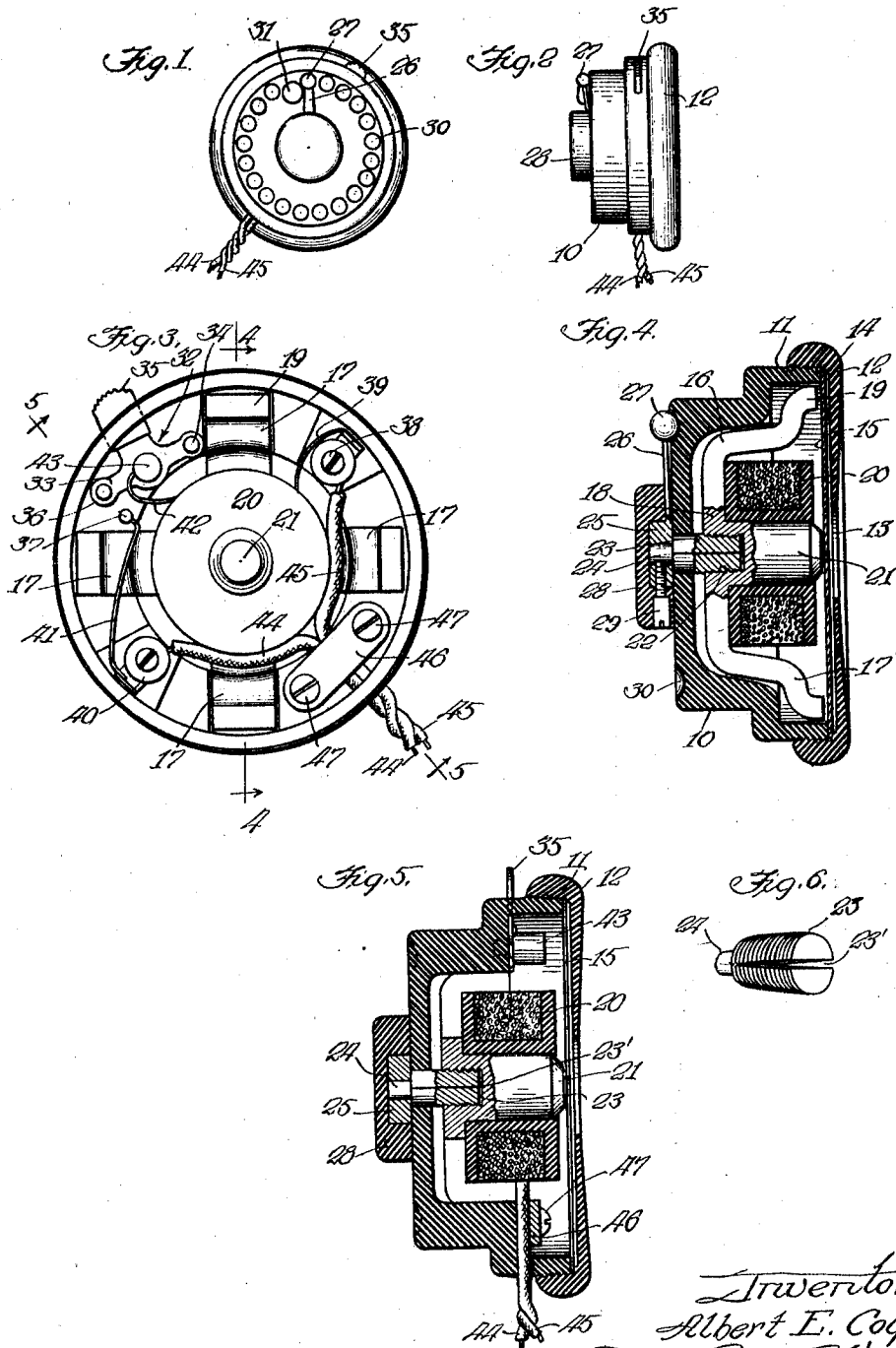


A. E. COY.  
TELEPHONE RECEIVER.  
APPLICATION FILED MAR. 20, 1920.

1,403,592.

Patented Jan. 17, 1922.



Inventor:  
Albert E. Coy  
Joni Rain Nivkle  
Attys

# UNITED STATES PATENT OFFICE.

ALBERT E. COY, OF CHICAGO, ILLINOIS.

## TELEPHONE RECEIVER.

1,403,592.

Specification of Letters Patent. Patented Jan. 17, 1922.

Application filed March 20, 1920. Serial No. 367,559.

*To all whom it may concern:*

Be it known that I, ALBERT E. COY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Telephone Receivers, of which the following is a specification.

This invention relates to improvements in telephone receivers, and has especial reference to receivers for portable use.

One of the objects of the invention is to provide a relatively small telephone receiver, especially adapted to a sound amplifying system to enable partially deaf persons to hear more distinctly.

Another object is to provide a means for adjusting the device to vary the magnetic flux whereby to modify the intensity of operation thereof conformable with the strength of the battery used.

Another object is to provide an especial construction whereby the magnetic structure may bodily be moved away from the diaphragm as a means for adjustment, and provision of means, outside of the casing to visually indicate the extent of adjustment.

Another object is to provide a circuit controlling switch to control the circuit and having an operating end or handle projecting through the circumferential wall of the casing.

Other, further and more particular objects of the invention will become readily apparent to persons skilled in the art, from a consideration of the following description when taken in conjunction with the drawings, wherein:—

Fig. 1 is a rear view of the receiver, substantially the actual size of the instrument.

Fig. 2 is a side elevation of the same.

Fig. 3 is an enlarged interior view of the instrument with the cover removed.

Fig. 4 is a section taken on line 4—4 of Fig. 3.

Fig. 5 is a section taken on line 5—5 of Fig. 3.

Fig. 6 is an enlarged perspective view of the screw for retracting the magnet from the diaphragm.

In all the views the same reference characters are employed to indicate similar parts.

10 is the body part of the casing having two internal diameters and made, preferably, of insulating material such as hard rubber, or the like, screw threaded, as at 11, to receive a cap or cover 12, the latter being

perforated centrally, as at 13, lying between the cover 12 and the circumferential edge 14 of the casing is the diaphragm 15.

A permanent magnet 16, of cruciform shape (having four forwardly bent arms 17 with poles 19), and made of the best material, is provided with four arms 17, extending from the base 18 to a point near the diaphragm, in the largest part of the casing, as at 19. The part 19 is bent away from the electro-magnet 20, as much as may be within the casing, so as to position the poles thereof as far from the center of the diaphragm, as may be. Connected to the base portion 18 of the permanent magnet, is a soft iron core 21, made of Swede iron, or the like, and which may be electrically welded to the base 18. The core 21 is perforated, as at 22, and threaded to receive a screw 23. The screw 23 is split, as at 23', so as to prevent the magnet from having any undue lateral movement. The screw 23 is provided with a reduced portion 24 which passes through the casing to receive a handle 25. Projecting from the handle, or hub portion 25, is an arm 26, carrying on its outer end a ball 27. Overlying the outer end of the screw 23 is a cap 28, of the same material of which the casing 10 is composed. The cap, and the hub 25, being fastened to the screw end 24, by means of a set screw 29. Around the rear face of the instrument are a series of hemispherical depressions or indentations to receive the ball 27, when the latter is rotated around the axis carrying the screw 23 therewith to hold the arm in adjusted position. A stop 31 limits the movement of the lever 26 to one revolution. When the arm of lever 26, is rotated anti-clockwise, as shown in Fig. 1, the electro-magnet, as a whole, is moved forwardly thereby in the case 10, so that poles 19 and 21 of the magnet are moved to an extent toward the diaphragm 15. When the lever 26 has been moved clockwise until it is again brought into contact with the stop 31, the magnet system will have been moved back into the casing 10, as far as it may be, and the maximum space is then existent between the end of the poles 19 and 21 and the diaphragm. The object of this arrangement is to modify the effect of the electro-magnet on the diaphragm.

Inside of the casing 10 is a switch, 32, providing a switch blade 33, pivoted to the casing, as at 34, and having a handle 35 projecting through a slot in the casing wall,

The end 36 of the switch blade is adapted to make electrical connection with the stationary contact 37. One terminal of the winding of the electro-magnet 20, is connected to the terminal of the instrument 38 by wire 39, while the terminal 40 is connected by wire 41, with the contact 37 of the switch. The other terminal of the coil 42 is connected to the switch blade, as at 43. The service wires 44 and 45 are connected to the terminals 40 and 38, respectively, and are held in the casing by a cleat 46 secured in place by the screws 47.

When the end 36 of the blade 33 makes electrical connection with the contact 37, the circuit through the instrument is closed and the position of the handle 35, with respect to the casing, will clearly indicate this fact.

Having described my invention what I

claim as new and desire to secure by Letters Patent is:—

In a telephone receiver a round casing having a central perforation to receive a means to move the enclosed magnet and having a series of concentrically arranged spaced apart depressions in the back surface of the casing; a magnet in the casing; a stem threaded into said magnet and extending through said perforation; a hub on the outer end of said stem; an arm extending therefrom; a ball on its terminal end to lie in the respective depressions when the arm is rotated and a thumb cap overlying said hub and fixed thereto, whereby to rotate the stem for moving said magnet.

In testimony whereof I hereunto subscribe my name.

ALBERT E. COY.