W. KATON & P. BONFILS.

VELOCIPEDE.

No. 186,136. Patented Jan. 9, 1877.

Fig. 1.

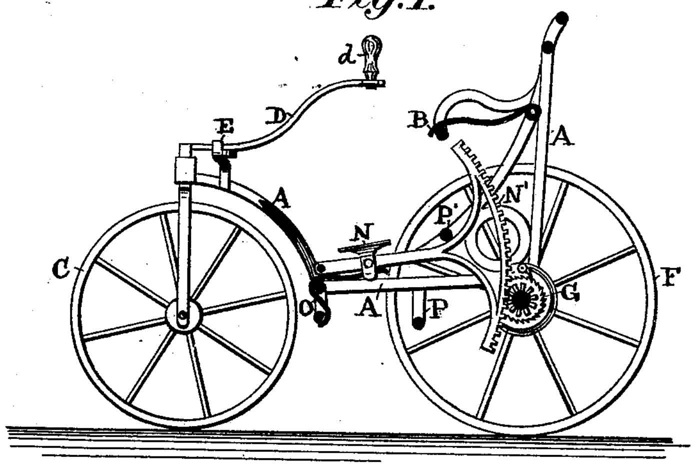


Fig. 2

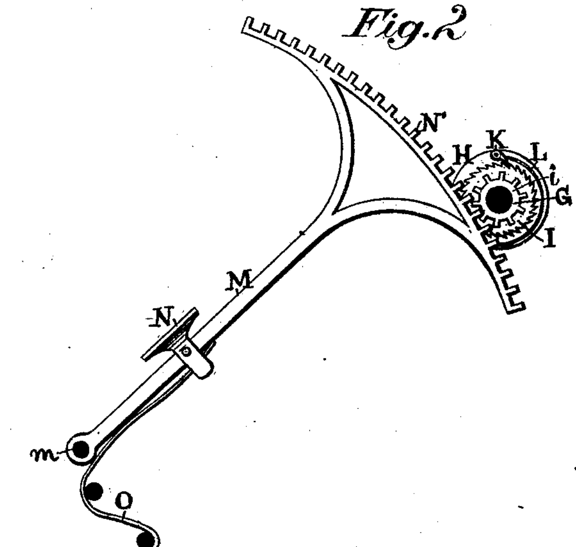
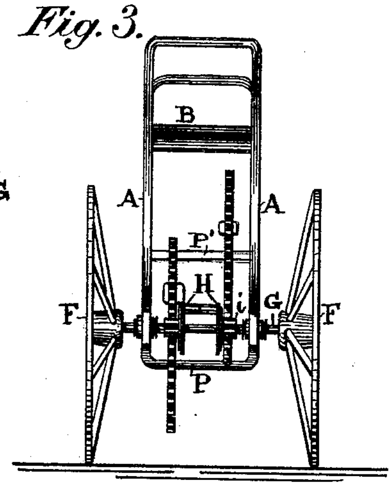


Fig. 3.



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UNITED STATES PATENT OFFICE.

WALTER KATON AND PAUL BONFILS, OF NORTH ATTLEBOROUGH, MASS.

IMPROVEMENT IN VELOCIPEDES.

Specification forming part of Letters Patent No. **186,136**, dated January 9, 1877; application filed November 8, 1876.

To all whom it may concern:

Be it known that we, WALTER KATON and PAUL BONFILS, of North Attleborough, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Mechanical Power for Increasing the Speed of Velocipedes; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Our invention relates to velocipedes; and consists in certain new and improved mechanical devices which are connected with the axle of the driving-wheels, and are operated by means of the treadles or foot-levers so as to multiply the speed of the wheels without requiring to move the feet with increased rapidity, all as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a side elevation of our improved velocipede, partly in section, to show the mechanical devices. Fig. 2 is a detached view of one of the treadles and its connections enlarged. Fig. 3 is a rear elevation of the velocipede.

Referring to the parts by letters, A represents the body or frame of the velocipede; B, the seat; C, the caster or guide-wheel. D is the guide-lever, supported by the arc-shaped plate E, and provided with handle *d*. F F are the driving-wheels, rigidly mounted or keyed to a shaft, G, which is journaled in proper bearings to the frame A. H H are disks rigidly keyed or secured to the shaft G, so as to revolve with it and with the wheels F F. I I are ratchet-disks, having pinions *i i* secured centrally thereto. These ratchet-disks and pinions are loosely mounted on the shaft G and held closely against the disks H, so that the ratchet-teeth engage with pawls K, which are pivoted to the disk H and held in gear with the ratchet-teeth by springs L, said springs being also secured to the disks H.

M M are the treadle-levers, pivoted or journaled to a shaft, *m*, at their forward ends, and provided with pivoted pedals N. The rear ends of these treadle-levers M are formed into arc-shaped or segment gears N′, the teeth of which engage with the pinions *i* of the ratchet-disks I.

O O are springs which bear against the under sides of the treadles M. P is a stirrup or cross-bar, the ends of which are secured to the frame A. It operates as a stop to limit the motion of the treadles in a downward direction.

P′ is a similar cross-bar, which operates as a stop to limit the motion of the treadles in an upward direction.

The operation is as follows: It will be seen that the general arrangement of the parts is the same as in most three-wheel velocipedes, and that the direction of the machine is controlled by the forward guide-wheel and hand-lever in the usual manner.

The arrangement of the treadles is, however, different and when forced alternately down by the pressure of the feet, the segment-gears on their rear ends will cause the driving axle and wheels to revolve with great rapidity, the ratchet-disks being held in gear with the axle on the downward stroke of the treadle by means of the pawls K on the disks H.

When the treadle-lever is released from the pressure of the foot, the spring O forces the treadle upward, and the ratchet-disk I being loosely mounted on the axle, and the pawl K permitting it to turn freely in the reverse direction, no resistance is offered to the rising of the lever, and, at the same time, the revolution of the axle through the downward stroke of the other treadle is not interfered with.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of the segmental gear-treadles M N′, ratchet-disks I, disks H, axle G, frame A, and wheels C F F, substantially as and for the purpose specified.

2. In combination with the frame A, the segmental gear-treadles M N′, springs O, and stops P P′, substantially as and for the purpose specified.

In testimony that we claim the foregoing as our own, we affix our signatures in presence of two witnesses.

WALTER his + mark. KATON.

PAUL BONFILS.

Witnesses:

HENRY RICE,

MINERVA E. RICE.