

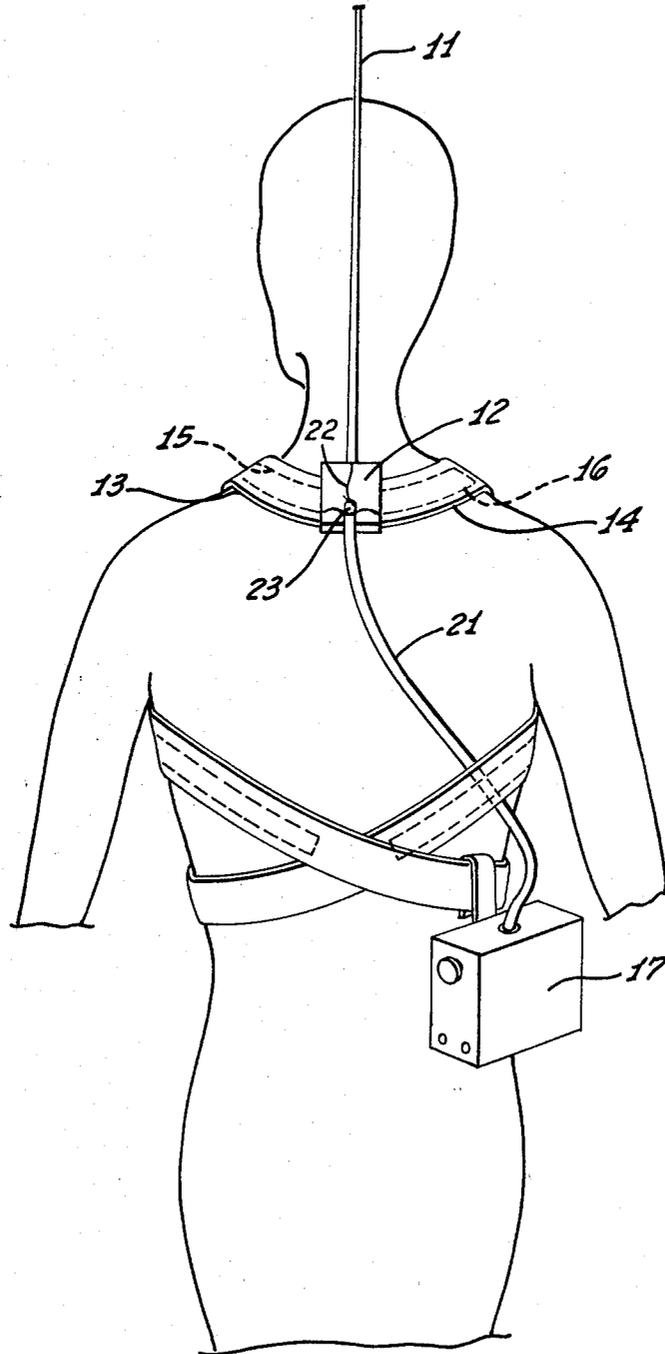
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PORTABLE ANTENNA

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PORTABLE ANTENNA

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3 Claims

ABSTRACT OF THE DISCLOSURE

A portable antenna system adapted to be strapped to a man or animal for communication or telemetry purposes. A holder strapped to the body supports an antenna rod. The straps have conductive wire, tape or foil incorporated therein. The radio equipment is suspended from the straps and connected to a coaxial transmission line. The center conductor of the coaxial line is connected to the antenna rod, and the outer shield is connected to the conductive strap elements, which function as a counterpoise.

The present invention relates to a portable antenna system and more particularly an efficient portable antenna system which may be carried about by a living entity.

The antenna system of man carried radio equipment is frequently inefficient. The height of the antenna is usually limited, generally comprising a simple monopole. Most of such antennas heretofore, known to the art have been secured to the radio equipment case, with the case functioning as the counterpoise. Such equipment must be carried on the back or in the hand so that the antenna does not interfere with the movements of the person. Such an antenna system usually has an undesirable radiation pattern. As is well known in the art, an efficient vertical antenna transmits most of its energy in a substantially horizontal plane, resulting in a pattern shaped somewhat similar to a donut. However, portable antennas of the prior art have tended to have a funnel-shape pattern, with a great deal of radiation transmitted upwardly and lost. Clearly, range is limited since a good deal of the transmitted energy is wasted.

In contrast the antenna system of the present invention provides a substantially horizontal radiation pattern. The radio equipment may be carried in any convenient place on the wearer. In addition to its employment with radio-telephone voice communication, the antenna of the present invention is particularly useful in connection with portable radio telemetry systems transmitting physiological parameters of animate test subjects. The telemetry equipment permits monitoring of medical or physiological parameters under natural stress conditions occurring during work or movement of the person or animal under test.

It is, therefore, an object of the present invention to provide a portable antenna system.

Another object of the present invention is to provide an antenna system adapted to be strapped to an animate entity.

Another object of the present invention is to provide a portable antenna system wherein a ground plane is provided by carrying straps.

Another object of the present invention is to provide a simple, efficient, inexpensive portable antenna system.

These and other objects and advantages of the present invention will become more apparent from the following specification and accompanying drawing, wherein:

The sole figure illustrates the antenna system of the present invention as strapped to a person.

As illustrated in the drawing an antenna rod 11 is suitably mounted on a holder 12, which may conveniently be a simple non-conductive box. The holder 12 is secured to the wearer around the upper portion of his torso by means of straps 13 and 14. Separate conductive elements 15 and 16 each of a length approximately 1/4 of the electrical wavelength of the frequency of operation of the antenna rod 11, are embedded in straps 13 and 14 respectively. Straps 13 and 14 may conveniently be fabricated of fabric web and conductive elements 15 and 16 may consist of copper wires woven into the web. As will be apparent, however, other conductive elements may be employed, such as metallic foil bonded between two pieces of insulating material forming the strap.

The radio equipment 17 is connected to the antenna by means of a coaxial cable 21. In the figure, the radio equipment 17 is illustrated as suspended from the strap at the waist. As will be apparent, radio equipment 17 may also be carried on the back of the wearer resulting in a short length of coaxial cable 21 and somewhat higher efficiency. The center conductor 22 of coaxial cable 21 is connected to antenna rod 11. The outer shielding conductor 23 is connected to conductive elements 15 and 16.

The antenna system structure disclosed hereinabove functions in a manner similar to a conventional ground plane antenna. Conductive elements 15 and 16 function as counterpoises, and the net result is radiation pattern similar to a vertical half-wave dipole. While a matching network may be provided in holder 12, such a network is not normally necessary, since the impedance of a half-wave dipole is closely matched to the impedance of coaxial cable. Only the antenna rod 11 extends from the wearer, while the counterpoises fitted in the straps are held close to the body, thereby. The counterpoises do not hinder the wearer nor are they exposed to damage.

While a particular embodiment of the present invention is disclosed hereinabove, it is understood that such embodiment is illustrative only and may be modified and varied by one skilled in the art. Therefore, the scope and spirit of the present invention is to be determined only by the terms of the appended claims.

What is claimed is:

1. A portable antenna system comprising:

- (a) an antenna rod for transmitting a radio frequency at a predetermined wavelength;
- (b) supporting means on which said antenna rod is fastened;
- (c) flexible conductive means including flexible straps having conductive elements integrally incorporated therein, said conductive elements having a physical length of approximately one quarter of said wavelength, said flexible conductive means adapted to connect said supporting means to a portion of an animate torso while maintaining flexibility so as not to constrict movement of said torso;
- (d) a radio frequency transmitter fastened to a different portion of said animate torso from said antenna rod; and
- (e) coaxial means having a center conductor and a shielding conductor for electrically connecting said transmitter to said antenna rod, said center conductor being connected to said antenna rod and said shielding conductor connected to said conductive elements.

2. The portable antenna system of claim 1 wherein said conductive elements are woven within said flexible straps.

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3: The portable antenna system of claim 2 wherein said
conductive elements are metallic foil elements bonded
to said flexible straps.

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ELI LIEBERMAN, Primary Examiner