

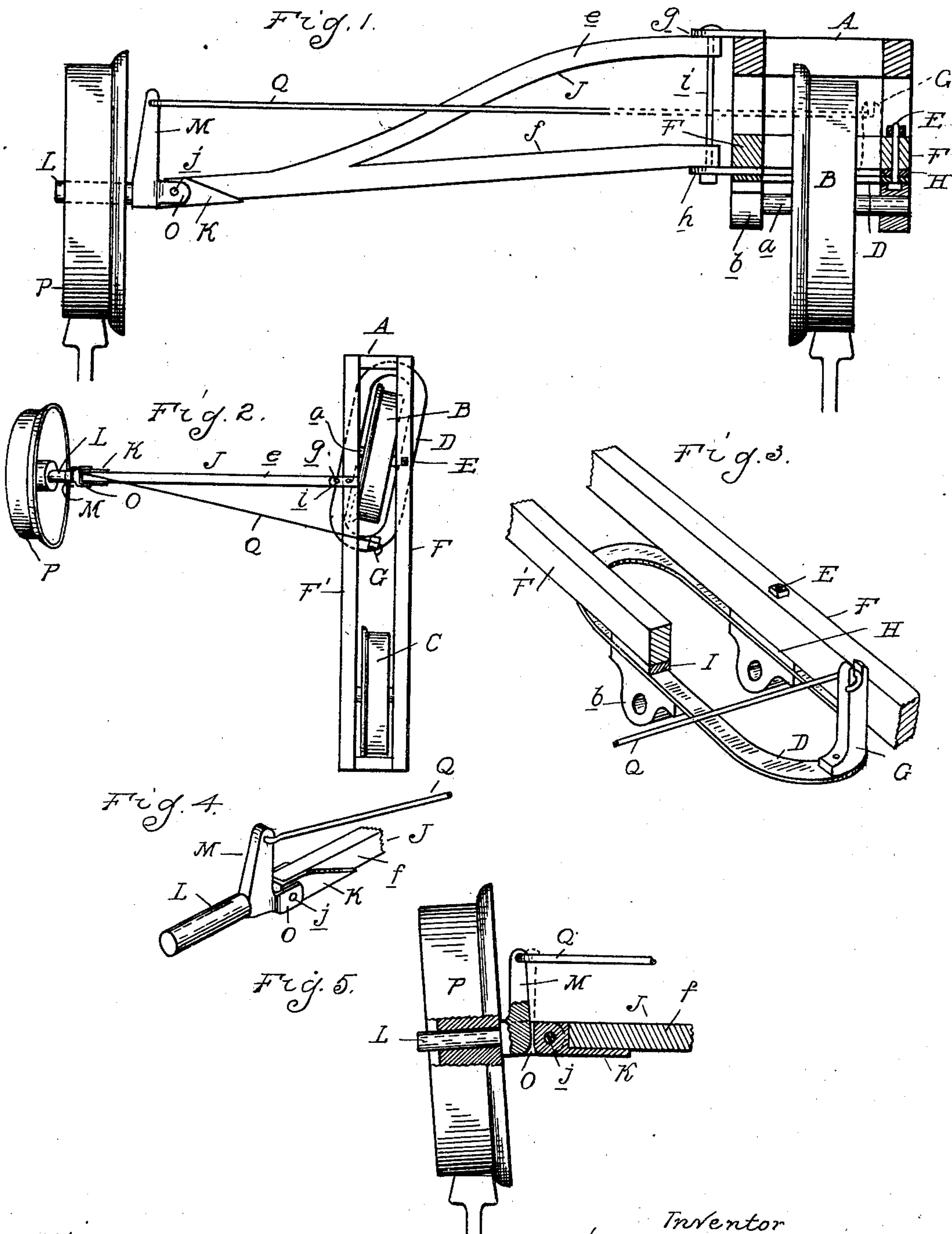
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Patented Oct. 14, 1902.

O. J. DONOVAN.  
RAILWAY VELOCIPEDE.

(Application filed Feb. 11, 1902.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

OLIVER J. DONOVAN, OF THREE RIVERS, MICHIGAN.

## RAILWAY-VELOCIPED.

SPECIFICATION forming part of Letters Patent No. 711,245, dated October 14, 1902.

Application filed February 11, 1902. Serial No. 93,523. (No model.)

*To all whom it may concern:*

Be it known that I, OLIVER J. DONOVAN, a citizen of the United States, residing at Three Rivers, in the county of St. Joseph and State of Michigan, have invented certain new and useful Improvements in Railway - Velocipedes, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The invention relates generally to railway velocipedes or hand-cars, and particularly to a device of this character the front wheel of which is capable of assuming an angular position relative to the frame of the car to accommodate itself to the curves and irregularities in the track.

20 The invention consists, essentially, in means for turning the front wheel for the purpose set forth and in the novel construction of the turning or operating mechanism.

The invention further consists in certain details of construction, as will be more fully hereinafter described, and shown in the drawings, in which—

25 Figure 1 is a sectional elevation of a railway-velocipede embodying my invention. Fig. 2 is a plan view thereof. Fig. 3 is a sectional perspective view of a portion of a velocipede, illustrating the yoke-frame and its manner of attachment to the main frame. 30 Fig. 4 is a similar view of the end of the guide-wheel arm; and Fig. 5 is a vertical central section through the end of the guide-wheel arm and the guide-wheel, some of the parts being shown in elevation.

In the drawings thus briefly described the reference-letter A designates the main frame of the velocipede, which may be of any suitable construction.

40 B designates the front wheel, journaled in movable bearings in the forward portion of the frame, and C designates the drive-wheel, the driving mechanism being purposely omitted from the drawings, as it forms no part of the present invention.

50 The front wheel referred to is provided with an axle *a*, which is mounted in suitable bearings *b b*, which in turn are carried by a yoke-frame D. This frame embraces the wheel, as shown, and is pivoted at one of its sides by means of a bolt E to the outer bar F of the

main frame. At its rear end the yoke-frame is provided with an upright G, the purpose of which will be hereinafter set forth.

H and I are wear-plates upon the lower face 55 of the beams F and F' of the main frame, against which the yoke-frame bears.

J designates a guide-wheel arm provided at its free end with a metallic cap K and having a branched inner end, the members *e* and *f* 60 thereof being pivoted to apertured ears *g* and *h* upon the bars F' of the main frame by a pivot pin or bolt *i*. Upon the free or outer end of the arm is pivoted a wheel-spindle L. The spindle has formed, preferably, integral there- 65 with a vertical arm M and spaced ears O, adapted to engage upon opposite sides of the arm end and pivoted to the latter by a pin *j*. The parts are so proportioned and constructed that the spindle is capable of a downward- 70 rocking movement, but is prevented from vertical movement beyond a horizontal position by its arm striking against the metallic cap.

P designates the usual guide-wheel, mounted upon the spindle described, and Q is a rigid 75 connection in the form of a bar between the spindle-arm and the upright upon the yoke-frame.

The parts having been thus described, the operation is as follows: When the velocipede 80 reaches a curve, the curved rail bears against the flange of the guide-wheel, causing an inward movement of the latter, in this particular case a rocking movement. The spindle-arm is thus thrown outwardly, which movement through the agency of the connecting- 85 bar causes the front wheel of the velocipede to assume an angular position relative to the frame to accommodate itself to the curve in the track. After the curve or irregularity 90 has been passed the weight of the arm causes the guide-wheel to assume its normal vertical position, which movement causes the yoke to be again turned, but in the opposite direction, bringing the front wheel into its normal 95 position in alinement with the drive-wheel.

From the description of my invention it will be clearly seen that I have provided a positive operating means for turning the front wheel of the velocipede to follow the curves or 100 irregularities in the track and that in traveling on a straight track the parts are locked



in their proper position by means of the abutment of the spindle-arm against the end of the guide-wheel arm.

While I have shown the guide-wheel with a rocking movement in this particular case, it will be obvious that it might be made to move inwardly in a different manner for the purpose of operating the front wheel. I therefore do not desire to be limited to a guide-wheel capable of rocking movement only, as my invention embraces any movement of the wheel which will effect the results set forth.

What I claim as my invention is—

1. In a railway-velocipede, the combination with the frame, of a front wheel journaled in movable bearings, and automatically-operating means for turning said wheel to accommodate the latter to the curves and irregularities in the track.

2. In a railway-velocipede, the combination with the frame, of the front wheel journaled in movable bearings therein, the guide-wheel arm, the guide-wheel mounted upon the arm for transverse movement relative to the frame, and an operative connection between the front and guide wheels.

3. In a railway-velocipede, the combination

with the frame, of the front wheel journaled in movable bearings therein, the guide-wheel arm, the guide-wheel mounted upon the arm to rock in a vertical plane, and an operative connection between the guide and front wheels.

4. In a railway-velocipede, the combination with the main frame, of a yoke member pivoted to the forward portion of the frame for movement in a horizontal plane, the front wheel journaled in bearings upon the yoke member, the guide-wheel arm, the guide-wheel mounted upon the arm end for rocking movement in a vertical plane, and a rigid connection between said guide-wheel and the yoke member.

5. In a railway-velocipede, the combination with the frame, of the front wheel adapted to be turned into angular relation to the frame, and automatically-operating means for positively turning the wheel.

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

OLIVER J. DONOVAN.

Witnesses:

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