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1,474,367

J. E. JENKINS

COMBINED RHEOSTAT AND CUT-OUT

Original Filed May 20, 1922

Fig. 2

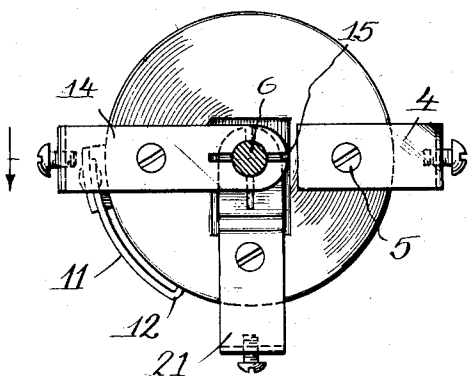


Fig. 3

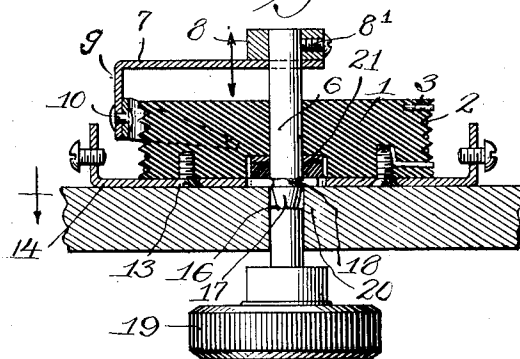


Fig. 1

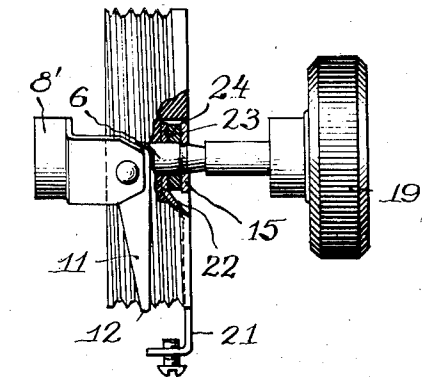
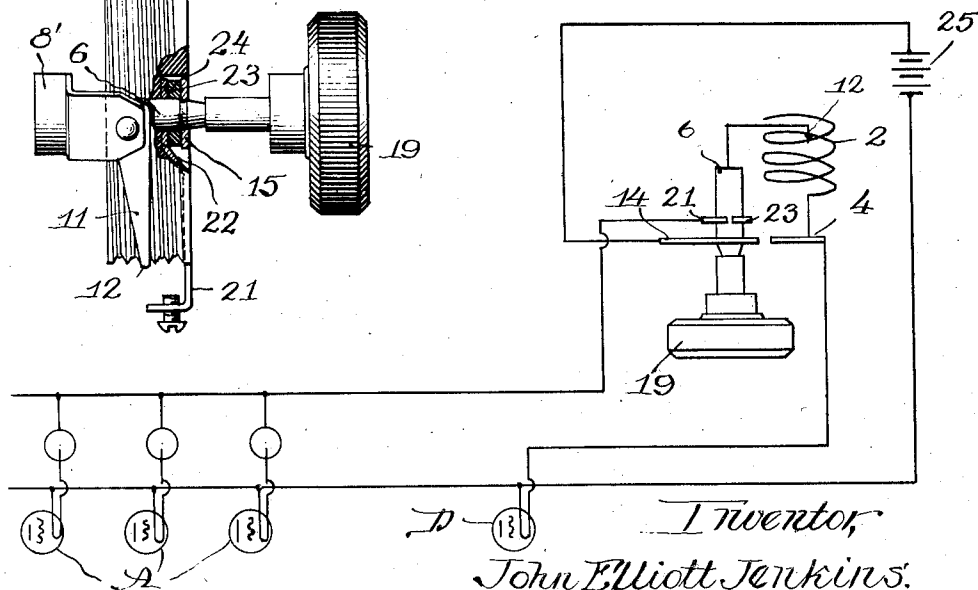


Fig. 4



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UNITED STATES PATENT OFFICE.

JOHN ELLIOTT JENKINS, OF CHICAGO, ILLINOIS.

COMBINED RHEOSTAT AND CUT-OUT.

Application filed May 20, 1922, Serial No. 562,460. Renewed August 6, 1923.

To all whom it may concern:

Be it known that I, JOHN ELLIOTT JENKINS, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Combined Rheostats and Cut-Outs, of which the following is a specification.

This invention relates to a combined rheostat and cut-out, particularly useful in radio telephony. Certain features disclosed in this application were disclosed in my co-pending application, Serial No. 543,859, filed March 15, 1922.

It is the object of the invention to provide a construction of the character described, simple and economical to construct and efficient in use.

In the drawings, which represent an illustrative embodiment of the invention,

Figure 1 is an elevation of the device partly in section.

Figure 2 is a plan view of the device.

Figure 3 is a cross sectional elevation, and Figure 4 is a diagrammatic showing of the elements of the device as applied to radio telephony.

I provide a drum 1, upon which in helical grooves cut therein is a resistance wire 2 secured at one end to the pin 3 and at the other to a terminal 4 secured to the flat face of the drum 1 as by the screw 5. Rotatably mounted in the drum 1 and concentrically therewith is a spindle 6 provided with an arm 7 secured to the collar 8 which in turn is secured to the spindle by the screw 8'. The arm 7 is bent over as shown at 9 and pivotally connected as by rivet 10 with a contact finger 11 having a pointed end 12 which rides on the wire 2. By turning the spindle the end 12 may be made to travel along the wire, the pivotal connection 10 permitting the contact finger to follow the helical grooves.

Rigidly mounted on the face of the drum as by the screw 13 is the terminal 14. This terminal is in the form of a flat plate of conductive material, split at its ends as shown at 15 (Figure 2) and provided with an aperture through which the spindle 6 passes. The spindle 6 has a reduced portion 16 connected by the incline 17 with a small annular recess 18. The spindle 6 carries knob 19. The whole apparatus may be

secured to a panel 20 shown in Figure 3, which panel may comprise the front of a radio control box.

It is obvious that by turning knob 19 varying resistance may be introduced with great precision since the contact finger 11 travels along the resistance wire 2; and that by pushing the spindle in or out, contact may be made or broken between the terminal 14 and the spindle 6 in accordance as the small annular recess 18 or the reduced portion 16 of the spindle lies between the forked end of the terminal 15, since at the small annular recess 18 the spindle will be in contact with the forked end of the terminal, while the reduced portion 16 of the spindle will not contact therewith.

In order to increase the efficiency of the device and enlarge its usefulness I have, in this embodiment of the invention, added another terminal 21, which is fixed to the flat face of the drum 1 and which at its inner end passes down on incline 22 and is apertured at its inner end 23 to receive the spindle 6 with a snug sliding fit as shown in Figure 1. Between the inner end 23 of the terminal 21 and the inner end 15 of terminal 14 is introduced a fibre washer 24.

In Figure 4 is disclosed a diagrammatic showing of the application of the device of the invention to radio telephony. In this figure is shown a battery 25 which is connected to the terminal 14 on one side and on the other side connected to the terminal 4, which through the wire 2 connects the battery to the spindle 6; thus an in-and-out movement of the spindle 6, by making contact between the terminal 14 and spindle 6, will complete the circuit through the rheostat and the detector D. The battery 25 is also connected through one or more amplifiers A to the terminal 21 and thereby through these amplifiers to the spindle 6; so that an in-and-out movement of the spindle 6 will establish or break the circuit, not only through the rheostat, but also through the amplifiers. Many other devices may be connected to the terminal 21, such as potentiometers, and other auxiliary radio devices, and all of these devices will be cut in or out by the pushing or pulling of knob 19. I believe it to be a new and very useful contribution to the art, particularly in view of the number of unskilled persons op-

erating radio sets, to provide a single control knob which operates as a combined rheostat control and cut-out for the auxiliary devices.

5 I claim—

1. In an apparatus of the class described, a battery, an adjustable rheostat, a detector an amplifier, a single knob and means whereby the rheostat may be adjusted by turning
10 the knob, all of said devices cut in or out by pushing or pulling the knob.

2. In apparatus of the class described, a battery, a rheostat, a detector, an amplifier, a knob and means whereby the rheostat may
15 be adjusted by turning the knob and the amplifier cut in or out by pushing or pulling the knob.

3. In apparatus of the class described, a battery, a series of detector and amplifier
20 devices operated thereby, a rheostat, a single control knob and means whereby the control knob may be operated for adjusting the rheostat by turning it, and may be operated to cut in or out the detector and amplifier
25 devices by pushing it in or out.

4. In apparatus of the class described and in combination a drum having a resistance wire wound thereon, a terminal fixed to the drum and connected to the resistance wire,
30 a shaft revolvably mounted on the drum, a contact operated by revolution of the shaft, to trail along the wire, a second terminal mounted on the drum and apertured for passage of the shaft, a reduced area on the shaft of a diameter smaller than the aperture,
35 whereby when the shaft is moved longitudinally, contact between it and the second terminal may be broken or established, a third terminal connected with the shaft.

5. In apparatus of the class described and in combination a drum having a resistance wire wound thereon, a terminal fixed to the drum and connected to the resistance wire, a shaft revolvably mounted on the drum, a
45 contact operated by revolution of the shaft, to trail along the wire, a second terminal mounted on the drum and apertured for passage of the shaft, a reduced area on the shaft of a diameter smaller than the aperture,
50 whereby when the shaft is moved longitudinally, contact between it and the second terminal may be broken or established, a third terminal connected with the shaft; a source connected with the first terminal
55 through a detector, and with the second ter-

minal, an auxiliary device connected with the source and the third terminal.

6. In apparatus of the class described and in combination a drum having a helical groove thereon, a resistance wire lying
60 along said groove, a shaft passing through the drum parallel with the axis thereof, an arm on said shaft carrying a contact adapted to slide along the wire upon relative motion of the drum and shaft, a circuit through
65 the resistance wire contact arm and shaft, a second circuit through the shaft, radio devices in said second circuit, and means whereby when the shaft is moved longitudinally the said circuits are broken.
70

7. A combined rheostat and circuit control for radio comprising a drum having a resistance wire helically wound thereon, a manually revolvable shaft mounted in the drum, a contact operated by the revolution
75 of said shaft to trail along the wire, said shaft arm and wire being conductive, radio devices in electrical connection with the shaft, a terminal for said devices associated with said shaft and means whereby the longitudinal movement of said shaft makes a
80 break in the circuit of said resistance wire and the radio devices between the shaft and the terminal.

8. In combination a drum having a resistance wire wound thereon; a shaft, a contact movable along the resistance wire, in
85 circuit connection with and operated by the rotation of the shaft, a detector and amplifier circuit passing through the shaft, a means for breaking of said circuit by a longitudinal movement of the shaft.
90

9. In apparatus of the class described a drum, a wire wound thereon and in electrical connection at one end with a current source;
95 a shaft revolvable in the drum, a sliding contact for the wire operated by and in electrical connection with the shaft, an auxiliary electrical device in circuit with the shaft, a terminal for said device associated with the shaft and in electrical connection with the same, and means whereby said device may be connected to or disconnected from the source by longitudinal movement of the shaft, whereby the resistance and device circuit may be simultaneously established or broken.
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In witness whereof, I hereunto subscribe my name this 17th day of May, A. D. 1922.

JOHN ELLIOTT JENKINS.