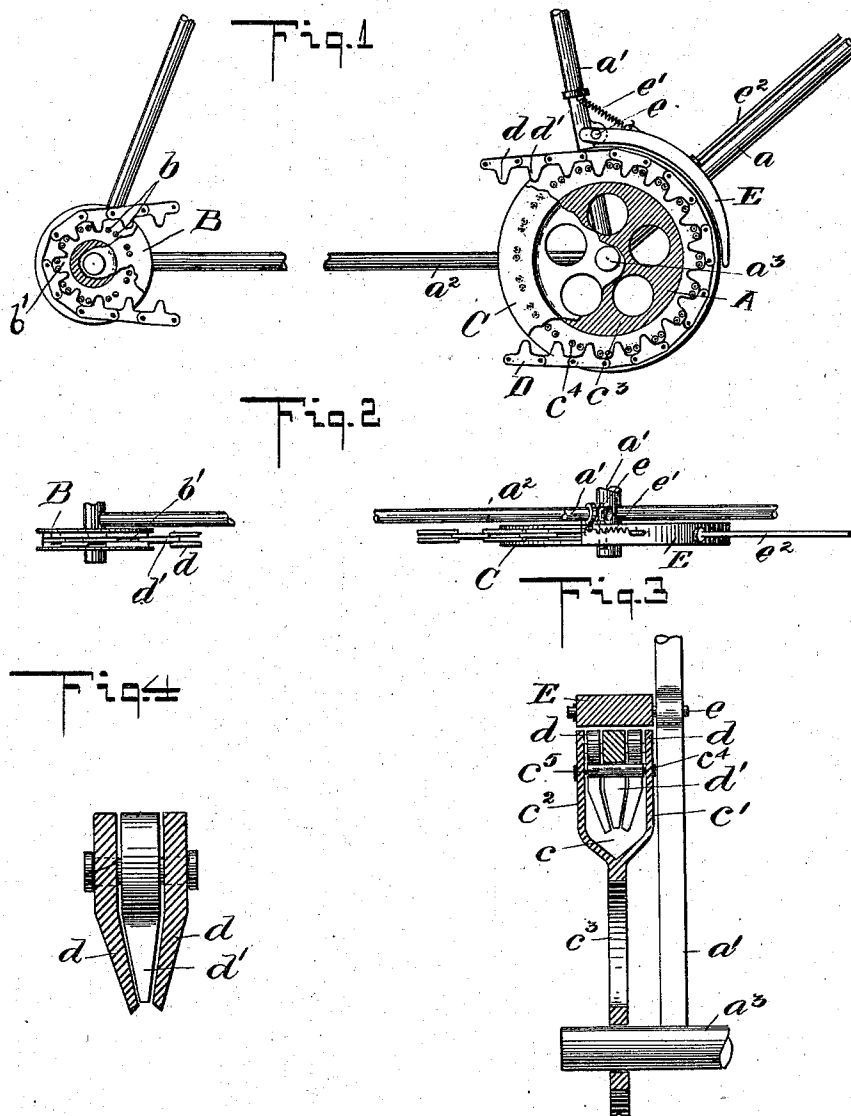


(No Model.)

S. F. CLOUSER.
BICYCLE DRIVING MECHANISM.

No. 562,580.

Patented June 23, 1896.



Witnesses.

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BICYCLE DRIVING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 562,580, dated June 23, 1896.

Application filed January 25, 1896. Serial No. 576,791. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL F. CLOUSER, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Bicycle Driving Mechanism, of which the following is a specification.

My invention relates to an improvement in bicycle driving mechanism, the object being to provide such a mechanism in which the friction of the parts is reduced to a minimum and in which a high gear is obtainable without unduly enlarging the driving-sprocket.

A further object is to provide a positive and effective brake for stopping the movement of the driving mechanism, the said brake being in position to engage the driving-sprocket.

A still further object is to provide a driving mechanism which will effectually do away with any lost motion of the chain and in which the chain easily clears itself from its engagement with the sprocket-wheels.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a view in side elevation of a portion of a bicycle-frame, showing my improved driving and brake mechanisms applied thereto, a portion of the parts being broken away to more clearly show the invention. Fig. 2 is a top plan view of the same. Fig. 3 is a partial transverse vertical central section through the driving-sprocket, and Fig. 4 is an enlarged transverse section through one of the links of the driving-chain.

The crank-hanger is denoted by A, the lower front brace by a , the seat-post tube by a' , and the rear lower brace by a^2 .

The sprocket on the axle of the driving-wheel is denoted by B, and the driving-sprocket secured to the crank-axle a^3 is denoted by C. The driving-chain which connects the driving-sprocket C with the rear sprocket B is denoted by D. The sprockets C and B are provided with circumferential grooves, within which the driving-chain D enters.

The circumferential groove in the driving-sprocket C is denoted by c and is formed by suitable flanges c' c^2 , which flanges are preferably formed integral with the web c^3 of

the sprocket-wheel. Pins c^4 extend between the two flanges c' c^2 , and are so located as to engage the teeth d d' upon the driving-chain D, as will hereinafter more fully appear. These pins are preferably arranged in pairs and are provided with rollers or sleeves c^5 .

The sprocket B is provided with series of pins b , extending across the circumferential groove b' in a manner quite similar to those already described in relation to the driving-sprocket C. These pins in the two sprocket-wheels are located at such a distance within the groove that when the driving-chain D is engaged thereby the links of the chain are located within the said grooves.

The driving-chain is made of single and double links pivoted to each other in the usual manner. Teeth d d' are formed upon the inner sides of the links of the chain, the teeth d being formed on the double links and the teeth d' upon the single links. These teeth are adapted to enter between the bars or pins in the sprocket-wheels C and B, whereby, as the driving-sprocket C is rotated, it will drive the chain, thereby driving the rear sprocket B and rotating the driving-wheel. (Not shown.) The two sides of the teeth d are preferably bent toward each other, so that there will be no tendency on the part of the chain to mount either of the sprocket-wheels, should there be any amount of lateral vibration of the chain.

The grooves in the sprocket-wheels are of sufficient width to allow of the free entrance of the driving-chain therein. The pairs of pins in the grooves are so spaced apart that they will preferably engage the inclined edges of the teeth d d' of the driving-chain near the base of the teeth, thereby preventing any lost motion on the part of the chain by reason of the teeth slipping longitudinally while the chain is being engaged by the said pins. These pins being provided with rollers will cause the teeth on the chain to readily free themselves from the sprocket-wheel, thereby doing away with any tendency on the part of the chain to cling to the sprockets when they are driven at a high rate of speed. Furthermore, by reason of the sleeves or rollers, the friction upon the chain is materially reduced.

By reason of forming the teeth upon the

chain and causing them to engage the lantern-sprocket I am enabled to make the chains very narrow and light, as no lateral vibration can affect the positive driving thereof.

5 Proceeding to describe my brake mechanism, the brake-shoe is indicated by E, and it is adapted to extend part way around the circumference of the driving-sprocket C. The
10 brake-shoe is pivoted at its rear end to a lug on the seat-post tube a' , as shown at e . This brake-shoe may be made of metal or wood or any other suitable material and it is held normally away from engagement with the circumference of the driving sprocket-wheel by
15 means of a retracting-spring e' , one end of the spring being attached to the seat-post tube a' and the other end to the brake-shoe E. An operating-rod e^2 is secured to the brake and may be connected with any suitable
20 mechanism whereby it may be caused to swing the said brake-shoe into and out of engagement with the sprocket. In the present instance I have shown the rod e^2 as extending up along the side of the front lower brace a
25 of the frame. In the accompanying drawings I have shown the brake-shoe as adapted to engage the outer edges of the flanges c' c^2 .

It will thus be seen that the brake, by being applied to the driving sprocket-wheel, will
30 effectually stop the rotation of the said sprocket in a very quick and positive manner and thereby stop the wheel without wearing the tire thereby. The brake also forms at the same time a mud and dust guard to protect
35 the chain in the groove on the sprocket-wheel.

It is obvious that slight changes in the form and arrangements of the several parts might be resorted to without departing from the
40 spirit and scope of my invention. Hence I do not wish to limit myself strictly to the structure herein set forth; but

What I claim is—

1. The combination with a sprocket-wheel
45 provided with pins spaced apart for the re-

ception between them of teeth on a drive-chain, the spaces between the pins being of less width than the extreme width of the teeth and of sufficient depth to leave the points of the teeth free, of a drive-chain composed of links having inclined-faced teeth constructed to enter and seat snugly between the said bearings; substantially as set forth. 50

2. The combination with a sprocket-wheel provided with pins spaced apart for the reception between them of teeth on a drive-chain and rollers mounted on the pins, the spaces between the rollers on the pins being of less width than the extreme width of the teeth and of sufficient depth to leave the points of the teeth free, of a drive-chain composed of links having inclined-faced teeth constructed to enter and seat snugly between the said rollers; substantially as set forth. 55 60

3. The combination with a sprocket-wheel provided with pins arranged in pairs and spaced apart for the reception between them of teeth on a drive-chain and rollers mounted on the pins, of a drive-chain composed of links having inclined-faced teeth constructed to enter and seat snugly between the members of the several pairs of pins; substantially as set forth. 65 70

4. In combination, a sprocket-wheel provided with a groove in its periphery of sufficient depth to receive a drive-chain below the face of the wheel, a brake mounted in position to swing toward and away from the face of the wheel, the said brake extending in curved form around a portion of the periphery of the wheel and forming at the same time a mud and dust guard, and means for moving the brake toward and away from the periphery of the wheel; substantially as set forth. 75 80

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Witnesses:

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