S. GILZINGER.

VELOCIPEDE.

No. 181,432. Patented Aug. 22, 1876.

Fig: 1.

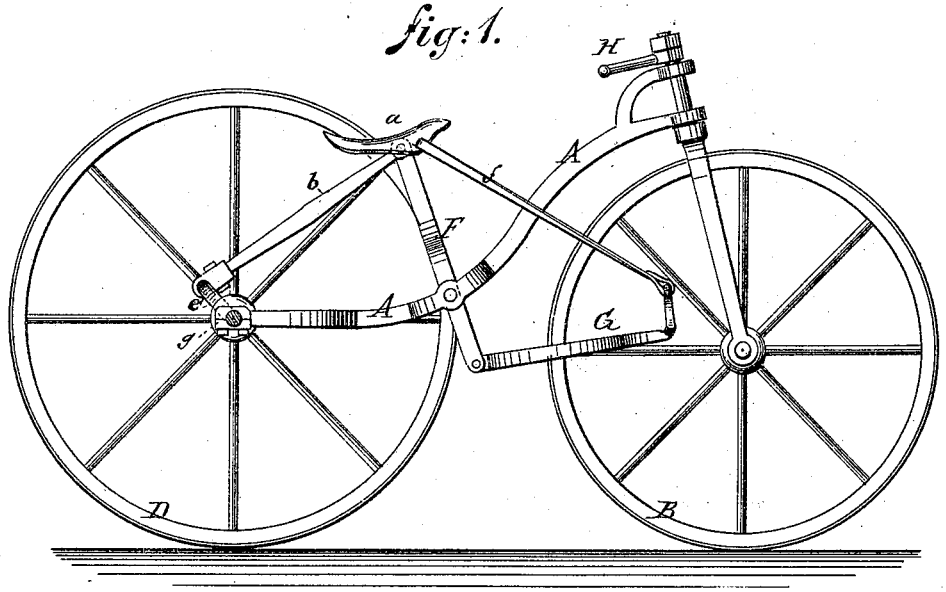


Fig: 2.

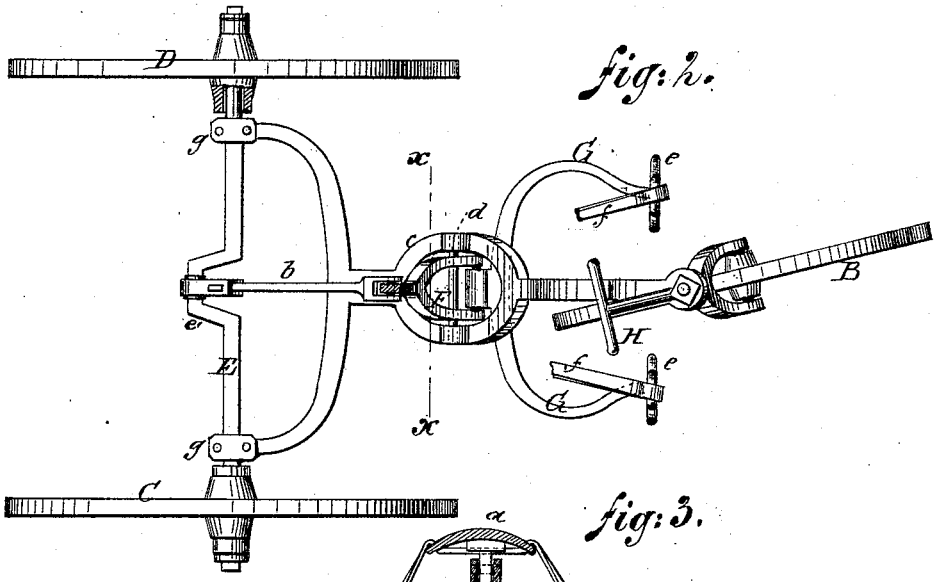
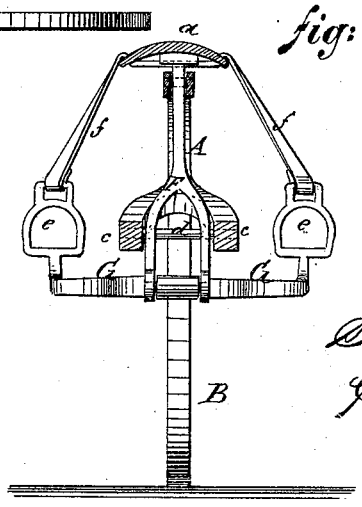


Fig: 3.



Witnesses:

H. L. Wattenberg

W. Lovell

Inventor:

Sebastian Gilzinger

per Munn & Co

Atty

UNITED STATES PATENT OFFICE.

SEBASTIAN GILZINGER, OF RONDOUT, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO ABEL A. CROSBY, OF SAME PLACE.

IMPROVEMENT IN VELOCIPEDES.

Specification forming part of Letters Patent No. **181,432**, dated August 22, 1876; application filed June 19, 1876.

To all whom it may concern:

Be it known that I, SEBASTIAN GILZINGER, of Rondout, in the county of Ulster and State of New York, have invented a new and useful Improvement in Velocipedes; and that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making part of this specification.

This invention is in the nature of an improvement in velocipedes; and the invention consists in a velocipede constructed with a vertical lever pivoted to the perch, a connecting-rod secured to and extending from its upper end to a crank on the rear axle, and foot-levers or treadles, with stirrups, secured to its lower end, and provided with a saddle, substantially as hereinafter more particularly described.

In the accompanying sheet of drawings, Figure 1 is a side elevation of my improved velocipede. Fig. 2 is a top view of same; and Fig. 3, a cross-section in line *x x*, Fig. 2.

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

In most velocipedes heretofore constructed the propelling power was mainly derived from the action of the feet on cranks or treadles, so that the propulsion and speed of the vehicle depended entirely upon the force with which the foot was thrust against the cranks or treadles, which limited the speed and produced fatigue in the occupant. By my invention, while I preserve all the advantages to be derived from operating by the feet, I also add another element of power—viz., the weight of the body of the occupant, as will be more clearly seen from the following description.

A is the reach or perch of a velocipede, to the front end of which is secured the front and guiding wheel B, and to the rear end the wheels C D, affixed to the axle E. To the perch A is pivoted a vertical lever, F. To the upper end of this lever is secured a saddle, *a*, and fastened to it, immediately below the saddle, is one end of a connecting-rod, *b*, the other end of which is secured to the crank *e'* of the axle E. This vertical lever F may be fastened to the perch A in any desirable manner, but preferably through an elliptical opening, *c*, formed in the perch, which affords suitable bearings to support the pivotal bolt *d*, on which the vertical lever F is pivoted and rests, and by which it is secured to the perch. The lower end of the vertical lever F is affixed by a hinge-joint to treadles or foot-levers G, the outer ends of these foot-levers having stirrups *e* formed on them. To the upper ends of the stirrups are fastened supporting-straps *f f*, which extend up to and are made fast to the front of the saddle. The wheel C is secured directly on the axle, so that the wheel can only revolve with the axle, which is fitted into suitable bearings *g g*, which branch out from the end of the perch A. The wheel D, however, is fitted to the axle, so that it may revolve independently of the axle. The front or steering wheel B is constructed and arranged so that it may be conveniently turned to the right or left by cross-handles H.

Now, my velocipede being constructed substantially as above described, its operation is as follows: The occupant of the saddle *a* inserts his feet into the stirrups *e* at the end of the foot-levers G, grasping the cross-handles H with his hands; then, by alternately thrusting down and raising up his feet within the stirrups, and at the same time bending his body to suit the upward and downward action of his feet and legs, the vertical lever F is made to oscillate on the pivotal bolt which secures it to the perch, and as it oscillates backward and forward the connecting-rod or pitman *b* receives a reciprocating motion, which is transferred to the crank *e'* on the axle E, which imparts a rotary motion to the axle and to the wheel C fixed to it, which thereby becomes the driving-wheel of the vehicle, causing it to proceed either backward or forward, at the pleasure of the occupant of the saddle, the wheel D, which revolves on, and independently of, the axle, revolving freely, and merely steadying the vehicle without impeding its progress, and the guiding being effected by the front wheel B, which is turned to the right or left, as it may be desired to turn the vehicle.

From the foregoing description it will be seen that not only is the velocipede propelled

by the action of the feet and foot-levers, but its speed is also materially accelerated by the weight of the body, since as the body of the occupant is moved backward and forward on the upper end of the vertical lever the oscillation of that lever on its pivotal bolt is rendered much more easy than would be the case if its oscillation depended solely upon the action of the feet on the treadles, and since the action of the feet on the foot-levers necessarily throws the body backward and forward to some extent this movement of the body is accomplished with little or no extra exertion on the part of the occupant, and renders the motion of the body and the action of the feet on the levers simultaneous.

The straps *f f* not only tend to support the foot-levers at their outer ends, but also cause the levers to act by the action of feet directly on the upper end of the vertical lever, which, being the longest end of the lever from the fulcrum, causes the power to be applied more effectively than would otherwise be the case.

It is obvious that the velocipede may be constructed with a side-saddle, in which case the foot-lever will be arranged on one side of the perch only.

Having thus described the construction and operation of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A velocipede constructed with an oscillating lever, to the upper end of which is affixed a saddle and one end of a connecting-rod, and to the lower end treadles or foot-levers, substantially as and for the purpose described.

2. In a velocipede, foot-levers secured to a vertical lever by a hinge-joint, and supported at their outer ends by straps leading and attached to the saddle or seat, substantially as and for the purpose described.

3. In a velocipede, a vertical lever, carrying the saddle, combined with a connecting-rod and cranked axle, substantially as and for the purpose described.

SEBASTIAN GILZINGER.

Witnesses:
H. L. WATTENBERG,
G. M. PLYMPTON.