

(No Model.)

2 Sheets—Sheet 1.

C. LANDERS.
RHEOSTAT CONTROLLER.

No. 543,963.

Patented Aug. 6, 1895.

Fig. 1.

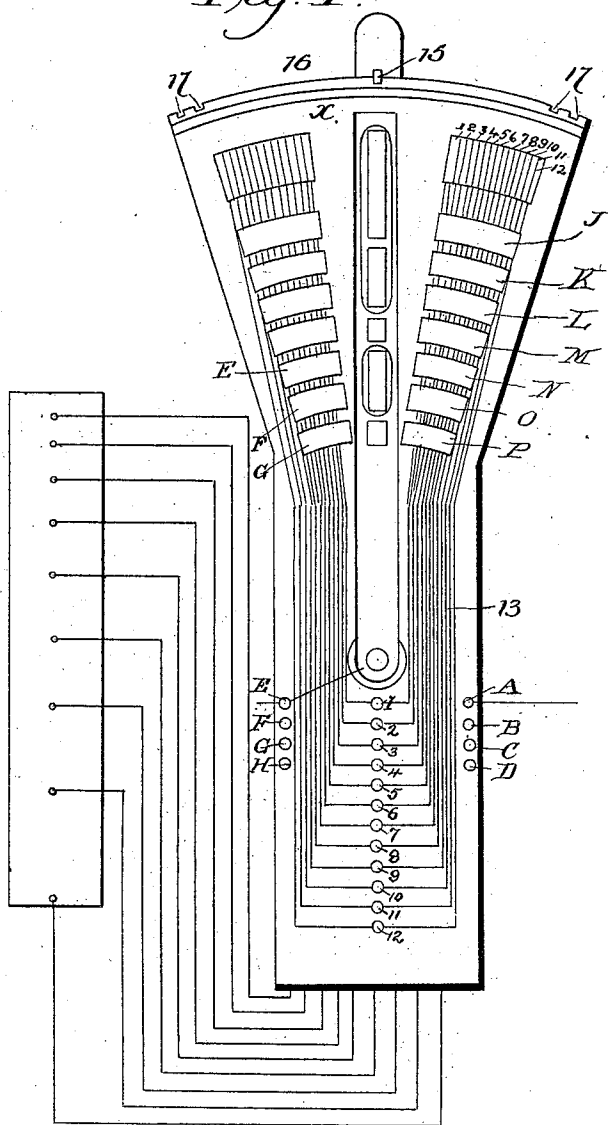
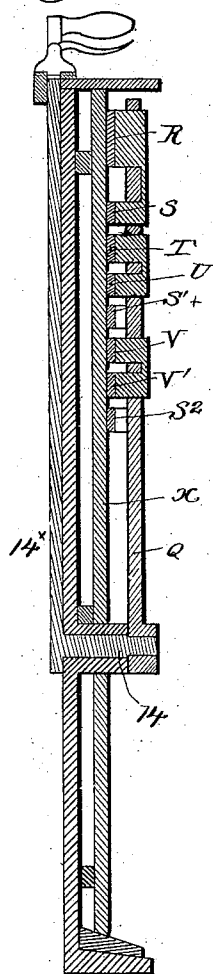


Fig. 2.



Witnesses
J. M. Reynolds
Chas. E. Fyer

Inventor
Clyde Landers.
By *John Theedderburn*
Attorney

(No Model.)

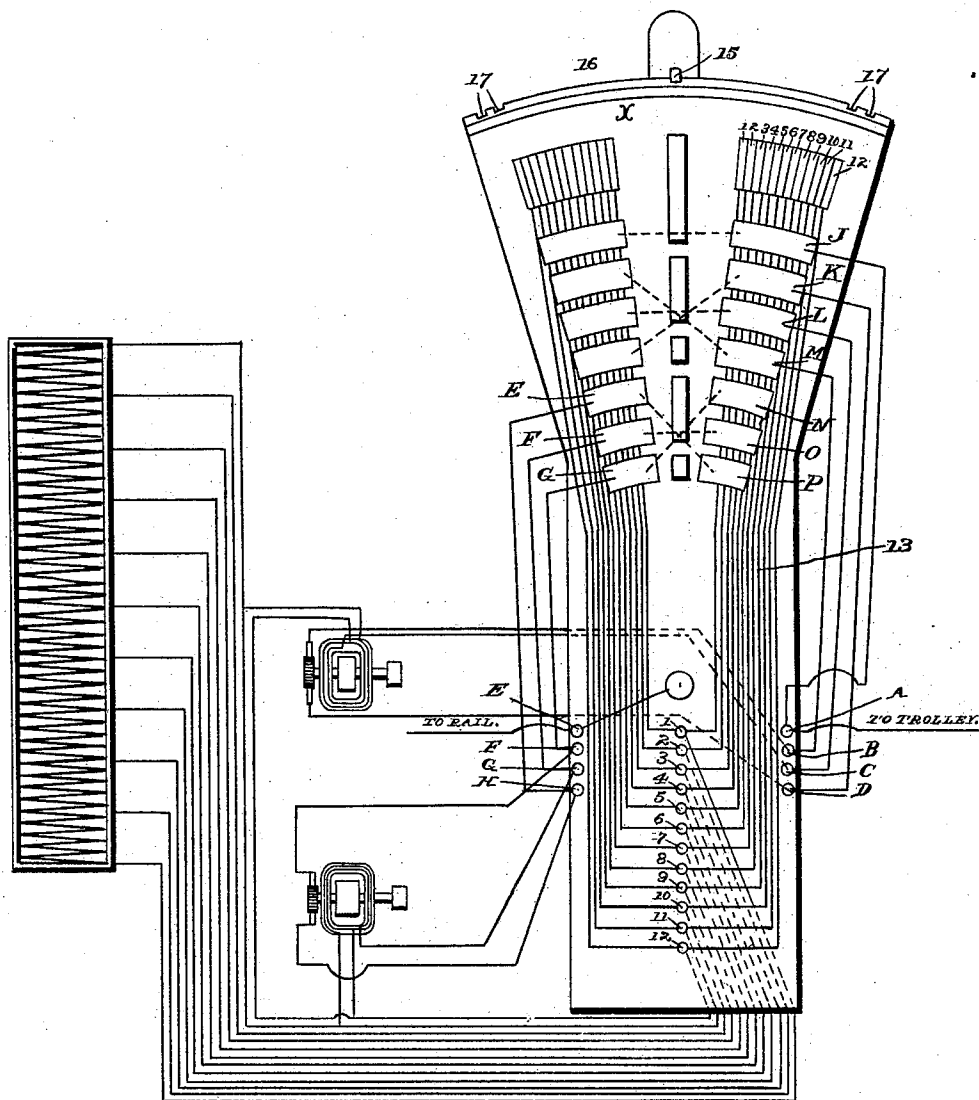
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Fig. 3.



Witnesses
Edwin G. McVee,
Louis G. Randall.

Inventor
Clyde Landers.
by John W. Addicks
his Attorney.

UNITED STATES PATENT OFFICE.

CLYDE LANDERS, OF TACOMA, WASHINGTON.

RHEOSTAT-CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 543,963, dated August 6, 1895.

Application filed March 27, 1894. Serial No. 505,254. (No model.)

To all whom it may concern:

Be it known that I, CLYDE LANDERS, a citizen of the United States, residing at Tacoma, in the county of Pierce and State of Washington, have invented certain new and useful Improvements in Rheostat-Controllers; 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.

This invention relates to a rheostat-controller for electric-railway cars or other purposes, and has for its object to dispense with the use of two levers and consequently be operated more quickly and easily and wherein the reverse-switches are protected and the resistance-coils shielded and confined in a compact space, the several parts being readily put up in position.

With these and other objects and advantages in view the invention consists of the construction and arrangement which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a front elevation of a rheostat-controller embodying the invention. Fig. 2 is a central transverse vertical section of the same. Fig. 3 is a similar view to Fig. 1, in which the electric circuits are shown.

Similar numerals and letters of reference are employed to indicate corresponding parts in the several views.

Referring to the drawings, the letter X designates a board of suitable thickness which is placed in a cast-iron case of suitable construction. Upon the lower part of the said board are mounted a series of brass buttons A B C D and E F G H, about one-quarter of an inch thick and all insulated from each other. The button A is connected to the trolley and the button E to the rail. On the upper portion of the board is mounted a series of plates 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12, arranged in segmental form and duplicated on opposite sides, said plates being connected to buttons similarly numbered and located on the lower portion of the board. This connection is made by a series of wires 13, and the lower series of buttons are of themselves connected to a set of resistance-

coils, which are placed in a box under the seat and kept clean and dry. Below the plates 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12, and greatly diminishing in size from the top toward the bottom, are segments J, K, L, M, N, O, and P, which are connected to the buttons B C D F G H, &c., it being understood that the same number of buttons will be employed as segments. The latter buttons are connected to the motors, and between the segments J, K, L, M, N, O, and P is mounted a movable switch-arm Q, constructed of iron and having a series of contact buttons or projections R, S, T, U, V, and V', which are adapted to engage the plates 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12, and also segments J, K, L, N, and O, which are insulated from the arm and also provided with buttons S' and S², which engage the segments M and P, the said buttons S' and S² not being insulated from the said arm. The arm is rested on a pin 14 and is secured to a lever 14^x, which extend upward against the outer side of the case, and is provided with a latch 15, which bears on the upper segmental edge 16 of the board, which is supplied with notches 17 at the opposite ends to hold the same in adjusted position. As shown, when the arm is moved through the operation of the lever 14^x toward the left the motors are actuated to drive the car ahead. When thrown to the opposite side the said arm reverses the movement of the motors of the car. When the arm is operated to either go ahead or reverse, it gradually overcomes the resistance and starts the car off slowly. When the arm stands in the middle of the board, the current is off, as will be understood.

In Fig. 3 I have shown the contact-buttons at the off-notch, with the lever to which they are attached removed. By moving them all over to the right or to the left, thereby making contact with the segments in line with them, a complete circuit will be made from the trolley to the rail, and by continuing the movement farther over the top contact-button cuts out coil after coil of the resistance, and when it is all the way over the current is entirely cut out of the resistance-coil, and consequently all of the motors are at full speed. Both sides of the machine are con-

nected alike, one being the reverse of the other.

The controller is made more particularly for use with the Thomson-Houston waterproof electric motor, but may be put on any system desired with equal efficiency. It will also be seen that the two levers ordinarily employed are dispensed with in the present construction and, further, in the ordinary form of rheostat the reverse-switches are located under the car and they soon become dirty and short-circuited. This is avoided by the present form of rheostat. Further, in the system now generally employed the reverse-switches are located under the car and are connected by means of steel cables, which soon become stranded and burn off. By the arrangement of rheostat heretofore set forth this is also obviated.

Many other advantages will appear from time to time to those using the device, and it will be obviously apparent that changes in the form, construction, proportion and minor details might be made and substituted for those shown and described without in the least departing from the nature or spirit of the invention.

Having thus described the invention, what is claimed as new is—

In a rheostat controller, the combination with an upright board, having a series of plates at its upper end and a series of buttons at its lower end, said plates and buttons being connected respectively by wires, and the said buttons being in circuit with a resistance coil, a series of reversing switches or segments beneath said plates, electrically connected with a series of buttons on the lower side of said board, and electrical connections between said buttons and the motors, connections between the trolley wire and one of said reversing switches or segments, and connections with the rail, of an operating lever pivoted in said board, carrying a series of contact points thereon, substantially as for the purpose described.

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

CLYDE LANDERS.

Witnesses:

W. E. WADDELL,
I. A. MACKELLAR.