S. S. VOLLUM.

CAR-STARTER.

No. 186,908. Patented Jan. 30, 1877.

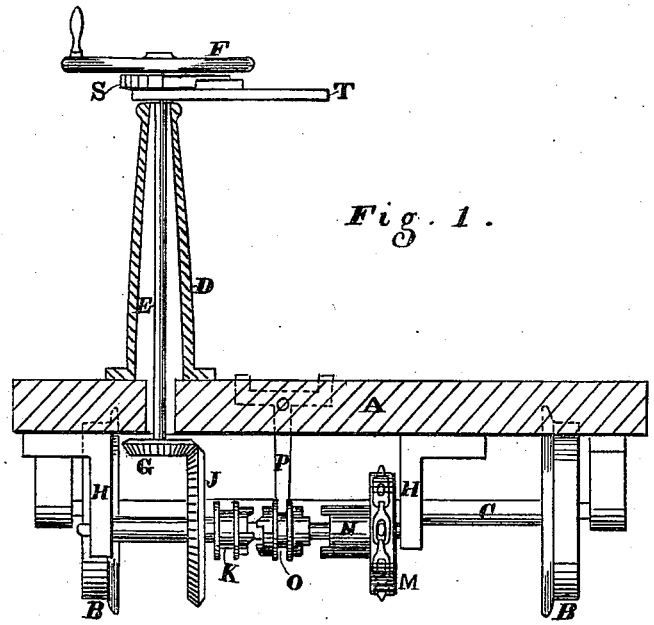
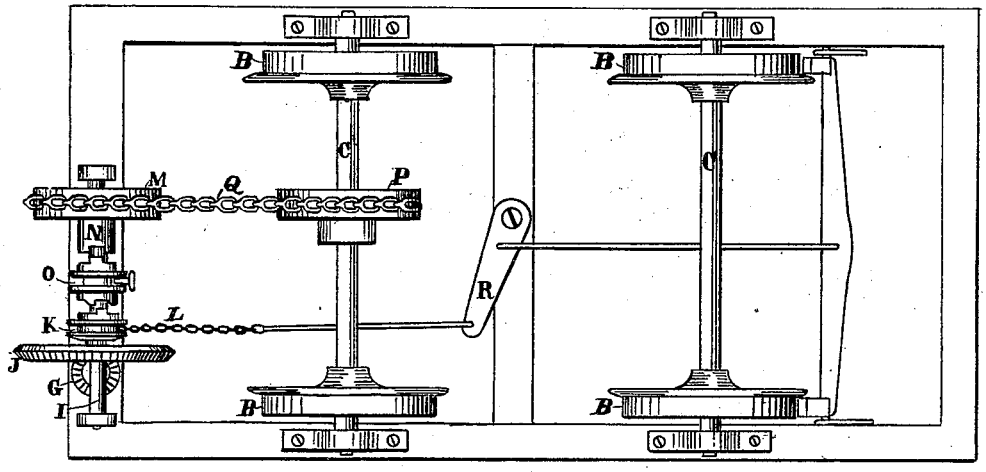


Fig. 1.

Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

SAMUEL S. VOLLUM, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN CAR-STARTERS.

Specification forming part of Letters Patent No. **186,908**, dated January 30, 1877; application filed October 7, 1876.

To all whom it may concern:

Be it known that I, SAMUEL S. VOLLUM, of San Francisco, California, have invented an Improved Street-Car Brake; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention relates to an improved arrangement for operating brakes on street-cars, and also to the combination, with said brake-operating mechanism, of a device for enabling the driver or other person standing on the platform of the car to assist the horses in starting the car into motion from a state of rest.

Referring to the accompanying drawings, Figure 1 is a transverse section of the car. Fig. 2 is a view of the bottom, showing the gearing.

Let A represent the frame of a street-car. B B are the supporting-wheels, and C the axles which connect them. On each end of the car, where the upright brake-shaft and hand-wheel are usually applied, I secure to the floor of the platform an upright hollow standard, D. A shaft, E, passes upward through this hollow standard, and has a hand-wheel, F, secured to its upper end above the hollow standard, while the lower end of the shaft projects below the floor of the car, and has a small bevel-wheel, G, secured to it. To the under side of the car, below this standard, and at a suitable distance apart, I secure two depending standards or hangers, H H, the lower ends of which serve as bearings for a horizontal shaft, I. A large bevel-wheel, J, is secured upon this shaft, so as to engage with the bevel-wheel G on the lower end of the upright shaft E, so that when the shaft E is turned by means of the hand-wheel F the motion will be transmitted through the gears to the horizontal shaft below. Upon the shaft I, next to the bevel-wheel J, is a spool or loose pulley, K, one side of which forms one-half of a clutch. The chain L, which operates the brake-bars and brakes, is attached to this spool. On the opposite end of the shaft I is a loose chain-pulley, M, the hub N of which also forms the half of a clutch. O is a sliding clutch, which moves on a feather on the shaft I, between the spool K and hub N, so that by moving it in one direction it engages with the half-clutch of the spool, and winds up the brake-chain when the shaft I is rotated, and, when moved in the other direction, it engages with the half-clutch of the hub N, and causes the chain-pulley to rotate while the loose spool K remains stationary. A chain-pulley, P, is secured on the axle C in line with the pulley M, and an endless-link chain, Q, passes around them, the links of which engage with spurs on the wheels, so that when the pulley M is rotated by means of the hand-wheel F and shafts E and I the axle C will also be rotated, and the car driven forward by hand-power.

The sliding clutch O is operated by a three-armed lever, P, which is attached by a central pivot to the inside of the end timber. Two arms of this lever project up through the floor of the platform, while the third extends down and is connected with the sliding clutch, so that the driver can, by pressing upon the upper projecting ends of the levers, throw the clutch in either direction into connection with either of the half-clutches, as desired. A ratchet-wheel, S, is attached to the upper end of the upright shaft E, directly below the hand-wheel, and a lever-arm, T, is secured loosely upon the shaft beside the ratchet-wheel, so as to project out beyond the hand-wheel. A spring-pawl, U, is attached to the hand-lever, so as to engage with the ratchet-wheel. This lever serves to aid the driver in rotating the shaft E, in the manner of operating a capstan, when additional power is required to aid in starting the car.

I thus provide a device for enabling the driver not only to operate the brakes readily, but also to help the horses start the car.

This car-starting device will be especially useful in case the horses, or either of them, should balk or refuse to pull, as the driver can start the car himself, and thus relieve the horses of the strain until it gets started, which will generally start the balky horse to work, and in case of accident to the brakes on a side hill or incline, as often happens, the chain will enable the driver to hold the car until the wheels are blocked, and thus avoid an accident.

In the present instance I have represented my car-brake and starter attachment as applied to one end of the car only, but, in prac-

tice, it will be applied at both ends of the car, so that the brake and car-starter can be operated at either end.

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

1. The upright shaft E, supported in the upright hollow standard D, and having the hand-wheel F on its upper end and bevel-wheel G on its lower end, in combination with the horizontal shaft I, with its bevel-wheel J, spool K, and clutch O, said clutch being operated by the foot-lever R, substantially as and for the purpose described.

2. The horizontal shaft I, supported beneath the car, parallel with the axle C, and having a chain-pulley, M, secured upon it, said chain-pulley being connected, by means of an endless chain, Q, or equivalent device, with a chain-pulley, P, on the axle, in combination with the sliding clutch O, bevel-wheel J, and upright shaft E, with its hand-wheel F and bevel-gear wheel G, all combined and arranged substantially as and for the purpose described.

3. A car-starter arranged to be operated by the driver of the car by applying hand-power to the brake-wheel F, and transmitting the same by means of suitable mechanism to a chain-pulley, M, which is connected, by an endless chain, Q, with a chain-pulley, P, on the axle C, or by other equivalent connection, substantially as and for the purpose described.

In witness whereof I have hereunto set my hand and seal.

SAMUEL S. VOLLUM. [L. S.]

Witnesses:
O. T. STACEY,
W. B. SCHWARTZ.