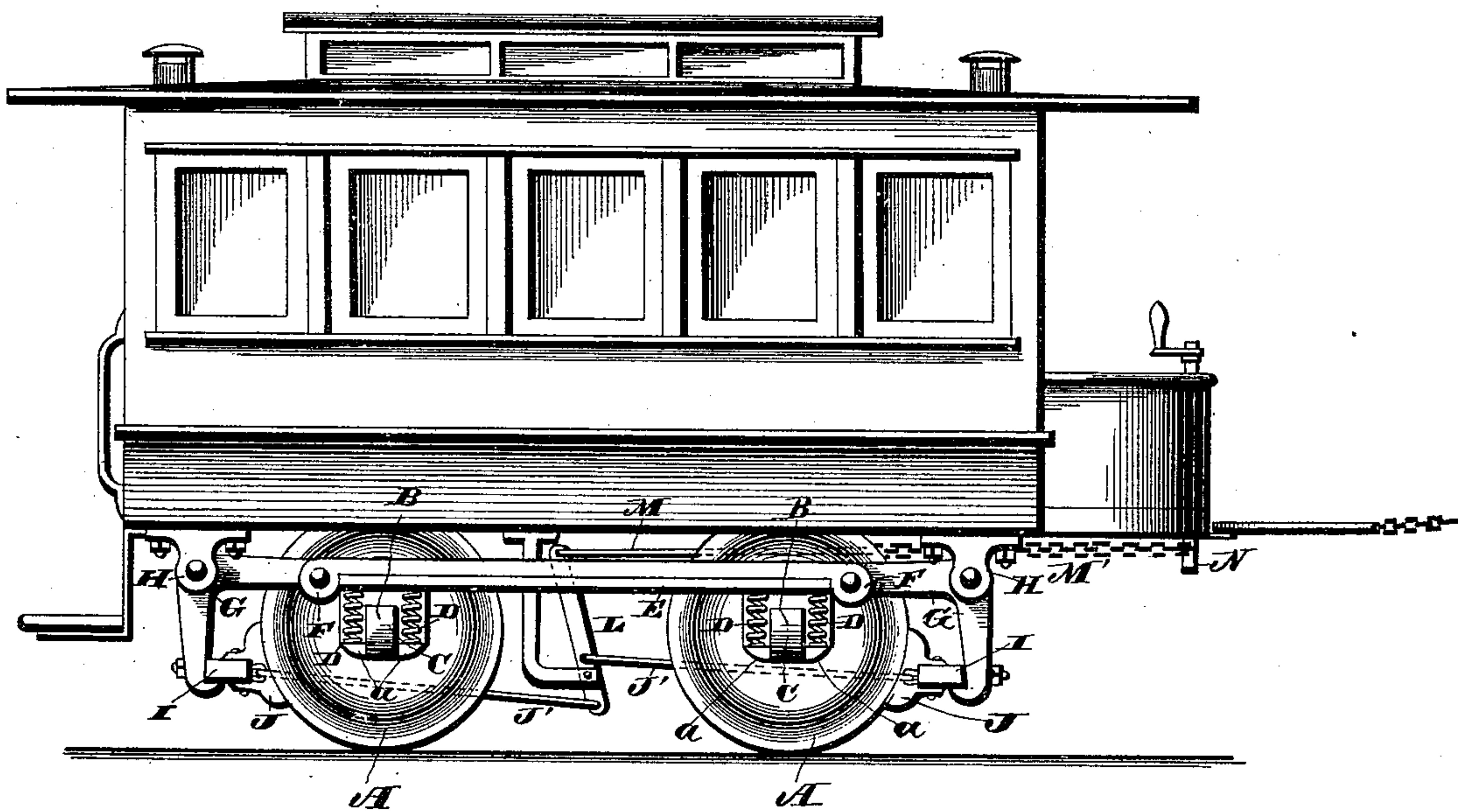


(No Model.)

J. F. MALLINCKRODT.
STREET CAR BRAKE.

No. 329,463.

Patented Nov. 3, 1885.



WITNESSES

G. J. Downing
S. G. Nottingham

INVENTOR

John F. Mallinckrodt
By W. A. Seymour
Attorney

UNITED STATES PATENT OFFICE.

JOHN F. MALLINCKRODT, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE MALLINCKRODT BRAKE COMPANY, OF EAST ST. LOUIS, ILLINOIS.

STREET-CAR BRAKE.

SPECIFICATION forming part of Letters Patent No. 329,463, dated November 3, 1885.

Application filed March 27, 1883. Renewed May 2, 1885. Serial No. 164,231. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. MALLINCKRODT, of St. Louis, in the county of St. Louis and State of Missouri, have invented certain new and useful Improvements in Street-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 brakes for street cars, the object of the same being to provide means whereby the combined weight of the car and load is utilized in setting the brakes, and with these ends in view my invention consists in the parts and combinations of parts as will be more fully described, and pointed out in the claims.

In the accompanying drawing, the figure is a view in side elevation of a car, showing the truck.

A represents the wheels of a street-car rigidly secured to the axles B, the outer ends of which are journaled in the boxes C. These boxes are provided with the side ledges, *a*, on which the lower ends of the stiff springs D rest. These springs, preferably four to a side, support at their upper ends the angle-irons E, which latter are situated on opposite sides of the truck, and are of length sufficient to extend from the front of one axle to the rear of the other, and each is provided on opposite ends with the knuckles F, to which the inner end of the horizontal arms of the bell-crank levers G are pivotally secured. The knees of the bell-crank G are pivotally secured to the depending brackets H, which latter are securely bolted to the under side of the car-body, while the lower ends of the said bell-cranks are secured to the ends of the brake-beams I, to which the brake-shoes J are secured. Two bell-cranks are secured to one brake-beam, and the shoes of one beam are adapted to bear on two wheels in the ordinary manner.

From the construction of parts above described it will be readily seen that the weight of the car-body and load rests directly on the bell-cranks G, and consequently press the brake-shoes firmly against the tread of the wheels, the amount of pressure, however, being dependent on the weight of the load.

When it is desired to start the car, it is necessary to release or take off the pressure of the brake-shoes from the wheels, and this is accomplished by means of the stout metallic rods J' J', the outer ends of which latter are centrally secured, respectively, to the two brake-beams, while their inner or adjacent ends are pivotally secured to the upright lever L, respectively below and above its axis or pivotal point. This upright lever is pivotally secured to a depending support, which latter is rigidly secured either to the under side of the car-body or to the angle-irons, and serves to hold the lever L and the inner ends of the rods J' J' up in proper position. The inner ends of the rods J' J' are pivotally secured to the lever L, near its axis, while the rod M is pivotally secured to the extreme upper end of the lever L, so as to obtain the necessary amount of leverage without the expenditure of much power by the driver. The outer end of the rod M is secured to one end of the chain M', the opposite end of which latter is rigidly secured to the lower end of the cranked brake-operating rod N, and is adapted to be wound thereon as the rod is turned. This rod is provided with the ordinary ratchet-wheel, with which a pawl pivotally secured to the driver's platform engages to hold the brake-shoes away from the wheels. If the brakes are set and it is desired to start the car, the driver turns the rod N and winds the chain M' thereon, which through the intervention of the rod M draws the upper end of the lever L forward, moves the brake-shoes away from the wheels, and consequently elevates the body of the car. As soon as the pressure of the shoes on the wheels is relieved the bar N is locked by the pawl, which is moved by the driver's foot so as to engage the ratchet, and prevents the chain M' from unwinding. When it is desired to apply the brakes, the driver releases the pawl from engagement with the ratchet-wheel, which leaves the car-body free to descend and force the brake-shoes against the wheels. When the car is running, the brake-shoes are away from the wheels and the entire weight of the car-body and load bears on the springs, which yield as in ordinary cars and prevents all jarring and jolting.

While I have only shown and described

mechanism for operating the brakes at one end of the car, it is evident that by the application of a pivoted lever, and connecting the inner end of the lever to the vertical lever L, and the other end to a rod or chain running toward the opposite end of the car, I can apply the brakes from either end.

Trucks have been provided with movable bolsters and bell-cranks for utilizing the weight of the car in setting the brakes, an example of such construction and arrangement of parts being shown and described in Letters Patent No. 256,017, granted to me April 4, 1882, and hence I would have it understood that I make no claim to the same in this application.

It is evident that numerous changes in the construction and relative arrangement of the several parts might be resorted to without departing from the spirit of my invention, and hence I would have it understood that I do not confine myself to the exact construction shown and described, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. The combination, with a car-body, truck, and bell-crank levers connecting the car-body and truck in such a manner that the car-body may move vertically, of brake-beams connected with the bell-crank levers and adapted to be moved toward the wheels when the car-

body is lowered, and away from the wheels when the car-body is raised.

2. The combination, with a car-body, truck, and bell-crank levers connecting the car-body and truck in such a manner that the car-body may be moved vertically, of brake-beams attached to the bell-crank levers and means for raising the car-body by the brake-shaft and taking off the brakes, substantially as set forth.

3. The combination, with a car-body, supporting-wheels, side bars of the truck, and bell-crank levers pivoted to the car-body and pivoted at one end to the opposite ends of the side bars, of brake beams secured to the other ends of the bell-crank levers, and connecting-links, lever, and chain for operating the bell-crank levers, substantially as set forth.

4. The combination, with the car-body, supporting-wheels, side pieces or bars, E, and springs interposed between the axle-boxes and bars E, of the bell-cranks pivotally connected to the opposite ends of the side bars, E, and to the car-body, the brake-beams I, brake shoes J, connecting-rods J' J' M, lever L, chain and brake-shaft, substantially as set forth.

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

JOHN F. MALLINCKRODT.

Witnesses:

A. D. GREENE,

C. D. GREENE, Jr.