

(No Model.)

H. D. MOISE.
BICYCLE.

No. 533,912.

Patented Feb. 12, 1895.

Fig. 1.

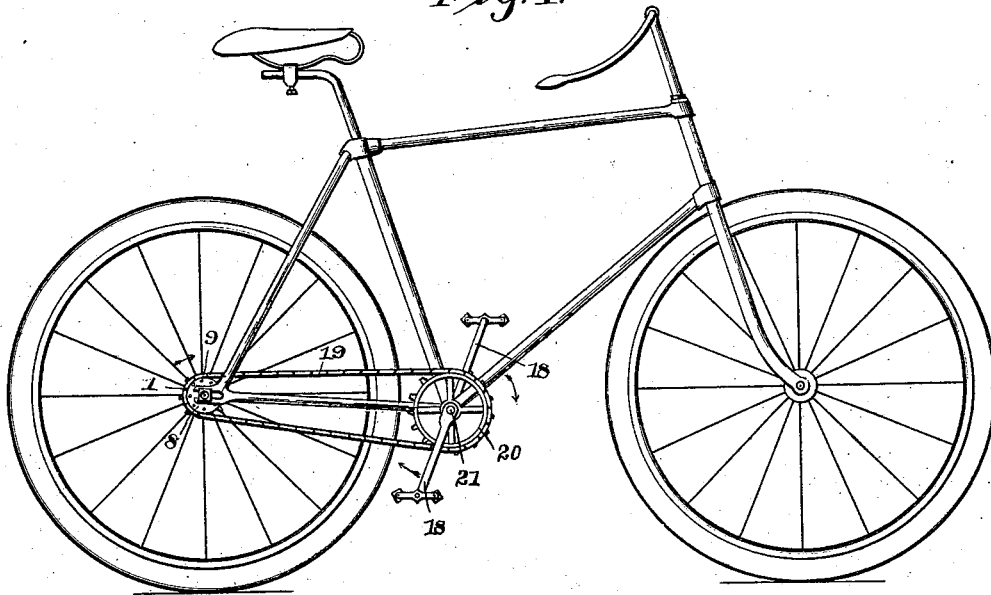


Fig. 2.

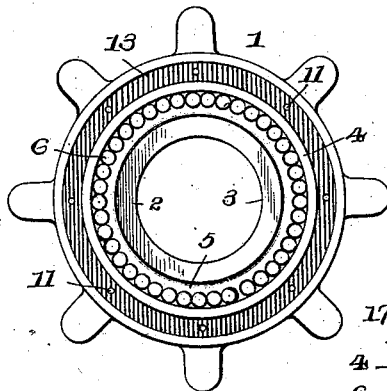


Fig. 3.

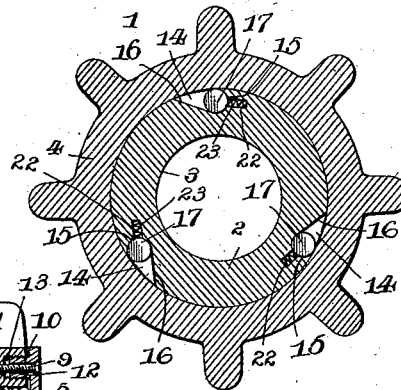
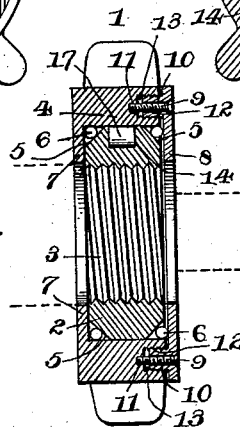


Fig. 4.



Witnesses

Chas. A. Ford,
[Signature]

By *his* Attorneys.

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Harmon D. Moise,

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UNITED STATES PATENT OFFICE.

HARMON D. MOISE, OF SUMTER, SOUTH CAROLINA.

BICYCLE.

SPECIFICATION forming part of Letters Patent No. 533,912, dated February 12, 1895.

Application filed June 28, 1894. Serial No. 516,016. (No model.)

To all whom it may concern:

Be it known that I, HARMON D. MOISE, a citizen of the United States, residing at Sumter, in the county of Sumter and State of South Carolina, have invented a new and useful Bicycle, of which the following is a specification.

My invention relates to bicycles, and particularly to attachments therefor, the objects in view being to provide a detachable chain-wheel for the rear driving-wheel of a bicycle, so constructed as to allow free forward movement of said driving-wheel independent of the driving-chain and hence of the cranks, whereby when "coasting" or when moving under the influence of acquired momentum, the rider may maintain his feet upon the pedals to avoid seeking the same when additional propulsion is necessary.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings:—Figure 1 is a view of a bicycle provided with a rear chain-wheel constructed in accordance with my invention. Fig. 2 is a detail side view of the improved chain-wheel with the face-plate removed. Fig. 3 is a central section transverse to the axis of the chain-wheel to show the seats for the clutch-rollers. Fig. 4 is a section parallel with and through the axis of the chain-wheel.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The improved chain-wheel 1 which is attached to the hub of the rear or driving-wheel of any bicycle of ordinary construction, comprises a core 2 having a central threaded opening 3 to engage the hub of the driving-wheel, and an annular portion or sprocket-ring 4, which is loosely mounted upon the periphery of said core. The core is provided with chamfered or cut away side edges to form seats 5 for anti-friction balls or rollers 6, which are thus interposed between the surfaces of the core and the corner angles of the sprocket-ring to support the latter out of contact with the former and reduce the friction to a minimum, the ring being provided upon one side, which for convenience I will term the inner side, with an inwardly extending flange 7 to

cover the seat 5 at that side of the core and overlap the core nearly its entire width to prevent lateral displacement and to exclude dust. Attached to the other, and as I will hereinafter term it, the outer side of the sprocket-ring, is a removable cap 8, which is annular in construction, the same being secured to the ring by means of set-screws 9, which pass through smooth openings 10 in the cap and engage threaded sockets 11 in the ring. The cap is further provided with an annular inwardly extending flange or rim 12, which fits and is threaded in an annular groove 13 in the outer surface of the sprocket ring. This cap extends inward over the outer face of the core a distance substantially equal to the flange 7, and thus covers the outer seat 5 for the anti-friction balls or rollers, and by reason of the flange or rim 12, said cap may be turned to vary the adjustment of the said anti-friction balls or rollers in their seats to take up lost motion caused by wear. After such adjustment of the cap it may be secured by means of the locking-screws 9. These locking-screws and the perforations and sockets with which they engage are spaced at short intervals, as shown clearly in the drawings, whereby when looseness occurs by reason of wear or otherwise, the desired adjustment of the cap may be attained, and yet bring the perforations of the cap in alignment with the sockets of the sprocket-ring so as to provide for the necessary locking of the cap.

Formed in the periphery of the core is a series of seats or pockets 14 having abrupt walls 15 and inclined walls 16, and in these pockets or seats are arranged the clutch rollers 17, whereby when the cranks 18 are turned forward, in the direction to propel the machine, a chain 19 which is operated by the chain-wheel 20 on the crank-shaft 21, moves the sprocket-ring 4 in the direction of the arrow in Fig. 1, and thus causes the clutch-rollers 17 to move upward and outward upon the inclined wall 16 of the pockets or seats and bind firmly against the inner surface of the sprocket-ring. This locks the sprocket-ring securely to the core and causes the transmission of power to the driving-wheel. When, however, the cranks are stationary during the forward movement of the machine, the clutch-rollers 17 recede until they are in con-

tact with the abrupt walls 15 of the pockets or seats 14, and the sprocket-ring 4 rotates still in the direction of the arrow in Fig. 1 upon the anti-friction balls or rollers of the bearing.

In order to insure the proper engagement of the clutch-rollers 17 with the inner surface of the sprocket-ring, I preferably employ small actuating springs 22, seated in sockets 23, communicating with the seats or pockets 14. These actuating springs have a tendency to press the clutch-rollers forward and thus outward upon the inclined walls 16.

From the above description it will be seen that the improved driving chain-wheel may be applied to the hub of the driving-wheel of any bicycle or other velocipede of the ordinary construction, and that when employed the machine is allowed to move forward under the influence of acquired momentum or gravity without necessitating the movement of the pedal cranks, and hence without the necessity of the removal of the rider's feet from the pedals.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

At this point, particular attention is directed to the usefulness of the herein described device as an article of manufacture, whereby the same is capable of universal attachment to any make of bicycle now on the market. While certain details of construction may be modified, such as using either chamfered or grooved surfaces for the balls to rest in, still the general make-up of the device is the same, that is, it is one complete article, consisting of three principal parts, which, when assembled together, remain intact and do not become separated, so that the device can be readily fitted to and removed from a bicycle by unskilled persons, without disarranging any part of the device. In fitting the device to a bicycle, it will of course be understood that the pitch of the threads in the core piece may be regulated to correspond with the pitch of the threads of the hub to which it is applied, and by reason of the specific construction herein described, the device is positive and silent in

its operation, and the interior working parts or bearings are thoroughly protected so as to render the device dust-proof.

Having described my invention, what I claim is—

1. As a new article of manufacture, the herein described universal attachment for bicycles and similar vehicles, the same comprising an annular core 2 of a single piece having a central threaded opening to engage the exterior threaded surface of the hub of a driving wheel, a sprocket ring 4, loosely mounted upon the periphery of the core and provided at one side with an integral flange overlapping one side of the core nearly its entire width, a separate cap fitted to the side of the ring opposite its flange and also overlapping one side of the core nearly its entire width, clutch rollers interposed between the core and sprocket ring, and anti-friction rollers located between the core and the sprocket ring, substantially as set forth.

2. As a new article of manufacture, the herein described universal attachment for bicycles and similar vehicles, the same comprising an annular core 2 of a single piece having a central threaded opening to engage the exterior threaded surface of the hub of a driving wheel, the peripheral edges of the core being chamfered to form continuous bearing surfaces at opposite sides of the core, a sprocket ring 4, mounted upon the periphery of the core and provided at one side with an integral flange 7 to overlap one side of the core nearly its entire width, a removable cap 8 at the other side of the sprocket ring to correspondingly overlap the opposite side of the core, clutch rollers interposed between the core and sprocket ring, and a double series of anti-friction balls located in the corner angles of the sprocket ring on the chamfered bearing surfaces of the core, said corner angles being formed at the junction of the flange 7 and cap 8 with the sprocket ring, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HARMON D. MOISE.

Witnesses:

GEO. W. DICK,
L. I. PARROTT.