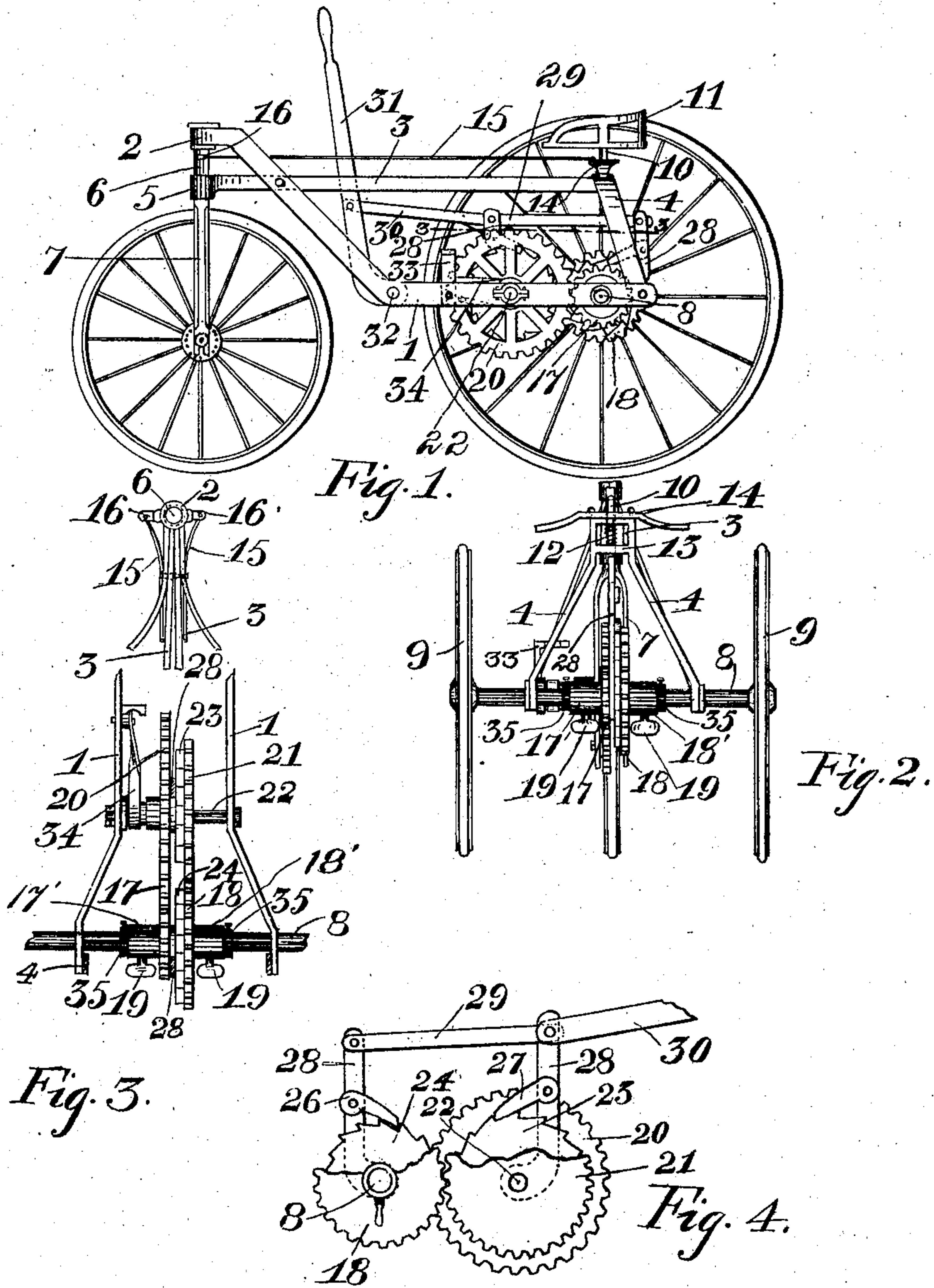


No. 827,243.

PATENTED JULY 31, 1906.

G. A. LARSON.
TRICYCLE.

APPLICATION FILED APR. 27, 1905.



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TRICYCLE.

No. 827,243.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed April 27, 1905. Serial No. 257,755.

To all whom it may concern:

Be it known that I, GUSTAF A. LARSON, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Tricycles, of which the following is a specification.

My invention relates to improvements in vehicles of that type which are impelled by the rider, and has more particular reference to driving mechanism thereof, the primary object being to improve and simplify the same.

A further object is to provide an improved form of driving mechanism which can be readily adjusted to increase or decrease the speed of the driving-wheels.

With the above and other objects in view, as set forth in the following, the invention consists in the construction and arrangement of parts, as hereinafter referred to, and succinctly pointed out in the appended claims.

In the accompanying drawings, in which like numerals of reference indicate like parts throughout the several views, Figure 1 is a view in side elevation of my invention, one of the driving-wheels thereof being removed. Fig. 2 is a rear elevation thereof, parts being removed. Fig. 3 is a view partly in top plan and partly in horizontal section, taken on line 3 3 of Fig. 1; and Fig. 4 is a detail side view of the bearing, parts being broken away.

In carrying out my invention I construct a frame comprising the side bars 1, the forward portions of which are inclined upwardly in converging relation and terminate in a socket 2, upper bars 3, and stays 4. These upper bars 3 project between the forward portions of the side bars 1 and are secured thereto in any desired manner, a convenient means, however, consisting of rivets, as shown. The forward ends of these bars 3 terminate in a sleeve 5, which, together with socket 2, forms a support for the head 6 of the fork 7, in which the steering-wheel is mounted.

The stays 4 are suitably supported on driven shaft 8, which has the drive-wheels 9 fixed thereto, and have the rear ends of bars 3 secured thereto. (See Fig. 2.)

Reference-numeral 10 indicates the seat-post, to which seat 11 is secured, and this post is yieldingly supported in the upper ends of stays 4 by a spring 12, which bears on the web 13 and against a pin arranged in said post at a point above said web. Loosely mounted on the said seat-post is a handle 14, the same be-

ing connected by rods 15 to a pair of arms 16, which project from opposite sides of head 6. By this construction it will be obvious that the cyclist can readily grasp either end of handle 14 and by swinging the same alter the position of the front or steering wheel, and thus control the direction of movement of the vehicle.

The driving mechanism comprises large and small gears 17 and 18, which are provided with sleeves 17' and 18', respectively, and mounted on shaft 8. In these sleeves I arrange set-screws 19, through the medium of which the respective gear-wheels can be alternately made fast and loose on said shaft. Meshing with gear-wheels 17 and 18 are large and small gear-wheels 20 and 21, the former meshing with gear 17 and being of such a diameter as to rotate shaft 8 at high speed when gear 17 is fixed thereto, and gear 21 meshes with gear 18 and being of a comparatively small diameter will obviously rotate shaft 8 at a low rate of speed when said gear 18 is fixed to said shaft. These gears 20 and 21 are mounted on a shaft 22, journaled in said bars 1, and arranged between the same is a ratchet-wheel 23. A ratchet-wheel 24 is also arranged between gears 17 and 18, the same being rigidly secured to gear 18. Cooperating with these ratchet-wheels are pawls 26 and 27, the same being pivoted on arms 28, pivoted to the respective shafts 8 and 22, respectively, and these arms are connected by links 29 and 30 to an operating-handle 31, secured to a cross-shaft 32, journaled in the side bars 1 of the frame. This handle projects between the upper bars 3, and is thereby guided during its swinging movement.

In operation if, for example, the cyclist desires the low gear set-screw 19 in sleeve 17' is released from engagement with shaft 8, so as to allow gear-wheel 17 to be free or loose. Therefore, as the handle 31 is oscillated, pawls 26 and 27 will alternately operatively engage the teeth of the respective ratchet-wheels 24 and 23 and power will be transmitted to shaft 8 through gears 21 and 18. Should, however, the high gearing be desired, set-screw 19 of sleeve 18' is released, thereby allowing gear 18 to be loosened and gear 17 is then made fast to the shaft. Therefore, when handle 31 is operated, power will be transmitted to shaft 8 through gears 20 and 17.

A suitable brake mechanism embodies a lever 33, which has an angular foot part and is pivoted to one of the side bars 1, and a

band 34 passes around shaft 22 and has one of its ends secured to a fixed part and the other to lever 33 at a point above its pivotal connection. By this construction it will be observed that a slight forward movement of lever 33 will cause the band 34 to impinge tightly on shaft 22, and thereby effect a braking action.

By my improvement the operating-handle for the propelling mechanism, the handle for the steering means, and lever 33 of the brake mechanism are arranged in such relation relatively to seat 11 that they can be all readily operated by the cyclist without causing him any inconvenience. It will further be observed that by providing two ratchet-wheels 23 and 24, the same having their teeth in opposed relation, I am enabled to transmit a propelling force to shaft 8 when handle 31 is operated or swung in both forward and rearward directions.

In the foregoing I have described an improvement which embodies but comparatively few parts which are not liable to get out of order and which are simple in construction and comparatively inexpensive to manufacture. I am aware, however, that the details of construction can be readily altered, and I therefore reserve the right to make such alterations and changes as fall within the scope of the claims.

To prevent gears 17 and 18 from sliding longitudinally on shaft 8, I provide suitable

collars 35, which are preferably secured to said shaft by set-screws, as shown.

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

1. In a machine of the type set forth, a pair of shafts arranged one in front of the other, ratchet-wheels arranged on said shafts, the ratchet-wheel on one shaft having its teeth arranged in a manner reversed to that of the teeth of the other ratchet-wheel, arms mounted on said shafts and provided with pawls engaging said ratchet-wheels, a link connecting said arms, means for swinging said arms, and means for transmitting motion from one shaft to the other.

2. In a machine of the type set forth, a pair of shafts, differential gearing consisting of a plurality of gears secured to each shaft, the gears on one shaft being adapted to be made alternately loose and fast therewith and meshing with the gears on the other shaft, ratchet-wheels mounted on the respective shafts, swing-arms loosely mounted on said shafts and carrying pawls for engagement with said ratchet-wheels, and means for swinging said arms in unison.

In testimony whereof I affix my signature in presence of two witnesses.

GUSTAF A. LARSON.

Witnesses:

JOHN W. FILKINS,
C. W. JOHNSTON.