

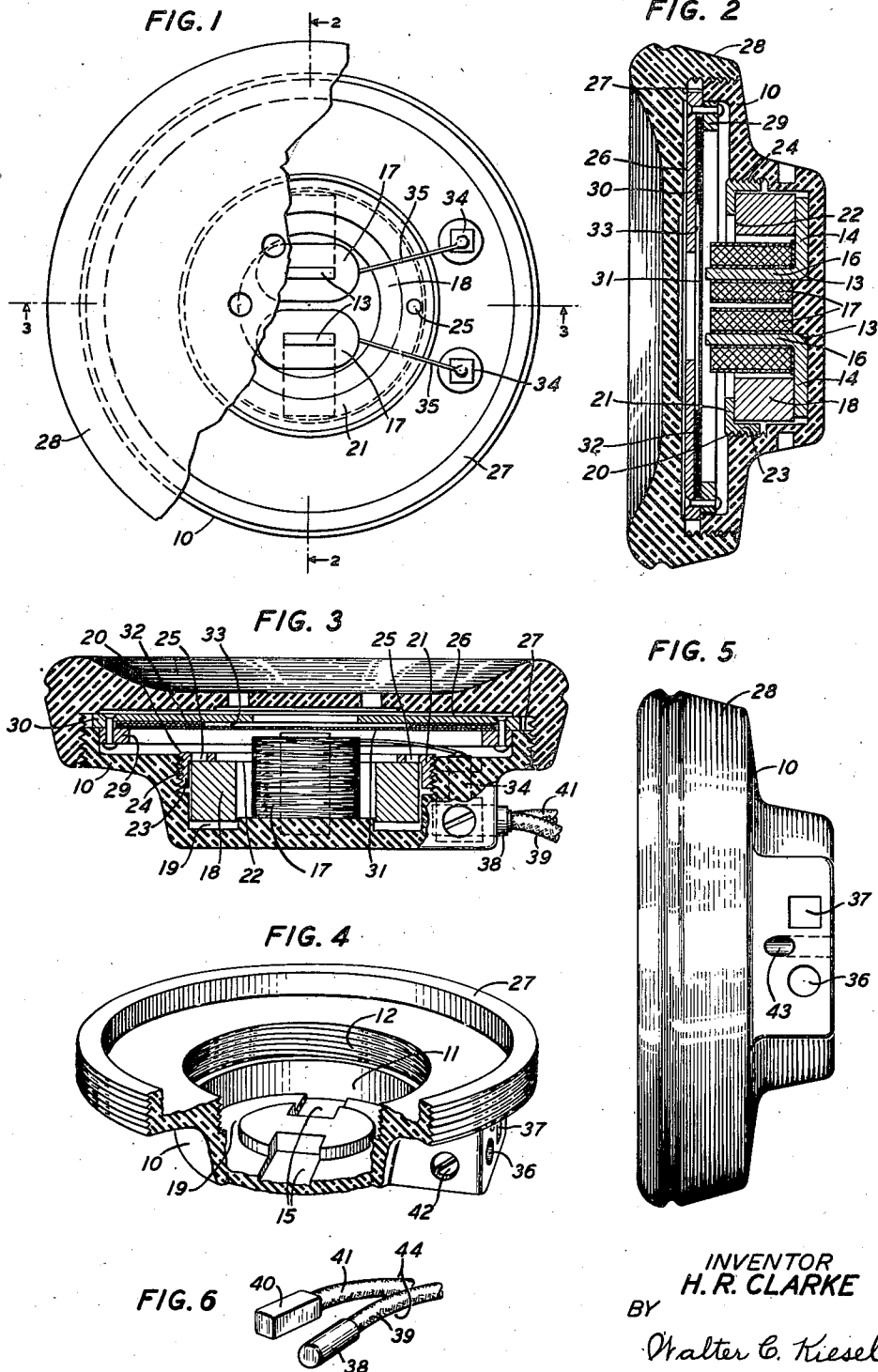
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ACOUSTIC DEVICE

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ACOUSTIC DEVICE

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3 Claims. (Cl. 179—114)

This invention relates to acoustic devices and, more particularly, to sound wave reproducers or receivers of the type employed in systems or apparatus for aiding the hearing.

5 An object of this invention is to facilitate the assembly and disassembly of the magnet structure of a sound wave reproducer.

Another object is to enable proper polarizing of a sound wave reproducer of the electromagnetic type.

10 A feature of this invention comprises a sound wave reproducer or receiver having a magnet structure retained securely within a case by a unitary, readily detachable member.

15 A further feature comprises a sound wave reproducer or receiver having terminal members within its case and passages for conductor ends or cord tips leading thereto, the passages being of dissimilar characters or configurations.

20 This invention is embodied, preferably, in a telephone receiver comprising a case of insulating material having a central, cylindrical recess, an annular portion of which at its open end is interiorly threaded. Pole pieces, preferably L-shaped and having their horizontal portions resting in channels at the bottom of the recess, and a magnet, preferably annular and partly in an annular recess in the bottom of the recess and partly on the horizontal portions of the pole pieces, are retained in position in the recess by a magnet securing or retaining means. This means, preferably, comprises an annular member resting on the upper surface of the magnet and having a depending flange, exteriorly threaded for engagement with the threaded portion of the recess wall. Terminal members, preferably embedded in the case, are connected to an energizing winding surrounding the vertical portions of the pole pieces. The case contains cord tip passages leading to the terminals, one passage, preferably, being square and the other round. A diaphragm unit is clamped against the case rim and held in place by a cap or earpiece member.

45 A more complete understanding of this invention will be obtained from the detailed description which follows, read with reference to the appended drawing, wherein:

Fig. 1 is a plan view, partly broken away, of a telephone receiver embodying this invention;

50 Fig. 2 is a sectional view of the device of Fig. 1 along the line 2—2 thereof;

Fig. 3 is a sectional view of the device of Fig. 1 along the line 3—3 thereof;

55 Fig. 4 is a perspective view, partly broken away

and partly in section, of the case of the device of Fig. 1;

Fig. 5 is an elevational view of the device of Fig. 1 showing its cord tip passages; and

Fig. 6 is a perspective view of the cord tips of the conductor cord for the device of Fig. 1.

The acoustic device shown in the drawing is a telephone receiver comprising a case 10, preferably of an insulating material, having a central, cylindrical recess 11, an annular portion 12 of which at its open end is interiorly threaded. Pole pieces 13, preferably L-shaped and of silicon steel, have their horizontal portions or legs 14 resting in radially extending, oppositely disposed channels 15 at the bottom of the recess 11 and their vertical portions or legs 16 surrounded by the energizing coils 17. An imperforate permanent magnet 18, preferably annular, of rectangular section, and of slightly smaller external diameter than the diameter of the recess extends slightly into annular channel 19 in the bottom of the recess and rests on the ends of the portions 14 of the pole pieces 13. The magnet and pole pieces are retained securely in position in the recess and in contact with one another by a magnet retaining or securing member, designated generally as 20. The member 20 comprises an annulus or planar portion 21 resting on the upper surface 22 of the magnet and having a depending flange 23, exteriorly threaded at 24 for engagement with the interiorly threaded annulus 12 of the recess. Facile assembly and disassembly of the magnet structure of the receiver is thus possible; and the magnet and pole pieces are maintained in positive engagement. The apertures 25 in the annulus 21 are provided so that the threading of the member 20 into or out of the recess may be accomplished with an appropriate tool (not shown).

A diaphragm unit, designated generally as 26, is supported on the rim 27 of the case, being clamped thereagainst by a receiver cap or earpiece 28 which threadedly engages with the case. The diaphragm unit comprises a pair of annular plate members 29, 30, preferably riveted together at their peripheries, and enclosing a diaphragm 31 and a plurality of paper damping washers 32, the diaphragm and washers being supported by the plate 29 and disposed in a recess 33 in the plate 30.

Terminal members 34, preferably embedded in the case, are connected at their upper extremities to the end of the energizing coils by wires 35. The case contains passages 36, 37 of dissimilar configurations to receive the ends or tips of the

conductors of the receiver cord. The passage 36 is circular and is adapted to receive a cylindrical shaped cord tip 38 of a conductor 39, and the passage 37 is rectangular and is adapted to receive a cord tip 40 of a conductor 41 which is of a rectangular section. The cord tips are held in the passages 36, 37 by set screws 42 (one only being shown) which thread through the terminal members and clamp the cord tips against the passage walls. The passage 43 is for a stay cord. The cord tips and cord tip passages are given dissimilar configurations so that the conductors of the cord 44 may be operatively connected to the receiver in one way only, and without any instruction to or skill on the part of the user required. At all times, therefore, the receiver will be properly polarized and the receiver and cord may be disconnected from one another without fear that in reconnecting the conductors will be incorrectly attached.

While the features of this invention have been disclosed in a specific structure, it is understood, of course, that various modifications may be made in the details of construction without departing from the scope of the invention as defined in the appended claims.

What is claimed is:

1. An acoustic device comprising a diaphragm, means for actuating the diaphragm, said means comprising a pair of L-shaped pole pieces, an energizing winding on the vertical portions of said pole pieces, an annular permanent magnet resting on the horizontal portion of said pole pieces, a case for said diaphragm and containing a recess for said means, and a unitary member comprising an annular portion and a peripheral flange portion, the annular portion resting on the magnet and the peripheral portion engaging the wall of the recess to retain the actuating means in said recess, said unitary member being movable independently of said actuating means and consti-

tuting the sole means for retaining said actuating means in the recess.

2. A telephone receiver comprising a diaphragm, means for actuating said diaphragm including L-shaped pole-pieces and a permanent magnet, a case for said diaphragm and means, said case having an open end provided with an internally threaded portion, and having an oppositely disposed closed end with radially extending recesses on its inner surface to receive the horizontal portions of said pole-pieces, and a recess crossing the radial recesses to receive the magnet for engagement with the pole-piece horizontal portions, and means for clamping said magnet and pole-pieces together and securing them against movement in said case, said clamping means comprising a planar member resting on the surface of the magnet opposite that engaging the pole-pieces, and having a peripheral portion depending toward said pole-pieces and externally threaded to engage said internally threaded open end of the case.

3. A telephone receiver comprising a diaphragm, means for actuating said diaphragm including L-shaped pole-pieces and a permanent magnet, a case for said diaphragm and means, said case having an open end provided with an internally threaded portion, and having an oppositely disposed closed end with radially extending recesses on its inner surface to receive the horizontal portions of said pole-pieces, and a recess crossing the radial recesses to receive the magnet for engagement with the pole-piece horizontal portions, and means for clamping said magnet and pole-pieces together and securing them against movement in said case, said clamping means comprising a planar member resting on the surface of the magnet opposite that engaging the pole-pieces, and having a peripheral portion externally threaded to engage said internally threaded open end of the case.

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