H. F. PARSONS.
Velocipede.

No. 202,665. Patented April 23, 1878.

Fig: 1.

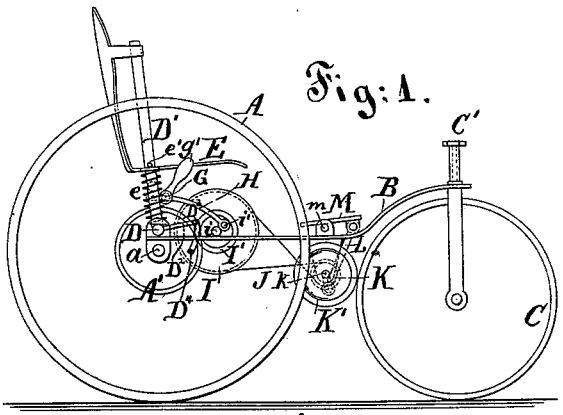

Fig: 3.

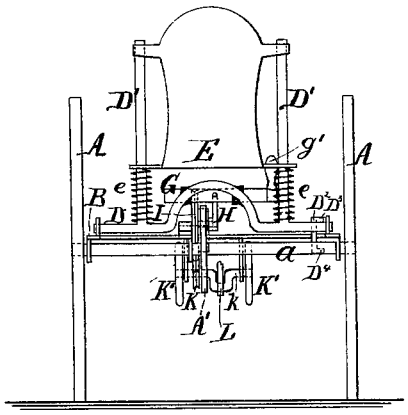

Fig: 2.

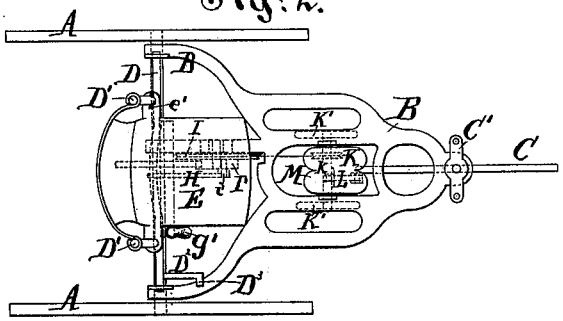

Fig: 4.

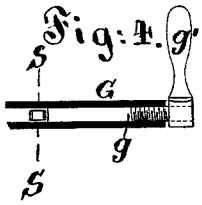

Fig: 5.

Witnesses:
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by his attorney
T. L. Stetson

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UNITED STATES PATENT OFFICE.

HENRY F. PARSONS, OF NEW YORK, ASSIGNOR TO HIMSELF AND MARTHA J. DODGE, OF BROOKLYN, N. Y.

IMPROVEMENT IN VELOCIPEDES.

Specification forming part of Letters Patent No. **202,665**, dated April 23, 1878; application filed September 3, 1877.

To all whom it may concern:

Be it known that I, HENRY F. PARSONS, of New York city, in the State of New York, have invented certain new and useful Improvements relating to Velocipedes, which I term a "lady's self-propelling carriage;" and I do hereby declare that the following is a full and exact description thereof.

My improved carriage may be propelled either by an easy rocking motion, given by the person who is operating, to the seat, in which he is supported, or by a motion given by him to a rocking platform, on which his feet may rest. The connections are such that the latter motion is well adapted to give a strong but slow motion, as in climbing a hill or in working through a sandy part of the road, and by the first means the rocking of the seat to give a rapid motion, as on a hard level road.

I have devised simple and convenient means by which the rocking seat may be set to rock at a farther backward or farther forward inclination. The same means may also, by being differently adjusted, set the rocking seat entirely free from the driving mechanism.

I can, by a skillful manipulation, impel the carriage at the same time both by the rocking of the seat and the working of the feet; but this will not be usually expedient.

I provide springs for the seat, which may yield to serve their ordinary functions without interfering with the impelling action due to the rocking.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawing forms a part of this specification.

Figure 1 is a general side elevation, the spokes of the wheels being omitted to allow of more clearly delineating the other parts. Fig. 2 is a plan view of the whole. Fig. 3 is a rear view of the principal parts, omitting the front or steering wheel.

The remaining figures represent some of the details on a larger scale.

Fig. 4 is a longitudinal section through a tubular rocking shaft, which extends across under the seat and rocks with it. Fig. 5 is a cross-section on the line S S in Fig. 4.

Similar letters of reference indicate like parts in all the figures.

A A are the driving-wheels, and *a* the axle thereof, carrying a stiffly-mounted gear-wheel, A′, to which the impelling force is communicated. B is a skeleton frame-work of metal. I propose to use properly bent and welded iron tubes, in order to secure great strength and rigidity with lightness.

C is a single steering-wheel, mounted at the front, and adapted to be swiveled by the application of force to a suitable cross-piece, C′, at the top, either directly or by the aid of cords attached to each end, and held in the hands of the operator, as will be obvious.

D is a rocking-shaft, supported in bearings in the framing B, a little above the main axle *a*, and bent to pass freely over the large gear-wheel A′, as represented. D^1 D^1 are upright rods, welded or otherwise fixed thereon, and adapted to serve as supports for a seat, E, which latter is formed with a high back, and with wings taking hold of the upright rods D^1 D^1. Spiral springs *e*, coiled around the lower portions of the uprights D^1, bear the weight of the seat and its contents, and cross-pins *e′* prevent the seat from being pushed up too high when unloaded.

Another shaft, G, is mounted in bearings on the front face of the curved portion of the rocking shaft D. This shaft is capable of rocking independently. It is mortised transversely, and receives therein a link or connecting-rod, H, which is secured at will by the axial screw *g*, operated by a hand-lever, *g′*.

The other end of the connecting-rod H engages with a crank-pin, *i′*, on a gear-wheel, I′, which is mounted on a stud or stout pivot, *i*, in the framing. It carries also a large grooved pulley, I, which receives a crossed belt, J, to be described farther on.

The screw *g* being tightened upon the connection H, the rider places himself in the seat E, and commences to rock the seat, with its connections, alternately forward and back. Each forward motion of the seat pushes or

thrusts on the connecting-rod H. Each backward movement of the seat pulls or exerts a tensile strain on the same connection H. These motions, alternately succeeding each other, induce a continuous rotation of the small gear-wheel I′, and thus a slower but strong motion of the driving-wheels A A. This motion may be either forward or backward, according to the position of the parts in starting. Practice enables the rider to attain the desired motion with facility.

The belt J communicates motion between the large grooved pulley I and a small grooved pulley, K, which is fixed on a shaft, *k*, supported in suitable bearings farther forward. On each end of the shaft *k* is a fly-wheel, K′ K′. The ratio between the pulleys I and K causes the fly-wheels K′ to revolve with such rapidity as to afford much aid in carrying the crank *i′* over the center and in maintaining a steady motion of the carriage.

The shaft *k* is cranked. A connecting-rod, L, communicates motion to this crank from the treadle M, which latter is hung on an axis, *m*, and is conveniently placed to be strongly rocked by the action of the feet and lower limbs of the rider.

Whenever the carriage is ascending an incline, or its motion is for any other reason more than usually resisted, the treadle M may be rocked forcibly by the action of the feet, and the shaft *k*, being thereby rotated, will communicate motion, through the belt J, to the pulley I, and thus give a slow but strong forward motion to the carriage.

Whenever the carriage is impelled rapidly, by simply rocking the seat E and its connections the feet of the rider may be removed from the treadle M and supported on the framing B on either side. Under such circumstances the treadle M will be liable to vibrate more rapidly than the feet can conveniently follow.

The union of the seat E with the uprights D^1 is such as allows a tolerably free sliding motion up and down. This is an obvious advantage when the carriage moves over irregularities in the road. The seat is allowed to yield by the elasticity of the springs.

Whenever the carriage is impelled by the feet, the seat may be rocked backward and forward, contributing more or less to the propulsion of the carriage. If, for want of practice or other cause, the rider prefers to keep the seat quiet under these conditions, he may readily liberate the seat from its relation to the wheel I′ by simply operating the hand-lever *g′*, and thereby withdrawing the screw *g*, so as to allow the rod H to play loosely through the slot in the shaft G. The turning of the screw *g* again in the opposite direction tightens the gripe on the connection H whenever it is desired to again operate the carriage by the rocking of the seat.

On re-establishing the connection between the seat and its impelling mechanism, the screw *g* may be engaged with the rod H at the same point as before, or at different points, as may be preferred. This gives a facility for setting the seat at a different angle backward or forward and causing it to work in the new position, at will. By this means I can adjust the carriage to suit different riders or to reduce the fatigue by a change of position, at will.

D^2 is a rigid arm extending forward from the shaft D, near one end, and provided with two projections or stops, D^3 D^4, which stand respectively above and below the adjacent portion of the framing B. Whenever the seat E and its connections are liberated from the rod H, they are liable to move backward or forward too far. In such case they are arrested by the stop D^3 or D^4, respectively, after they have moved to a certain distance.

The rocking motion, geared as shown, allows me to use large wheels, and yet to rock at a reasonable and easy rate. The arrangement of the gearing also allows the employment of a sufficient length of connecting-rod without necessitating the elevation of the seat but little above the shaft. The adjustment of the rod H allows the seat to be rocked at various inclinations. The facility for liberating it entirely from the connection H with the stops D^3 D^4 allows it to be instantaneously liberated in descending a hill, or under any other circumstances which make it desirable, and especially when the carriage is driven by the treadle. The springs *e* allow the seat an easy motion without interfering with its action as a propelling means.

I attach more importance to the facility for driving the carriage strongly by the treadle, through the great difference in size between the pulleys I and K, than to the action of the fly-wheels K′ K′ when operating by the rocking seat alone; but both are of service.

Various modifications may be made in the details by any good mechanic. Certain parts of the invention may be useful without the others. Thus, for example, I can use the rocking seat and its connections without the fly-wheels K′ and their connecting-belt; or I can use both these without connection to the treadle.

I claim as my improvement in perambulators—

1. The rocking seat E, turning on an axis, D, central or nearly central under it, and the rod H, connecting therefrom to the crank *i′*, so combined with the driving-wheels A A by gearing I′ A′ as to give a slow and strong motion, as herein specified.

2. The rocking shaft D, having the two arms D^1 D′, in combination with the seat E and springs *e e*, as and for the purposes herein specified.

3. The screw *g*, in combination with the rocking seat E, connecting-rod H, and suitable impelling gear I′ A′, as herein specified.

4. The treadle M and connection L, quick

shaft *k*, belt J, and slow shaft *i*, in combination with the rocking seat E and suitable stops, adapted to sustain it when set free from its connections with the driving-wheels, as herein specified.

5. The combination of the rocking seat E, adjustable connections H, gearing I′ A′, belt J, fly-wheels K′ K′, connection L, and treadle M, substantially as and for the purposes herein specified.

In testimony whereof I have hereunto set my hand this 31st day of August, 1877, in the presence of two subscribing witnesses.

HENRY F. PARSONS.

Witnesses:
W. H. SMITH,
JNO. C. DODGE.