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ACOUSTIC APPARATUS FOR THE DEAF

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Fig. 1

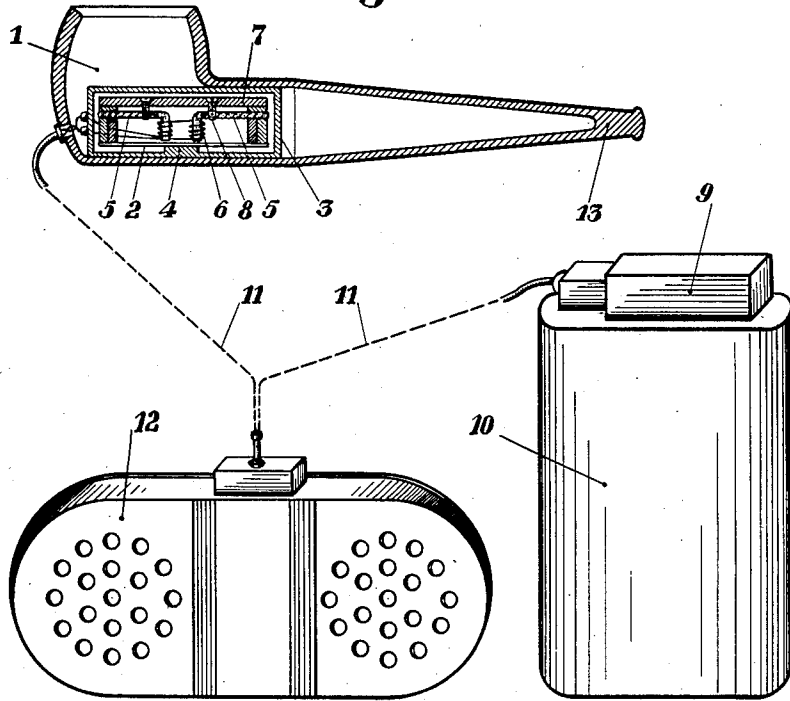
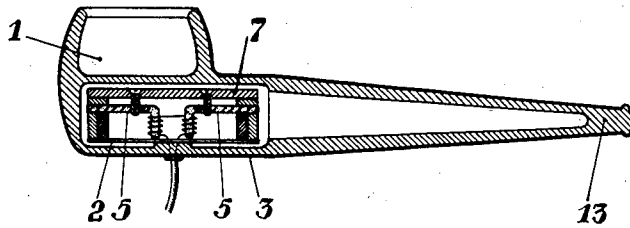


Fig. 2



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ACOUSTIC APPARATUS FOR THE DEAF

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2 Claims. (Cl. 179-107)

There are different types of acoustic apparatus, which are intended to relieve persons suffering from deafness. The present invention belongs to the type of apparatus known as working by osseous conduction, and which consists of a transmitter and an amplifier, which transmit the sounds to a vibrator which is kept affixed behind the ear on the mastoid, so as to cause an excitement of the tympanum cavity. The amplifier is usually excited by a weak electrical current supplied by a special battery.

These apparatus, however, have a serious drawback: A way has to be devised which will allow the vibrator to be applied and maintained against the mastoid, the power of perception being due to the pressure of the vibrator on the bone. Generally, a head-band is employed for the purpose, this, however, is not only unaesthetical, but may cause pain, sometimes even wounds. Apart from this, practice has demonstrated that the acoustic conduction by the mastoid varies greatly according to the individuals; in some cases the results are totally inadequate, or even null. Lastly, another inconvenience is that all the contrivances of this category, known until now, only act on one ear. If the two ears are to be influenced simultaneously, it would be necessary to design an apparatus possessing at least two vibrators together with their conducting lines.

On the other hand, it is a well known fact that the teeth and jawbone conduct sound far more efficiently. The present day contrivances working by osseous conduction originate from the primitive apparatus, such as the audiphone, which consists of a plate of hardened flexible rubber, and of an handle. The user tightens the rubber plate, the superior extremity of which is held tight between the teeth, by means of a thin cord.

The object of the present invention is to improve and increase the power of the present day osseous conduction apparatus, as also to do away with their faults and annoyances. It consists of a combination of these apparatus or at least of the vibrator with an article usually held in the mouth, such as a pipe, a cigar-holder, a cigarette-holder, which will vibrate in harmony with the vibrator of which it constitutes the casing, and which will transmit these vibrations to the teeth, and from them to the auditory organs. The invention can be adapted to any type of apparatus known, which work by osseous conduction. Therefore, it takes in the simple appliance with vibrator and receiver as well as the complex ap-

paratus, electromagnetic, with vibrator, transmitter, transformer-amplifier, and receiver.

Materially, the invention consists of an every day smoker's implement to be held in the mouth in the usual manner, and which acts as a casing to contain a vibrator of any type whatsoever, which is a part of any known apparatus for the transmission of sound waves.

Evidently, one can conceive a vibrator of especially studied shape which can be adapted to fit in the stem of a cigar holder, or in the bowl of a pipe; one can also make direct use of this stem as an integral part of the vibrator.

As an example—to which the invention is not limited—the attached drawing shows the application of the invention to the case of a smoker's pipe.

Fig. 1 is a general view in partial section of a first use.

Fig. 2 is the section of a second realisation.

In Fig. 1, 1 shows a pipe, the shape of which does not matter. In the bowl and in the thick part of the stem, an electro-magnetic vibrator has been fitted; it consists of a diaphragm 2 connected with a closed box 3 by a projection 4 which constitutes the only point of contact between the diaphragm and the housing for transmitting vibrations to the pipe. The bottom of this housing is in close contact with the pipe-stem, so that the vibrations of the plate which are transmitted to the box 3, are also communicated to the pipe-stem. This stem can be made of a special substance which facilitates the transmission. Two pieces of soft iron 5-5 round which the coils 6 are wound are fixed to the two extremities of a permanent magnet 7 by means of two adjusting screws 8. The modulated current supplied by the amplifier 9 excited by the dry battery 10 passes by means of the wires 11 through the coils and causes the rods 5-5 to vibrate and these vibrations are transmitted to the bottom of the box 3. 12 shows the transmitter which receives and transmits the sounds; this transmitter may be of any type whatever. As shown in Fig. 1, the mouth-piece of the pipe is unbores by preference (13). In Fig. 2, it will be seen that the vibrator, identical with that of Fig. 1, is built directly in the pipe, and the bowl and the stem form the box 3 of the vibrator. The lug extends from the bottom of the floor of the cavity in which the vibrator is installed and this results in communicating the vibrations through the material of the holder to the mouth-piece and as the mouth-piece is gripped by the

teeth, such vibrations also are imparted to the teeth.

Having now fully described my said invention, what I claim and desire to secure by Letters Patent, is:

5 1. In an acoustic apparatus for deaf, a member shaped like a tobacco pipe forming a holder and having a bit for transmitting vibrations to the mouth of a holder thereof through the holder's
10 teeth, the bowl portion of said pipe having a cavity, a vibrator in said cavity, and the said cavity also containing a lug through which vibrations are communicated to the holder.

2. In an acoustic apparatus for deaf, a member shaped like a tobacco pipe forming a holder and having a bit for transmitting vibrations to the mouth of a holder thereof through the holder's teeth, the bowl portion of said pipe having a
5 cavity, a vibrator in said cavity, and the floor of said cavity having a lug rising above the floor of the cavity engaged by the vibrator through which vibrations are communicated to the holder and from thence through the bit to the teeth of the
10 holder of the bit.

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