J. H. SHERMAN.

Car-Starters.

No. 152,954. Patented July 14, 1874.

Fig. 1.

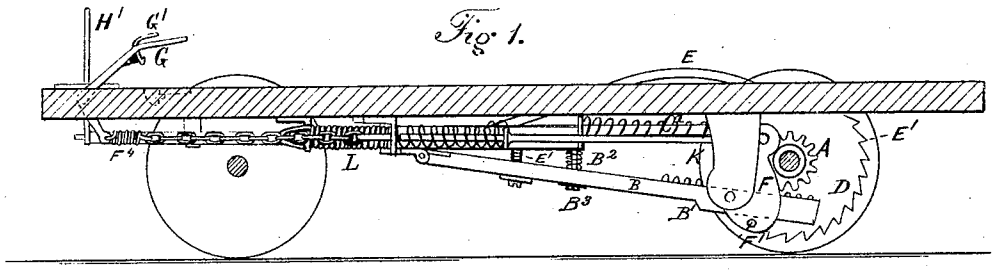
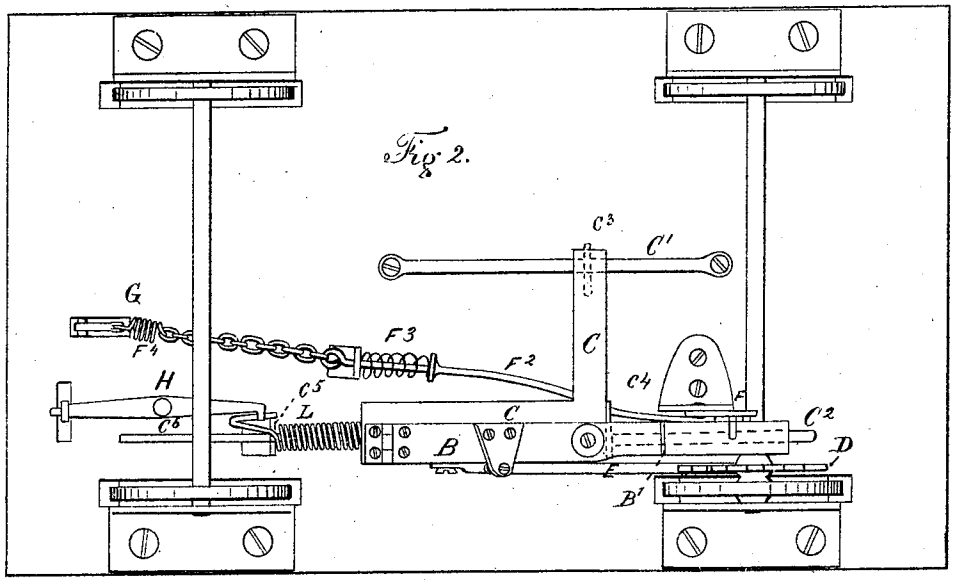


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

JASON H. SHERMAN, OF GALESBURG, ILLINOIS.

IMPROVEMENT IN CAR-STARTERS.

Specification forming part of Letters Patent No. **152,954**, dated July 14, 1874; application filed May 22, 1874.

To all whom it may concern:

Be it known that I, JASON H. SHERMAN, of Galesburg, county of Knox and State of Illinois, have invented certain Improvements in Car-Starters. The following description, taken in connection with the accompanying plate of drawings hereinafter referred to, forms a full and exact specification, wherein are set forth the nature and principles of the invention, by which the same may be distinguished from others of a similar class, together with such parts thereof as are claimed as new and are desired to be secured by Letters Patent of the United States.

The object of my invention is to store up the momentum of horse-car upon stopping, or a sufficiency of it, for use in starting it again.

To enable others skilled in the art to make and use my improvement, I will proceed to describe its construction and operation, reference being had to the accompanying drawings and letters of reference marked thereon, in all of which the same letters refer to the same parts.

A is a pinion upon the right-hand part of the rear axle of the car, and B is a rack-bar to gear into it upon its under side, and is hinged, at its forward end, upon the under side of the sliding bar C, which said bar C is held in position by lugs C^3 and C^4, and slides upon guide-rods C^1 and C^2. These guide-rods are attached to the bottom of the car by brackets or bolts. C^6 is a guide-rod from the forward end of sliding bar C, which plays through a bracket attached to the bottom of the car. D is a ratchet-disk upon the inside of the right-hand rear car-wheel, and may be cast as a part thereof, or as a toothed ring or disk, and bolted to it, of a diameter less than the wheel. E is a hand hinged to the sliding bar C, to take hold of the teeth of the disk upon its upper side. K is a spiral spring upon guide-rods C^2, and confined between the brackets at the back end of said rod and the end of slide-bar C. F is an elbow, with a pin, F^1, below the rack-bar, and another pin near the bottom of the car, to which is attached one end of connecting-rod F^2, which, at its other end, with or without a chain, is attached to foot-rest or treadle G. Treadle G is provided with a spring-catch, G′, by which it is held down to the floor of the car when desired, and a spiral spring, F^4, is inserted in the connecting rod or chain near to the treadle, to take up the slack motion of the action of the car-springs, as well as to provide for the motion of elbow F when its pin F^1 passes up the inclined plane B^1 on the back of the rack-bar B.

The foregoing arrangement of parts operate as follows: When the car is about to stop, the driver presses down the treadle G with his foot. This pulls forward the connecting-rod F^2, which, by means of pin F^1 in elbow F, lifts rack-bar B into gear with pinion A when the rack-bar is drawn back with slide-bar C and hand E, compressing spring K till teeth of rack-bar all pass the pinion, at which point the pin F^1 slides up the inclined plane B^1, pushing the rack-bar slightly farther back, and holding it with its teeth clear of those of the pinion, and allowing the car to move on unobstructed by the gearing until stopped by the ordinary brake. The act of raising the rack-bar into gear also raises the hand E by means of adjustable post E′, allowing it to pass over and clear of ratchet-disk D as it is drawn back ready for action.

To start the car, the driver lifts his foot from treadle G, or releases the treadle G by unlatching catch G′, when rack-bar B, by its own weight, or with the help of spring B^2, if needed, drops said bar B away from pinion A till stopped by a rest, B^3, and at the same time the hand E is lowered into engagement with the teeth of ratchet D, immediately after which the pin F^1 is pushed off of inclined plane B^1 of rack-bar B by means of spring F^3 upon connecting-rod F^2, or its equivalent, whereupon the spring K recoils, driving the sliding bar C with rack-bar B; and hand E, being engaged with the teeth of ratchet-disk D, turns the wheel forward and starts the car.

L is a secondary motor spring upon rod C^6, fastened at one end to the forward end of sliding bar C, and left free at the other end to move back and forward upon and with rod C^6, except when vibrating arm-catch H is clutched into the hooked end of said spring by a side motion of lever H′, in which latter condition the extension and recoil of this spring L duplicates the power of the starting apparatus. This is designed for use only when the car is heavily loaded or on a rising grade.

Having described the construction and operation of my invention, I will indicate in the following clauses what I claim and desire to secure by Letters Patent of the United States—

1. In combination, the pinion A with sliding bar C, rack-bar B, hand E, and disk D, as and for the purposes specified.

2. Rack-bar B, having inclined plane B^1, in combination with the pin F^1, as and for the purpose specified.

3. Treadle G, spring-catch G′, and spring F^4, in combination, substantially as and for the purpose specified.

4. The combination of the vibrating arm H, lever H′, and the secondary motor spring L, substantially as and for the purpose specified.

5. The adjustable post E′ with a draw-spring in combination with the rack-bar B and hand E, substantially as and for the purposes specified.

In testimony that I claim the foregoing I have hereunto set my hand this 22d day of May, 1874.

JASON H. SHERMAN.

Witnesses:

BENJAMIN C. POLE,

A. K. PARRIS.