R. HENEAGE.

Car Starter.

No. 62,419. Patented Feb. 26, 1867.

Fig: 1.

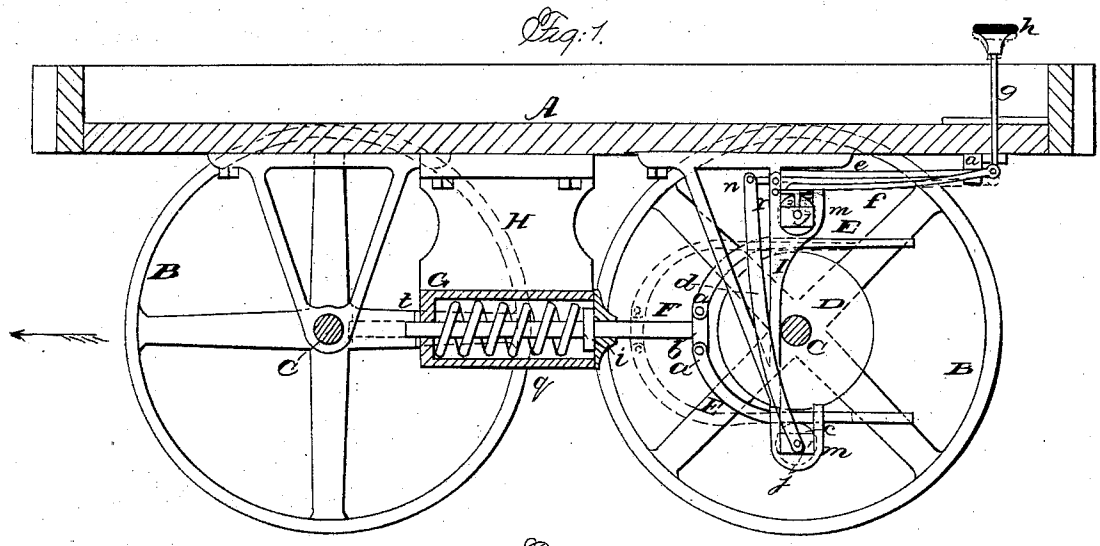


Fig: 2.

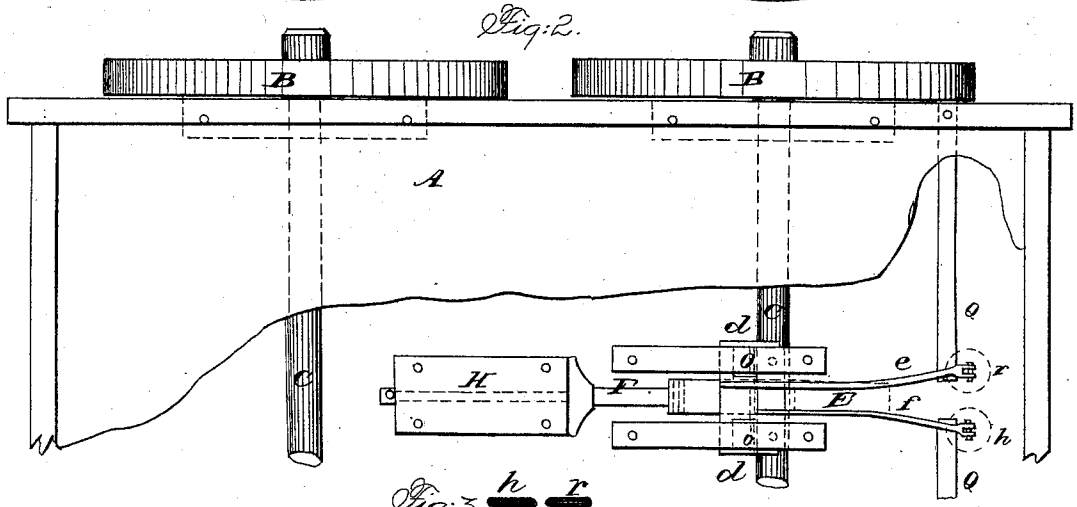
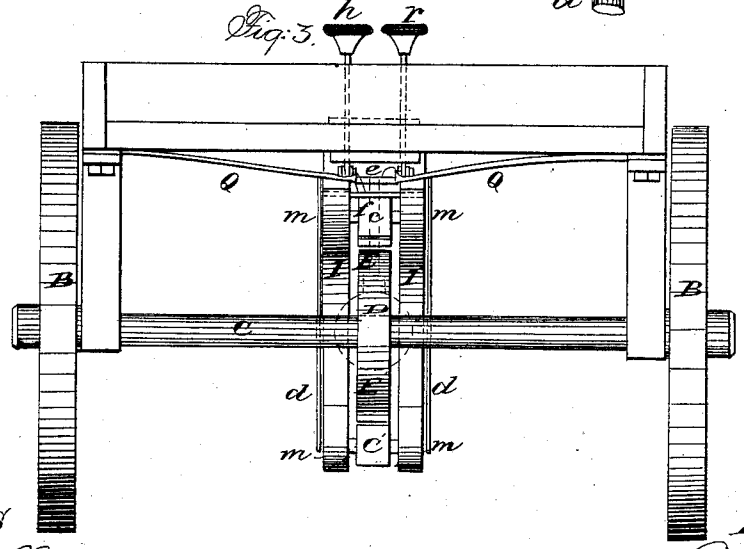


Fig: 3.



Witnesses

Albert Grave.

Albert Hughes

Inventor

Robt. Heneage

by J. Fraser & Co

Attys

United States Patent Office.

ROBERT HENEAGE, OF BUFFALO, NEW YORK.

Letters Patent No. 62,419, *dated February* 26, 1867.

IMPROVED PROPELLING CAR-BRAKE.

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 a new and improved Propelling Brake; 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 longitudinal vertical section of a car provided with my improvements.

Figure 2 is a plan view, with part broken away.

Figure 3 is a rear elevation.

The object of my improvement is the construction of suitable apparatus in connection with the brakes of cars, especially those drawn by horses on street railroads, by which the momentum of the car in stopping is stored up, to be utilized to overcome the inertia of the car in starting; and the invention consists of a spring, connected by a bar or other suitable means to a brake, consisting of two pressure or friction surfaces, so jointed to said connecting-bar that they may be applied to opposite sides of the wheel, (which is preferably a separate wheel. of suitable size, mounted centrally on one of the axles,) either or both at a time, by a combination of levers or other suitable mechanism, in such a manner that when one of the brake-bars is applied to the wheel, it will first be moved a short distance endwise by a movement similar to that of a rack when operated by a pinion, which compresses the spring by means of the bar connecting therewith; and then by applying the other brake and releasing the first the recoiling force of the spring, by acting through the medium of the brake on the opposite side of the wheel, will have a tendency to start the car again, and thereby relieve the horses of that great strain to which they would otherwise be subjected in overcoming the inertia of a loaded car; and by applying both brakes simultaneously, the amount of friction on the wheel is doubled.

In the drawings, A represents the body or bottom of an ordinary street railroad car; B B, the wheels, and C C the two axles of the same. At the centre of either axle, as most convenient, I mount a friction-wheel, D, of any suitable size and width of face, to which are applied at top and bottom the two brake-bars E E′. These bars are, preferably, curved at their inner ends, and pivoted at *a a* to a short cross-head, *b*, of a horizontal bar, F, as represented. The opposite end of this bar F (which is the connecting-bar above referred to) passes into a cylindrical case, G, formed in the lower portion of a bearing or pendent support, H, secured in any suitable manner to the bottom of the car. In this case and around the bar is coiled a spring, *q* or equivalent, against the end of which presses the flange or collar *i* of the bar F, when the brake is operated, and compresses the spring, as will presently be described. The bar F is provided with a pin, *t* or equivalent, to prevent its withdrawal from the bearing by the recoil of the spring. I do not design to confine myself to the use of any particular kind of spring to receive the action of the brake, as the ordinary elliptic springs, or any other of sufficient stiffness, may be employed and produce the same effect. The amount or distance of the compression and recoil of the spring is immaterial, as the great object to be attained is to simply overcome the inertia of the car, for which a slight movement suffices.

The brake-bars E E′ are operated by the following device: I I are pendent brackets or frames, secured to the under side of the bottom of the car, in which are formed in any suitable manner bearings *m m*, to receive the adjustable boxes *j j* of the journals of two small rollers *e e′*, one immediately above the bar E, and the other immediately below E′. The journals of the roller *e′* project beyond its boxes *j* on either side and through the ends of arms *d d*, which extend upward and are jointed to the end of a horizontal lever, *e*, at *n*, which has its fulcrum in pivots *o o* in the frames I. To the other end of lever *e* is jointed an arm *g*, which passes up through the bottom of the car, and terminates in a foot-piece or head, *r*, by which it is operated. The upper roller *e* is operated by a lever, *f*, similar to *e*, except that it has its fulcrum at its end, by being pivoted to the frames I at *p*. The boxes *j* are attached to *f* by short arms *s*, shown in fig. 1. The other end of the lever *f* is connected with an upright arm *g*, which terminates in a foot-piece, *h*, similar to the corresponding parts *g r* of the lever *e*. The levers *e f* are provided with springs Q Q, secured to the bottom of the car, (shown most clearly in figs. 2 and 3,) which sustain the ends of the former, and thereby keep the rollers from pressing the brake-bars when their use is not required. The mechanism which I have just described for operating the brake-bars it is evident can be somewhat varied and still accomplish the same result in substantially the same manner.

The operation of my improvements thus constructed is as follows: Suppose the car to be moving in the direction shown by the arrow in fig. 1, and it is required to be stopped. In such case, pressure is applied upon the foot-piece *h*, depressing it and the end of the lever *f*, which forces down in their bearings the boxes *j* of the roller *e*, the latter of which presses the brake-bar E down upon the wheel D with greater or less force, as required. The friction between the contiguous or bearing surfaces of E D (which may be of any suitable construction for the purpose) first carries the brake and bar F forward, as shown in red lines, fig. 1, compressing the spring, and then stopping the car. When it is desired to start the car, pressure is applied to the other foot-piece *r*, which, through the medium of the connecting-arm *d*, draws up the roller *e'* that presses the bar E' against the wheel D, when, by removing the pressure from the brake E, the force of the recoil of the spring *g*, acting through brake E', on the under side of the wheel, operates to start or to assist in starting the car. A flat spring secured to the cross-head *b*, so as to press against the under side of the bar E, or other suitable device, may be employed to keep the brake from contact with the wheel when it is in operation. It is a well-known fact that the horses employed on street railroads endure the service for a few years only at the longest; and a few months, and even a few weeks, are sometimes sufficient to render them unfit for service. This premature destruction of their usefulness is mainly to be attributed to the excessive exertion they are required to put forth at almost every crossing, in starting, to overcome the inertia of a car weighing several tons, with the addition of a heavy load of passengers. A single effort of this kind frequently causes such a strain as to occasion a permanent injury to the powers of the animal. The use of my improvement relieves the animal of this excessive strain, as the power which is stored up in the compressed spring (which may be made of the requisite stiffness) is sufficient to overcome the inertia, so that it is not necessary for the team to exercise any more strength in starting than is required to draw the vehicle after it has been put in motion. It is evident that my improvement is equally adapted for use on cars drawn by a locomotive, where it relieves the engine of a corresponding amount of strain.

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

1. The combination of the friction-wheel D, curved brake-bars E E', pivoted to the spring-rod F; sliding rollers *e e'*, with their actuating-rods; and foot-levers *h r*, arranged and operating as and for the purposes set forth.

2. I also claim the double-acting brake, consisting of the two pivoted brake-bars E E', capable of alternate and conjoint application to a friction-wheel, D, substantially in the manner and for the purpose set forth.

3. I also claim the rollers *e e'*, provided with movable boxes *j*, when used in operating the brake-bars E E', for the purpose and in the manner specified.

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

ROBT. HENEAGE.

Witnesses:

JAY HYATT,

LYMAN P. PERKINS.