

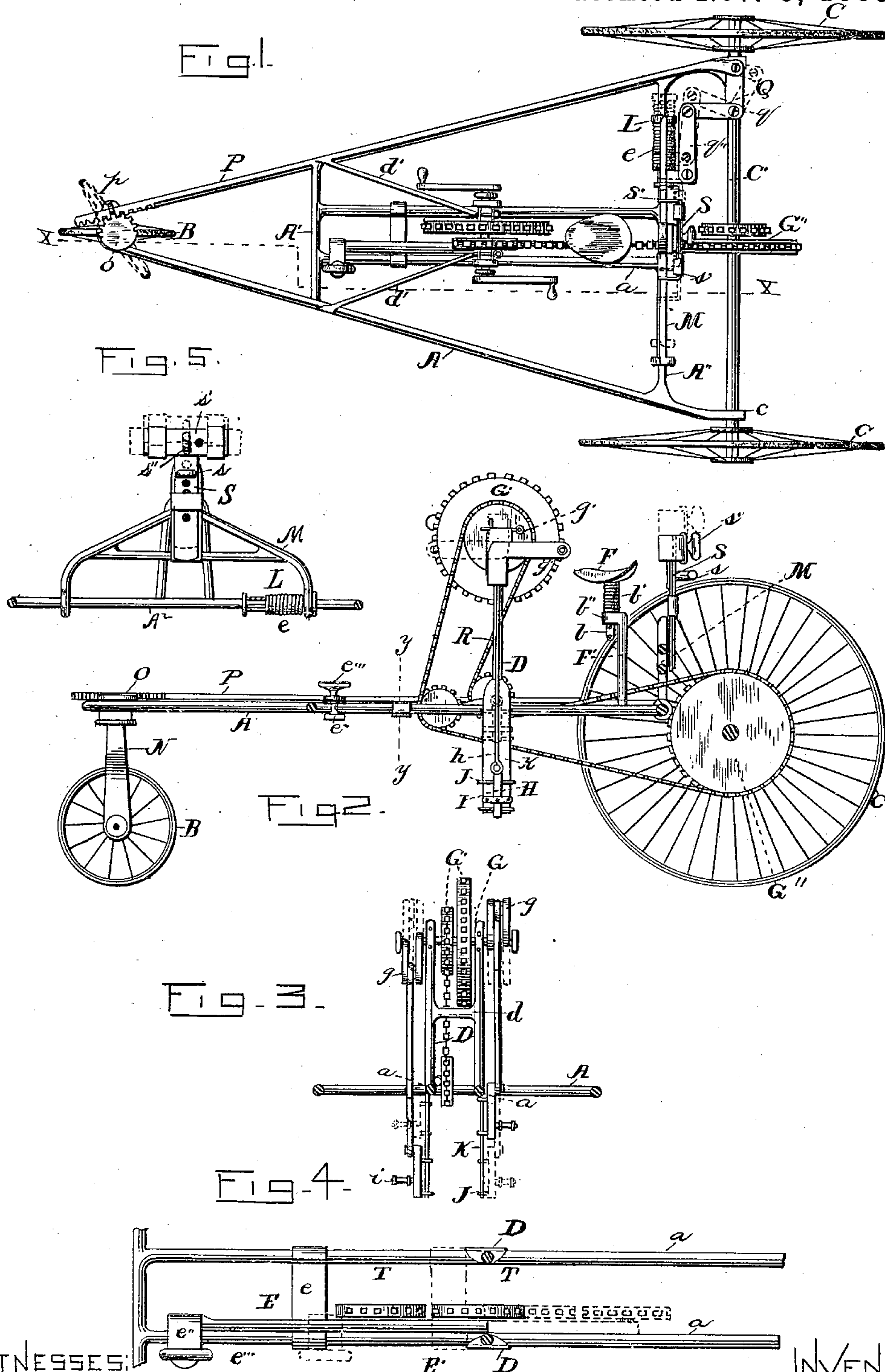
(No Model.)

P. E. McINTOSH.

TRICYCLE.

No. 329,755.

Patented Nov. 3, 1885.



WITNESSES:

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TRICYCLE.

SPECIFICATION forming part of Letters Patent No. 329,755, dated November 3, 1885.

Application filed May 7, 1885. Serial No. 164,696. (No model.)

To all whom it may concern:

Be it known that I, PETER E. MCINTOSH, a citizen of the United States, residing at Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Tricycles; and I do declare the following to be a full, clear, and exact description of the invention, such as 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 the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in tricycles; and it consists in combining therewith a novel steering arrangement, and in certain other details of arrangement, construction, and combination of parts, as hereinafter set forth and claimed.

The object of my invention is to improve the construction of that class of tricycles in which the power is applied both by hand and foot by combining therewith a steering arrangement which shall at all times be under the control of the rider by the simple movement of the body, thus having the hands and feet free to impel the machine forward. Another object in view is to improve the mechanical means whereby the power is communicated to the machine and to combine therewith a simple and efficient tightening arrangement for taking up any slack of the drive-chains occasioned by wear or accident. These objects I attain by the construction shown in the accompanying drawings, in which—

Figure 1 represents a plan view of the machine. Fig. 2 is a longitudinal section of the same on the line X X of Fig. 1. Fig. 3 is a transverse section on the line Y Y of Fig. 2. Fig. 4 is an enlarged detail of the tension device. Fig. 5 is a rear view of the steering-lever detached from the machine.

The frame A for supporting the operating parts of the machine is made of bar or tubular metal, and is preferably <-shaped, the steering or caster wheel B being located in the apex of the triangle, and the drive-wheels C and their axle C' being supported or journaled in bearings c, formed at the extremities of the divergent arms. The frame is braced by bars

A' A'', running transverse thereto. Rods a, uniting these bars and extending longitudinally of the machine parallel to each other, support the drive mechanism, tension device E, and seat F, which latter is provided with a shank, f, passing through a projection, f'', of a yoke-standard, F'. A coil-spring is placed around the shank of the seat, between the seat and projection, to permit the yielding of the seat when passing over uneven ground. The lower end of the seat-shank is perforated, and a pin passing through these perforations serves to adjust the tension of the spring and the height of the seat. Standards D, extending vertically from the bars a, braced by a cross bar, d, and oblique bars d', have bifurcated ends, in which a shaft, G, is journaled and held in place by pins g'. Sprocket-wheels G', keyed to this shaft, receive power from and are rotated by means of the cranks attached to either end of the shaft. Pedal-frames H are connected to the cranks by a pitman, h. These frames consist of a bar, l, carrying the pedal, and provided with clips J, embracing a metal guide, K, depending from the bars a of the frame. The arm-extensions g'' of the cranks g are provided with a swivel-handle to facilitate their operation. These arms are arranged relatively to the pedal-frames, so that when the one is at its highest and the other at its lowest position they will extend in horizontal planes and in opposite directions, as indicated in full and dotted lines in Figs. 2 and 3, thereby more readily overcoming the dead-center and facilitating the operation of the machine. The relative position of the crank-arms and pedal-frames may be varied; but the positions shown have been found to give the best results, and are therefore preferable. A sleeve or carriage, L, is mounted so as to have a longitudinal movement on the brace-bar A'', and is connected at one end with a system of levers, presently referred to, and at its other to one leg of the yoke M, loosely mounted on the rod A'', on which it is has a longitudinal and an oscillating movement. The shank N of the caster-wheel B has a mutilated segment, O, secured to its upper end, which meshes with a rack on the end of a bar, P, the latter being held in contact therewith by a guide, p, springing

from the frame. The rear end of the rod P connects with one arm of a bell-crank lever, Q, pivoted at *q* to an extension of the frame, the other end of the arm of the lever being
5 connected to the sleeve L by a link, *q''*.

From the above construction it is evident that any longitudinal movement of the sleeve L on the rod A'' will cause the caster-wheel to turn to the right or left, to control or give
10 the necessary movement to said sleeve. Any mechanical means may be devised which will contact with the body of the rider; but that which I prefer is the yoke M, referred to, which is connected with the sleeve so as to oscillate
15 about the same, but when moved in a direction parallel to the bar A'' will cause the sleeve to follow its movement, thereby actuating the caster-wheel, as will be readily understood. To this yoke M is connected a T-
20 extension, S, adapted to be vertically adjusted by a set-screw, *s*, to the head of which plates *s'* are attached, having a lateral adjustment by means of a set-screw, *s''*. It will be
25 noticed that the plates *s'* are bent at right angles near their ends, which are designed to extend on either side of the rider, and are vertically and laterally adjustable in order to be accommodated to any part of the trunk of
30 or to varying-sized persons. The yoke is pressed forward toward the seat by a spring coiled around the sleeve L, and connected at one end to the sleeve and at the other to the yoke, thereby making provision to allow the yoke to follow the to-and-fro movement of and
35 always remain in contact with the body of the rider. The sprocket-wheels G' are of varying sizes and correspond with the sprocket-wheels G'', keyed to the axle C'. A sprocket-chain, R, passes around a corresponding pair of
40 these wheels and has its tension adjusted by sprocket-idlers mounted on a frame, E', longitudinally adjustable on the rods and held thereto by a cross-head, *e*, having its ends bent around the rods and secured in its ad-
45 justed position by a spring-clamp, *e''*, and set-screw.

From the above description the practical operation of the machine and the functions of its parts are readily understood. A descrip-
50 tion of the same is therefore deemed unnecessary.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

55 1. In a vehicle impelled by hand and foot

power, the combination of a crank-shaft carrying the driving mechanism, and pedals working on vertical guides and suitably connected therewith, with arms extending in opposite directions from the axial line of said
60 crank-shaft and arranged relatively to the pedals to occupy a horizontal position when the pedals relatively are in their highest and lowest positions, substantially as and for the purposes set forth.

2. In a vehicle, the combination of the steering-wheel, a carriage, as L, and suitable connections, with a lever connected with said carriage and free to oscillate at right angles thereto and engage the same when moved par-
70 allel to the carriage, substantially as and for the purposes described.

3. In a vehicle adapted to be steered by the trunk of a person, the combination of a carriage, as L, suitably connected with the steering mechanism, with a lever connected with
75 said carriage and pressed forward by a spring-pressure and provided with a vertically and laterally adjustable head, substantially as and for the purposes specified.

4. The herein-described means for steering a vehicle, consisting of a bar suitably connected at one end to a caster-wheel and at its other end to one arm of a bell-crank lever pivoted to the frame of the vehicle, a link
85 connecting the other arm of the bell-crank to a reciprocating carriage, a yoke connected to said carriage and having a yielding movement at right angles to the motion of the carriage, and a T-head vertically adjustably secured to
90 the yoke and provided with laterally-adjustable plates having projections, the parts being combined, and arranged, and operating substantially as described.

5. In a vehicle driven by an endless band, and as a means for changing the direction of
95 and regulating the tension of the same, an adjustable frame carrying a pair of idlers, in combination with a cross-head to embrace a pair of parallel rods to guide the frame in its
100 movements, and a spring-clamp spanning one of said rods and regulated by a set-screw to hold the frame in its adjusted position.

In testimony whereof I affix my signature in presence of two witnesses.

PETER ELYEA MCINTOSH.

Witnesses:

WM. D. FRENCH,
J. M. HAMBLIN.