(No Model.) 2 Sheets—Sheet 1.

A. PERKINS.

BICYCLE BRAKE.

No. 474,759. Patented May 10, 1892.

Fig. 1.

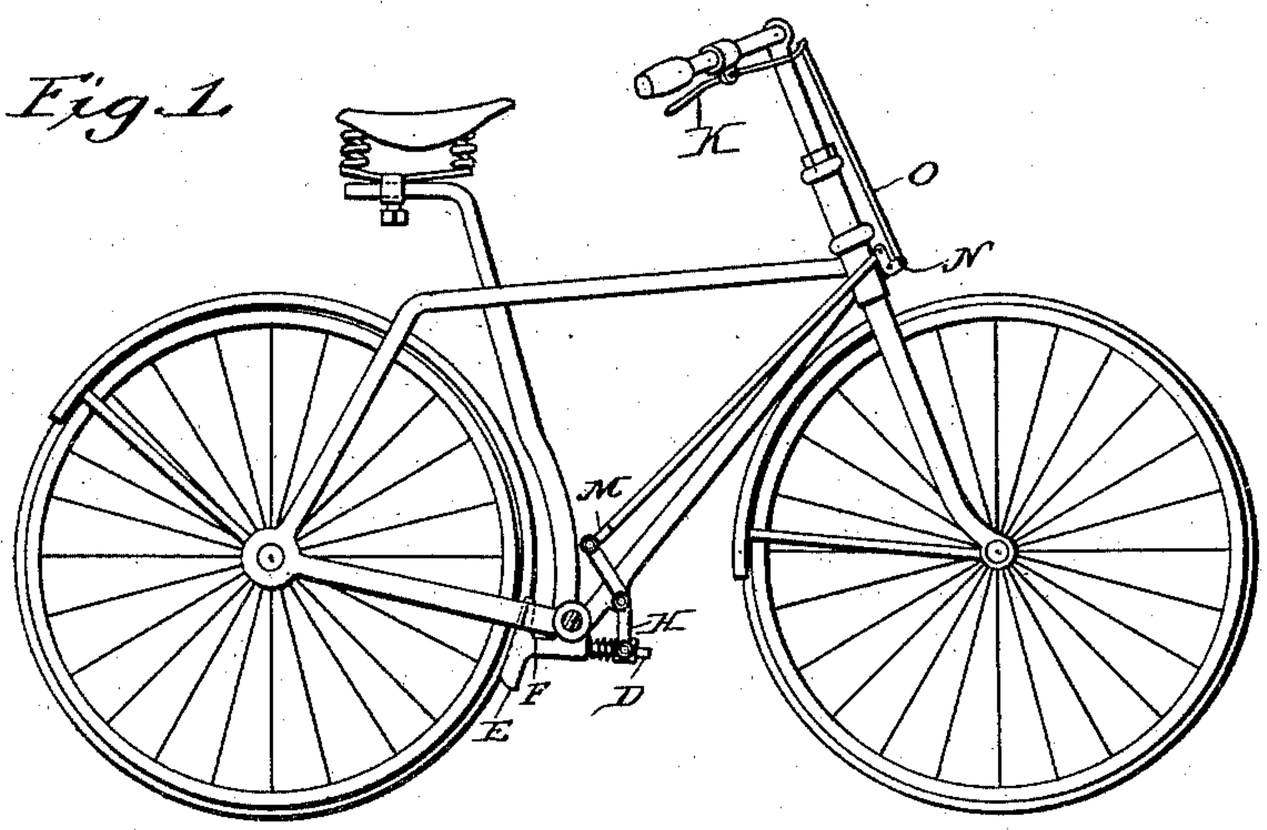


Fig. 2.

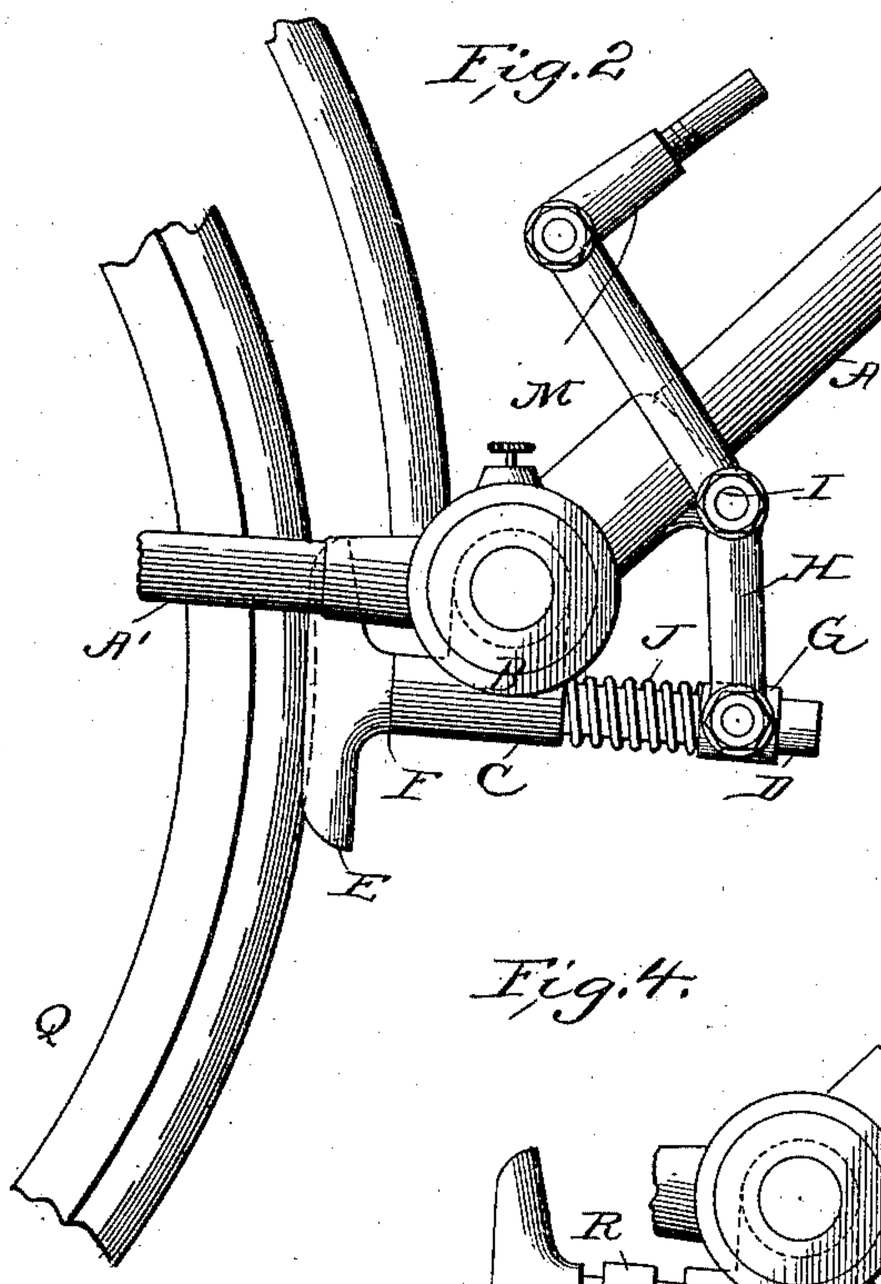


Fig. 3.

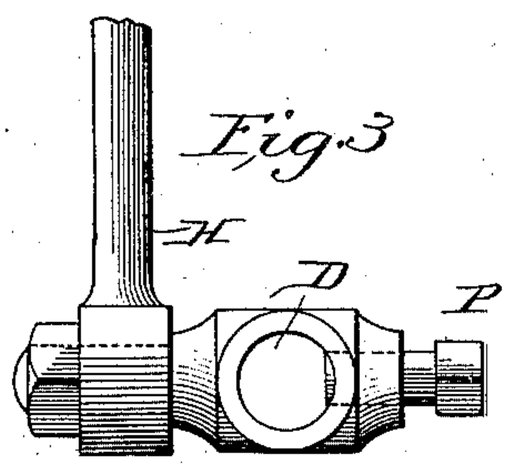
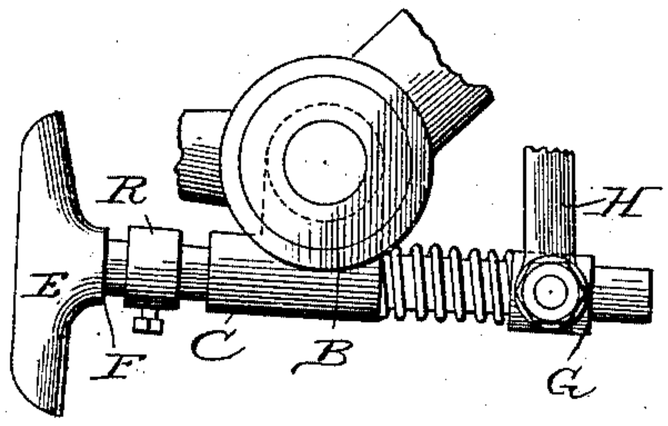


Fig. 4.



Attest:

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(No Model.) 2 Sheets—Sheet 2.

A. PERKINS.

BICYCLE BRAKE.

No. 474,759. Patented May 10, 1892.

Fig. 5.

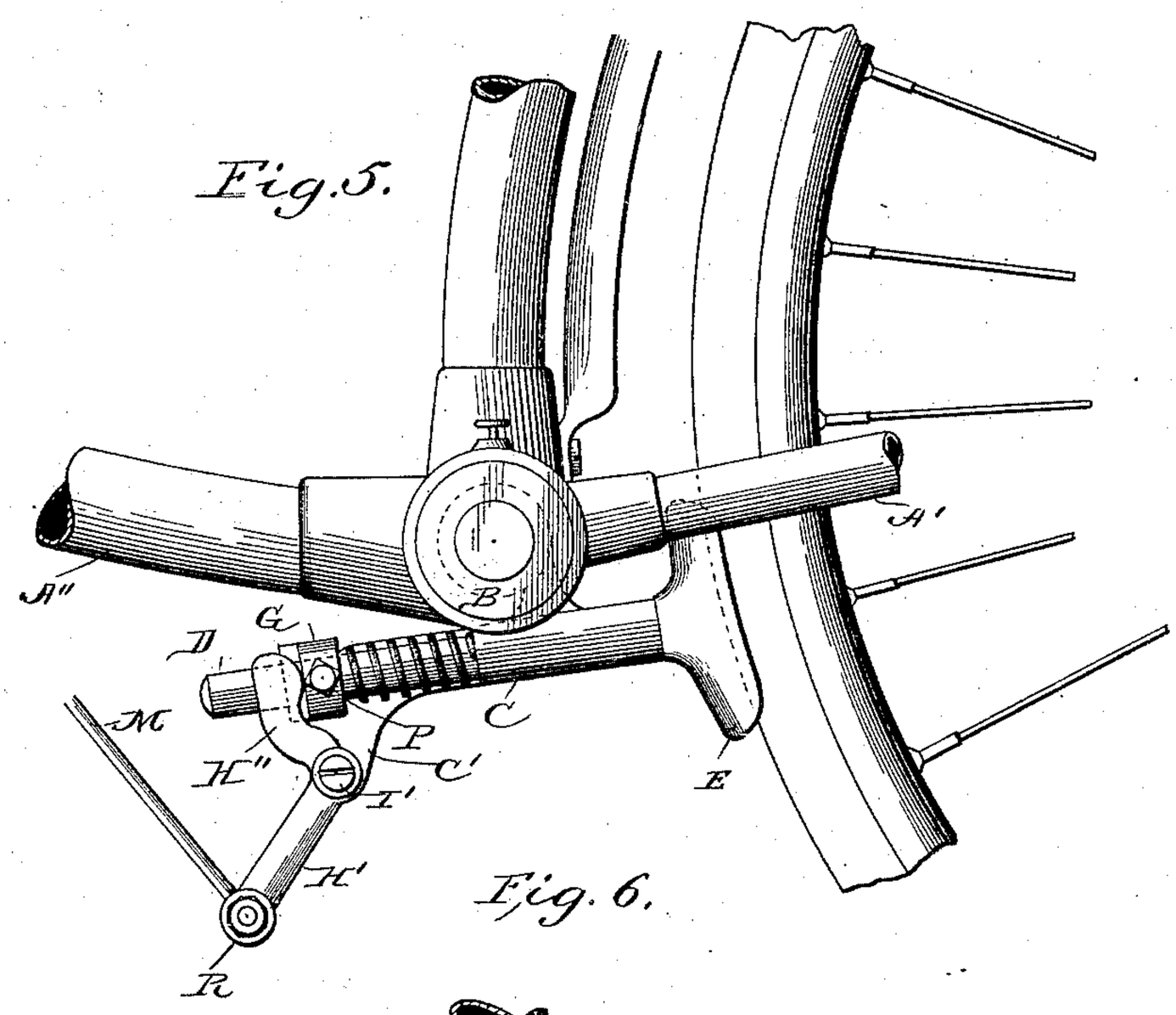
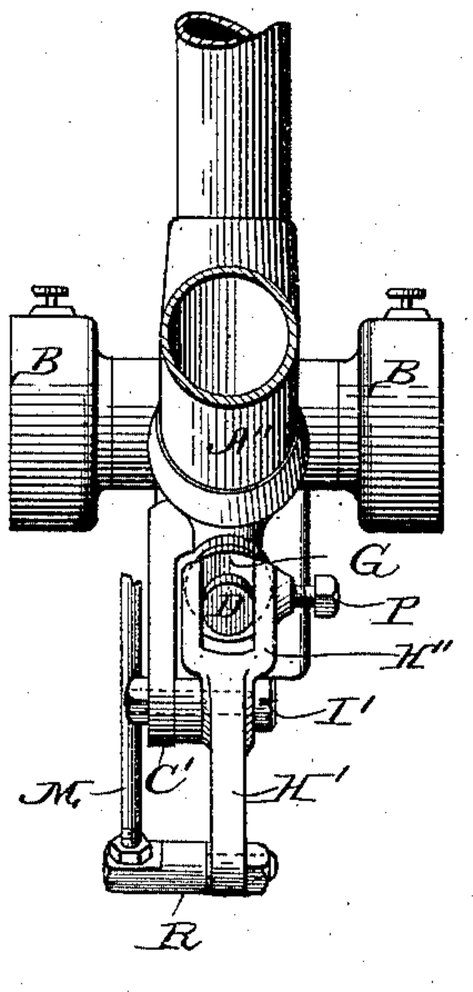


Fig. 6.



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UNITED STATES PATENT OFFICE.

ALBERT PERKINS, OF CHICOPEE, MASSACHUSETTS, ASSIGNOR TO THE A. G. SPALDING & BROTHERS, OF NEW YORK, N. Y., AND THE LAMB KNITTING MACHINE MANUFACTURING COMPANY, OF CHICOPEE FALLS, MASSACHUSETTS.

BICYCLE-BRAKE.

SPECIFICATION forming part of Letters Patent No. 474,759, dated May 10, 1892.

Application filed October 17, 1891. Serial No. 408,990. (No model.)

To all whom it may concern:

Be it known that I, ALBERT PERKINS, a citizen of the United States, residing at Chicopee, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Bicycle-Brakes; 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 the application of what is known as a "plunger-brake" to the rear or driving-wheel of bicycles and operating the same from the handle-bar. To obtain many admitted advantages, prominent makers apply the brake to act upon the rear wheel, and accept certain resulting evils. So far as I am aware such brakes have not been heretofore adjustable to follow the wheel when the latter is moved to compensate variations in the driving-chain or for other reasons. As a result such moving has lessened the power of the brake and has caused it to bear upon the tire with the heel only or the point only, according as the wheel had been moved forward or backward in the rear fork, and this has greatly lessened the durability of the tire. It is the object of this invention to avoid these and certain other evils.

In the drawings, Figure 1 is a side elevation of a wheel having my devices. Fig. 2 is an enlarged view of the brake-shoe and adjacent parts. Fig. 3 is a detail view. Fig. 4 shows a slight modification. Fig. 5 illustrates the application of the invention to a drop-frame machine. Fig. 6 is a view looking to the right in Fig. 5.

In the first four figures, A is a frame having a rear fork A′ and a member A″, extending forward therefrom and provided with a pedal-shaft bearing at the lower side. Below this bearing is a sleeve or other suitable bearing C for a sliding brake-shaft D, which moves approximately toward the center of the wheel Q. The shaft D bears a shoe whose working face is normally "parallel to itself"—that is, each of its positions is parallel to every other position that it can take—and substantially parallel to the tread of the wheel. A shoulder F, striking the bearing C, limits the movement of the shoe away from the wheel. At the opposite side of the sleeve C the shaft bears a spring J and beyond the spring a collar G, adjustably fixed to the shaft by means of a set-screw P. The spring offers yielding resistance to the approach of the shoe to the wheel. To the collar is hinged the lower end of a lever H, centrally pivoted to the frame at I and having its upper end connected to the usual brake-lever K, near the handle-bar by suitable devices—for example, the rod M, bell-crank N, and rod O. Evidently the construction gives a direct-acting plunger-brake operated from the brake-lever at the handle-bar and acting in the same way upon the rear wheel whatever may be the front and rear adjustment of the latter. For slight adjustments of the wheel no attention need be paid to the brake, but for greater variation in position the collar G is moved upon its shaft. If desired, a collar may be adjustably secured to the shaft between the sleeve C and the shoe, Fig. 4, and if this collar be always set at the same distance from the collar G the tension of the spring will be the same for all positions of the wheel.

The bearing C and the pivotal bearing at I may be integral with the frame or may be secured thereto in any suitable manner. A diamond-frame has been chosen for illustration in Fig. 1; but the invention is equally applicable to other forms, and in Figs. 5 and 6 the invention is shown as applied to a drop-frame where it is desirable that there should be nothing above the member A″. In these figures the lever H of the former case is replaced by a forked lever H′, pivoted upon a support C′, that extends downward from the frame or from the sleeve C. The branches of the fork have rounded faces that rest against the collar G, upon opposite sides of the shaft D, and the collar preferably has lugs that fill the fork laterally above and below the shaft. The other end of the lever is connected to the brake-lever by a rod M, as before, but as the forked lever lies in the medial plane of the machine and below the

backbone it is necessary to employ a rigid arm R upon the lever, or such other device as may be preferred to carry the rod M to one side of the backbone and neck.

The collar G may be replaced by any other suitable device adjustably secured upon the shaft, it being only necessary that there shall be some adjustable device to receive the pressure of the end of the lever.

What I claim is—

1. The combination, with a bicycle-frame and a rear wheel capable of front to rear adjustment therein, of a brake-shoe mounted upon the frame and capable of like adjustment, whereby the action of the shoe upon the wheel may be invariable.

2. The combination, with the frame and rear wheel of a bicycle, of a shoe-bearing shaft mounted upon said frame to slide directly toward said wheel, devices attached to said shaft to slide it, and devices for changing the point of such attachment, substantially as and for the purpose set forth.

3. The combination, with the frame and rear wheel of a bicycle and a brake-lever at the handle-bar, of the sleeve secured to the frame, the shoe-bearing shaft sliding toward said wheel in said sleeve, a spring offering yielding resistance to such sliding, a lever centrally pivoted to the frame and jointed at one end to a collar or other suitable device adjustable upon said shaft, and suitable devices connecting the opposite end of said lever to the brake-lever, whereby the motion of the latter may actuate it.

4. The combination, with the power-shaft bearing, of a sleeve secured upon said bearing, a brake-shaft adapted to slide in said sleeve, a shoe carried upon one end of the shaft, and an operating-lever connected with the other end of the shaft, substantially as shown and described.

5. The combination, with the power-shaft bearing, of the sleeve secured thereto, the brake-shaft arranged therein and carrying the shoe, an adjustable collar mounted upon the other end of shaft, a spring arranged between the end of sleeve and collar, and an operating-lever for moving the shaft toward the wheel, substantially as shown and described.

6. The combination, with the sleeve arranged as described, of the brake-shaft sliding therein, the adjustable collars arranged near each end of the shaft, the brake-shoe, coiled spring, and operating-lever, all arranged substantially as shown and described.

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

ALBERT PERKINS.

Witnesses:

ISAAC B. POTTER,

A. B. BANTTMAN.