E. T. HIGHAM.
Velocipede.

No. 218,968. Patented Aug. 26, 1879.

Fig. 1.

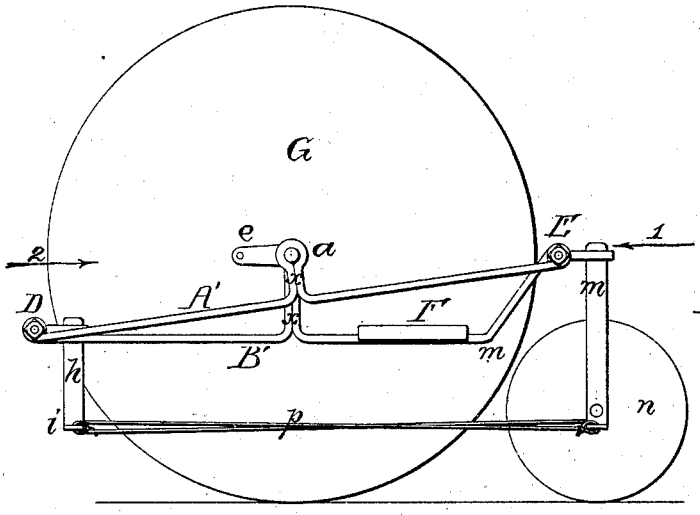


Fig. 3.

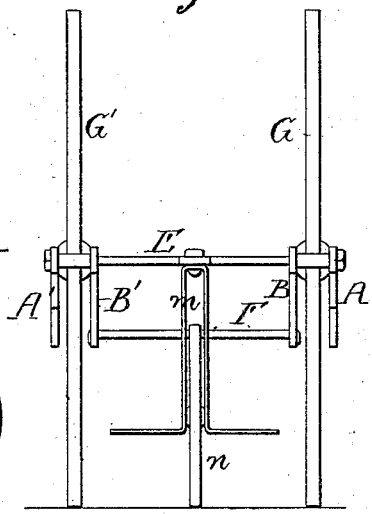


Fig. 2.

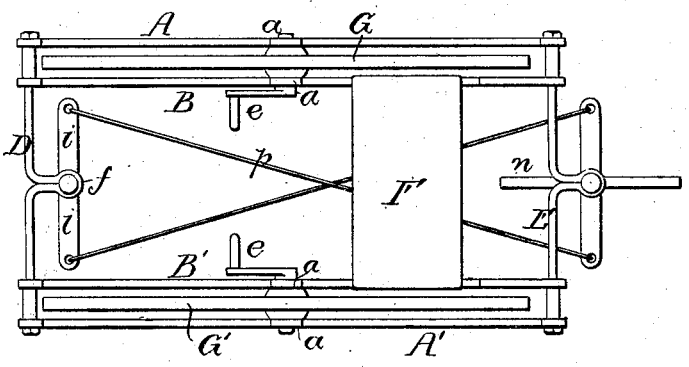


Fig. 4.

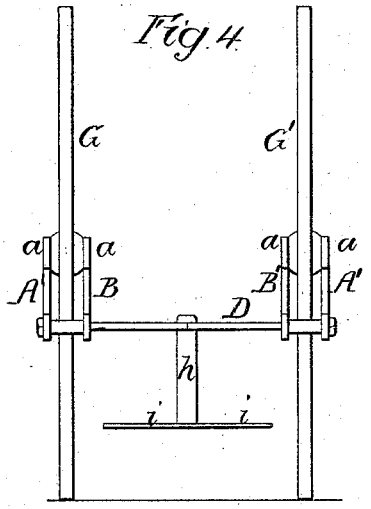
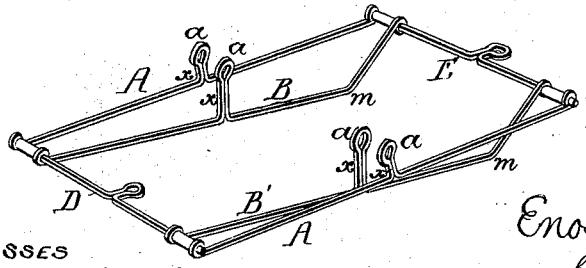


Fig. 5.



WITNESSES
Harry Smith
J. M. Dennen

INVENTOR
Enos T. Higham
by his Attorneys
Howson and Son

UNITED STATES PATENT OFFICE.

ENOS T. HIGHAM, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO HOWARD H. HIGHAM, OF SAME PLACE.

IMPROVEMENT IN VELOCIPEDES.

Specification forming part of Letters Patent No. **218,968**, dated August 26, 1879; application filed March 26, 1879.

To all whom it may concern:

Be it known that I, ENOS T. HIGHAM, of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Velocipedes, of which the following is a specification.

My invention relates to improvements in that class of velocipedes in which the wheels are driven by hand; and the object of my improvements is to make a cheap and substantial velocipede of this class by constructing the frame and arranging the parts in the peculiar manner fully described hereinafter.

In the accompanying drawings, Figure 1 is a side view of my improved velocipede, with one of the wheels removed. Fig. 2 is a plan view; Fig. 3 an end view, looking in the direction of the arrow 1, Fig. 1; Fig. 4, an end view, looking in the direction of the arrow 2; and Fig. 5 a perspective view of the frame.

The frame of the machine consists of the two outer longitudinal bars, A A′, two inner longitudinal bars, B B′, and two end cross-bars, D and E, which connect the whole of the longitudinal bars together. There are two driving-wheels, G G′, the former situated between the longitudinal bars A and B, and the latter between the two bars, A′ and B′, each wheel having a short axle, and the bearings of the axle of one wheel being in the bars A B, and those of the other axle in the bars A′ and B′.

The bearings are formed by simply bending the bars, as shown at *a*, Fig. 1, brass or steel bushes being introduced into the eyes, if deemed necessary, and the bars being welded at *x* below the eyes when a substantial job is desired. The longitudinal bars are also bent at the ends to form eyes for receiving the cross-pieces, which may be secured by nuts or by riveting.

Each of the inner bars, B B′, is straight throughout the greater portion of its length, but inclined abruptly at *m* before it reaches the cross-bar E, the seat F being secured to these bars in such a position that the occupant can conveniently grasp the crank-handles *e e*, with which the axles of the driving-wheels are furnished.

An eye, *f*, is made in the cross-bar D by bending the same, and to this eye is swiveled the vertical rod *h*, carrying at its lower end a two-armed lever, *i*, against which rests the feet of the operator.

A slotted rod, *m*, carrying the steering-wheel *n*, is also swiveled to an eye formed by bending the cross-bar E, and the arms of the lever *i* are connected by crossed rods *p p* to arms on the slotted rod *m*, so that the operator can readily steer the machine with his feet.

It will be observed that each of the outer bars A A′ takes nearly a direct course from one cross-bar to the other in an inclined direction, while each of the bars B B′ is, as before remarked, straight throughout the greater portion of its length and inclined abruptly at one end. By thus arranging the two bars A and B at an angle in respect to each other, and the same with the bars A′ and B′, rigidity is necessarily imparted to the frame.

The bars which form the frame may be of wrought iron or steel, and they may be connected together in a manner differing from that described. They may, for instance, be welded together. The bearings for the axles may also be of separate pieces secured to the longitudinal bars; but for cheap machines I prefer to make the frame in the manner described.

I claim as my invention—

1. The combination, in a velocipede, of the frame, consisting of the longitudinal bars A B A′ B′, and the transverse bars D and E, the wheel G arranged between the bars A B, and having a bearing, *a*, on each, the wheel G′ arranged between the bars A′ B′, and having a bearing, *a*, on each, the cranks *e* arranged inside the bars B B′, and the seat F supported by said bars B B′, all as set forth.

2. The combination of the wheels G G′ with the bars A A′ and B B′ of the frame, said bars being bent as described, so as to form bearings *a a* for the axle of each wheel, as specified.

3. The combination of the cross-bars D and E with the inclined bars A A′, and the bars B B′, straight throughout the greater portion of their length, but bent abruptly upward at *m*, as set forth.

4. The combination of the vertical rod *h*, carrying the steering-lever, and the vertical rod *m*, carrying the steering-wheel, with the transverse bars D E, bent so as to form eyes, to which the rods *h* and *m* are swiveled, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ENOS T. HIGHAM.

Witnesses:

WILLIAM J. COOPER,

HARRY SMITH.