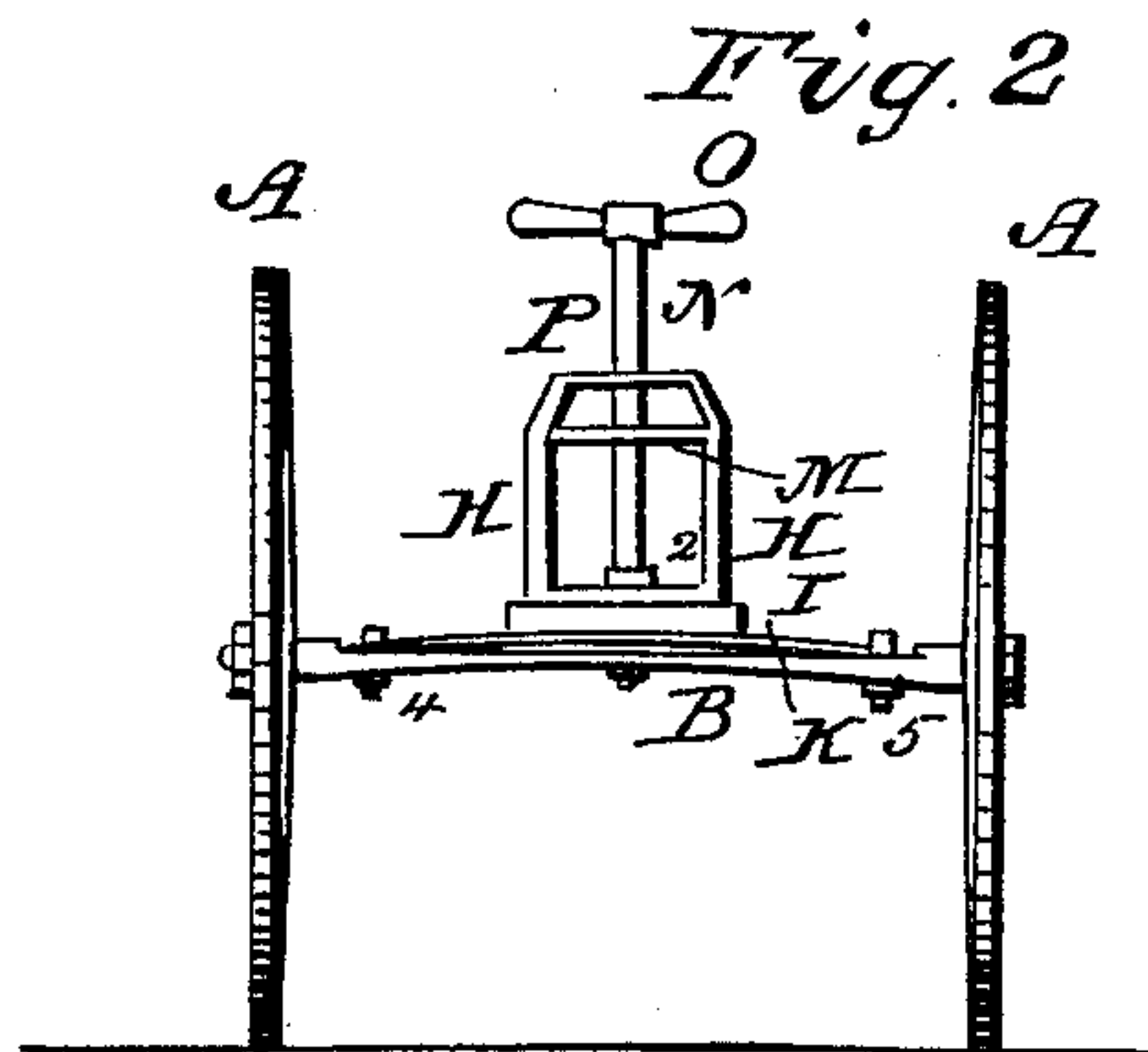
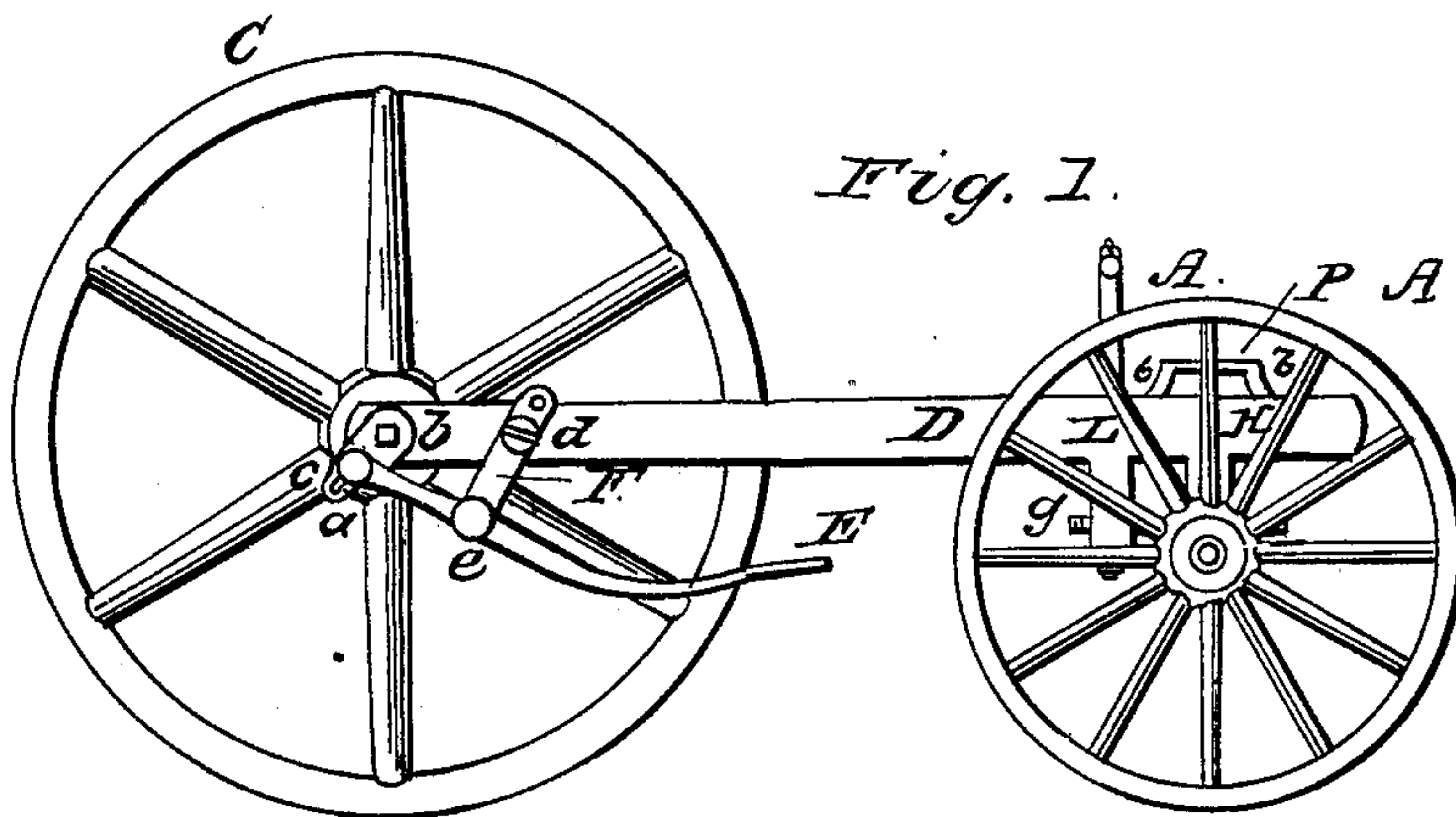


D. P. FLINT,
Velocipede.

No. 91,322.

Patented June 15, 1869.



Witnesses
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DANIEL P. FLINT, OF NUECES COUNTY, TEXAS.

Letters Patent No. 91,322, dated June 15, 1869.

IMPROVEMENT IN VELOCIPEDS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, DANIEL P. FLINT, of Nueces county, in the State of Texas, have invented a certain new and useful Improvement in Velocipedes, consisting of an improved mechanical arrangement for propulsive purposes, a new and improved mode of adjustment of the rider's seat, and, in connection therewith, of an improved arrangement for guiding or steering the vehicle; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawing, making a part of this specification.

The objects of my invention are to increase the power which can be applied by the rider's feet and legs to the propulsion of a velocipede, and thus to increase the speed at which it can be driven by a given exertion of muscular power; to add to the comfort of the driver whilst riding and driving the machine, and to make it easier for him to guide or steer the same than is possible with any existing arrangement of which I have any knowledge.

My invention is designed especially for velocipedes having three wheels, but it may, so far as my improved mechanical arrangement is concerned, be applied with equal advantage to one having only two wheels, and indeed to a great variety of other mechanical organisms with which it is desirable to connect a means for increasing the driving-power of any given motor, by the use of an intermediate force, resulting from a compound leverage-arrangement; for

My invention consists, to state its nature in general terms, of two levers, that are secured by a pivot-connection to pendent vibrating fulcra, on each side of the machine, and to the cranks of the driving-wheel, in such manner as to develop far greater power than can be brought to bear by the placing of the feet of the driver directly on pedals on the crank-pins, or wrists, in the ordinary manner of working the same.

But my invention will be better understood by referring to the drawing, wherein it is clearly shown.

On the drawing—

A A' are the two rear wheels of a three-wheel velocipede, the same being mounted on an axle, B, and connected with a single front wheel, C, by means of a frame, between the two side pieces D and D' of which the front wheel C is so placed as to have its axis supported in proper journals, at their front extremities, as shown, the said axis extending sufficiently through the said side pieces to receive the crank-arms a a', to which lever-treadles E (only one of which is shown on the drawing) are secured by means of slots c c', in said crank-arms, in which wrist-pins b, on which said levers are secured, are fixed in such manner as to be adjustable to any point in said slots, so as practically to shorten or extend the length of the cranks, and thus increase or diminish the power, which can be applied at pleasure.

At a point intermediate between the front and rear ends of said pieces D D', substantially as shown, pendent arms F are secured, respectively, to the side pieces D D', by a pivot-connection, as shown at d, at their upper ends, and to the lever-treadles at e, at their lower ends, as shown on fig. 1.

These pendent arms F constitute the fulcra of the treadle-levers E; and in order to accommodate the machine to larger or smaller riders, and to relieve the riders by changing the limit of their muscular action in working the treadles, and also to increase or diminish the power exerted by them, one or more holes, l, are made through the said arms, at their upper extremities, so that they may be lengthened or shortened whenever it be desirable.

In the use of the mechanical arrangement above described, the levers E are operated alternately by a downward movement of the feet, or a straightening out of the legs of the rider, precisely as when the cranks are connected directly to the treadles, each downward movement carrying the wheel C half a revolution, but with vastly more power than can be applied by a direct pressure of the feet on the cranks.

The slots c c', in the crank-arms, and the holes l in the pendent vibrating fulcra, afford a means of increasing or diminishing the length of the cranks, &c., and so of the power exerted through the lever-treadles E, and at the same time of relieving the rider of the distressing fatigue that is incident to an unchanging muscular action and a constrained position on the seat; and herein my arrangement is a great improvement on all existing modes of propelling velocipedes, and may be applied to many other machines with great economy and advantage.

The rear end of the frame connecting the single fore with the two hind wheels, is secured to the axle of the latter by means of a pendent bracket-frame, H, which is placed on a circle, I, or fifth-wheel, which, in its turn, rests on a spring, K, to which it is firmly fastened.

The said bracket has a horizontal part, 2, through which and the axle B an ordinary king-bolt passes, and effects the connection.

An aperture in the spring K, a little larger than the bolt 3, allows the former freely to play up and down on the latter, whilst a slot at each end of the spring K, through which the bolts 4 and 5 pass, permit it (the spring) to yield without check or hindrance, under the varying exigencies to which, in practice, it will be subjected.

A similar pendent bracket, L, to that just described, is fixed a little way in front of the circle I, just underneath a strong cross-bar, or plate, M, (see Figure 3,) so as to provide support for the guiding or steering-bar N, on which is mounted, at its lower extremity, a pinion, g, the teeth of which take into teeth cut in the front section of the perimeter of the circle I, which

being securely attached to the spring K, as before stated, thus becomes the medium of guiding the machine, by turning the hind wheels in the one direction or the other.

A handle, O, at the upper end of rod N, enables the rider with ease to turn the rod, and with it, the machine, at pleasure, and guide it wheresoever he pleases.

When the machine is running in a straight direction, the rider may raise himself off the seat, and rest, or lean forward on the handle O, and in thus changing his position find great relief.

A spring-catch, provided with teeth, may be placed in front of the rod N, to take into corresponding teeth fixed in any suitable manner on said rod, to hold the machine on any given line of travel; but as such an arrangement is not new, I have not thought it necessary to show it on the drawing.

Just behind the rod N a seat, P, is placed, on the side pieces D D', by means of four corner supports, 6 7 8 9, which, being thus nearly, if not exactly over the spring K, and more conveniently formed, is far more comfortable to the rider than the seats usually found on velocipedes.

The drawing is not drawn on any given scale, and hence does not represent the proportions, nor the relations of the several parts of the machine to each other, as when made for actual use. For example, the hind wheels, in practice, overlap the rear part of the fore wheel, in a slight degree, instead of there being a considerable open space between them, as shown on the drawing, in order to bring the rear ends of treadle-levers more nearly under the body of the

rider, and thus to make his operation of them easier than if he had to stretch his legs out in a forward direction, as would be the case if the machine were made exactly on the plan of the drawing.

I have demonstrated, by a full-sized machine, that over thirty miles an hour can readily be made by a velocipede in which my improvements are embodied, with less fatigue to the rider than is involved in riding ten miles an hour on one in which the treadles are placed directly on the crank-wrists.

Having thus described my invention,

What I claim, and desire to secure by Letters Patent, is—

1. The treadle-levers E, when the same are connected with the cranks *a a'* by means of the slots *c c'*, and are provided with adjustable vibrating fulcra F, substantially as herein described, for the purposes set forth.

2. The combination of a steering or guiding-rod, N, and its pinion *g*, with a circle, I, when the latter connects with pinion *g* by a cog-periphery, and is secured to and rests on a spring, K, that is fixed on the axle B, in the manner and by the means substantially as herein described and for the purposes set forth.

3. The above combination, in combination with a rider's seat, P, when all the parts are constructed and arranged substantially as herein described, for the purpose set forth.

D. P. FLINT.

Witnesses:

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