

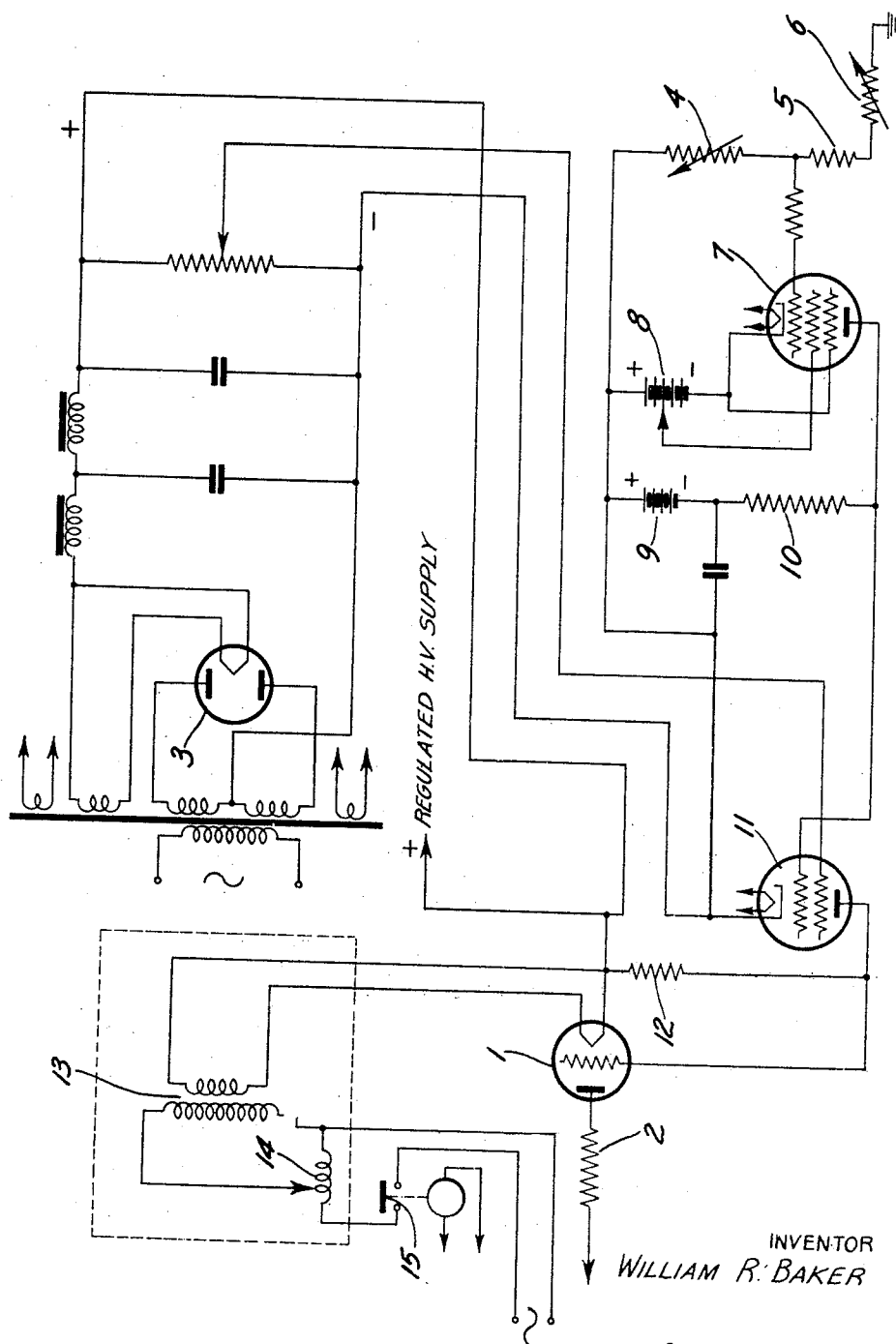
March 1, 1949.

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2,462,935

HIGH STABILITY VOLTAGE REGULATOR

Filed Aug. 27, 1946



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UNITED STATES PATENT OFFICE

2,462,935

HIGH STABILITY VOLTAGE REGULATOR

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Application August 27, 1946, Serial No. 693,333

1 Claim. (Cl. 323-22)

1

This invention relates to voltage regulators in general. More particularly, this invention relates to voltage regulating networks having a high degree of stability.

An object of this invention is to provide an improved voltage regulating network having a high degree of stability.

Other and further objects will be apparent to those skilled in the art to which this invention relates from the following specification, claim and drawing.

Referring to the drawing briefly, the sole view thereof is a schematic wiring diagram of an improved voltage regulating network arranged in accordance with this invention.

Referring to the drawing in detail, reference numeral 1 designates a regulating triode which has its anode connected through a resistor 2 to the positive terminal of a high voltage rectifier, the cathode of the triode 1 being connected to the positive terminal of an auxiliary power supply including the dual diode 3 and associated filtering network, the negative terminal of the auxiliary power supply being connected through a voltage dividing network including the rheostat 4, the resistor 5 and a rheostat 6 to ground. A pentode 7 has its cathode connected to the negative terminal of a standard voltage supply 8, the positive terminal of which is connected to one terminal of the rheostat 4, the other terminal of the rheostat 4 being connected through a grid resistor to the control grid of the pentode 7. Further, the positive terminal of the voltage supply 8 is connected through a second voltage supply 9 and a plate resistor 10 to the anode of the pentode 7, the anode of the pentode 7 being, in turn, connected to the control grid of a tetrode 11, the cathode of which is connected to the negative terminal of the auxiliary power supply including the dual diode 3 and to the cathode of the pentode 7 through the standard voltage supply 8. Moreover, the anode of the tetrode 11 is directly connected to the control grid of the regulator triode 1 and through a plate resistor 12 to the positive terminal of the auxiliary power supply and to the positive terminal of the output of the regulated high voltage supply. Further, the filamentary cathode of the regulating triode 1 is connected to the secondary of a filament transformer 13, the primary of which is connected through a variac 14 and a water interlock relay 15 to a suitable source of alternating current.

Considering now the operation of the regulator, a rise in voltage output of the regulator power supply results in an increased voltage drop across the rheostat 4, impressing a negative signal on the control grid of the pentode 7 which, in turn, impresses a positive signal on the control grid of

2

a tetrode 11. There follows a rise in the negative potential on the control grid of the regulating triode 1, which increases the resistance of the triode and reducing the voltage output of the regulator high voltage power supply to its original preset value. The voltage output of the power supply may be adjusted by means of the rheostat 4 or by means of the vernier rheostat 6; and the maximum current output of the power supply may be established by controlling the emission of the cathode of the regulating triode 1 by means of the variac 14.

While I have described the salient features of this invention in detail with respect to one embodiment, it will of course be apparent that numerous modifications may be made within the spirit and scope of this invention and I do not therefore desire to limit the invention to the exact details shown except insofar as they may be defined in the following claim.

What is claimed is:

In a voltage regulator circuit the combination comprising a source of unregulated voltage, a load circuit, a regulator tube having at least an anode, a control grid, and a cathode, the anode of said regulator tube being connected to one side of said unregulated voltage and the cathode of said regulator tube being connected to one side of said load, a first amplifier tube having at least an anode, a control grid, and a cathode, a first standard voltage source connected to the cathode of said first amplifier for applying a negative voltage thereto, a second standard voltage source connected to the anode of said first amplifier for establishing a positive anode to cathode voltage, a voltage divider network connected in parallel across said load circuit, means for connecting a portion of the voltage across said voltage divider to the control grid of said amplifier, and a second amplifier tube having at least an anode, a control grid, and a cathode, the control grid of said second amplifier being connected to the anode of said first amplifier and the anode of said second amplifier being connected to the control grid of said regulator tube.

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