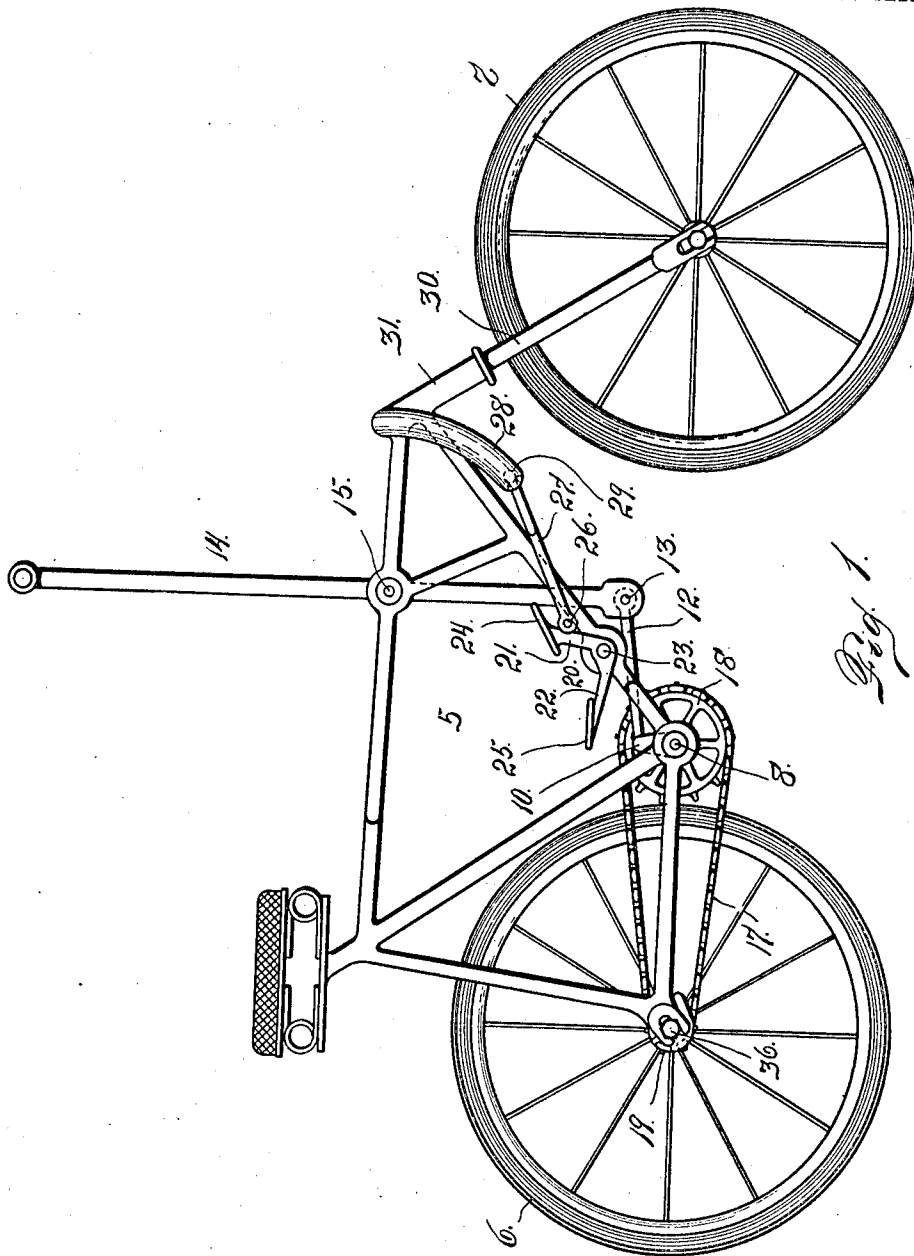


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 PROPELLING MECHANISM FOR VELOCIPEDES.
 APPLICATION FILED AUG. 2, 1909.

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Patented Sept. 13, 1910.

2 SHEETS—SHEET 1.



Witnesses
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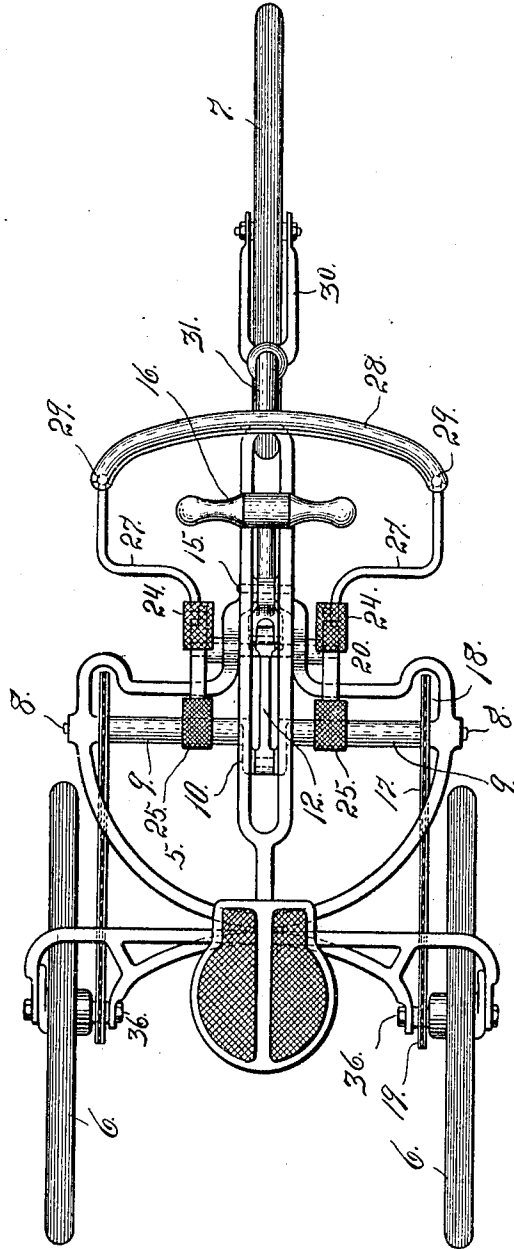
Inventor
John T. Plummer
 By *A. J. O'Brien*
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UNITED STATES PATENT OFFICE.

JOHN T. PLUMMER, OF DENVER, COLORADO.

PROPELLING MECHANISM FOR VELOCIPEDES.

970,109.

Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed August 2, 1909. Serial No. 510,745.

To all whom it may concern:

Be it known that I, JOHN T. PLUMMER, a citizen of the United States, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Propelling Mechanism for Velocipedes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in propelling mechanism for velocipedes and relates more particularly to the steering mechanism therefor.

My improvements are more especially adapted for use with tricycles or similar velocipedes where the machine is constructed to be propelled by the hands of the rider, the steering mechanism being adapted to be operated by the feet of the rider. By virtue of this construction and arrangement, the machine becomes a source of healthful exercise.

Having briefly outlined my construction, I will proceed to describe the same in detail, reference being made to the accompanying drawing, in which is illustrated an embodiment thereof.

In this drawing: Figure 1 is a side elevation of a velocipede, equipped with my improvements. Fig. 2 is a top plan view of the same.

The same reference characters indicate the same parts in both views.

Let the numeral 5 designate the framework of the velocipede, 6 the rear wheels, and 7 the front wheel thereof. Between the front and rear wheels of the machine is located a crank shaft 8, which is journaled in a frame-bearing 9. In the center of the shaft 8, is formed a crank 10, with which is connected one extremity of a pitman 12, whose opposite extremity is pivotally connected, as shown at 13, with the lower extremity of an operating lever 14, fulcrumed at 15, on the upper part of the framework. The upper extremity of the lever 14, is equipped with a handle 16, adapted to be grasped by the hands of the rider. As this

lever 14, is operated by moving its upper extremity or hand-piece back and forth, it is evident that the crank shaft 8, will be rotated. This shaft is connected with rear stub shafts 36, by means of two chains 17 and four sprocket wheels 18 and 19. The sprockets 18 are fast upon the crank shaft 8, and as shown in the drawing, are considerably larger than the sprockets 19, which are mounted upon the stub shafts of the rear wheels. By virtue of this construction and arrangement, it is evident that the machine will be propelled by the operation of the lever 14, in the manner heretofore explained.

For the purpose of steering the machine two levers 20, are employed. These levers, as shown in the drawing, have the general shape of bell cranks and they are fulcrumed at the angle of their arms 21 and 22, as shown at 23. The extremities of the two arms of both levers, are equipped with plates 24 and 25, which are shaped to form comfortable bearings for the heel and toe of each foot of the operator, who places both feet upon these plates, while operating the machine. The forward arm 21, of each lever is pivotally connected, as shown at 26, with the rear extremity of an arm 27, whose forward extremity is connected with one end of the handle-bar 28, of the machine, by a ball and socket joint 29. The levers, 20, are mounted on opposite sides of the center of the machine and the arms 27 respectively, connecting opposite extremities of the handle-bar with the forward arms of the said levers.

The handle-bar 28, is connected at its center with the stem of the front fork 30, of the machine, the said stem being journaled in the head 31, of the frame, as is common in bicycles and other machines of similar construction. Hence as either lever 20, is operated, the handle-bar is moved to the one side or the other, if we assume that the machine occupies the position shown in Fig. 2; that is to say, with the front wheel occupying a plane parallel with the planes of the rear wheels. From this it will be understood that the rider of the machine may propel the latter by operating the main lever 14, using his hands for this purpose, while his feet are free to steer the machine, through the instrumentality of the twin

levers 20 connected with the opposite extremities of the handle-bar, as heretofore explained.

Having thus described my invention what I claim is:—

1. In propelling mechanism for velocipedes, the combination with a transverse crank shaft, an operative connection between the said shaft and the rear wheels of the vehicle, a propelling lever fulcrumed on the machine and also connected in operative relation with the center of the crank shaft, and steering mechanism comprising bell-crank foot levers connected in operative relation with the opposite extremities of the handle-bar of the machine, the propelling lever occupying a position within convenient reach of the hands of the rider, substantially as described.
2. The combination in a velocipede, of a crank shaft connected in operative relation with the rear wheels of the machine, a hand lever operatively connected with the center of the crank shaft, and bell-crank foot levers fulcrumed on opposite sides of the machine and connected in operative relation with the opposite extremities of the handle-bar, substantially as described.
3. In a machine of the class described, the combination with propelling mechanism connected in operative relation with the rear wheels of the machine, and steering mechanism connected in operative relation with the handle-bar of the machine, the steering mechanism comprising bell-crank foot levers fulcrumed on opposite sides of the center of the framework, and arms pivotally connected with the said levers at one extremity and with the opposite extremities of the handle-bar, by means of universal joints at their opposite extremities.
4. In a velocipede, the combination with the framework thereof, of hand-operated mechanism for propelling the same, steering mechanism comprising two bell-crank foot levers independently fulcrumed on opposite

sides of the center of the machine and adapted to form rests for the feet of the rider, and an operative connection between the forward arm of the said levers and the opposite extremities of the handle-bar of the machine for steering purposes, substantially as described.

5. In a machine of the class described, the combination of a gearing mechanism connected in operative relation with the rear wheels of the machine, and steering mechanism connected in operative relation with the handle-bars of the machine, the steering mechanism comprising bell-crank foot levers fulcrumed on opposite sides of the framework, arms pivotally connected at one extremity with the said levers, and at their opposite extremities with the handle-bars, the said arms being turned inwardly from the extremities of the handle-bars, and connected in operative relation with the said levers, substantially as described.

6. In a machine of the class described the combination with a frame work, a transverse crank shaft mounted on said frame work, the said crank shaft connected in operative relation from its extremities with the rear wheels of the machine, a hand lever connected in operative relation with the center of the crank shaft, the said lever being pivoted on the frame work, and bell-crank foot levers fulcrumed on opposite sides of the frame work, arms pivoted at one extremity, and having their opposite extremities in operative relation with the steering mechanism of the vehicle, the said arms being connected with said steering mechanism by means of universal joints, substantially as described.

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

JOHN T. PLUMMER.

Witnesses:

A. J. O'BRIEN,
M. F. MANEY.