July 1, 1930. A. S. CLARKE 1,769,256

RADIORECEIVER

Filed March 24, 1927 2 Sheets-Sheet 1

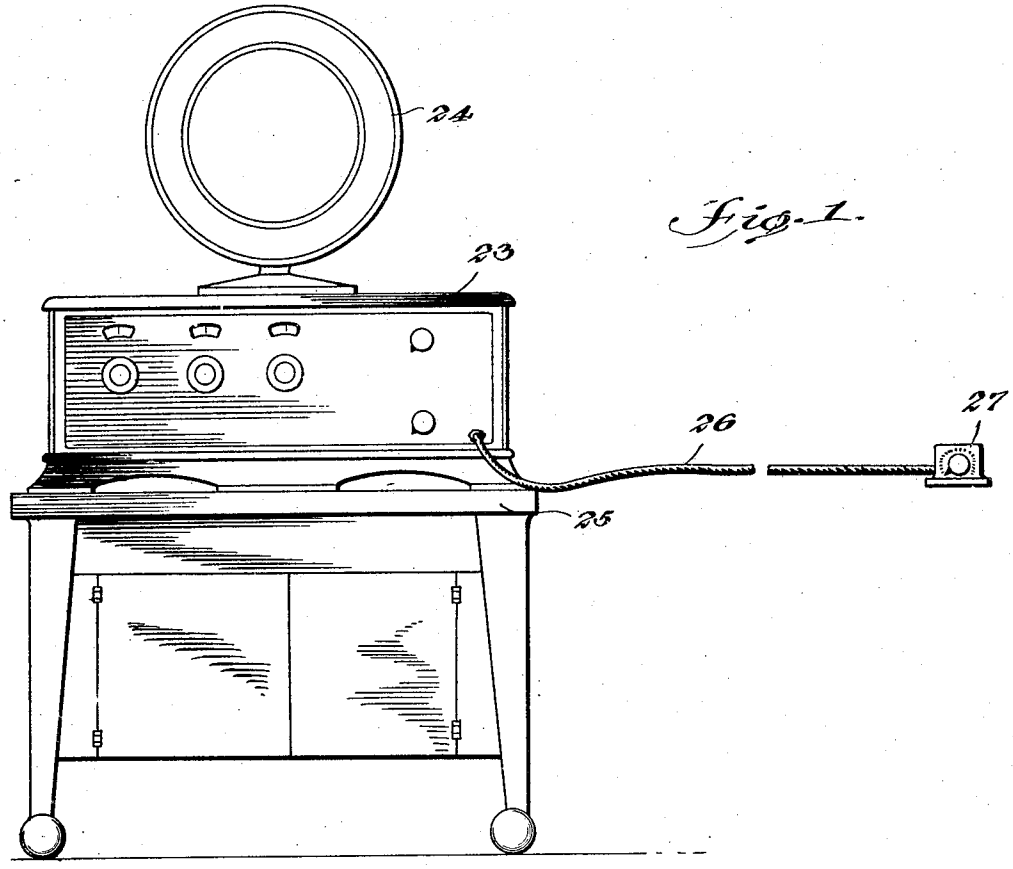


Fig. 1.

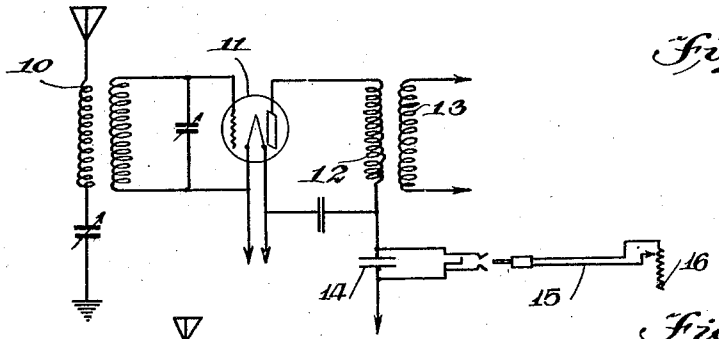


Fig. 2.

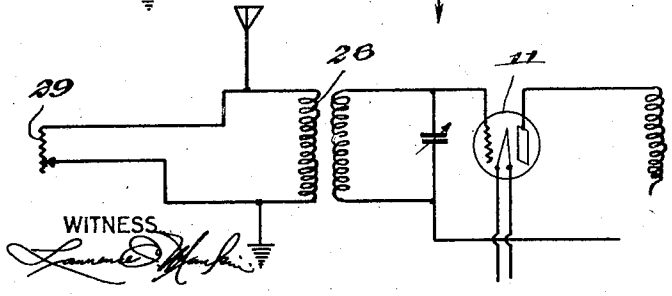


Fig. 3.

WITNESS

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Fig. 4.

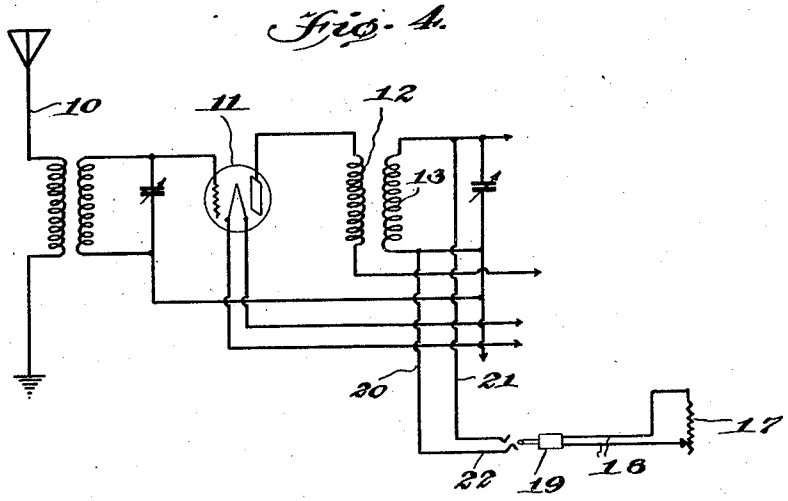


Fig. 5.

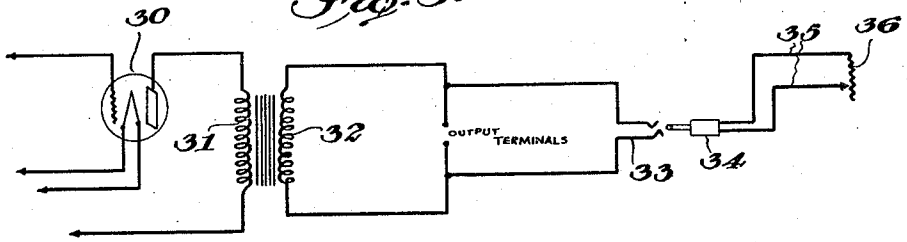
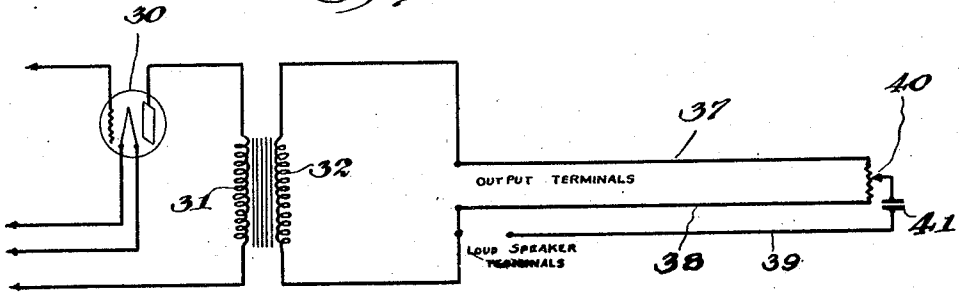


Fig. 6.



WITNESS

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UNITED STATES PATENT OFFICE

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RADIORECEIVER

Application filed March 24, 1927. Serial No. 178,049.

This invention relates to a remote control for radio receivers.

The prime object of the invention is to provide means whereby the volume of the output of a radio receiver may be easily and accurately controlled from a point remote from the radio receiving set.

It is also an object of the invention that the volume control means be adapted to be employed in connection with any type of receiving apparatus without interfering with the operation thereof in reception of signals.

It is also within the scope of the invention that the volume control means be easy in operation and permit the user to utilize the same in giving vocal or instrumental music received the desired softness or loudness at any time.

In carrying out my invention I employ a suitable resistance which may be at a remote point to a radio set, suitable wires are extended from the resistance to the radio set so that the resistance may be connected in a circuit of the radio set whereby the volume of the set may be controlled by the resistance.

The invention is illustrated by way of example in the accompanying drawings, in which:—

Figure 1 is a perspective view showing a radio receiving set with my invention applied, and

Figures 2 to 6 are diagrammatic views illustrating different ways of applying my invention to a radio receiving system.

Referring to the drawings more particularly, and particularly to Figures 2 and 4, 10 indicates an antenna circuit which may be coupled to the grid-filament circuit of a tube 11. At 12 is shown the primary winding of a radio frequency current coupling or transformer and at 13 the secondary of said coupling 12 is connected in the plate circuit of the tube 11 in the usual manner, and the remainder of the system for detecting the radio frequency currents and amplifying the same may be made in the usual manner. In order to control the volume of the receiving apparatus shown in Figure 2, I interpose in the plate circuit of the tube 11 a condenser 14 and about the condenser I connect the wires 15 which are extended to a remote point, such as the chair of the operator of the radio receiving set, and the remote ends of wires 15 connected to an adjustable resistance 16. The condenser 14 permits a by-pass for radio frequency currents. The resistance 16 is in series with the plate circuit of tube 11 and the direct current of said circuit must flow through said resistance whereby the output volume of the receiving set may be controlled.

In Figure 4, I have illustrated an adjustable resistance 17 located at a remote point, wires 18 which may constitute a cable, lead to a plug 19. Wires 20 and 21 are extended from the opposite ends of transformer 13 and connected to a suitable jack indicated at 22. The transformer 13 may be either the audio or radio frequency type. As is apparent from the diagram the resistance 17 can be connected about the secondary of the transformer winding 13 and serve to control the output volume of the system.

Referring to Figure 1, 23 indicates a radio receiving cabinet 24, a loud speaker, and 25 a table. Assuming the system housed within the cabinet 23 is similar to that shown in Figure 2 or that shown in Figure 4, then the cable 26 would indicate the cable for the wires leading to a suitably mounted resistance as indicated at 27. As is apparent, the resistance box or circuit 27 could be placed at a distance of the cabinet 23 and utilized for controlling to a nicety the output of the receiver to which the same is connected.

Referring to Figure 3, 28 indicates an antennal coil about which is shunted an adjustable resistance 29. The resistance 29 could be disposed at a distance from the radio receiving apparatus, of which the coil 28 is a part, and said resistance 29 utilized for controlling the output of the receiving apparatus.

Referring to Figures 5 and 6, 30 indicates an electron tube which has connected in its plate circuit the primary winding 31 of an audio transformer, the secondary of said

transformer being connected to the output terminals of the receiving apparatus of which the tube 30 is a part. In Figure 5 the output terminals have connected thereabout a jack 33, said jack being adapted to receive the plug 34. The plug 34 may have a cable extending therefrom comprising the two wires 35 and said wires connected at their ends remote from the plug 34 to a suitable resistance 36 whereby the output of the associated radio apparatus can be controlled.

In Figure 6 a cable of three wires 37, 38 and 39 may be extended from terminals carried by the associated receiving apparatus. The wires 37 and 38 may have their ends connected to the output terminals of the receiving apparatus and the terminals of a high resistance potentiometer shown at 40. The wire 29 preferably has inserted therein a condenser 41. The one end of wire 39 may be connected to a terminal of a loud speaker and an output terminal of the receiving apparatus connected to the remaining terminal of the loud speaker. The condenser 41 serves to stop flow of direct current through the loud speaker if such is inserted in circuit of secondary 32 and the potentiometer 40 serves to control volume of loud speaker connected as previously pointed out.

While I have shown various ways by which my invention may be practiced it is to be understood that I am aware of the fact that a suitable resistance might be utilized in other circuits of a radio receiving apparatus with equal results, as for example, a resistance might be inserted in the filament circuit of one or more tubes of a set and the volume of the set controlled by regulating the brilliancy at which the filaments are burned.

I claim:—

1. The combination with a radio receiving apparatus, of an added switch jack arranged in the out-put circuit of the apparatus, a length of conductor cable, a rheostat connected in circuit with certain of the conductors of said cable toward the outer end thereof, a condenser connected in circuit with one of the conductors of said cable and said rheostat, and a plug connected to the conductors of the cable at the opposite end thereof and adapted to be engaged with said switch jack whereby the volume of tone reproduction at a loud speaker in the said out-put circuit may be varied at will by manipulation of said rheostat from a point remote from the said apparatus.

2. The combination wtih a radio receiving apparatus, of an added switch jack arranged in the out-put circuit of the apparatus, a casing separate from said apparatus, a length of three wire conductor cable leading from said apparatus to said casing, a variable resistance mounted in said casing and having the resistor element thereof connected across the free ends of two of the conductors of said cable, a condenser also mounted within said casing and connected in circuit with the other of said conductors of said cable and to the movable element of said variable resistance, and a plug connected to the conductors of the cable at the opposite end thereof and adapted to be engaged with said switch jack whereby the volume of tone reproduced at the loud speaker in the said out-put circuit of the apparatus may be varied at will by manipulation of the movable element of said rheostat.

ALLEN S. CLARKE.