

A. DAHLER.
CAR-STARTER.

No. 170,347.

Patented Nov. 23, 1875.

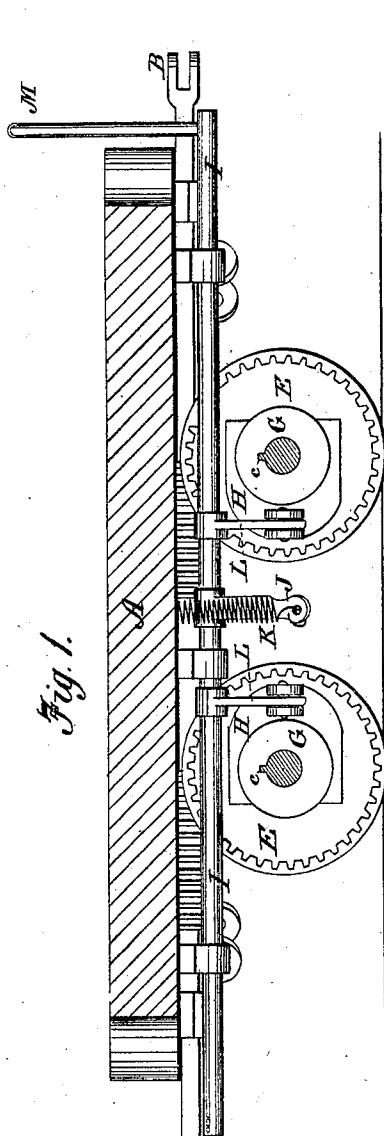


Fig. 1.

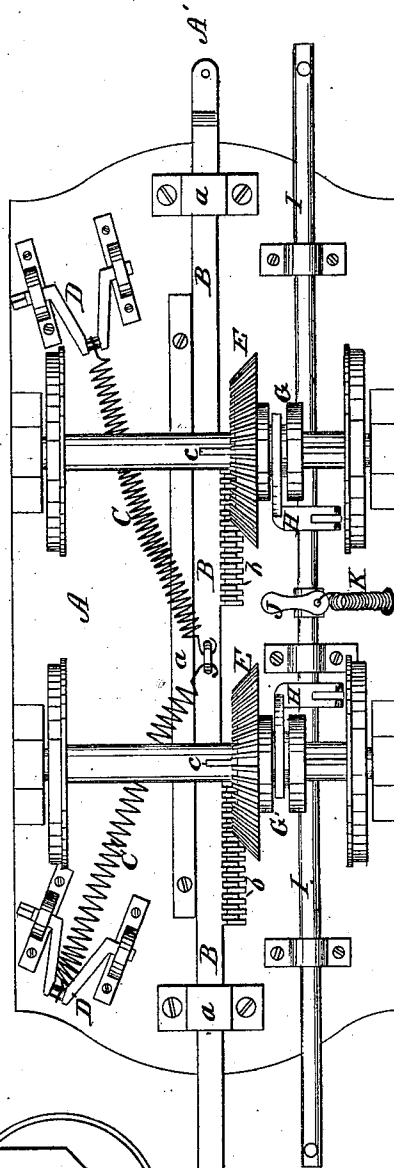


Fig. 2.

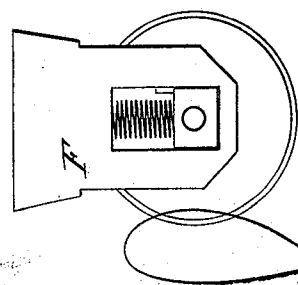


Fig. 3.

WITNESSES:

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AUGUST DAHLER, OF NEW YORK, N. Y.

IMPROVEMENT IN CAR-STARTERS.

Specification forming part of Letters Patent No. **170,347**, dated November 23, 1875; application filed October 15, 1875.

To all whom it may concern:

Be it known that I, AUGUST DAHLER, of the city, county, and State of New York, have invented a new and Improved Combined Car Starter and Brake; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a vertical longitudinal section; Fig. 2, an inverted plan; Fig. 3, a detail of the car-spring.

The object of this invention is to provide an improved device, specially applicable for starting horse-cars upon street-railways, for the purpose of relieving the horses of the exhausting strain consequent upon the frequent stoppages and startings, the said devices being also adapted to steam-railways and all vehicles of a heavy draft. It consists in the particular construction and arrangement of parts, wherein a single draw-bar extends from one end to the other of the car, and is maintained in a given position by symmetrically-arranged springs at each end, whose tension is separately adjustable. Said draw-bar is provided with two sets of beveled teeth, which engage with bevel-wheels upon the axles of the car, which gear wheels are laterally adjustable thereon, so that when the traction of the horse in starting is brought to bear on the draw-bar the gear-wheels are made to revolve, which wheels, being nearly of the same diameter as the supporting-wheels, will start the car, so as to overcome the inertia gradually, and avoid the sudden strain, which is so objectionable.

In the drawing, A represents the platform or floor of a car, beneath which is located, in guides *a*, the draw-bar B, which extends the whole length of the car, and is provided with draft attachments at both ends. The position of said draw-bar is regulated by springs C C' attached thereto near the center, and fastened to adjustable loops D D', which control the tension of said springs. The said draw-bar B is provided with two sets of beveled teeth, *b b*, with which beveled-gear wheels E E are made to engage, when desirable. The object of having a bevel-gear instead of a plain gear for the above-described connection is to allow for the slight vertical vibration produced by

the springs F, so as to prevent the teeth from being separated, as might be the case if an ordinary rack and pinion were used. The beveled wheels E are made to revolve with the axle without turning thereupon by means of a spline, *c*; but are made laterally adjustable through the collars G, clutches H, and arms L, attached to shaft I. Said shaft is provided with an arm, J, and a spring, K, which holds the gear-wheels habitually away from the draw-bar, and has also at each end of the car a hand-lever, M, projecting up within convenient range of the driver or conductor, whereby the shaft I may be rocked, for the purpose of operating the devices described.

The operation of my devices is as follows: If the horse be attached to the end A' of the draw-bar, the loops D D' will both be pointing to the rear, and the spring C will be loose, while C' will be exerting a tension that will, when the car is stopped and no draft on the draw-bar, draw the latter to the rear, so as to bring the front end of its row of teeth in position to engage with the gear-wheels.

Now, whenever the car is to be started, the driver, by means of his hand-lever M, throws the gear-wheels against the teeth of the draw-bar, and the draft of the horse then being applied the draw-bar will be moved forward, and revolve the gear-wheels, and with them the axle and supporting-wheels. Now, if the diameter of the gear-wheel be as great as that of the supporting-wheels it will be seen that the horse will start with twice the rapidity of the car, and be relieved in a great measure of the initial strain produced by the inertia of the car. The principle underlying the above result is that the draw-bar moves from the car the same distance in the start that the car moves upon the track, and, consequently, for a short distance, enables the horse to move twice as fast as the car, thus securing a momentum, which, in a great measure, obviates the strain in starting. When the horse is attached to the opposite end of the draw-bar the position of the loops D D' is reversed, which is effected by means of a wrench applied to the squared ends of the same, or I may dispense entirely with the loops, and use levers to control the tension of the springs.

In applying my improvements to cars al-

ready in use the gear-wheels and collars can best be applied to the axle by casting them in two pieces with flanges, and fastening them around the axle by means of bolts, which method will obviate the necessity of taking off the car-wheels.

In addition to the function of my devices already described, it will be seen that they may be employed also as a brake, either by attaching a brake-shoe to the arms L upon the shaft I, so as to bind against the sides of the supporting-wheels, or by throwing the gear-wheels into the draw-bar teeth, in which event the springs serve to stop the car more quickly.

Having thus described my invention, what I claim as new is—

1. The continuous draw-bar extending from one end of the car to the other, and having beveled teeth *b*, in combination with the later-

ally-adjustable beveled gear-wheels E, as and for the purpose described.

2. The combination, with the draw-bar B, having teeth *b* of the laterally-adjustable gear-wheels E, and the symmetrically-arranged springs C C', of independently-adjustable tension, substantially as and for the purpose described.

3. The combination of the draw-bar B, having teeth *b'*, the springs C C', the gear-wheels E, collars G, clutch H, and the rock-shaft I, provided with arms L and hand-levers M.

The above specification of my invention signed by me this 14th day of October, A. D. 1875.

AUGUST DAHLER.

Witnesses:

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