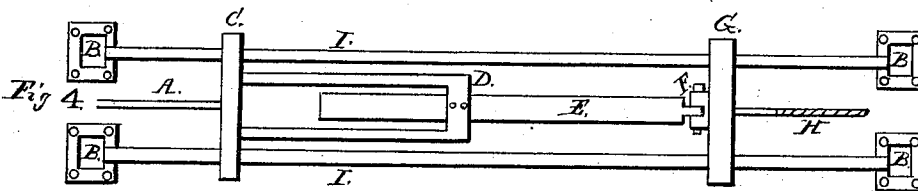
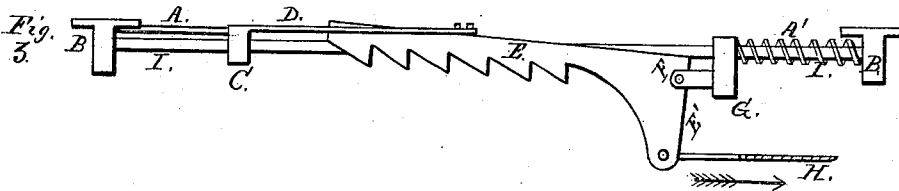
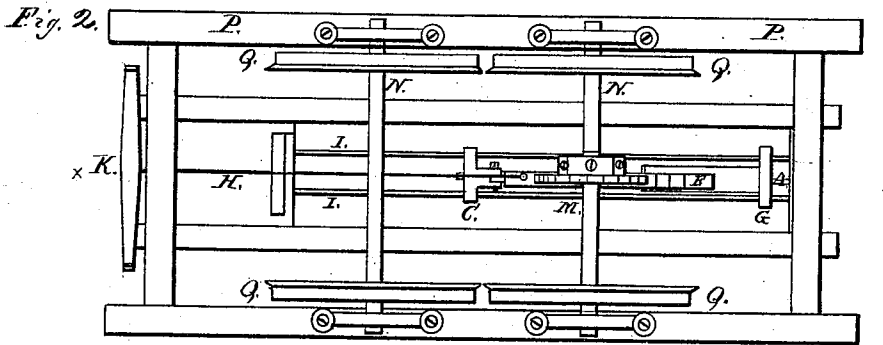
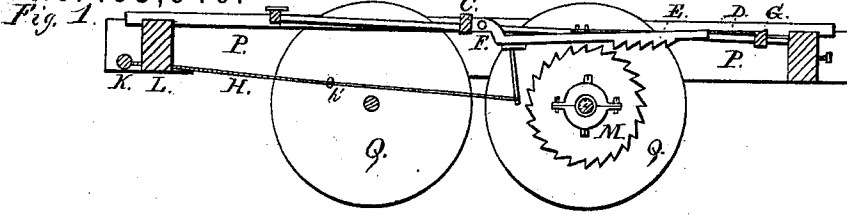


M. TOULMIN.
Car-Starter.

No. 168,940.

Patented Oct. 19, 1875.



Witnesses.
W. A. Toulmin
John W. Frazer

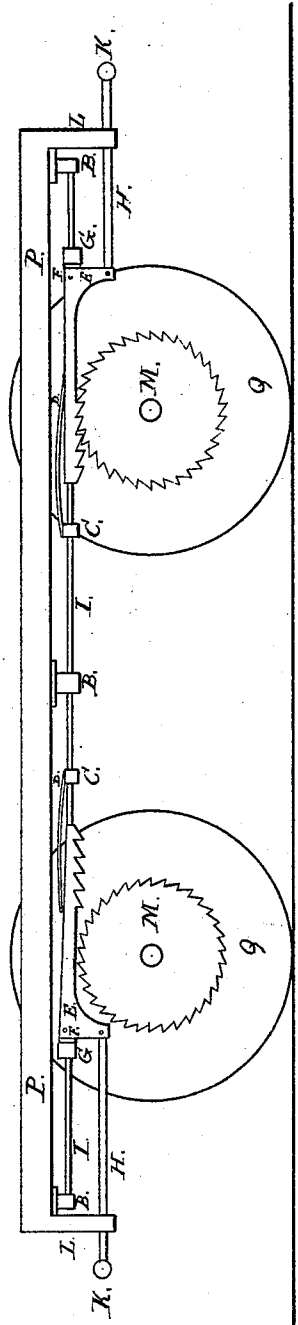
Inventor.
Morton Toulmin

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Fig. 5.



Witnesses:
W. A. Toulmin
John W. Frazee

Inventor:
Morton Toulmin

UNITED STATES PATENT OFFICE.

MORTON TOULMIN, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN CAR-STARTERS.

Specification forming part of Letters Patent No. **168,940**, dated October 19, 1875; application filed April 3, 1875.

To all whom it may concern:

Be it known that I, MORTON TOULMIN, of Washington city, District of Columbia, have invented certain new and useful Improvements in Car-Starters; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

The object of my invention is to start street-cars with less strain upon the animals employed in drawing them than by any device heretofore known or used, and to furnish a new device for changing reciprocating into rotary motion.

Figure 1 of the accompanying drawing shows a sectional elevation of a car-truck with my attachment, taken at *x x*. Fig. 2 is a plan of the same. Figs. 3 and 4 show the details on a larger scale.

P is the floor of the truck or car. B are standards having lugs, through which screws or bolts may be passed, in order to fasten them to the frame-work of the car. These standards support two parallel rods or bars of metal, on which are two slides, G and C. A ratchet-bar, E, is attached, by means of a hinge-joint or pivot, F, to the slide G. On the under side of the bar E are cut ratchet-teeth. The bar E has an arm, E', which extends downward, and is attached to a pull-bar, H. On the upper side of the bar E is riveted a spring, D, which has its fulcrum on the slide C. When the car is at rest the bar E is suspended and held by the spring D in a horizontal position, just above the ratchet-wheel M, so that the latter may revolve without touching the teeth of the bar; but when a pull is made on the bar H the bar E is depressed, and its teeth engage in those of the wheel M, causing the latter to revolve, and thus give motion to the wheel 2 of the car. When the pull upon the bar H is released the spring D lifts the bar E clear of the wheel M, and with it slide C, and

the bar E, with its slide G, is drawn or forced backward on the bars I by the spring A. *h'* is a stop on the pull-bar H, and relieves all strain on the bar E as soon as it touches the truck and bears against it at L. The stop *h'* is placed far enough from L so that when H is drawn out in starting the car the bar E, following, engages the wheel M, and starts the car, and passes clear of the periphery of the wheel M, and prevents interference while the car is in motion. K is a single-tree, to which the team is attached. The part from *h'* to K should be made preferably of wire-rope, which is better than a chain, and not likely to kink, as a chain sometimes does. This part may be made of a wooden or iron bar, but in that case more likely to be bent or broken by lateral strain, especially where a car runs off the track. The spring D and slide C also serve to keep the bar E in line and directly over the wheel M, so that the two cannot fail to engage with each other in starting the car.

I am aware that car-starters have been made having a ratchet-wheel rigidly attached to the axle or wheels, and operated by a ratchet-bar, pivoted and sliding, as shown in my invention, but without the spring D, and therefore I do not claim such device, broadly; but

What I do claim is—

1. The ratchet-bar E, having arm E', in combination with bar H and spring D, as and for the purpose set forth.

2. The combination of slide-bars I, ratchet-bar E, slides C and G, and springs A and D, as and for the purpose set forth.

3. The combination of slide-bars I, slides G and C, springs A' and D, ratchet-bar E, having arm E', and bar H, as and for the purposes set forth.

In testimony that I claim the foregoing as my own, I affix my signature in presence of two witnesses.

MORTON TOULMIN.

Witnesses:

WALTER RYAN,
A. R. WEYMER.