

F. D. WALDRON.
EARPIECE.
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1,368,307.

Patented Feb. 15, 1921.

Fig. 1.

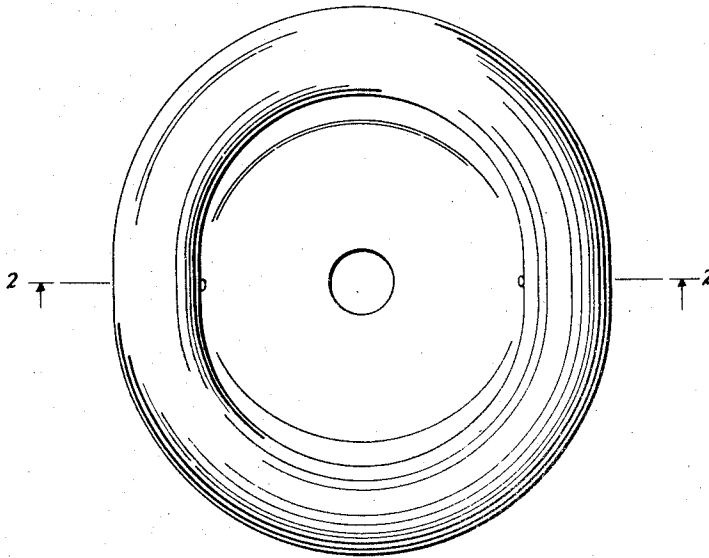
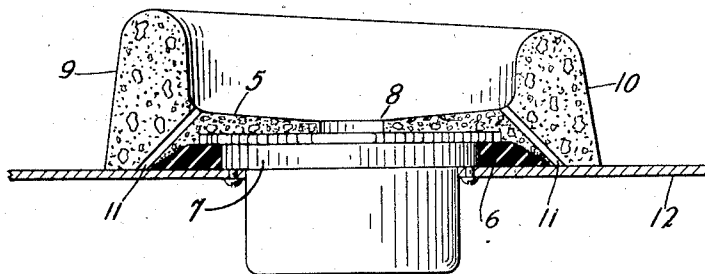


Fig. 2.



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UNITED STATES PATENT OFFICE.

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EARPIECE.

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Specification of Letters Patent. Patented Feb. 15, 1921.

Original application filed April 13, 1918, Serial No. 228,393. Divided and this application filed April 29, 1919. Serial No. 293,404.

To all whom it may concern:

Be it known that I, FRED D. WALDRON, a citizen of the United States, residing at Brooklyn, in the county of Kings, State of New York, have invented certain new and useful Improvements in Earpieces, of which the following is a full, clear, concise, and exact description.

This invention relates in general to ear pieces for acoustic apparatus and more particularly to an ear piece adapted to be used in connection with telephone receivers and similar apparatus for preventing extraneous sounds from reaching the ear of the listener.

This application is a division of my co-pending application, Serial No. 228,393, filed April 13, 1918.

In order to obtain satisfactory operation of the telephone apparatus under various service conditions, it is often necessary to take certain precautions to prevent outside noises and disturbances from interfering with satisfactorily receiving of the faint sounds produced by the receivers. This is especially true in connection with telephone apparatus used in aeroplane service, either for communication between the pilot and the observer or for communication with outside stations. For use under this condition, it is essential that special precautions be taken to exclude the excessive noises resulting from the whirl of the propellers, the rush of air, and the exhaust of the engines which in some types of aeroplanes are located adjacent to the pilot. Also in connection with apparatus used on patrol boats or chasers for detecting and determining the direction of submarine vessels, it is essential that all engine noises and other extraneous sounds be excluded in order that the observer can with accuracy detect the faint sounds which are given out by the propellers of the submarine vessels.

It is therefore the object of the present invention to provide an ear piece which is efficient in excluding extraneous sounds and which can be worn without discomfort to the user. It is a further object of the invention to provide an ear piece which is simple in design, cheap of manufacture and which can readily be placed in position.

To accomplish these objects, a feature of the invention resides in providing an ear

piece having easily compressible walls adapted to encircle the ear of the user.

Another feature resides in making the walls of the ear piece of varying cross-section in order to better fit the head of the user and thereby provide a more efficient seal around the ear. These and other features of the invention will be more clearly understood by reference to the accompanying drawing in which Figure 1 is a plan view of the ear piece embodying the invention and Fig. 2 is a cross-sectional view of the ear piece of Fig. 1 taken along the lines 2—2 and fitted with a receiver and mounting strap.

Referring now to the drawing, an ear piece is provided having a cup-shaped portion 5 preferably of soft sponge rubber and an insert portion 6, annular in shape and composed of gum rubber. The ring 6, which may be cemented to the sponge rubber cup 5 or molded therein, is arranged as shown to provide a recess in which the flange of a receiver cap 7 may be positioned to hold the ear piece in place. An aperture 8 is provided in alinement with a similar aperture in the receiver 7 in order to permit efficient operation of the receiver. The rear wall 9 of the cup-shaped member which is adapted to fit back of the ear of the user is made of greater cross-sectional height than the front wall 10 in order that the ear piece will more nearly conform to the shape of the head and therefore provide a seal about the ear when the receiver is held in the correct position. These walls being of sponge rubber are very easily compressible and thus permit the receiver being pressed close to the head of the user without causing any discomfort and therefore provide a comparatively sound-proof seal about the ear without in any way interfering with efficient transmission. A plurality of vents 11—11 are provided through the central portion of the ear piece for equalizing the pressure when the walls 9 and 10 are compressed.

An ear piece of the type described is, in practice, used quite largely in connection with helmets, in which case the receivers are held in place in pockets designed to receive them but such an ear piece can also be used satisfactorily outside of helmets, in which case the receivers are secured to a strap member 12 which may be arranged to fit about the head of the user.

What is claimed is:

1. An ear piece having easily compressible walls of sponge rubber, said walls being of varying cross-section to fit the head of the user.
2. An ear piece having easily compressible walls of rubber, the rear wall being of greater cross-sectional height than that of the front wall.
3. An ear piece having easily compressible walls of sponge rubber, and a plurality of vents therethrough.
4. An ear piece composed of sponge rubber and having an insert of more rigid material mounted therein to provide means for securing the ear piece to a receiver cap.

In witness whereof I hereunto subscribe my name this 22nd day of April, A. D. 1919.

FRED D. WALDRON.