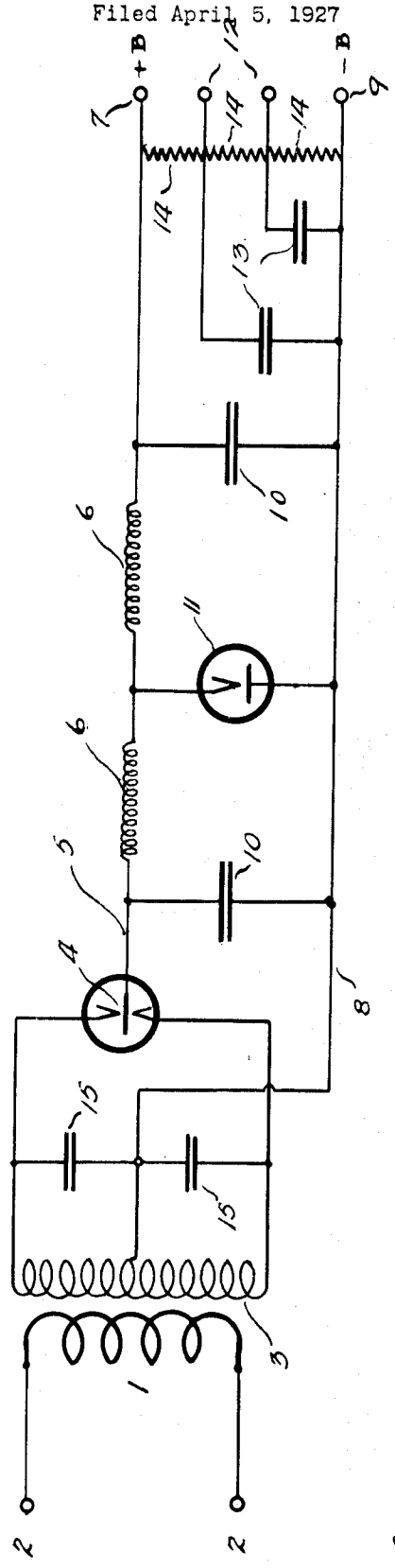
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REGULATING DEVICE

Filed April 5, 1927




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# UNITED STATES PATENT OFFICE

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## REGULATING DEVICE

Application filed April 5, 1927. Serial No. 181,143.

This invention relates to improvements in regulating devices; especially regulating devices for electrical power circuits.

An object of my invention is to provide an automatic regulating device, electrical in its nature and function, for the circuit of apparatus by which a radio set can be supplied with current from the conductors of a light or power line, in place of batteries; so that the best operating condition for such apparatus can readily be maintained in practice.

Other advantages of the invention will be made apparent in the following description, and the novel features be pointed out in the claim. But this disclosure is illustrative only, and changes within the scope of the invention may be made to the full extent consistent with the meanings of the terms in which the appended claim is expressed.

On the drawing the figure shows a construction in accordance with my invention.

The numeral 1 indicates the primary winding of a transformer of alternating current, with terminals 2 for connection with an ordinary lighting circuit, for example. To the secondary winding 3 of this transformer is connected a suitable rectifier 4, attached to the opposite terminals thereof; and to this rectifier I unite one line 5 of a smoothing and filtering circuit. In the line or conductor 5 are choke coils 6 or the like appliances in series, and the conductor 5 is attached to a terminal 7. The opposite side of the filtering circuit is shown at 8, which represents a conductor joining the midpoint of the secondary 3 of the transformer to a terminal 9. Across the lines 5 and 8 I connect an electrical condenser or similar appliance 10 between the rectifier 4 and the first coil 6; and a similar condenser across the two conductors between the second coil 6 and terminal 7. Between these coils I connect across the conductors 5 and 8 a gas tube 11. Between the terminals 7 and 9 are intermediate terminals 12, united to the line 8 through additional condensers 13; and the terminals 7, 12, and 9 are bridged by suitable fixed resistances 14. At 15 are condensers bridging the conductor 8 and the two opposite ends of the secondary coil 3.

This general type of circuit is quite well known and when a radio receiving set is connected thereto, satisfactory results can be obtained. The amplifier of the set is attached to the terminals 7 and 9, and the detector to one of the intermediate terminals 12 and the terminal 9 in a manner familiar to those skilled in this art.

My invention resides principally in the inclusion of the tube 11. The current in the lines 5 and 8 tends to fluctuate to some extent, but the coils 6 and the condensers smooth it out and render it uniform, and the tube 11 serves a number of useful purposes. The characteristics of the tube are such that, when it once breaks down and permits current to flow through it, the voltage at its terminals will remain substantially constant throughout a wide range of input voltages in the filter circuit, and currents drawn therefrom at the output terminals 7, 9 and 12. Thus the tube 11 acts as a filter and cooperates with the condensers, it maintains substantially constant voltage supplied to the set through the terminals mentioned; both for varying loads and different line voltages, and it reduces the risk of breaking down the condensers between it and the output terminals of the circuit, since said condensers are not subjected, due to the presence of the tube, to the high voltages that may occur when no load is on the apparatus. The tube thus automatically governs the operation of the circuit, and brings about the best working conditions.

The tube 11 may of course be used with any type of a A or B eliminator circuit, or battery substitute apparatus for a radio set; or any other circuit wherein the benefits afforded by the tube are desired.

Having described my invention, what I

believe to be new and desire to secure and protect by Letters Patent of the United States is:—

The combination of a circuit containing choke coils in series and condensers in parallel for smoothing out fluctuating current in said circuit, and a gas tube connected across the circuit between said coils to regulate the output of the circuit.

In testimony whereof, I have signed my name to this specification this 18th day of March, 1927.

ABRAHAM B. ASCH.