Dec. 9, 1941. B. S. VILKOMERSON 2,265,958

RADIO RECEIVING APPARATUS

Filed May 29, 1941

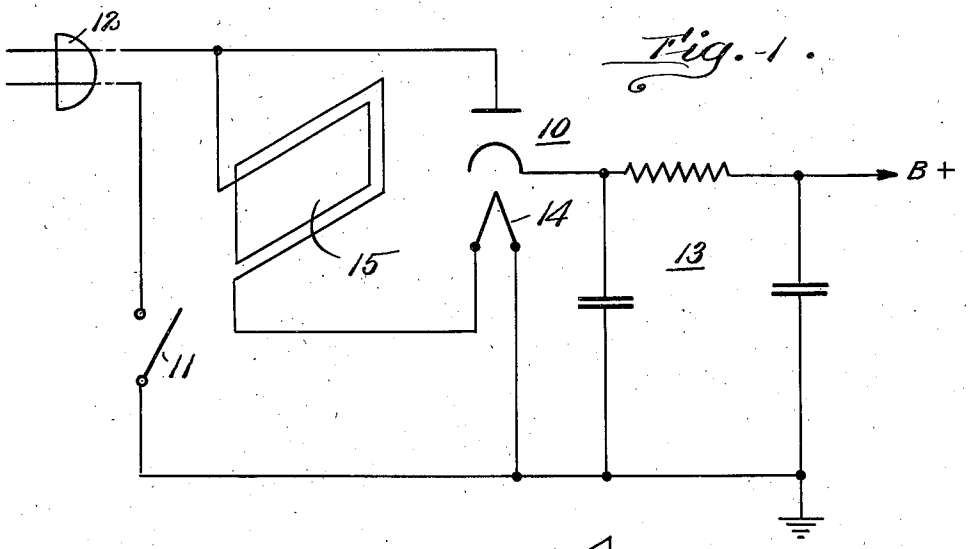


Fig. 1.

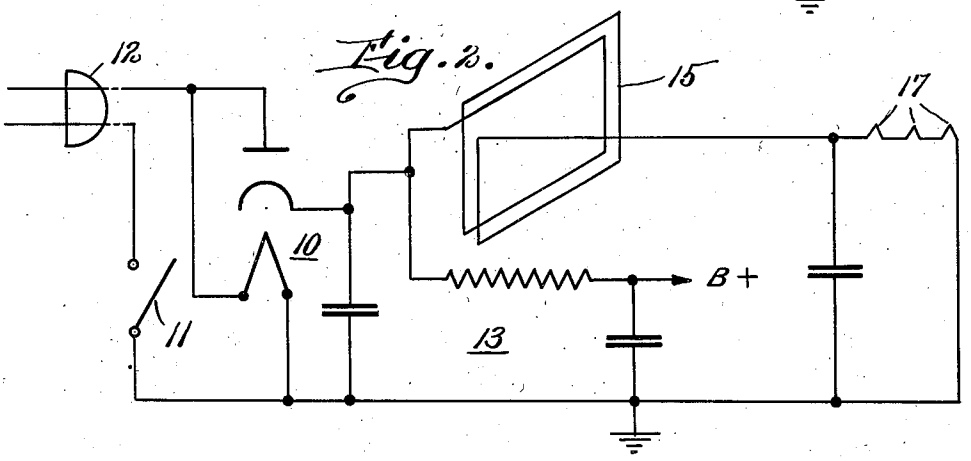


Fig. 2.

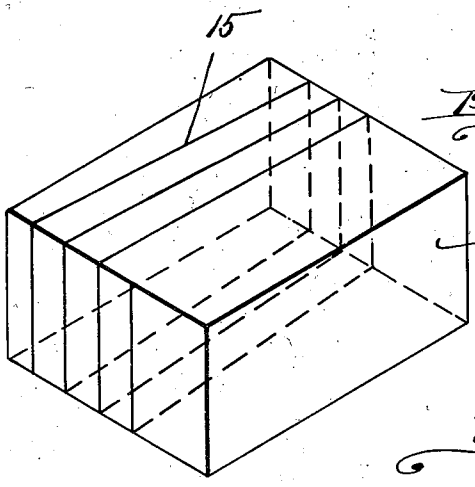


Fig. 3.

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RADIO RECEIVING APPARATUS

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Application May 29, 1941, Serial No. 395,730

1 Claim. (Cl. 250—27)

This invention relates to radio receiving apparatus and more particularly to portable radio receivers which include dry batteries and other appliances which are injuriously affected by heat, although the invention is of more general application.

It comprises essentially a voltage-reducing resistor so constructed as to provide a large cooling area whereby there is effected substantially maximum heat dissipation and substantially minimum temperature rise. To effect this result, the resistor comprises a number of serially connected elements which may be spirally or sinuously arranged, such elements being mutually spaced and disposed preferably, but not necessarily, on the outer surface of the cabinet.

In the drawing accompanying and forming a part of this specification, Figure 1 is a diagrammatic representation of one exemplification of my invention.

Fig. 2 is a similar diagram illustrating another use to which said invention may be put.

Fig. 3 is a perspective representation of a cabinet of a radio receiving set or other container enclosing electrically heatable elements and appliances injuriously affected by the heat developed thereby.

In the particular drawing selected for more fully disclosing the principles underlying my invention, 10 is a hot cathode rectifier connected through the switch 11 with a plug connector 12. Across the output of said rectifier is the usual filter 13. In series with the heater element of the rectifier shown in the present instance as the filament 14, is a voltage reducing resistance 15 employed to reduce the voltage of the supply circuit to which the rectifier is connected by the plug 12 to a voltage suitable for the rectifier; for example, from the voltage of the usual service circuit, 117 volts, to 35 volts.

In the case of a radio receiving set enclosed in a cabinet, such as 16, it is preferable that the resistance wire 15 be wound around the outside surface of the cabinet to provide a large cooling area, and that the several turns or convolutions of the resistance wire be mutually spaced. It will be understood, of course, that the resistance wire need not be arranged spirally, as shown in Fig. 3, and that it may be disposed sinuously, or in any other suitable manner. It will be obvious also that the resistance may consist of a plurality of serially connected elements of any suitable type other than lengths of plain resistance wire, as indicated diagrammatically in the drawing in which each convolution of the spiral coil constitutes a member or element of the resistance.

It has been found in practice that when resistance wire is employed in the manner indicated in Fig. 3, the rise in temperature within the cabinet has a minimum effect on such appliances as electrolytic condensers and dry cells forming part of the receiving system enclosed within the cabinet. One advantage of placing the voltage reducing resistance on the outside of the cabinet is that the material of which the cabinet is made acts as a heat insulator. Even when the resistance is placed within the cabinet, the heat produced thereby is rapidly dissipated and the radio appliances enclosed within the cabinet are substantially immune from the effects thereof.

In Fig. 2 the rectifier 10 is assumed to be one designed for the voltage of the usual service line, and in this case, the resistance 15 is employed to reduce the voltage of the output circuit of the rectifier, say, 100 volts, to a much smaller voltage, say, 6 volts, for the heating of the filaments 17 shown in the present instance as connected in series.

As will be obvious, a resistance constructed in accordance with the present invention may be employed wherever desired, in a radio receiving apparatus or otherwise, for voltage reduction without an accompanying rise in temperature that would deleteriously affect any electrical appliance enclosed within a container.

Having thus described illustrative embodiments of my invention without, however, limiting the same thereto, what I claim and desire to secure by Letters Patent is:

A radio receiving apparatus comprising in combination, a cabinet, an appliance enclosed therein that is injuriously affected by an excessive rise in temperature, a voltage source connected to the terminals of said appliance and a resistor in series with said source and said appliance, said resistor being disposed on the outer surface of said cabinet and comprising a plurality of serially connected members mutually spaced to provide a large cooling area whereby the heat developed in said resistor is dissipated over the maximum possible area for a radio apparatus of given size.

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