

UNITED STATES PATENT OFFICE.

GEORGE W. FIELD AND JOSEPH STEGER, OF NEW YORK, N. Y.

IMPROVEMENT IN CAR-STARTERS.

Specification forming part of Letters Patent No. **139,563**, dated June 3, 1873; application filed October 8, 1872

To all whom it may concern:

Be it known that we, GEORGE W. FIELD and JOSEPH STEGER, both of the city, county, and State of New York, have invented a new and useful Improvement in Car-Starters; and we do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents a longitudinal vertical section of our invention. Fig. 2 is a plan or top view of the same, partly in section.

Similar letters indicate corresponding parts.

This invention relates to a car-starter of that class in which the draft-bar actuates a propelling-pawl that engages with a ratchet-wheel mounted on one of the axles of the car.

Our invention consists in arranging the propelling-pawl on one arm of a bell-crank lever, the other arm of which connects with the draft-bar, while the propelling-pawl itself connects at or near its working end or tip with a windlass or treadle, the tail end of said pawl being subjected to the action of a weak spring in such a manner that, whenever a strain is exerted on the draft-bar, the propelling-pawl is dipped and its tip is thrown below the ratchet-wheel on the car-axle, and if no strain is exerted on the draft-bar the recovering-spring of the starting mechanism keeps the tip of the propelling-pawl clear of the ratchet-wheel, and consequently all danger of injuring the starting mechanism by a retrograde movement of the car is avoided.

In the drawing, the letter A designates the truck-frame of a horse-car, of any suitable construction. Said frame is supported by four wheels, B B', which are mounted on axles C C' in the ordinary manner. On each of these axles is also mounted a ratchet-wheel, D, which is acted on by a pawl, *a*, in the following manner: Said pawl swings on a pivot, *b*, and a weak spring, *c*, which acts on the tail end of the pawl has a tendency to keep the working end or tip clear of the ratchet-wheel. A chain, *d*, which is secured to the pawl at a point between its tip and the pivot *b*, extends over a guide-roller, *e*, to the windlass *f*. By turning the windlass so as to wind up the chain the tip of the pawl is caused to engage with the ratchet-wheel D. The pivot *b*, which

forms the fulcrum of the propelling-pawl, is secured in a lever, *g*, which is mounted on a rock-shaft, *h*, carrying a second lever, *i*, that connects by a rod or chain, *j*, with the draft-bar E. From the lever *i* also extends a rod, *k*, to a recovering-spring, *l*, which is common to the two starting devices at both ends of the car, as shown in the drawing. The draft-bar E slides in a suitable socket or guide in the frame A, its motion being limited by a stop on its inner and a head on its outer end. By the action of the recovering-spring *l* the draft-bar is carried into the position shown at the right-hand end of the car in the drawing, and in this case the pawl is raised and it occupies the position shown. When a strain is exerted on the chain *d* either by turning the windlass or in any other manner, the tip of the pawl is thrown forward and brought in gear with the ratchet-wheel D, and if the horses begin to pull the pawl is gradually forced downward and the axle is turned so as to start the car. When the draft-bar has been pulled clear out to the position shown at the left end of the drawing, the tip of the propelling-pawl is brought beneath the ratchet-wheel, so that, even if the driver should omit to release the windlass and a retrograde motion of the car should occur, no injury will be done to the starting mechanism. But if the driver, after having thrown the pawl in gear with the ratchet-wheel, takes his hand off from the windlass, the strain produced on the chain *d* by the outward motion of the draft-bar, and the consequent downward motion of the pawl, turns the windlass back, and the tip of the pawl is thrown clear back from the ratchet-wheel by its spring *c* as soon as the draft-bar has reached its extreme outward position, and all danger of injuring the starting mechanism is avoided.

What we claim as new, and desire to secure by Letters Patent, is—

The propelling-pawl *a*, cord or chain *d*, windlass *f*, and ratchet-wheel D, in combination with the connections *k j* and draft-tongue E, all arranged and operating substantially as described.

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JOSEPH STEGER.

Witnesses:

W. HAUFF,
E. F. KASTENHUBER.

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