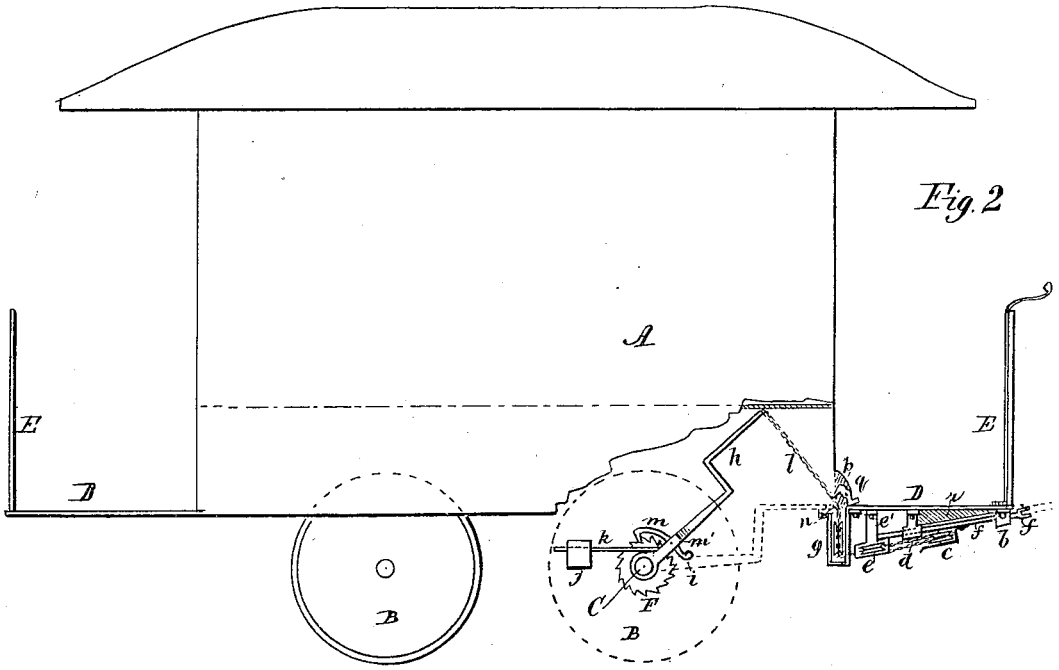
(No Model.)

E. A. JARVIS.

CAR STARTER.

No. 262,230. Patented Aug. 8, 1882.

Fig. 2



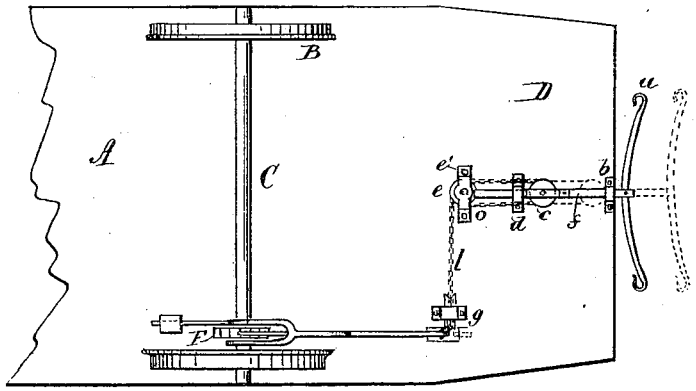


Fig. 1

Witnesses
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EDWARD ÆMILIUS JARVIS, OF HAMILTON, ONTARIO, CANADA.

CAR-STARTER.

SPECIFICATION forming part of Letters Patent No. 262,230, dated August 8, 1882.

Application filed May 17, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDWARD ÆMILIUS JARVIS, of the city of Hamilton, in the county of Wentworth, in the Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Street-Car Starters; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same.

The object of the invention is a simple but very effective device for starting a street-car from the dead-stop in order to prevent the great strain which horses are subject to in starting them, particularly when going up grade and when a car is heavy laden.

By reference to the drawings forming part of this specification it will be seen that Figure 1 is a plan of device attached to section of a car. Fig. 2 is a side view of same.

A represents an ordinary street horse-car; B, the wheels on the axle C, and D the platform of the car; E, the dash-board at each end, respectively.

F is a ratchet-wheel keyed on the axle C, as shown, being placed just inside of the wheels B.

h is a forked lever, made to straddle the said ratchet-wheel F at the lower end, and provided with a pawl, *m*, pivoted to it at the upper part of the fork, as shown at *m'*, and terminating in a weighted end, *i*, below the lever, as shown in Fig. 2, to act as a counter-balance when the lever is down.

k is a rod attached to the lower portion of the lever *h*, and has thereon a movable counterbalance-weight, *j*, for the purpose of assisting to draw the lever *h* back to its original position, as shown at Fig. 2, after it has been pulled downward in starting a car.

g is a sheave or pulley placed vertically, at right angles to the lever *h*, under the floor of a street-car, and secured to the same in suitable boxing. *e* is a similar sheave or pulley in a bracket, *e'*, which is bolted to the floor of the car.

f is a draw-head, consisting of an iron bar made to slide in brackets *b* at the front and *d* in the rear, said brackets being bolted to the under side of the platform D of a car. The said draw-head slides in the said brackets, and has attached to its front end a whiffletree, *a*, to which a horse is attached.

c is another sheave, attached to the under side of the draw-head.

l is a chain or wire rope attached at one end to the lever *h*, and made to pass down through an opening, *n*, in the floor of the car around the sheave *g*, thence around the sheave *e*, and lastly around the third sheave, *c*, and securely fastened to the car at or about the point *o*.

It will be observed that the lever *h* is placed on the axle immediately under one of the car-seats, and consequently will not be in the way of passengers. A small opening will be made in the end of the car, with two brackets, *p*, on each side of it, respectively, and between said brackets is pivoted a weighted dog, *q*, provided with a hook at its upper end, made to catch on the end of the lever *h* when its outer end comes down to the floor of the car and in contact with it.

r is simply a wedge-shaped block to fill the space between the car-floor and draw-head; and the operation of the device is as follows: When the driver is ready to start the car the horse pulls on the whiffletree and the draw-head is pull out, as shown in dotted lines, Fig. 2, which tightens the chain or wire rope *l* and draws down the lever to nearly a horizontal position. The pawl *m* catching on the ratchet-wheel, a great power is given to revolve the axle and start the car, which relieves the horse or horses from the severe and hurtful strains they are compelled to endure every time a car is started from a dead-stop; and it is found by experimental tests that by the use of my device the wheels are started rolling without excessive strain on the horse.

It will be observed that as soon as the lever *h* is pulled down to the floor of the car and the car started its end is caught by the dog *q*, and the pawl *m*, being released from the ratchet-wheel F, falls back on account of the nearly horizontal position of the lever *h*, and its end, weighted as at *i*, is released from the ratchet-wheel until the car stops, when the driver will touch his foot on the lower projecting part of the dog *q* and the said lever *h* (by means of the weight *j* on the rod *k*) will rise to its position, as shown in Fig. 2, and the tooth of the pawl *m* falls into the teeth of the ratchet-wheel. The slack of the chain *l* is taken up and all the parts are ready for the next start.

The mechanism above described may be placed at any part of the car; but for convenience I will preferably place a lever, *h*, under the seat of a car, and a ratchet-wheel and lever on each axle, and the draw-head in the center of the car-platform, and the other detail portions in the most convenient position for effective action.

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

1. In a car-starter, the combination of the lever *h*, loosely hung at one end directly on the car-axle C and elevated by a weight, a pawl, *m*, pivoted to the lever, the ratchet-wheel F, rigidly secured to the axle, and the draw-head connected with the lever, substantially as described.

2. In a car-starter, the combination, with the lever *h*, draw-head *f*, and chain *l*, of the sheaves *g e c*, and brackets *e' b d*, substantially as specified.

3. In a car-starter, the combination of the weighted pawl *m*, lever *h*, ratchet-wheel F on axle, rod *k*, and weight *j*, substantially as and for the purpose specified.

Hamilton, Ontario, Canada, May 8, 1882.

EDWARD ÆMILIUS JARVIS.

In presence of—
J. P. SEAVEY,
WM. BRUCE.