L. R. SHARP.

CAR-STARTER.

No. 183,481. Patented Oct. 17, 1876.

Fig. 1.

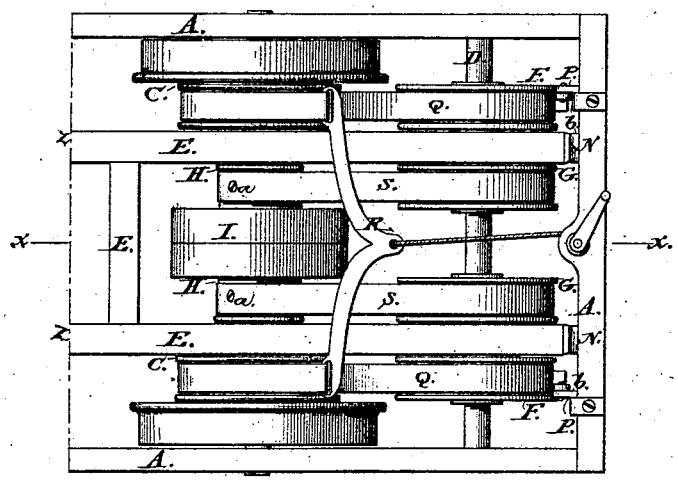


Fig. 2.

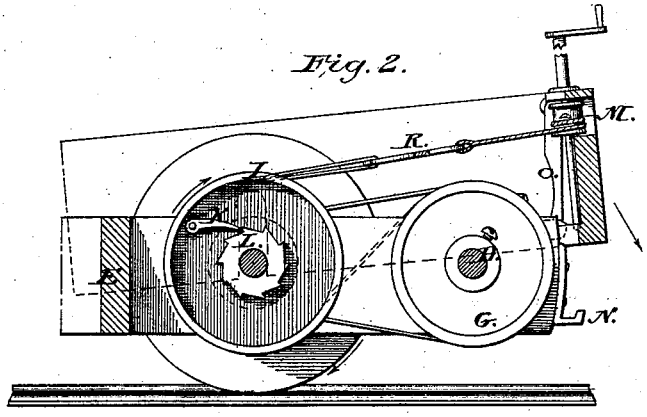
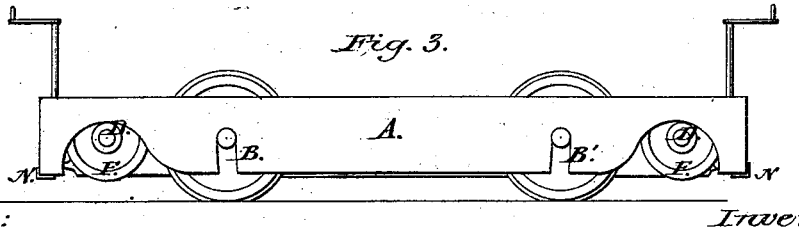


Fig. 3.



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UNITED STATES PATENT OFFICE.

LEWIS R. SHARP, OF NEW YORK, N. Y.

IMPROVEMENT IN CAR-STARTERS.

Specification forming part of Letters Patent No. **183,481**, dated October 17, 1876; application filed June 20, 1876.

To all whom it may concern:

Be it known that I, L. R. SHARP, of the city of New York, in the county of New York and State of New York, have invented a new and Improved Mode of Starting and Stopping Cars; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification.

My invention is an improvement upon that class of inventions known as car-brakes and starters, and has for its object to relieve horses or other power from the strain caused in the effort to give motion to vehicles when entirely at rest, or to stop them while in motion. In my invention I rely principally upon the weight of the body of the vehicle, but at the same time employ a system of belt-gearing with pulleys, &c., to facilitate the work of lifting the weight, which by gravity, in turn, operates, through the agency of pulleys and belts, to give motion to the wheels of the car.

Figure 1 is a plan or top view of a skeleton truck, which represents the car for all practical purposes. Fig. 2 is a vertical longitudinal section on line *x x*. Fig. 3 is a side elevation of car.

Similar reference letters denote like parts in all the figures.

A is the frame of a car, shown as bearing upon the axles, as in Fig. 3. Slots B B′ are formed in the side beams of the frame, to allow the body to move freely up and down about its bearings, which are the axles of the car-wheels. It will be observed that only one end of the car is to be lifted, the mechanism to be made reversible or double in its application. The end to be lifted is the one representing for the time the front of the car. The axles of the car are to be provided with suitable bearings in an inside frame, E, to give every customary facility to the movement of the car. Upon either or both axles of the car, immediately inside of the wheels, I fix rigidly the pulleys C C. Between the axles and the front or rear rails of the frame A, I provide shafts D D, which have their bearings in the side rails of the inside frame E. To this shaft I attach, firmly, pulleys F F and G G, the two, F F, being opposite pulleys C C, and those marked G G opposite small pulleys H H, which bear upon the car-axles loosely, but which are firmly attached to the drum I. The drum I incloses a disk which has attached to it a pawl, K, which falls against a ratchet-wheel, L, which is attached firmly to the axle of the car, and moves with it. A windlass, M, is provided at either or each end of the car, to be operated by the driver, in the manner hereafter described, to lift the weight, which, by gravity, is to give the required movement. The forward and rear beams of the car-frame are provided with strong metal shoes N, which serve as bearings when the frame or body is horizontal, and as fulcrum-rests when it is being elevated. Arms O O, (secured to lugs on the car-body and pulleys F F,) and the forward pulleys F F, through the movement from the windlass, lift the weight. Belts or bands Q Q are secured to pulleys F F, just back of lugs *b b*, on the periphery of said pulleys, and pass over said pulleys, and thence under pulleys C C on the axle of the car. A yoke, R, catches the ends of these belts, and unites them. A chain or rope, which is wound about the drum of the windlass M, is secured to said yoke. Belts or bands S S pass over pulleys G G and H H, and are secured about the drums of the latter by pins *a a*.

Having thus described the construction, I will now give the manner of operating my device. We will suppose the car to be at rest and the body down. The crank attached to the shaft of the windlass will be moved by the driver, and as the chain is wound about the drum of the windlass, the belts Q Q draw the pulleys F about their common axis, and carry with them the arms O O, which lift the forward part of the car-body, while the rear rests upon the shoes N. By the same movement the pulleys G G and H H, being united by belts S S, are revolved, and carry with them the car-axle, and outer casing and disk of drum I, as well as the pawl K, which clicks back over the teeth of the ratchet-wheel, until the body has reached the desired height, when the crank of the windlass is released, and is allowed to return. The pawl K immediately engages the ratchet L, while the weight of the car-body, acting through the arms O and pulleys F, H, and G, revolve the forward

car-axle, and with it the wheels, over the track. In using the device as a brake, it is only necessary for the driver, while the car is in motion, to lift the car-body slightly, by means of the windlass, and hold it firmly, so that the weight will produce a counter-action to check or stop the movement of the car through friction between the car-wheel pulleys C, attached to axle of car, and the belt passing about the periphery of same.

I have described, and would prefer to use the pulleys and belts to produce the desired movement in elevating the car-body, although I do not wish to be excluded from the use of mechanical equivalents not foreign to my principle—such, for instance, as cog-wheels instead of smooth pulleys, or chains, or ropes, to substitute the belts or bands.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The mechanism herein described, composed of the windlass M, connected with belts by the yoke, in combination with pulleys C and F, and arms O attached to the body of the car, to form the lifting device, as described, for the purpose set forth.

2. The weighted body of the car, arms O, pulleys F and G, moving about the shaft D, belts S, or their equivalents, pulleys H, and drum I, with its ratchet device, all combined to form the starter, as described, for the purpose set forth.

3. The inside frame E, providing bearings for the shafts D and car-axles, with its shoes N, to form, together with the car-axles, supports for the body of the car while not being lifted, as and for the purpose set forth.

4. The counter-action car-brake produced through windlass M, yoke R, pulleys C and F, and car-body attached by arms O, as described.

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Witnesses:
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A. L. THOMAS.