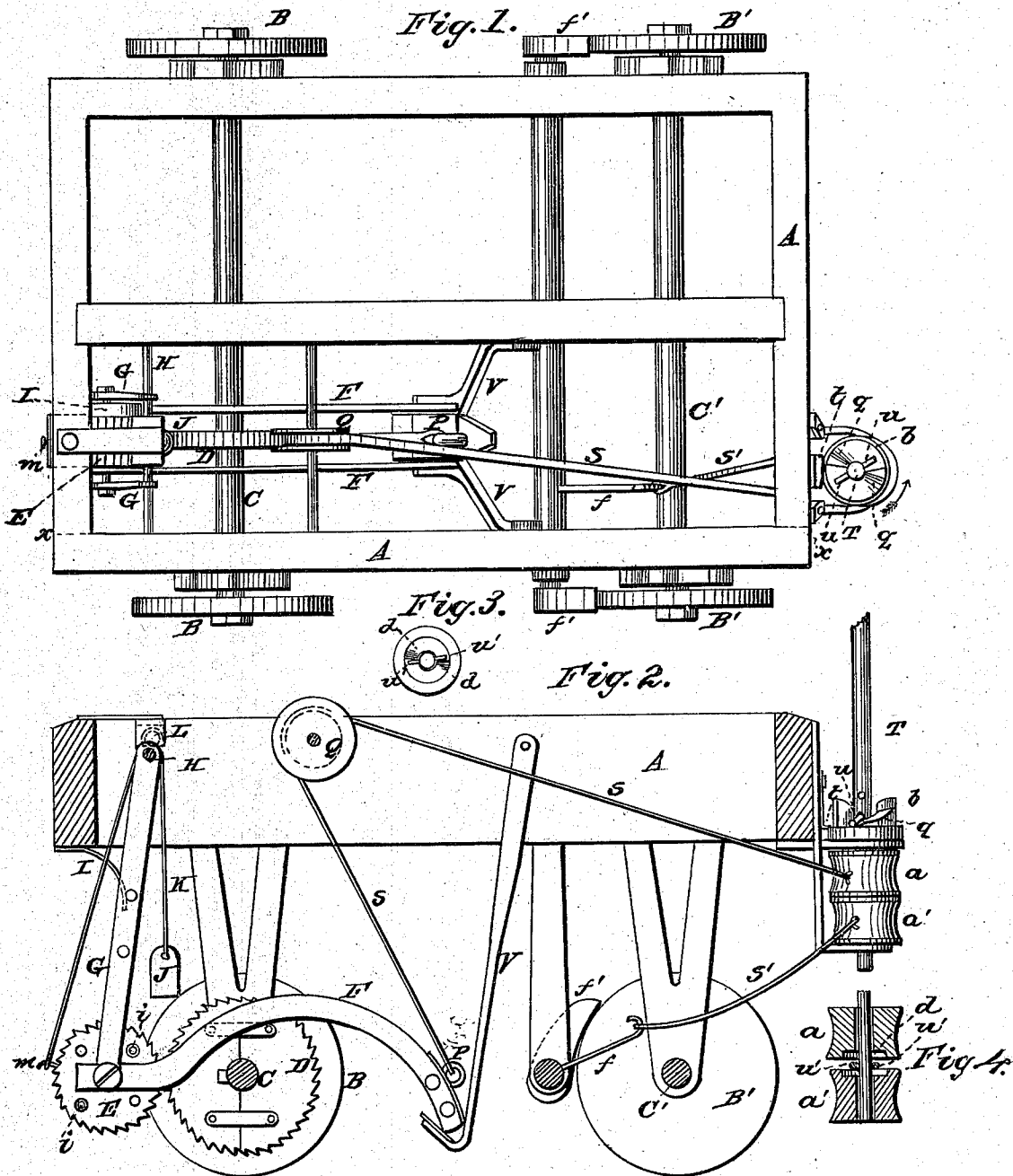


P. RHOADS.

Car Starter.

No. 112,494.

Patented March 7, 1871.



Witnesses:
Thos. J. Lovett
Geo. C. Lambright

Inventor:
Philip Rhoads
By attorney J. H. Phillips

UNITED STATES PATENT OFFICE.

PHILIP RHOADS, OF CARLISLE, PENNSYLVANIA.

IMPROVEMENT IN DEVICES FOR STARTING AND STOPPING CARS.

Specification forming part of Letters Patent No. **112,494**, dated March 7, 1871.

Be it known that I, PHILIP RHOADS, of the borough of Carlisle, in the county of Cumberland and State of Pennsylvania, have invented a new and Improved Device for Starting and Stopping Railroad-Cars; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, in which—

Figure 1 represents a top or plan view; Fig. 2, a longitudinal vertical section at *x x*, Fig. 1; Fig. 3, a top view of the chain-drum *a'*, showing the inclined-faced stud, with the brake-shaft and pins in position to work said drum; Fig. 4, a vertical section through the center of the drums *a a'*, which are slightly separated to show the pins *u' u'* in their progress upward or downward into the inclined-faced studs, according to the right or left action of the brake-shaft.

The invention consists in starting and stopping cars by means of a brake-shaft passing through cylinders or drums, each disconnected and acting independently of the other; and by the right or left action of said shaft it operates, respectively, either upon the car-starter or car-brake by means of chains or ropes attached to the same and operated upon by their respective drums.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents the car-truck; *B B'*, the wheels; *C C'*, the axles. Upon the axle *C* is firmly secured a large ratchet-wheel, *D*, constructed in two pieces, so that it can be placed on the axle without removing the car-wheel, it being bolted and keyed in position, and is operated upon by a small ratchet-wheel, *E*, attached to the lever *F*, when it is designed to start the car.

The ratchet-wheel *E* is supported in place by hangers *G*, suspended from rod *H* in the truck-frame, and so slanted as to swing the small ratchet-wheel into gear with the larger one. This ratchet-wheel *E* is provided with four holes for the introduction of pins *i*, two of which are placed diagonally, one above and the other below the lever *F*, so that when one set of ratchets is worn out the pins *i* can be shifted into the other holes, allowing another

or new set of ratchet-teeth to be brought into gear with ratchet-wheel *D*.

The lever *F* is pivoted to the center of the small ratchet-wheel, upon the shaft of which it turns. From its peculiar form or shape, as said lever is raised from the guard *V*, as hereinafter described, its under and upper sides are brought into contact with the pins *i i*, forcing into gear the two ratchet-wheels, the whole forming a powerful leverage for starting cars, while, at the same time, owing to the peculiar construction of the small ratchet-wheel and its hangers, allowing them to ride back, and giving the driver time to throw the machine out of gear, there can be no clicking of ratchets while in gear.

I is a spring, bearing on the hangers *G*, to assist in keeping the wheels in gear. *J* is a weight, attached to chain or rope *K*, passing over pulley *L*, and connecting with the small ratchet-wheel at *m*, to return it to its place when out of gear. *F* is a swinging lever, which is operated by the chain or rope *S* attached to the weight *P* in the lever *F*. The chain *S* passes over the pulley *Q*, and is firmly secured to the upper chain-drum, *a*, and by its upward or downward motion gears or un gears the ratchet-wheels; *V*, the guard for the lever to rest on when not in use. *a a'* are chain-drums, and *b* the shifting-cylinder, through all of which the brake-shaft *T* passes. The brake-shaft has pins *u u* resting upon the shifting-cylinder *b*, and similar pins *u' u'* between the two drums *a a'*, which pins are made to operate the drums by being brought into contact with the inclined-faced studs *d*. The shifting-cylinder *b* is constructed with inclines *q q*, upon which the pins *u u* ride, raising or lowering the brake-shaft from one chain-drum to the other.

t is a small spring, which prevents the shifting-cylinder *b* from turning with the brake-shaft too freely.

The operation of the machine is as follows: By turning the brake-shaft in the direction of the arrow, Fig. 1, it is raised by means of the pins *u u* working on the inclines *q q* of the shifting-cylinder. The pins *u' u'* are brought into contact with the studs *d* on the under side of the drum *a*, said drum thus being turned and winding up the chain attached to the

swinging lever F, which will be elevated, bringing the small ratchet-wheel into gear and starting the car, which, when accomplished, the brake-shaft is allowed to drop into its original position, disengaging the two ratchets. By the reverse action of the brake-shaft the pins *u' u'* will be brought into contact with the studs *d* on the drum *a'*, which will revolve said drum and wind up the chain or rope attached to the brake-lever *f*, which works the brake *f'*, and thereby stop the car.

It will be seen that when the driver changes from the brake to the starting-machine the brake chain or rope *S'* will be released.

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

1. The pins *i*, arranged diagonally upon the ratchet-wheel E, and operating in reference to the swinging lever F, substantially as and for the purpose described.

2. The guard V, in combination with the swinging lever F, substantially as and for the purpose described.

3. The swinging lever F, the chain or rope S, in combination with the gear-wheels E and F and inclined hangers G, as and for the purpose herein described.

4. The two drums *a a'*, constructed as described, and arranged upon the brake-shaft of a car, one operating upon the car-starter and the other upon the car-brake, substantially as and for the purpose described.

5. The shifting-cylinder *b*, in combination with spring *t* and shaft T, as and for the purpose herein set forth.

PHILIP RHOADS.

Witnesses:

WM. D. WERT,
H. B. CORNELIUS.