

M. TOULMIN.

Car-Starters for Street Railways.

No. 141,474.

Patented August 5, 1873.

Fig. 1.

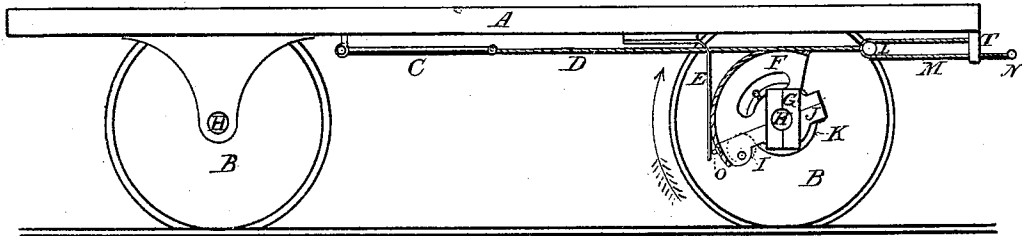


Fig 3.

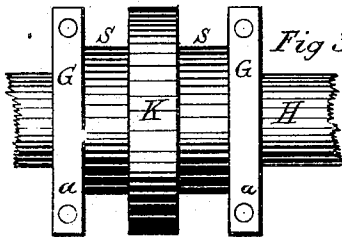


Fig 2.

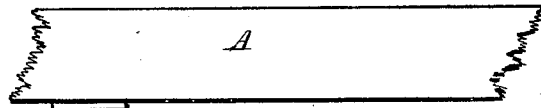


Fig. 4.

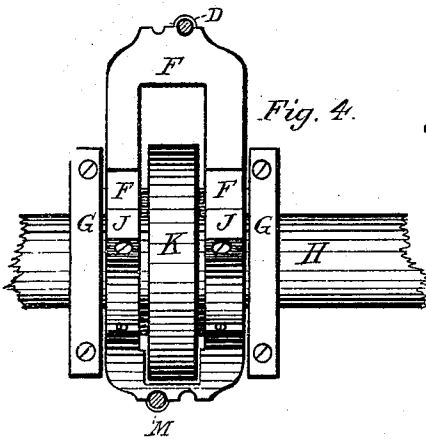


Fig. 5.

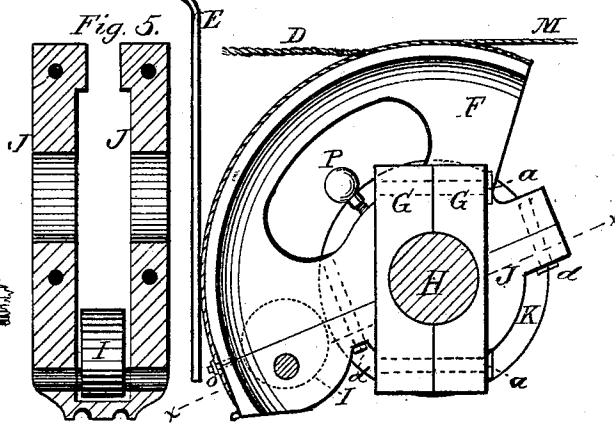


Fig. 6.

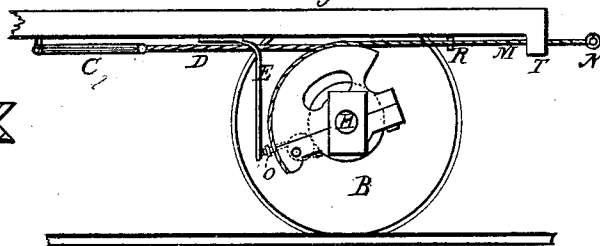
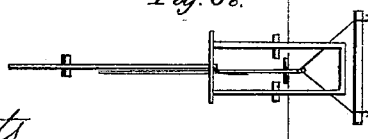


Fig. 7.



Fig. 6a.



Witnesses,
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UNITED STATES PATENT OFFICE.

MORTON TOULMIN, OF NEW ORLEANS, LOUISIANA, ASSIGNOR OF ONE-FOURTH HIS RIGHT TO O. F. CAWTHON, OF MOBILE, ALABAMA.

IMPROVEMENT IN CAR-STARTERS FOR STREET RAILWAYS.

Specification forming part of Letters Patent No. **141,474**, dated August 5, 1873; application filed May 27, 1873.

To all whom it may concern:

Be it known that I, MORTON TOULMIN, of New Orleans, State of Louisiana, have invented an Improved Car-Starter for Street Railways, of which the following is a specification:

The object of my invention is to provide a method by which the power used for the propulsion of street-cars may be first applied to revolve the wheels by a less expenditure of effort than is required to start the car by direct draft upon the body of the vehicle. This is accomplished in my invention by the attachment to the axle of the car of the apparatus hereinafter described, which belongs to that class of devices for this purpose in which a segment of a circle is used, to the periphery whereof the power is first applied to set the car in motion. In my invention the apparatus can be readily attached to any car of ordinary construction, being for this purpose composed of two parts, which are clamped to the axle by means of suitable bolts, thus rendering it unnecessary to remove either of the wheels in order to affix or detach the machine. The segmental wheel to which the power is applied includes in its periphery about one-third of a circle, and must, for successful working, be always greater than a quadrant, and may be an entire circle.

The construction and combination of the different parts will be more readily understood by reference to the drawings, wherein—

Figure 1 represents a side view of my invention, the right front wheel being removed; Fig. 2, an enlarged view of the same; Fig. 3, the sleeve upon which the segment-wheel turns, comprising center-wheel, journals, and lugs, by which it is clamped upon the axle. Fig. 4, a front view of the machine; Fig. 5, a section on line *x x* of Fig. 2; Fig. 6, a side view, showing direct draft upon the segmental wheel; Fig. 6^b, a device for supporting the single-tree; and Fig. 7, a modified form of the face of eccentric-wheel with corresponding change in the center-wheel.

A is the bottom of the car; B, the wheels; C, a spring, spiral or rubber, to give the segment backward motion when the car is stopped; D, a wire or other rope, one end of which is attached to the segment F, the other to the spring C; E, a perpendicular spring, extend-

ing from the under side of the car, for the purpose of acting upon the pin O immediately after the segment begins to revolve; F, the segmental wheel, provided with grooves in its periphery to admit the two ropes D and M, one of which communicates a backward and the other a forward revolution to the segment. This wheel is composed of two sections, the lower one, J, being clamped by four bolts, *d*, to the upper, and inclose between them both the journals S S, and also the center-wheel K, around which they revolve. G G are lugs, by which the center-wheel and journals are bolted together around the axle, to which they are firmly attached, they being also composed of two sections. I is the eccentric-wheel, which may have either a flat or V-shaped section on its face, as in Fig. 7, and is of steel or chilled metal, and its face is corrugated with small teeth to prevent slipping when it comes in contact with the wheel K. J is the lower part of the segment clamped to the upper, F, as stated. L is a small pulley, over which the wire-rope M is carried, when it is desired to increase the power applied to revolve the segment F and start the car, one end of the wire-rope being attached to the guide T, and the other to the single-tree N. The wire-rope M, passing over the segment F in one of its grooves, is fastened to its lower rear end, and its forward end passes through the standard T, and is provided with a stop, R, to prevent its going too far. O is a small sliding pin, which loosely fits a hole drilled between the two parts of the segmental wheel, and is acted on by the spring E, for the purpose of forcing the eccentric into contact with the wheel K immediately after the segment begins to revolve, which thus gives motion to the axle and wheels of the car. When the car is backed, the pin O being clear of the spring E, the eccentric falls away from the wheel K by its own weight, and cannot therefore interfere with its backward motion. P is a small oil-vessel, screwed directly into the oil-holes of the segment F on each side of the wheel K, the oil being drawn from them by the suction of the revolving journals S S, thus keeping these parts constantly lubricated, which is indispensable to the proper working of the apparatus. A flexible tube, to convey oil from a

cup fixed in the floor or frame of the car, may also be used for the same purpose.

In order to protect the working parts from the effects of mud, dust, or the filth of the roadway, it is proper that a thin metal covering should be fitted over the entire apparatus, and attached to the under side of the car above.

The operation of my invention, when applied to the axle of a car, is, briefly, this: The apparatus being in the position indicated in the drawings, the power (animal or other) is applied to the wire-rope M to draw the car, and causes the segmental wheel F to begin to revolve. As it is entirely loose in the journals S S when in position, as shown, its first or initiatory motion does not turn the axle; but, so soon as it has moved far enough to bring the pin O in contact with the spring E, this pin is forced against the eccentric I, which instantly binds upon the center-wheel K, and causes the axle to which it is firmly clamped to revolve with it, and thus the motion is communicated to the car.

In order to prevent the falling of the sin-

gle-tree upon the track, and to keep it away from the animal's heels, a bent or looped rod, as shown in Fig. 6^b, may be attached to the car, to slide in and out with the rope M, acting as a support in all positions of the single-tree.

Having thus described my invention, I claim—

1. The combination of the segmental wheel F, which is greater than a quadrant, with the eccentric-wheel I, spring E, pin O, and wheel K, substantially as and for the purpose set forth.

2. The combination of the sleeve having the wheel K, journals S S, lugs G G, with the segmental wheel F, substantially as and for the purpose set forth.

3. The combination of the spring E, to operate on the pin O and eccentric I, with the wheel K, substantially in the manner and for the purposes set forth.

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Witnesses:

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