May 1, 1928. 1,668,187

R. W. AUGUSTINE

RHEOSTAT

Filed Oct. 29, 1923

Fig. 1.

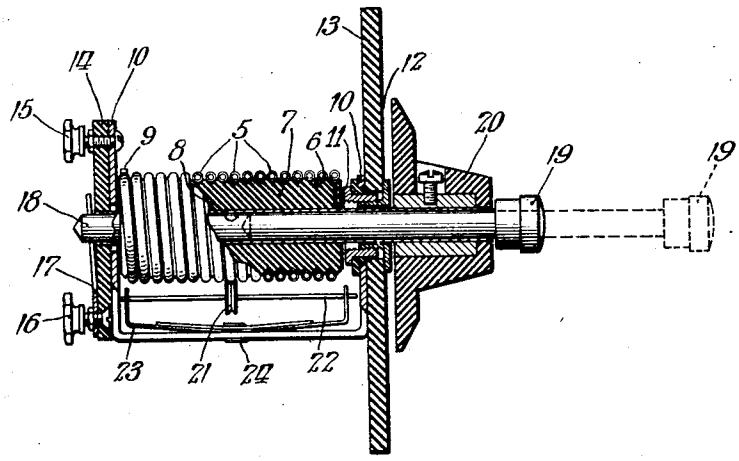



Fig. 2.

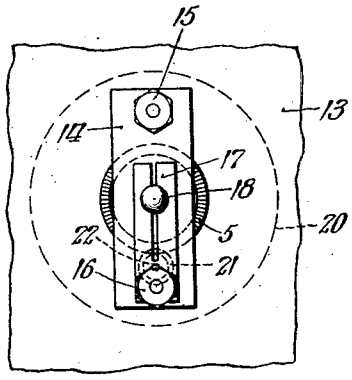
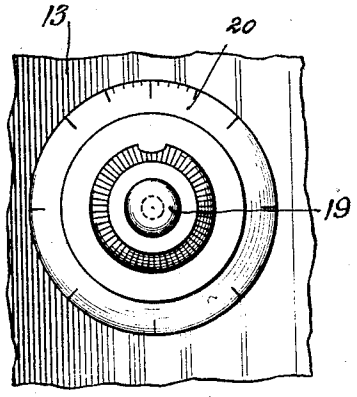



Fig. 3.




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# UNITED STATES PATENT OFFICE.

ROY W. AUGUSTINE, OF OAK PARK, ILLINOIS.

## RHEOSTAT.

Application filed October 29, 1923. Serial No. 671,454.

My invention relates to rheostats and has to do more particularly with devices of this character employed to a great extent for radio work, an object being to provide a device of this character adapted for use with the present systems requiring a greater range of variation in resistance and at the same time provide a rheostat which is comparatively cheap, simple but positive in its operation, and adapted for minute variation within the limits of its range.

Another feature of my invention is the provision of a switch or key, accessible from the face of the operating dial for disconnecting the resistance element to render it ineffective and open its circuit, this key being preferably arranged so that it may be entirely removed from the device to prevent any operation thereof.

For a better understanding of my invention reference is to be had to the accompanying drawing, in which

Fig. 1 is a longitudinal vertical cross section through the device;

Fig. 2 is a rear view of Fig. 1; and

Fig. 3 is a face view of Fig. 1.

Referring now more in detail to the preferred form of my invention as shown herein, I provide a resistance element in the form of a cylindrical, helical wire coil, the coil being formed into a spiral preferably cylindrical in form and the turns 5 of which are preferably wound in a thread-like groove 6 in an insulating support 7. The resistance element may be of any suitable material such as German silver, and is made by winding it into a long cylindrical helical coil like a spring and this is then wound upon the drum 7. One end of the element, the right end in Fig. 1, extends through the drum 7 into contact with the hollow supporting shaft 8 and the other end of the coil is simply secured in a suitable way to the drum, preferably by a small brad 9 to hold it in place.

The shaft 8 is rotatably supported in the frame consisting of a metal U-shaped member 10 in the front end of which is insulatingly secured a bearing bushing 11, into which is threaded a nut 12 so as to clamp the rheostat upon a mounting 13, which may be a part of the device or the usual insulating face plate for mountings, ordinarily employed. To the rear end of the mounting 10 I attach an insulating block 14 held by the terminal connector 15, which is thus connected through the frame 10 and the hollow shaft 8 to the resistance element 5. At the lower end of the insulating block 4 is a second terminal connector 16, which is in electrical contact with a switch member 17 of spring metal and slotted through its center so as to receive and hold a switch key 18, which thus completes the resistance element connection to the terminal 16 by means of the switch plate 17 and the hollow shaft 8. This switch key 18 has an operating knob 19 at the front end thereof extending through the face of the dial knob 20, which knob is attached to the shaft 8 to rotate the resistance element for actuating the rheostat. By the use of the switch key the rheostat may be rendered inoperative by opening its circuit. It is only necessary to pull the key outwardly as indicated by its dotted line position, thereby disconnecting the switch plate 17 from the resistance unit. This switch key may be removed entirely from the rheostat and thus prevent any unauthorized person from using the device.

A contact maker for cooperation with the resistance unit is provided, in the form of a roller 21 rotatable upon and movable along a shaft 22 supported upon a spring metal bracket 23 in electrical contact with the frame 10 and secured thereto by the rivet 24. This spring frame 23 is under tension, so as to press the contact roller 21 against the resistance element 5 and maintain intimate contact therewith. As the resistance element is rotated by the operating dial knob 20 the contact roller 21 maintains contact with the resistance element rotating on the shaft 22 and moving along progressively to contact with the succeeding individual turns of the resistance element, and also from turn to turn of the entire spiral wound upon the drum. The electrical circuit for the device with the key 19 inserted extends from the terminal connector 15 through the frame 10, frame 23, shaft 22, roller 21, resistance element 5, hollow shaft 8, switch key 18, switch plate 17 and the other terminal 16.

What I claim as new and desire to secure by United States Letters Patent is:

1. A rheostat of the character described, comprising a hollow shaft, a cylindrical insulating support carried on the shaft, a resistance element spirally wound upon the support, an operating dial knob secured to the shaft for rotating the same with the re-

sistance element, a contact maker movable along on and by the turns of the resistance element as it is rotated, terminal connectors for the element and contact maker, a switch for connecting and disconnecting a terminal connector, and a rod for operating the switch extending through the hollow shaft and accessible from the face of the dial.

2. A rheostat comprising a non-conducting support, a spirally wound resistance element, a contact at one end of the resistance element, a rod passing thru the non-conducting support longitudinally of the resistance element and normally engaging the contact to complete an electric circuit thru the resistance element and arranged to be moved longitudinally away from the contact to break the circuit, and a dial knob operatively connected with the coil and support and thru which the rod passes.

In witness whereof, I hereunto subscribe my name this 24th day of April, A. D., 1923.

ROY W. AUGUSTINE.