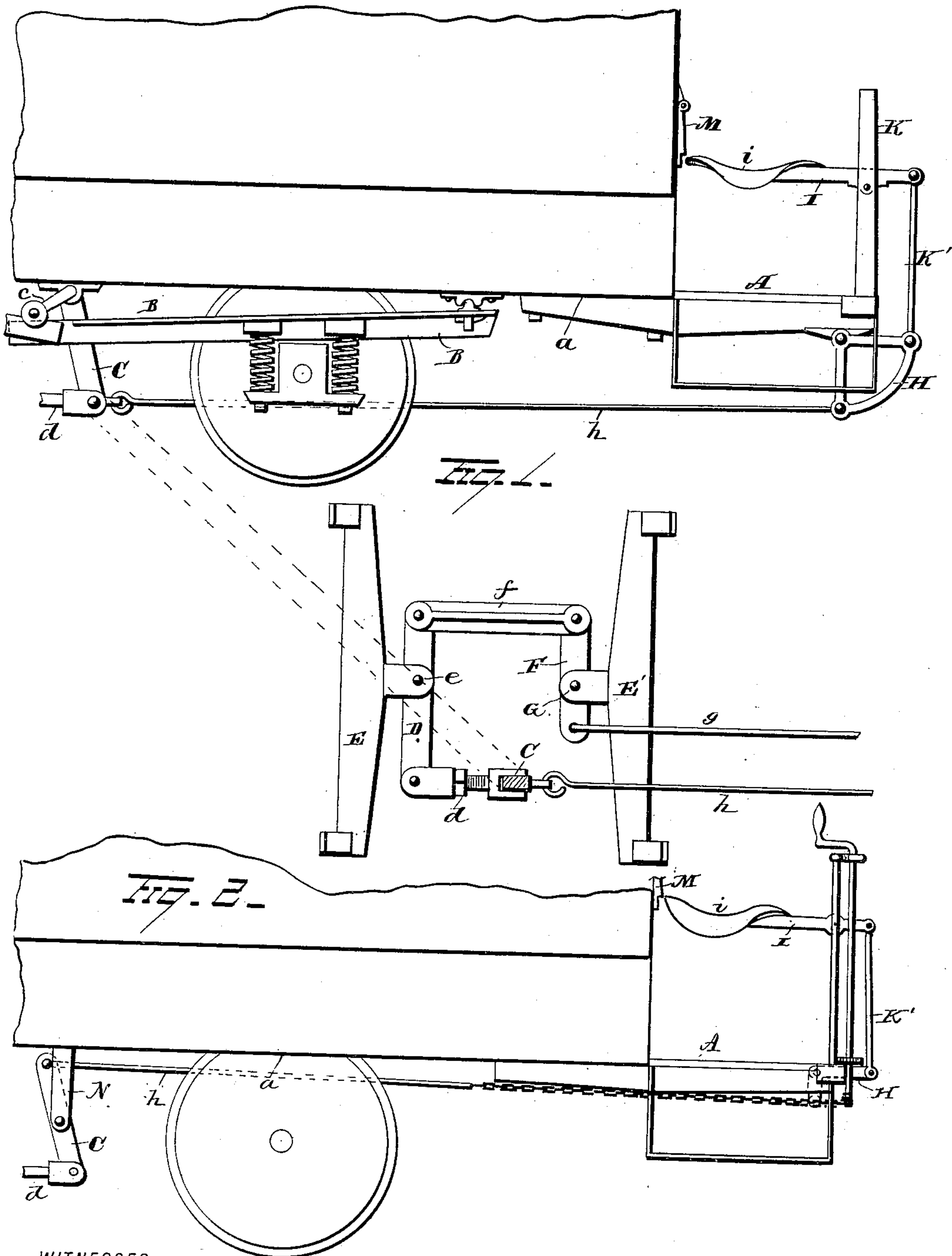


(No Model.)

J. F. MALLINCKRODT.  
CAR BRAKE.

No. 329,464.

Patented Nov. 3, 1885.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

JOHN F. MALLINCKRODT, OF DENVER, COLORADO.

## CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 329,464, dated November 3, 1885.

Application filed December 20, 1884. Renewed September 16, 1885. Serial No. 177,304. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN F. MALLINCKRODT, of Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Car-Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in car-brakes, and particularly to horse-car brakes, the object of the same being to provide a system of mechanism whereby the weight of the driver may be employed in "taking off brakes" in the gravity system and "putting on brakes" in the system in common use; and with this end in view my invention consists in certain features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a diagram, partly in elevation and partly in plan, showing the application of my invention to the gravity system, and Fig. 2 a similar diagram, showing one form of its application to the ordinary system.

A represents the platform of a car, and *a* the car-floor.

The car in Fig. 1 rests on the ends of a set of levers, B, the adjacent ends of which engage the end of the short arm *c* of a depending lever, C. The lower end of the lever C is connected with a live-lever, D, by a rod or bar, *d*. The lever D conveniently lies parallel with the brake-beam E, to which it is pivotally secured at *e*. The short arm of the lever D is connected with the long arm of a counter-lever, F, by a connecting rod or bar, *f*. The brake-beam E is pivotally secured to the lever F at G, and the short arm of the lever F is pivoted to a rigid support, *g*. The lower end of the lever C is also connected with an angle-bar, quadrant, or other equivalent device, H, by a rod or bar, *h*. The quadrant H is used for the purpose of changing the direction of draft, and is pivoted to the front of the platform A. An operating-lever, I, provided with a saddle, *i*, on its long arm, is pivoted to or between uprights K at the front end of the platform, its short arm being connected with the quadrant H by a rod or bar, K'. Suppose the long and

short arms of the lever I to be in the proportion of five to one, the weight of the driver to be one hundred and fifty pounds, the relative lengths of the arms of the lever C three to one, and the relative lengths of the arms of the levers B four to one. It is evident that under the above conditions the weight of the driver would hold a weight of nine thousand pounds in equilibrium, which weight would by means of the system of levers described be exerted upon the brakes whenever the driver's weight is removed from the long arm of the lever I. The driver while sitting thus holds the brakes off, and puts the brakes on by rising. To slow up for taking on gentlemen passengers, without coming to a full stop, the driver leans forward and partially rises by means of a hand-rail, L.

One of the important advantages of the system, aside from the saving of labor on the part of the driver in turning the brakes on so many hundreds of times a day, is the automatic stopping of the car when the driver springs to his feet, as he naturally does in case of danger. A pawl or catch, M, is secured to the front of the car in position to engage the end of the lever I, and lock the same in depressed adjustment whenever the driver desires for any cause to stand or leave his seat without putting on the brakes.

The application of the above-described system to an ordinary car requires but a slight modification. For example, the rod *h* may be connected to the upper end of the long arm of the lever C, which latter in this case might be conveniently pivoted to the depending bracket N, and have its short arm connected with the live-lever D by a rod or bar, *d*, as before. In this case the weight of the driver would be employed in putting on brakes, and the consumption of arm-muscle relieved by the employment of leg-muscle and weight.

It is evident that slight changes may be made in the form and arrangement of the several parts described without departing from the spirit and scope of my invention. For example, in the place of the angle-bar or quadrant, a sprocket-wheel might be used, and the rods *h* and *k* connected by a sprocket-chain passing about the wheel, and other arrangements of the levers connecting the brake-beams might be resorted



to with success; hence I do not wish to limit myself strictly to the construction herein set forth; but,

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

1. The combination, with a car-brake, of a lever adapted to be actuated by the weight of the driver, so connected with the braking mechanism that when the weight is applied to said lever the brakes are released or taken off.

2. The combination, with a car-brake, of a brake-operating lever adapted to form a seat for and be actuated by the weight of the driver, substantially as set forth.

3. The combination, with a system of brakes adapted to be "put on" by the weight of the car and its load, of a lever adapted to form a seat for the driver and take the brakes off when the driver's weight is applied thereto, substantially as set forth.

4. The combination, with a gravity-brake, of a lever pivoted to the front platform of the car and connected with a system of levers for operating the brake-beams, said lever being adapted to receive the weight of the driver and take off brakes when his weight is applied, substantially as set forth.

5. The combination, with a car-brake and a brake-operating lever adapted to form a seat for the driver and be actuated by his weight, of a pawl or catch for locking the lever in depressed adjustment, substantially as set forth.

6. The combination, with a car-brake and a brake-operating lever pivoted to a suitable support on the platform and adapted to be actuated by the weight of the driver, of a pawl or catch secured to the front of the car and adapted to engage the lever and lock it in a depressed position, substantially as set forth.

7. The combination, with the system of levers connecting the brake-beams and devices for actuating the same by the weight of the car, of the connecting-rods leading from the said system to the operating-lever, the angle-bar or its equivalent for changing the direction of draft, and operating-lever adapted to form a seat for the driver and be actuated by his weight, substantially as set forth.

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

JOHN F. MALLINCKRODT.

Witnesses:

WILLIAM H. KELLEY,  
DAVID J. KELLEY.