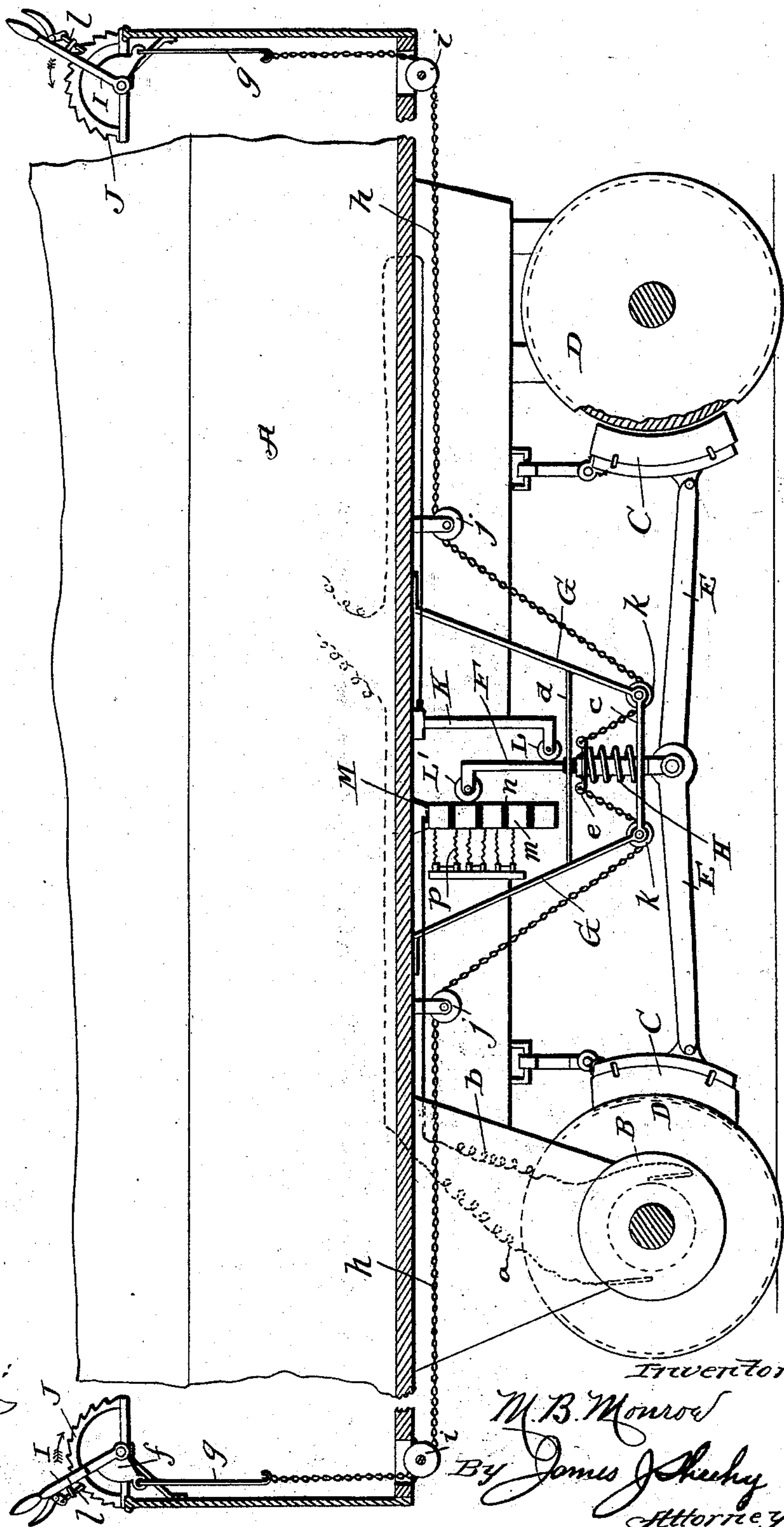


(No Model.)

M. B. MONROE.  
CONTROLLER FOR ELECTRIC CARS.

No. 524,785.

Patented Aug. 21, 1894.



Witnesses:  
*C. Raeder*  
*N. F. Matthews*

Inventor  
*M. B. Monroe*  
By *James J. Sheehy*  
Attorney



# UNITED STATES PATENT OFFICE.

MARION BAKER MONROE, OF NEW ORLEANS, LOUISIANA.

## CONTROLLER FOR ELECTRIC CARS.

SPECIFICATION forming part of Letters Patent No. 524,785, dated August 21, 1894.

Application filed February 28, 1894. Serial No. 501,855. (No model.)

*To all whom it may concern:*

Be it known that I, MARION BAKER MONROE, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Electric Cars; and I do 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 improvements in electric cars; and it has for its general object to provide an electric car with mechanism whereby the brakes may be applied by the same means and at the same time that the electric current is cut off, so as to enable a motor-man to make a quick stop without the liability of damaging any of the parts.

Other objects and advantages of the invention will be fully understood from the following description and claims when taken in connection with the annexed drawing, in which the figure is a vertical, longitudinal section of a portion of a car equipped with my improvements.

Referring by letter to said drawing:—A, indicates the car which may be of any approved construction.

B, indicates the motor to which are connected the circuit wires *a, b*; and C, indicates the brake shoes which are preferably hung from the bottom of the car so as to rest adjacent to the wheels D, although they may be supported in any approved manner. These shoes C, are loosely connected to the outer ends of toggle levers E, and the said levers are loosely connected in turn to a vertical plunger F, whereby it will be seen that when the plunger is depressed or forced downwardly, the brakes will be applied. The said plunger F, preferably has its upper portion reduced and insulated from its lower portion, as shown, and it extends through suitable guides *c, d*, carried by a hanger frame G, and is provided with a collar *e*, which affords a bearing for one end of the coiled spring H, which bears at its opposite end against the guide *c*, and serves to return the plunger and the parts connected therewith to their normal positions when the brakes are released.

In order to enable the motor-man to quickly

and easily apply the brakes, I provide a lever I, at one or both ends of the car, which levers are preferably provided with an angular branch *f*, and are, by preference, connected with the collar *e*, of the plunger F, through the medium of the rods *g*, and the chains *h*, which latter take around suitable sheaves *i, j*, and *k*, as illustrated. The said levers I, are mounted upon suitable supports, as illustrated, so as to be within convenient reach of the motorman and they are provided with detents as *l*, designed to engage the fixed curvilinear racks J, which serve to hold the levers and the parts connected therewith in their adjusted positions.

By reason of the construction thus far described, it will be seen that a motorman may quickly and powerfully apply the brakes so as to make an emergency stop, or may apply the same to a less degree so as to check the speed of the car when traveling on a plane or down grade.

In order to enable the motorman to cut off the electric current from the motor, and increase or diminish the strength of the same as the brakes are put hard down or are applied to a less extent, I provide the hanger K, which is arranged in the electric circuit and carries a roller L, in engagement with the reduced portion of the plunger F; and I also provide the said plunger with a roller L', designed to engage the blocks *m*, of the rheostat M, which may be hung from the bottom of the car or supported in any approved manner. The said blocks *m*, are formed from material possessing less conducting power than the main circuit and they are arranged in a vertical series with insulating material *n*, between them, and, with the exception of the lowermost block, they are connected by the wires *p*.

The several parts of my improved mechanism are so arranged in practice that when the brakes are entirely released, the roller L', of the plunger F, will rest in engagement with the upper block *m*, so that the current will flow from the source of supply to and through the hanger K, the roller L, the reduced portion of the plunger F, the roller L', the upper block *m*, and the motor and will drive said motor at full speed. When it is



desired to reduce the speed of the motor and car, it is simply necessary to move the lever I, in the direction of the arrow when the plunger F, will be drawn downwardly and its roller L', carried into engagement with the second or third block *m*, according to the extent of the lever's movement, so that the current will meet a greater resistance and have its strength reduced before it reaches the motor. When it is desired to further reduce the speed of the motor and apply the brakes, the lever I, is moved still farther in the direction of the arrow; and when it is desired to bring the car to a full stop, the lever is moved sufficiently forward to forcibly apply the shoes C, against the wheels, which movement will bring the roller L', in engagement with the lowermost resistance block *m*, and entirely cut off the current from the motor.

It will be seen from the foregoing description taken in conjunction with the drawing that my improvements are very simple, light and durable, and that they enable a motorman to quickly apply the brakes and diminish or cut off the electric current through the medium of a single device. It will also be perceived that through the medium of the mechanism described, the motorman is enabled to exert a great power against the brake shoes so as to forcibly apply and hold them against the wheels and make a quick stop.

I prefer in practice to employ the mechanism illustrated and described for depressing the plunger F, but I do not desire to be understood as confining myself to such mechanism as any suitable means may be employed. I also do not desire to be understood as confining myself to the specific construction and arrangement of parts herein set forth as such changes or modifications may be made as fairly fall within the scope of my invention.

Having described my invention, what I claim is—

1. In an electric car, the combination of a motor, a source of electric supply, a rheostat arranged in an electric circuit between the

source of supply and the motor, a vertically movable plunger arranged in the electric circuit and contacting with the rheostat, and a suitable means for moving the said plunger, substantially as specified.

2. In an electric car, the combination of a motor, a source of electric supply, a rheostat arranged in an electric circuit between the source of supply and the motor, a vertically movable plunger arranged in the electric circuit and contacting with the rheostat, brake shoes adapted to engage the wheels of the car, mechanism intermediate of the plunger and the brake shoes, and a suitable means for moving the plunger, substantially as specified.

3. In an electric car, the combination of a motor, a source of electric supply, a rheostat arranged in an electric circuit between the source of supply and the motor and comprising a plurality of resistance blocks arranged in a vertical series, a hanger arranged in the electric circuit, a vertically movable plunger contacting with said hanger and the resistance blocks of the rheostat, brake shoes adapted to engage the wheels of the car and mechanism intermediate of the plunger and said brake shoes, substantially as specified.

4. In an electric car, the combination of a motor, a source of electric supply, a rheostat arranged in an electric circuit between the source of supply and the motor and comprising a plurality of resistance blocks, arranged in a vertical series, a hanger arranged in the electric circuit, a vertically movable plunger contacting with said hanger and the resistance blocks of the rheostat, brake shoes adapted to engage the wheels of the car, mechanism intermediate of the plunger and said brake shoes, a lever as I, and mechanism intermediate of said lever and the vertical plunger, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

MARION BAKER MONROE.

Witnesses:

JOHN L. ROBBINS,  
OTTE STOCK.