(No Model.)

E. S. BURBANK.

VELOCIPEDE.

No. 352,989. Patented Nov. 23, 1886.

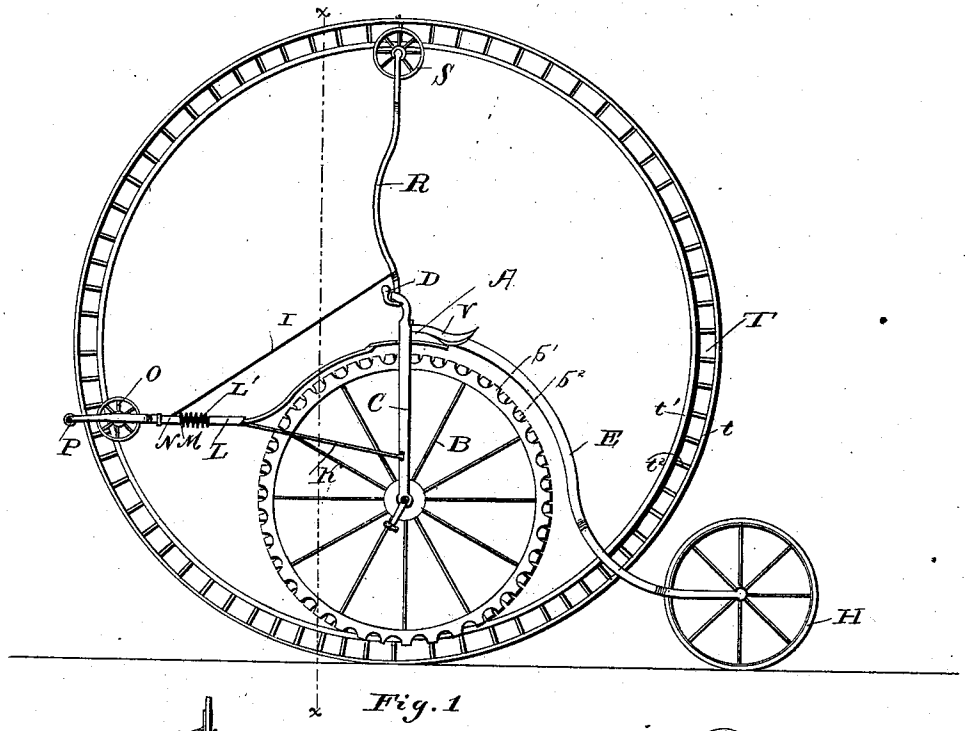


Fig. 1

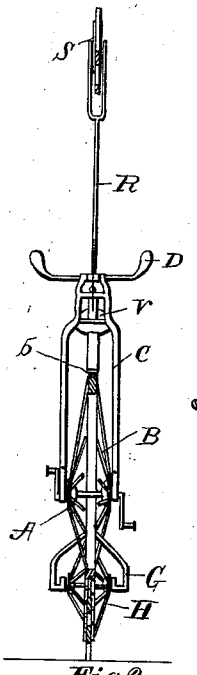


Fig. 2.

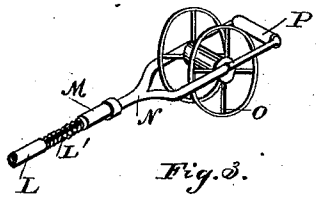


Fig. 3.

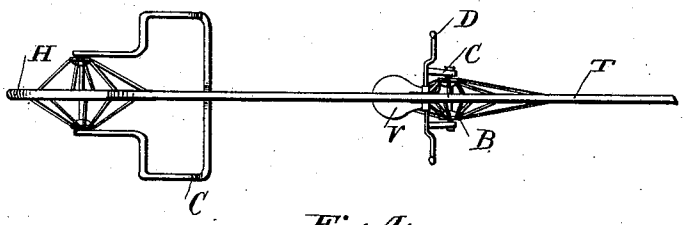


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

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VELOCIPEDE.

SPECIFICATION forming part of Letters Patent No. 352,989, dated November 23, 1886.

Application filed March 24, 1886. Serial No. 196,348. (No model.)

To all whom it may concern:

Be it known that I, EDWARD S. BURBANK, a citizen of the United States, residing at Dow City, in the county of Crawford and State of Iowa, have invented new and useful Improvements in Velocipedes, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to an improvement in velocipedes; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a velocipede embodying my improvements. Fig. 2 is a vertical sectional view of the same, taken on the line *x x* of Fig. 1. Fig. 3 is a detail view. Fig. 4 is a top plan view.

A represents a velocipede, which is here shown as a bicycle, but which may be provided with three or more wheels, if preferred.

B represents the usual driving-wheel of the velocipede, which is provided with the actuating-pedals and is journaled in the fork C. The fork is provided with the steering-handles D, and to it is pivoted the front end of the reach or backbone E, which latter has a suitable open rectangular frame, G, formed near its rear end, and carries a trailing-wheel, H. The periphery of the driving-wheel is grooved, as at *b*, forming flanges *b'*, which are provided each with a series of openings, b^2, the said openings of one flange registering alternately with the openings of the other, and thus being out of line with the said latter openings.

From the front side of the fork projects a bifurcated arm, K, to which is attached a spring-bar, L, having its rear end curved upwardly over the upper side of the driving-wheel and secured to the fork. The outer end of the bar L works in a cylinder, M, which is formed on the inner end of a movable frame, N, which latter has forwardly-extending bifurcated arms, in between which is journaled a grooved wheel, O, near their rear ends, and in between the outer ends of the said arms is journaled an anti-friction roller, P. From the upper end of the fork projects a vertical arm, R, which carries a grooved wheel, S.

T represents a circular track, which is composed of two concentric rims or rings, *t* and *t'*, connected together by radial bars t^2. The inner ring of the circular track is engaged by the wheels O and S and by the driving-wheel, the flanges of which depend on opposite sides of the lower portion of the said inner ring. The rear portion of the said circular track passes through the open frame which is formed in the backbone or reach, and the circular track thus forms the rim of a large wheel in which the driving-wheel and mechanism of the velocipede are suspended.

The frame M is moved normally outwardly on the end of the rod L by means of a bearing-spring, L', thereby keeping the wheel O forced outwardly, with its grooved periphery engaging the inner rim of the circular inclosing track. A cord, *l*, is attached to the cylinder M, and extends to the arm R, and is thus within easy reach of the operator seated upon the usual seat, V.

The operation of my invention will be readily understood from the foregoing description, and by reference to the accompanying drawings.

By thus providing the bicycle with a circular track engaging the driving-wheel the said track forms virtually the driving-wheel of the bicycle or velocipede, and as it is of very greatly increased diameter as compared with the driving-wheel of the velocipede, it enables the machine to be driven over rough and uneven roads without violent bumping and jolting, and without discomfort to the rider. It also prevents the velocipede from being overturned when it encounters an obstruction, and prevents the rider from "taking a header." By providing the flanges of the wheel B with the alternately-arranged openings particles of dirt which find their way between the inner rim of the circular track and the tread of the wheel B are discharged through said openings and cleared from the track.

When the machine encounters a stone or other obstruction, the frame M is moved rearwardly against the pressure of the spring L', and thus causing the wheel B and the rider to be moved forwardly past the center of the circular track for a corresponding distance, thus enabling the weight of the rider to be utilized in causing the circular track to pass over the obstruction. By drawing upon the cord the frame M is drawn rearwardly on the outer end of the rod L, thereby causing the anti-friction

roller P to bear against the outer rim of the circular track and serve as a brake for the velocipede. The open frame formed in the reach of the backbone, and through which the circular track passes, enables the machine to be turned in a circle of corresponding diameter to that of the circular track.

Having thus described my invention, I claim—

1. The combination, with the circular track or rim, of the bicycle having its driving-wheel engaged therewith, and provided with the arm R, having the grooved wheel for engaging with the upper side of the circular track or rim, and the arm L, the frame M, movable on the said arm and carrying the wheel O, for engaging the front side of the circular track or rim, substantially as described.

2. The combination, with the inclosing circular track or rim, of the velocipede having the driving-wheel and the wheel S, engaging therewith, and provided with the forwardly-extending arms L, the spring-actuated frame M, movable on the outer end of the said arm and carrying the wheel O, and the anti-friction roller P, for engaging, respectively, the inner and outer sides of the circular rim, for the purpose set forth, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

EDWARD S. BURBANK.

Witnesses:

JOHN E. RULE,

WILSON P. BRAKE.