

(No Model.)

2 Sheets—Sheet 1.

C. J. STABERG & C. J. PIHL.
BICYCLE BRAKE.

No. 590,489.

Patented Sept. 21, 1897.

FIG. 1.

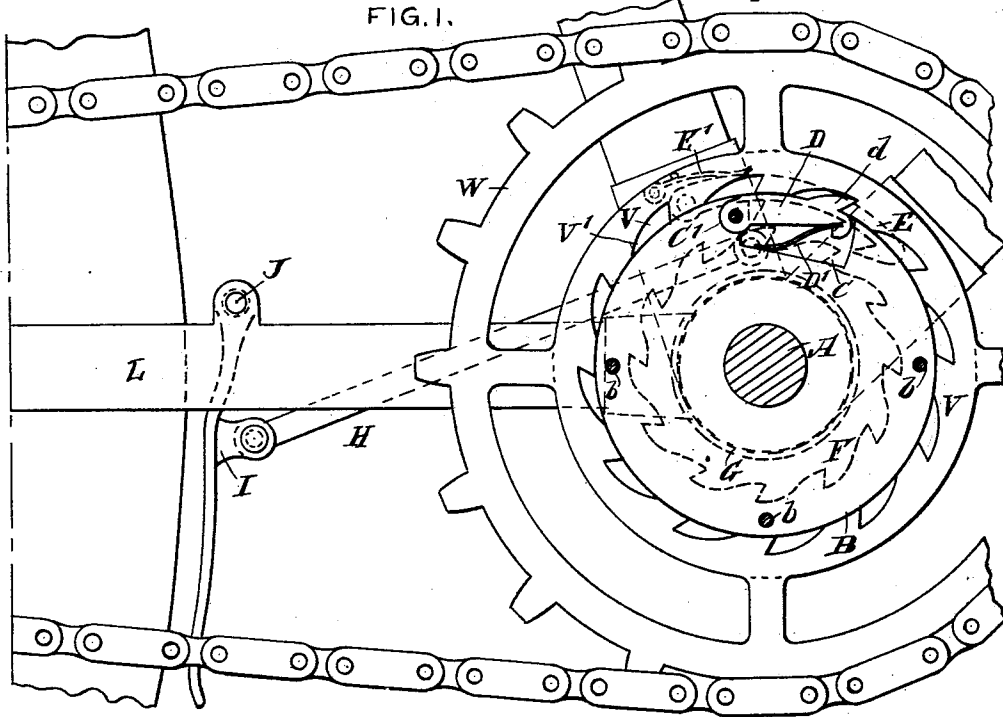


FIG. 2.

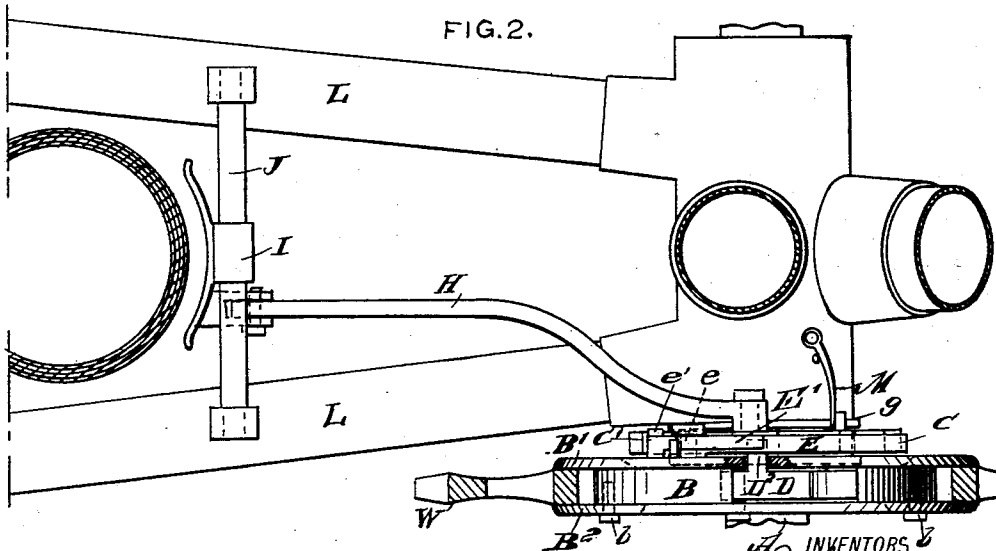
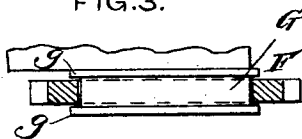


FIG.3.



WITNESSES :

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ATTORNEYS.

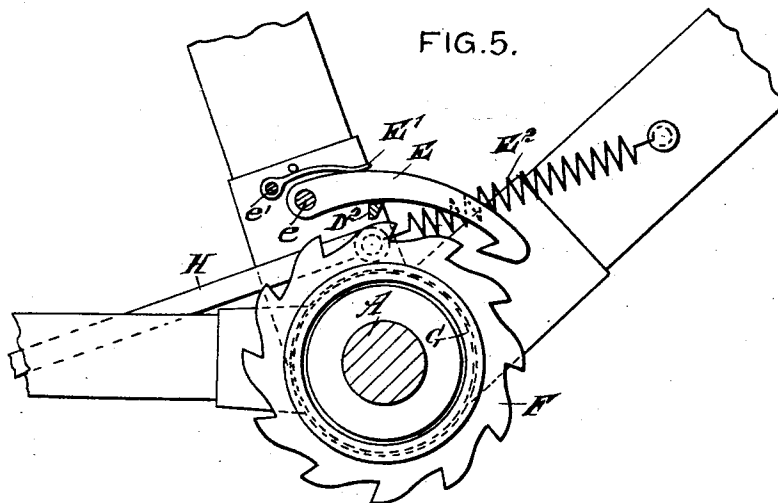
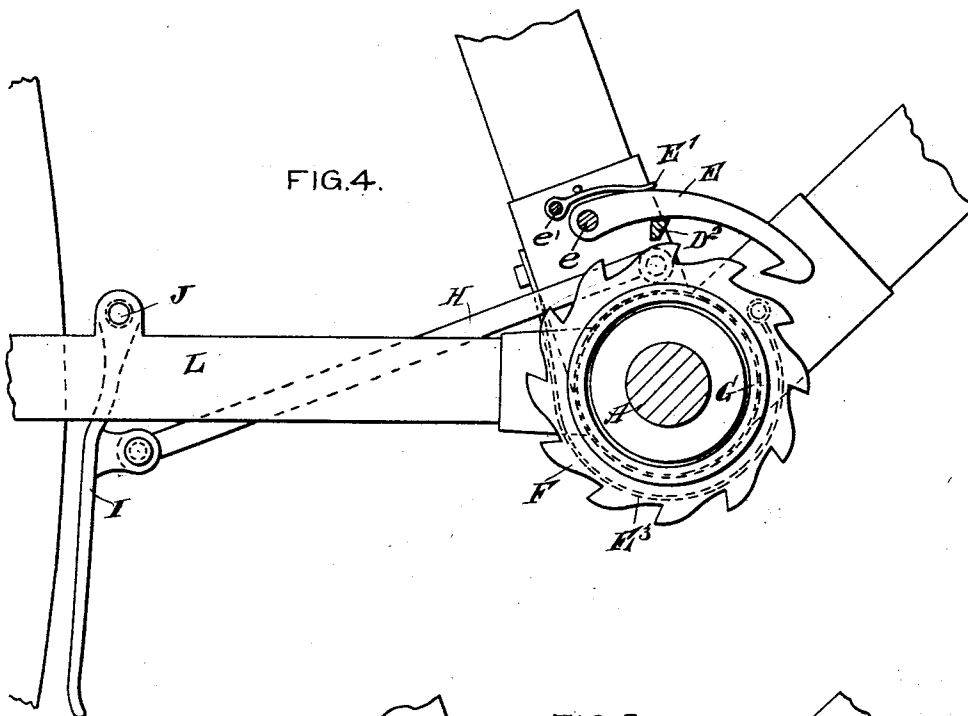
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WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES J. STABERG AND CARL J. PIHL, OF BROOKLYN, NEW YORK.

BICYCLE-BRAKE.

SPECIFICATION forming part of Letters Patent No. 590,489, dated September 21, 1897.

Application filed August 18, 1896. Serial No. 603,099. (No model.)

To all whom it may concern:

Be it known that we, CHARLES J. STABERG and CARL J. PIHL, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Bicycle-Brake, of which the following is a full, clear, and exact description.

Our invention relates to a new and improved bicycle-brake operated by the pedals and a ratchet device for applying power to the wheel which will enable the pedals to be stopped while the wheel is still rotating forward.

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 figures.

Figure 1 is an elevation of our device applied to a bicycle. Fig. 2 is a plan view of the same. Fig. 3 is a plan view of one end of the cylinder containing the crank-shaft bearing with the brake-operating ring in section; and Figs. 4 and 5 are side sectional elevations taken on the plane of the inner surface of the sprocket-wheels, showing the dog and spring which are mounted upon the inner face of this wheel.

The object of our invention is to provide a brake attachable to bicycles which will be light, out of the way, and may be operated by the pedals. We produce this result in the manner hereinafter described.

The main sprocket-wheel W, ordinarily placed upon the crank-shaft of bicycles, is made in this case with a large hole V' in the center, and the inner surface of this hole or ring is notched with a series of teeth V. Fixed upon the end of the crank-shaft A is a disk B, which fits closely within the central hole of the sprocket-wheel W—that is, within the inner surface of the ring V'. Upon the back side of the disk B is a flange B', of larger diameter than the disk B. A similar flange composed of a ring of thin material B² is attached to the front surface of the disk by screws b or other similar devices. These flanges embrace the sides of the sprocket-wheel W and hold it securely against any side motion. The sprocket-wheel W is free to turn upon the disk B except as hereinafter stated.

Upon one side of the disk B is cut a recess or rectangular notch C, and at one end of this notch and close to the outer surface of the disk is formed a semicircular recess C'. A dog D has a circular rear end which fits in the recess C' of the disk B, and the flanges B' B² upon each side of the said disk B serve to hold the dog securely in place. This dog D has upon its outer surface and in the end opposite the pivot end a tooth d. Fixed to the lower side of the dog and at its outer end is a spring D', which spring bears upon the lower side of the notch C and normally holds the dog D pressed outwardly.

It will be seen that when the shaft A is rotated by the pedals the disk B will be carried in the same direction and the dog D will engage one of the notches V in the sprocket-wheel W and rotate the same. The bicycle will thus be propelled in the usual way. When, however, the pedals are stopped, the forward motion of the wheel will cause the sprocket-wheel to continue its revolution. This will press the dog D down into the notch C as each tooth comes along.

Upon the back or inner side of the dog D, near its pivot-point, is fixed a projection or pin D². This pin projects through a hole in the flange upon that side of the disk B. Pivoted to the inner flange B' of the disk B at a point e just in the rear of a pivot of the dog D, is a dog E. This dog E is the one which operates the brake and is normally held down or toward the shaft A by a spring E', which is fixed at e' upon the said disk. The shape of the dog E and the position of the pin D² upon the dog E are such that when the dog D is engaged with the teeth V upon the sprocket-wheel the dog E will be held out of engagement with its ratchet-wheel. When, however, the dog D is pressed inwardly upon the disk B by the forward revolution of the wheel W, the spring E' will press the dog E toward the center and its catch will engage the teeth upon its ratchet-wheel. The spring D' is made considerably stronger than the spring E', so that it may readily overcome the resistance of the said spring E'.

Fixed upon the end of the cylinder which contains the shaft-bearings and just back of the sprocket-wheel W is a flanged ring G.

This ring has flanges *g* upon each side, which serve to retain a ratchet-wheel *F* thereon. The wheel *F* is made a snug fit, but so that it will revolve readily upon the ring *G*. This wheel *F* is formed with ratchet-teeth about its circumference and is so placed that it will be engaged by the dog *E* when it is pressed toward the center. Pivoted to this ring *F* is a link *H*. The opposite end of this link is pivoted to a brake-lever *I*, and this brake-lever *I* is swung upon a cross-bar *J*, which is supported upon the rear forks *L* of the bicycle-frame.

Now when the forward motion of the pedals is checked the sprocket-wheel will have a relative forward rotation upon the disk *B*. As a result the dog *D* will be pressed toward the center, and, as previously described, this will permit the dog *E* to be pressed toward the center and engage one of the teeth upon the ring *F*. If now the pedals be rotated in a backward direction, the ring *F* will be carried back and the brake-lever *I* will be pressed backward upon the tire of the rear wheel. The pressure of the brake upon the rear tire will depend entirely upon the amount of pressure applied to the pedals to rotate them backward. As soon as the pedals are rotated forward the brake is released and power is applied so as to rotate the wheel. To accomplish the release of the brake, a spring *M* is attached to the crank-axle hanger or any other convenient part of the machine.

The spring *M*, as shown herein, is a simple straight piece of metal. Any other form of spring may be used instead—either a spiral spring surrounding the hanger, as shown at *E*³ in Fig. 4, or a spiral spring extended forward or rearward, as *E*² of Fig. 5, as deemed desirable.

It will thus be seen that our device is one which occupies very little space, is of small weight, not noticeable, and enables the brake to be applied with any power necessary. It thus fulfils many of the requirements of a successful bicycle-brake. Its construction is not complicated nor its cost great. It also enables the rider to stop the pedaling of the machine and coast with his feet upon the pedals without applying the brake. The brake is only applied when the pedals are rotated backwardly. When the pedals are not rotated backwardly, they may be used as coasting-pins.

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

1. In a bicycle-brake, the combination of a brake, a toothed ring mounted to oscillate about the crank-axle, and a link connecting said ring and brake, with a dog mounted to rotate with the crank and adapted to engage the teeth on said ring, a spring normally holding said dog out of engagement with the ring, and a spring of less force adapted to throw the same into engagement therewith, and means for disengaging the crank from the

driving-gear and for neutralizing the action of the stronger of said springs actuated by back-pedaling, substantially as described. 7c

2. In a bicycle-brake, the combination with a brake, a toothed ring mounted to oscillate about the crank-axle, and a link connecting said ring and brake, with a ratchet driving-gear comprising a spring-held dog, revolving with the crank, a spring-held dog also revolving with the crank and adapted to engage the toothed ring operating the brake when the crank is rotated backward, said driving and brake-operating dogs being engaged with each other, the springs thereof being opposed in direction of action and the spring of the driving-dog being the stronger, substantially as described. 80

3. In a bicycle-brake, the combination with a pivoted brake-lever adapted to engage the bicycle-wheel, a ring mounted to rotate upon the crank-axle hanger and having ratchet-teeth upon its periphery, and a link connected with said ring and brake-lever, of a disk mounted upon the crank-axle and the main sprocket-wheel mounted to rotate upon said disk, means for connecting said disk and sprocket-wheel when the disk is given a forward rotation, and for disconnection by a relative backward rotation, and means operated in the same manner for connecting said disk with the toothed ring which operates the brake-lever, substantially as described. 95

4. In a bicycle-brake, the combination with a pivoted brake-lever adapted to engage the bicycle-wheel, a toothed ring mounted to rotate upon the crank-axle hanger, and a link connecting said ring and lever, of a disk fixed upon the crank-axle, the main sprocket-wheel mounted to rotate upon said disk and having ratchet-teeth thereon, a dog upon said disk adapted to engage said ratchet-teeth, a dog pivoted upon said disk and adapted to engage the teeth upon the toothed ring, and means operated by a relative backward rotation by the disk in the sprocket-wheel, to engage said last-named dog with the toothed ring, substantially as described. 100

5. In a bicycle-brake, the combination of a pivoted lever adapted to engage the bicycle-wheel, a toothed ring mounted to rotate upon the crank-axle hanger, a link connecting the same with the brake-lever, a disk mounted upon the crank-axle and having a recess upon one edge thereof, a dog in said recess having a side projecting pin, a spring adapted to hold the dog outwardly, the main sprocket-wheel mounted to rotate upon said disk and having ratchet-teeth upon its inner surface, a dog mounted upon said disk and adapted to be engaged by the side projecting pin upon the other dog, and a spring for pressing the same inwardly, substantially as described. 110

6. In a bicycle-brake, the combination of a pivoted lever adapted to engage the bicycle-wheel, a toothed ring mounted to rotate upon the crank-axle hanger, a link connecting the same with the brake-lever, a disk mounted 120

upon the crank-axle and having a recess upon
one edge thereof, a dog in said recess having
a side projecting pin, a spring adapted to hold
the dog outwardly, the main sprocket-wheel
5 mounted to rotate upon said disk and having
ratchet-teeth upon its inner surface, a dog
mounted upon said disk and adapted to be
engaged by the side projecting pin upon the
other dog, a spring for pressing the same in-

wardly, and a spring adapted to engage the
toothed ring to return the same, substantially
as described.

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