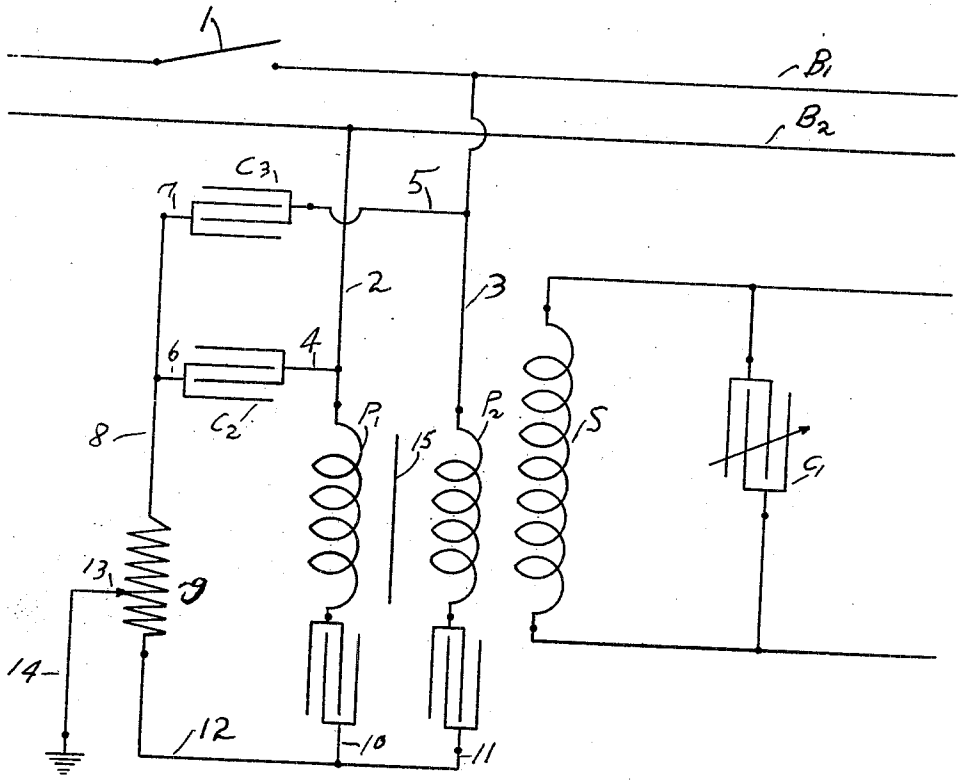
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RADIORECEIVER

Filed March 17, 1931



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RADIORECEIVER

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This invention relates to improvements in radio receivers and provides for the reception of high frequency currents from either an alternating or direct current power line, thus eliminating the usual form of aerial equipment.

One object of the invention is to simplify the radio receiver by eliminating the need of making aerial connections.

Another object is to provide a system of filtration for decreasing static and humming effects.

Still another object is to provide a volume control which governs the flow of the incoming high frequency current.

Briefly stated the invention consists in so constructing a radio receiver that but one common connection is needed for the reception of both low and high frequency current, the low frequency or power current being utilized for heating the cathodes of the tubes and the high frequency for reduction to audio or sound waves for the operation of the head set or speaker. This single common connection is made to either an alternating or direct current power line by the usual wall pocket or lamp socket connection. Thus, in setting up a radio receiving set equipped with the apparatus set forth in this application, it is only necessary to plug into a power line, which provides the receiver with power for its tubes, and furnishes aerial equipment therefor.

Heretofore it has been necessary to equip the ordinary line power radio receiver with either inside or outside aerial, in order to obtain good reception. This necessitated expense and trouble at the time of installation and also expense for upkeep, since owing to weather it is often necessary to either renew the wires or to make repairs.

With the above objects in view, as will hereinafter more fully appear, the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawing, and particularly pointed out in the appended claim, it being understood that various changes in form, proportions, size and minor details of structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawing forming part of this specification, and in which like characters of reference indicate corresponding parts, I have diagrammatically illustrated a preferred form of my invention.

The characters B_1 and B_2 indicate the buss wires of a power line such as the ordinary 110 volt line as usually used for house lighting. 1 indicates a switch in said line for turning on or off the current. The numerals 2 and 3 indicate branch lines from the main line wires B_1 and B_2, which lead respectively to the coils P_1 and P_2 of the compound wound primary of a transformer. This transformer is located in the first radio stage of the usual type of receiver, the primaries P_1 and P_2 being separated by an air space or suitable insulator 15 and inductively coupled to a secondary S located in the grid circuit of the first tube. Only that portion of the last named circuit, in which is located the secondary S and the variable tuning condenser C, is shown in the diagrammatic sketch.

From the branch lines 2 and 3 respectively are led the wires 4 and 5 which are connected to one side of the fixed condensers C_2 and C_3; the other side of the condensers C_2 and C_3 are connected by the leads 6 and 7 to a common lead 8 attached to the resistance coil or similar member of a potentiometer 9.

The other ends of the primary coils P_1 and P_2 are conductively connected to condensers 10 and 11 which are in turn connected to a common lead 12 attached to the opposite end of the potentiometer 9. A contact member, indicated diagrammatically by the arrow 13 and grounded through the line 14, is in sliding connection with coil of the potentiometer and may be moved along the coil so as to vary the resistance at either end of the coil as it is moved in one direction or the other.

With the above mode of arrangement radio frequency waves coming over the two power supply wires B_1 and B_2 pass through the compound wound primary (P_1) and (P_2), through the condensers (C_2) and (C_3) to one terminal of the potentiometer (9) and

through movable arm or sliding contact member (13) which is grounded.

It will be obvious that by moving the sliding contact member 13 towards the terminal of the condensers (10) and (11), will cut out resistance to the flow of radio frequency currents to ground, and increase current through the coils P_1 and P_2, which acting inductively on secondary coil S increases the volume. It will also be obvious that by moving contact arm 13 towards the terminals of condensers C_2 and C_3 will cut in resistance to the flow of radio frequency currents through coils P_1 and P_2, by passing same direct to ground and thereby decreasing volume.

In the particular circuit shown, the two primary coils P_1 and P_2 are composed of 20 turns each of No. 24 B and S gauge insulated, the fixed condensers are each of .01 mfd. capacity, and the potentiometer is of 10,000 ohms resistance, but it is to be understood that the size of condensers, potentiometer, wire and number of turns of winding can be changed to conform with, and to balance with such circuit hook up used in conjunction with such coil.

The filter circuits bridging the primary coils of the radio transformer not only serve to separate the high frequency from the low frequency currents but also are utilized to filter out extraneous undesirable noises such as alternating current hum and static since the majority of these noises are caused by low frequency impulses.

Having thus set forth and disclosed the nature of this invention, what is claimed is:

In combination in a radio receiver, an alternating current power equipment, power lead-in wires to said equipment, a first stage radio transformer having a two coil primary, an insulator between said primary coils, supplementary lead wires from said power lead-in to each of said primaries, a circuit bridging each of said primaries, a potentiometer, and a set of four fixed condensers, the potentiometer located centrally and common to each of the four circuits, one of the said condensers located in each of the aforesaid circuits between the potentiometer and the terminals of the primary coils, and a conductor connecting the sliding contact member of the potentiometer to ground.

In testimony whereof I affix my signature.

EINAR H. SELVIG.