

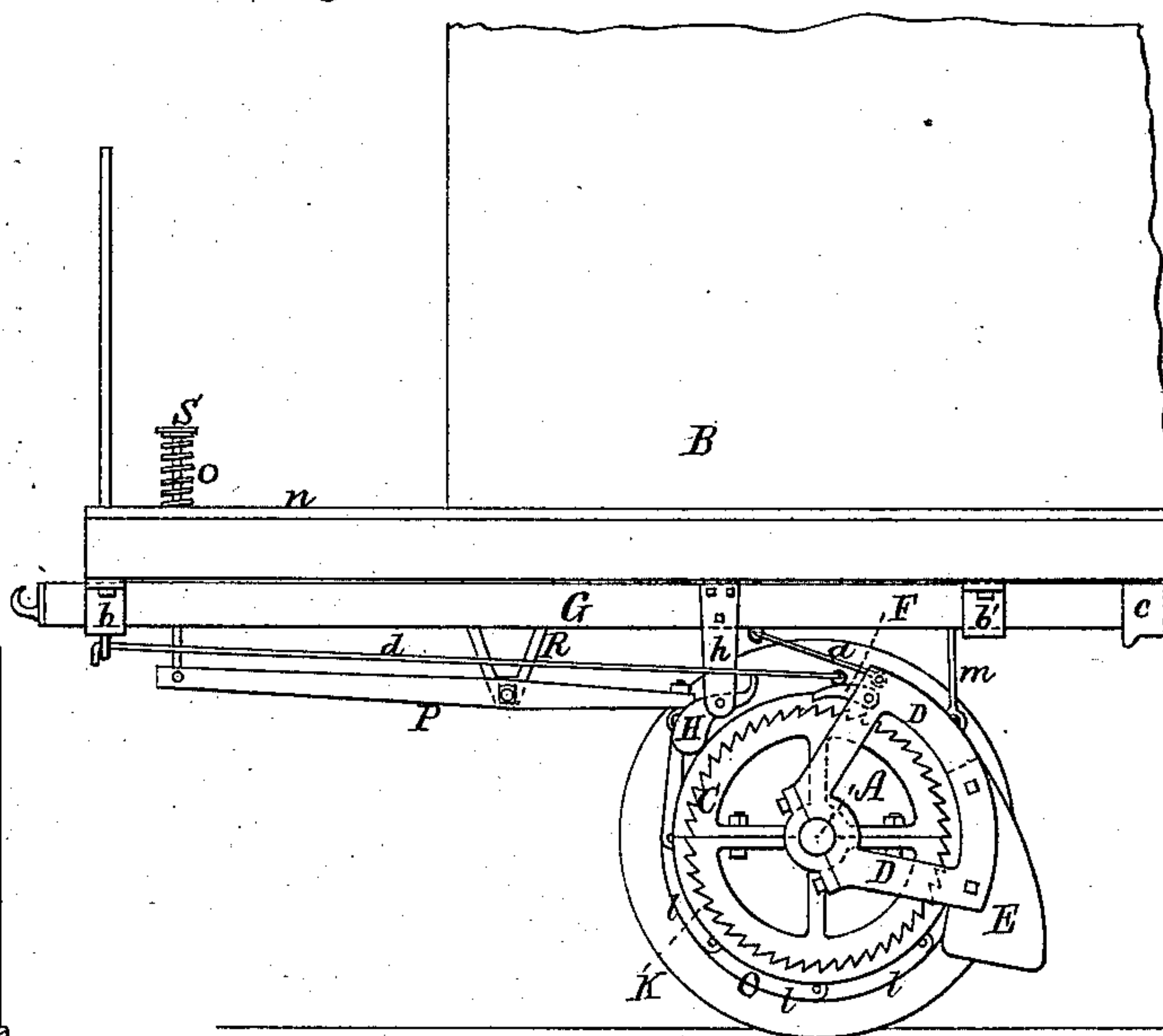
(No Model.)

H. P. TITUS.  
CAR STARTER.

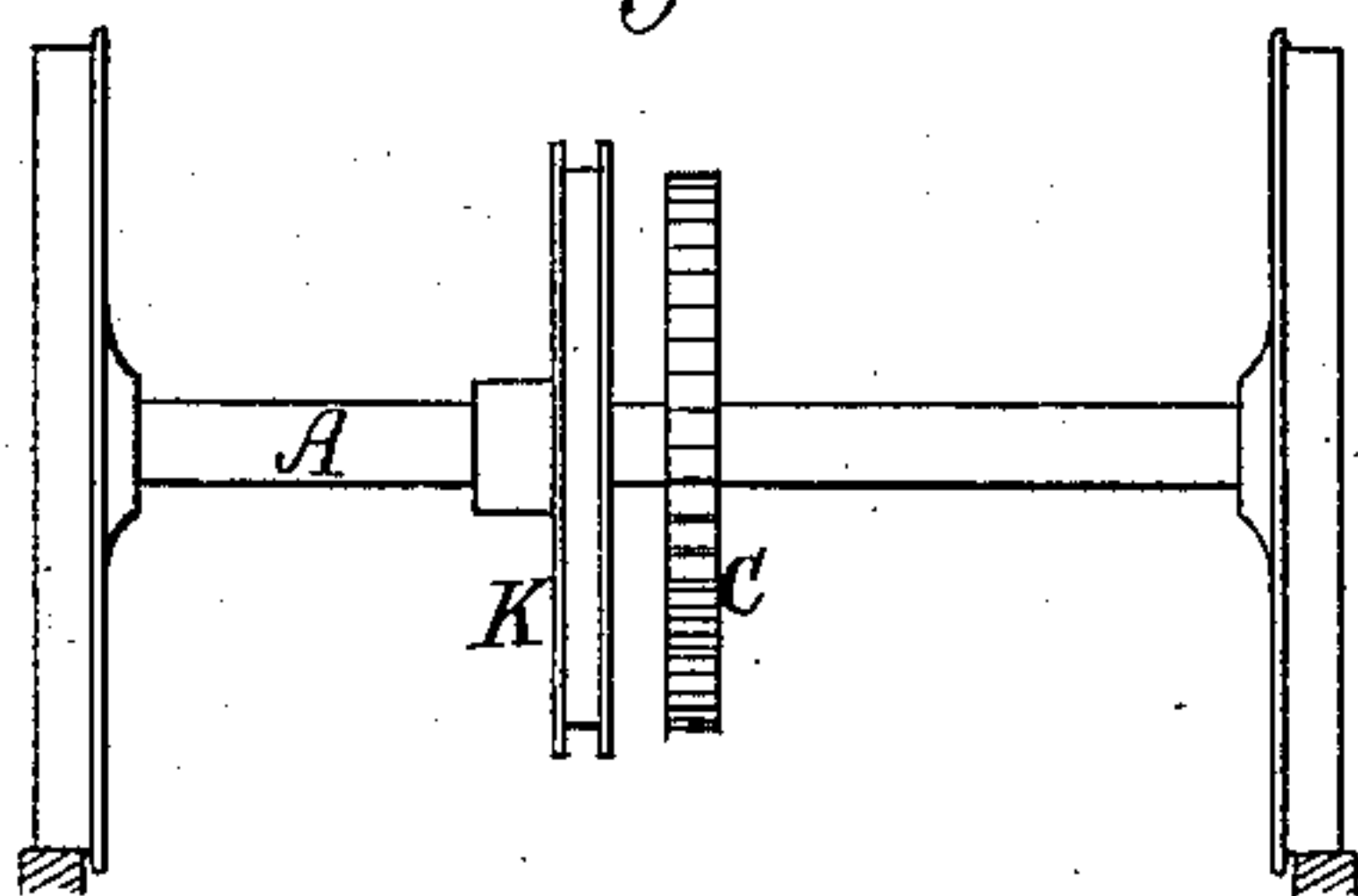
No. 373,208.

Patented Nov. 15, 1887.

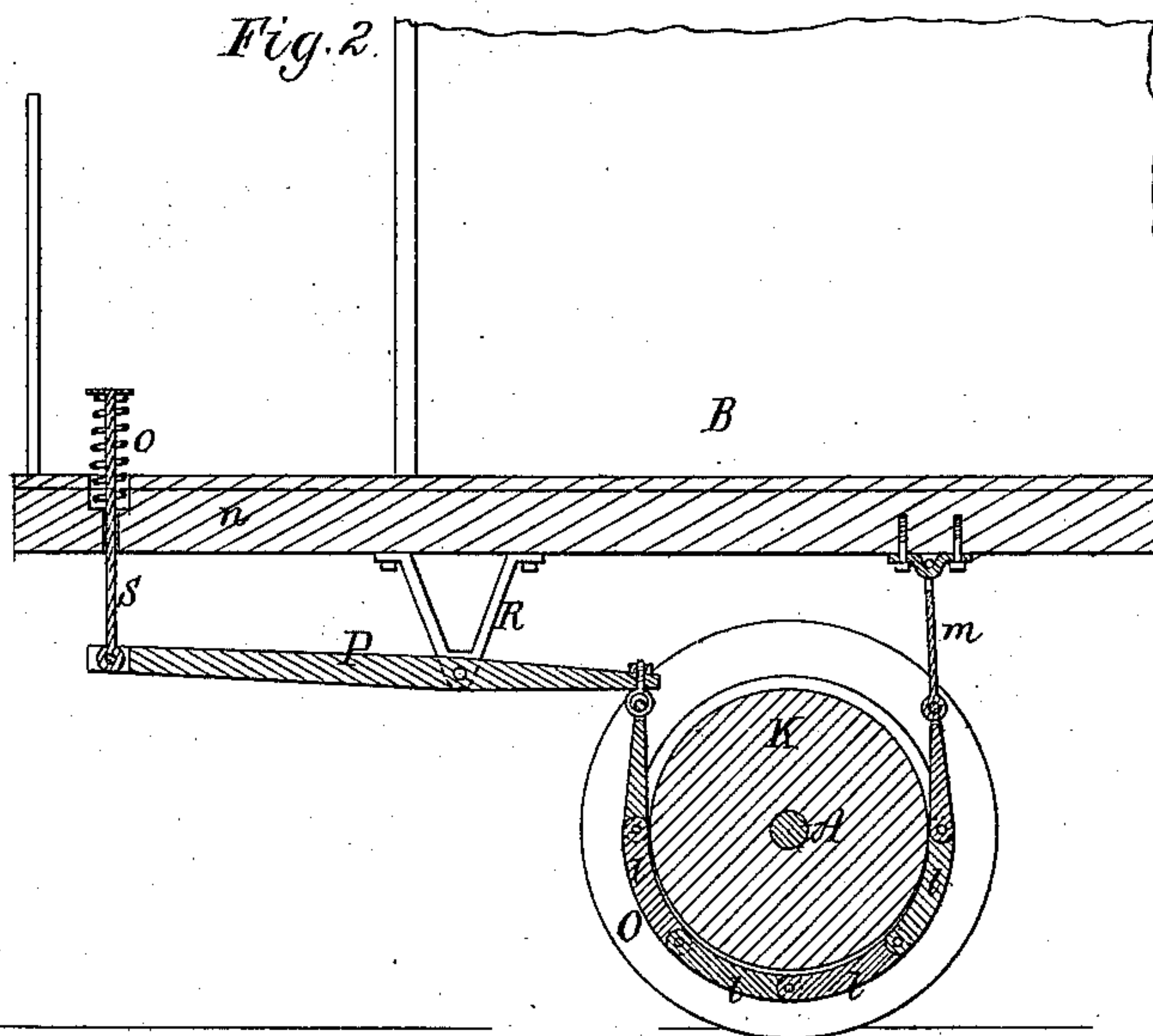
*Fig. 1.*



*Fig. 3.*



*Fig. 2.*



Witnesses.

S. N. Piper.

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Inventor.

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# UNITED STATES PATENT OFFICE.

HERMAN PRESCOTT TITUS, OF LISBON, ASSIGNOR, BY MESNE ASSIGNMENTS,  
TO HIMSELF, AND JAMES C. MITCHELL, OF LANCASTER, NEW HAMPSHIRE.

## CAR-STARTER.

SPECIFICATION forming part of Letters Patent No. 373,208, dated November 15, 1887.

Application filed May 2, 1887. Serial No. 236,813. (No model.)

### *To all whom it may concern:*

Be it known that I, HERMAN PRESCOTT TITUS, of Lisbon, in the county of Grafton, of the State of New Hampshire, have invented  
5 a new and useful Improvement in Car-Starters; and I do hereby declare the same to be described in the following specification and represented in the accompanying drawings, in  
10 which a car provided with my invention is shown as having means of stopping or arresting it, (the said car,) the nature of my said invention being duly defined in the claim hereinafter presented.

Of the said drawings, Figure 1 is a side elevation, and Fig. 2 a longitudinal and vertical  
15 section, of my car-starter as applied to an axle and the body of a street or tram railway car, the front wheel of said axle being supposed to be removed in order to exhibit the parts between it and its fellow wheel. Fig. 3 is a view  
20 of the axle and its pair of wheels, together with the brake and starting-wheels of said axle.

This car-starter, in order to start a car, is not to be actuated by manual power applied  
25 to a lever, as represented and described in the United States Patent No. 356,491, dated January 25, 1887, and granted to James C. Mitchell, but is to be operated by the power for effecting the draft of the car on the railway-  
30 track, whether such power be animal or mechanical, my invention being specially intended for the relief of draft-animals from much of the strain usually experienced by them in starting a car from a state of rest on  
35 a street-railway.

In carrying out my invention I affix concentrically upon each axle A of the car, whose  
body is shown at B, a ratchet-wheel, C, alongside of or spanning which is a sector, D, to  
40 turn freely on the axle, such sector at its inner end being provided or having fixed to it a weight, E. There is pivoted to the sector at its front end a pawl, F, which is arranged directly over and is to engage with the ratchet-  
45 wheel while the starting of the car is being accomplished, this pawl under other circumstances being—by mechanism to be described—kept out of engagement with the ratchet-wheel, in order that, generally—while the car may be  
50 running on the track—there shall be no click-

ing or noise produced by the ratchet-wheel turning under and relatively to the pawl.

Above the pawl the sector is connected by a link, a, to a sliding draw-bar, G, to the front  
end of which the whiffletree-bar of the draft- 55 animals is to be hooked or connected. This bar G slides freely lengthwise of it in guides b b', projecting down from the car-body, while at the rear part of such bar there is an elastic  
60 bunter or stop, c, to arrest the forward movement of the bar relatively to the said body, which is effected by the bunter being drawn against the back guide, b'. Furthermore, there  
is a rod, d, jointed to the pawl and extended forward loosely through the guide b, or an eye 65  
extending down therefrom, such rod being hooked or bent downward at its outer end, as shown. Under this rod, and to bear against  
it, as represented, is a lever, H, which is ful-  
70 crumed in a bracket, h, extending down from the draw-bar, the front arm of such lever being heavier than the rear one, or weighted  
sufficiently to cause the rear one—on the draw-  
bar being drawn forward to its foremost position—to force upward the rod d, and with it 75  
the pawl out of engagement with the ratchet-wheel. On the draw-bar being forced backward to its rearmost position (which position it remains in when the horses are not connected,  
80 and is determined by the hook on the outer end of rod d bringing up against the eye in front guide, b) the rod raises the pawl and holds it from engagement with the ratchet-  
wheel, that the car can be run in an opposite  
85 direction.

In checking the draft animal or animals in order to effect stopping of the car, the draw-  
bar will be forced backward in its guides, and the sector—by the gravitating power of its  
weight—will move back or turn on the axle 90  
and carry the pawl rearwardly upon the ratchet-wheel. On the draft animal or animals being started forward the draw-bar will  
be advanced, the sector will turn on the axle,  
and the pawl will drop into engagement with 95  
the ratchet-wheel, which will next be revolved during the continued advance of the draw-bar relatively to the car-body, in which case the car will be started by the action of the pawl  
on the ratchet-wheel. 100



As soon as the car is started forward, the ratchet-wheel in turning will relieve the pawl, to admit of it being raised so as to be held out of contact with the said ratchet-wheel during the forward movement of the car. As both pawls will at the same time be off their ratchet-wheels, there will be no clicking or noise of either on its wheel while the car may be running forward.

As each axle of the car must have to it a draw-bar and stopping mechanism, as described, it will be seen that the pawls of both will be held up out of action on their ratchet-wheels while the car is being drawn in either direction, with the bunter of the actuating draw-bar against its back guide.

Fixed on the axle is a brake-wheel, K, concentric therewith. Partly around the periphery of the said brake-wheel there extends one or a pair of brakes or chains, O, each consisting of a series of curved metallic links, L, jointed together, the terminal links having at their outer ends eyes for connecting them at one end by a pendulous link, m, to the bottom of the car-body and at the other end to the shorter arm of a lever, P, arranged beneath the bottom of the car and fulcrumed to a hanger, R, extending from such bottom. A pedal or headed rod, S, jointed to the front arm of the lever, extends loosely up through the platform n of the car, and is provided with a spiral spring, o, for forcing the said rod upward in order to

loosen the brake upon its wheel. This brake mechanism constitutes no part of my invention, it being such as is shown in the said Patent No. 356,491, and is a necessary auxiliary to a mechanism for starting the car.

In order to stop the car or partially arrest it while it is in motion, the driver has only to place his foot on the pedal and press it downward, so as to bring the brake into action on its wheel, he at the same time drawing backward or checking the horses. If he has stopped the car and is desirous of advancing it, he has only to start the horses forward.

I claim—

The starting mechanism, substantially as described, applied to the axle of a railway-car, and consisting of the sliding draw-bar with its bunter and guides applied to the car body, the ratchet-wheel and the weighted sector applied, as described, to the axle, the pawl pivoted to the sector, the link connecting the sector and draw-bar, the slide-rod extending from the pawl loosely through the front guide, and the weighted lever bearing against the said rod and pivoted to a bracket extending down from the draw-bar, all being arranged and to operate substantially as set forth.

HERMAN PRESCOTT TITUS.

Witnesses:

A. A. WOOLSON,  
ERI OAKES.