(No Model.)

E. P. HOWE.

STEERING DEVICE FOR TRICYCLES.

No. 344,531. Patented June 29, 1886.

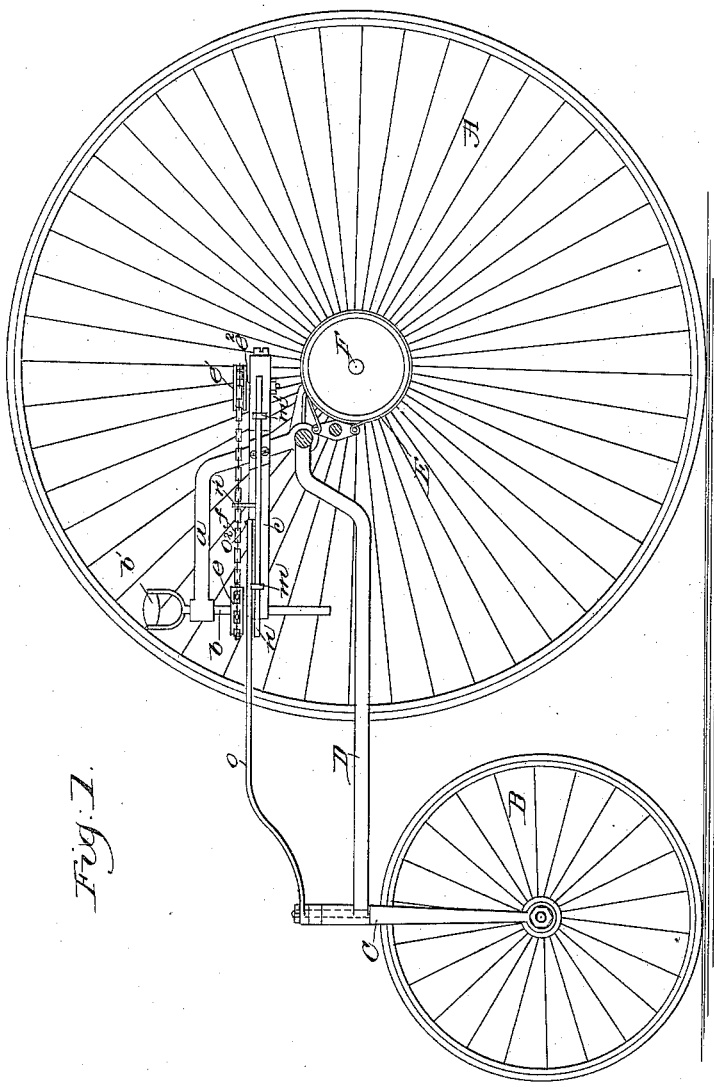

Fig. 1.

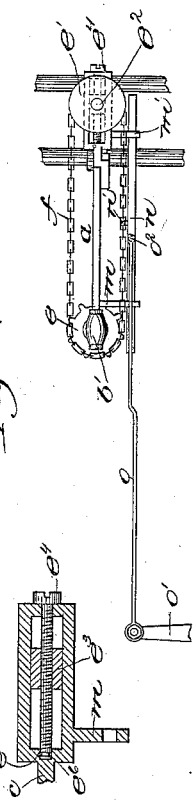

Fig. 2.

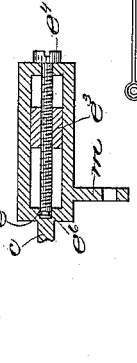

Fig. 3.

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UNITED STATES PATENT OFFICE.

EDWARD P. HOWE, OF NORTHBOROUGH, ASSIGNOR OF ONE-HALF TO JOHN J. SHAW AND CHARLES R. ROGERS, OF PLYMOUTH, MASSACHUSETTS.

STEERING DEVICE FOR TRICYCLES.

SPECIFICATION forming part of Letters Patent No. 344,531, dated June 29, 1886.

Application filed April 12, 1886. Serial No. 198,529. (No model.)

To all whom it may concern.

Be it known that I, EDWARD P. HOWE, of Northborough, county of Worcester, and State of Massachusetts, have invented an Improvement in Steering Devices for Tricycles, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to provide a velocipede with an improved steering device which is simple, easily operated, and efficient in moving the steering-wheel of the machine, as desired.

The invention consists of a steering-rod attached to the usual fork astriding the steering-wheel, combined with a moving chain or cord, to which the steering-rod is connected, and a rotating hand-lever for moving the said chain, also of a steering-rod for moving the steering-wheel combined with a moving chain or cord, and a slide-rod for connecting the steering-rod with the chain or cord, and suitable pulleys, wheels, or drums about which the chain or cord passes, all as will be described.

In this instance of my invention the chain employed is passed around a grooved pulley and a sprocket-wheel, the latter being rotated by a hand rod or shaft and moving the chain, the steering-rod being connected to a slide-rod attached to the said chain at a point intermediate the pulley and wheel, so that as the chain is moved by the hand-rod the slide-rod is moved simultaneously therewith, the slide-rod moving the steering-rod.

Figure 1, in longitudinal section, represents a tricycle embodying my invention; Fig. 2, a top view of the steering device alone, and Fig. 3 a detail to be referred to.

The main drive-wheels A, (but one shown,) the steering-wheel B, its pivoted fork C, and frame-work D are and may be of any usual or suitable construction, and in this instance, a band-brake, E, is shown as applied to a drum upon the main drive-shaft F. A bent arm, *a*, is attached to the frame-work D, and supports at its end a hand rod or shaft, *b*, having a hand-piece, *b'*, by which it may be rotated. A suitable frame consisting of a curved bar, *c*, is attached to the arm *a*, projecting at each side thereof. The forward end of said frame *c* serves as a bearing for the lower end of the hand-rod *b*. A sprocket-wheel, *e*, is mounted fast upon the hand-rod *b*, (see Fig. 1,) while a grooved pulley, *e'*, is mounted loose upon a pivot or stud, e^2, adjustably held in the rear end of the frame *c*, the said pulley *e'* lying in a plane parallel with the sprocket-wheel *e*, a chain, *f*, passing around the said sprocket-wheel and pulley. The pivot or stud e^2 upon which the pulley *e'* is loosely mounted is extended from a squared block, e^3, (see Fig. 3,) which enters and is moved in a rectangular guideway in the rear end of the frame *c*. The shank of the block is made adjustable horizontally by a screw, e^4, held loosely at one end, so that it may be rotated, but not moved longitudinally, the said screw entering a threaded portion of the said block or squared portion e^3. The pin e^5 in the groove e^6, cut in the point or end of the screw, prevents longitudinal movement of the said screw e^4 as it is turned. Longitudinal movement of the block or squared portion carrying the pivot e^2 enables the pulley *e'* to be adjusted to compensate for the wear of the chain, or for chains of different lengths—as, for instance, should a link be broken, and the ends of the chain attached together, thereby shortening the chain.

The frame *c* at one side has arms *m m'*, which constitute bearings for a slide-rod, *n*, attached by pin *n'* to the chain *f* at a point intermediate the sprocket-wheel and grooved pulley, so that as the hand-rod *b* is rotated in either direction, and the chain *f* caused to move in one or the other direction, the slide-rod *n* is caused to move simultaneously therewith. A steering-rod, *o*, connected at one end with an arm or lever, *o'*, attached to the usual fork, C, astriding the steering-wheel, has its opposite end pivoted to the slide-rod *n* at a point intermediate its length, as at o^2, so that as the slide-rod *n* is moved back and forth the steering-rod *o* will be correspondingly moved, and by means of the arm *o'* move the steering-wheel B. It will thus be seen that a very simple and positive movement is obtained for moving the steering-wheel, one which is not liable to get out of order, and which can be readily repaired should it become accidentally injured.

It is obvious that instead of employing a sprocket and grooved wheel and chain two drums connected by a suitable cord, to which the slide-rod is attached, could be employed, and the results herein set forth obtained. It is also obvious that the slide-rod *m* can be omitted, in which instance the steering-rod *o* would be attached directly to the chain or cord *f;* but I preferably desire to employ the slide-rod *m*, because the results obtained by its use are more positive and it is less liable to become injured.

I claim—

1. In a velocipede, the steering-rod connected with and controlling the movement of the steering-wheel combined with the slide-rod *n*, to which said steering-rod is pivotally connected about midway of the length of said slide-rod, a chain mounted on pulleys and connected to said slide-rod, and a hand-wheel on one of said pulleys for moving the chain and thereby the slide-rod and steering-rod, substantially as described.

2. In a velocipede, the steering-rod connected with and controlling the movement of the steering-wheel, and a chain or cord with which the steering-rod is connected, combined with the wheels *e e'*, about which the said chain or cord passes, the wheel *e* being fast to the hand-rod *b*, and the wheel *e'* being mounted upon an adjustable pivot, e^2, all substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD P. HOWE.

Witnesses:

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