E. O. TRUEBLOOD.

Car-Starters and Brakes.

No. 149,812. Patented April 14, 1874.

Fig. 1.

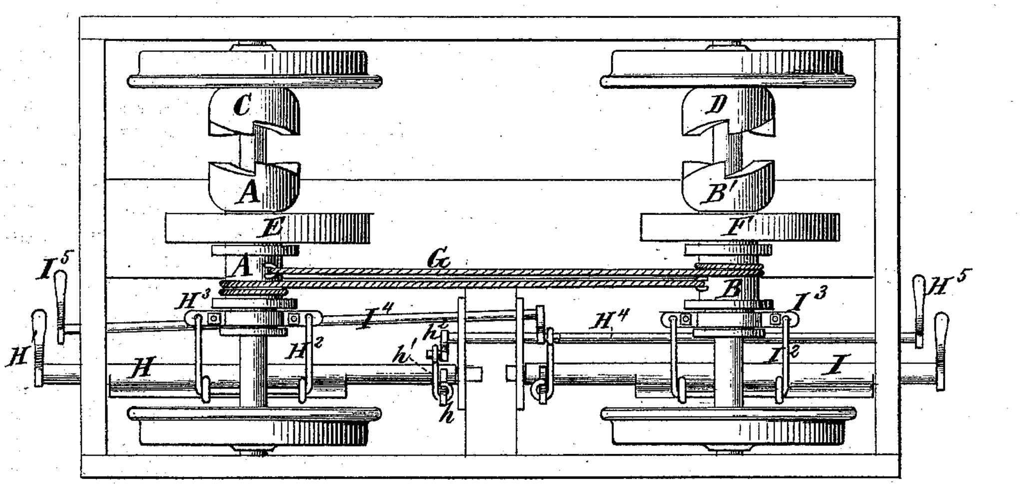
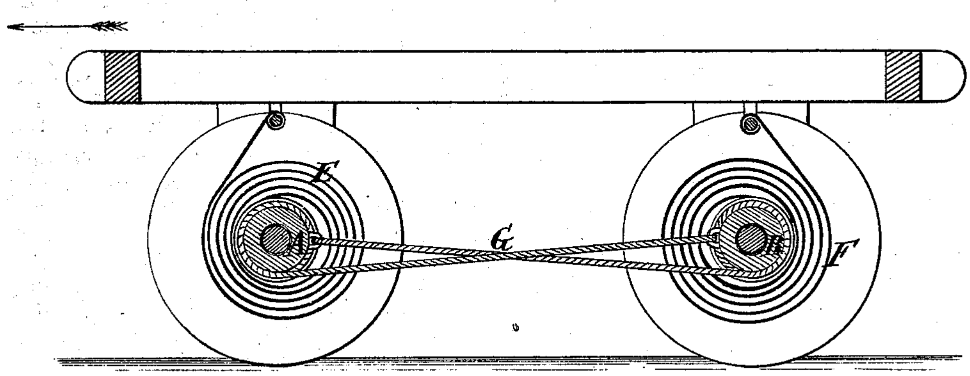


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

EPHRAIM O. TRUEBLOOD, OF SOUTH BEND, INDIANA, ASSIGNOR OF ONE HALF HIS RIGHT TO STEVENS S. JONES, OF ST. CHARLES, ILLINOIS.

IMPROVEMENT IN CAR STARTERS AND BRAKES.

Specification forming part of Letters Patent No. **149,812**, dated April 14, 1874; application filed February 7, 1874.

To all whom it may concern:

Be it known that I, EPHRAIM O. TRUEBLOOD, of South Bend, in the county of St. Joseph and State of Indiana, have invented a certain Improvement in Combined Car Brakes and Starters, of which the following is a specification:

The nature of my invention, which is more especially intended for use on street-cars, consists mainly in the combination, with the respective trucks, of springs and such auxiliary mechanisms that the springs will be wound up and unwound in unison in stopping and starting the car, the disposition of the parts being such that the stopping of the car is effected through the action of one of the axles on the springs, and its starting by the reaction of the springs on the other axle. Suitable hereinafter-fully-explained means are also provided for operating the stopping and starting mechanism from either end of the car, and for locking it to suspend its action while the car must be kept at a standstill.

In the annexed drawings, Figure 1 is a bottom view of the frame-work and running-gear of a street-car with my improvements attached. Fig. 2 is a vertical longitudinal section thereof.

The same letters of reference are used in both figures in the designation of identical parts.

Upon the axle of each truck of the car is placed a drum, marked respectively A and B, which are free to turn and slide endwise independently of the axles. They terminate at one end in clutches A′ and B′, adapted to engage with the fixed clutches C and D on the respective trucks. The drum A is encircled by a coiled spring, E, and the drum B by a similar spring, F. The outer ends of the springs are linked to the bottom timbers of the car-body, while their inner ends are suitably fastened to their respective drums. Their convolutions run in opposite directions, as clearly shown in Fig. 2, and so that, to wind up the spring at what, for the time being, may be the forward end of the car, its drum must be turned in the same direction in which the axle carrying it revolves during the progression of the car. The revolution of either of the drums is transmitted from it to the other, so as to turn it in an opposite direction, by chains or cords G, which reel from one to the other. This may also be effected by an endless crossed chain moving over sprockets on the drums, to prevent slipping. To slide the drums endwise on their axles, for the purpose of throwing their clutches in and out of gear, an independent actuating mechanism, capable of being operated from either end of the car, is employed for each. The drum A is thus moved by means of the crank or rock shaft H through rods H^2, connected to a yoke, H^3, which embraces the drum in a groove formed around it. One end of this rock-shaft reaches to that end of the car adjacent to the drum it is employed to move, and is provided with a hand-lever, H^1, by which the driver may oscillate it. The other end, terminating near the middle of the car, has a short arm, *h*, which is connected by a rod, h^1, to a similar arm, h^2, on the inner end of a rock-shaft, H^4, which reaches to the opposite end of the car, and carries there a hand-lever, H^5, by which to operate it. Similarly arranged and connected shafts I and I^4 are used to move the drum B endwise through rods I^2 and yoke I^3.

In describing the operation of my invention I assume the car to be moving in the direction of the arrow in Fig. 2. To stop it, the driver turns the lever H^1 so as to throw the drum A in gear with the clutch C on the forward truck. In revolving with its axle the drum A also causes the drum B to turn so that both springs E and F will be wound up until the momentum of the car is about spent, when the driver also turns the lever I^5 so as to throw the drum B in gear with the clutch D on the rear axle. As the springs could now uncoil only by turning the trucks in opposite directions—*i. e.*, by slipping the wheels on the tracks—and as this is prevented by the superincumbent weight of the car, they remain effectually locked in their contracted state and the car at a standstill. To again start the car, unclutch the drum A, when the combined force of both springs will be immediately exerted upon the rear axle, revolving it so as to properly move the car forward. When the springs have entirely uncoiled themselves, the drum B is automatically disengaged from the clutch D by reason of the construction of the interlocking teeth, which will be readily understood from an inspection of the drawings.

When the car is moving in a direction oppo-

site to that assumed, it is stopped and started in precisely the same manner just explained, except that the action begins with the drum B and ends with the drum A.

It is proper to observe here that springs of different construction and differently arranged from those shown and described, although involving modifications in the other mechanisms used, may be employed without departing from the principle of my invention, the gist of which consists in the application of a pair, or two sets, of springs, one for each truck, which are always contracted in unison by one truck in stopping the car, and likewise expand in unison, to start it again through the other truck. This mode or principle of operation enables me to use a single line of transmitting mechanism, and distinguishes my invention broadly from all other apparatus for this purpose heretofore constructed with a spring for each truck, for in every instance of this kind the transmitting devices were also duplicated, and thus the apparatus became simply a duplex one, whereas mine remains a unitary one.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A car stopping and starting mechanism, consisting of two springs, respectively connected to the body and two axles of a car, and both to operate in unison through a single line of gearing, all combined, to stop and start the car, substantially as specified.

2. The combination of the springs E and F, loose geared drums A and B, provided with clutches A′ and B′ respectively, and the clutches C and D fixed on the two trucks of the car, substantially as specified.

In testimony whereof, I have signed my name to the foregoing specification in the presence of two subscribing witnesses.

EPHRAIM O. TRUEBLOOD.

Witnesses:

J. C. KNOBLOCK,

W. G. GEORGE.