Jan. 18, 1927. 1,615,028

H. MORSER

EARPIECE FOR SOUND RECEIVERS

Filed Dec. 16, 1925

Fig. 1.

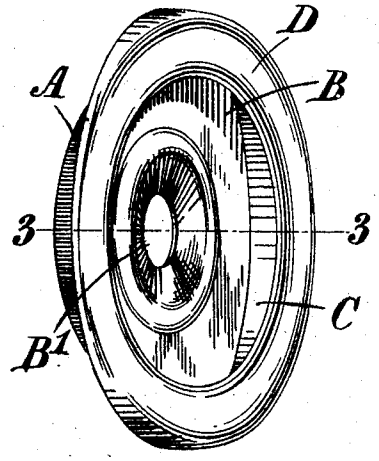
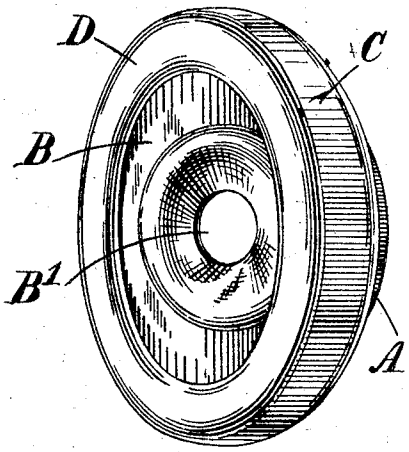


Fig. 2.



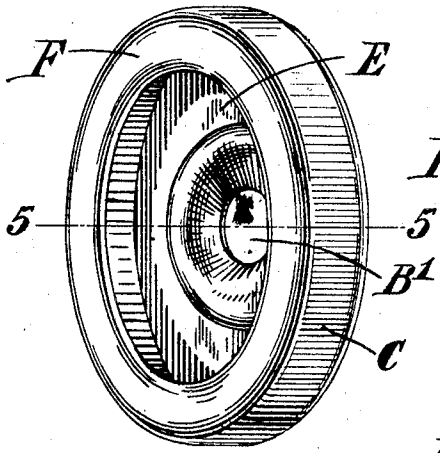


Fig. 4.

Fig. 3.

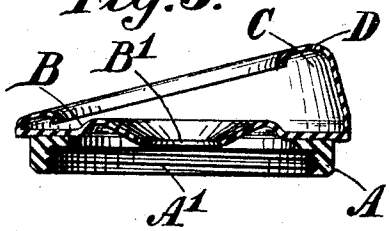
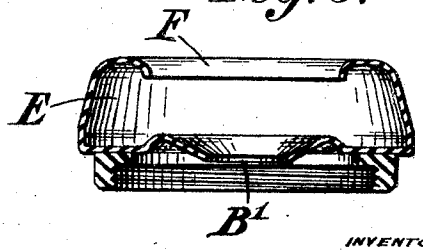


Fig. 5.



INVENTOR

Harry Morser,

BY Watson, Coit, Morse & Grindle

ATTYS.

Patented Jan. 18, 1927. 1,615,028

UNITED STATES PATENT OFFICE.

HARRY MORSER, OF LONDON, ENGLAND, ASSIGNOR TO HARRY MORSER & COMPANY (WIRELESS) LIMITED, OF LONDON, ENGLAND, A BRITISH COMPANY.

EARPIECE FOR SOUND RECEIVERS.

Application filed December 16, 1925, Serial No. 75,839, and in Great Britain December 15, 1924.

This invention is for improvements in or relating to ear-pieces for telephones and the like and has for its object to provide an ear-piece which shall be more efficient than those at present in use. The usual ear-piece at present employed presses upon the ear and by this means tends to confuse the hearing.

According to the present invention the ear-piece has on that side which is to be towards the ear a forwardly projecting rim of such proportions as to receive the whole ear so that when the ear-piece is pressed over the ear the pressure of the contact edge of the said rim is received on the bony part of the head surrounding the ear instead of on the ear itself.

Within the aforesaid rim and situated far enough back from the contact edge to allow free accommodation for the ear, a partition may be provided having in it one or more openings, for example a central opening, to permit the sound-waves to pass through but otherwise closing, on that side remote from the said contact edge, the cavity provided by the said rim.

The forwardly projecting rim may be made deeper, as measured from the contact edge to the position to be occupied by the diaphragm, at that side which is intended to lie behind the ear than at the other, so that the diaphragm may lie approximately parallel to the general plane of the ear when the receiver is in use. The aforesaid partition preferably follows the depth contour of the forwardly projecting rim so that it lies obliquely to the plane of the contact edge of the rim.

In the accompanying drawings which illustrate one method of carrying out this invention:—

Figure 1 is a perspective view of the ear-piece viewed from the front and somewhat from the left;

Figure 2 is a perspective view of the ear-piece viewed from the front and somewhat from the right;

Figure 3 is a horizontal transverse section through the ear-piece on the line 3—3 of Figure 1;

Figure 4 is a perspective view of a modified form of ear-piece viewed from the front and somewhat from the right, and

Figure 5 is a transverse section through the ear-piece on the line 5—5 of Figure 4.

Like reference letters indicate like parts throughout the drawings.

The ear-piece may be moulded of ebonite and has a back portion A adapted to be secured by screwing or otherwise to the receiver, the diaphragm of the receiver being intended to be accommodated within the recess A^1 (Figure 3) of the said back portion. This back portion is covered by a plate B having a central opening B^1, and projecting forwardly from this is a rim C. One side of the rim (the right-hand side as seen in Figures 1–3) is made of greater depth than the other so that the plate B constitutes a diaphragm at the back of the cavity provided by the rim, but which lies obliquely to the contact edge D of the rim as it follows the depth contour of the rim. The forward edge of the rim is turned over to provide a contact surface of considerable width so that the edge of the rim shall not cut when pressed against the head of the user.

The contact edge of the rim, as seen in face view, is oval, the axis of greater length being intended to lie in a vertical position when the receiver is in use, and a line bisecting the rim at the two points of least and greatest forward projection respectively, lies approximately at right-angles to this axis of greater length.

When using this ear-piece the portion of the rim which projects forwardly a greater distance than the other is intended to lie behind the ear, and the whole mouth of the rim is sufficiently large to accommodate the entire ear, part of which may lie behind the overhanging contact edge D.

It is found that this ear-piece pressing as it does against the bony part of the head round the ear instead of upon the ear itself has considerable advantages:—(*a*) it can be used for long periods of time without any inconvenience or discomfort, (*b*) blood noises in the head are not conveyed to the receiver so that better hearing is obtained; (*c*) it closes no part of the ear and so the hearing is improved; (*d*) the open space between the ear-drum and diaphragm, constituted by the cavity enclosed within the rim, is productive of good accoustics; (*e*) the seal effected between the contact edge pressing evenly against the head shuts out all exterior sounds.

In some cases it may be preferred to have

the projecting rim so constructed that it stands out an equal distance all round the back plate or diaphragm. Such a construction is shown in Figures 4 and 5 where the partition E is shown as lying in a plane parallel with the contact edge F of the rim. The fitting at the back of the ear-piece in this case would be arranged to be secured to the receiver in such way that the receiver diaphragm would lie parallel to the partition.

The ear-pieces described in this invention may be employed for any purpose necessitating a vibrating diaphragm for sound reproduction.

I claim:—

1. An ear piece for sound receivers comprising a rigid base portion having means for attaching the ear piece to a receiver, a perforated diaphragm attached to said base portion, a rigid flange springing from and substantially normal to the surface of the diaphragm and encircling the perforation therein, said flange having a marginal inturned portion constituting a rigid headrest, the opening defined by the inner edge of said inturned portion having a sufficient area to permit the passage therethrough of the ear of the user, and said flange, with its inturned portion enclosing, together with the diaphragm, a space large enough to freely receive the ear and to act as a sound chamber.

2. A device according to claim 1 in which said inturned portion is formed at an angle to said diaphragm.

3. A device according to claim 1 in which said inturned portion is of sufficient width to form a bearing surface, said interned portion carrying a further portion which is inturned toward said diaphragm.

In testimony whereof I affix my signature.

HARRY MORSER.