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COMBINED RECEIVER AND TRANSMITTER

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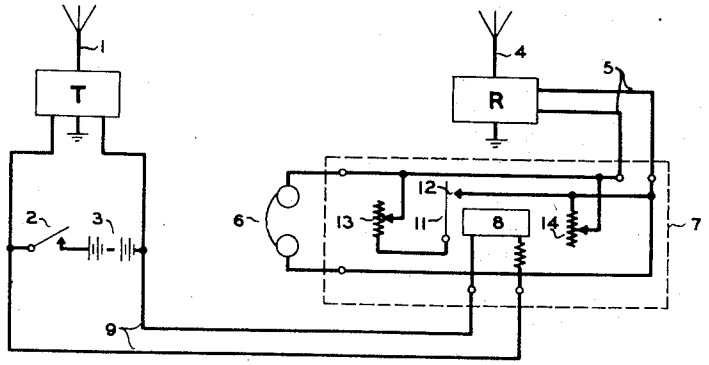


FIG. 1

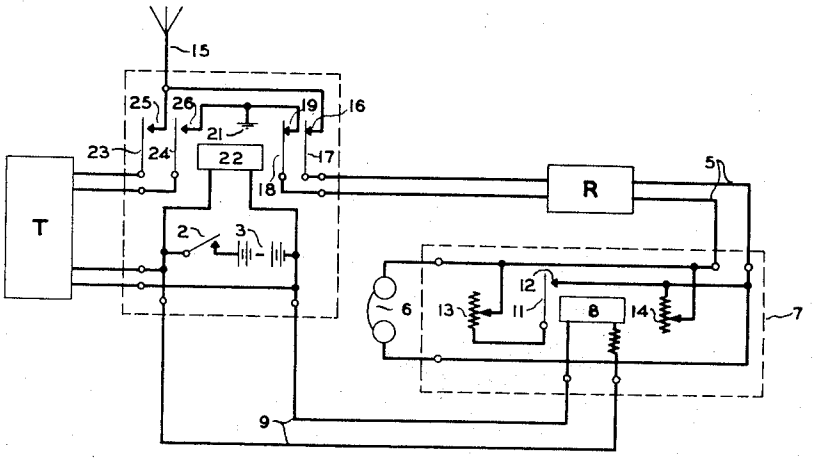


FIG. 2

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COMBINED RECEIVER AND TRANSMITTER

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5 Claims. (Cl. 250—13)

This invention relates to radio communications systems, and more particularly to a device for controlling the volume of sound produced in such systems.

An object of this invention is the provision of new and improved means of varying the intensity of the sound given out by a receiver when a nearby transmitter is radiating.

Another object is the provision of means of protecting the ears of the operator from the unpleasant effects of his own transmitted signals.

A still further object is the provision of simple and convenient means for permitting the transmitting operator to listen to the character of his own signals.

With combined transmitting and receiving apparatus, it is usually necessary for the operator to remove his headphones while he is sending. Otherwise the ears may be injured by the loudness of the sound due to the large amount of energy picked up from the transmitter by the receiver, even though the receiving antenna be disconnected from the receiver. One of the objections to this procedure is that the transmitting operator, i. e. the operator with his headphones removed, is unable to know when the receiving operator desires to cut in and ask a repetition of the message, or make some other request.

This invention permits an operator to wear earphones while transmitting without risk or discomfort, thus enabling him to listen continuously to his own signals and to be always on the alert for any signal which may be sent by another operator.

These and other objects and advantages will be apparent from a perusal of the specification taken with the accompanying drawing, in which

Fig. 1 is a schematic diagram of one embodiment of my invention, and

Fig. 2 is a preferred embodiment, different from Fig. 1 in that a common antenna is used for the transmitter and receiver.

Referring to Fig. 1, T indicates a transmitter having an antenna 1, signal key 2 and battery 3. At R is shown a receiver having an antenna 4 and output leads 5, connected to which is any suitable signal detecting device 6, such as earphones, loud speaker or the like. In a relay box 7 is a relay 8, which is connected with the transmitting key 2 by means of leads 9. An armature 11, controlled by relay 8, is adapted to cooperate with contact 12 and cause variable resistance 13 to shunt the earphones 6. A second variable resistance 14 normally controls the intensity of the audible signals in the device 6.

The operation is as follows: key 2 is depressed and radiation from the transmitter takes place accordingly. The closure of the circuit by the key 2 through the battery 3 and relay 8 results in attracting the armature 11 and closing contact 12. This throws resistance 13 across the detector 6 and reduces audible effects of the signals from the transmitter T to approximately zero, thus allowing the operator to wear the earphones without hearing sounds at all therein. However, resistance 13 may be varied to allow a small amount of signal energy to pass through the phones so that the operator may hear and listen to the extent desired.

In Fig. 2, which is a preferred embodiment of my invention, 15 shows an antenna common to both the transmitter and the receiver but normally connected with the receiver. The circuit may be traced from antenna 15 through contact 16, armature 17, receiver R, armature 18, contact 19 to ground 21. When key 2 is depressed, relay 22 is energized to attract armatures 17 and 18, thereby opening contacts 16 and 19, and armatures 23 and 24 are attracted to close contacts 25 and 26 respectively in the transmitter radiating circuit; which may now be traced from antenna 15 through contact 25, armature 23, transmitter T, armature 24, contact 26 to ground 21, the receiver aerial circuit now being open. The other remaining parts of Fig. 2 are similar to those in Fig. 1.

In this arrangement, key 2 when depressed performs a three-fold function; first, it energizes relay 22, thereby switching the antenna from the receiver to the transmitter; second, it causes the transmitter to radiate a signal; and third, it energizes relay 8 in parallel with relay 22 to close contact 12, thereby shunting phones 6 with resistance 13. The battery 3 energizes both relays 8 and 22.

It may be noted that antenna 15 is connected to the transmitter only when the key is depressed, or it may be stated that during non-signalling periods or during the small intervals between signals, the antenna is connected to the receiver. This permits reception at all times except when the transmitter is radiating. Also if an operator at a station being communicated with wants to cut in and ask for a repetition of the message or to transmit a more important message, this is made possible with the present arrangement as the operator employing the device will be able to detect the incoming signal in the small periods between the signals he is transmitting.

What is claimed is:

1. A system comprising a signal transmitter, a receiver having signal indicating means, an adjustable resistance, means controlled from the transmitter to cause said resistance to shunt said signal indicating means to reduce the intensity of signals from said transmitter to said indicating means.

2. A receiving system comprising a receiver having signal indicating means, an adjustable resistance normally disassociated therefrom, a transmitter for signalling, and electromagnetic means controlled by said transmitter for causing said resistance to shunt said indicating means to reduce the intensity of signals from said transmitter.

3. In a combined transmitting and receiving system, a receiver having an output circuit, a transmitter, a common antenna therefor, a resistance normally disconnected from said receiver, a relay associated with said resistance, and means for controlling said relay to connect said resistance to said receiver, said resistance being adjustable to vary the intensity of the signals received from said transmitter.

4. In a combined transmitting and receiving system, a receiver having an output circuit, a transmitter, a common antenna therefor, normally disconnected from said transmitter, a resistance normally disconnected from said receiver, a relay, and means comprising a key to connect said antenna to said transmitter and to actuate said relay to cause said resistance to shunt said receiver output circuit, said resistance being adjustable to vary the intensity of the signals received from said transmitter.

5. In a combined transmitting and receiving system, the combination of a transmitter and a receiver, an adjustable resistance normally connected to the output of said receiver, a second adjustable resistance normally disconnected from the output of said receiver, a common antenna normally connected to said receiver and disconnected from said transmitter, means for disconnecting said antenna from said receiver and connecting it to said transmitter, and means for connecting said second resistance to said receiver.

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