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HAND-HELD SELF-CONTAINED MICROPHONE TRANSMITTER

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ATTORNEYS
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1 Claim. (Cl. 325—118)

This invention relates to an antenna system for a portable radio transmitter wherein the body of the user forms a part of the antenna system.

It is well known that a half-wave dipole antenna is a more efficient radiator of radio frequency energy than an antenna which is less than one-half wave length long. Further, it is known that the efficiency of a quarter-wave antenna is greatly enhanced by the use of a ground plane or counterpoise. In many situations, it is inconvenient to employ a dipole antenna such as with a small hand-held microphone transmitter. Such a microphone transmitter may be of the transistorized, frequency modulated type wherein the microphone, complete transmitter and power supply are incorporated in a small, easily portable housing.

In accordance with the present invention an antenna system is provided for such a microphone transmitter wherein the body of the user forms a part of the antenna system. Thus, the body of the user serves as a ground plane for the antenna system. The antenna itself can be made one-fourth wave length long either by providing an antenna which is physically a quarter wave long or, if the frequency is so low that this is inconvenient, the antenna may be made to look like a quarter wave from an electrical standpoint by the employment of a loading coil.

In the drawings forming part of this application:
FIGURE 1 is a perspective view of the device of the present invention with certain parts cut away.
FIGURE 2 is a perspective view of the device of the present invention showing the manner of using it.

Referring to the drawings by reference characters the device includes a metal case 5 to which an antenna 7 is attached. The case 5 has an insulated lug 9 extending from the bottom and the antenna 7 is hinged thereto by means of the hinge element 11. Preferably the antenna 7 is composed of a plurality of telescoping segments so that the antenna can be telescoped and placed close to the case 5 to occupy minimum space in storage but can be extended outward from the case 5 and extended for use.

The case 5 includes a microphone element, a battery and a radio transmitter, not illustrated. The radio transmitter includes an output stage transistor 13 coupled to a tank coil 15 and tank tuning capacitor 17. The cold side of the tank circuit is grounded for R.F. to the metal 19 of case 5 by capacitor 21 while the hot side is connected through an isolating capacitor 23 and wire 25 to the antenna 7. If desired, a loading coil 27 may be incorporated in the circuit to effectively lengthen the electrical length of the antenna.

In use, the user 29 grasps the metal case 5 whereupon his body forms an effective ground plane for the antenna system so that when the system is hand-held it forms a much more effective radiator than if it were placed on a table.

It is believed apparent from the foregoing that I have provided a simple yet effective antenna system for a small radio transmitter wherein the body of the user forms a part of the antenna system.

I claim:
A hand-held self-contained microphone transmitter including a metal housing for the transmitter, said transmitter including an output tank circuit, said housing being of slender cylindrical form adapted to be held by hand in a vertical position, a telescoping stub antenna, the bottom of said antenna being hinged connected near the bottom of the housing by an insulated member, one side of said output tank circuit being connected to the antenna and the other side of said tank circuit being connected to the housing whereby the body of a user of the microphone serves as the ground plane for a ground plane antenna system.

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