

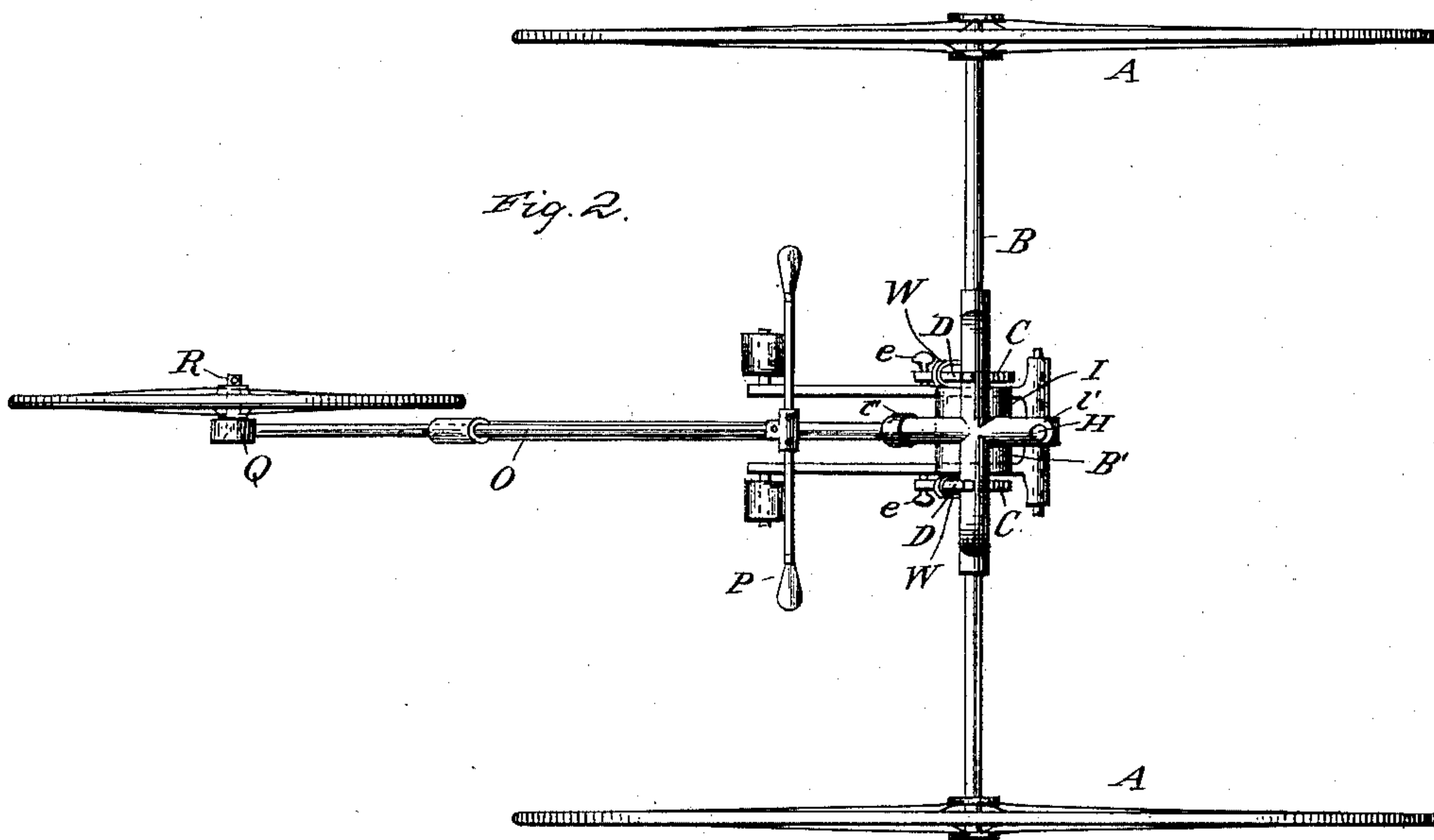
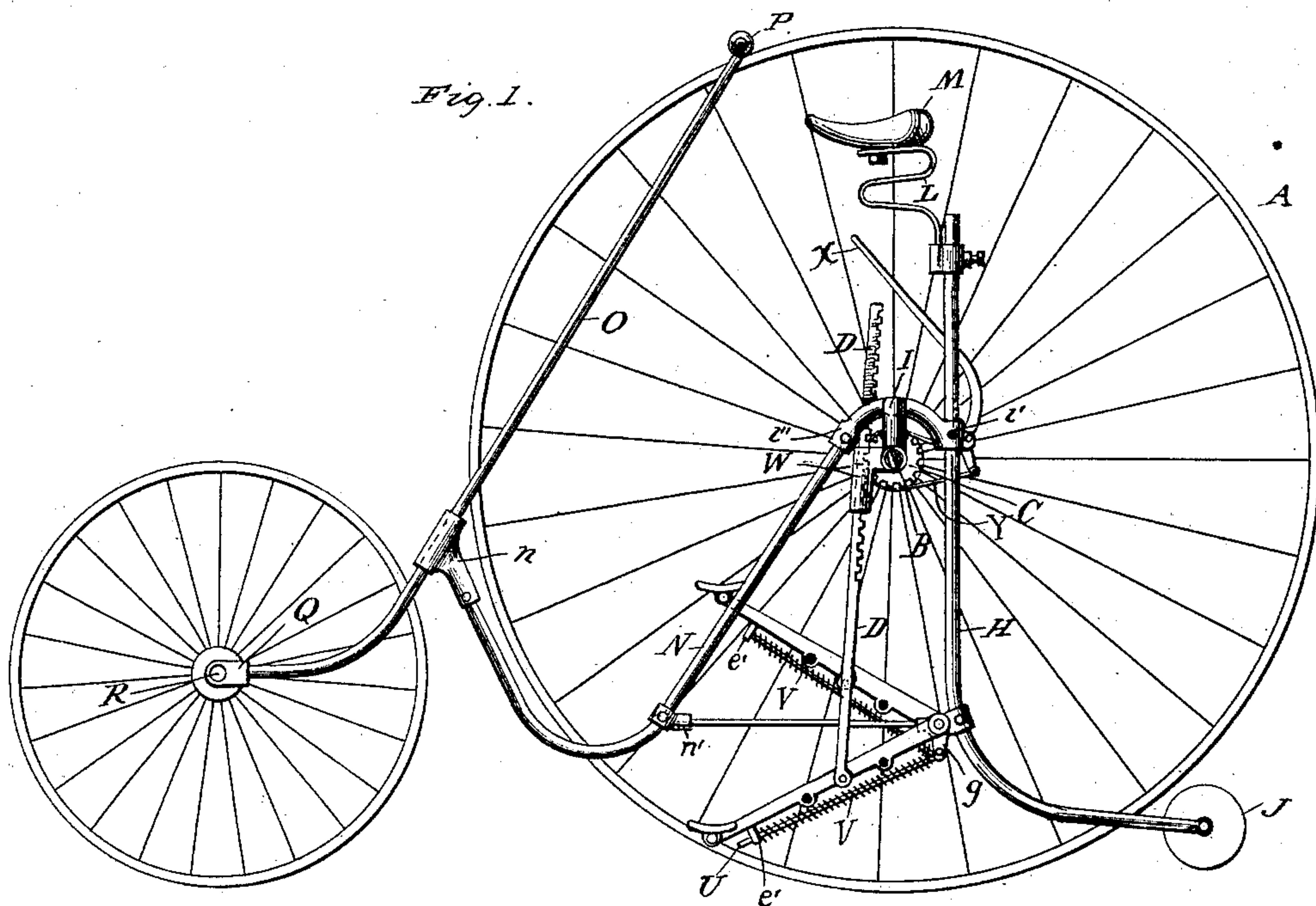
(No Model.)

2 Sheets—Sheet 1.

W. P. KIDDER.  
VELOCIPEDÉ.

No. 375,755.

Patented Jan. 3, 1888.



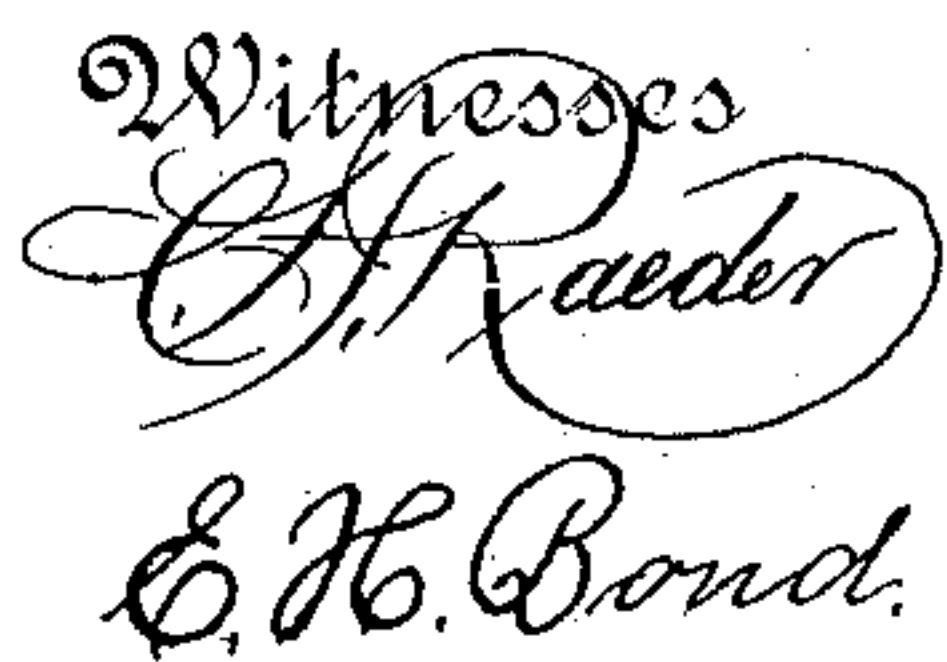
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Inventor  
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2 Sheets—Sheet 2.

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Wellington P. Kidder

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# UNITED STATES PATENT OFFICE.

WELLINGTON P. KIDDER, OF MAPLEWOOD, MASSACHUSETTS.

## VELOCIPEDE.

SPECIFICATION forming part of Letters Patent No. 375,755, dated January 3, 1888.

Application filed February 28, 1887. Renewed November 19, 1887. Serial No. 255,629. (No model.)

*To all whom it may concern:*

Be it known that I, WELLINGTON P. KIDDER, a citizen of the United States, residing at Maplewood, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Velocipedes, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 represents a side elevation of a tricycle constructed according to my improvements; Fig. 2, a plan of the same with the seat removed. Fig. 3 represents a similar style of a tricycle intended to be used as a tandem. Fig. 4 shows my new style of frame and steering-gear used in connection with the old style of driving-gear; and Figs. 5, 6, and 7 are enlarged details, which will be hereinafter more particularly referred to.

This improvement relates more particularly to that class of velocipedes or tricycles in which the movement is produced by vibrating treadles; but parts are applicable to velocipedes or cycles driven by other power; and the invention consists in the peculiar construction, arrangement, and combinations of parts, hereinafter more particularly described, and then definitely pointed out in the claims.

Referring, now, to the details of the drawings, A represents the wheels, which may be of any suitable form or material, attached to an axle, B, which may be provided with an ordinary balanced gear mechanism inclosed in the casing B'. (See Fig. 5.) Around this axle (preferably on hubs formed on the casing B') loosely turn two spur wheels or pinions, C, which are provided with pawls c, which take into ratchet-teeth b, formed on or connected with the casing of the balanced gear mechanism. Racks D mesh with these pinions, and these racks are connected with the treadles E by movable pivots e, adjustable to different distances from the fulcrum on which the treadles vibrate. These pivots may be thumb-screws screwing into different holes in the treadles, as shown in Fig. 7; but other convenient means of adjustment may be employed.

The treadles work on a pin, F, projecting on opposite sides from a casting, G, clamped upon the rod H, which is connected to a yoke, I, and carries at its lower end a small rear wheel, J,

and at its upper end a clamp, K, to which is attached the spring L and seat M, and which can be adjusted at any desired height by the set-screw k. The yoke I is cruciform in shape, with the arms of the cross bent downward. Two of its arms *ii* form bearings for the axle, one (marked *i'*) receives the rod H and another one (marked *i''*) receives the upper end of the curved rod N, whose opposite end receives a casting, n, adapted to receive and form a bearing for the steering-rod O, having at its upper end the handle-bar P and at its lower end the casting Q, which carries the axle R of the front or steering wheel, S. The rods H and N are preferably braced by a rod, T, one end of which may be attached to the casting G and the other end to another casting, n', on the rod N.

Projecting from the lower part of the casting G are two hangers, g, to which are pivoted arbors U, whose other ends pass loosely through lugs e', projecting from the lower sides of the treadles E. Each of these arbors carries a spring, V, which finds its points of resistance between the lugs e' and the hanger g, and so acts to raise its treadle E after it has been depressed.

Any convenient means may be provided for keeping the racks in mesh with the pinions; but I prefer the guides W, swinging on the axle B.

At X is shown a brake-lever fulcrumed on the yoke I and provided with a metallic strap, Y, lined with leather, which passes around the balanced gear mechanism and has its opposite end attached to the yoke I, as shown, which makes a simple, cheap, yet powerful, brake apparatus.

It will be seen that by this construction and arrangement of parts a cheap, yet strong, tricycle may be made that will not only be durable, but also convenient and easy to operate.

I intend to apply the same principle to tandem machines. In this case I use a second set of treadles, E', (see Fig. 3,) having slots to receive studs e'', projecting from the sides of the levers, which levers are provided with pedals in the usual manner. In such machines the rod H is provided with a cross-piece, h, on which are set two springs and seats, the front one being intended to be occupied by the steerer, who operates the treadles E, while the other one is



occupied by a second rider, who operates the treadles E'. The cross-piece *h* may be in two parts independently adjustable up and down on the rod H for riders of different sizes, as shown by dotted lines. The treadles E and E' may be connected together by links, if preferred.

In Fig. 4 I show the same style of frame and steering-gear driven by the ordinary crank-pedals, sprocket-wheels, and chain.

It is evident that the arrangement of the arbors may be reversed, if desired—that is to say, the upper ends of the arbors may be pivoted to the treadles, while their lower ends may pass through holes in the casting G. I prefer, however, the arrangement shown. I may in some cases reverse the arrangement of the ratchets and pawls, in which case I should pivot the pawls to the balanced gear-mechanism case B' and allow them to catch into the teeth of the ratchet-wheels B', attached to the pinions C, as shown in Fig. 6, which represents an end view of such a case with the pinion C removed, but shown in dotted lines.

Having thus described what I consider the preferable forms of my improvements, but without limiting myself thereby to the particular construction shown, what I claim as new is—

1. The combination, in a tricycle-frame, of the yoke I, having bearings for the axle, the rod H, attached to one arm of the yoke and carrying the rear wheel, and the rod N, attached to another arm of the yoke and provided with a bearing for the steering-rod.

2. The combination, in a tricycle-frame, of the yoke I, having bearings *i i* for the axle on two of its arms, the rod H, attached to another arm of the yoke and carrying the rear wheel at one end and the seat at the other, and the curved rod N, having one of its ends connected to another arm of the yoke and having at its other end a casting for supporting the steering-gear, substantially as described.

3. The combination, in a tricycle-frame, of the yoke I, having bearings *i i* for the axle on two of its arms, the rod H, attached to another arm of the yoke and carrying the rear wheel, the curved rod N, having one end attached to another arm of the yoke and its other supporting the steering-gear, and the rod T, bracing the rods N and H, substantially as described.

4. The combination, in a tricycle, of the frame I H N, the casting G, attached to the rod H, and the treadles E, fulcrumed on said casting and connected with the axle through intermediate mechanism, substantially as described.

5. The combination, in a velocipede, of the treadles E, the pivoted arbors U, having their free ends working in suitable guides, and the springs V, substantially as described.

6. The combination, in a velocipede, of the treadles E, the pivoted arbors U, having their free ends working in suitable guides, the springs V, the racks D, and pinions C, substantially as described.

7. The combination, in a velocipede, of the treadles E, the rack D, the swinging guides W, pinions C, and intermediate mechanism connecting said pinions to the shaft, substantially as described.

8. The combination, in a velocipede, of two levers with their free ends pointing in opposite directions and connected to move simultaneously, substantially as described.

9. The combination, in a velocipede, of two levers having their free ends pointing in opposite directions, one of said levers being provided with a pin working in a slot in the other, substantially as described.

10. The combination, in a velocipede, of two levers, one of which carries a rack for operating a pinion, the two levers being connected by a pin on one working in a slot in the other, substantially as described.

11. The combination, in a velocipede, of the frame H I N, the treadles E, supported on the bar H, treadles E', supported on the bar N, the axle B, running in bearings carried by the yoke I, the pinions C, and intermediate connections for operating the pinions through the medium of the treadles, substantially as described.

12. In a velocipede, the steering-bar O, turning in a socket attached to the frame and provided at one end with a fixed axle for the steering-wheel projecting from one side thereof and a handle at the other for turning the same, substantially as described.

13. The combination, with a velocipede propelled by a rack and pinion, of a treadle provided with means, substantially as described, for changing the connection of the treadle with said rack, and a guide for the rack, substantially as described.

14. The combination, in a velocipede, of the treadles E, pivoted to the frame, the rack D, pivotally connected to said treadles, and the pinion C, loosely connected to the axle, substantially as described.

15. The combination, in a velocipede, of the treadles E, the rack D, and means, as the thumb-screw *e*, for changing the position of said racks on the treadles, substantially as and for the purpose specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 18th day of February, 1887.

WELLINGTON P. KIDDER.

Witnesses:

ORIN T. GRAY,

WALTER C. COGSWELL.