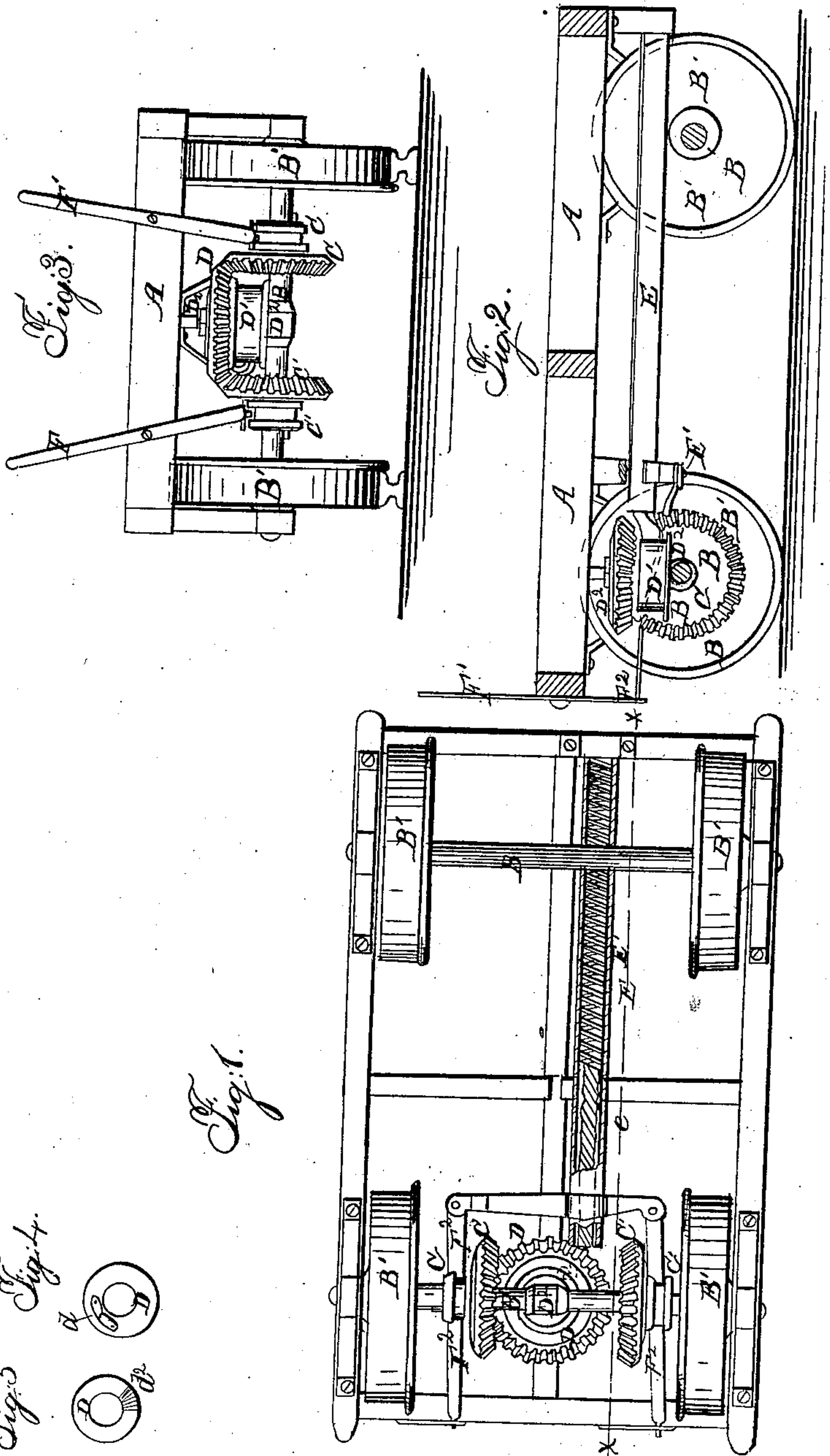


D. M. MOORE.

Car-Starter.

No. 92,869.

Patented July 20, 1869



Witnesses.
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D. M. Moore Inventor.
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UNITED STATES PATENT OFFICE.

DAVID M. MOORE, OF WINDSOR, VERMONT.

IMPROVED CAR BRAKE AND STARTER.

Specification forming part of Letters Patent No. 92,869, dated July 20, 1869.

To all whom it may concern:

Be it known that I, DAVID M. MOORE, of Windsor, in the county of Windsor and State of Vermont, have invented a new and useful Power-Retaining Brake for Railroad-Cars; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a plan or top view of a car-truck with my improvement attached, with a portion of the spring-tube removed to show the arrangement of the spring therein. Fig. 2 is a sectional elevation on line *x x* of Fig. 1; and Fig. 3 is an end view, showing the arrangement of the gear-wheels and the braces for throwing them in and out of gear with each other.

Corresponding letters refer to corresponding parts in the several figures.

This invention relates to a power-retaining brake for street and other cars, which is to be so arranged that the force expended in stopping the car may be stored up for use in starting the same; and it consists in the combination and arrangement of the parts, as will be more fully explained hereinafter.

A in the drawings represents the frame-work of the car or of a truck for a car, which may be constructed as shown in the drawings, or in any other suitable manner, it being provided with the necessary jaws and boxes for the reception of the journals of the axles. B B represent the axles, and B' B' the wheels, which are to be of any approved construction, and may be secured to the frame of the car in any of the well-known ways.

C C' represent beveled gear-wheels, which are to be provided with hubs upon their outer surfaces, in which there are to be formed grooves for the reception of the bifurcated end of a lever or of a pin secured to such lever, for the purpose of throwing such wheels into and out of gear with another similar wheel, hereafter to be described. These wheels are to be bored out, and fitted to slide freely upon one of the axles of the car, said axle having a feather fitted into it at the points over which such wheels move, for the purpose of entering a spline cut in the hubs of the wheels, which arrangement is for the purpose of preventing

the wheels from rotating upon the axles and compelling them to rotate therewith.

D represents a beveled gear-wheel, which is to be of the same size and pitch as those above described, and which is to be secured to a vertical stud, D², the lower end of which has its bearing upon the axle of the wheels C C', while its upper end enters and is supported by the frame-work of the car. The location of this gear-wheel is to be at or near the center of the car and immediately between the wheels C C', so that either or both of these wheels may be made to mesh into it.

D¹ represents a drum or pulley, which is to be of a diameter nearly corresponding with the inner ends of the cogs upon the wheel D, but which should be enough smaller to allow a flange upon its upper end to rotate within such cogs, its lower end being provided with a similar flange, to prevent the elastic band from running off from it while being wound thereon. This drum is to be fitted to and turn upon the vertical stud D², and is to be provided upon its upper end with a recess or depression, as shown in Fig. 5, which is to be of gradually-increasing depth from the point where it commences to its termination, where it is to be of sufficient depth to receive the end of a spring-pawl, *d*, secured to the under side of the gear-wheel D, which pawl is forced into said groove in the drum of the spring *d'*, as shown in Fig. 4.

The object of the above-described arrangement is to permit the wheel D to turn freely in one direction without carrying the drum with it, but, when turning in the opposite direction, to compel the drum to rotate therewith, and thus cause the spring E' to be elongated or compressed, according to its arrangement within the tube E, and the power or resistance used in stopping the car to be stored up or retained in such spring, to be used in starting the car when it becomes desirable.

D² represents the vertical shaft of the gear-wheel D above referred to, having upon its lower end a socket or box, through which the car-axle passes, and serves as a support for such vertical shaft, while its upper end passes into the frame-work of the car, as above described.

E represents a tube of metal, or it may be

of wood, which is to be secured to the frame of the car in such a manner as to be firmly held thereby, and that its open end shall be just in the rear of the drum D^1 , and its center be in or about in line with the outer surface of such drum longitudinally, or in the line of the length of the car.

E' represents a spring, which may be of rubber or of some equivalent material, or it may be partly of rubber and partly of metal, as shown in Fig. 2. In either case it is to be secured to the rear end of the tube at one of its ends, while the other end is to be attached to the periphery of the drum D , so that as said drum rotates the spring shall be elongated.

$F F'$ represent levers, which are to be pivoted to the frame-work of the car in such a position as to be easily accessible to the driver or brakeman, while their lower ends connect with horizontal levers F' which operate upon the gear-wheels $C C'$ for the purpose of moving them upon the shaft.

The operation of this device is as follows: The parts having been constructed and arranged as described and shown, when the car is to be put in motion the levers $F F'$ are to be placed in such a position as to throw both of the gear-wheels $C C'$ out of gear with the wheel D , which will leave the first-named wheels to revolve with their axle without imparting motion to wheel D or the drum D^1 .

Upon arriving at any point where it becomes necessary to stop the car the right hand is to be manipulated so as to throw the gear-wheel connected therewith into gear with wheel D , when the drum will be rotated and the spring will be drawn out, which operation tends to stop the car. When this operation has been performed and the car brought to a state of rest, the left-hand lever is to be moved to such a position as to bring the wheel connected therewith into gear with wheel D , which will prevent said wheel from turning in either direction and retain the spring in position to aid in starting the car, which is effected, when desirable, by throwing one of the wheels C or C' out of gear with the wheel D .

The direction in which the car will move will depend upon which of the wheels is released from gear with the wheel D . If the right-hand lever is left in its position the car when it starts will move in a direction opposite to that in which it was moving when the spring was elongated; but if the left-hand one be left in position, and the right-hand one be placed in such a position as to remove its gear

from the wheel D , the car will move in the opposite direction.

It is apparent that either or both of the axles of a car, or of the truck of a car, may be provided with the above-described mechanism, so that when it is used on street-cars which are drawn by horses each end of the car may be provided with the means of stopping and starting, or the levers which move the wheels $C C'$ may be so arranged as to be operated from both ends of the car.

It should be remarked, however, that when the levers are arranged as in the present case, and the car is moving forward, (assuming the end of the car to which the levers are attached to be the front end,) it cannot be stopped by the manipulation of the left-hand lever, as, if the gear to which it is attached is thrown into gear with the wheel D , the drum around which the spring is wound will not rotate, it being released from the control of wheel D by means of the spring-pawl upon its upper end, as above described. When the car is moving in the opposite direction to that last described, the left-hand lever is to be used in stopping the car, and then either wheel released from gear in starting, as in the former case.

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

1. The combination and arrangement of the gear-wheels C, C' , and D , drum D^1 , and spring E and axle B , substantially as and for the purpose set forth.
2. The combination and arrangement of the gear-wheel D , drum D^1 , and vertical shaft D^2 , substantially as and for the purpose set forth.
3. Supporting the vertical shaft D^2 in a bearing formed upon the axle B of the car, substantially as and for the purpose set forth.
4. The arrangement of the pawl d and spring d' , with reference to the drum D^1 and gear-wheel D , substantially as and for the purpose set forth.
5. The arrangement of the tube F , which incloses the spring, with reference to the drum D^1 , substantially as and for the purpose specified.

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

DAVID M. MOORE.

Witnesses:

JOHN S. MARCY,
SAML. R. STOCKER.