J. E. BROWN.

Car-Brake and Starter.

No. 200,167. Patented Feb. 12, 1878.

Fig. 1.

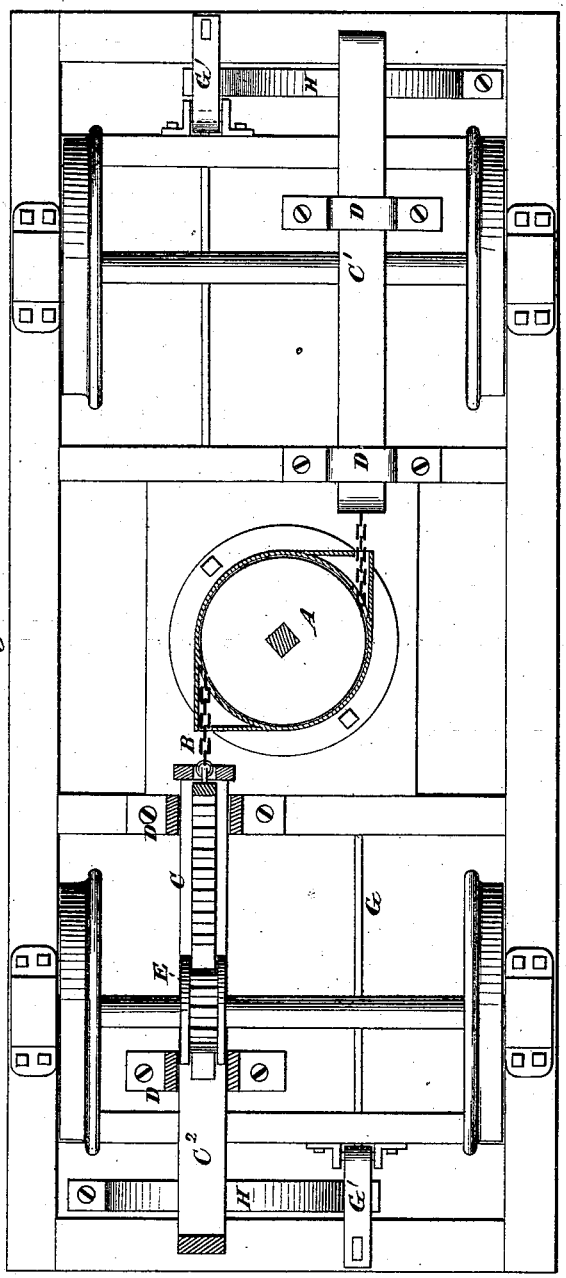


Fig. 2.

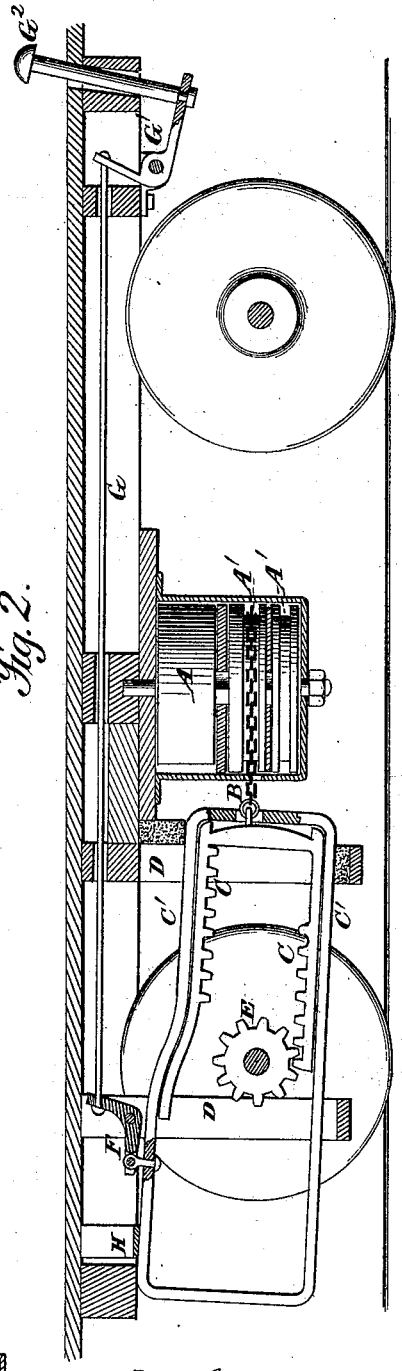
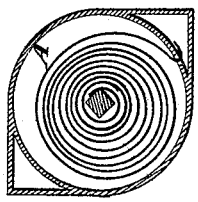


Fig. 3.



Witnesses.

A. Ruppert,

D. P. Cook

J. E. Brown

Inventor.

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Atty

UNITED STATES PATENT OFFICE.

JOHN E. BROWN, OF LANSINGBURG, NEW YORK.

IMPROVEMENT IN CAR BRAKE AND STARTER.

Specification forming part of Letters Patent No. **200,167**, dated February 12, 1878; application filed November 6, 1877.

To all whom it may concern:

Be it known that I, JOHN E. BROWN, of Lansingburg, in the county of Rensselaer and State of New York, have invented new and useful Improvements in a Car Brake and Starter, of which the following is a specification:

This invention belongs to that class of car brakes and starters in which the tension of a spring, acting through a double ratchet on a pinion on the car-axle, is made to resist the forward movement of the wheel in stopping the car, and with a like force to act through the opposite rack to give forward movement to the wheels in starting.

My invention consists in forming the lower rack with a blank space at the end where the chain is attached, so that the spur-wheel, by slipping cogs, will continually catch the last tooth in the rack, and so continue to apply the maximum resistance of the spring as long as the wheel continues to revolve with the forward movement of the car.

In the annexed drawings, making a part of this specification, Figure 1 is a plan view of the bottom of the car. Fig. 2 is a longitudinal sectional elevation. Fig. 3 is a horizontal sectional view of the spring.

The same letters are employed in the figures in the indication of identical parts.

The braking and starting apparatus is duplicated, in order that it may always be applied to the hind wheels; but as the devices are the same I have only shown one, and will only describe one.

A is a coiled spring, wound up in a box under the car midway between the axles, the end of the spring being attached to a rotating shaft, by turning which the spring may be wound sufficiently to give it any desired initial tension. On this shaft, below the spring, are placed pulleys A′ A′, to receive the chain B, which connects the spring with the yoke C, which slides in a frame, C′, fastened to the body of the car by hangers D D, which hold it rigidly in place as to any horizontal motion by allowing it sufficient vertical oscillation to throw the teeth of the rack at the bottom and top of the yoke C alternately into gear with the bottom or top of the spur-pinion E keyed to the axle of the car.

A blank space is left at the front end of the lower rack, so that the pinion may run beyond the rack, when it will continue to slip cogs as long as the wheel remains in motion; but at the same time will continually resist it with the full tension of the spring.

F is a bell-crank lever, one arm of which is connected by a link with the free end of the frame C′, and the other end is connected by a rod, G, under the platform, on the other end of which lever is a foot-rod, G^2, by means of which the driver, by pressing down the rod G^2, may lift the frame C′ so as to bring the rack on the under side of the yoke into gear with the lower side of the pinion E on the axle.

The wheel being in forward movement, the pinion will draw back the yoke, and with it unwind the chain B against the resistance of the spring until the pinion E is received into the blank space left in the front end of the yoke. It will then slip cogs, and each time that the cogs strike the spur-pinion it will resist its forward movement with the whole force of the spring.

If continued long enough, the car will be brought to a stop, and when ready to start, the driver suddenly taking his foot from the rod G^2, the spring H, bearing on the free end of the frame C^1, will instantly throw the upper rack into gear with the top of the pinion E, so that the tension of the spring will be brought to act on the top of the pinion, thus giving an impulse forward to the wheel.

It is evident that, in descending a grade, the driver may use the rack and pinion as a means of braking the car by letting the force on and off, as may be found necessary to check its impetus.

A safety-brake may be attached to a car, if required.

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

1. The combination of the axle and single fixed pinion, spring, and chain with the yoke C, the lower part of which has a blank space at the forward end for slipping gear against

the constant resistance of the spring, substantially as set forth.

2. The combination of the axle and spur-pinion with the yoke C, oscillating frame C′, spring H, and system of levers and rods for actuating the braking and starting mechanism from the front platform, substantially as set forth.

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

JOHN E. BROWN.

Witnesses:
L. S. CLAPP,
T. VAN DERVECKER.