

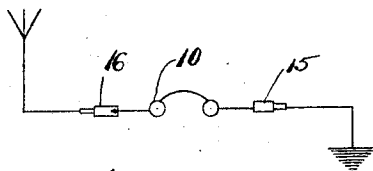
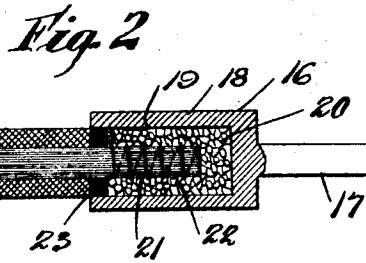
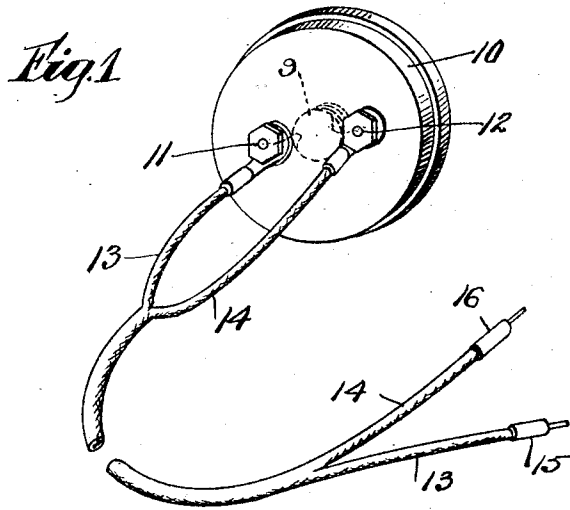
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F. W. HENNESSY

RADIO APPARATUS

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# UNITED STATES PATENT OFFICE.

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## RADIO APPARATUS.

Application filed March 3, 1924. Serial No. 696,481.

*To all whom it may concern:*

Be it known that I, FRANCIS W. HENNESSY, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Radio Apparatus, of which the following is a specification.

This invention relates to the positioning of a rectifier for radio frequency waves in a portion of a radio audibility unit; and has for its object to provide a device of this character in which a rectifier is inserted into a portion of the audibility unit or connecting wires leading therefrom.

A further object of this invention is to provide in a terminal for a radio unit a fixed crystal or rectifier for radio-receiving work.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is a perspective view of an ear phone of the watch-case type with the usual cord leading therefrom and provided with suitable terminals at its ends.

Figure 2 is a sectional elevation of one of the terminals of the ear-phone cord showing the phone wire and crystal rectifiers mounted therein.

Figure 3 is a diagrammatic view illustrating one of the terminals of my ear phone connected to the aerial while the other terminal is connected to the ground.

It is found in practice desirable to simplify the parts of a radio-receiving apparatus to be used in the reception of radio frequency waves for converting them into audible sounds and by providing a fixed crystal or rectifier in a portion of the ear phone receiving cord, I have provided a simple radio-receiving apparatus having two terminals one of which may be connected to the aerial or antenna and the other of which may be connected to a suitable ground by which audible sounds may be heard from the radiofrequency waves passing through the air: and the following is a detailed descrip-

tion of one means by which this result may be obtained:—

With reference to the drawings, 10 illustrates the ordinary watch-case type of ear phone used as an audibility unit in radio-receiving sets provided with an electro magnet 9 and having suitable terminals 11 and 12 from which wires 13 and 14 lead having their ends provided with terminals 15 and 16 which are adapted to be attached to binding posts or the like to connect the electro magnet of the ear phone in a radio circuit whereby the diaphragm of the ear phone is operated to produce audible sounds.

The terminals I employ for the ends of the cords leading from the ear phones are provided with a stud portion 17 and a body portion 18 having a recess 19 therein for the reception of a plurality of crystals or pieces of mineral 20 such as are known to operate as a rectifier for radio frequency waves, which minerals are so placed that they encircle a portion of the end of the wire 21 leading from the ear phone, which wire is wound with a fine strand of gold wire 22 to form a plurality of sensitive contact points with the portions of mineral in this recess. After this wire is inserted, the end of the recess is closed with solder 23 to prevent foreign matter from entering the same.

By my improved construction of ear phones equipped with a cord containing my rectifier it is only necessary for one wishing to listen in to a broad-cast message to connect one of the terminals of the phone unit cord to the aerial or antenna and the other of the terminals of the phone unit with a ground wire, it being found preferable to connect the terminals provided with my rectifier to the antenna lead-in, while the other terminal is connected to a ground lead.

The foregoing description is directed solely towards the construction illustrated, but I desire it to be understood that I reserve the privilege of resorting to all the mechanical changes to which the device is susceptible, the invention being defined and limited only by the terms of the appended claims.

I claim:

1. An audibility unit for a radio appara-

tus including a pair of wires leading there-  
from for connecting the unit in a radio cir-  
cuit, a cup-shaped terminal on one of said  
wires, and a rectifier housed in said terminal  
5 and interposed between said terminal and  
the wire connected thereto.

2. An audibility unit comprising an ear-  
phone for a radio apparatus with an electro  
magnet therein and a pair of wires for con-

necting the magnet in a radio circuit, ter- 10  
minals at the ends of said wires having a re-  
cess therein for the reception of said wires  
and in which said wires are mounted, and  
a rectifier in the recess of one of said termi-  
nals having connection between said wire 15  
and said terminal.

In testimony whereof I affix my signature.  
FRANCIS W. HENNESSY.