Jan. 1, 1929. 1,697,412

L. CARUSO

COMBINED RHEOSTAT AND SWITCH

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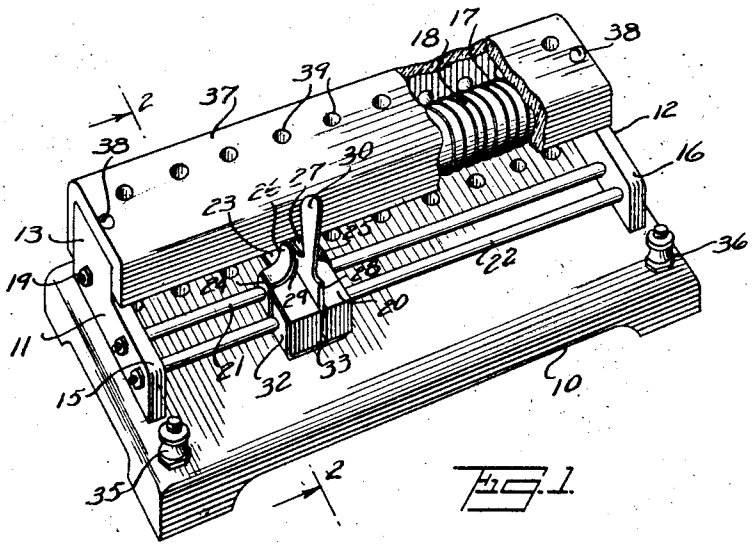
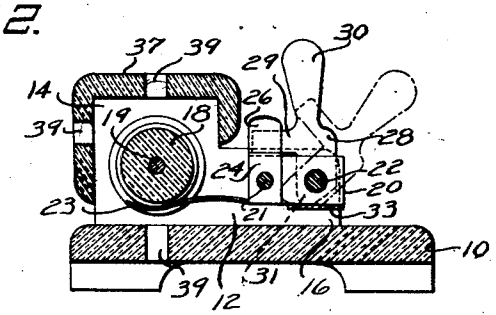



FIG. 1.

FIG. 2.




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# UNITED STATES PATENT OFFICE.

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## COMBINED RHEOSTAT AND SWITCH.

Application filed July 20, 1926. Serial No. 123,685.

The present invention relates to a combined rheostat and switch, and is more particularly directed toward a structure suitable for use in controlling the circuit for small power consuming devices such as electric motors used in toys.

In operating toy electric trains, it is desirable to control the speed of the train by controlling the voltage applied to the track layout on which the trains run. It is also desirable to be able to stop the train at any time by opening the circuit. The present invention contemplates a structure suitable for this purpose. One may readily control the resistance in circuit with the track layout and may open or close the circuit as desired without change of resistance.

An object of the invention is to provide a combined rheostat and switch for the above purposes by means of which one may easily control the speed of the train and stop and start it at will, preferably without changing the resistance in the circuit.

Another object of the invention is to provide such a device made up in a suitable size for use in toy layouts and which a child may safely control the circuit.

Another object of the invention is to provide a device of this nature wherein a spring pressed contact is slidable along the resistance coil and wherein a switch sliding with the contact is available for opening and closing the circuit. The invention preferably contemplates using a spring to hold the switch in the desired position.

Another object of the invention is to provide such a device of this character wherein the operator may vary the resistances in circuit without opening the circuit or may move the adjustable parts of the rheostat when the circuit is opened without restoring the circuit.

Other and further objects of the invention will appear as the description proceeds.

In the accompanying drawing, there is shown, for purposes of illustration, one of the many possible embodiments in which the invention may take form, it being understood that it is illustrative rather than limiting the same.

In these drawings:

Figure 1 is a perspective view of an embodiment of the invention; and

Figure 2 is a transverse sectional view on line 2—2 of Figure 1.

A base 10, preferably made of moulded fire proof insulating material is provided with two upstanding projections or lugs 11 and 12 near the ends, preferably moulded integral therewith. The rear portions 13 and 14 of these lugs are higher than the front portions 15 and 16. A resistance coil 17 is wound on a core 18 which is mounted on a rod 19 extending between the rear portions of the lugs.

An insulating block 20 is slidably mounted on a pair of rods 21 and 22, parallel to the axis of the core, and carried below and in front of the core by the front portions of the lugs. This block carries a spring contact 23 adapted to slide along the lower side of the coil. The contact is fastened to the lower side of the insulating block and has laterally extending members 24 and 25 folded up about the block to form switch clips 26 and 27 as indicated.

A switch arm 28 is pivotally mounted on the front rod 22. It has a contact blade 29 cooperating with the switch clips 26 and 27, and a finger piece 30 to facilitate operation. The lower end 31 of the contact blade is rounded, as indicated, and a spring 32 mounted on the side of the insulating block extends underneath the block as indicated at 33 to engage with the contact blade. This spring member 32 presses the switching member upwardly and insures a good contact between the rod 22 and the movable switch blade 28. A binding post 35 is connected to the resistance coil while a second binding post 36 is connected to the rod 22.

It will be obvious that one can readily move the insulating contact carrier along the rods so as to move the contact 23 along the wire thereby varying the resistance in the circuit. The finger piece 30 is accessible for opening and closing the circuit without changing the setting of the resistance and hence one can easily open and close the circuit and vary the resistance in any desired manner.

The present construction is preferably made up on a fire proof insulating base and in order to prevent accidental contact with the wire resistance coil, a cover member 37 is mounted on the rear part of the lugs 11 and 12 by means of screws as indicated at 38. Ventilation openings 39 may be suitably located to facilitate carrying off the heat generated in the coil.

It is obvious that the invention may be embodied in many forms and constructions,

and I wish it to be understood that the particular form shown is but one of the many forms. Various modifications and changes being possible, I do not limit myself in any way with respect thereto.

What is claimed is:

1. In a combined rheostat and switch, a base, a resistance coil fixedly supported on the base, a pair of guide bars carried by the base parallel with the coil, a contact carrier slidably carried on the bars and having a contact in sliding engagement with the coil and insulated from the bars, and a switch member carried by the contact carrier to be bodily movable therewith for electrically connecting the contact and one of the bars.

2. In a combined rheostat and switch, a base, a resistance coil fixedly supported on the base, a pair of guide bars carried by the base parallel with the coil, an insulating block slidably carried by the bars, a contact carried by the block and slidable along the coil, and a switch member bodily movable with the carrier, said switch member being pivoted on one of the bars for connecting or disconnecting the contact and bar.

3. In a combined rheostat and switch, a base, a resistance coil supported on the base, a pair of guide bars carried by the base parallel with the coil, an insulating block slidably carried by the bars, a contact carried by the block and slidable along the coil, a switch member pivoted on one of the bars for connecting or disconnecting the contact and bar, and a spring to insure good contact between the bar and switch member.

4. In a combined rheostat and switch, a base, a resistance coil supported on the base, a pair of guide bars carried by the base parallel with the coil, an insulating block slidably carried by the bars, a contact carried by the block and slidable along the coil, a switch member pivoted on one of the bars for connecting or disconnecting the contact and bar, and a spring to insure good contact between the bar and switch member, the switch member and spring being so disposed that the spring holds the switch member in either position.

5. In combination, a base of insulating material, a resistance coil supported above the base, an insulating cover for the upper and rear sides of the coil, a pair of bars supported adjacent the front of the coil, a contact carrier slidably carried on the bars and having a contact slidable along the coil and insulated from the bars, and a switch member bodily movable with the carrier and adapted to connect the contact with one of the bars.

6. In a device of the class described, a resistance coil, a contact carrier, guides alongside the coil, a spring pressed contact held against the coil, and a switch supported by the carrier to be bodily movable therewith for connecting and disconnecting the contact and the guides.

7. In a device of the class described, a resistance coil, a contact carrier, guides alongside the coil, a spring pressed contact held against the coil, a switch supported by the carrier for connecting and disconnecting the contact and the guides, and a spring for holding the switch in either position.

8. A combined rheostat and switch having a stationary resistance coil, a slidably mounted contact carrier, a contact slidably carried thereby and held against the coil by spring pressure, and a switch for connecting the contact in circuit, the switch being supported by the contact carrier so that the circuit may be opened and closed without changing the setting of the resistance.

9. In a combined rheostat and switch, a base, a resistance coil fixedly supported on the base, a pair of guidebars carried by the base parallel with the coil, a contact carrier of insulating material slidably carried on the bars, a contact carried by the contact carrier in sliding engagement with the coil, a movable member bodily carried by the carrier, means to effect an electrical connection between the sliding contact and one of the guide bars when the movable member is in one position.

10. In a combined rheostat and switch, a base, a resistance coil supported on the base, a pair of guide bars carried by the base parallel with the coil, a contact carrier of insulating material slidably carried on the bars, a contact carried by the contact carrier in sliding engagement with the coil, and means for connecting the contact with one of the bars, and disconnecting it therefrom comprising a pivoted spring pressed member bodily movable with the contact carrier, the member being held in one or the other of two positions by spring pressure.

Signed at Irvington, in the county of Essex, and State of New Jersey, this 14th day of July, 1926.

LOUIS CARUSO.