

A. A. HOFFMAN.
Velocipedes.

No. 146,340.

Patented Jan. 13, 1874.

Fig. 1.

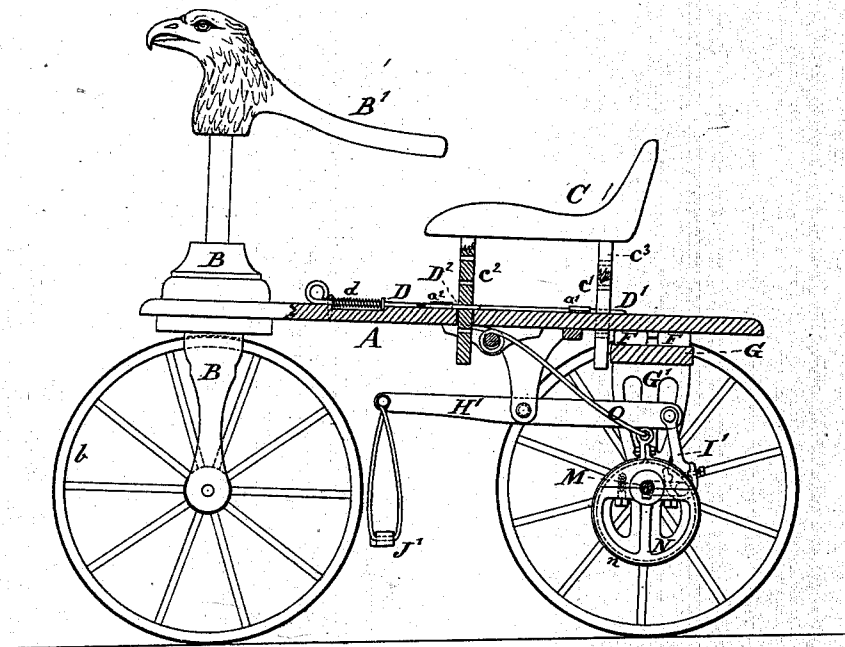
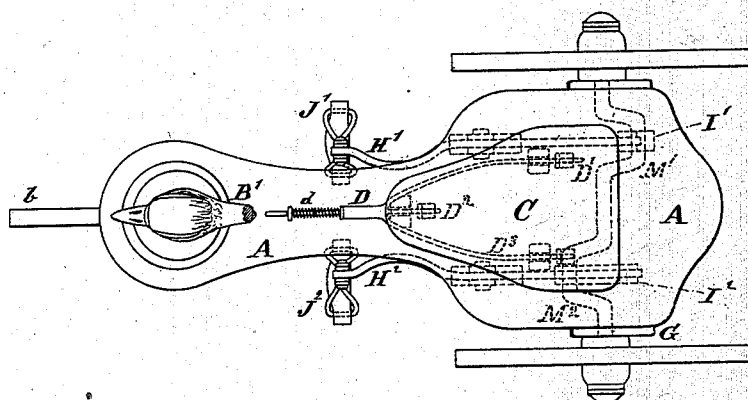


Fig. 2.



Witnesses;

Arnold Horvath.
W. C. Dey.

Inventor;

A. A. Hoffman,
by his attorney *F. D. Stearns*

UNITED STATES PATENT OFFICE.

ANTONY A. HOFFMAN, OF NEW YORK, N. Y.

IMPROVEMENT IN VELOCIPEDES.

Specification forming part of Letters Patent No. **146,340**, dated January 13, 1874; application filed September 1, 1873.

To all whom it may concern:

Be it known that I, A. A. HOFFMAN, of New York city, in the State of New York, have invented certain new and useful Improvements in Velocipedes, of which the following is a specification:

The power is applied to the hind wheels, there being two such wheels mounted on a transverse shaft. Preferably one is keyed fast, and serves as the impelling means, while the other is loose on the shaft to facilitate turning.

The invention relates to provisions for applying the power by means of stirrups or freely-swinging pedals; means for inclining the shaft to come to rest always in a certain position favorable for the action of the treadles in starting, and to means for conveniently adjusting the height of the seat.

The following is a description of what I consider the best means of carrying out the invention. The accompanying drawings form a part of this specification.

Figure 1 is a side elevation partly in section, and Fig. 2 is a plan view.

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

A is the main body or frame, and B is a swiveling housing for the front wheel *b*. I provide for turning this by means of the single lever B'. C is a seat, supported on three adjustable uprights, *c*¹ *c*² *c*³, in each of which is a series of holes adapted to receive bolts. D¹ D² D³ are three bolts, mounted in the several housings, *a*¹ *a*² *a*³, and extended forward and connected in a single rod, D. A coiled spring, *d*, exerts a constant force tending to hold the several bolts in place. When it is desired to raise or lower the seat, the rod D, and, consequently, the bolts D¹ D² D³ are drawn forward by a single movement of the hand, and the seat being thus set at liberty is raised or lowered so as to present the proper hole in each of the posts *c*¹ *c*² *c*³, when the bolts are released and thrust into the several holes by the action of the spring *d*, aided, if necessary, by the hand. G is a stout transverse piece, carrying rubber springs F between itself and the body A. The crank-axle M M¹ M² is connected to the cross-piece G by the brackets G'. An ec-

centric, N, is keyed on the shaft M between the cranks, and is encircled by an eccentric strap, *n*, acted on by a spring, O, and properly secured on the under side of the body A, exerting a force in the upward direction. Whenever the velocipede is allowed to come to rest, the force of the spring O tends to bring the crank-shaft into a certain invariable position. That position is such that the cranks M¹ M² are each in a horizontal position, or nearly so. The levers H¹ H² are hung in brackets, as represented, one on each side of the center line of the machine. At the rear end, connecting-rods I¹ I² connect the levers to the respective cranks M¹ M². At the forward end of each is a stirrup or independent treadle, J¹ J². The levers are crooked near their forward ends, as represented, to better accommodate the legs of the operator. The axle may be formed with a third crank instead of the eccentric N, and in such case a connecting-rod from the crank to the spring O will take the place of the eccentric strap represented. When an eccentric is employed, it may be made conveniently adjustable to accommodate the taste or humor of the operator.

The swinging stirrups allow an unusual freedom of movement of the limbs. This avoids the irksome character due to the uniformity of position of the operating cranks and their connections in ordinary velocipedes.

The levers H¹ H², in combination, perform the useful functions of causing the stirrups to move always in nearly vertical paths. Each point of suspension moves in the arc of a large circle struck from the center or fulcrum of the lever with which it is connected instead of traversing in a small circle as it would if suspended directly from the crank.

The provision for raising and lowering the seat allows the device to be adjusted instantly, without labor, to accommodate different riders. I esteem it well to so fit the three bolts D¹ D² D³ that they shall enter their several holes not strictly simultaneously but in succession. This is a nicety, but not a necessity, of the arrangement, and makes it easier to operate by getting first one into its hole, and then the next, and finally the last.

I claim as my invention—

1. In combination with a velocipede, the spring O and connection *n* to the eccentric N, for the purposes specified.

2. The impelling-levers H¹ H² and freely-swinging stirrups J¹ J², in combination with connections I¹ I² to the cranks, as specified.

3. The triple bolt and corresponding guides, body A, and the corresponding triple series of holes in the supports for the seat, combined as and for the purposes set forth.

In testimony whereof I have hereunto set my hand this 26th day of August, 1873, in the presence of two subscribing witnesses.

ANTONY A. HOFFMAN.

Witnesses:

WM. C. DEY,

ARNOLD HÖRMANN.