

G. E. PECK.
Car-Starters.

Patented Feb. 24, 1874.

No. 147,971.

Fig. 1.

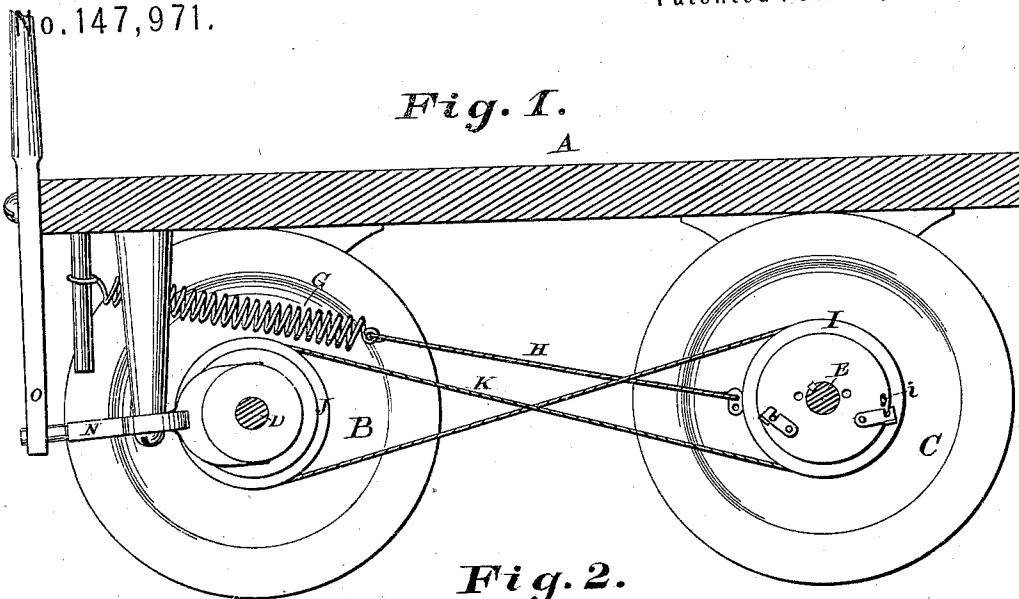


Fig. 2.

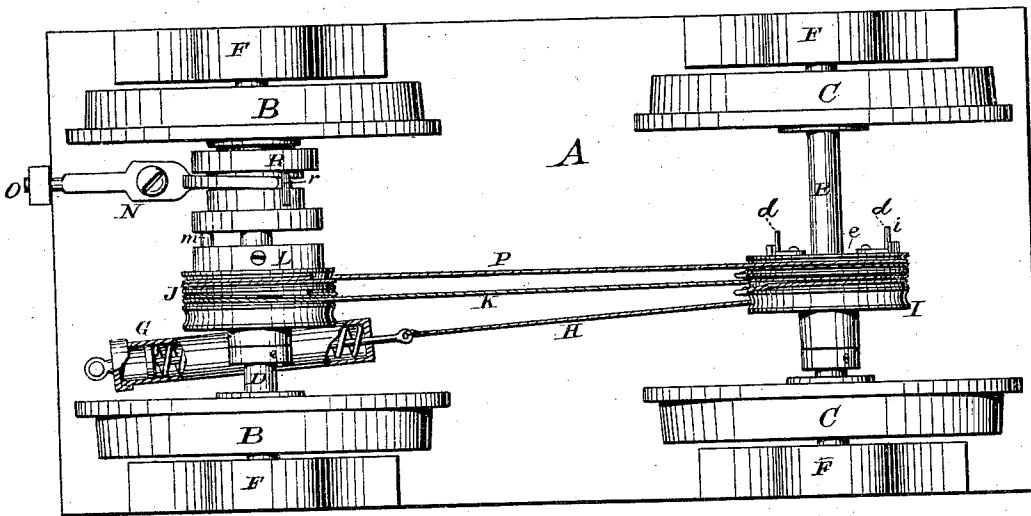


Fig. 3.

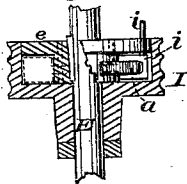


Fig. 5.

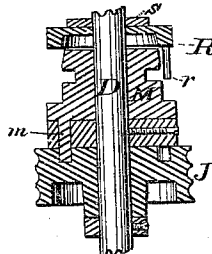
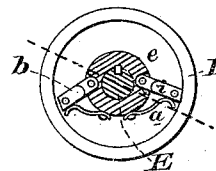


Fig. 4.



Witnesses:~
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Inventor:~
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By his atty
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UNITED STATES PATENT OFFICE.

GEORGE E. PECK, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENT,
OF PART INTEREST TO AUSTIN WISWALL, GEORGE W. FULLER, AUGUSTUS
L. CHETLAIN, AND WILLIAM H. OVINGTON, OF SAME PLACE.

IMPROVEMENT IN CAR-STARTERS.

Specification forming part of Letters Patent No. 147,971, dated February 24, 1874; application filed
February 13, 1874.

To all whom it may concern:

Be it known that I, GEO. E. PECK, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Car-Starters; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal sectional elevation. Fig. 2 is a bottom plan. Figs. 3 and 4 are sectional views of one pulley, and Fig. 5 is a longitudinal section of the other pulley.

This invention relates to that class of car-starters wherein the momentum of the car is utilized to flex a spring, the recoil of which, when liberated, may cause the car to start, or assist in starting the same, when it is again desired to go forward. Its object is to produce a starter with few parts, and without liability to obstruction, and which may be made double-acting without duplication of machinery, and the use of which may be omitted without change or disconnection of parts, while the attendant may, by the same operative lever or windlass, apply a friction-brake.

The particular structure and arrangement of parts will be fully understood by the following description. That others may fully understand my invention, I will particularly describe it.

A represents the floor-platform of an ordinary railway-car. For convenience I show and describe this as an ordinary horse-railway carriage, though I do not wish to confine my invention to that particular class of vehicles. This car is mounted upon two sets of wheels, B and C, fixed in the usual manner upon their respective axles D E, and said axles revolve in the ordinary axle-boxes F F. The power to start the car from a state of rest is in the spring G, which is caused to be flexed by the winding of the cord or chain H around the spool or pulley I upon the axle E. When said spring has been flexed to that extent that its resistance has taken up the momentum of a moving car, and brought the same to a state of rest, it must be retained in that position until the car is to be put again in motion, when the retraction of said spring may be utilized

to overcome or materially lessen the inertia of the car. This effect would not follow with the simple mechanism of my device if the spool or pulley I were fastened to the axle E, or in winding up the cord H, if it revolved in the same direction as the axle E. Said spool is, therefore, only locked to said axle by a clutch-pawl, *i*, when the spring G is retracting and impelling the car to move forward. When the spring is being flexed, said spool moves backward freely on said axle. Thus the relative motions of pulley and axle are in opposite directions when the momentum of the car is the motive power, and they revolve in the same direction when the retraction of the spring is the motive power.

To produce the necessary results above named, I place loosely upon the axle D a pulley, J, and provide a clutch mechanism, whereby said pulley may be locked to said axle or released therefrom, at the will of the attendant. The pulley J is connected with pulley I by a proper cord or chain, K, which extends over said pulley J and under or beneath said pulley I, so that the forward revolution of the former produces a backward revolution of the latter, with the proper effect in flexing the spring G, as above set forth. The clutch mechanism which I prefer for the purpose stated consists of a collar, L, secured rigidly to the axle D, close beside the pulley J. A sliding collar, M, upon the same axle is provided with a pin, *m*, which projects through said collar L, and, when moved in that direction, engages with one of a series of holes or notches in the side of the pulley J, so as to cause it to revolve with said axle. The clutch-collar M is actuated by an ordinary clutch-lever, N, and hand or brake lever O.

In order to protect the pawl *i* from possible obstruction of its proper working, I make the spool I hollow, as shown in Fig. 3, and close the open end thereof with a plate, *e*, keyed fast to the shaft E. The said pawl is placed on the inner face of said plate *e*, and is forced into engagement with the inner peripheral surface of said pulley by a spring, *a*.

The mechanism above described is sufficient

to operate the car during its progress in one direction, and when applied to the ordinary single-horse cars, which are turned at each end of the route, no additions will be required; but when employed upon double-end cars, or those which are not turned, then it is necessary to add a cord or chain, P, passing over pulley I and beneath the pulley J, being in position the reverse of cord or chain K, and a corresponding reverse pawl, *b*, is placed within the pulley I. Either one of, or both, said pawls may be withdrawn and held out of engagement by means of the latches *d d*. When both are so withdrawn, then the spring G cannot be flexed. One or the other is left in engagement, according as the car is to be propelled to the right or left. Thus at each end of the route the one is thrown out of engagement, and the other is thrown into engagement. By these means my starter is made double-acting without a duplication of machinery. The ends of the cords or chains K P are passed several times around the spools I J to provide for the excess of the one upon one spool, while there is an excess of the other wound upon the opposite spool.

When the car is moving on down grade it is not desired to call the starter into use, because the gravity of the car is then sufficient to move the car from a state of rest, or render it easy to move. I therefore place a friction-ring, R, upon the end of the clutch-collar M, so that by a movement of said collar the said clutch-ring may be forced against the side of the wheel, or a collar, *s*, rigidly secured to the axle, and act as a friction-brake, to stop the car without aid from the spring G. The collar M revolves with the wheel B, and the ring R is provided with a pin, *r*, which engages with the clutch-lever N, and is thereby prevented from revolving also with the axle; but the said ring is then confined and clamped be-

tween two friction-surfaces—to wit, the hub of the wheel B, and the end of the collar M—so that its frictional power is greatly increased, and by making the frictional surfaces correspondingly conical said power may be increased almost indefinitely. When the pulley J is coupled to the axle D, the forward motion of the car causes the revolution of the pulley I on the axle E, in a direction opposite to the revolution of said axle, and the winding up or flexion of the spring G. When the car has been stopped by the resistance of said spring, it remains immovable until the pulley J is uncoupled. With pulley I and J, both coupled to their axles, the spring cannot retract, because it can only do so by revolving the wheels in opposite directions, and their traction will prevent that movement.

Having described my improvement, what I claim as new is—

1. The combination of the spring G, pulleys I J upon the axles C D, the cord or chain K, clutch-pawl *i*, and coupler M, substantially as and for the purpose set forth.

2. In combination with the drum I, the clutch-pawls *i* and *b*, whereby the starting mechanism is made operative in both directions, as set forth.

3. In combination with the clutch mechanism J and M, the brake-lever N and friction-ring R, substantially as and for the purpose set forth.

4. The friction-brake composed of a sliding sleeve, M, upon the axle, a loose ring, R, restrained from revolving with said axle, and a fixed collar, *s*, all combined substantially as and for the purpose set forth.

GEO. E. PECK.

Witnesses:

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