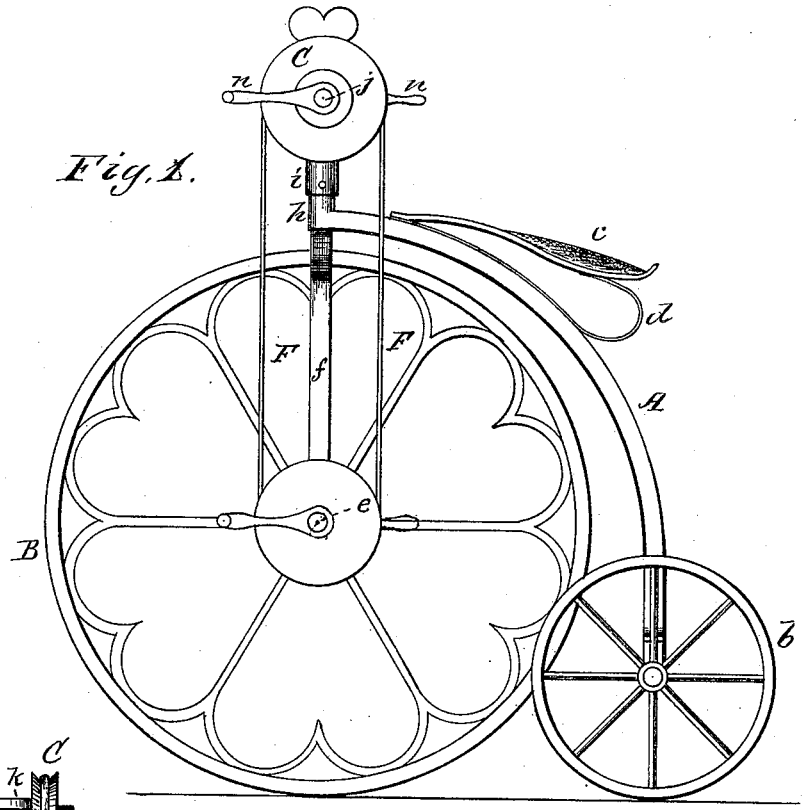
E. N. HIGLEY.
Velocipede.

No. 201,179. Patented March 12, 1878.

Fig. 1.



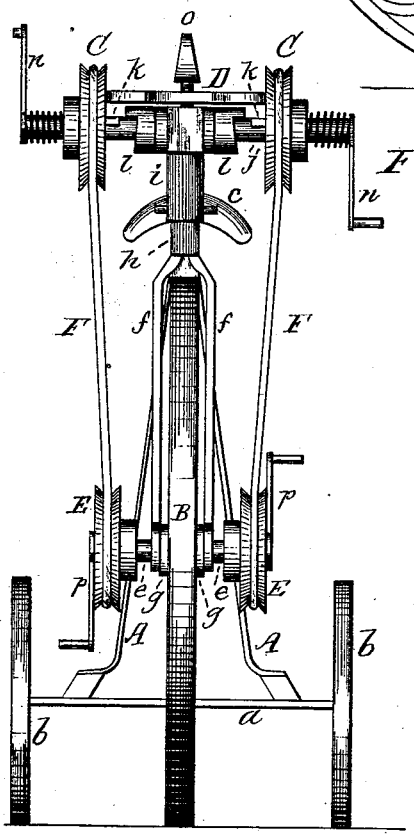


Fig. 2.

Fig. 3.

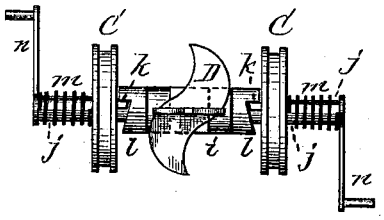
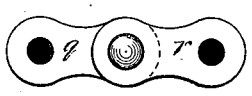


Fig. 4.



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EBEN N. HIGLEY, OF SOMERSWORTH, NEW HAMPSHIRE.

IMPROVEMENT IN VELOCIPEDES.

Specification forming part of Letters Patent No. **201,179,** dated March 12, 1878; application filed February 11, 1878.

To all whom it may concern:

Be it known that I, EBEN H. HIGLEY, of Somersworth, in the county of Strafford and State of New Hampshire, have invented a new and valuable Improvement in Velocipedes; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a side elevation of my invention. Fig. 2 is an end view of the same. Fig. 3 is a detached view of the mechanism engaging or disengaging the pulleys with the crank-arm. Fig. 4 is a view showing the links composing the endless chains.

This invention relates to that class of carriages known as "velocipedes," and which are propelled by the rider; and the object or purpose thereof is to construct such a vehicle that will admit of its propulsion being readily and easily governed by the hands or feet of the rider, or of both, when found necessary.

The invention therefore consists in an arrangement of pulleys upon each side of the crank-arm, and pulleys of similar construction upon the sides or ends of the axle of the road-wheel, and connected together by chains or other suitable means, whereby the carriage may be propelled by the feet alone without turning around or otherwise operating the hand-shaft; or the hand-shaft may be employed, when desired, to aid or assist the feet, as circumstances may require; or both sets of pulleys may be used by the hands and feet to increase the speed of the carriage.

In the accompanying drawings, A represents a bifurcated reach, rigidly connected to the axle *a*, upon which are secured the two rear wheels, *b*. The reach A is curved to allow the forward or road wheel B to freely pass underneath it when turning a corner or at an angle. A suitable seat, *c*, is secured to the upper end of the reach A, and is supported by a spring, *d*. The wheel B is keyed to a short axle, *e*, the latter supported in bearings in straps *f*, and has interposed between said straps and the sides of the hub washers *g*. The upper ends of the straps *f* terminate in or have secured thereto a shaft, which passes up through a sleeve, *h*, formed upon the end of the reach. This shaft above the sleeve *h* has a T-shaped bearing, *i*, rigidly secured to said shaft, through which passes a crank-arm, *j*, carrying upon each end thereof a grooved pulley, C. Upon the inner faces of these pulleys are projections *k*, which engage with clutch-collars *l*, the latter being rigidly connected to the shaft *j*, the pulleys being held up against the clutch-collars by coil-springs *m* upon the crank-arm, and bearing against the outer faces of the pulleys.

A cam, D, operated by a thumb-screw, *o*, or other suitable device, when turned in a direction to the axis of the crank-arm *j*, presses against the pulleys C and forces them outward, disconnecting them from the clutch-collars *l;* thereby, when it is not desired to use the crank-arm in assisting the feet, the pulleys, being thrown out of gear, will not, during their rotation, carry with them the crank-arm. When, however, it is found necessary to use the crank-arm in assisting the feet in the propulsion of the carriage, it is only required to turn the cam so that its ends will not come in contact with the pulleys, when the springs will force the pulleys into gear with the clutch-collars. Secured to the crank-arms are suitable handles *n* for operating the same.

To the ends of the axle *e* are keyed or otherwise rigidly secured pulleys E, similar in construction to the pulleys C. To the outer sides of these pulleys, or to the ends of the axle *e*, are secured foot-treadles *p*, by which the forward or road wheel may be operated. The pulleys C E are connected together by endless chains F, composed of links *q r*, or may be belts or ropes, as desired, although I prefer a metal chain of the links, as illustrated in Fig. 4 of the drawing, as being more durable and better adapted for the purpose.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A velocipede provided with pulleys E and treadles *p*, in combination with pulleys C and handles *n*, and a mechanism for disconnecting said pulleys with the pulleys E, whereby either

set of pulleys may be used separately or in connection with each other, substantially as and for the purpose set forth.

2. The pulleys C, having projections *k* and the springs *m*, in combination with the clutch-collars *l* and cam D, substantially as and for the purpose specified.

3. The pulleys E and chains F, in combination with the pulleys C, projections *k*, springs *m*, clutch-collars *l*, bearing *i*, and cam D, constructed to operate substantially as and for the purpose described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

EBEN N. HIGLEY.

Witnesses:
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