

T. B. JEFFERY.
VELOCIPED BRAKE.

No. 561,113.

Patented June 2, 1896.

Fig. 5.

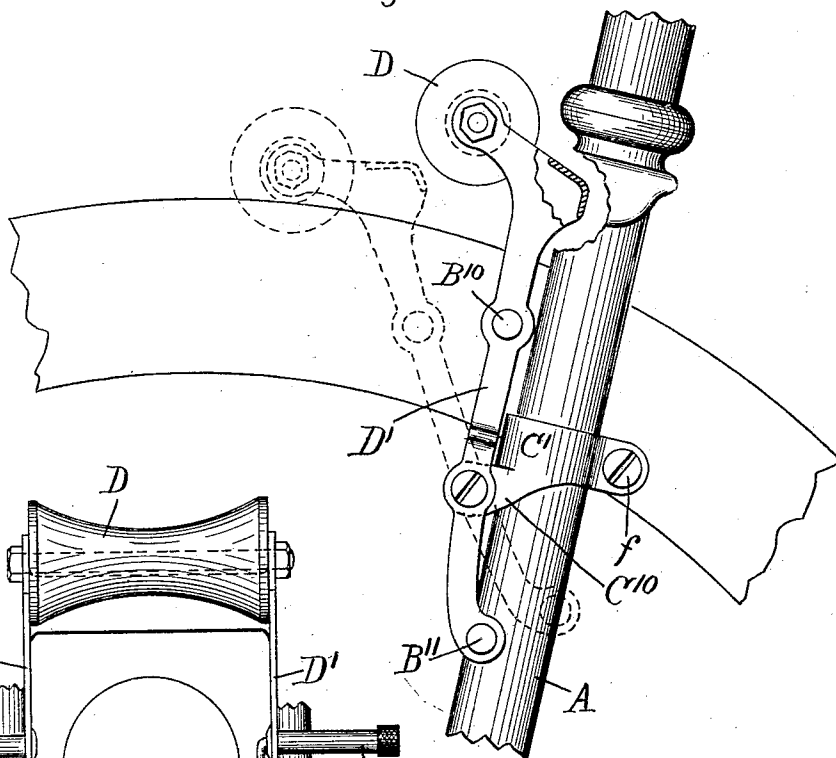
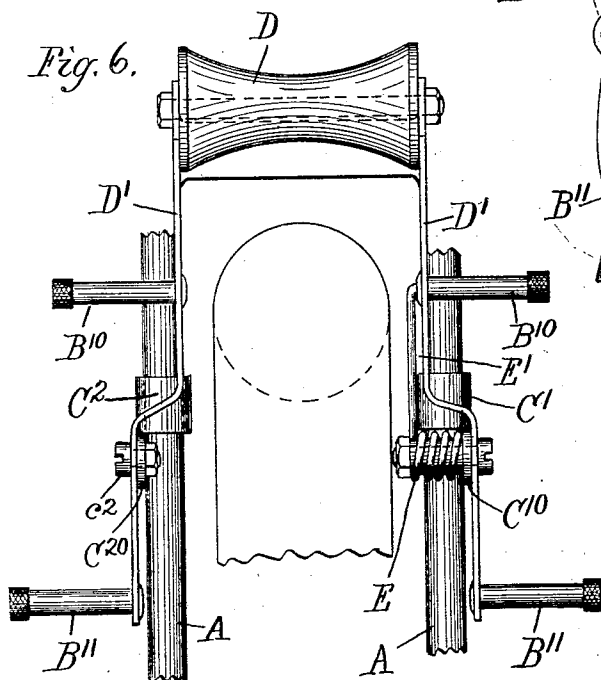


Fig. 6.



Witnesses.
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UNITED STATES PATENT OFFICE.

THOMAS B. JEFFERY, OF CHICAGO, ILLINOIS.

VELOCIPED-BRAKE.

SPECIFICATION forming part of Letters Patent No. 561,113, dated June 2, 1896.

Application filed January 9, 1894. Serial No. 496,302. (No model.)

To all whom it may concern:

Be it known that I, THOMAS B. JEFFERY, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Velocipede-Brakes, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part thereof.

In the drawings, Figure 1 is a side elevation of a bicycle having my improved brake applied to the front wheel. Fig. 2 is a detail side elevation showing a portion of the fork to which it is attached and the periphery of the wheel in dotted line. Fig. 3 is a detail section at the line 3 3 on Fig. 2. Fig. 4 is a detail section at the line 4 4 on Fig. 3. Fig. 5 is a detail side elevation, on an enlarged scale, showing a piece of the fork and wheel-rim and a modified form of my brake attached, a piece of the fork and of the brake-arm being broken away to show a detail of construction of the latter. Fig. 6 is a detail front elevation of the matter shown in Fig. 5, the fork-arms being broken away at the upper part.

A represents the front fork of a bicycle, to which the brake is usually applied.

B is the brake-shoe in the form in which a shoe is represented. D is the brake-roller, having the same function in a form shown in Figs. 5 and 6. I have shown these two forms of brake merely to indicate that my invention is applicable to both these familiar forms. The brake shoe or roller is carried upon arms B' B' and D' D' in the two forms, respectively.

I will first describe in detail the form having the shoe, and then only such modifications as adapt it to the roller form. The arms B' B' are formed integrally with the shoe B out of sheet metal pressed into proper shape, the two arms extending upon opposite sides of the wheel and being pivotally connected to separate clips C' and C², clamped upon the fork-arms, respectively. The form of the clips C' and C² may be clearly understood from the side elevation in Fig. 2 and the section, Fig. 4. They comprise, in addition to the simple band which is clamped onto the fork-arm, a lug C¹⁰ C²⁰, which projects forward and supports the pivot-bearing of the brake, as clearly seen in Fig. 4. Upon one side the pivot connection is made by a sim-

ple bolt c², connecting the brake-arm to the lug C²⁰. On the other side, in order to accommodate the spring E, which tends to hold the brake up, the end of the lug C¹⁰ is thickened to form a boss or laterally-projecting collar c¹⁰, on which the spring E is coiled, one end being stopped behind the arm B' and the other end extending up inside the arm and connected thereto at a point above the pivot, the coil being in such direction as to make the spring tend to lift the brake. I have shown a spring having this upwardly-extending arm E', connected to the brake-shoe arm by having its upper end bent horizontally and inserted into a laterally-projecting stud B¹⁰, provided for the purpose of operating the brake by the foot, as hereinafter explained, such stud being made hollow, both in order to lighten it and secure engagement for the end of the spring. The opposite arm of the brake is similarly provided with a stud B¹⁰, so that by either foot the operator may depress the brake onto the wheel.

In the form shown in Figs. 1, 2, 3, and 4 the foot-rests F F for coasting are secured to the clips C' and C², being made to serve also as the clamping-bolts for binding the clips to the fork-arms, as clearly illustrated in Fig. 4. The position of the foot-rest F is made such with respect to the foot B¹⁰ that the operator, supporting the foot upon the former, can readily press the latter and bring the brake-shoe into action. The pivotal axis of the brake is located within the circumference of the wheel and at considerable distance from the periphery. It will be obvious that if the brake were pivoted at a point near the center of the wheel the angle between a tangent to its own movement about its pivot and a tangent to the wheel at the point of contact of the shoe therewith would be very acute, and that frictional engagement between the wheel and brake-shoe would thereby tend to draw the brake very tightly onto the tire, and the latter being of yielding material would easily effect a positive dead-lock therewith. On the other hand, if the pivot of the brake were outside the wheel and near its circumference the frictional engagement between the shoe and tire would have no appreciable tendency to draw the former onto the latter, and the retarding effect of the brake would be limited to the

pressure applied by the operator, with such leverage as the construction of the brake might afford. My invention in respect to this point involves locating the pivot of the brake-shoe far enough inside the wheel to obtain to a considerable extent the effect described due to the tendency of the rotating wheel to draw the brake onto it when the angle between the two tangents—a tangent to the wheel and a tangent to the path of the brake at the point of contact to the wheel—is acute; but said pivot is not so far inside the wheel as to make the angle in question so acute that the brake will effect a dead-lock by reason of the described tendency.

It will be obvious that if the brake were applied behind instead of in front of a radial plane through its pivot the tendency of the frictional engagement between the tire and the shoe to increase as the wheel rotates under the pressure of the brake would be at the maximum when the point of contact became nearest to a radial plane containing both the centers, and to some extent this transposition might be regarded as an equivalent of the structure as shown.

I claim—

1. In a velocipede, in combination with the wheel and the fork which strides it and in which it obtains bearings, a brake adapted to bear upon the outer periphery or tread of the wheel and having rigid supporting-arms extending down upon opposite sides of the wheel, and clips affording suitable fulcrum-supports for said arms detachably secured

upon the fork-arms respectively, each of said arms being provided with projections for the engagement of the foot, whereby such brake may be operated by either foot at will: substantially as set forth.

2. In a velocipede, in combination with the wheel and the fork in which it obtains bearings, the brake provided with supporting-arms extending down upon opposite sides of the wheel; clips clamped upon the fork-arms respectively and affording fulcrum-supports for the brake-arms the latter having respectively projections for engagement by the foot of the rider to operate the brake; the foot-rests secured to the clips, whereby the rider may support the foot on such rests when operating the brake: substantially as set forth.

3. In combination with the wheel and the fork, the clips clamped upon the fork-arms respectively, and the brake-arms fulcrumed on the clips, one of said brake-arms having the hollow stud B¹⁰ for engagement with the foot in operating the brake, and the spring-coil about the pivot of said brake-arm and stopped against the clip at one end, and having the other end extended up to and bent laterally into the hollow stud: substantially as set forth.

In testimony whereof I have hereunto set my hand, in the presence of two witnesses, at Chicago, Illinois, this 5th day of January, 1894.

THOS. B. JEFFERY.

Witnesses:

JEAN ELLIOTT,
E. T. WRAY.