

(No Model.)

J. W. JACOBS.
BRAKE FOR BICYCLES.

No. 594,018.

Patented Nov. 23, 1897.
Fig. 1.

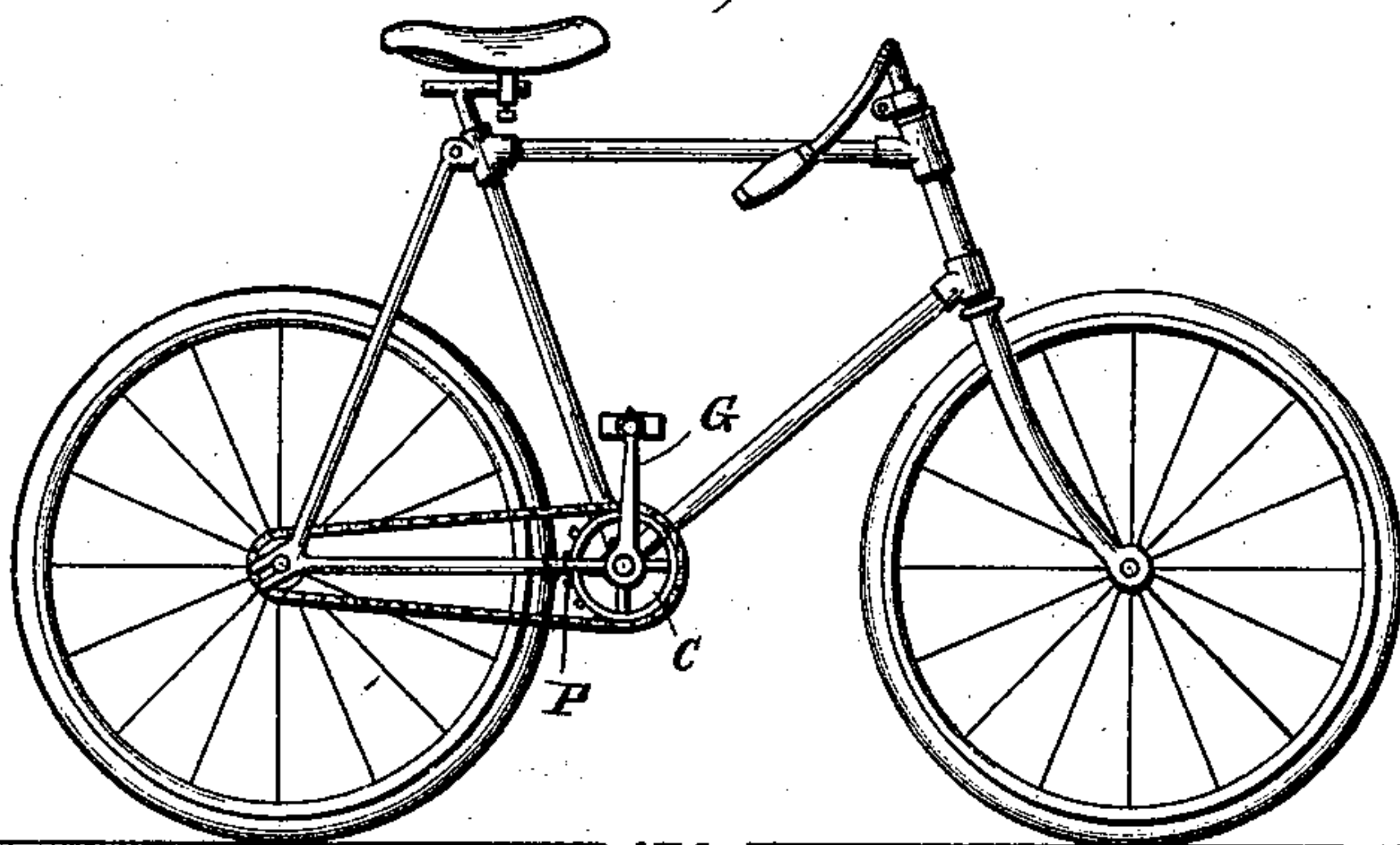


Fig. 2.

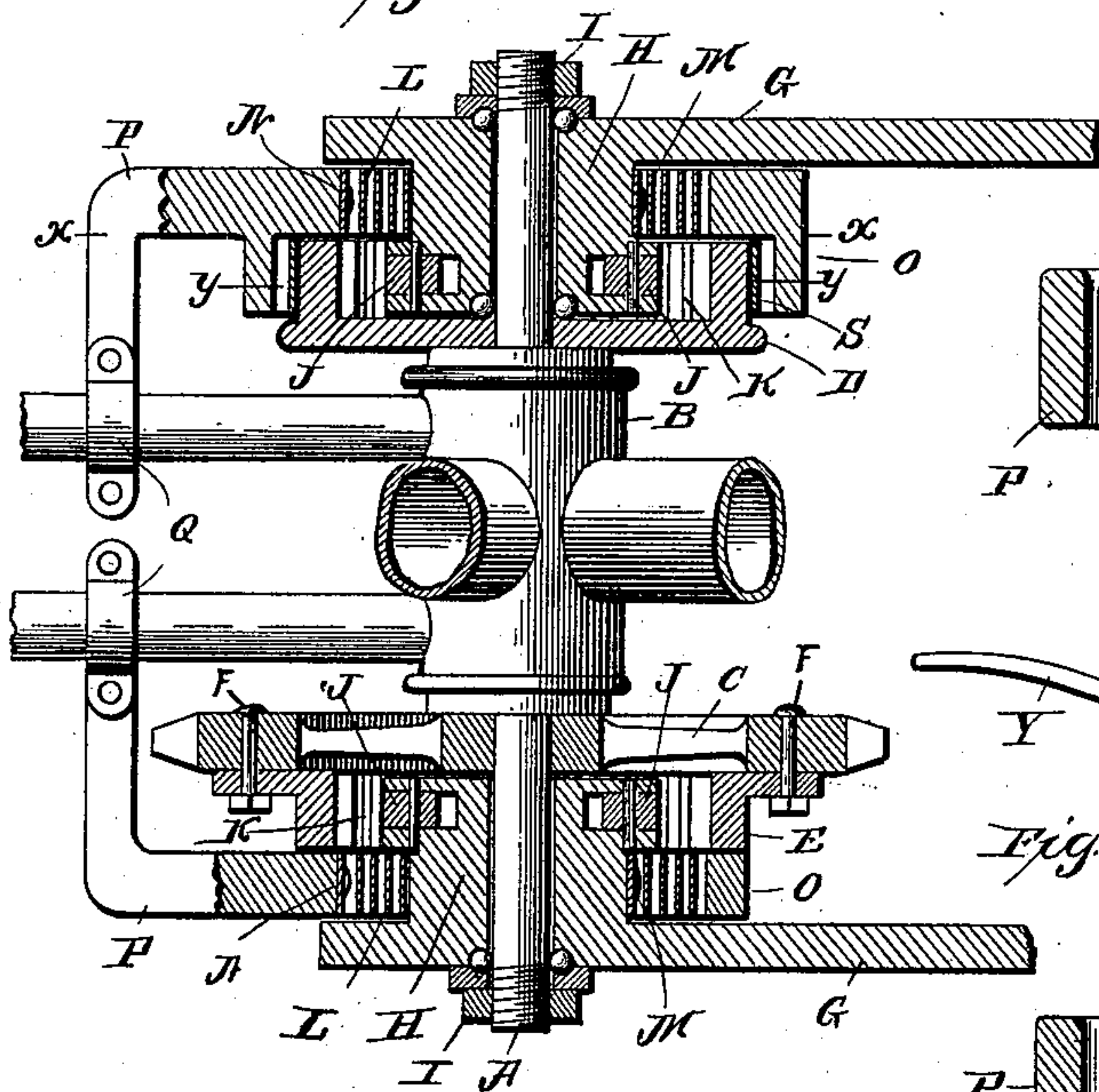


Fig. 3.

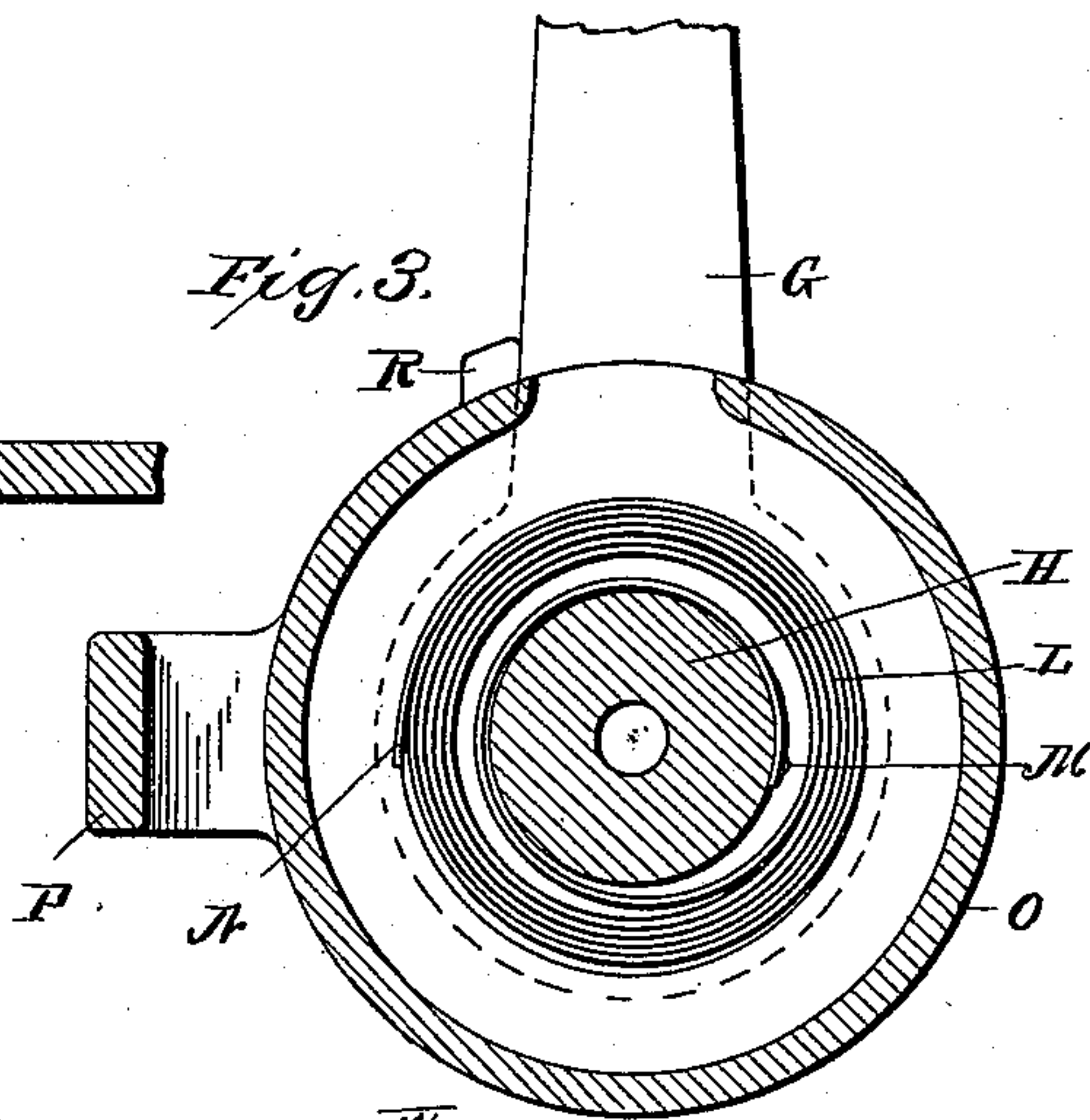
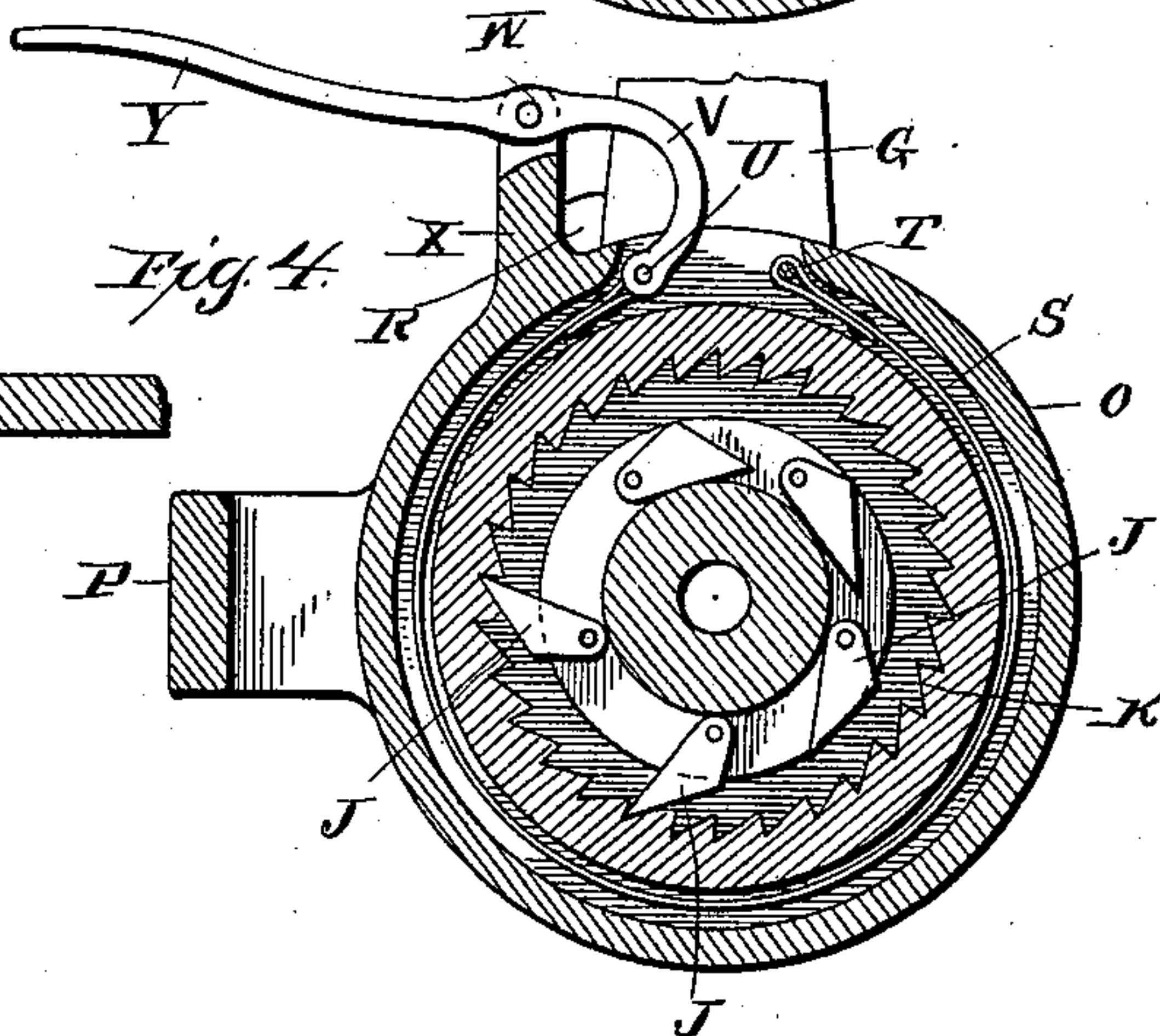


Fig. 4.



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BRAKE FOR BICYCLES.

SPECIFICATION forming part of Letters Patent No. 594,018, dated November 23, 1897.

Application filed October 10, 1896. Serial No. 608,429. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. JACOBS, a citizen of the United States, residing at Jeffersonville, in the county of Clark and State of Indiana, have invented a certain new and useful Improvement in Brakes for Bicycles, of which the following is a specification.

My invention relates to new and useful improvements in brakes for bicycles, and contemplates the arrangement of a brake in easy reach of one foot of the rider, whereby resistance may be offered to the revolving of the sprocket-wheel shaft, so as to regulate the speed of the machine by holding back upon the drive-chain.

With this end in view this invention consists in the details of construction and combination of elements hereinafter set forth, and then specifically designated by the claim.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, its construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of a bicycle having my improvement applied thereto; Fig. 2, a horizontal section of the mechanism, showing its application to the sprocket-wheel shaft; Fig. 3, a section at the line *xx* of Fig. 2, and Fig. 4 a section at the line *yy* of said figure.

In carrying out my invention as here embodied I utilize the ordinary crank-shaft A of a bicycle, which is journaled in the usual manner in the hanger B and has secured thereon the sprocket-wheel C, and this sprocket-wheel is connected in the usual manner by a chain to the small sprocket-wheel of the rear hub. Upon the opposite side of the hanger from the sprocket-wheel is secured a drum D upon the shaft A, so as to revolve in unison with said sprocket-wheel, and a corresponding drum E is secured to the face of the sprocket-wheel by means of the screws F or rivets, so as to become rigid therewith.

G are the pedal-levers, having formed therewith the hubs H, which latter are fitted upon the shaft A so as to freely revolve thereon, and these hubs are held in place by the nuts I. Each of the hubs project within one of

the drums and have a series of pawls J pivoted thereto within an annular groove, and said pawls are adapted to engage with the ratchet-teeth K, formed upon the inner wall of the drum, so that when the hub is revolved in one direction the pawls will pass over the teeth of the ratchet without affecting the same, but when revolved in the opposite direction will engage with said teeth, thereby causing the drum to revolve with the hub, the pawls being actuated by gravity and here shown as five in number, so that two or more thereof will at all times be in engagement with the ratchet-teeth.

The hubs are revolved in the direction of the arrow by pressure brought to bear upon the pedal-levers, but when said pressure is released, or partly so, the hubs are revolved in the opposite direction, thus returning the pedal-levers to their normal position by the action of the springs L, which are coiled about the hubs and secured at one end thereto at M, and having their opposite ends secured at N to the housings O, which surround the springs. These housings are circular in form and have brackets P formed therewith, which are secured by suitable clamps Q to the rear braces of the bicycle, as clearly shown in Fig. 2. From this it will be seen that a rider has only to force the pedal-levers through the means of the pedals downward through an arc of more or less extent and by releasing or reducing the pressure upon the pedals permit the levers to be returned to their normal position by the springs in order to cause the bicycle to be given a forward progressive movement, since at each downward movement of the levers certain of the pawls J will engage with the ratchet-teeth K and cause the shaft A to revolve therewith, and as the sprocket-wheel C is carried by this shaft and connected with the rear wheel of the bicycle by a drive-chain the operation of the two levers alternately will impart to the rear wheel a continuous tendency to revolve in one direction. The upward movement of the pedal-levers is limited by the stop-lugs R, with which said levers come in contact, as clearly shown in Fig. 3.

By the use of this construction in connection with a bicycle a rider will be enabled to more perfectly control the machine as well as

force it with greater rapidity and ease over rough road-beds and up steep inclines, and also be enabled to propel the machine at a greater rate of speed upon a level road, and
 5 this is due to the fact that the feet of the rider have only to move through an arc of a circle, and therefore a more direct application of power is had than would otherwise be the case, and also because no dead-centers
 10 exist and it is possible to maintain a constant and steady pressure upon the sprocket-wheel, since one pedal-lever may be continued in its downward movement until the other has been elevated and again started upon its down-
 15 ward movement, thus avoiding the interruption of the application of power to the driving of the machine, which is of the greatest importance when forcing said machine up a steep incline.

20 By the arrangement of this construction it is not possible to hold back upon the drive-wheel of the machine by back-pedaling, and therefore it is essential that the forward move-
 25 ments of the machine be put under control of the rider by a suitable brake which will be in easy access of said rider and which will be absolutely sure of operation when needed, and this is accomplished in the following man-
 30 ner: A flexible band S is secured within one of the housings at T and passes around the drum, having its opposite end attached at U to the lever V, which is pivoted at W to a lug X, formed upon the housing, and this lever
 35 terminates in a foot-rest Y, so that when it is desirable to slacken the speed of the machine the revolving of the drum may be retarded by placing the foot upon the foot-rest Y, thereby creating a certain amount of friction
 40 between the band and drum, and this friction may be increased as desired by an increased

pressure upon the brake-lever V. Thus the machine is put under complete control of the rider either for its forward propulsion or for the stopping of its momentum.

This brake may be used in connection with 45 bicycles which are not provided with the remainder of my improvement.

One of the advantages of my improvement is that it may be attached to a bicycle of ordinary construction without alteration of said 50 machine, thus bringing it within the reach of persons owning such machines.

Suitable ball-bearings may be provided for the hubs H, in order that the friction there- between and the shaft may be reduced to a 55 minimum.

Having thus fully described my invention, what I claim as new and useful is—

In combination with a bicycle, a bracket secured to the frame, and running parallel 60 therewith, a shaft journaled in the crank-hanger and extending through the bracket, a drum rigidly secured on the shaft and fitting against the bracket, an annular flange formed on the bracket inclosing the drum, a lever 65 pivoted to ears on the flange one end extending through an opening in the flange, a flexible band running around the drum and secured at one end to the lever and at the other to the bracket, a flange formed around the inner 70 edge of the drum to retain the flexible band thereon, substantially as described.

In testimony whereof I have hereunto af- fixed my signature in the presence of two sub- scribing witnesses.

JAMES W. JACOBS.

Witnesses:

S. S. WILLIAMSON,
 THOS. B. RADER.