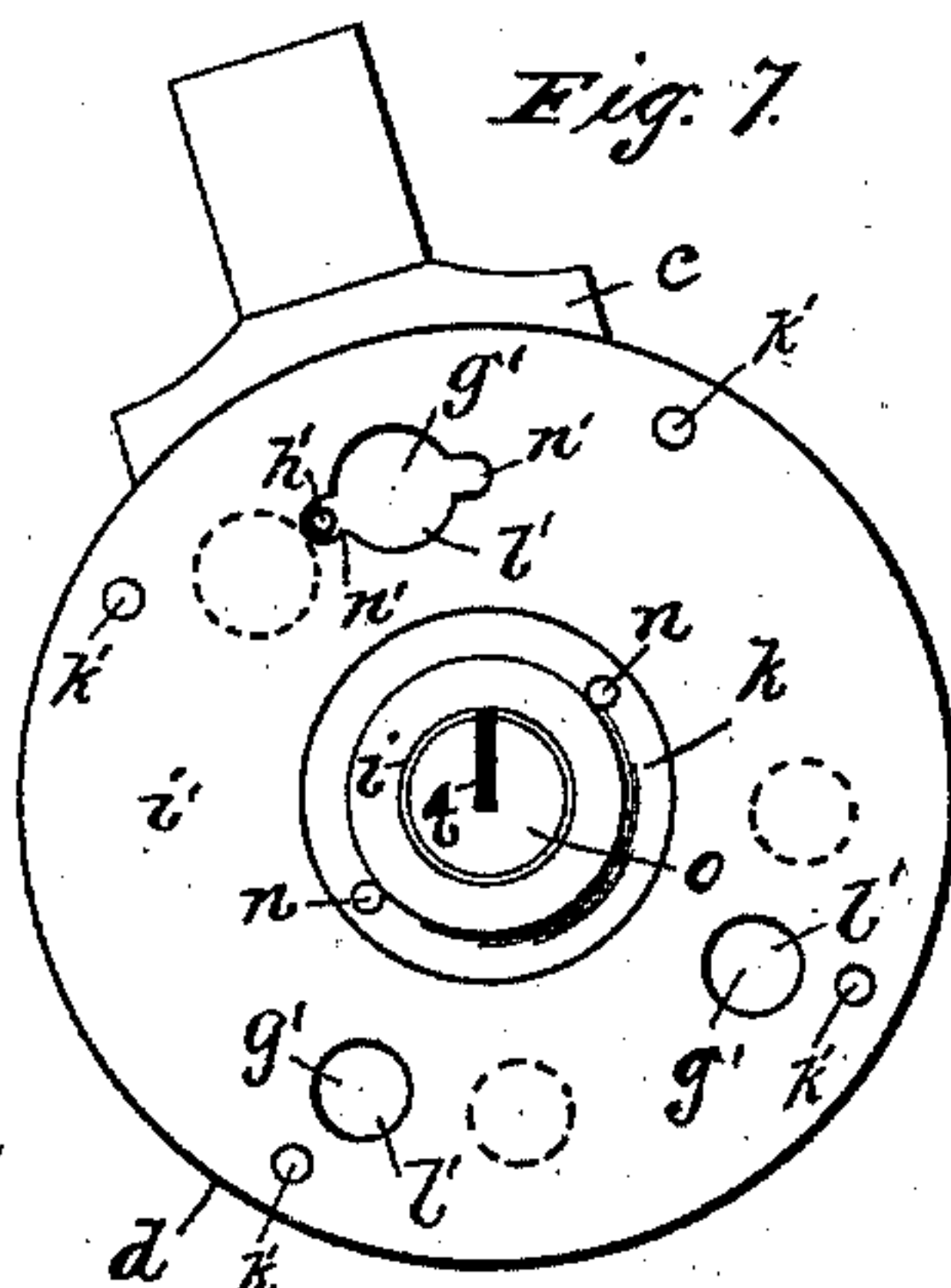
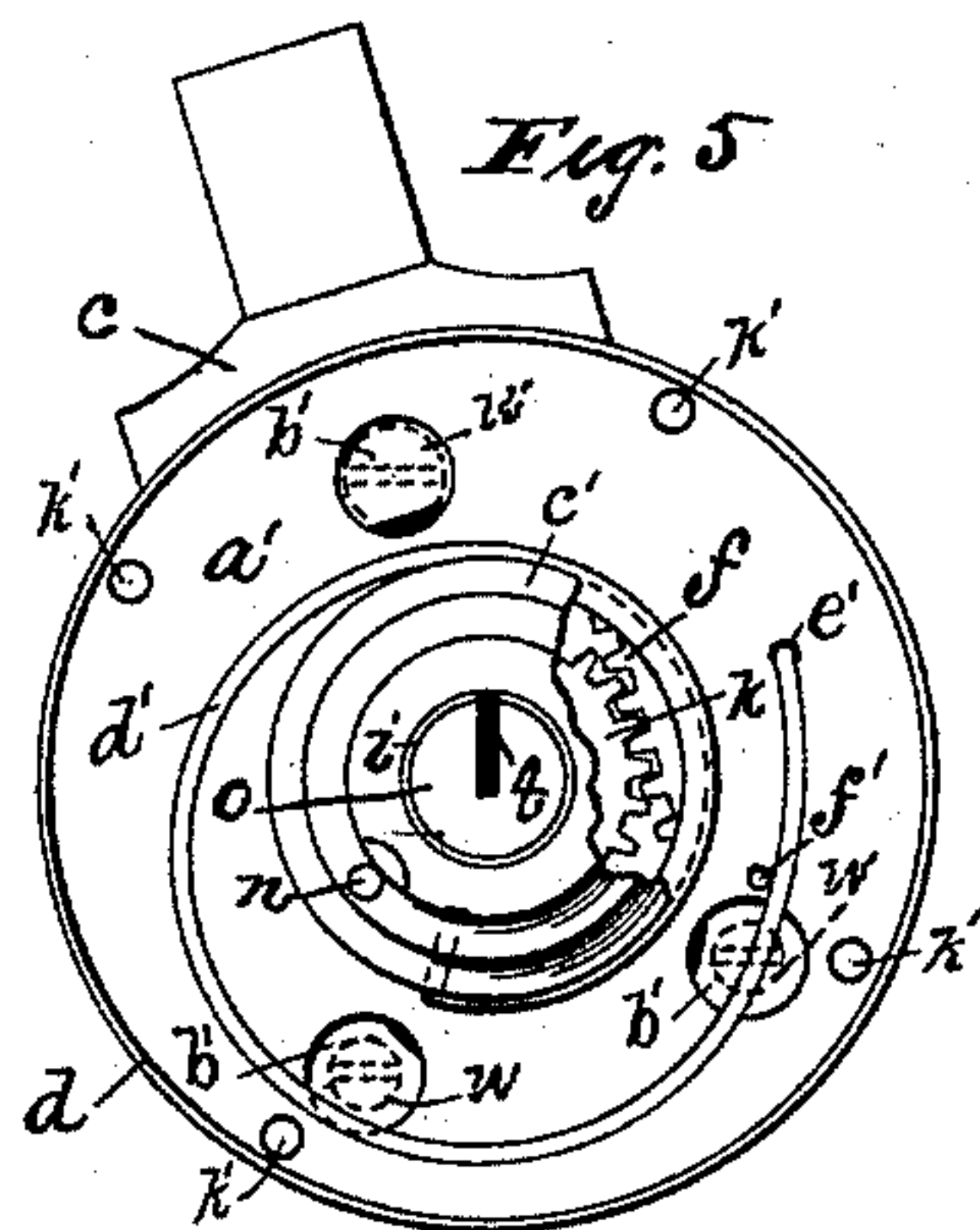
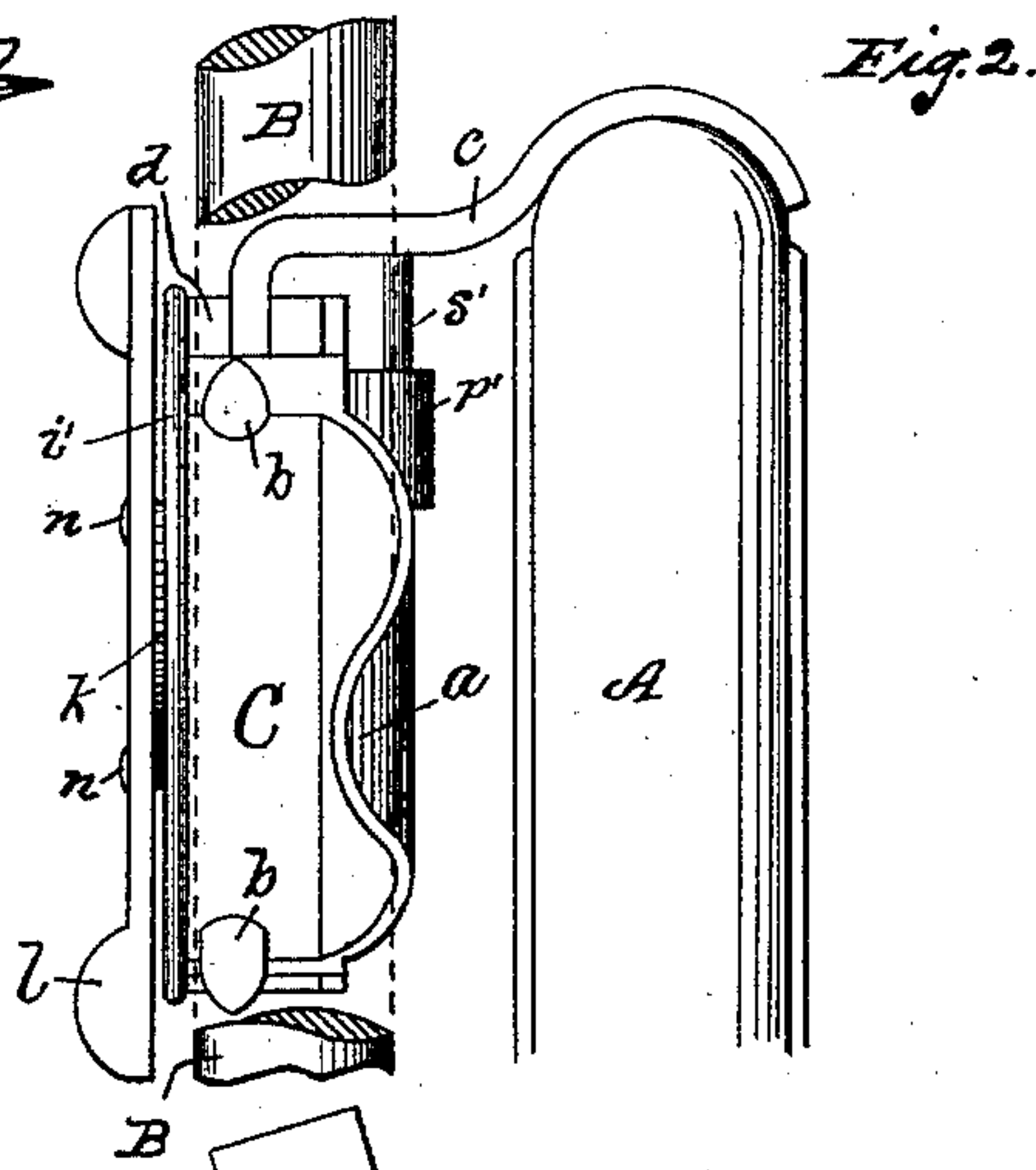
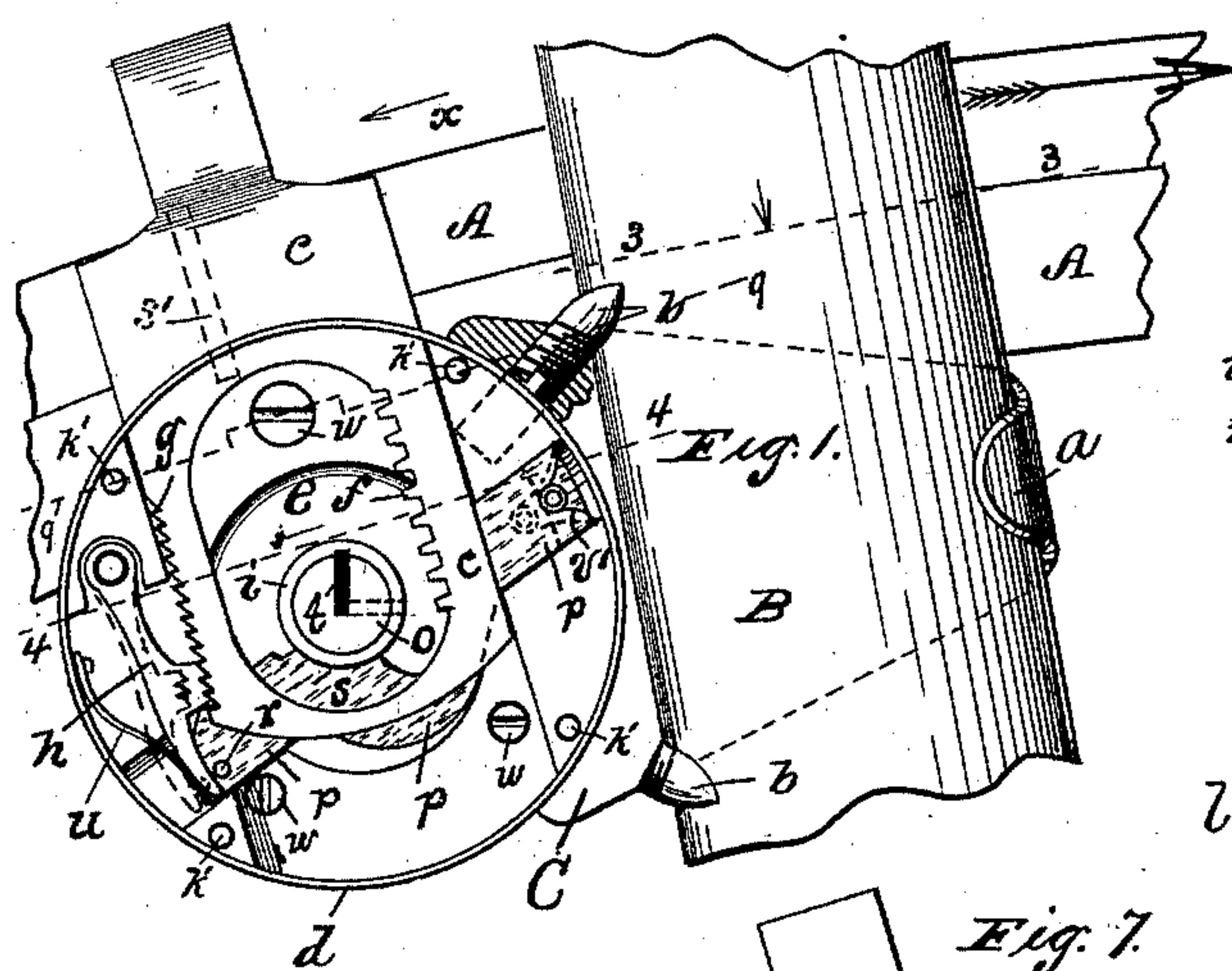


(No Model.)

G. R. FULLER.
LOCK FOR BICYCLES.

No. 441,949.

Patented Dec. 2, 1890.



Attest:
M. L. M. D. D. D.
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UNITED STATES PATENT OFFICE.

GEORGE R. FULLER, OF ROCHESTER, NEW YORK.

LOCK FOR BICYCLES.

SPECIFICATION forming part of Letters Patent No. 441,949, dated December 2, 1890.

Application filed July 21, 1890. Serial No. 359,390. (No model.)

To all whom it may concern:

Be it known that I, GEORGE R. FULLER, of Rochester, in the county of Monroe and State of New York, have invented a new and useful
5 Improvement in Locks for Bicycles, which improvement is fully set forth in the following specification and shown in the accompanying drawings.

My invention is an improved lock for bicycles or other velocipedes, by means of which the wheel of the vehicle may be conveniently and rigidly held from turning by applying the locking device preferably to the periphery of the wheel.

15 The invention is hereinafter fully described, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a side elevation of a portion of the fork and the wheel of a bicycle with my improved lock in place, parts being omitted; Fig. 2, a view of the device seen as indicated by arrow *x* in Fig. 1, parts being broken away and the locking-clamp bearing against the wheel; Fig. 3, a cross-section of the fork taken on the dotted
25 line 3 3 in Fig. 1; Fig. 4, a section taken as on the dotted line 4 4 in Fig. 1. Figs. 5 to 8, inclusive, show the device with various pieces successively added; Fig. 9, a section taken as on the dotted line 9 9 in Fig. 1, parts being
30 omitted; and Fig. 10, a view of the clamp, showing the corrugations.

Referring to the parts shown, A is the wheel of a bicycle or other velocipede, and B the fork, to which latter part my improved lock
35 is shown as being secured in position to bear upon the periphery of the wheel.

The lock is provided with a frame C to secure it to the fork, said frame being secured to the fork by means of a lip *a* and binding-
40 screws *b b*.

c is a sliding clamp turned laterally over the wheel to press the latter, as shown in Fig. 2. This clamp is in one piece or rigid as to its parts, and rests in the circular inclosing-
45 case *d* of the lock, and is formed with an opening *e* within said case and internal gear-teeth *f*, Figs. 1 and 5. At the opposite side the clamp is formed with external ratchet-teeth *g*, which are engaged by a spring-pressed
50 pawl *h* within the case. Centrally within the case is a barrel or cylinder *i*, rigid with the

case, whose axis coincides with the axes of the case.

k, Fig. 5, is a pinion occupying the opening *e* in the clamp, having its teeth engaging the
55 internal teeth of the clamp to actuate the latter, said pinion being concentric with and held to turn on the barrel *i*.

l is a wrench or handle outside of the case, secured rigidly to the pinion by fastening-
60 screws *n n*. By means of this handle the pinion may be turned at any time in a manner to bring the clamp firmly down upon the wheel, as shown in Fig. 2, to firmly lock the wheel and prevent it from turning on its axis. 65

The ratchet-teeth are formed in such a manner that the clamp may be moved freely toward the wheel, but will be prevented by the pawl from moving in the opposite direction. Then to lock the wheel it is only necessary to
70 turn the handle *l*—as, for instance, from the position shown in full lines in Fig. 8 to the position shown in dotted lines in the figure—the pawl holding the clamp in position against the wheel. 75

Within the cylinder *i* is placed a movable core *o*, consisting of tumblers or parts of a lock of suitable kind to be operated by a key or instrument separate from the lock, carried in the pocket of the rider of the vehicle, 80 which parts, however, within the cylinder and the key by themselves, form no part of my invention.

Beneath or back of the clamp *c* is shown a sliding piece *p*, Fig. 1, constituting an actuator for the pawl, provided with a rigid pin
85 *r* to bear against the pawl in a manner to turn the latter away from the clamp. This sliding piece has a part *s* extending near to or within the cylinder, so that the sliding piece may be
90 moved against the pawl by the key, the latter being inserted in the key-hole *t*. The piece *p* is provided at one end with a slender spring *v'* to hold it normally back from the pawl, so that the latter may be free to engage the
95 clamp. Now to unlock the bicycle it is only necessary to insert the key in the core *o* and turn the actuator *p* against the pawl to release the clamp. The pawl is pressed against the clamp by a spring *u*, rigid with the case *d*. 100

The case *d* is open at one side, but formed with a rigid back *v*, and is secured to the

frame C by short clamping-screws *w*, Figs. 1 and 9, passed through the back *v* and threaded in the frame. Fig. 5 shows a thin circular plate or diaphragm *a'*, placed against the clamp *c* and formed with holes *b'* over the screws *w*. Resting upon this diaphragm is the pinion *k*, the toothed portion of which is within the space *e* of the clamp, as above described. The ring or part *c'* of the pinion is formed with a peripheral groove, as shown in Fig. 4, and an involute spring *d'* occupies said groove in part, having its inner end inserted in the pinion. This spring has its outer end inserted in a hole *e'* in the diaphragm, and a pin *f'*, rigid with the case and projecting through the diaphragm, also serves to hold the spring.

g', Figs. 6 and 4, is a thin plate placed over the spring *d'* to inclose the latter between the plate and the diaphragm. This plate rests against a circular shoulder of the pinion and serves when in one position as a dust-guard to cover openings leading into the interior of the case. This dust-guard is held to turn upon its bearings on the pinion, and is provided with a rigid pin *h'*, by means of which it may be turned. It is also formed with holes *w'*, which register with the holes *b'* in the diaphragm when the dust-guard is in a certain position. Outside of the dust-guard is the circular cap or cover *i'* for the case, held rigidly to the latter by screws *k'*. This cap is also formed with holes *l'*, registering with the holes *b'* in the diaphragm, through which an instrument may be passed to turn the screws *w*. One of the holes *l'* is formed with extensions *n'* on opposite sides to accommodate the pin *h'* in the dust-guard, so that the latter may be turned at any time to either cover or uncover the holes *l'* in the cap *i'*. As shown in Figs. 7 and 8, the pin is turned to the left, and the holes *l'*, leading into the interior of the inclosing-case, are closed. Fig. 6 shows the dust-guard in full lines turned to the right, in which position the holes *w'* register with the holes *b'* of the diaphragm and *l'* of the cap *i'*. When these holes all register and the clamp is raised out of the way, a screw-driver may be passed through them to turn the screws *w* to remove the case from the frame C.

The dust-guard is formed with peripheral notches *o'*, Fig. 6, so as to clear the screws *k'*, which pass through it and admit of its being turned, as above described.

The screws *k'*, that hold the cap *i'* to the case *d*, are threaded in the former and have their heads resting in countersink-openings in the back of the case and next the frame C, Fig. 9. By this means the heads of the screws are covered by the frame, which renders them inaccessible and prevents the lock being opened or tampered with by unauthorized persons; also, when the clamp is brought down upon the wheel to lock it by means of the handle *l*, as above described, it covers the screws *w*, as shown in Fig. 5, so that while

the wheel is locked and left standing no person can loosen said screws *w* and remove the case from the frame C to unlock the wheel.

I form the frame with a perforated projecting lug *p'* at its rear surface, Figs. 2 and 3. This lug is formed with an opening *r'*, and the clamp is provided with a pin *s'* to enter said opening when the clamp is brought down upon the wheel to lock the latter. By this contrivance links *t'* of a chain may be held by the pin, so that the vehicle may be chained to a post or other fixed part (the chain passing around said post or fixed part) at the same time that the wheel is locked by the clamp. I form the surface of the clamp in contact with the wheel with teeth or corrugations *u'*, Fig. 10, to sink into the rubber tire of the wheel, so as to more firmly hold the latter. The involute spring *d'*, acting upon the pinion, serves to throw the clamp up off the wheel when the clamp is released from the holding-pawl by the key, as above stated.

What I claim as my invention is—

1. A locking device for bicycles, formed with a frame or holder for the lock secured to the fork of the bicycle, in combination with an inclosing-case for the operating parts of the lock, secured to said frame, a cap or cover for said inclosing-case, clamping-screws for said cap and case, threaded in the former, with their heads resting against the back of the case, a clamp extending out from said case to press the wheel, and an actuator for said clamp, the heads of said clamping-screws being covered by said frame, substantially as described.

2. A locking device for bicycles, formed with a frame or holder for the lock secured to the fork of the bicycle, in combination with an inclosing-case for the operating parts of the lock, secured to said frame by clamping-screws passing through the back of the case and threaded in said frame, a clamp extending out from said case to press the wheel, and an actuator for said clamp, the latter, when in position to press the wheel, being also in position to cover the heads of said clamping-screws, substantially as and for the purpose set forth.

3. A locking device for bicycles, formed with a frame or holder for the lock secured to the fork of the bicycle, in combination with an inclosing-case for the operating parts of the lock, secured to said frame, a clamp extending out from said case to press the wheel, and an actuator for said clamp, said frame being formed with a part *a* to rest against the fork and provided with opposing binding-screws *b b* to press the fork, the heads of said binding-screws being covered by said case, substantially as shown and described.

4. In a lock for the wheel of a bicycle, the fork of the vehicle, in combination with a frame or holder for the lock secured to said fork, a circular inclosing-case secured to said frame or holder by clamping-screws threaded therein, a clamp extending outward from the

case to press the wheel, an actuator for said clamp, a diaphragm within the case to cover said clamp, formed with openings over the heads of said clamping-screws, a dust-guard in said case, formed with openings over said clamping-screws, and a cap or cover for said case secured thereto and formed with openings over said clamping-screws, said dust-guard being capable of being turned to close the openings in said cap, substantially as and for the purpose set forth.

5. In a lock for bicycles, the fork or frame of the vehicle, in combination with a toothed clamp held by said fork or frame to bear against the wheel, a hollow actuating-pinion for said toothed clamp, a holder for the clamp to hold the latter against the wheel, and an actuator for said holder, operated by a key or instrument passed through said actuating-pinion, substantially as shown.

6. A locking device for bicycles, formed with a frame or holder for the lock secured to the fork of the vehicle, said frame being formed with a perforated lug, in combination with an inclosing-case for the operating parts of the lock, secured to said frame, a clamp extending out from said case to press the wheel, provided with a part to enter said perforated lug, and an actuator for said clamp, substantially as and for the purpose set forth.

7. In a lock for bicycles, the fork or frame of the vehicle, in combination with an inclosing-case held by said fork or frame, a toothed clamp held by said inclosing-case to bear upon the wheel, a spring-pressed actuating-pinion for said toothed clamp, having its teeth engaging the teeth of said clamp and extending outside of said inclosing-case, and a handle rigid with said pinion outside of the case, substantially as shown and described.

8. In a lock for bicycles, the fork or frame of the vehicle, in combination with an inclosing-case held by said fork or frame, a clamp held by said inclosing-case to bear upon the wheel, formed with an opening within the inclosure of said case and having internal gear-teeth at one side of said opening, an actuating-pinion for said clamp occupying the opening in the clamp, with its teeth engaging the teeth of the clamp, and a handle rigid with said pinion outside the case, substantially as shown and described.

In witness whereof I have hereunto set my hand, this 17th day of July, 1890, in the presence of two subscribing witnesses.

GEORGE R. FULLER.

Witnesses:

E. B. WHITMORE,
M. L. McDERMOTT.