(No Model.)

L. W. ELLIOTT.

VELOCIPEDE.

No. 288,219. Patented Nov. 13, 1883.

Fig. 1.

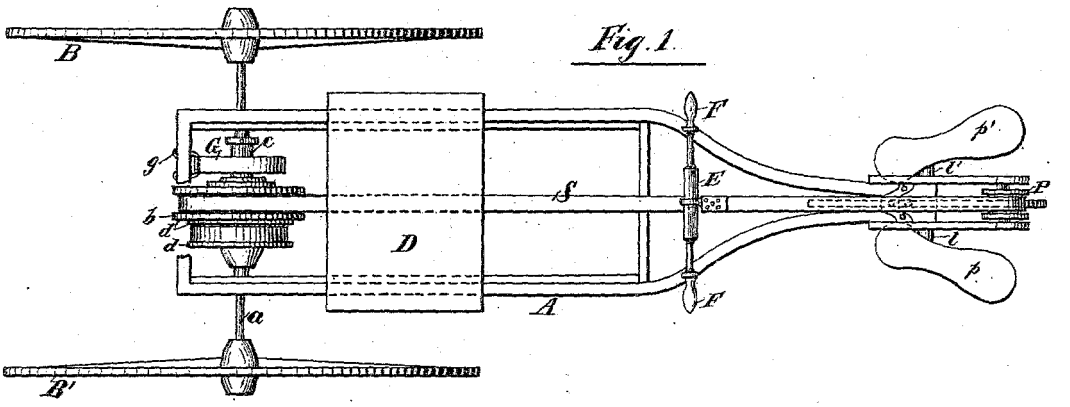

Fig. 2.

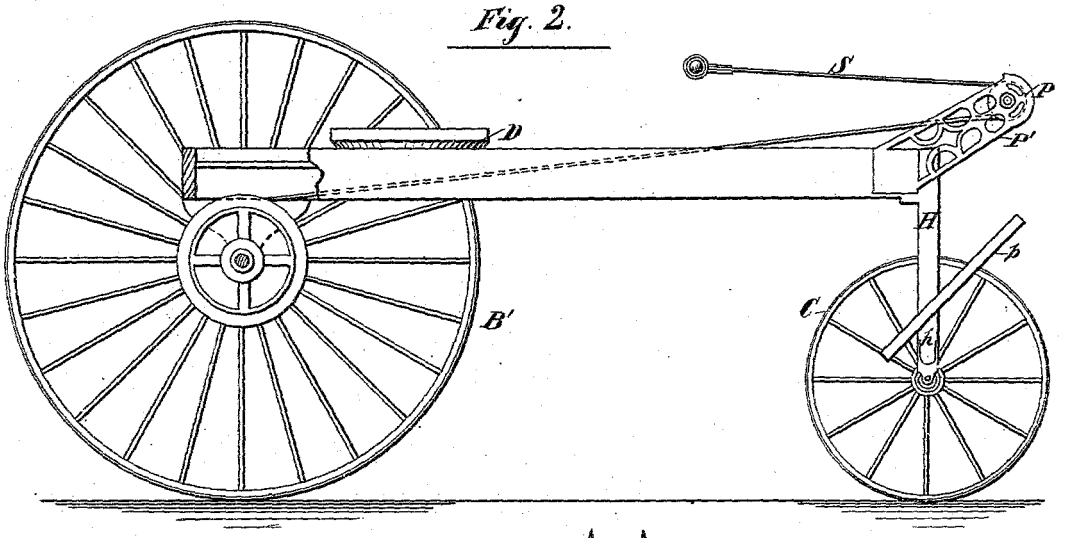

Fig. 3.

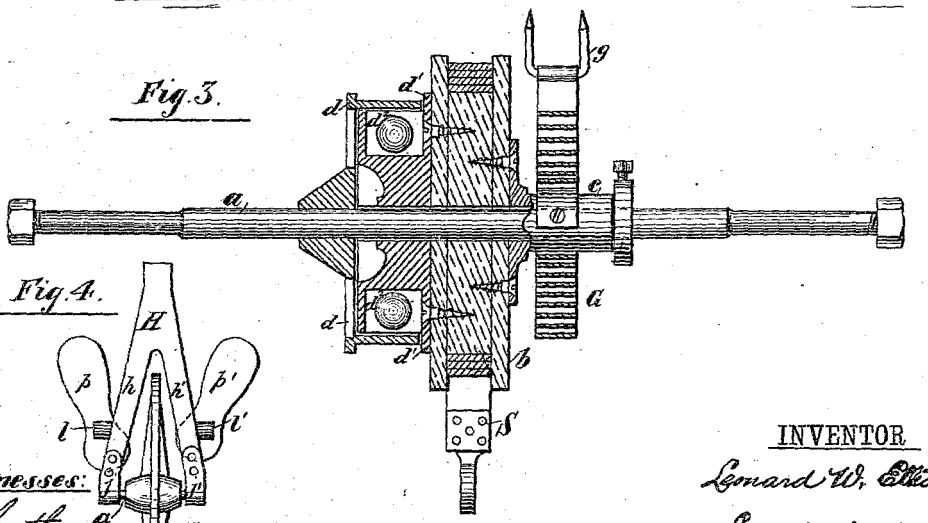

Fig. 4.

Witnesses:
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UNITED STATES PATENT OFFICE.

LEONARD W. ELLIOTT, OF GREEN POINT, NEW YORK.

VELOCIPEDE.

SPECIFICATION forming part of Letters Patent No. 288,219, dated November 13, 1883.

Application filed January 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, LEONARD W. ELLIOTT, a citizen of the United States, residing at Green Point, in the State of New York, have invented certain new and useful Improvements in Velocipedes, of which the following is a full, clear, and exact description.

The object of this invention is the production of a velocipede adapted to be propelled by the pull of the operator, this pull being similar to the pull of a person exercising on a rowing-machine.

To this end my invention consists in the combination and arrangement of a drum, clutch, and convolute spring on the axle to which the driving-wheels are fixed, said clutch being adapted to impart motion to the axle and driving-wheels when the drum is moved in one direction by means of a strap wound thereon, the other end of which passes over a pulley supported by a post at the forward end of the body, and is attached to a cross-bar within reach of the operator, and allowing the drum to run free on the axle when the strap is rewound upon the drum under an impulse from the spring, the details of my invention being hereinafter fully pointed out.

In the accompanying drawings, Figure 1 is a plan view of a velocipede embodying my improvements, the end of the body being broken away to show the propelling mechanism. Fig. 2 is a side view thereof. Fig. 3 is a longitudinal sectional elevation of parts on a larger scale, showing the axle, clutch, drum, and spring; and Fig. 4 is a front view of the steering-wheel.

Similar letters of reference designate corresponding parts in all the figures.

A designates the body or reach of my velocipede supported between two driving-wheels, B B′, and a steering-wheel, C, and having a seat, D, thereon, arranged to slide backward and forward with the body of the operator as the velocipede is propelled.

a designates the axle, to which the driving-wheels B B′ are fixed. On this axle *a* a drum, *b*, fixed to a hub, *c*, is supported to rotate loosely.

S designates a strap, which is wound around and made fast to the drum *b*, and extends from the drum *b*, under the body or reach A, and over a pulley, P, supported by a post, P′, to a cross-bar, E, having handles F F, which, when not in use, rest on the forward part of the body A, within convenient reach of the operator.

G designates a convolute spring, spirally coiled around the hub *c*, one end of this spring being made fast to the said hub, and the other end being secured by a staple, *g*, to the under side of the rear of the body A. The pull of the operator on the cross-bar E, as he moves backward on the seat D, unwinds the strap S from the drum *b*, and rotates the drum *b* in a forward direction, and as the operator moves forward on the seat D the spring *s*, bearing against the hub *c*, reverses the action of the drum, and the strap is rewound on the drum.

d d′ designate a clutch, which is combined with the drum *b* and axle *a* for the purpose of transmitting motion to the axle from the drum when the latter is moved in one direction under an impulse from the strap, and of allowing the drum to run free of the axle when the strap is being rewound upon the drum under an impulse from the spring. This clutch consists of a female part, *d*, which is rigidly affixed to the axle, and a male part, *d′*, which is rigidly affixed to one side of the drum, and is unconnected with the axle. The interior of the female part *d* of this clutch is of cylindric shape, and the male part *d′* is provided on its exterior with arched-shaped surfaces, which are eccentric to the interior of the female part. Between the female part and the eccentric arched-shaped surfaces of the male part are dogs d^2, which are made of cylindric or spherical shape. To force and hold the dogs d^2 in contact with both the male and female parts of the clutch, I propose to employ springs, which may be of spiral form, coiled in the contracted ends of the spaces formed by the eccentric arched-shaped surfaces. When the drum *b* is rotated by a pull of the strap S, these dogs d^2 are crowded into the narrower or contracted ends of the spaces between the female part *d* of the clutch and the eccentric arched-shaped surfaces of the male part *d′*, and motion is then imparted to the axle *a*. When the drum is rotated in reverse direction by the spring *s*, the dogs are carried into the wider part of the spaces and a retrograde motion of the axle is prevented.

H designates a post, pivoted to the bottom

of the forward end of the body or reach A, and provided with downwardly-depending arms *h h'*, having sleeves *j j'*, supporting a dead-axle, *a'*, to which the steering-wheel *c* is fixed. *p p'* designate pedals or foot-rests secured to lugs *l* and *l'*, extending from the arms *h* and *h'*, respectively. The pressure of the operator's foot on one of the pedals *p* or *p'* turns the steering-wheel in the opposite direction, and thus the velocipede can be guided at the will of the operator. At the same time the pedals *p p'* serve as braces for the feet, facilitating the backward movement on the seat D and pull on the strap S, by means of which motion is imparted to the axle *a* and driving-wheels B B'.

Instead of a sliding seat, D, a stationary seat may be employed, if desired, although the sliding seat is preferred.

It is obvious that instead of a single steering-wheel, C, two forward wheels may be employed for this purpose, thus increasing the steadiness of the velocipede and lessening the liability of accidents. It is also obvious that with slight modifications the driving-wheels and propelling mechanism may be set at the forward end and the steering wheel or wheels at the rear of the body or reach, if desired. I also propose to employ a brake connected to the clutch, of the kind commonly used on friction-drums—for instance, with a connecting-rod extending therefrom to a lever or crank-arm within convenient reach of the operator, to enable the operator to stop the velocipede suddenly when necessary.

A velocipede embodying my improvements can be rapidly and readily driven by any one, and will be found to combine exercise with pleasure, and a convenient means of conveyance from place to place.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, in a velocipede substantially such as described, of a drum, *b*, fixed to a hub, *c*, supported on an axle, *a*, and adapted to rotate independently of said axle, a strap, S, wound on said drum and having its free ends attached to a cross-bar, E, and a clutch having its male part *d'* fixedly attached to said drum, and its female part *d* fixed to said axle, with a convolute spring, G, spirally coiled around the hub of said drum and bearing against the body or reach A, whereby, when the drum is rotated under an impulse from the strap, motion is transmitted to the axle, and when the drum is rotated in reverse direction under an impulse from the spring the strap is rewound without retrograde motion of the axle, as set forth.

In testimony whereof I have hereunto set my hand this 16th day of December, A. D. 1882.

LEONARD W. ELLIOTT.

Witnesses:
ELISHA W. ELLIOTT,
ARTHUR C. WEBB.