

(No Model.)

F. J. COOMBS.
BICYCLE BRAKE.

No. 578,286.

Patented Mar. 2, 1897.

Fig. 1.

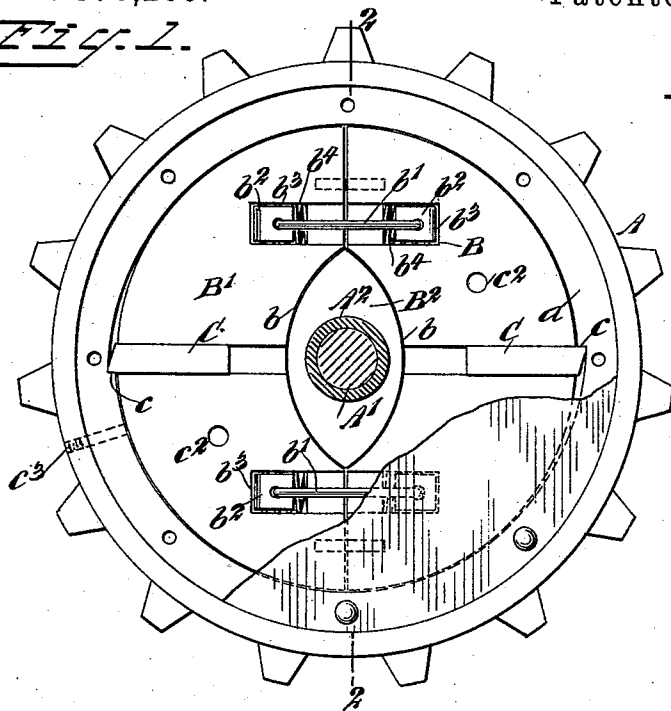


Fig. 4.

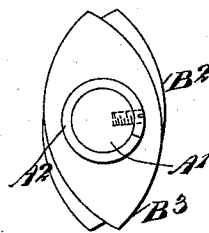


Fig. 2.

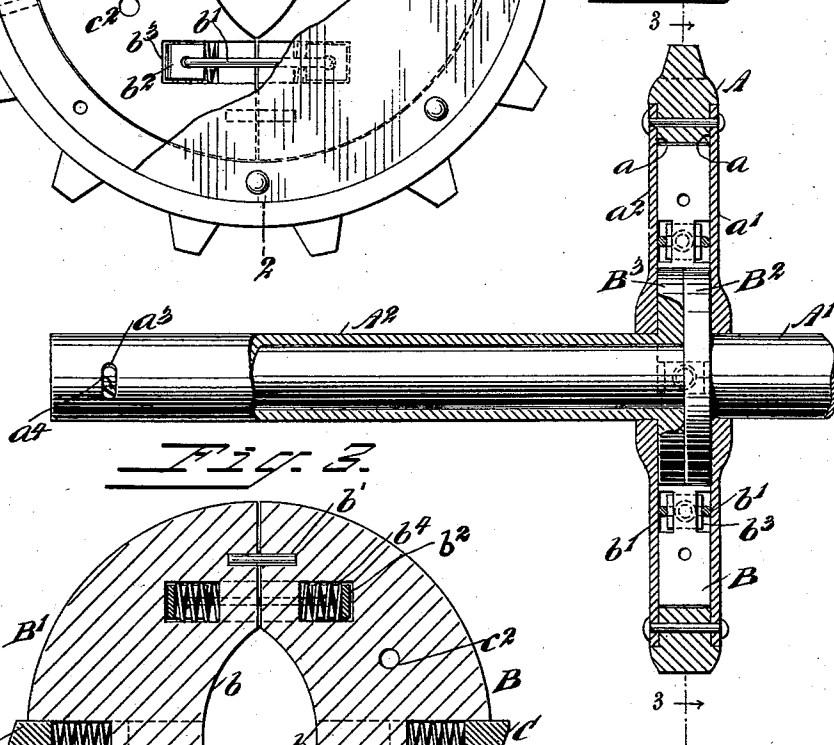
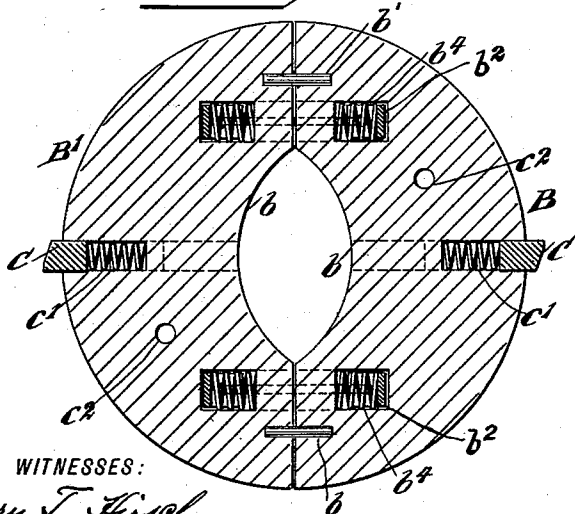


Fig. 3.



WITNESSES:

Henry T. Hirsch,
C. R. Fargue

INVENTOR

F. J. Coombs.

BY

Munn & Co.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

FRANK J. COOMBS, OF COLUMBIA FALLS, MONTANA.

BICYCLE-BRAKE.

SPECIFICATION forming part of Letters Patent No. 578,286, dated March 2, 1897.

Application filed March 6, 1896. Serial No. 582,057. (No model.)

To all whom it may concern:

Be it known that I, FRANK J. COOMBS, of Columbia Falls, in the county of Flathead and State of Montana, have invented certain new and useful Improvements in Bicycle-Brakes, of which the following is a full, clear, and exact description.

This invention relates to brakes for bicycles or similar wheeled vehicles; and the object is to provide a brake that may be easily and quickly applied by the pressure of the rider's feet on the foot-pedals, and, further, to so construct the brake that it is wholly hidden from view and protected from dirt and dust.

The invention comprises a sprocket-wheel within which friction-shoes are located and means for pressing the shoes into frictional contact with the inner periphery of the sprocket-wheel.

The invention further consists in the construction and novel arrangement of parts, as will be hereinafter specified, and particularly pointed out in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of a brake and sprocket-wheel embodying my invention. Fig. 2 is a section on the line 2 2 of Fig. 1. Fig. 3 is a section substantially on the line 3 3 of Fig. 2 with the sprocket-wheel removed, and Fig. 4 is a face view of certain operating-cams employed.

Referring to the drawings, A designates the driving sprocket-wheel. It is made in ring form, and it has depressions *a* in its opposite sides, within which are seated the edges of the side plates or covers *a'* *a*². These plates or covers are secured in place by means of bolts, and by placing them in the depressions tight joints may be made to exclude dust and dirt.

The plate or cover *a'* is mounted loosely on the pedal-shaft A', and the plate or cover *a*² is mounted loosely on a sleeve A², surrounding the shaft A' and adapted to have a slight rotary movement on the shaft, and to provide for this movement the sleeve is provided with a circumferentially-disposed slot *a*³, into which a pin or screw *a*⁴ on the shaft extends.

B B' indicate brake-shoes arranged within the sprocket-wheel and adapted to be engaged frictionally with the inner surface of the wheel. These shoes are each made in the form of a segment, and each has in its central inner edge a segmental opening *b*, the wall of which is adapted to be engaged by cams B² B³, mounted, respectively, on the shaft A' and the sleeve A². These cams are here shown as substantially oval in outline, and it is obvious that when the shaft and sleeve are rotated in opposite directions the cams will force the brake-shoes in opposite directions and against the inner periphery of the sprocket-wheel.

The brake-shoes may be held in alinement by means of pins *b*, engaging loosely in sockets formed in the meeting or adjacent faces, and as a means to draw the brake-shoes toward each other as the cams move to their normal position (indicated in Fig. 1) I may employ links *b'*, engaging with blocks *b*², movable in transverse openings *b*³ in the shoes and forced outward by means of springs *b*⁴, bearing at one end against the blocks and at the other end against a wall of the openings *b*³.

Each brake-shoe is provided with a radial recess, in which is radially movable a locking-dog C. The dogs are placed diametrically opposite each other and are designed to engage with shoulders *c*, formed in the inner periphery of the sprocket-wheel, and they are forced outward by means of springs *c'*, engaging at one end against the dogs and at the other end against the inner end wall of the recesses. The dogs are beveled at their outer ends, so that the sprocket-wheel may rotate in one direction relatively to the brake-shoes.

The plates or covers *a'* *a*² and the brake-shoes B B' are provided with registering openings *c*², through which bolts or pins may be passed and the parts be thus held in rigid engagement should some portion of the internal mechanism be accidentally broken, and the sprocket-wheel may be provided with an opening or openings *c*³, through which oil may be inserted to lubricate the internal mechanism. The openings *c*² through the plates or covers and the openings *c*³ should be provided with screw-plugs to prevent the entrance of dust and dirt.

In the operation of setting the brake it is only necessary to apply foot-pressure to the

pedals in opposite directions, which will cause a relative rotary movement between the pedal-shaft and sleeve and consequently operate the cams B² B³ to move the brake-shoes into engagement with the interior circumference of the sprocket-wheel.

Owing to the beveled ends of the dogs C, a rider may stop pedaling or hold the pedals stationary and the sprocket-wheel will continue to revolve around the brake-shoes.

It is of course to be understood that the pedal-cranks are to be secured, respectively, to the shaft A' and the sleeve A². The crank of the sleeve may be placed over the slot a³ to prevent the entrance of dust.

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

1. In a brake, the combination of a ring-shaped sprocket-wheel, brake-shoes upon which the sprocket-wheel is free to turn in one direction, but is locked thereto when turned in the opposite direction, a pedal-shaft, and a connection between the pedal-shaft and brake-shoes, whereby the brake-shoes can be thrown into frictional engagement with the sprocket-wheel when the pedals are turned in opposite directions, substantially as described.

2. In a brake, the combination of a ring-shaped sprocket-wheel, brake-shoes upon which the sprocket-wheel is free to turn in one direction but is locked thereto when turned in the opposite direction, a pedal-shaft, a cam on the pedal-shaft, a sleeve mounted to turn on the pedal-shaft, and a cam on the sleeve, the said cams being arranged in an opening between the brake-shoes, substantially as described.

3. In a bicycle, a pedal-shaft, a sleeve mounted to rotate on said shaft, a ring-shaped sprocket-wheel, side plates or covers secured to the wheel and loosely mounted respectively on the shaft and sleeve, a cam on the shaft,

a cam on the sleeve, and segmental brake-shoes within and upon which the ring-shaped wheel is free to turn in one direction, but is locked thereto when turned in the opposite direction, the said brake-shoes being adapted to be moved into frictional engagement with the wheel by said cams, substantially as specified.

4. In a bicycle, a pedal-shaft, a pedal-sleeve mounted to rotate thereon, cams carried by the shaft and sleeve, a ring-shaped sprocket-wheel loosely mounted on the shaft and sleeve, brake-shoes movable into engagement with the wheel by means of said cams, and spring-impelled dogs carried by the brake-shoes and adapted to engage with shoulders formed in the wheel, substantially as specified.

5. In a brake, the combination of a pedal-shaft, a pedal-sleeve mounted to turn on the shaft, cams carried by the sleeve and shaft respectively, a ring-shaped sprocket-wheel loosely mounted on the shaft and sleeve, segmental brake-shoes yieldingly connected together and having an opening in their adjacent edges to receive the said cams, and spring-pressed dogs carried by the brake-shoes and engaging shoulders on the sprocket-wheel, substantially as described.

6. In a brake, the combination of a pedal-shaft, a pedal-sleeve mounted to turn on the shaft, cams carried by the sleeve and shaft, a ring-shaped sprocket-wheel loosely mounted on the shaft and sleeve, segmental brake-shoes having openings in their adjacent edges to receive the cams, spring-pressed blocks in the brake-shoes, links connecting the blocks, and spring-pressed dogs having beveled ends and engaging shoulders on the sprocket-wheel, substantially as herein shown and described.

FRANK J. COOMBS.

Witnesses:

WILLIAM READ,
C. S. GARRETT.