

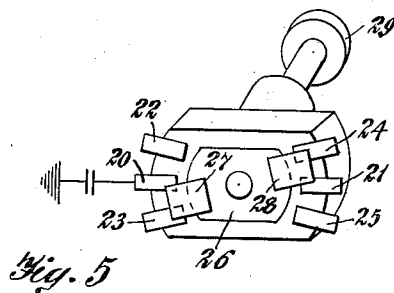
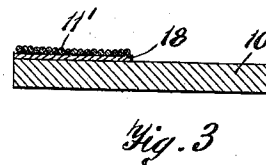
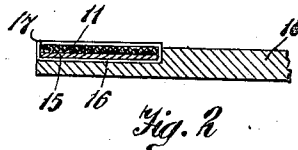
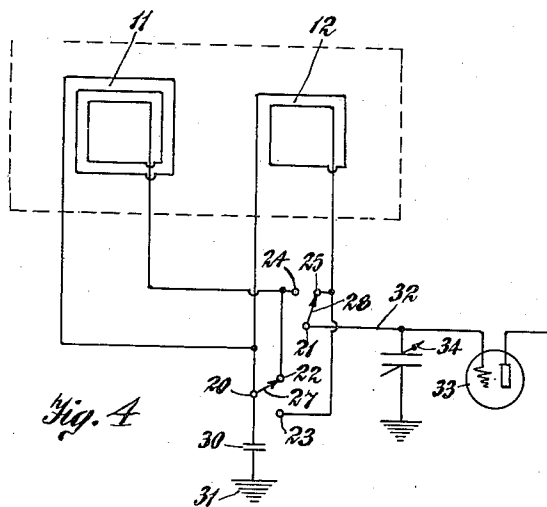
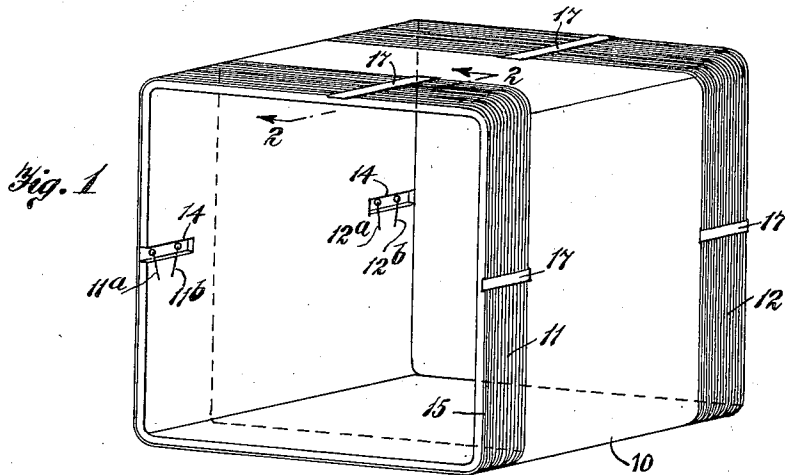
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ANTENNA SYSTEM FOR RADIO RECEIVING SETS

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ANTENNA SYSTEM FOR RADIO RECEIVING SETS

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1 Claim. (Cl. 250-14)

This invention relates to new and useful improvements in an antenna system for radio receiving sets.

The invention particularly proposes the construction of small types of portable radio receiving sets, for domestic and export use, which are provided with a plurality of windings adapted to take the place of an antenna and antenna coil for certain wave bands. Moreover the invention proposes a novel arrangement whereby the windings may be selectively connected to adapt a particular set for long wave reception, medium wave reception and if desired short wave reception. The invention is quite flexible in this respect, and two or more windings may be used to make it possible to use the set for two or more wave bands.

More particularly the invention proposes to arrange a plurality of windings about the exterior of the case, or cabinet, or body of the radio, and it is proposed to separate the windings a sufficient distance from each other to prevent absorption of energy from each other.

Still further the invention proposes the use of a multiple pole multiple throw gang switch by which it is possible to control circuits for selectively connecting the various windings with the antenna terminal of a radio receiving set, and simultaneously short-circuiting the windings which are not connected with the radio receiving set and connecting them with the ground connection of the antenna system.

Still further the invention proposes a novel arrangement of each of the windings by which they may be readily engaged upon the case or cabinet, as desired.

Still further the invention proposes the construction of an antenna system for a radio receiving set which is simple and durable and which may be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claim in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a perspective view of a case of a portable radio receiving set with a plurality of windings mounted thereon in accordance with this invention.

Fig. 2 is a fragmentary vertical sectional view taken on the line 2-2 of Fig. 1.

Fig. 3 is a sectional view similar to Fig. 2 but illustrating a modified construction thereof.

Fig. 4 is a schematic diagram of the antenna system.

Fig. 5 is a perspective view of a double pole double throw gang switch used in this invention.

The antenna system for a radio receiving set in accordance with this invention includes a hollow tubular case 10 which may form the interior of a carrying case for a radio receiving set and which may contain the tubes and various mechanism of the radio receiving set. The antenna system, in accordance with this invention, is applied upon the case 10, and is connected in a novel way with the radio receiving set.

More particularly the antenna system includes a plurality of windings 11 and 12 mounted upon the case, and each adapted to take the place of an antenna and an antenna coil for a certain wave band. For example the winding 11 may be designed for long waves, ranging from one thousand to two thousand meters. The winding 12 may be designed for medium waves, ranging from two hundred to five hundred meters. The invention as illustrated and described in this specification shows but two windings 11 and 12, but it should be borne in mind that any number of windings may be used, to extend to the various wave bands. For example five windings may be used for the five commonly used wave bands, such as long wave, medium wave, short wave, ship to shore wave, etc.

Each of the windings is continuous, starting from one terminal end 11a (for the winding 11) and extending around various turns of the windings, and terminating at the terminal end 11b. Similarly the winding 12 has a terminal end 12a and a plurality of turns and terminates with the terminal end 12b. The case 10, in the particular design shown on the drawing, is formed with cut-out areas 14, in one of the side walls thereof, through which the terminal ends of the windings extend.

Each of the windings, as illustrated on the drawing, is of a certain preferred design. Each comprises a rigid form 15 of insulation material, of the same shape as the cross sectional shape of the case 10, and adapted to be slipped upon a recessed area 16 extended inwards from the edge of the case. The winding 11 has its turn closely wound on the form 15. At several areas there are transverse bands 17 engaging transversely across the turns of the winding and the form 15 for assisting in holding the winding upon the form. Suitable adhesive material, such as wax

or other materials, may be used to cover the winding and further assist in holding it in position.

In Fig. 3 a modified construction of winding has been disclosed in which the winding is mounted directly upon the outside of the case without the use of a recess, such as the recess 16. According to this form, a strip of fish paper 18 is extended around the case 10, and the winding 11' is closely wound upon this fish paper and around the case.

A multiple pole multiple throw gang switch is used in conjunction with the antenna system. In the form of the invention illustrated on the drawing this switch is of a double pole double throw switch, in that only two windings are used. However if more than two windings are used it would be necessary that the multiple switch have more than two switching elements, corresponding numerically in number with the number of windings used.

This double throw double pole gang switch includes a ground terminal 20 and a terminal 21 for connection with the antenna terminal of a radio set. Straddling the ground terminal 20 there are terminals 22 and 23 which are adapted to be respectively connected with one of the terminals of windings. Straddling the terminal 21 there are terminals 24 and 25 which are adapted to be connected with the other of the terminals of the windings. The switch is provided with a movable section 26 carrying conductors 27 and 28. The movable section 26 is connected to a knob 29 by which it may be moved. The arrangement is such that the conductor 27 normally connects the terminals 20 and 23, and the conductor 28 normally connects the terminals 21 and 24. When the knob 29 is turned the section 26 is moved so that the conductor 27 connects the terminals 20 and 22, and the conductor 28 connects the terminals 21 and 25. This may be better understood by examining Fig. 4.

In Fig. 4 the winding 11 is shown connected between the terminals 20 and 24. The winding 12 is shown connected between the terminals 20 and 23. The terminal 20 is connected with the ground 31 by a ground condenser 30. The terminal 21 is connected with a lead 32 adapted to connect with the antenna terminal of a radio receiving set schematically indicated on the drawing by showing a portion thereof mainly the first tube 33 and the tuning condenser 34. It should be understood that the radio receiving set has not been completely illustrated since it forms no part of the invention and its construction will be readily apparent to those skilled in the art.

The operation of the device is as follows:

In one position of the double pole double throw

gang switch, the position illustrated in Fig. 4, the antenna winding 12 is connected with the terminal lead 32 of the radio receiving set. Thus the antenna system is functioning. At the same time the antenna winding 11 is short-circuited. When the multiple switch is thrown into its other position the winding 12 will be disconnected from the antenna terminal of the radio receiving set and short-circuited. Simultaneously the short-circuit of the winding 11 will be disconnected and the winding 11' will be connected with the antenna terminal of the radio receiving set.

It is an important feature of this invention that the windings 11 and 12 be satisfactorily separated from each other as particularly shown in Fig. 1 so that the winding or windings not being used, does not interfere with the winding in use. It is important that the winding or windings which are not in use be short-circuited, as previously described, otherwise there will be an absorption of energy which is undesirable.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claim.

Having thus described my invention, what I claim as new and desire to secure by United States Letters Patent is:

In an antenna system for a radio receiving set having a pair of windings adapted to take the place of an antenna and antenna coil for two wave bands and being sufficiently spaced to prevent absorption of energy from each other, a lead for connection with a ground provided with a ground condenser, another lead for connection with the antenna terminal of a radio receiving set, a double throw double pole gang switch having two movable contacts mounted together to move as a unit and two stationary poles for each movable contact and having one of its movable contacts connected with said first named lead and having the other of its movable contacts connected with said second named lead, a circuit connecting one of said windings with one of said movable contacts and with one pole of each group of said two stationary poles, and another circuit connecting the other of said windings with the said one of said movable contacts and with the remainder of said stationary poles, and said movable contacts being normally in positions in which one of said windings is short circuited on said first named lead and the other winding is connected with the second named lead.

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