

(No Model.)

W. A. DRYDEN, Sr.
VELOCIPEDE.

No. 574,674.

Patented Jan. 5, 1897.

Fig. 1.

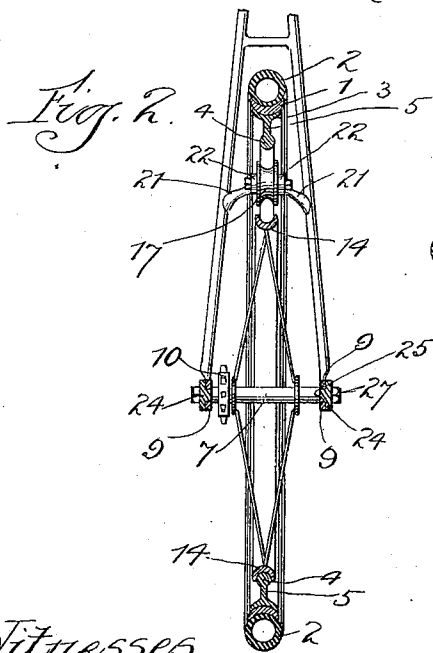
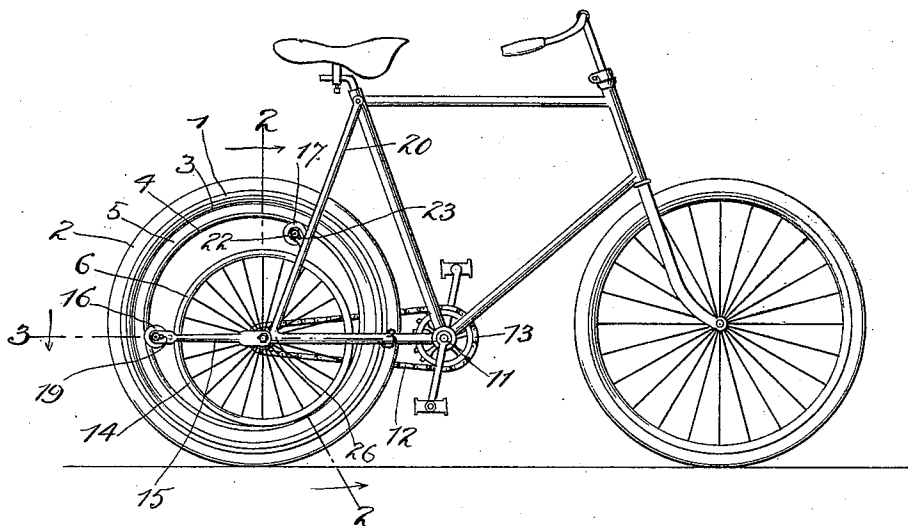


Fig. 3.

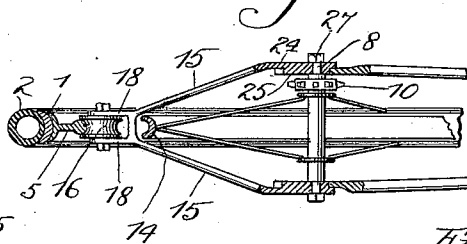


Fig. 5.

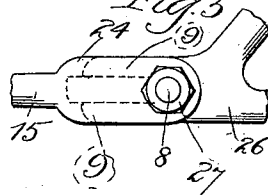
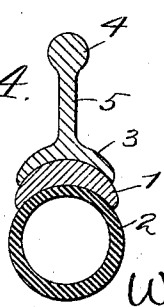


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM A. DRYDEN, SR., OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF
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VELOCIPEDE.

SPECIFICATION forming part of Letters Patent No. 574,674, dated January 5, 1897.

Application filed December 2, 1895. Serial No. 570,746. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. DRYDEN, Sr., a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Velocipedes, of which the following is a full, clear, and exact specification.

My invention relates to velocipedes, and the improvements have more especial reference to the propelling mechanism; and my invention has for its primary object to cause the weight of the rider to be applied to the rim of the ground-wheel at a point forward of the center of gravity, (forward of the vertical diameter of the wheel,) whereby the action of the driving mechanism will be rendered more effective in propelling the machine.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said object and certain other objects hereinafter appearing are attained, all as fully explained with reference to the accompanying drawings and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a side elevation of a bicycle or velocipede constructed according to my invention. Fig. 2 is a vertical transverse section, drawn to an enlarged scale, taken on the line 2 2, Fig. 1. Fig. 3 is a plan section taken on the line 3 3, Fig. 1, also drawn on an enlarged scale. Fig. 4 is an enlarged transverse section of my improved rim, and Fig. 5 is an enlarged detail view hereinafter described.

In carrying out my invention I connect the crank-shaft or other propelling mechanism of the machine with a driving-wheel by means of chain-and-sprocket or other suitable gearing, which propelling-wheel I located eccentrically within a ground-rim or tread, and support such driving-wheel within said rim in such a position that the weight sustained by the said wheel will fall upon the lower side of the rim and at a point forward of the center of gravity or vertical diameter of the ground-rim.

In accomplishing these ends I employ an ordinary bicycle-rim 1, having a suitable tire 2, and around the inner side of this rim I ar-

range a reinforcing rim or member, which preferably consists of a foot-piece 3 and a bearing head or rib 4, joined to the foot-piece by web 5. This reinforcing-rim is employed principally for strengthening the ordinary rim 1, which is usually and preferably constructed of wood and would ordinarily be insufficient to sustain the strain without the use of spokes, as in the ordinary wheel, and consequently, if desired, the rim of the ground-wheel may be any other construction or formation that will impart to it the requisite strength. If desired, the reinforcing-rim 3 4 5 may also be constructed of wood or other material and this foot-piece 3 secured to the ordinary rim 1 in any approved or desired way. The web 5 being very thin adds but little weight to the wheel and at the same time, being of considerable width or vertical extent, renders the structure rigid and amply able to withstand the strain applied to its upper or inner edge.

6 is the wheel, before referred to as the "driving-wheel," which is provided with the usual hub 7, having its axle 8 mounted in the slotted end plates 9 of the frame in the ordinary manner, the hub of the wheel 6 being provided, as usual, with a sprocket 10, geared to the crank-shaft 11 in any desired manner, such, for instance, as by means of the chain 12 and main sprocket 13. This driving-wheel 6 is provided with a rim 14, constructed of any suitable material, but preferably of wood, and having in its outer periphery a groove or channel, as shown more clearly in Figs. 2 and 3, which adapts the wheel 6 to rest upon the bearing-head 4 of the tread or ground rim. This wheel 6 is held against the lower edge of the bearing-head 4 at a point forward of the center of gravity of the ground-rim, that is, at a point forward of the vertical diameter of such rim, by any suitable spider-arm arrangement having at least two other points of bearing against the inner periphery of the ground-rim. This may be accomplished by the employment of a rearwardly-extending fork whose extremities or arms 15 are connected in any suitable manner with the main frame of the machine at their forward ends, while their rear or converging ends are provided

with an antifriction-roller 16, having a groove complementary in shape to the rib 4 and bearing thereagainst, and an antifriction-roller 17, supported upon the frame of the machine and bearing against the rib 4 at a point preferably equidistant between the roller 16 and the point at which the rim 14 touches the rib 4, so that the driving-wheel 6 will be normally held in an eccentric position within the tread or ground rim and bearing thereagainst at a point forward of its center of gravity, as described.

The roller 16 may be journaled in the arms 15 in any suitable manner, such, for instance, as by means of a pair of ears 18, projecting from the rear ends of the arms 15 and being provided with slots 19, in which the pintle of the roller is mounted and which permit the roller to be adjusted with reference to the bearing-rib 4.

The antifriction-rollers 17 may be mounted upon the upright portions 20 of the main frame, such upright portions being provided with inwardly-projecting arms or brackets 21, as shown in Fig. 2, whose contiguous ends are formed with plates 22, having slots 23, which extend in the direction of a radial line drawn from the center of the wheel 6 equidistant between the points of bearing of the roller 16 and the rim 14, whereby this roller 17 may also be adjusted with reference to the rib 4.

If desired, the arms 15 of the rearwardly-extending fork might of course be formed in one piece with the main frame, but in order that the device may be applicable to machines already in use, and in order, further, to better facilitate the removal of the wheels when desired, such rearwardly-extending fork is detachably secured to the main frame, and this may be done by providing the forward ends of the arms 15 with plates 24, whose inner faces are provided with splines or tongues 25, which fit snugly into the usual slotted plates 26 of the frame, such arrangement providing a sliding and adjustable connection for joining the rearwardly-extending fork to the rear-fork end of the main frame. These plates 24 are provided with perforations through which the axle or bolt 27 passes

and thus binds the plates 24 26 firmly together.

If desired, the bearing-surfaces of the rib 4 and the rim 14 may be coated with vulcanite, hard rubber, or any other suitable material capable of increasing the traction between these parts and deadening the sound. The bearing-surfaces of the rollers 16 17 may also be provided with a similar coating.

With a velocipede constructed according to my invention it will be seen that the propulsion of the machine is effected by the frictional contact between the inner wheel 6 and the tread or ground rim upon which it rests, and the rotation of such wheel 6 gives it a continual tendency to climb the forward edge of the bearing-rib 4 and is consequently continually throwing the weight of the rider at a point forward of the center of gravity of the tread-rim and inducing such rim to roll forward.

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

1. The combination with a safety-bicycle having the slotted rear-fork ends for the reception of the driving-wheel axle, of a rigid extension-fork having a sliding and adjustable connection with said fork ends, an open rim or tread surrounding the driving-wheel and in frictional engagement therewith, and a guiding and steadying roller journaled in said fork and bearing against said open rim, substantially as described.

2. A velocipede having in combination a tread or ground rim, the frame of the machine having the slotted plates 26, a rearwardly-extending fork provided with the plates 24 having splines 25 fitting in said slotted plates 26, a driving-wheel located within said rim and bearing thereagainst, an axle or bolt passing through said wheel and said plates 24, 26, and an antifriction-roller mounted in said fork and bearing against said rim, substantially as set forth.

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