

(No Model.)

2 Sheets—Sheet 1.

J. L. F. SCHULZE.
VELOCIPÈDE.

No. 442,240.

Patented Dec. 9, 1890.

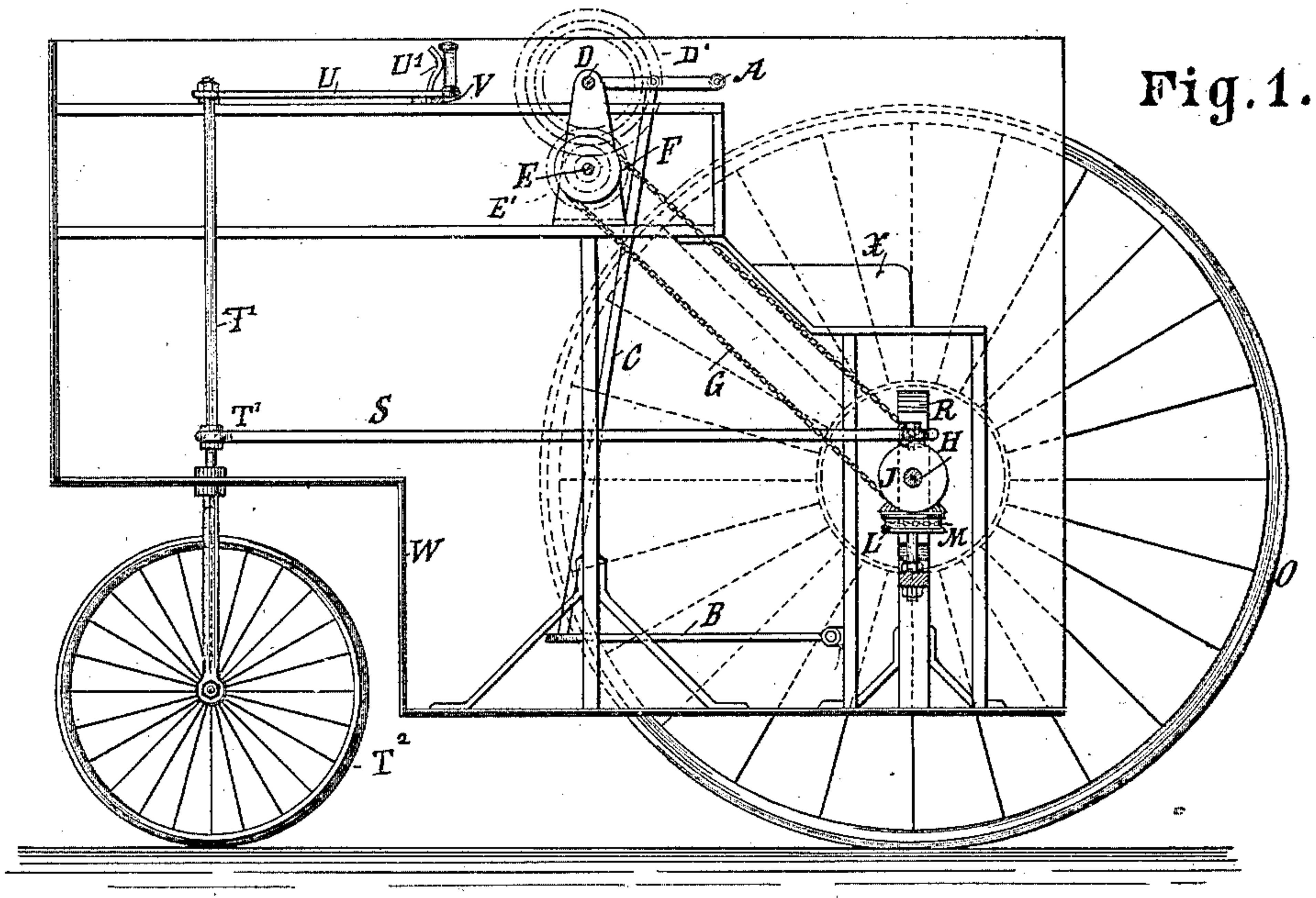
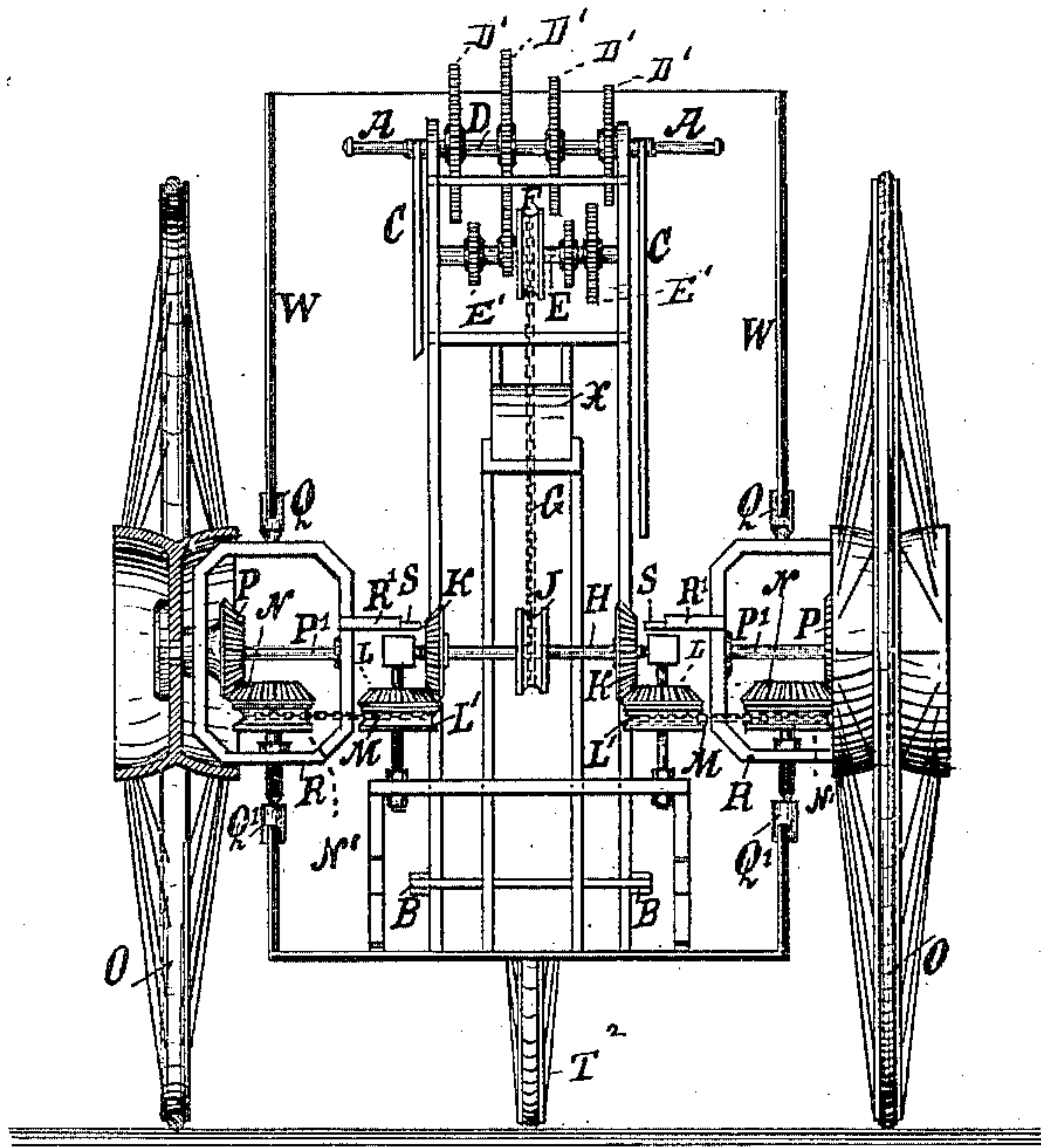


Fig. 2.



Witnesses:
Wm Wagner.
Wm A. Lowe

Inventor:
J. L. F. Schudze
by his attorneys.
Roeder & Brisen

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Fig. 3

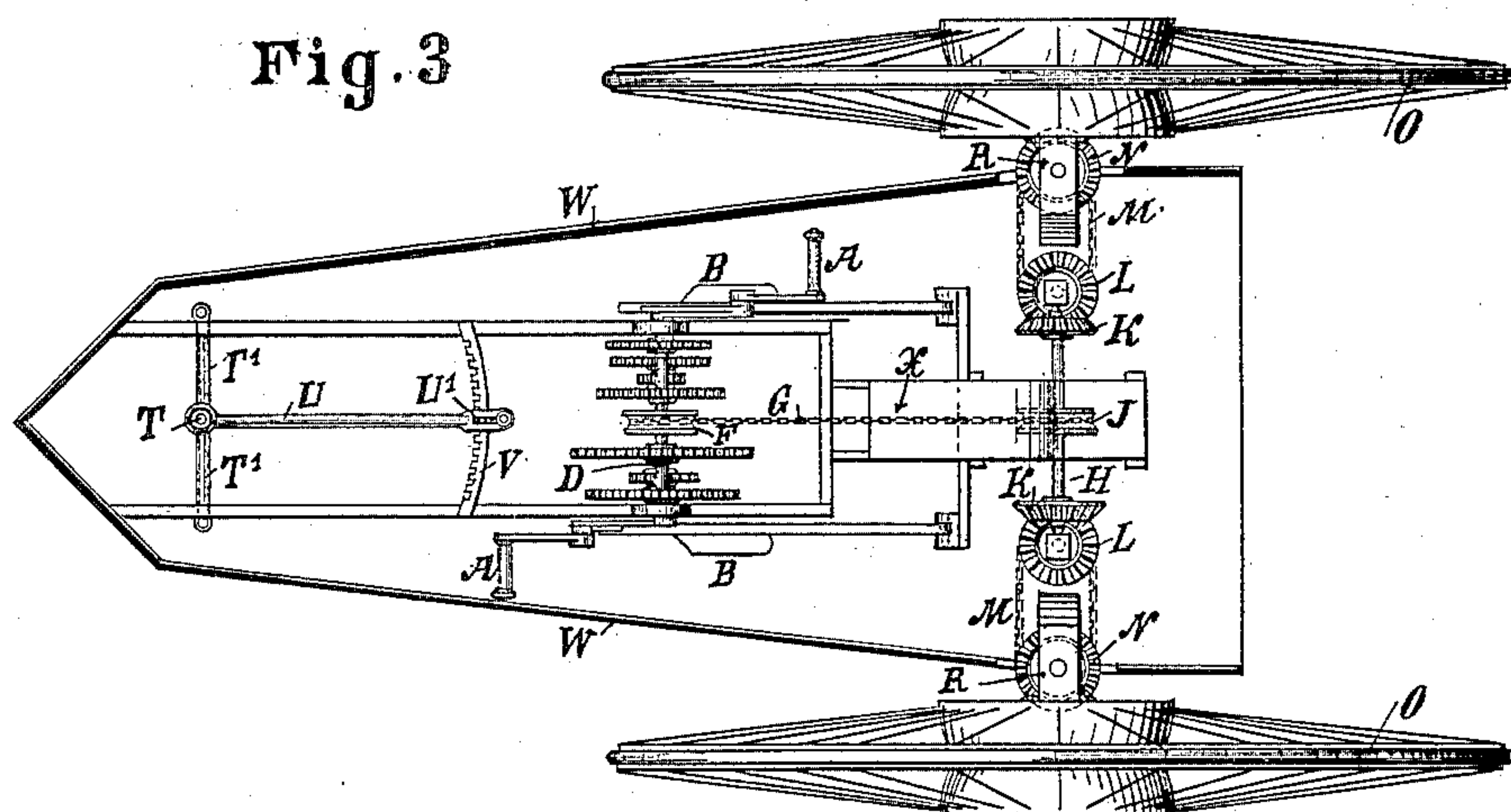


Fig. 4.

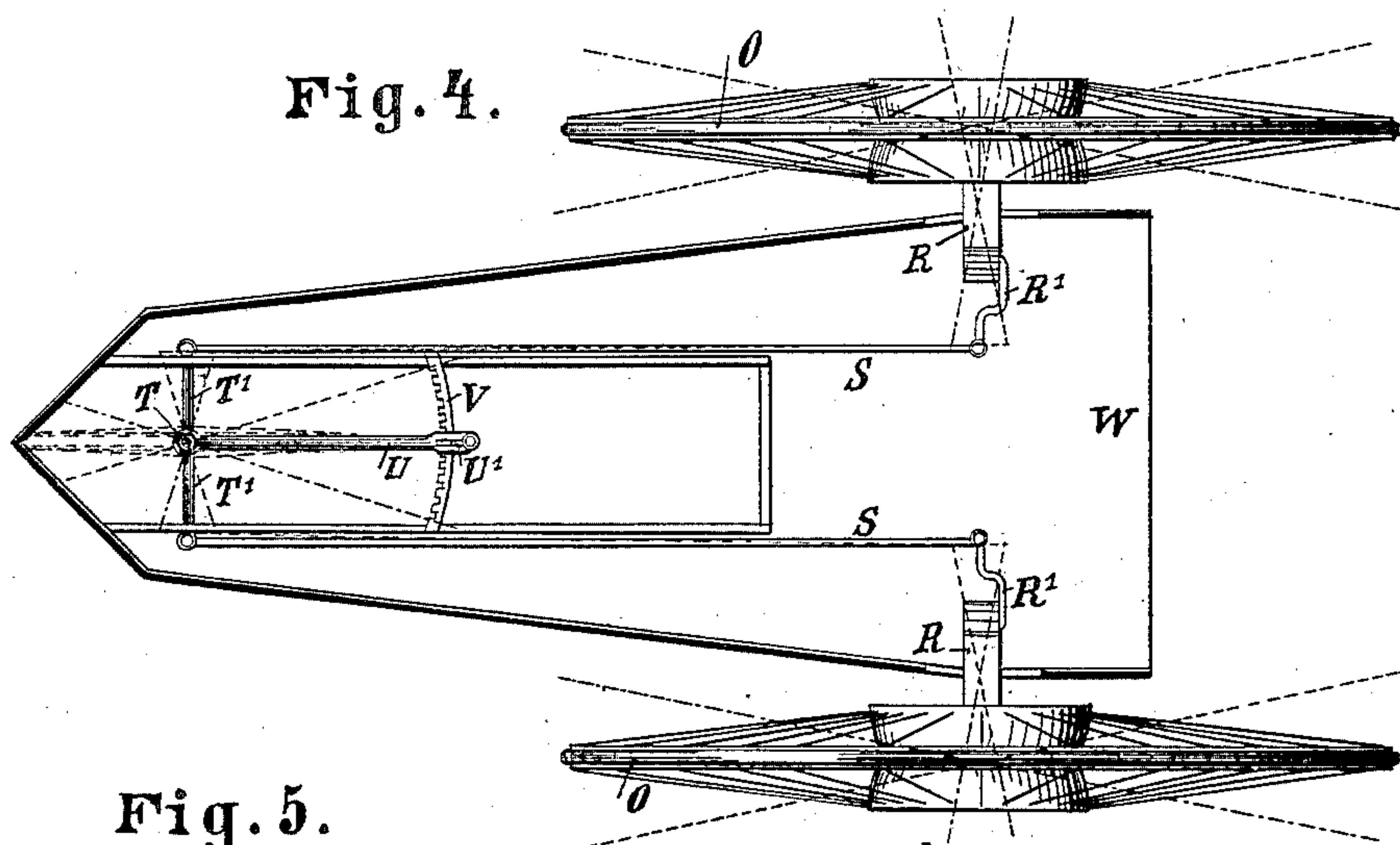


Fig. 5.

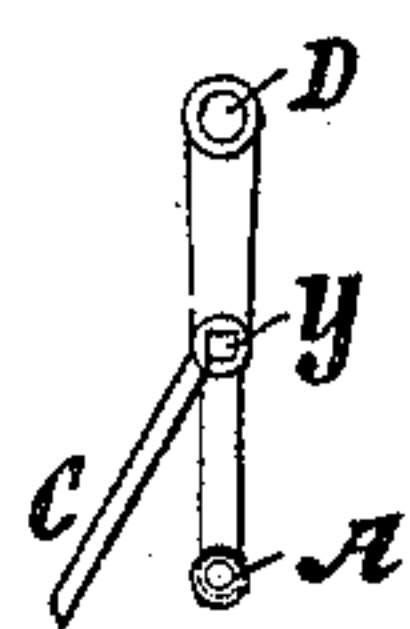
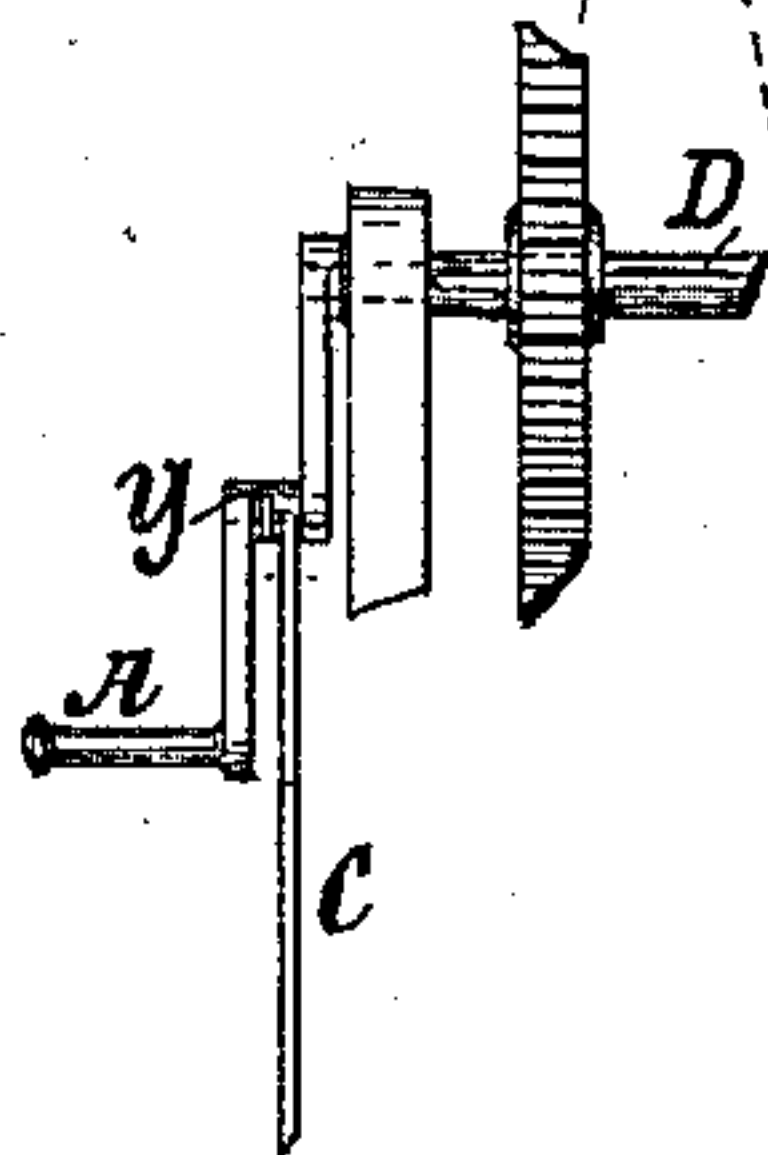


Fig. 6.



Witnesses:
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Wm. A. Lowe

Inventor:
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UNITED STATES PATENT OFFICE.

JOHANN L. F. SCHULZE, OF LEYDA, GERMANY.

VELOCIPEDÉ.

SPECIFICATION forming part of Letters Patent No. 442,240, dated December 9, 1890.

Application filed August 5, 1890. Serial No. 361,075. (No model.)

To all whom it may concern:

Be it known that I, JOHANN LEOPOLD FRIEDRICH SCHULZE, a subject of the Emperor of Germany, residing at Leyda, in Prussia, German Empire, have invented certain new and useful Improvements in Velocipedes, of which the following is a specification.

My invention relates to new and useful improvements in velocipedes, particularly tricycles; and the object of my invention is to provide improved means and mechanism for driving and steering the machine. The improved driving mechanism allows of adjustment to different rates of speed by means of gear-wheels of different size capable of being shifted into gear and out of gear, according to the desired rate of speed. The steering mechanism permits the turning of the front wheels simultaneously with the hind or main wheels, whereby greater facility, rapidity, and security are obtained in steering the velocipede.

The invention consists in the various features of improvement, more fully pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal section of the velocipede. Fig. 2 is an end elevation of the same, partly in section. Fig. 3 is a plan of the same. Fig. 4 is a plan of the steering mechanism. Figs. 5 and 6 are respectively a side elevation and a front view of the connecting device between the treadle and handle driving mechanism.

The driving mechanism consists of handles or cranks A, to be turned by hand, and of pedals B, to be worked by the foot. The two driving means are connected to each other by the rods C.

On the shaft D of the handles A four gear-wheels D' are mounted. These wheels are of different sizes, and they may be shifted on their shaft and locked in position by a set-screw. The wheels D' are adapted to respectively intergear with four corresponding differently-sized wheels E' on a shaft E. This shaft has further mounted on it a chain-wheel F, from which an endless chain G passes around a corresponding chain-wheel J on a shaft H, which carries the bevel-wheels K, in gear with corresponding bevel-gears L, to which chain-wheels L' are secured. Chains

M pass from said wheels L' to corresponding chain-wheels N', having bevel-wheels N formed or secured to them. The bevel-wheels N are in gear with corresponding bevel-wheels P, carried by the hind or main wheels O. Motion is thus imparted by the handles A to the wheels O, as will be readily understood. The horizontal shaft P' is firmly secured to the wheel O and bevel-gear P, said shaft P' being carried in bearings R, provided in a strap arranged to turn between vertical points Q Q'. The bearings R are provided with an arm R', arranged to engage with a rod S, the front end of which is joined to a cross-bar or lever T' of the steering rod or shaft T. The rod T carries in its bifurcation at the lower end the steering-wheel T'. To the upper end of the rod T is connected a lever U, on which a handle is formed, and which is provided with a pawl U', that engages a toothed segment V. As will be seen from Fig. 4, the lever U on being turned in one or the other direction will turn the steering-rod T, the cross-bar T', and through the rods S the bearings R, thus causing each of the wheels of the velocipede to take a position tangential to an arc concentric with that of the steering-wheels. By this coincidence of steering motion simultaneously imparted to the several-wheels I obtain the advantage that while proceeding within a curve every wheel will at all times keep the tangential position to the curve, and that in consequence each of the wheels exactly follows the whole of the curves. The main wheels therefore have no longer the objectionable tendency, as with the usual constructions of velocipedes, to proceed in the straight direction while the steering-wheel enters into a curve.

Within the frame of the velocipede a box or casing W is arranged, carried in front by the steering-spindle T and in the rear by the bearings R.

The driving mechanism is secured to a frame-work within the box W. This frame-work also carries a seat or saddle X, from which the driving and steering mechanism may both conveniently be worked and controlled. By changing the position of the handle A on the bolt Y, Figs. 5 and 6, the throw of said handle may be varied as de-

sired, and by changing the gear of the differently-sized wheels D' E' on shafts D E the speed of the velocipede may also be varied.

I claim as my invention—

- 5 1. The combination of driving-wheels O with the swiveled bearings R, and with forked shaft T and steering-wheel T², secured to said shaft, and with rods S for connecting shaft T to bearings R, substantially as specified.
- 10 2. The combination of shaft D and pedals B with connecting-rods C, shaft E, intergeared

with shaft D and with shaft H, chain-wheels F J, chain G, swiveled bearings R, and wheels O, having shafts P' intergeared with shaft H, substantially as specified.

In testimony whereof I hereunto sign my name, in the presence of two subscribing witnesses, this 18th day of July, 1890.

J. L. F. SCHULZE.

Witnesses:

CARL BORNGRAEBER,
ROBERT CERF.