

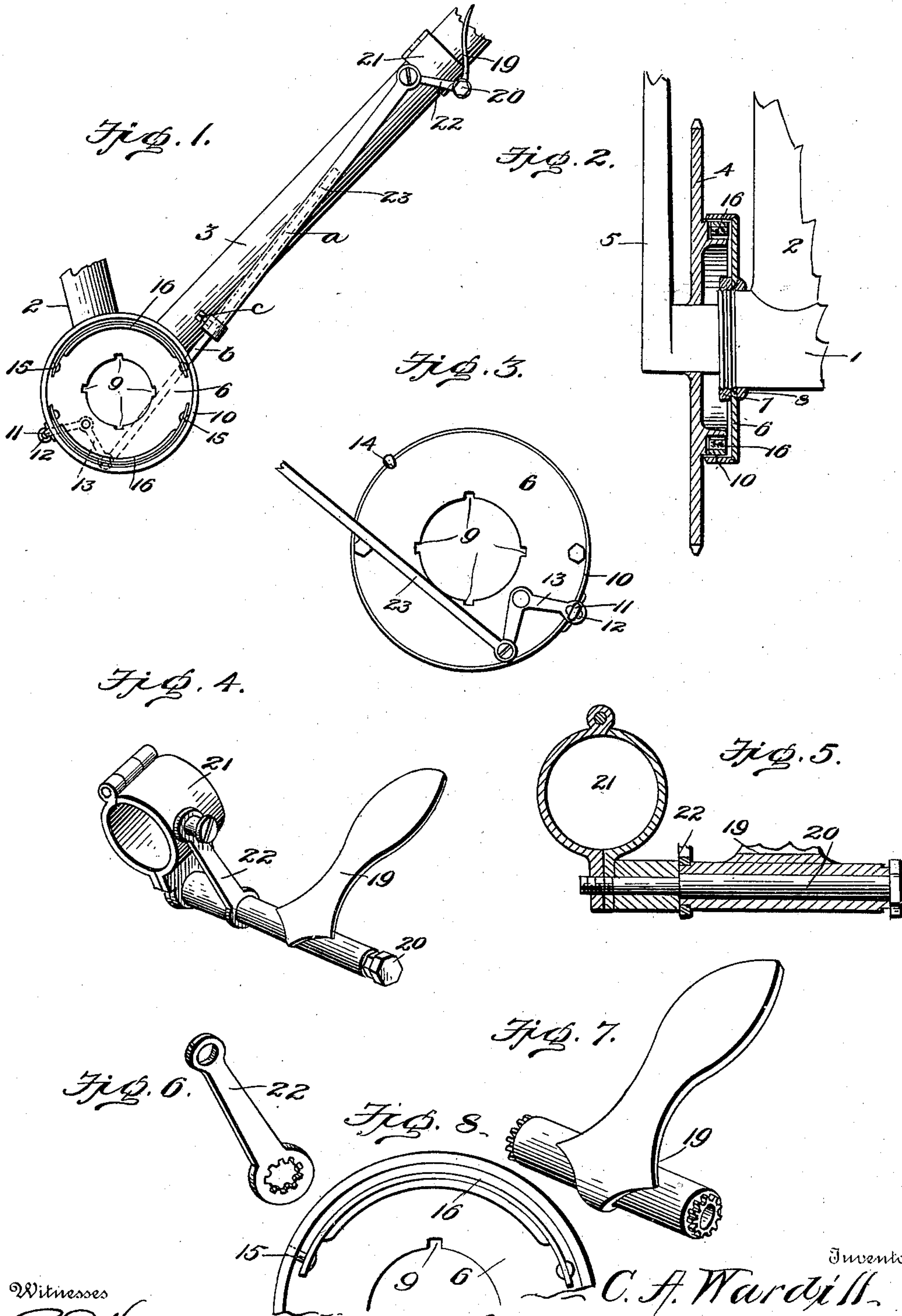
No. 629,056.

Patented July 18, 1899.

C. A. WARDILL.  
BICYCLE BRAKE.

(Application filed Feb. 21, 1899.)

(No Model.)



Witnesses

*C. A. Wardill*  
*J. P. Wilson*

by *A. P. Wilson & Co.*

Inventor

*C. A. Wardill*

Attorneys



# UNITED STATES PATENT OFFICE.

CHARLES ALFRED WARDILL, OF NANAIMO, CANADA.

## BICYCLE-BRAKE.

SPECIFICATION forming part of Letters Patent No. 629,056, dated July 18, 1899.

Application filed February 21, 1899. Serial No. 706,370. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES ALFRED WARDILL, a subject of the Queen of Great Britain, residing at Nanaimo, in the Province of British Columbia and Dominion of Canada, have invented certain new and useful Improvements in Bicycle-Brakes; and I do 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.

The invention has relation to bicycle-brakes; and the object of the invention is to provide a brake of this character which shall be simple in construction, durable in use, comparatively inexpensive of production, and effective in application.

With this object in view the invention consists in certain features of construction and combination of parts, which will be hereinafter fully described and claimed.

In the drawings, Figure 1 is a side elevation of a portion of a bicycle-frame, illustrating the application of my invention, the crank-shaft and its sprocket-wheel being removed. Fig. 2 is a fragmentary view of the crank-shaft hanger, showing in section the sprocket-wheel and the brake mechanism. Fig. 3 is a front view of the disk, illustrating the bell-crank connection of said disk with the encompassing annulus or ring. Fig. 4 is a detail perspective view of the foot-lever and clamp. Fig. 5 is a longitudinal sectional view through the sleeve of the foot-lever and the clamp and their pivoted bolt. Fig. 6 is a detail perspective view of the crank-arm. Fig. 7 is a detail perspective view of the foot-lever. Fig. 8 is an enlarged view of a fragment of the annulus and the disk, showing a brake-shoe, one end being connected to the annulus and the other to the disk.

In the drawings, 1 denotes the crank-shaft hanger; 2, the seat-mast; 3, the lower inclined tube; 4, the sprocket-wheel, and 5 the crank. 6 denotes a disk that is secured upon the crank-shaft hanger in any suitable manner, preferably by a nut 7, which binds the disk against lugs 8, secured to or cast upon the crank-shaft hanger. The outer faces of these lugs are ground smooth, and the inner edge of the disk is provided with recesses 9, that seat on the shoulders of the lugs.

10 denotes a ring or annulus having an inwardly-projecting T-head 11, which fits crosswise in a vertical elongated slot 12, formed in one arm of a bell-crank lever 13, pivoted to the inner face of the disk. At a point opposite this head is a stud or hook 14, which projects over the disk, and this stud or hook, together with the bell-crank lever and the T-head that projects through the aperture therein, holds the ring or annulus to the disk and permits of a rotary movement of one with respect to the other.

On the inner side of the ring or annulus is provided one or more brake-shoes in the form of bands. In the present instance I have shown two. One end of each brake-shoe is secured to a fixed stud projecting outwardly from the face of the disk, while the other end is formed with an elongated aperture, through which projects a headed stud 15, secured to the inner periphery of the ring or annulus. The brake-surfaces may be provided with strips of vulcanite 16 or any other well-known material usually employed on brake-shoes.

The inner face of the sprocket-wheel is provided with a brake-wheel. This wheel may be formed integral with the sprocket, as shown, or it may be formed separately and attached to the sprocket in any well-known manner.

By referring to Fig. 2 it will be seen that the brake-wheel projects within and is surrounded and covered by the ring or annulus which, in connection with the disk, forms a dust-proof joint, preventing grit and the like from depositing upon the braking-surfaces and wearing the parts.

It is evident that by actuating the free end of the bell-crank lever the brake-shoes, which are preferably formed of spring metal, will be brought into engagement with the brake-wheel, and thereby check or stop the movement of the bicycle. Any suitable means may be employed for actuating this bell-crank lever, which means may be operated by foot or hand. The preferred means, however, is shown in the accompanying drawings, and consists of a foot-lever 19, pivoted upon a bolt 20, that secures the clamp 21 to the inclined tube. Attached to the cylindrical portion of the foot-lever is a crank-arm 22, which is connected to the free arm of the bell-crank



lever by a coupling rod or link 23. I attach the arm 22 to the cylindrical portion of the foot-lever in a novel manner, so that I can adjust the lever with respect to said arm for the purpose of taking up any looseness in the joints or for arranging the foot-lever at a different inclination. The manner of connection is as follows: The inner end of the cylindrical portion of the foot-lever is provided with a series of notches which engage similar notches in the inner end of the crank-arm, and when it is desired to change the angle of the foot-lever with the crank-arm the bolt is loosened and the foot-lever turned to the desired angle and then engaged with the notches in the crank-arm and the nut upon the upper end of the bolt tightened.

The coupling rod or link 23 may be formed of two pieces *a* and *b*, as shown, one telescoping within the other. The piece *a* is provided with a head at its lower end, through which a set-screw *c* works and clamps the two parts together. This construction permits me to adjust the position of the clamp on the inclined tube to suit the convenience of different riders.

From the foregoing description, taken in connection with the accompanying drawings, the construction, operation, and advantages of my invention will be readily apparent to those skilled in the art without requiring an extended explanation. The device is exceedingly simple and may be attached to any of the well-known forms of bicycles now in use, it being only necessary to provide means for securing the disk to the crank-shaft of the hanger and to provide a sprocket-wheel with the brake-wheel; and it will of course be understood that various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of my invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a bicycle-brake, the combination with

the rotatable brake-wheel, of a fixed disk, an annulus connected to said disk and having a rotary movement with respect to the same, and brake-bands arranged within the annulus and having one end fixed to the disk and the other end fixed to the annulus, and means for rotating said annulus to apply the brake-bands to the brake-wheel, substantially as and for the purpose set forth.

2. In a bicycle-brake, the combination with the rotatable brake-wheel, of a fixed disk, an annulus loosely mounted on said disk and having a rotary movement with respect to the same, and brake-bands arranged within the annulus and having one end fixed to the disk and the other end fixed to the annulus, means for rotating said annulus to apply the brake-bands to the brake-wheel, said means comprising a bell-crank lever pivoted to the disk and having one arm connected to the annulus, an operating-lever attached to the frame of the bicycle, and a link connecting the operating-lever with the bell-crank lever, substantially as and for the purpose set forth.

3. In a bicycle-brake, the combination with the rotatable brake-wheel, of a fixed disk, an annulus connected to said disk and having a rotary movement with respect to the same, and brake-bands arranged within the annulus and having one end fixed to the disk and the other end fixed to the annulus, means for rotating the annulus to apply the brake-bands to the brake-wheel, said means comprising a bell-crank lever pivoted to the disk and having one arm connected to the annulus, an operating-lever, a crank-arm axially adjustably secured to the operating-lever, and a connecting-link, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CHARLES ALFRED WARDILL.

Witnesses:

NELLIE WARDILL,  
ROBERT WATSON.