J. PARKIN, JR.

RHEOSTAT.

APPLICATION FILED AUG. 12, 1919.

1,335,181. Patented Mar. 30, 1920.

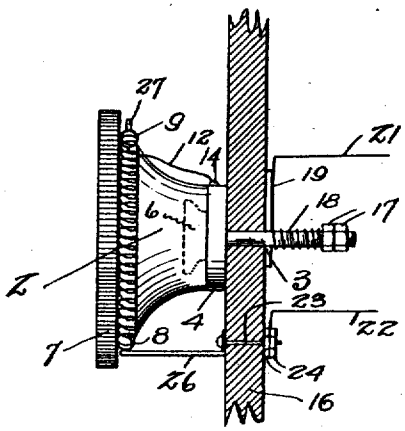


Fig. 1

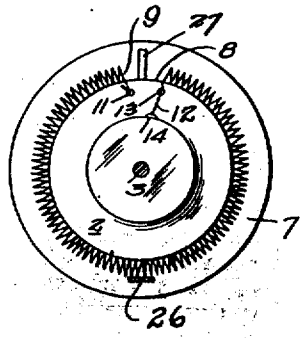


Fig. 2

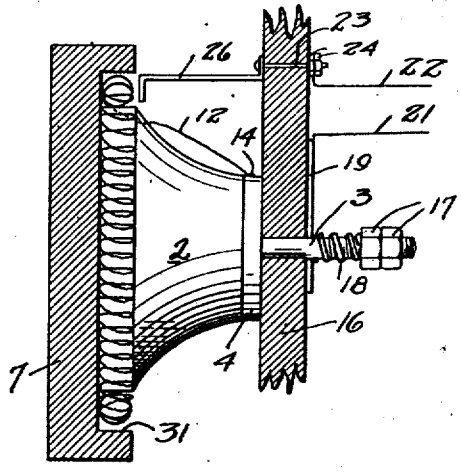


Fig. 3

Witness:
C. S. Evans

INVENTOR.
JOHN PARKIN, JR.
BY White & Frost
his ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN PARKIN, JR., OF SAN RAFAEL, CALIFORNIA.

RHEOSTAT.

1,335,181. Specification of Letters Patent. Patented Mar. 30, 1920.

Application filed August 12, 1919. Serial No. 317,077.

To all whom it may concern:

Be it known that I, JOHN PARKIN, JR., a citizen of the United States, and a resident of San Rafael, county of Marin, and State of California, have invented a new and useful Rheostat, of which the following is a specification.

My invention relates to devices for varying the resistance in an electric circuit.

Owing to the enormous number of persons engaged in experiments in the various electrical arts, especially in radio signaling, there is a great demand for a variable resistance device particularly suitable for use with small currents, which is of simple form and capable of being made and sold at a very low figure. It is to supply this demand that I have devised my present invention in which the elements are reduced to the least possible number and greatest possible simplicity. It will be understood that it may be suitably employed in other instances where a resistance varying device is needed.

The invention possesses other features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of my invention which is illustrated in the drawings accompanying and forming part of the specification. It is to be understood that I do not limit myself to the showing made by the said drawings and description, as I may adopt variations of the preferred form within the scope of my invention as set forth in the claims.

Referring to the drawings:

Figure 1 is an elevation of the rheostat, the panel on which it is mounted being shown is section. Fig. 2 is a rear elevation of the knob detached from the panel. Fig. 3 is an elevation of a modified form of my device.

My rheostat comprises a knob 2 of bakelite or other non-conducting material mounted upon a shaft 3. A flange 4 integral with or fixed to the shaft forms the inner face of the knob and a button 6 or similar device integral with or fixed to the flange or shaft provides means for uniting the knob to the flange and shaft. Preferably the shaft, flange and button are formed in one piece of hard brass, and the knob molded upon the button and flange as shown in Fig. 1.

The outer end of the knob is enlarged by a flange 7 which is knurled on the edge to provide a finger grip, and just inside the flange, is formed an annular groove about the knob adapted to seat a resistance element 8 which conveniently may be formed of a helical coil of resistance wire. One end 9 of the coil is secured to the material of the knob, and to do this I prefer to hook the end of the wire through a small aperture 11, opening on the inner slope of the knob and in the bottom of the groove. The other end 12 of the coil passes through an aperture 13 similar to aperture 11, and is connected as by solder 14 to the periphery of the flange 4. The coil is thus held about the knob by its own resilience.

The shaft 3 is of such length as to extend through the panel 16 on which the device is mounted and terminates in a threaded end upon which two nuts 17 are threaded. Interposed between the nuts and the rear of the panel is a spring 18 adjustably tensioned by the nuts. The spring retains the knob resiliently against the panel. Interposed between the spring and the panel is a contact plate 19 which is obviously in electrical contact with the shaft 3. One side 21 of the circuit in which the rheostat is used, is connected to the contact plate. The other side 22 of the circuit is connected to bolt 23 by nuts 24. The bolt passes through the panel and secures rigidly thereagainst the spring arm 26 which extends toward the knob and resiliently engages the resistance element 8. A pin 27 embedded in the knob between the ends 9 and 12 of the resistance element acts as a stop by engagement with the arm 26 to determine the extreme positions of the rheostat. From the above it will be understood that the resistance of the circuit 21 and 22 may be varied by turning the knob, the entire resistance element being in circuit when the knob is turned to one extreme, and practically the entire resistance being cut out at the other extreme.

In Fig. 3 I have shown a modified form of my rheostat, in which the groove 31 for the resistance element is formed in the inside lateral face of the flange 7. In this case the arm 26 is suitably bent at the end to facilitate contact with the resistance element.

I claim:

1. A variable resistance device comprising

a rotatably mounted knob having a periphery adapting it for digital control, and a variable resistance element circularly disposed about said knob and fixed thereon for rotation therewith.

2. A variable resistance device comprising a rotatably mounted knob having a periphery adapting it for digital control, a variable resistance element circularly disposed about said knob, a conductor on said knob for connecting said element to one side of a circuit, and a conductor fixed adjacent said knob and slidably engaging said element for connecting it with the other side of said cir-cuit.

3. A variable resistance device comprising a rotatably mounted shaft of conducting material, a knob of non-conducting material fixed on said shaft and formed with a periphery adapting it for digital control, a helical coil of resistance wire circularly disposed about said knob and having one of its ends electrically connected to said shaft, a conductor fixed adjacent said knob and slidably engaging said coil, and a conductor slidably engaging said shaft.

4. A variable resistance device comprising a knob having an annular groove therein and formed with a periphery adapting it for digital control, a variable resistance element disposed in said groove, a conductor on said knob for connecting said element to one side of a circuit, and a conductor fixed adjacent said knob and slidably engaging said element for connecting it with the other side of said circuit.

5. A variable resistance device comprising a panel of non-conducting material, a shaft of conducting material rotatably mounted in said panel, a knob having an annular groove therein fixed on said shaft, a variable resistance element disposed in said groove and electrically connected at one end with said shaft, an arm of conducting material fixed on said panel and resiliently engaging said element, a plate of conducting material on the rear of said panel in slidable engagement with said shaft, and a spring interposed between said plate and said shaft to retain the knob in position.

6. A variable resistance device comprising a knob having an annular groove therein, a variable resistance element disposed in said groove, a conductor on said knob for connecting said element to one side of a circuit, a conductor fixed adjacent said knob and slidably engaging said element for connecting it with the other side of said circuit, and a stop pin disposed in said knob between the ends of said element and adapted to engage said conductor to limit the rotation of said knob.

In testimony whereof, I have hereunto set my hand at San Francisco, California, this 5th day of August, 1919.

JOHN PARKIN, JR.

In presence of—
C. S. EVANS.