

No. 624,052.

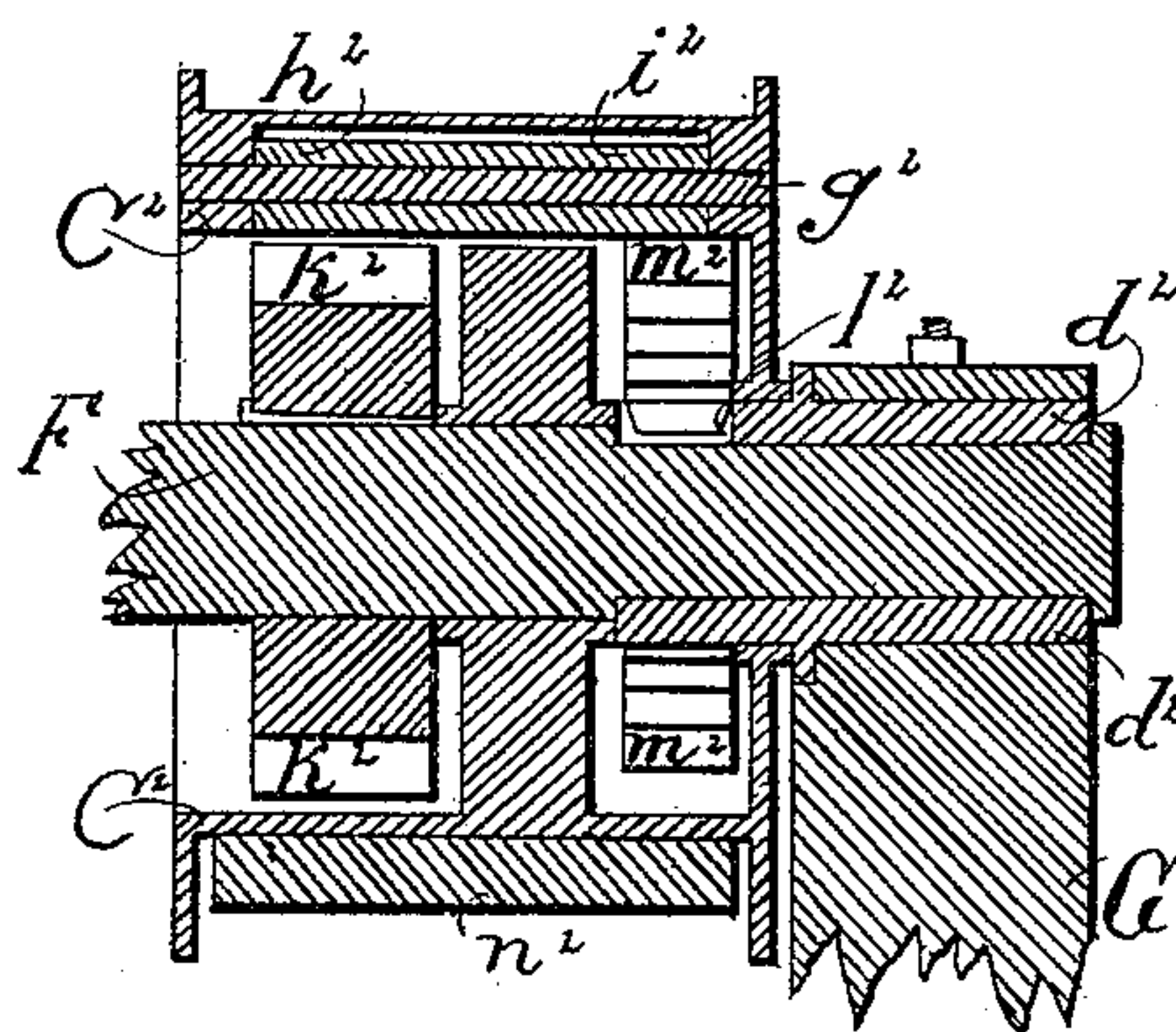
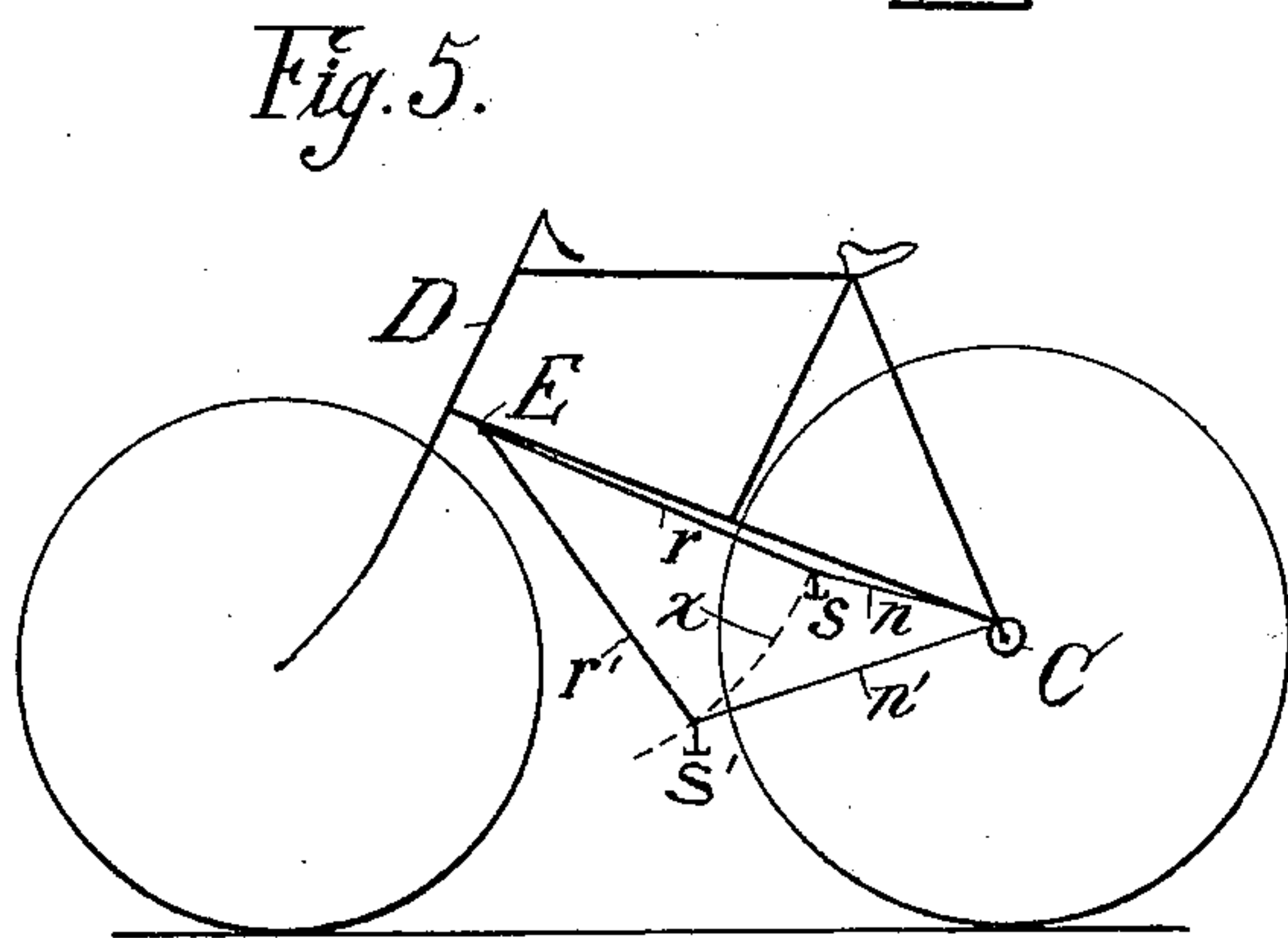
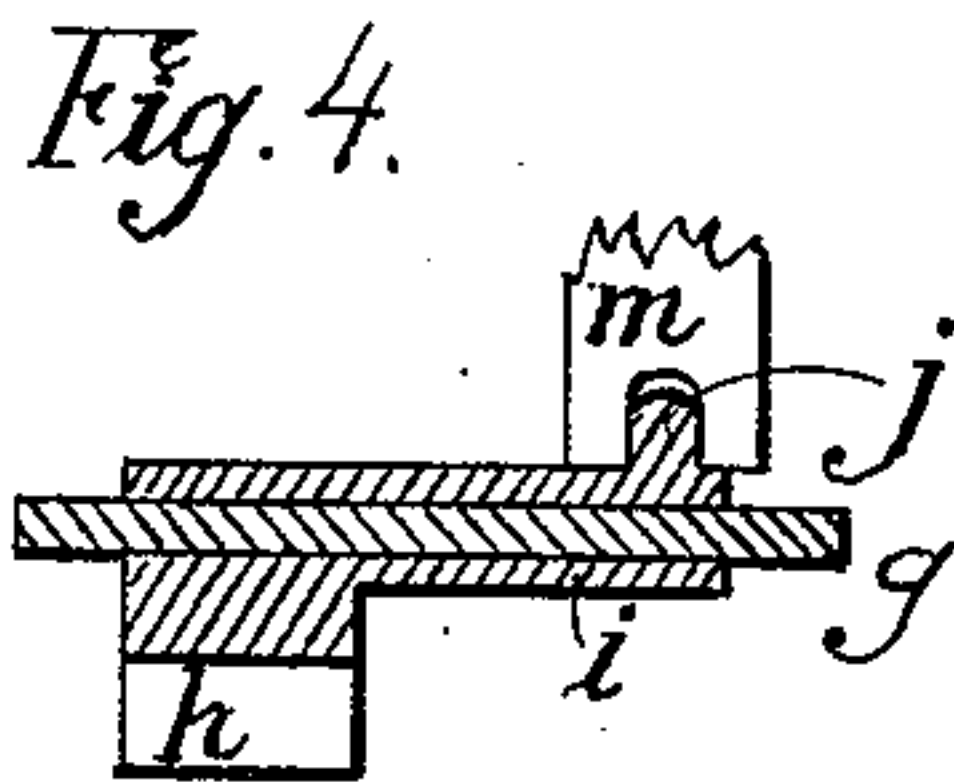
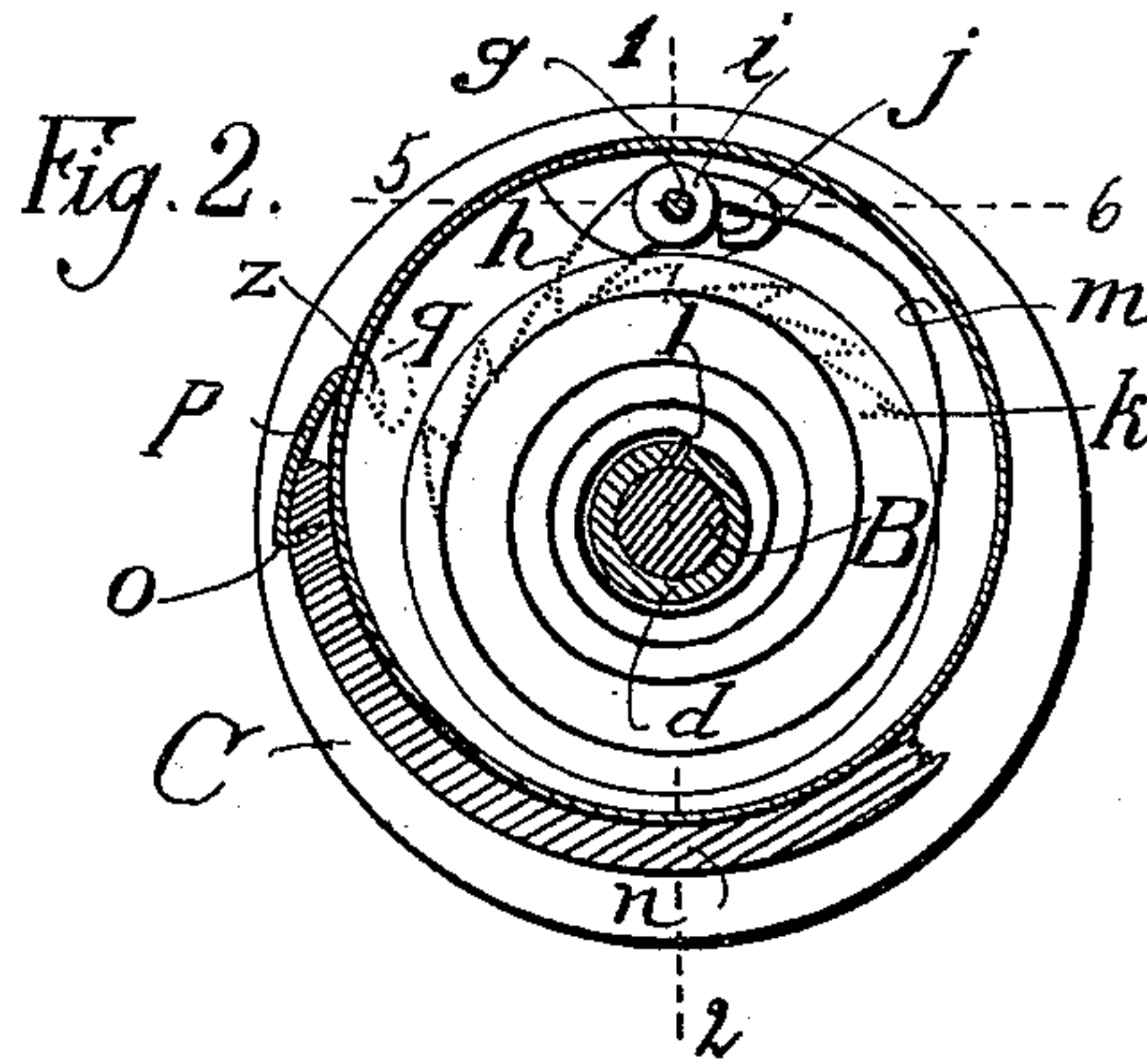
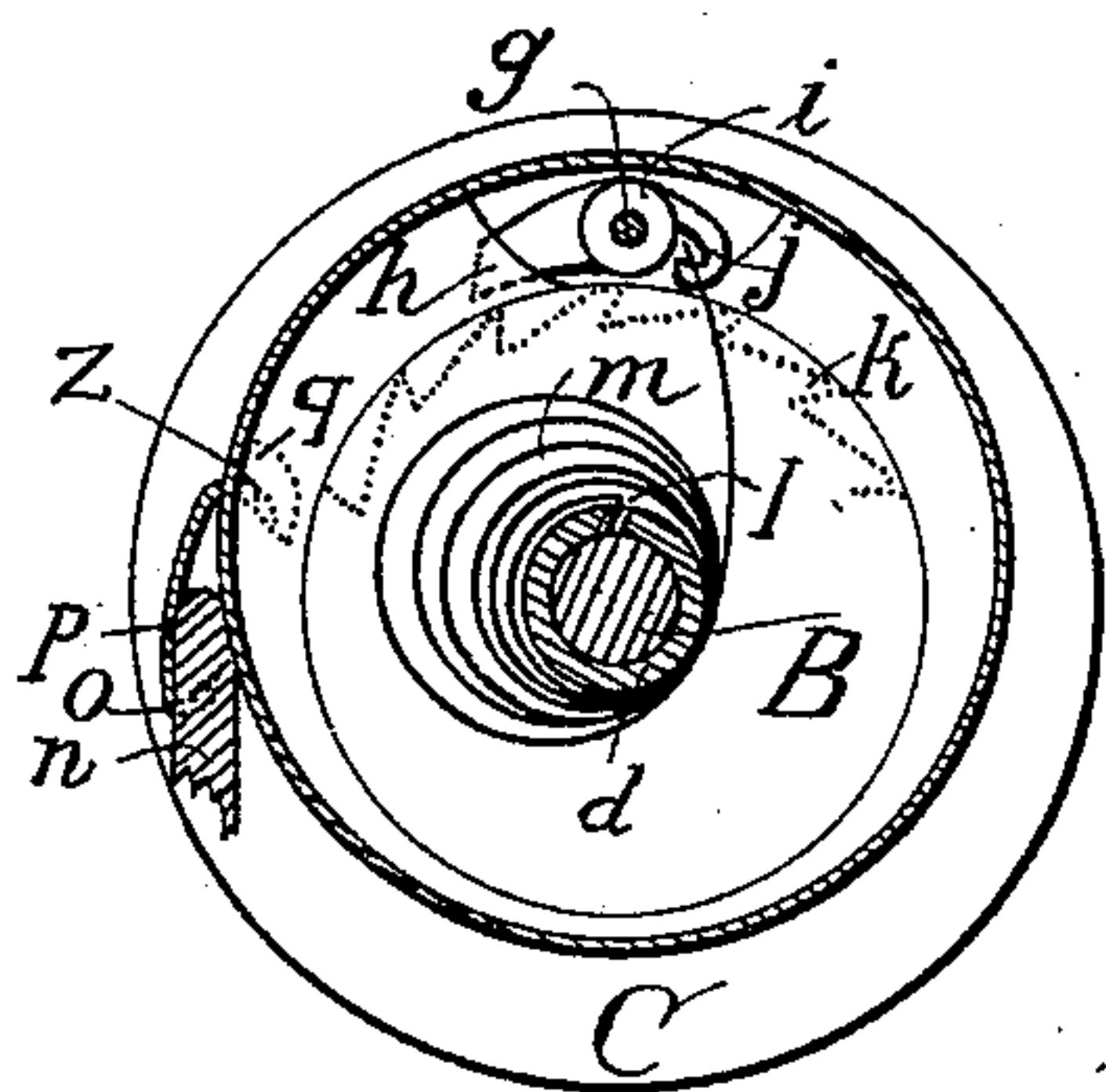
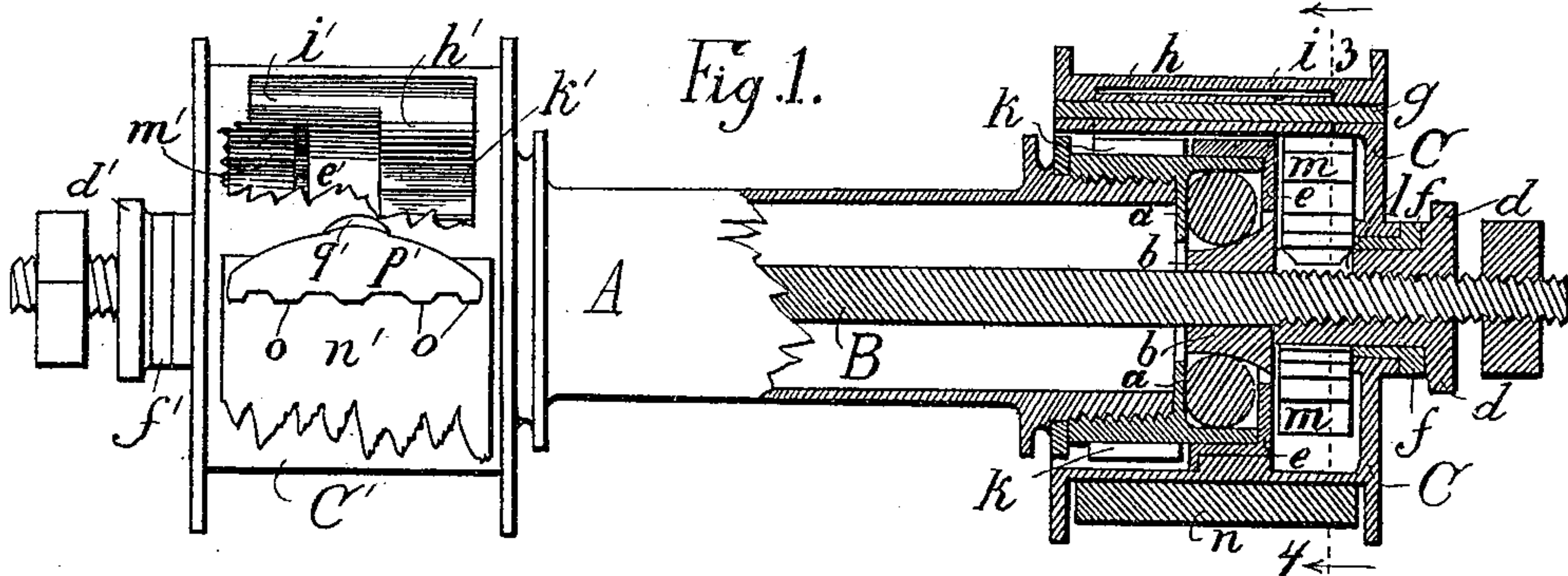
Patented May 2, 1899.

J. KONAR.

MECHANICAL MOVEMENT.

(Application filed June 14, 1897.)

(No Model.)



WITNESSES:

E. A. Duggan,
R. J. Jaeger.

INVENTOR

INVENTOR
John Konar,
BY
Chas. C. Gillman
ATTORNEY.

UNITED STATES PATENT OFFICE.

JOHN KONAR, OF CHICAGO, ILLINOIS.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 624,052, dated May 2, 1899.

Application filed June 14, 1897. Serial No. 640,626. (No model.)

To all whom it may concern:

Be it known that I, JOHN KONAR, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Mechanical Movements, of which the following is a specification.

This invention relates to improvements in a device or mechanism by means of which a reciprocating power is converted into rotary motion; and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The objects of my invention are, first, to provide an inexpensive, simple, and light, but durable, device of the above-named character, with any desired number of revolutions by direct draft and without the dead-point, adaptable for foot-power and engines, but especially useful for cycles; second, in cycles and other foot-powers an independent treading from the speed of the running machines; third, noiseless reciprocation of the machine; fourth, economy in friction and concentration of parts, having friction for self-protection against dust and dirt and for economy in lubrication, the journals returning to each other their surplus of the lubricant, and, fifth, easy access to the interior, the device being separated by the removal of a single nut.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1 is a view in elevation, partly in section, taken on line 1 2 of Fig. 2, showing the front of the device applied on the rear hub of a bicycle. Figs. 2 and 3 are side views in elevation, partly in section, taken on line 3 4 of Fig. 1, showing the arrangement and operation of the reciprocating spring, the ratchet, and its pawl. Fig. 4 is a top view of the pawl, partly in section, taken on line 5 6 of Fig. 2. Fig. 5 is a view in elevation of one side of a cycle, provided with a hub, as shown in Fig. 1, and having a suitable treading attachment for the device; and Fig. 6 is a longitudinal sectional view of the machine applied to a rotating shaft.

Similar letters refer to like parts throughout the different views of the drawings.

The barrel A, with ball-cups *a* on its ends, constitutes a hub of a wheel on the stationary axle B, having cones *b b'* and *d d'*. Each end of the hub carries an independent movement or reciprocating device, both being alike in construction; but one is arranged to the left and the other to the right. The letters of reference for one side are provided with marks. On both ends of the hub turn case-like pulleys C C', having journal-boxes *e e'*, each one bearing on the outer surface of one end of the cups *a a'* and having journal-boxes *f f'*, bearing on cones *d d'*. The pulleys C C' carry on pins *g g'* the pawls *h h'*, each being provided with a sleeve *i* and *i'*, respectively, and a hook *j j'*, respectively, extending tail-like from the sleeve. The pawls *h h'* engage with ratchet-wheels K K', which are cut in the periphery of one end of the cups *a a'*. The cones *d d'* are provided with longitudinal grooves I I' to engage the cornered ends of the springs *m m'*, coiled around the cones *d d'* and secured at the other ends to the hooks *j j'* of the pawls *h h'*. Straps *n n'*, preferably of leather, are wound around the pulleys C C' and connected by rakes *p p'*, which are provided with teeth *o* to keep the straps and with fangs or projections *z* to fit the holes *q q'* in the pulleys C C'. The straps *n n'* may be secured at their other ends to levers *r r'* or another part reciprocated by the power. The spring *m*, if expanded, has an eccentric pressure on the hook *j*, and keeps thus the pointed end of the pawl *h* engaged with the ratchet-wheel K. (See Fig. 2.) By pulling the strap *n* it turns the pulley C and the barrel B and tightens the spring *m*, which then has a tendency to pull or draw the hook *j* toward the center. After the unwound strap *n* is set free again the tightened spring *m* raises the pointed end of the pawl *h* out of reach of the ratchet-wheel K, (see Fig. 3,) at the same time pulling the pawl *h* back and revolving the pulley C to the starting position, whereby the strap *n* is wound up again for another pull. The same operation is performed when power is applied to the strap *n'*, which will keep the cycle in continuous motion. The spring *m* serves thus for two pur-

poses—first, reciprocation of the machine, and, second, avoidance of clicking and friction of pawl *h* against ratchet-wheel *K* during reciprocation and yet engaging the pawl with the ratchet-wheel again at the starting-point. The pulleys *C C'* serve also as dust-caps and as oil-retainers. They may be cast, aluminium giving sufficient strength for this structure. The journal-boxes *ee'* and *ff'* may be equipped with ball-bearings. By taking off one of the cones *d d'* the combination on both ends of the hub can be separated.

The described machine has a suitable combination for the rear hub of a bicycle. Fig. 5 shows a bicycle provided and arranged for this purpose. Close to the head *D* thereof is located on the frame the hanger *E*, to which are pivotally secured the levers *r r'*. These levers are provided at their rear ends with pedals or stirrups *s s'* and are connected with the straps *n n'*, reaching the pulleys *C C'*. The broken lines *X* show the arc the stirrups describe when trod. The straps *n n'* may be connected in a suitable manner with the levers *r r'*, so as to be adjusted nearer to or farther from the rotation center of the levers for change of speed.

Fig. 6 shows the machine in combination with a rotating shaft *F*, which carries the ratchet-wheel *K²* and turns in the journal-box *d²*, secured in the framing *G*. The pulley *C²* is journaled on the rotating shaft *F* and on the box *d²* and carries on the pin *g²* the pawl *h²* to engage the ratchet-wheel *K²*. The pawl *h²* is provided with a sleeve *i²* and a hook like the hook *j'* on the pawl *K'* to engage the eccentric end of the spring *m²*, which fits with its cornered inner end in the longitudinal groove *l²* in the journal-box *d²*. In the same manner as above described with reference to the straps *n n'* is the strap *n²*, secured at one end to the pulley *C²* and at the other may be connected with a pedal or its lever or with a reciprocating part of an engine.

One or more rotating machines of the described constructions can be applied with one hub or with one rotating shaft in cycles, lathes, sewing-machines, bellows for forges, &c.; but if one movement only is employed a balance-wheel on the shaft should be employed to keep continuous motion.

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

1. In a mechanical movement, the combination of a pawl pivotally secured to a pulley and having engaging means near one of its ends, with a spring located around the axle or shaft and secured at one of its ends to a fixed part and having its other end attached to the said engaging means of the pawl, substantially as described.

2. The combination with an axle or shaft, of a pulley mounted thereon and carrying a pawl, a ratchet-wheel within the pulley to engage the pawl, a spring encircling the shaft and secured at one of its ends to one end of the pawl, and at its other end to a fixed part, and a strap or its equivalent secured at one of its ends to the pulley and encircling the same and at its other end to a reciprocating part, substantially as described.

3. The combination with the barrel *A*, of the shaft *B* passing therethrough, the ratchet-wheels *K, K'*, the cones *d, d'*, provided with grooves *l, l'*, the pulleys *C, C'*, having journals *e, e'*, and *f, f'*, and carrying pins *g, g'*, the pawls *h, h'*, secured on said pins and having the sleeves *i, i'*, provided with hooks *j, j'*, the springs *m, m'*, encircling the shaft and secured at one of their ends in the slots of the cones *d, d'*, and at their outer ends to the hooks *j, j'*, of the pawls, and means for turning the pulleys, substantially as described.

JOHN KONAR.

Witnesses:

CHAS. C. TILLMAN,
E. A. DUGGAN.