UNITED STATES PATENT OFFICE.

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RADIO RECEIVING EQUIPMENT.


This invention relates to radio receiving equipment comprising in part a loop antenna and a sound amplifying device such as a loud speaking receiver, the object being to provide for the convenient assembly and mounting of these devices in a limited or restricted area.

On account of their bulk the space required at present to mount the loop antenna and the loud speaking receiver of a complete radio receiving equipment is considerable.

This invention provides for the mounting of both the antenna and loud speaking equipment in a space but little greater than that heretofore required for mounting either of them alone. This saving in space is brought about by mounting these two devices in concentric relation to each other. In the preferred arrangement the loop antenna and the receiver may be mounted upon the same support with the antenna adjustable to different angular positions.

Referring to the drawing: Fig. 1 is a front elevation showing a loop antenna and a loud speaking receiver mounted in concentric relation; Fig. 2 is a section taken on the line 2-2 of Fig. 1; Fig. 3 is a plan view indicating the range of rotation of the antenna; and Fig. 4 is a schematic diagram of a suitable receiving circuit.

A pedestal 5 supports a standard 6 to which is secured a loud speaking receiver having a direct-acting diaphragm denoted in general by 7, which may be of any suitable construction. The loud speaking receiver shown in the drawing comprises a conical diaphragm 8 attached to a frusto-conical member 9, which is supported by an annulus 10. Annulus 10 is supported by light, flexible spokes 11, which may be of rattan or aluminum, and are suitably affixed to a hub 12 secured to standard 6 by any suitable means such as a bolt 13.

The diaphragm may be driven by any suitable and well known element 14 which may be of the form shown in United States Patent to Eberstone No. 1,265,808, January 18, 1912.

A further description of the loud speaker is not thought to be necessary since its specific construction forms no part of the present invention, and any suitable and well known type may be employed.

The loop antenna consists essentially of wire 15 wound on the periphery of a hoop 16 that is mounted upon vertical pivots 17 and 18. Pivot 17 depends as shown from the horizontal arm 19 of standard 6; and pivot 18 projects from boss 20 of pedestal 5. These two pivots permit the rotation of the antenna about a vertical axis as indicated in Fig. 3. Should it be desired to rotate the antenna through a greater angle than is indicated in Fig. 3, it can be easily accomplished by turning the pedestal 5.

The invention contemplates the use of any suitable receiving circuit, such as the well known type of circuit shown in Fig. 4. The antenna 15, in parallel with a variable condenser 21, is connected to the input circuit of a detector tube 23. The output of the detector tube after being amplified by one or more amplifying tubes 24 is delivered in a well known manner to the loud speaker 25 which is in concentric relation with antenna 15.

It is seen that the present invention provides a compact arrangement of loop antenna and loud speaking receiver which effects a great reduction of the space required for a radio receiving set employing both a loud speaker and loop antenna.

The invention claimed is:

1. In a radio receiving equipment, a portable unit comprising a loud speaking receiver having a large direct-acting diaphragm, a standard for supporting said receiver, a frame supported on said standard concentric with said diaphragm and in spaced relation with the periphery thereof, and a loop antenna wound on said frame.

2. In a radio receiving equipment, a portable unit comprising a standard having a base, an upright on said base, a horizontal member on the upper end of said upright, a loud speaking receiver supported at the center of said upright, said receiver having a large direct acting diaphragm, a frame pivotally supported between said base and said horizontal member, the axis of rotation of said frame lying substantially in the plane of the periphery of said diaphragm and a loop antenna wound on said frame.

3. In a radio receiving equipment, a portable unit comprising a loud speaking receiver having a large direct acting diaphragm, a standard for supporting said re-
4. In a radio receiving equipment, a portable unit comprising a standard, a loud speaking receiver having a large direct acting diaphragm, means rigidly securing said receiver to said standard, a loop antenna encircling said diaphragm, and means pivotally supporting said antenna on said standard for rotary movement with respect to said diaphragm.

In witness whereof, I hereunto subscribe my name this 1st day of June A. D., 1923.

JOEL C. R. PALMER.