R. GORNALL.
Pedomotor.

No. 222,034. Patented Nov. 25, 1879.

Fig. 1.

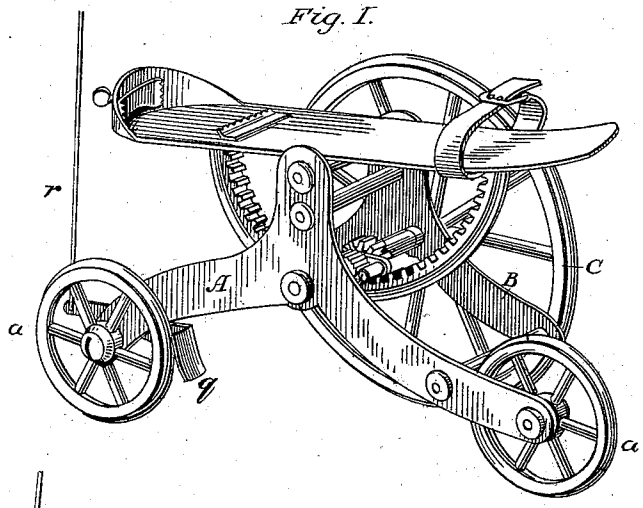


Fig. 2.

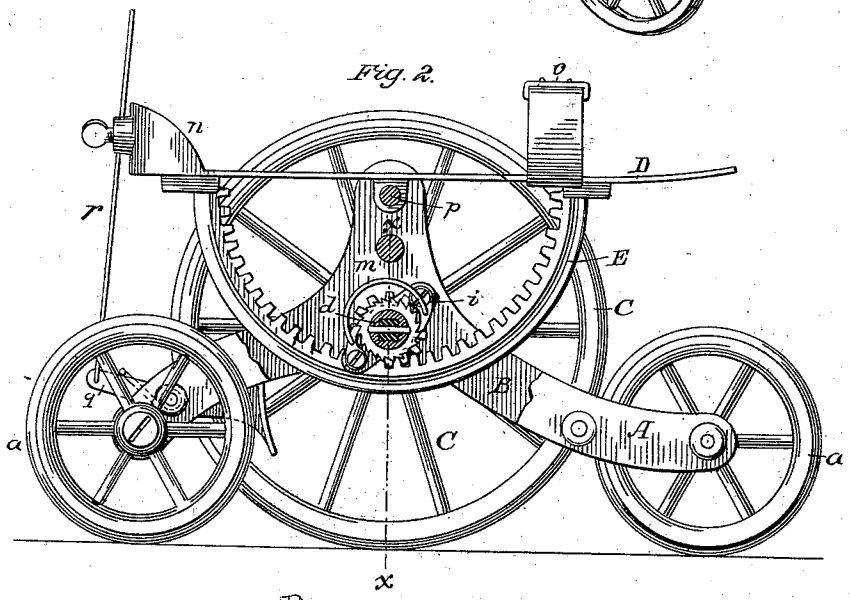
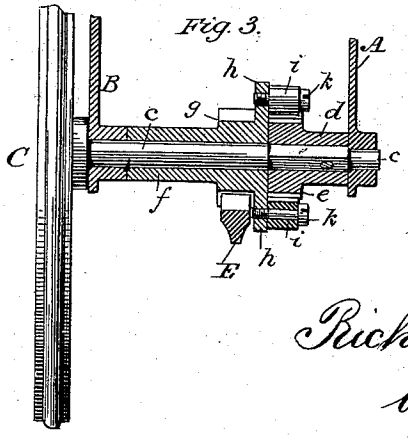


Fig. 3.



Attest:
C. Clarence Poole
Warren Scely.

Inventor:
Richard Gornall
by Ellis Spear
Atty

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

RICHARD GORNALL, OF BALTIMORE, MARYLAND, ASSIGNOR TO HIMSELF AND THOMAS TANSLEY, JR., OF SAME PLACE.

IMPROVEMENT IN PEDO-MOTORS.

Specification forming part of Letters Patent No. **222,034**, dated November 25, 1879; application filed April 21, 1879.

To all whom it may concern:

Be it known that I, RICHARD GORNALL, of Baltimore, Maryland, have invented an Improvement in Devices for Accelerating the Motion of Walking, of which the following is a specification.

My invention is a device for accelerating the motion of walking; and it consists, essentially, of a frame supported upon small wheels, and supporting a foot-rest which is movable upon the frame, and connected to one or more of the wheels by intermediate gearing, whereby the natural motion of the foot, as in walking, imparts rotary motion to one or more of the wheels.

It is most nearly related to that class of devices known as roller-skates, resembling them in this, that the feet of the user rests upon plates fitted thereto, and he is carried upon the wheels which support the said plates; but it differs from that class of devices in this essential respect, that in my device the ordinary motion of the ankles is used to impart the rocking motion to the plate, which directly supports the feet, which rocking motion is utilized to rotate the supporting-wheels, (one or more of them,) thereby converting them into driving-wheels and propelling the user without the ordinary pushing motion necessary for locomotion upon any kind of skate.

In the drawings which accompany this specification I have illustrated the best means known to me for carrying my invention into practical effect.

In these drawings, Figure 1 is a perspective view of my apparatus. Fig. 2 is a vertical longitudinal section, and Fig. 3 a transverse section on line *x x* of Fig. 2.

In this embodiment of my invention I make a strong metallic frame, (represented at A B.) Upon the ends of the side piece, A, are pivoted suitable supporting-wheels *a a*, which I make as light as is consistent with proper strength, and preferably covered upon the periphery with rubber or some equivalent material for giving slight elasticity. These wheels I prefer to mount loosely, and use them simply as supporting-wheels, and, being used simply for that purpose, they may be made of very small diameter.

On the side opposite to these wheels, and outside of the frame B, I place another larger wheel, C, which, in the construction shown, is intended to be used as the driving-wheel. This wheel C is fixed upon the end of the shaft *c*, which has its bearing in the side frames, A B.

Inside of the frame, and next to the side piece, A, is a sleeve, *d*, which rotates with the shaft *c*, being fixed thereto in any suitable manner. This sleeve carries a ratchet-wheel, *e*, upon the inner end. The other part of the shaft is covered by a sleeve, *f*, which is loose upon the shaft, and may be revolved independently of it. The end of this sleeve, next to the sleeve *d*, is provided with a pinion, *g*, and is also provided with radial arms *h h*, which project outside of the periphery of the ratchet *e*, and carry pawls *i i*, attached to the said radial arms by screws *k k*. These pawls are held in contact with the ratchet-wheel *e* by means of a spring, *m*. The pawls are duplicated, simply for greater security.

Upon the upper part of the frame A B is pivoted a foot-plate, D, fitted to the foot of the user and resembling the ordinary plates used for that purpose in skates, and, like such skates, provided with devices, *n o*, for binding the foot of the user firmly thereto. This plate D is securely pivoted upon a shaft, *p*, upon which it may tilt freely.

It is provided with a segment-rack, E, secured firmly to the plate D at both ends, and at right angles to the surface of the said plate. It is so arranged in relation to the pinion *g* as to be accurately in gear therewith, and to impart to it rotary motion whenever the foot-piece D is oscillated.

It will be apparent, from an inspection of Fig. 2, that when the forward part of the plate D is depressed, and with it the forward part of the segment-rack E, the motion imparted to the pinion *g* and radial arms *h* will, through the pawls *i i* and ratchet *e*, rotate the sleeve *d*, and with it the wheel C, thus converting the supporting-wheel C into a drive-wheel and propelling the user forward over the ground. The plate D is so adjusted upon its pivotal bearing *p* that the foot of the user shall rest equally and comfortably thereupon, and the segment-rack is adapted to the ordinary mo-

tion of the foot upon the ankle in the act of walking.

As the whole weight of the body comes upon the plate D, any part of that weight which the user may desire may be thrown upon the forward part of the plate D, for the purpose of imparting rotary motion to the drive-wheel. At the same time, if this motion of the feet be arrested and the plate D held still, as may be desirable in going over an inclined surface, the arrangement of the pawls permits the drive-wheel to turn freely as the user goes forward, and in that case all the wheels become simply supporting-wheels.

It will be observed that the motion of the foot necessary to impart a rotary motion to the wheel C is exactly that motion exerted in the ordinary act of walking, as in that act the person walking rises upon the forward part of the foot and carries the weight of the body for an instant upon that part. The same muscular effort exerted by the person using my apparatus will depress the forward part of the plate D, so that the user is propelled by my apparatus with great rapidity by the same muscular exertion to which he is accustomed in walking, and it is in the construction which adapts the apparatus to this particular action of the foot that the essential principle of my invention relates.

It is plain that motion may be conveyed from the pivoted plate D to one or more of the supporting-wheels by means of other devices than the segment-rack and pinion, although I believe these to be the simplest and most efficient for the purpose.

The frame A B may be connected securely by suitable transverse bars, and it may be made of any material suited to the purpose, the construction in these respects and the material to be used being well known to those skilled in the art of metal-working.

The wheel should also have its periphery covered with rubber or some equivalent substances. These wheels may be made with broad or narrow treads, to suit the different kind of surface of the roads on which they are liable to be used.

Upon one of the wheels I have provided a brake, *q*, held out of contact with the wheel by a spring, but capable of being applied to the wheel by means of a wire or cord, *r*, the upper end of which may be provided with a hook or loop for attachment to some part of the clothing of the user, so as to be readily within his reach.

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

1. The improved device consisting of an oscillating foot-supporting plate, mounted upon wheels, and adapted to impart motion to one or more of the said wheels by the motion of the foot, as set forth.

2. The pivoted plate D, mounted upon a frame which moves upon supporting-wheels, said plate being connected to the shaft of one or more of the wheels by intermediate gear, whereby the depression of the forward part of the plate propels the device, as set forth.

3. The supporting-plate D, in combination with the segment-rack, the pinion upon the sleeve of the journal, and the fixed sleeve and connecting-pawl, as set forth.

4. The combination of the supporting-wheels *a a*, the drive-wheel C, the plate D, and the intermediate mechanism for transmitting motion from the said plate, as set forth.

5. The combination of the brake *q* and the cord or wire with *r* the wheel *a*, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

RICHARD GORNALL.

Witnesses:

CHAS. W. HANDY,

FRANK L. MIDDLETON.