S. P. RUGGLES.
Velocipede.

No. 217,241. Patented July 8, 1879.

Fig. 1.

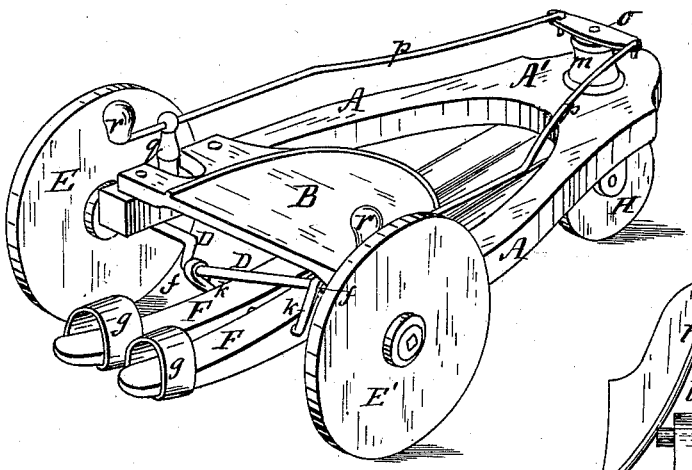


Fig. 2.

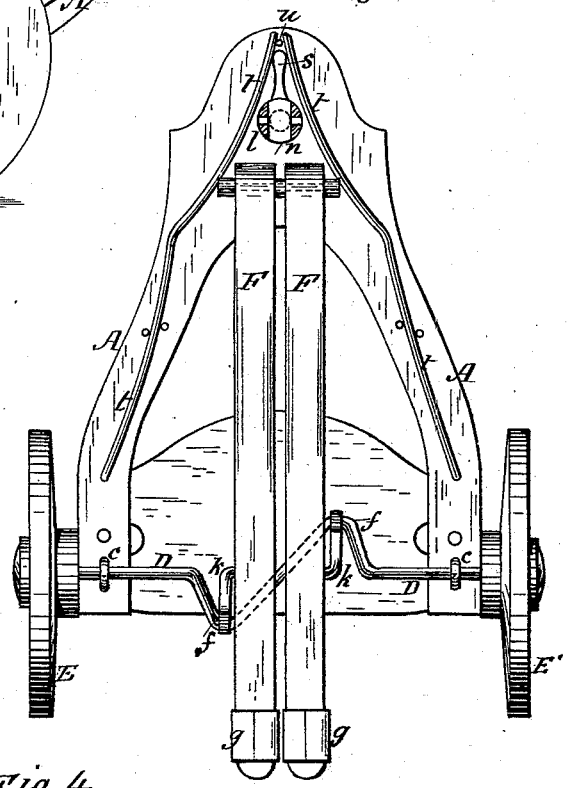


Fig. 3.

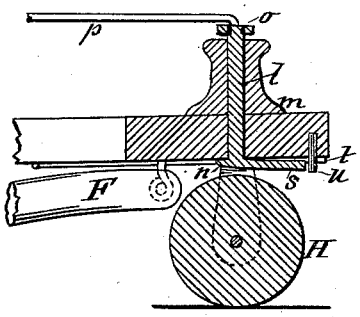
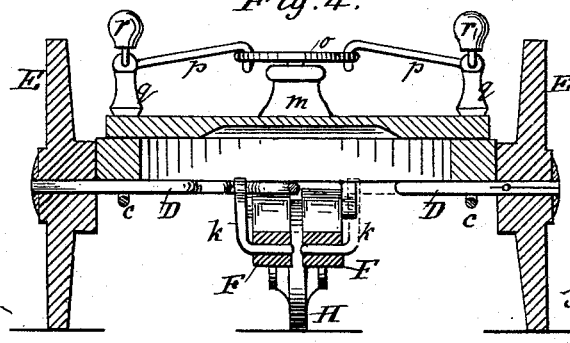


Fig. 4.



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# UNITED STATES PATENT OFFICE.

STEPHEN P. RUGGLES, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN VELOCIPEDES.

Specification forming part of Letters Patent No. **217,241**, dated July 8, 1879; application filed May 31, 1879.

*To all whom it may concern:*

Be it known that I, STEPHEN P. RUGGLES, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Velocipedes; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings.

My invention relates to a tricycle for the use of girls, its object being to provide a velocipede of this class in which riding astride (which has precluded their use by girls heretofore) is not required, the direction of travel easily controlled, and liability of accidental upsetting obviated, while at the same time a considerable speed may be made, and a pleasant and beneficial exercise may be enjoyed by the rider while occupying a position becoming her sex, and in which a free movement of the limbs is not impeded by her clothing.

In the accompanying drawings, Figure 1 is a perspective view of my improved velocipede. Fig. 2 is a bottom view of the same with the steering-wheel removed. Fig. 3 is a detail sectional view of the steering devices. Fig. 4 is a transverse sectional view taken on a plane through the vertical diameters of the driving-wheels.

In the frame or body of the velocipede the two side beams or bars, A A, which form the reach and seat-support, are connected together at their rear ends, which terminate in a narrow platform, A′, and diverge forwardly until a sufficient distance apart to properly support the seat B, the sides of which rest upon the front ends of said side bars, while to the under side of said front ends are secured bearings *c*, in which is mounted the double-crank axle D, on one end of which is placed a loose wheel, E, and on the other end a fixed driving-wheel, E′. The two treadle-levers F F are pivoted independently at their rear ends under the platform A′, and extend forward side by side under the seat to a proper length for convenient operation by the foot of a person occupying the seat, and each is provided with a band, *g*, to receive the foot and hold it in place. These treadle-levers are respectively connected to the cranks *f f* of the axle by links *k*, so that the alternate upward and downward movement of the levers will communicate a rotary motion to said axle and the fixed wheel E′, and the movement thus given to the frame, of course, causes the loose supporting-wheel E to rotate also. The reason for having one of these wheels fixed to the axle and the other loose thereupon will be hereinafter explained.

The letter H designates the steering-wheel, which is mounted upon a short axle journaled in a bifurcated spindle, *l*, which extends upward through the platform A′ and a hollow standard or pedestal, *m*, secured upon the top of said platform. This spindle *l* has a shoulder, *n*, upon which the platform A′ rests, and at its top is provided with a fixed cross-arm, *o*, from which the rods *p p* lead forward and pass through guide-eyes in the tops of standards *q q* upon the side bars, A, on each side of the seat, and each rod is provided at its front end with a handle, *r*, by which it may be drawn forward through its guide for the purpose of turning the spindle *l*, and thus changing the direction of travel of the steering-wheel. It may be desirable not to hold continually these handles in order to preserve the course of the velocipede when traveling directly forward, and I have therefore provided devices which, while permitting the steering-wheel to be freely turned, will return it to its direct position, and there maintain it when the rods *p p* are left free.

From the shoulder *m* of the spindle *l* there projects rearwardly under the platform A′ an arm or rudder, *s*, and upon the under side of the side bars, A, are secured two spring-rods, *t*, which extend rearwardly, their free ends *t′* converging toward each other, and bearing upon the opposite sides of a pin or stud, *u*, projecting downward from the extremity of the platform A′. The arm *s* terminates immediately in front of this pin, and the springs *t* are curved inward sufficiently to just about touch the end of said arm or rudder on opposite sides, so that its swinging in either direction will be opposed by one of said springs, and whenever the arm is moved to one side by the operation of the steering-rods on the spindle the spring against which it is moved will force it back again when the steering-rods are released until the spring rests upon the pin *u*.

The steering devices of the velocipede are thus automatically returned to and maintained in position to insure a straight course, except when a deviation therefrom is purposely made by the rider.

In turning the velocipede it is manifest that that wheel of the axle D which describes the outer and longer curve must travel faster than the other, which travels the inner and shorter curve; and it is in order that the movements of the two wheels may be accommodated to each other that one is fixed and the other loose upon the axle, it being essential that one wheel should be fixed to said axle, in order that it may be caused to revolve thereby and thus propel the velocipede. When the fixed wheel describes the inner curve the loose wheel is free to revolve more rapidly and describe in the same time the corresponding outer and longer curve, and vice versa.

Having now fully described my invention, I claim—

1. The combination, with the connected side bars and the described steering devices, provided with a rudder, *s*, and side spring *t*, of the crank-axle having mounted upon one end a fixed wheel and upon the other a loose wheel and suitable treadles and means for operating said axle, substantially as described.

2. The combination, with the velocipede-frame, the steering-wheel spindle placed upon the rear end of said frame, the rudder *s*, and means for operating said spindle, of two longitudinal springs, *t t*, adapted to resist the turning of said spindle and return it to its direct position after being turned by pressing sidewise against the rudder, substantially as described.

3. The combination, with the velocipede-frame, of the steering-wheel spindle placed upon the rear end of said frame, and having the rudder or arm *s* and the spring-rods *t*, adapted to bear against the opposite sides of said arm, substantially as and for the purpose set forth.

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