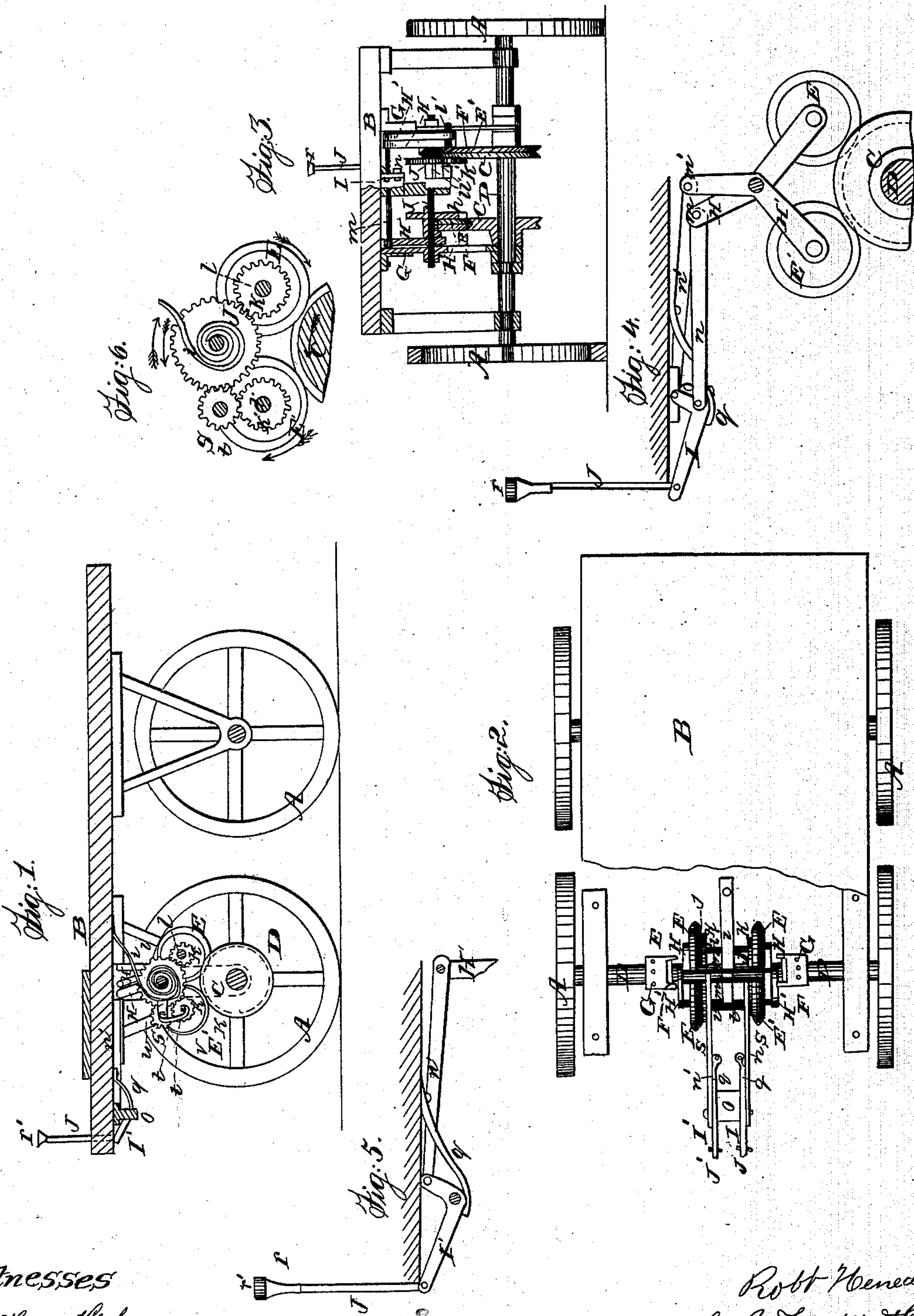


R. HENEAGE.

Car Starter.

No. 68,875.

Patented Sept. 17, 1867.



Witnesses

Henry Clarke
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United States Patent Office.

ROBERT HENEAGE, OF BUFFALO, NEW YORK.

Letters Patent No. 68,875, dated September 17, 1867.

IMPROVED CAR-BRAKE AND STARTER.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known, that I, ROBERT HENEAGE, of the city of Buffalo, in the county of Erie, and State of New York, have invented certain new and useful Improvements in Propelling Brakes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a central vertical longitudinal section of a car-truck provided with my improvements.

Figure 2 is a plan of the same, with a portion of the bottom of the car broken away to exhibit my device.

Figure 3 is a part elevation and section of the end of the car and brake.

Figure 4 is an enlarged detached view of the levers and friction-brake wheels.

Figure 5, a similar detached view of one of the levers.

Figure 6 is a detached view of the gearing.

Like letters of reference indicate corresponding parts in all the figures.

My improvements are more especially designed to be applied to street-railroad cars, and with the same general object in view as that of my invention for the same purpose for which Letters Patent were granted to me on the 26th day of February, 1867. The present invention consists in the special mechanism employed, by which the car is stopped and the spring compressed, and the force of the recoil of the spring applied to aid in again starting it, as hereafter fully set forth.

In the drawings, A A represent the wheels of an ordinary car, and B the bottom or floor of the same. C C are two friction-wheels, of any suitable size, rigidly secured to either or both of the revolving axles D, (being shown mounted on the forward axle,) their faces being preferably grooved (as shown most clearly in fig. 3) to increase the friction surface, to which are applied the two pair of brake-wheels E and E', as will presently be explained. Outside of the wheels C C, on the axle D, as a bearing, rest two standards F F, which have a loosely fitting hub or collar, in which the axle turns, their upper ends fitting in pendent ways or brackets G G of any suitable construction, that will retain the standard in place, and allow the brackets and bottom of the car to which they are fastened to rise and fall without disturbing the standard and mechanism supported therein. These standards have mounted between them, at a suitable height, the horizontal axis or shaft h. Around the centre of this shaft is coiled a stiff spring, i, the outer end of which is firmly secured to the under side of the bottom B. On each side of this spring on the same shaft are rigidly secured two gear-wheels j j. The brake-wheels E E' are arranged above the wheels C C, as most clearly shown in figs. 2 and 4, the pair E' being a little in front, while the pair E is arranged at the same relative position at the rear. The wheels of each pair are respectively mounted on suitable horizontal axes l and l' which extend beyond the wheels so as to have their bearings in the ends of the two pair of bent arms or levers H H', by which, through the mechanism presently to be explained, the brake-wheels, either or both pair, alternately or simultaneously, as required, are brought in contact with the wheels C to stop or assist in starting the car. The shaft h passes through the centre of these arms or rock-levers H H', on which they oscillate as a centre and fulcrum. Their upper ends are connected by cross-rods m m', to which at any suitable point thereon are attached the ends of the connecting-bars or rods n n'. In the centre, under the front end of the floor A of the car, is secured a fulcrum-block or pivot-piece, o, which forms the fulcrum of the bent levers I I', the former being pivoted at the end, as shown in fig. 4, and the connecting-bar n jointed at the angle of the same, while the latter, I', has its fulcrum at the angle, the connecting-bar n' being pivoted to the end, as clearly shown in fig. 5. Underneath the angle or bend of the levers I I' presses the end of a spring, q, fastened to the under side of A, which operates to keep the parts in their proper position, when not required for use, as will be hereafter explained. J J' are rods jointed to the front ends of I I', and extending up through the bottom of the car, where they are provided with suitable foot-pieces r r' by which the brakes are conveniently operated by the driver. Inside of the brake-wheels E E' and E' E', on the shafts l and l', are mounted the pinions k k' and k' k', the former of which engage with the gear-wheels j, while the latter, k k', mesh with a pair of intermediate gears, s s, mounted on a shaft, t, above k' l', which gear with the wheels j to reverse the motion of the brake-wheel E', for a purpose presently to be explained. The shaft t is sustained in place by bearing-pieces u v at each end, which connect respectively with the shafts h and l' (fig. 1.)

The operation of my improvements is as follows: To stop the car when moving in the direction of red arrow, fig. 1, pressure is applied to the foot-piece *r*, which, through the medium of the levers *I*, *n*, and *H*, brings the rear brake-wheels *E* (fig. 4) in contact with the friction-wheels *C*, which sets the gearing in motion in the direction shown by black arrows, fig. 6, thereby compressing or tightening the spring *i* coiled around the shaft *h*, the stiffness of which speedily arrests the car. In starting the car again the foot-piece *r* is pressed upon before removing the foot from *r*, which, through the medium of levers *I'*, *n*, and *H'*, brings the front brakes *E'* in engagement with the friction-wheels *C*, when releasing *r* the spring *q* brings it and its connecting parts to their normal position again, and removes the brakes *E* from contact with wheels *C*. The force of the recoil of the spring operating in the direction of red arrow, fig. 6, through the gearing *j*, *s*, and *k'*, imparts a tendency to the brake *E'* in the direction of the red arrow, and consequently assists in starting the car, the propelling power being greater or less according to the stiffness of the spring, which of itself may be sufficiently great to entirely overcome the inertia. I do not desire to confine myself to a double set of wheels and gearing, as it is evident that a single friction-wheel, *C*, with one set of brakes, *E* and *E'*, and corresponding gearing, may be employed, operating on the same principle and with like effect. It is evident that the brake may be applied to the rear axle and still be operated by the driver in front by simply increasing the length of the connecting-bars *m m*, and the same bars may be connected to brakes at both axles, so as to operate both at the same time, should such be desired.

The chief advantage of my improvements in saving the animals employed on street railroads from the excessive straining to which they are subjected in starting a heavily loaded car is too obvious to require further notice.

The mode of mounting the gearing in standards *F*, secured to the axle instead of the bottom of the car, insures the proper engagement of the parts at all times, while it permits the usual springing of the body of the car without affecting in anywise the operation of the brakes. The springs *q* keep the brakes removed from contact with the friction-wheels *C* when their use is not required.

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

1. The brake-wheels *E E'*, in combination with the coiled spring *i*, gearing *j k k' s*, levers *H H' I I'*, and connecting-bars *m m'*, arranged and operating substantially in the manner and for the purpose set forth.
2. I also claim, in combination therewith, the springs *q*, arranged and operating substantially as specified.
3. I also claim the standards *F*, with their lower ends attached to and resting upon the axle *D*, while their upper ends are held by guides *G* secured to the bottom of the car, which slide up and down thereon with the springing of the latter, arranged and operating substantially in the manner and for the purpose set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ROBERT HENEAGE.

Witnesses:

JAY HYATT,

ALBERT HAIGHT.