K. BALLOD.

CYCLE LOCK.

APPLICATION FILED DEC. 9. 1907.

898,955. Patented Sept. 15, 1908.

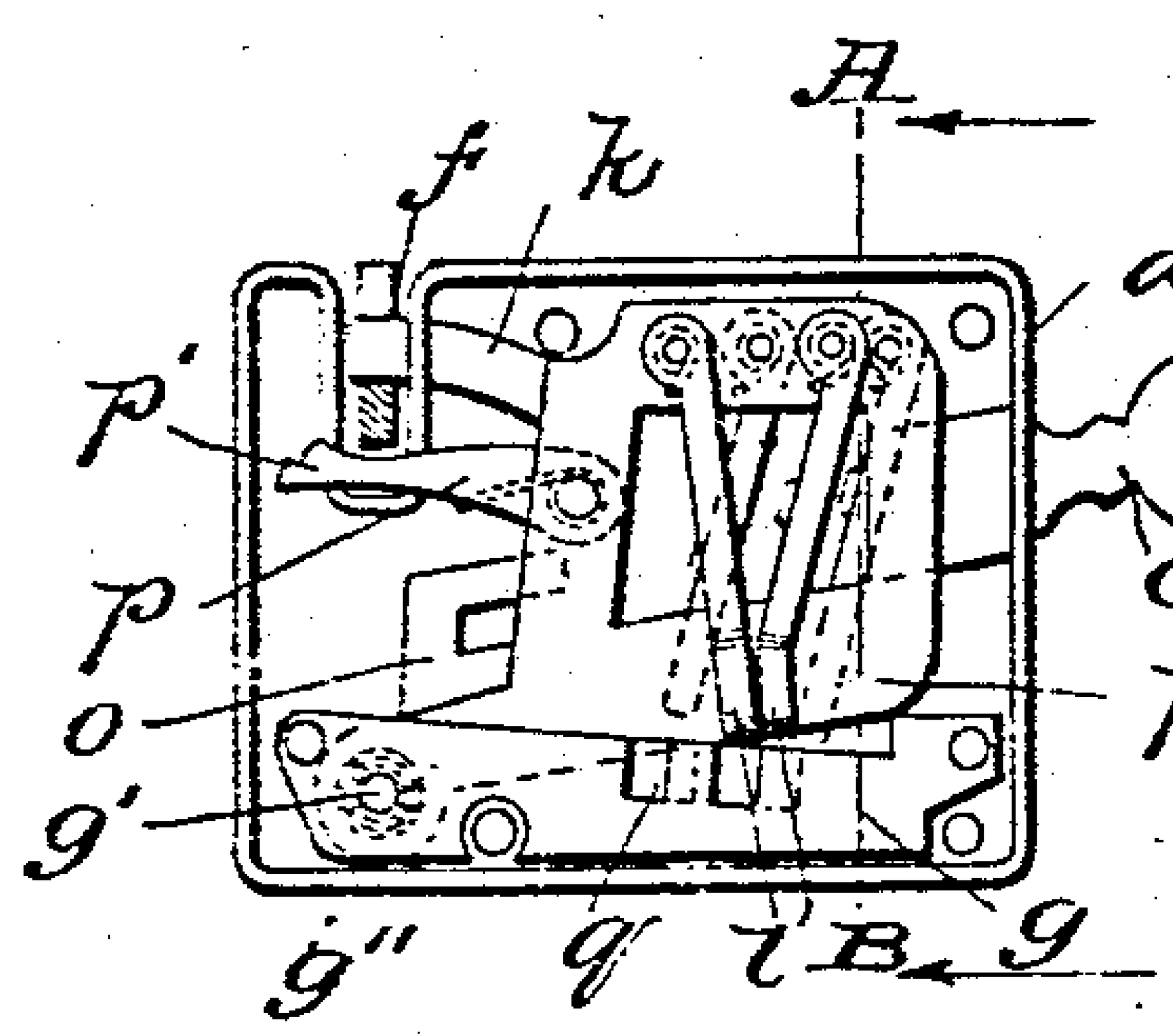

Fig. 1.

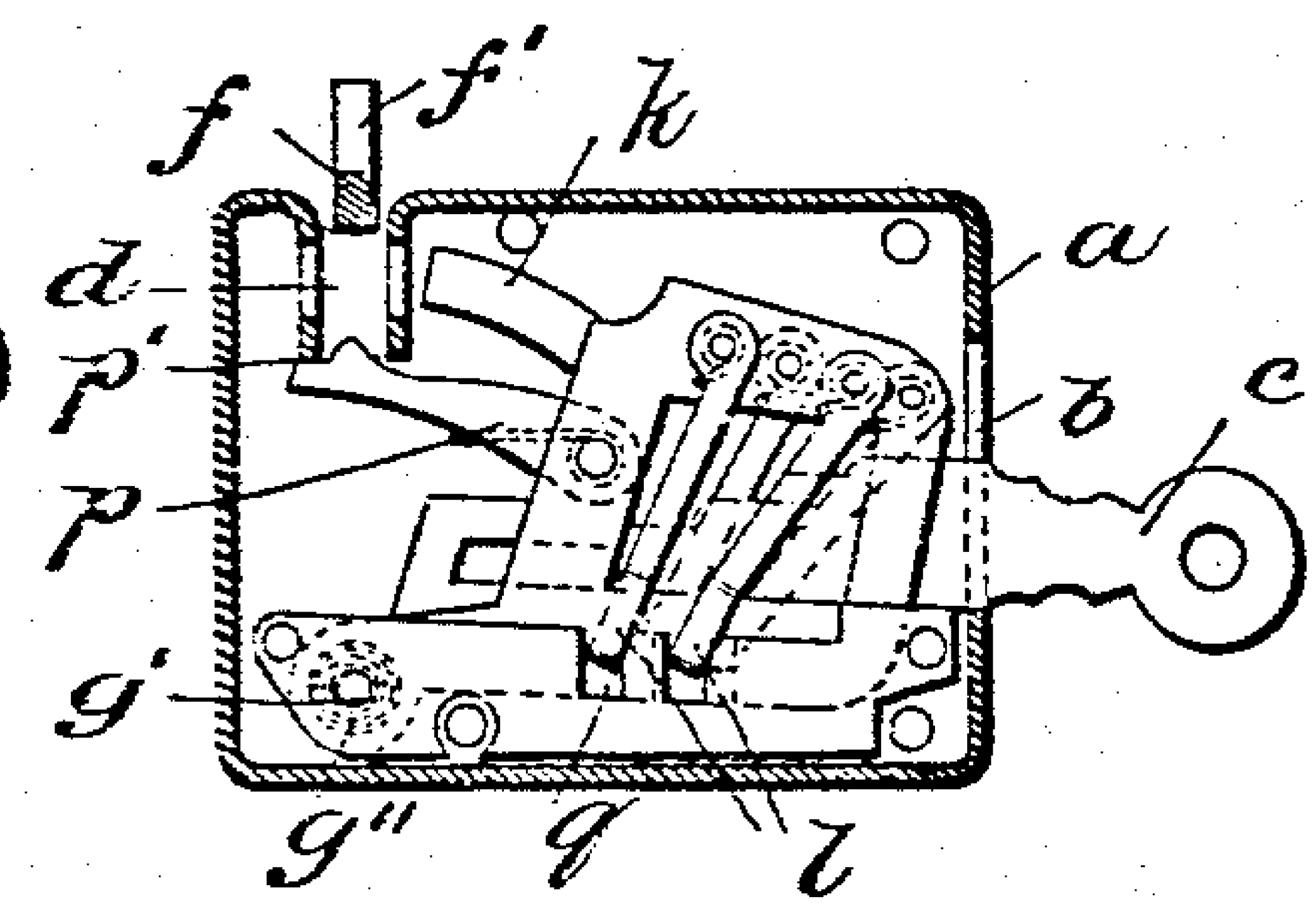

Fig. 2.

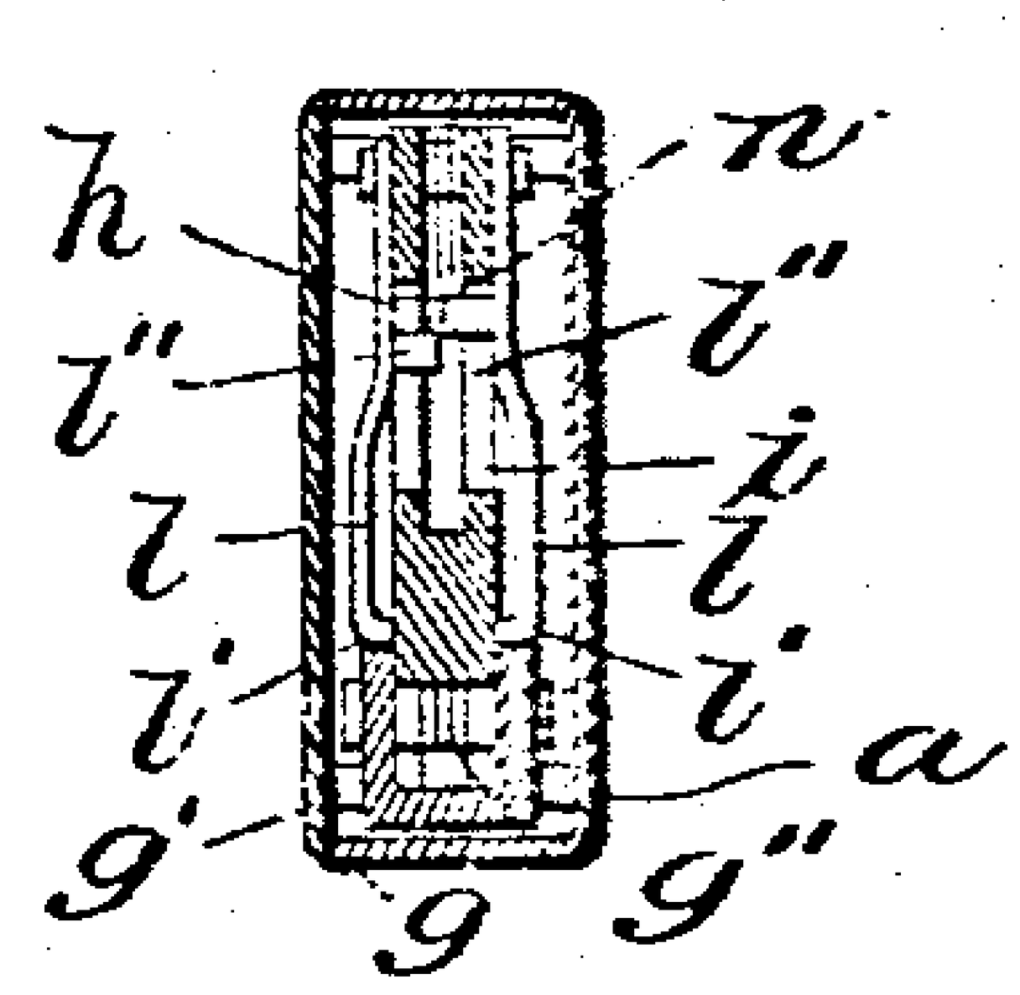

Fig. 3.

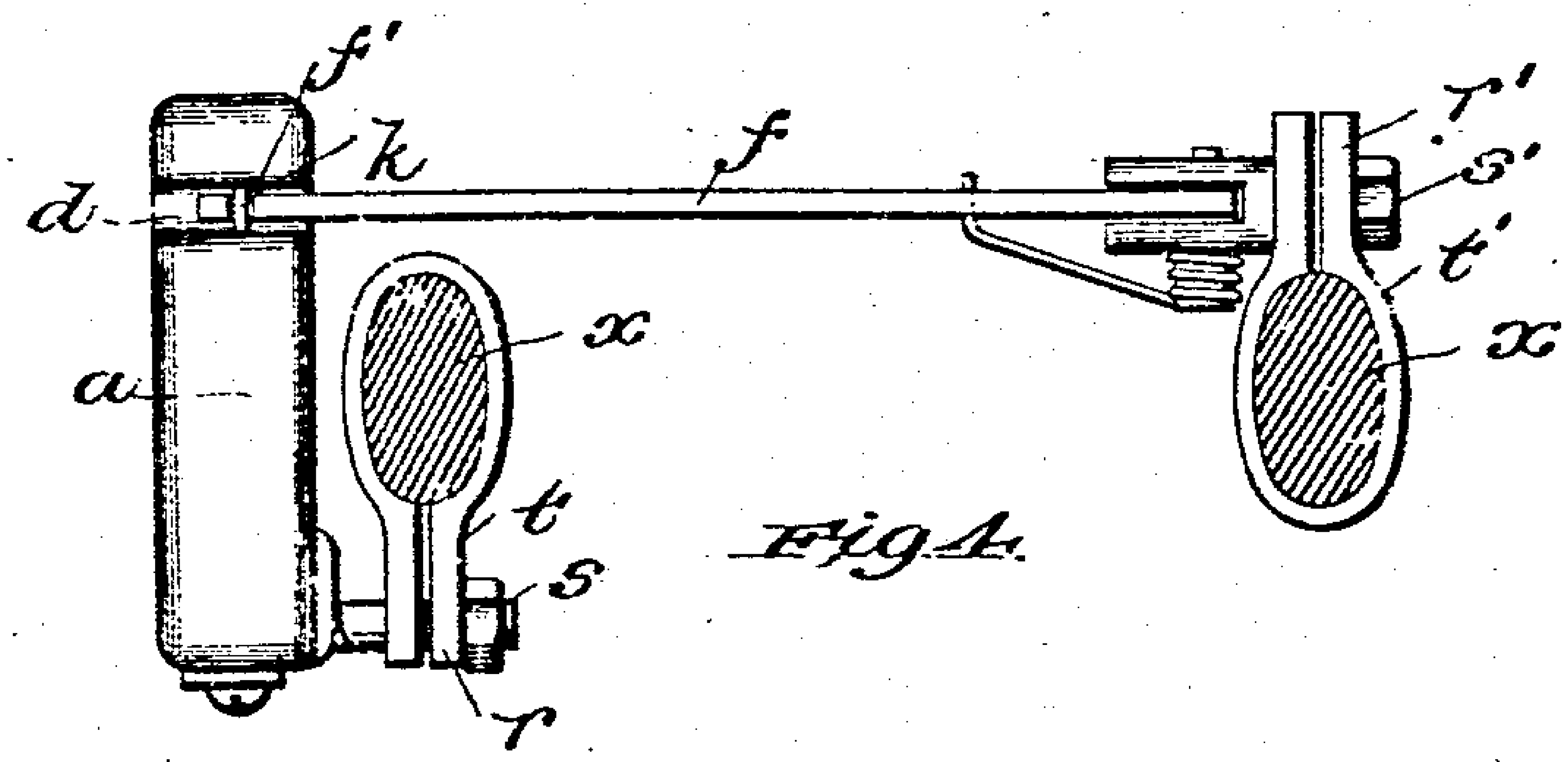

Fig. 4.

Witnesses

Inventor

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UNITED STATES PATENT OFFICE.

KARL BALLOD, OF RIGA, RUSSIA.

CYCLE-LOCK.

No. 898,955. Specification of Letters Patent. Patented Sept. 15, 1908.

Application filed December 9, 1907. Serial No. 405,815.

To all whom it may concern:

Be it known that I, KARL BALLOD, a subject of the Czar of Russia, residing at Riga, Russia, have invented certain new and useful Improvements in Cycle-Locks, of which the following is a specification; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a lock for cycles in which a lever engaging between the wheel spokes prevents forward movement of the cycle.

The lock serving to hold the lever between the wheel spokes consists of a part fixedly mounted in the lock casing and a part swinging against this which on the one hand carries the locking latch and in the swinging movement draws this back into the closed position. The swinging part consists of two plates firmly connected with an open intermediate space, on the outside of which plates is or are resiliently pivoted one or more levers with their ends bent to hook shape which levers project into the said intermediate space so that a key inserted through a slot in the lock casing the flat edge of which is stepped to correspond to the number of projections by applying it against the same causes the levers so called tumblers outside the plates to swing out; thus the hook shaped ends of the tumblers are brought into such a position that as soon as the key receives a pressing movement they can engage in longitudinal slots in the part firmly connected to the casing whereby it is made possible for the movable part consisting of the two plates to make a swinging movement under the action of the key. By this swinging movement the bolt firmly connected with the two plates is drawn out of the locked position. The lock is held in the open position by a lever resiliently mounted on the swinging part being held by a nose against a projection on the lock casing. If now the lever passing through the wheel spokes is brought into the locked position it engages in a notch in the lock casing in such a manner that it raises the lever holding the lock in open position so that the swinging part consisting of the two plates in consequence of spring actuation swings into the locked position. In this manner the bolt carried by the swinging part engages the part of the locking lever engaging in the lock casing and holds the same fast.

The invention is illustrated by way of example in the accompanying drawing in which

Figure 1 is a view of the lock (with the cover removed) in the locked position. Fig. 2 is a view of the lock in the open position the casing being shown in longitudinal section and the key being shown inserted. Fig. 3 is a section on the line A—B of Fig. 1 shown in the direction of the arrow. Fig. 4 shows the arrangement in the locked position of the lock in connection with the lever locking the wheel seen below.

The casing *a* has on one longitudinal side a slot *b* for the introduction of a key *e* while on one broad side another slot *d* is provided by which the locking lever *f* swung through the spokes of the wheel against the action of a spring *e* engages in the interior of the casing; the lever is preferably provided near its outer end with a notch *f'*. The slot *d* extends through the upper and lower cover of the casing.

Rigidly connected with the latter is a U-shaped part *g*, about a bolt *g'* mounted transversely thereof is pivoted the swinging part of the lock consisting essentially of two plates *h* and *i*. On the bolt *g'* is further arranged a spring *g''* actuating the swinging part *h*, *i*. The two plates *h*, *i* are united at their upper edge so as to form a unitary structure, as well as at their lower part in an extension piece *k* which is formed as a bolt.

On the outside of each of the plates *h* and *i* are pivoted one or more spring actuated tumblers *l* the upper ends *l'* of which are bent inwards after the manner of a hook while projections *l''* carried by the same project through the slot in the plates *h*, *i* into the intermediate space inclosed by the latter. The arrangement of the projections on the tumblers *l* is such that the latter are arranged in stages so that when the key *c* is introduced through the slot *b* of the casing *a* into the open intermediate space between the two plates *h* and *i* the stepped wards of this key *c* come against these projections *l''*.

Small holes are provided in the plates *h* and *i* through which pass the ends of the springs *n* bringing the levers *l* back into their original position.

A trigger *o* firmly connected with the two plates *h* and *i* has for its object to serve along

with a projection as a support for the outer end of the key *c* in order to limit the inward movement of the same and to transmit the swinging movement of the key on to the swinging part of the lock.

By means of a pin below the bolt *k* is pivoted a spring actuated lever *p* the front end of which is provided with a nose *p'*.

The U-shaped part *g* firmly connected with the casing has on each of its two limbs longitudinal slots *q* in which the hook shaped ends *l'* of the tumblers may engage on introducing the key *c* into the lock.

The action of the arrangement is as follows: In the position ready for use shown in Fig. 2 the swinging part *h*, *i* is swung downwards so that the bolt *k* does not project into the slot *d* in the casing; the tumblers *l* engage with their hook shaped ends *l'* in the slots *q* of the U-shaped fixed part *g*. The lever *p* bears with its nose *p'* against the edge of a cheek of the casing limiting the slot *d*. If now the locking lever *f* is swung through the spokes of the wheel and introduced into the slot *d* in the lock casing it comes against the lever *p* and presses the same downwards against the action of a spring; by this the swinging part *h*, *i* loses its support and swings under the action of the spring *g''* into the position shown in Fig. 1. The bolt *k* hereupon engages in the notch *f'* of the locking lever *f* and prevents automatically the return of the same. The levers *l* have left the slots *q* with their hook shaped ends *l'* and swing under the action of their respective springs in such manner that the hook shaped ends *l'* do not lie above the slots *q*. Any attempt to move the movable part *h*, *i* downwards by artificial means would then be frustrated as the hook shaped ends *l'* lie on the upper edges of the limbs of the U-shaped part *g*. If the lock is to be opened then the key *c* is inserted through the slot *b* of the casing and is pressed in such manner that the wards of the key carry with them the projections *l'* of the tumblers *l* so that the hook shaped ends *l'* of the latter come into a position above the slots *q* whereupon a swinging movement is imparted to the key *c* (see position of Fig. 2) by means of which the part *h*, *i* is caused to swing the hook shaped lever and the ends *l'* enter the slots *q* and the bolt *k* leaves the slot *d*; simultaneously the lever *p* under the action of its spring bears with the nose *p'* against the lug on the casing and so secures the swung out part *h*, *i* in the position shown in Fig. 2. The locking lever *f* can now be directly withdrawn from the slot.

The whole arrangement is so mounted on the fork, that when locked it is not removable. For this purpose the clips *t* and *t'* are fixed on the bars *x* of the fork and then the parts I and II with their bolts are screwed into the clips *r* and *r'*. The nuts *s* and *s'* serve only to tighten the clips. In such an arrangement the lock cannot be removed when in locked position.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that I claim is:

1. In a cycle provided with forks, the combination of a pivoted lever secured to one of said forks, and a lock secured to the other, said lock having a slot to receive said lever, and provided with a pivoted locking bolt adapted to traverse said slot and pass above said lever; pivoted tumblers for holding said bolt in its locking position; and a key for releasing said tumblers, substantially as described.

2. In a cycle provided with forks, the combination of a pivoted lever; a clip securing the same to one of said forks; a lock; a clip securing the same to another of said forks; said lock provided with a slot to receive said lever; a pivoted spring controlled locking bolt adapted to traverse said slot; locking tumblers pivoted to said bolt; a key to release said tumblers; and a trigger *o* adapted to limit the inward movement of said key, substantially as described.

3. In a cycle provided with forks, the combination of a pivoted lever; a clip securing the same to one of said forks; a lock; a clip securing the same to another of said forks; said lock provided with a slot to receive said lever; a pivoted spring controlled locking bolt adapted to traverse said slot; locking tumblers pivoted to said bolt; a U-shaped frame provided with slots to receive said tumblers; a key to release said tumblers; and a trigger *o* adapted to limit the inward movement of said key, substantially as described.

4. In a cycle provided with a pair of forks, the combination of a spring controlled lever; a clip securing the same to one of said forks; a lock; a clip securing the same to the other of said forks; bolts connecting said lever and lock to their respective clips; said lock provided with a slot in its casing adapted to receive said lever; a spring pressed pivoted locking bolt; a spring pressed lever *p* for controlling said bolt; locking tumblers pivoted to said bolt; a fixed U-shaped frame provided with notches to receive the ends of said tumblers; a key to release the said tumblers; and a trigger *o* to limit the movement of said key, substantially as described.

5. In a cycle provided with a pair of forks, the combination of a spring controlled lever, a clip securing the same to one of said forks; a lock; a clip securing the same to the other of said forks; bolts connecting said lever and lock to their respective clips; said lock provided with a slot in its casing adapted to receive said lever; a spring pressed pivoted locking bolt; a spring pressed lever *p* for controlling said bolt; locking tumblers provided

with projections, and hooked shaped ends, pivoted to said bolt; a fixed U-shaped frame provided with notches to receive the ends of said tumblers; a key to release the said tumblers; and a trigger *o* to limit the movement of said key, substantially as described.

Dated this 17/30th day of October, 1907.

In testimony whereof, I affix my signature, in presence of two witnesses.

KARL BALLOD.

Witnesses:
ULRUCH KERPE,
LAURANCE HILL.