(No Model.)

C. H. ROBERTS.

TRACTION WHEEL.

No. 357,034. Patented Feb. 1, 1887.

Fig. 1.

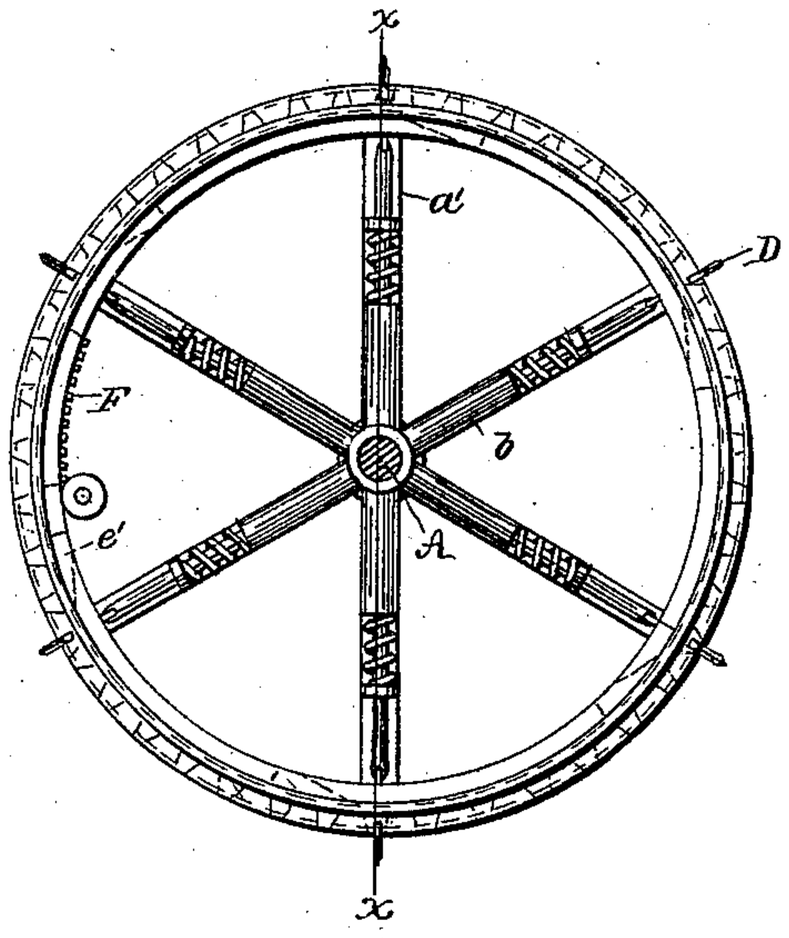


Fig. 2.

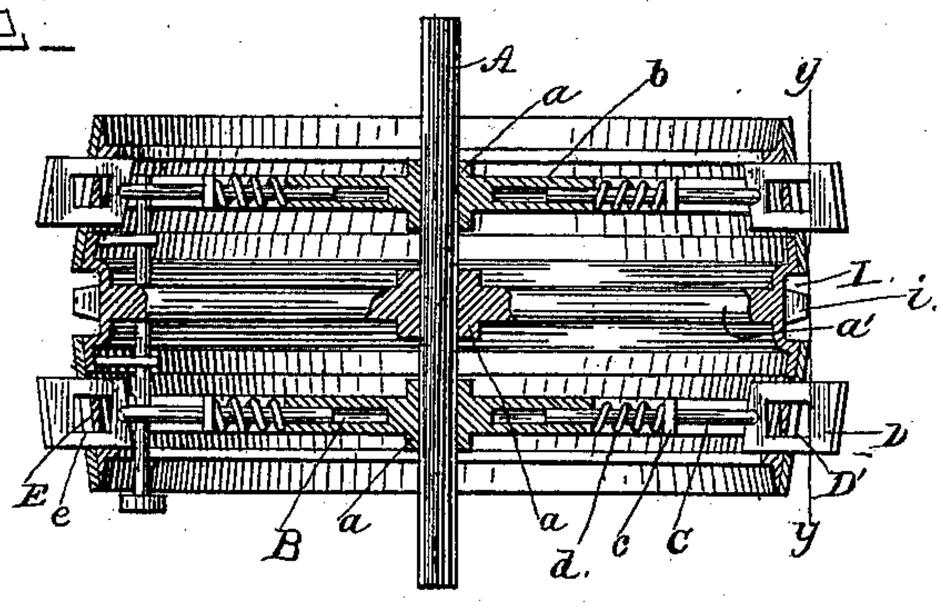


Fig. 3.

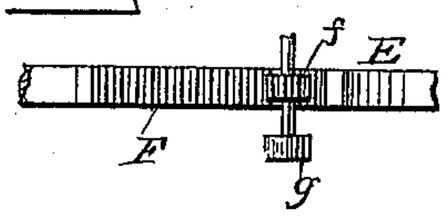


Fig. 4.

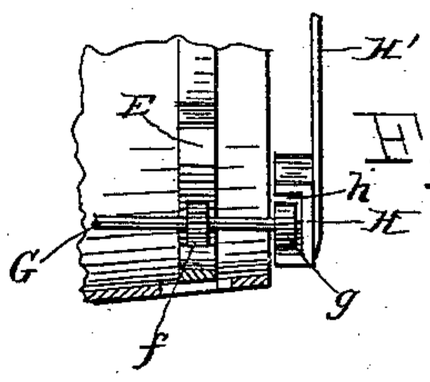
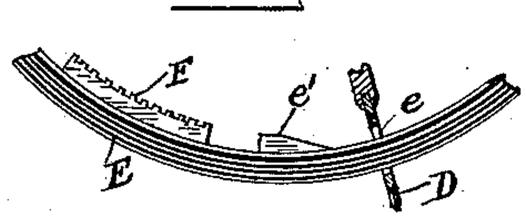


Fig. 5.



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES H. ROBERTS, OF WASHINGTON, INDIANA.

TRACTION-WHEEL.

SPECIFICATION forming part of Letters Patent No. 357,034, dated February 1, 1887.

Application filed October 21, 1886. Serial No. 216,896. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. ROBERTS, a citizen of the United States, residing at Washington, in the county of Davies and State of Indiana, have invented certain new and useful Improvements in Traction-Wheels; 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.

My invention has relation to traction-wheels for road-engines; and the object of the invention is to provide a wheel that will be simple in construction and suitable for use on hard or macadamized roads as well as soft, muddy, or marshy ground; and to these ends the novelty consists in the construction of the same, as will be hereinafter more fully described, and particularly pointed out in the claims.

In the accompanying drawings the same letters of reference indicate like parts of the invention.

Figure 1 is a side elevation of my improved traction-wheel. Fig. 2 is a cross-section on the line *x x* of Fig. 1. Fig. 3 is a detail of the pinion and rack for withdrawing the spades from the periphery of the wheel; and Fig. 4 is a detail of the friction-roller and rack for operating the pinion above mentioned. Fig. 5 is a detail view showing the wedge which withdraws the spade from the periphery of the wheel.

A is the shaft, the outer ends of which are secured in any suitable manner in the framework, (not shown,) and upon this shaft freely revolve the hubs *a a a*, said hubs being provided with a series of cast or wrought iron arms, *a' b*, the arms *a'* being solid extend to the center of the periphery of the wheel and support it, while the arms *b* extend only about halfway to the periphery, and each arm is provided with a central radial socket, B, in which works one end of the rod C, the other end of which is provided with a spade, D, projecting through a slot, D', in the periphery of the wheel.

Secured to the rod C is a collar, *c*, and between the collar and the outer end of the arm *b* is a spiral spring, *d*, which tends to keep the spade D normally projected.

E is an annular ring or collar located inside of the wheel and passing through the recesses *e* in the spades. This ring is provided with a series of wedges or inclined planes, *e'*, (shown in dotted lines in Fig. 1,) and F is a rack on said ring in which meshes a pinion, *f*, so that by turning the pinion it will engage the rack and move the ring to the right or left, as desired.

The outer end of the shaft G, upon which the pinion *f* is mounted, is provided with a friction-wheel, *g*, which, as the wheel revolves, passes between a recess, *h*, in a shoe, H, secured to a depending arm, H', from the frame of the machine. This arm has a slight vertical movement, and the recess *h* in the shoe is a little longer than the diameter of the friction-wheel *g*, so that if the shoe be so adjusted that the wheel *g* will pass between the recess *h* without touching it the friction-wheel will not be affected; but if the shoe be raised so that the periphery of the wheel *g* comes in contact with the lower side of the recess *h* the wheel *g*, shaft G, and pinion *f* will be rotated, and through the medium of the rack F the ring will be moved forward, so that the wedges *e'* will be forced into the recesses *e* of the spades D and withdraw them inwardly, so that their outer edges are comparatively flush with the outside diameter of the wheel proper.

Of course it will readily be seen that if the shoe H be lowered a reverse action will take place—that is, the wheel *g* will bind on the upper side of the recess in the shoe, and the shaft, rack, pinion, and ring move in the opposite direction to withdraw the wedges from the spades and the springs *d* force them outward.

A circumferential recess, I, extends around the outside of the wheel proper at the point of its greatest diameter, and in this recess is secured a series of teeth, *i*, which form a sprocket-wheel, around which a chain (not shown) passes to turn the wheel. By this construction it will be seen that the driving-power is applied to the wheel at its greatest effective point—viz., the greatest diameter.

A very important feature of my invention is the double conical shape of the periphery, the rim tapering inwardly from the center both ways; and by referring to the line *y y* of

Fig. 2, which may represent the surface of the ground, it will be seen that only a small surface of rim is in contact with the firm or solid ground, while, as the ground becomes softer, the wheel will sink deeper and increase its bearing-surface, thus practically automatically adjusting itself to the nature of the ground the machine is being used on.

I have not herein shown or described any particular form of traction-engine to which this peculiar form is adapted, as it is evident that it may be used on almost any form of traction, road, or farm engine; and by reference to my application filed October 21, 1886, Serial No. 216,898, a complete machine will be seen in which this wheel is used.

Having thus described my invention, what I claim is—

1. A traction-wheel having its largest diameter provided with sprocket-teeth and having its rim tapering toward the axle on both sides, as set forth.

2. A traction-wheel provided with a series of movable spades, in combination with an annular ring having a series of wedges and means for operating the ring, substantially as set forth.

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

CHARLES H. ROBERTS.

Witnesses:
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