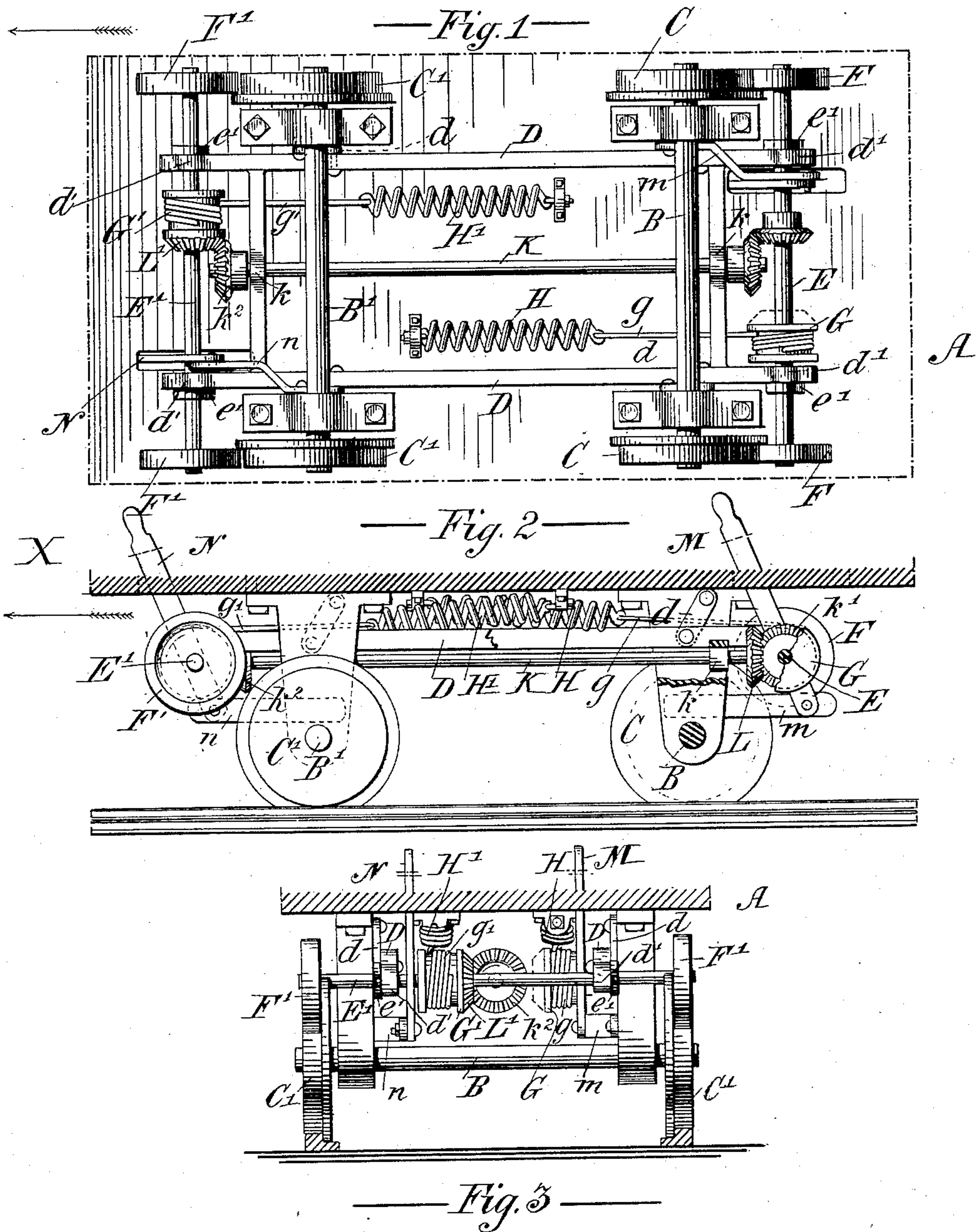


(No Model.)

W. H. SNIDER.
CAR STARTER AND BRAKE.

No. 363,770.

Patented May 24, 1887.



Witnesses:
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UNITED STATES PATENT OFFICE.

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CAR STARTER AND BRAKE.

SPECIFICATION forming part of Letters Patent No. 363,770, dated May 24, 1887.

Application filed March 23, 1887. Serial No. 232,160. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HENRY SNIDER, of the city of Toronto, in the county of York and Province of Ontario, Canada, have
5 invented certain new and useful Improvements in Apparatus for Braking and Starting Cars; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to appliances used for
10 stopping and starting street-cars and vehicles of like description, and has for its object to effect the double operation of braking or stopping the car and starting same again by simple and inexpensive means, which can be actuated from either end of the car, and which will
15 operate equally well with the car running in either direction.

To this end the apparatus consists, principally, in two shafts carried by a light swinging frame arranged underneath the car, said
20 shafts being parallel to the axles and each carrying a pulley and two friction-wheels, the pulley being adapted to wind up a chain or cord the other end of which is secured to a spring
25 fastened to the car-body, and the friction-pulleys arranged near the peripheries of the car-wheels, so as to be readily thrown into contact therewith. A horizontal shaft is journaled in the swinging frame, and has miter-gears on
30 each end, which intermesh with other miter-gears mounted upon the transverse shafts, to insure the simultaneous revolution of both shafts in opposite directions, and hand-levers are also provided at each end of the car to
35 move the swinging frame, and thus throw the friction-wheels into contact with the car-wheels at either end.

For full comprehension of my invention reference must be had to the accompanying drawings, forming part of this specification, in which
40 similar letters of reference indicate like parts.

In said drawings, Figure 1 represents a bottom plan of part of a car, showing two axles and their wheels with my apparatus combined
45 therewith; and Fig. 2 a side elevation, partly in section, of the same devices, both of these views showing the car as traveling in the direction of the arrows and with the brakes applied to the rear wheels. Fig. 3 is an end elevation.

50 A represents the body of the car, B B' the two axles, and CCC' C' their respective wheels,

said axles and wheels being journaled and arranged in relation to the car in any of the well-known ways, either with or without trucks.

D is the frame which carries the stopping
55 and starting mechanism, preferably made up of two longitudinal and two cross bars, and hung loosely to any convenient part of the car-body, journal-bearings, or trucks by pivoted links *d d*. 60

E E' are the transverse shafts, arranged parallel to the axles B B' and journaled at *d' d'* in the longitudinal bars of the frame D, small collars *e' e'*, or other equivalent means, being provided to keep said shafts from sliding lengthwise. 65 Upon the extreme outer ends of these shafts are firmly mounted friction wheels or disks F F' F', of any suitable size, material, or construction, arranged in line with the car-wheels; also, fixed upon the shafts are pulleys or drums 70 G G', to which are connected cords or chains *g g'*, the other ends of such cords being attached to coiled springs H H', which are in turn fixed at one end to the car-body A.

Centrally in the swinging frame D, and journaled at *k k* in the cross-bars thereof, is a horizontal shaft, K, having fixed upon its ends the miter-gears *k' k'*, that marked *k'* intermeshing with a miter-gear, L, mounted on the transverse shaft E, and the gear *k'* meshing with a beveled gear, L', at the side of the drum or pulley G'. The position of these gears may be reversed, or they may be otherwise modified, according to the judgment of the mechanic. 80

M and N are hand-levers projecting through
85 the floor of the car or its platforms, the same being fixed to the shafts E E', so as to move with them, and pivoted at their lower ends to short fixed bars *m n*, projecting from the journal-bearings of the car-wheels, as shown, or
90 from some convenient parts of the trucks or car-frames.

The operation of my invention is as follows: Normally, the swinging frame D will hang plumb from the bottom of the car and all of
95 the friction wheels or disks will be clear of the wheels, the cords or chains *g g'* being unwound from the pulleys or drums G G', the springs H H' out of tension, and the levers M N approximately in a vertical position. Assuming 100 that X is the front of the car and that it is moving in the direction of the arrows in the

drawings, the hand-lever N has been pushed forward by the driver, and by the movement in that direction of the frame D the friction-wheels F F thrown against the rear wheels.

5 The rotation of the latter, acting by friction upon the disks, has caused the shafts E and E' (connected as they are by the gear-shaft K) to revolve simultaneously, and in this manner wind up the cords *g g'* upon their respective
10 drums and extend the coiled springs H H'. This being accomplished, the car is stopped. To again start the car, the lever N is released and pulled back and the tension of the springs will cause the cords to rapidly unwind from
15 the drums, the weight of the frame assisting it to assume the reverse position, which will throw off the brake at the rear and apply the front friction-disks to the front wheels, and as the cord continues to unwind the friction of
20 said front disks upon the car-wheels will cause the latter to turn, and thus start the car forward.

When the springs are out of tension, the shafts E E' will cease to revolve, and the hand-levers being fully released, the swinging frame
25 assumes its normal position, while the car proceeds.

Should the conductor at the rear of the car wish to apply the brake at that end, he pulls backward the lever M into the position shown,
30 and the action above described takes place; and if the driver wishes to brake the front wheels of the car he pulls the lever N backward, and so on.

Ratchets or clutch devices may be provided for the levers, and brake-wheels or crank-shafts 35 may be substituted for the levers shown in the drawings; and, furthermore, I may provide boxes or casings for the springs, gears, &c., and otherwise modify and amplify the details of construction without departing from my in- 40 vention.

What I claim, and desire to secure by Letters Patent, is as follows:

In an apparatus for braking and starting cars, the combination, with the car-body and 45 the wheels, of a swinging frame pivoted to the under side of the car-body, two transverse shafts, and a longitudinal shaft geared to said transverse shafts, all journaled in said swinging frame, friction wheels or disks fixed on the 50 ends of said transverse shafts and adapted to be thrown into contact with the car-wheels, pulleys or drums upon the transverse shafts, springs attached to the car and connected with said pulleys or drums by cords or chains, and 55 levers for moving the swinging frame, all arranged to operate substantially in the manner and for the purpose set forth.

Toronto, Ontario, February 24, 1887.

WILLIAM HENRY SNIDER.

Witnesses:

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