A. WHITE.

Car Brake and Starter.

No. 217,252. Patented July 8, 1879.

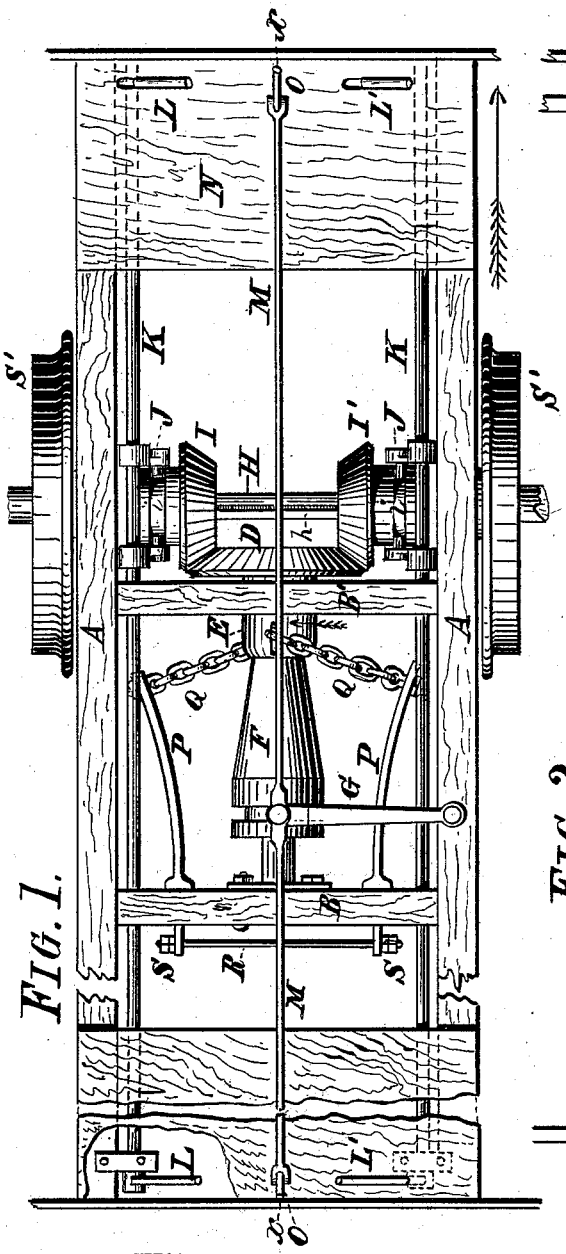

FIG. 1.

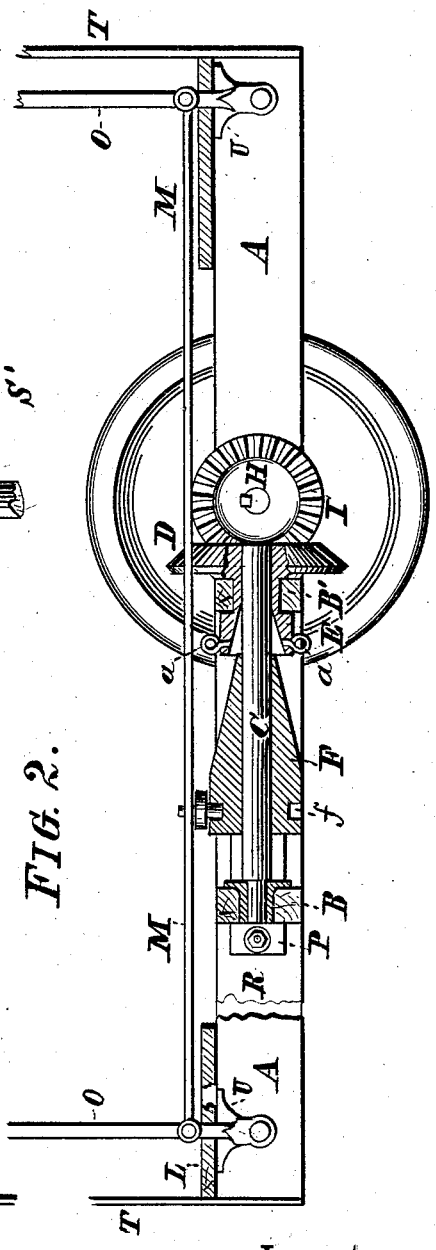

FIG. 2.

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UNITED STATES PATENT OFFICE.

ALBERT WHITE, OF ST. THOMAS, ONTARIO, CANADA.

IMPROVEMENT IN CAR BRAKE AND STARTER.

Specification forming part of Letters Patent No. **217,252**, dated July 8, 1879; application filed April 22, 1879.

To all whom it may concern:

Be it known that I, ALBERT WHITE, of St. Thomas, in the county of Elgin and Province of Ontario, Canada, have invented certain new and useful Improvements on a Combined Car Brake and Starter; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheet of drawings, forms a full, clear, and exact specification, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has general reference to a novel car brake and starter; and it consists in the peculiar combination of parts and details of construction, as hereinafter first fully described, and then pointed out in the claims.

In the drawings, which serve to illustrate my invention more fully, Figure 1 is a plan of a car truck and platform provided with my improved brake and starter. Fig. 2 is a longitudinal sectional elevation in line *x x* of Fig. 1.

Like parts are designated by corresponding letters of reference in all the figures.

The object of my present invention is the production of a device which shall effectually retard and arrest the motion of a railway-car, and assist in again starting the same, said device to be so constructed as to be readily applied to any existing railway or street car.

To attain this end I provide an ordinary car-frame, A, with two cross-beams, B B′, placed a sufficient distance apart to admit the mechanism hereinafter described between them. These beams I provide with suitable bearings for a shaft, C, having on one of its ends a bevel-wheel, D, in front of the cross-beam B′, and behind the same a collar, E. Upon the shaft C, I further arrange a conical sleeve, F, having a groove, *f*, wherewith engage the prongs of a clutch-lever, G, so as to slide this sleeve back and forth upon said shaft C.

One of the axles H of the car-truck I provide with two bevel-pinions, I I′, having grooves *i* in their hubs, wherewith engage the clutch-levers J, fixed upon shafts K, said shafts running parallel with the main timbers A, and provided at their ends with hand-levers L, (two upon each platform.) To the clutch-lever G, actuating the sliding sleeve F, are affixed rods M, terminating upon each platform N in hand-rods O.

The cross-timber B is provided with two mortises for the passage of two leaf-springs, P, having chains Q connecting their front ends with eyes *a* on the collar E. The rear ends of these springs penetrate the cross-beam B, and have an adjusting-bolt, R, running through them, to give tension to the springs, in a manner hereinafter to be referred to, by means of nuts S.

The operation of this device is substantially as follows: Supposing a car in motion to be "braked down," the parts previous to applying my brake arrangement being in such a position that the two bevel-wheels I I′ are disconnected from the bevel-wheel D, the springs P relaxed, and the axle H with the car-wheels S in motion, by throwing either one of the bevel-pinions I I′ into mesh with the bevel-wheel D, the latter is caused to revolve, and with it the shaft C and collar E, which collar, by means of the chains Q, causes the springs P to be bent by pulling them toward the shaft C. These springs, being made of heavy steel properly tempered, offer sufficient resistance, so as to stop the car by the time they are drawn tight and close up to the collar E. Now, the opposite bevel-pinion is caused to engage the bevel-wheel D, which, being under the influence of both pinions, neutralizes their opposite energy, and thus stops the motion of the axle H and wheels S′, causing them to slide upon the rails in case their motion was not already arrested by the action of the springs P. In this position of the parts the said springs P are retained in a state of tension until the proper pinion, I or I′, is disengaged from the bevel-wheel D, when said springs, tending to unwind their chains Q, revolve the shaft C and its appurtenances in the proper direction, and thus cause a forward or back movement of the car, as the case may be, until their stored-up power is absorbed.

It will now be readily understood that, the car having traveled in the direction of the arrow in Fig. 1, the lever L′ having been actuated, and the pinion I′ caused the winding up of the chains Q in the direction also indicated by an arrow, the bevel-pinion I must be in gear to assist in a forward motion of the car when again starting, which can be done by disengaging the pinion I′, while, if it was desired to back after stopping, the pinion I would

be disengaged, and the pinion I′ left in gear with the bevel-wheel D.

In this manner the accumulated power of the springs P can be made available for either backing up or going ahead after stoppage, by actuating the corresponding levers L L′, which will be readily learned after a few trials.

The momentum attained by a car in motion differing with the speed or the load, provision must be made to vary the leverage of the device actuating the springs P, so as to cause their tension to take place in a longer or shorter space of time. To accomplish this result I have placed the cone-sleeve F upon the shaft C, upon which the chains Q will wind when bending the springs P. This cone is arranged to slide part way into the collar E, and, thereby increasing in diameter, decreases the leverage upon the springs, which will thereby offer greater resistance to the momentum of the car as its diameter increases.

To avail myself of this principle, I have connected the sliding cone F with the hand-levers O, so as to bring it within easy reach of the driver, who, by properly actuating these levers, increases or decreases the leverage of the cone in proportion with the speed or the load of the car, using his judgment as to the distance the said sleeve should slide toward the collar E to produce the desired result—a matter which by a few trials can be readily ascertained.

To adjust the tension of the springs aside from the adjustment attainable by the cone F, I place the adjusting-bolt R through the springs P, which, when drawn closer together, increases, or when slacked up reduces, the resistance of the springs, in a manner readily understood.

It will be further observed that the action of my brake is positive, no matter whether the car is going ahead or astern, and that after being stopped it can be started in either direction by simply actuating the levers L L′ in the proper order.

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

1. In a car-starter, in combination with a car-axle and two independent opposite gear-wheels feathered thereon, a supplemental shaft having a fixed gear-wheel, and connected by chains winding on a conical drum to springs, the arrangement and construction of said parts being such that when either sliding gear-wheel is thrown into engagement with said fixed gear-wheel the movement of the car will subject the springs to tension, as and for the purpose set forth.

2. In car brakes and starters, the combination, with the shaft C, having mechanism for rotation, as described, of the cone F, upon which the chains Q are wound, whereby the leverage of the brake is increased or decreased, substantially as and for the purpose indicated.

3. The combination, with the shaft H, having the sliding pinions I I′, of the shaft C, bevel-wheel D, collar E, cone F, lever G, and the springs P, as and for the purpose specified.

In testimony that I claim the foregoing as my invention I have hereto set my hand and affixed my seal in the presence of two subscribing witnesses.

ALBERT WHITE. [L. S.]

Witnesses:
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