

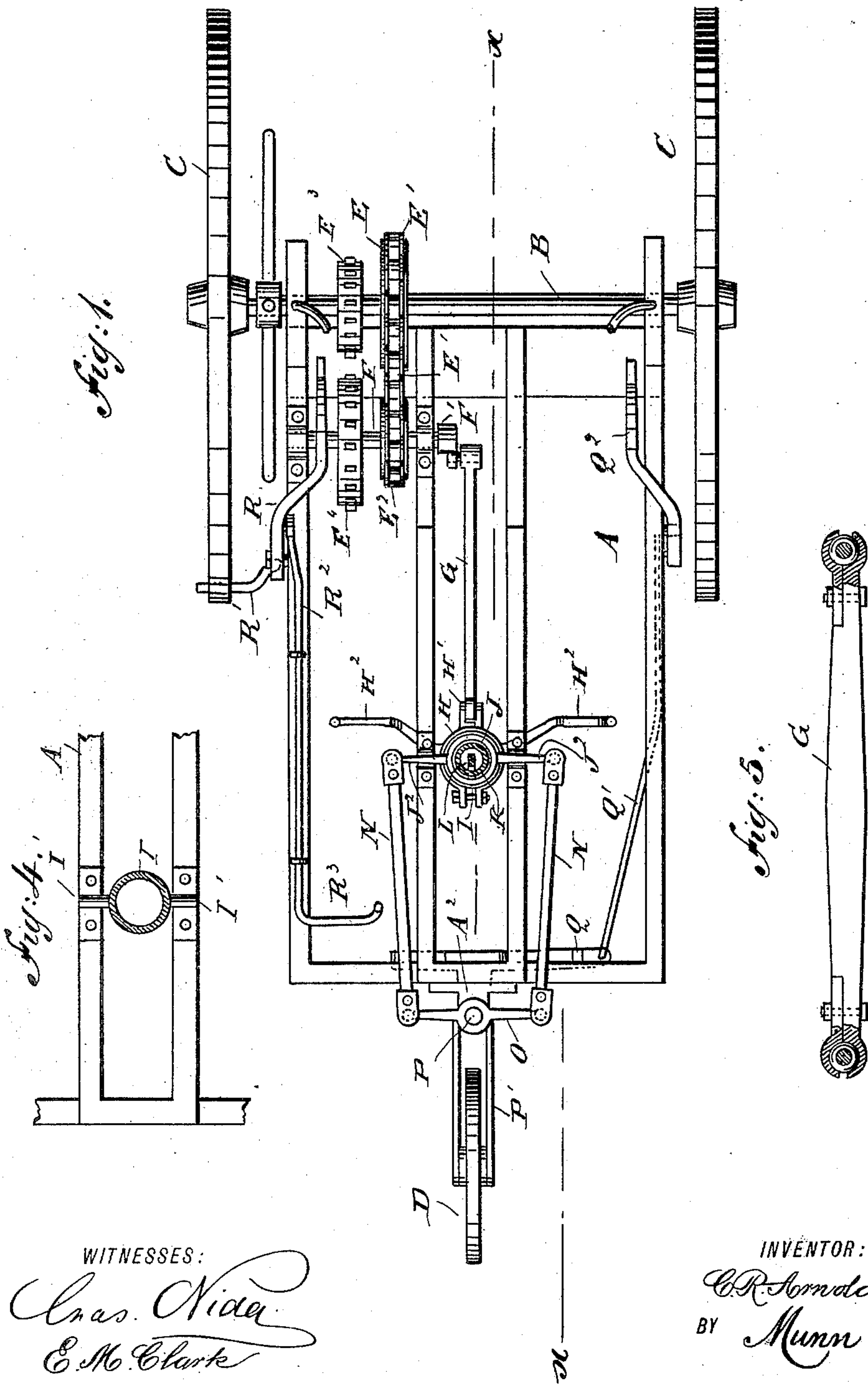
(No Model.)

2 Sheets—Sheet 1.

C. R. ARNOLD.
TRICYCLE.

No. 474,279.

Patented May 3, 1892.



WITNESSES:

Chas. Nida
E. M. Clarke

INVENTOR:

C. R. Arnold
BY *Munn & Co*

ATTORNEYS

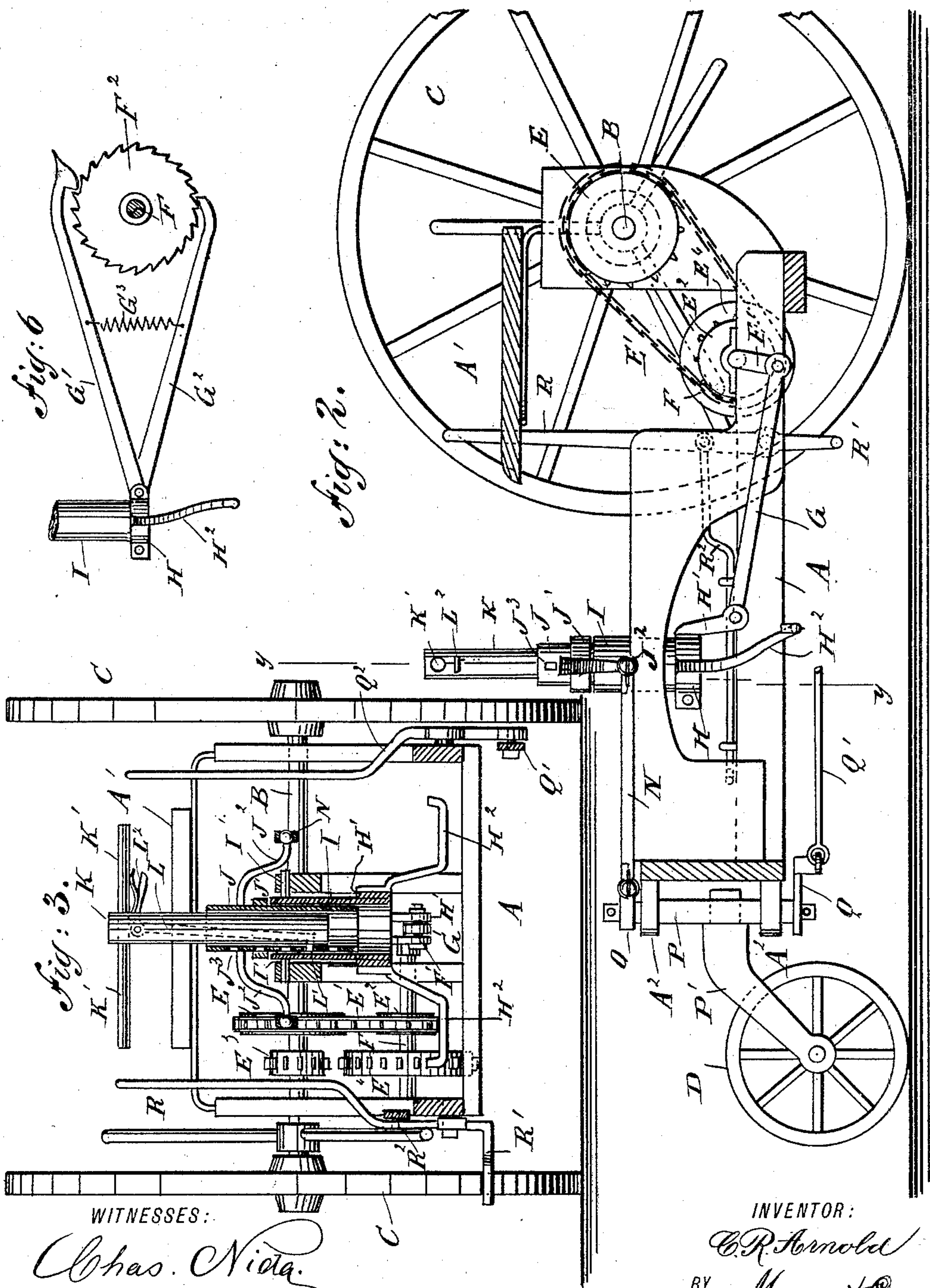
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UNITED STATES PATENT OFFICE.

CLARENCE R. ARNOLD, OF WELLSVILLE, OHIO, ASSIGNOR TO HELEN M. ARNOLD, OF SAME PLACE.

TRICYCLE.

SPECIFICATION forming part of Letters Patent No. 474,279, dated May 3, 1892.

Application filed July 23, 1890. Renewed March 14, 1892. Serial No. 424,837. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE R. ARNOLD, of Wellsville, in the county of Columbiana and State of Ohio, have invented a new and Improved Tricycle, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved tricycle which is simple and durable in construction, can be readily propelled by both hands and feet, and steered and braked either by hand or foot.

The invention consists of certain parts and details and combinations of the same, as will be hereinafter fully described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improvement with parts in section. Fig. 2 is a vertical section of the improvement on the line $x x$ of Fig. 1. Fig. 3 is a transverse section of the same on the line $y y$ of Fig. 2. Fig. 4 is a plan view of part of the main frame and the hollow post shown in section. Fig. 5 is a side elevation of the pitman with parts in section, and Fig. 6 is a side elevation of a modified form of part of the improvement.

The improved tricycle is provided with a suitably-constructed frame A, mounted at its rear end on the axle B, carrying the rear drive-wheels C, while the front end of the main frame A is supported on a steering or guide wheel D. On the axle B is secured a sprocket-wheel E, over which passes a sprocket-chain E', also passing over a sprocket-wheel E², secured on a short shaft F, mounted to turn in suitable bearings in one side of the main frame A.

On the inner end of the short shaft F is formed or secured a crank-arm F', pivotally connected by a pitman G with an arm H', formed on a clamping-collar H, adapted to be secured on the lower end of a hollow post I, having transversely-extending trunnions I', mounted to turn in suitable bearings in the main frame A, as is plainly shown in Fig. 4. The clamping-collar H is preferably clamped by means of a set-screw on the post I, and from the sides of the said clamping-collar ex-

tend outward and downward arms H², adapted to be engaged by the feet of the operator seated on the seat A', arranged on the main frame A above and in front of the axle B.

In the post I is mounted to turn a sleeve J, provided with a collar J' resting on the upper edge of the post I, and permitting the said sleeve to turn. From the sides of the latter extend downwardly and outwardly arms J², connected with the steering-wheel D in the manner hereinafter more fully described.

In the sleeve J is held vertically adjustable a post K, carrying on its upper end handles K', extending transversely and adapted to be taken hold of by the hands of the operator seated on the seat A'. The post K is held in place on the sleeve J by means of a lever L, fulcrumed in the post and provided on its lower end with a projection L', adapted to engage one of a series of vertically-arranged apertures J³, formed in the sleeve J. (See Fig. 3.)

The upper end of the lever L is provided with a handle L², extending outwardly under one of the handles K', so as to be within convenient reach of the operator to permit the latter to raise or lower the post K in the sleeve J, as desired. Ordinarily the post K is locked in place on the sleeve J, so that the operator can either turn the said sleeve whenever desired or can move the post K forward and backward, the trunnions I' being the fulcrum.

The arms J² previously mentioned are pivotally connected by pitmen N with an arm O, secured on the upper end of a shaft P, mounted to turn in suitable bearings A², arranged on the front end of the main frame A. On this vertically-arranged shaft P is secured the forked arm P', in which the guide or steering wheel D is journaled. On the lower end of this shaft P is secured an arm Q, pivotally connected by a link Q' with a lever Q², arranged in an upright position and fulcrumed on one side of the main frame A, so that the upper end of the said lever is within convenient reach of the operator seated on the seat A'. On the other side of the main frame A is arranged a similar lever R, provided with a transversely-extending arm R', carrying a brake-shoe for braking one of the rear wheels

C. The lever R is also pivotally connected with a bar R², mounted to slide longitudinally in suitable bearings on one side of the main frame A. (See Fig. 1.) Near the front end of the said bar R² is arranged an inwardly-extending foot-piece R³, adapted to be engaged by one of the operator's feet in order to manipulate the brake-arm R' in order to brake the rear wheel C by the operator's foot whenever desired.

The speed of the tricycle may be increased by changing the relative sizes of the sprocket-wheels E and E². As shown in Fig. 1, an additional set of sprocket-wheels E³ and E⁴ may be secured on the axle E and the shaft F, respectively, the sprocket-wheel E³ being about in proportion to the sprocket-wheel E², while the sprocket-wheel E⁴ is the same size as the sprocket-wheel E³, so that the sprocket-chain E' can be used on either set of the sprocket-wheels to change the speed of the tricycle whenever desired.

The operation is as follows: The operator seats himself on the seat A'. He places his feet on the foot-pieces H² and the hands on the handles K'. By now pressing the foot-pieces H² forward with his feet and drawing rearward on the handles K' the hollow post I swings on its trunnions I', so that the arm H' swings with it, and by the connection of the pitman G with the crank-arm F' the shaft F is turned. The rotary motion of the shaft F is transmitted by the sets of sprocket-wheels and the sprocket-chain E' to the axle B, whereby the wheels C are turned and the tricycle propelled forward. When the operator desires to steer the wheel D, he may accomplish this by turning the post K by the hands operating on the handles K', so that the arms J², the pitmen N, and the arm O cause a turning of the shaft P, whereby the wheel D is turned to the right or left and the direction of the tricycle changed. Instead of steering the wheel D by the hands from the post K the operator may manipulate the lever Q² by the left hand, whereby the shaft P is also turned, changing the position of the guide-wheel D. The braking of the right-hand wheel C will be accomplished by the operator manipulating the lever R by one hand or by manipulating with the right foot the bar R², so that the brake-shoe is applied on the right-hand drive-wheel C.

Instead of connecting the short shaft F with the hollow post I by crank and pitman, as described, a ratchet mechanism such as shown in Fig. 6 may be substituted. The shaft F for this purpose carries a ratchet-wheel F², engaged on opposite sides by two pawls G' G², pivotally connected with the said post I and held in contact with the ratchet-wheel by suitable springs. In this device a dead-center is avoided. Thus it will be seen that the tricycle is readily propelled by both hands and feet and can be steered and braked with either hand or foot.

Having thus fully described my invention,

I claim as new and desire to secure by Letters Patent—

1. In a tricycle, the combination, with a tubular rocking post connected with the drive-wheels, of an extensible post turning in the tubular post, connected with the steering-wheel to operate it, and provided with operating-handles for the twofold purpose of steering and imparting a rocking motion to the tubular shaft, substantially as set forth.

2. In a tricycle, the rocking hollow post having trunnions and connected with the drive-wheels, in combination with a sleeve free to rotate in the said post, provided with a vertical series of apertures, and having two arms projecting from its sides downward to points in line with said trunnions, pitmen connecting the lower ends of said arms with the steering-bar, and a handle-post vertically movable in said sleeve and provided with a spring-actuated locking-lever having a handle at its upper end adjacent to one of the post-handles and a projection at its lower end to enter any one of the sleeve-apertures.

3. In a tricycle, the combination, with a hollow post mounted to swing, of a sleeve mounted to turn in the said hollow post and connected with the steering-wheel to operate it and a second post held vertically adjustable in the said sleeve, adapted to turn it, and provided with handles whereby the posts may be rocked or the sleeve turned to guide the steering-wheel, substantially as shown and described.

4. In a tricycle, the combination, with a hollow post mounted to swing, of a sleeve mounted to turn in the said hollow post and connected with the steering-wheel, a second post held vertically adjustable in the said sleeve, adapted to turn it, and provided with handles, and means, substantially as shown and described, for connecting the said sleeve with the steering-wheel, as set forth.

5. In a tricycle, the combination, with the main frame, an axle journaled in the said frame and carrying driving-wheels, and a guide-wheel held in the said frame, of a shaft mounted to turn in the said main frame and adapted to rotate the said main axle, a crank-arm held on the said shaft, a pitman pivotally connected with the said crank-arm, a post having trunnions journaled in the said main frame, the said post being connected at its lower end with the said pitman, a sleeve turning in and rocking with the hollow post, operating connections between the sleeve and the guide-wheel, and means, substantially as shown and described, for swinging the said post forward and backward by hand and foot, substantially as set forth.

6. In a tricycle, the combination, with the main frame, an axle journaled in the said frame and carrying driving-wheels, and a guide-wheel held in the said frame, of a shaft mounted to turn in the said main frame and adapted to rotate the said main axle, a crank-arm held on the said shaft, a pitman pivot-

ally connected with the said crank-arm, a
post having trunnions journaled in the said
main frame, the said post being connected at
its lower end with the said pitman, foot-pieces
5 projecting from the lower end of the said
post, a sleeve mounted to turn in the said
post and connected with the said steering-
wheel to steer the latter, and a vertically-ad-
justable post held in the said sleeve and pro-
10 vided with handles for either imparting
swinging motion to the said first-named post
or for turning the said sleeve to actuate the
guide-wheel, substantially as shown and de-
scribed.

7. In a tricycle, the combination, with a 15
main frame, an axle journaled in the said
frame, and main drive-wheels, of a lever ful-
crumed on one side of the said main frame, a
brake-arm extending from the said lever and
adapted to engage one of the said drive- 20
wheels, and a bar fitted to slide longitudi-
nally on the said main frame, provided with
a foot-piece, substantially as shown and de-
scribed.

CLARENCE R. ARNOLD.

Witnesses:

HOMER C. WELLS,
JAMES INNES MONROE.