(No Model.)

A. S. NICHOLS.

MOUTH PIECE FOR TELEPHONE TRANSMITTERS.

No. 271,903. Patented Feb. 6, 1883.

Fig. 1

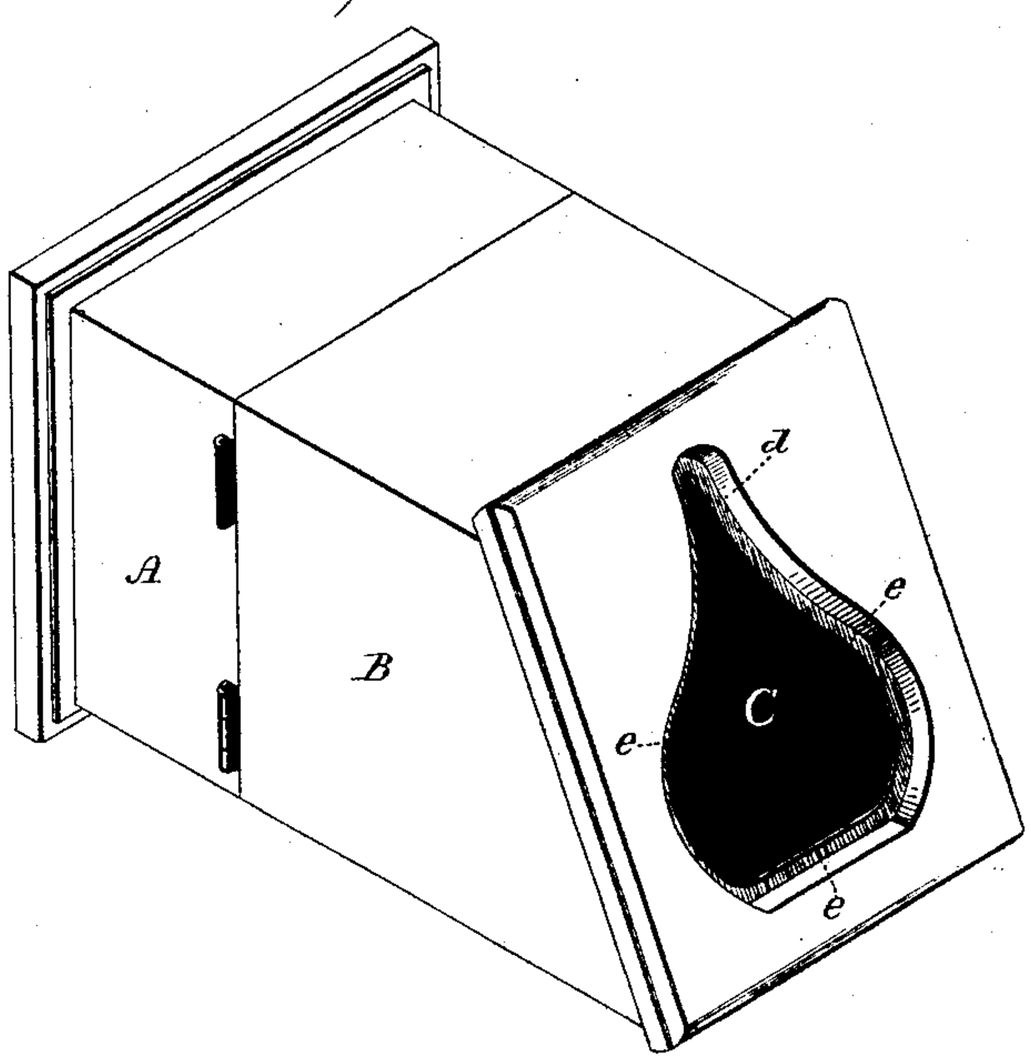


Fig. 2

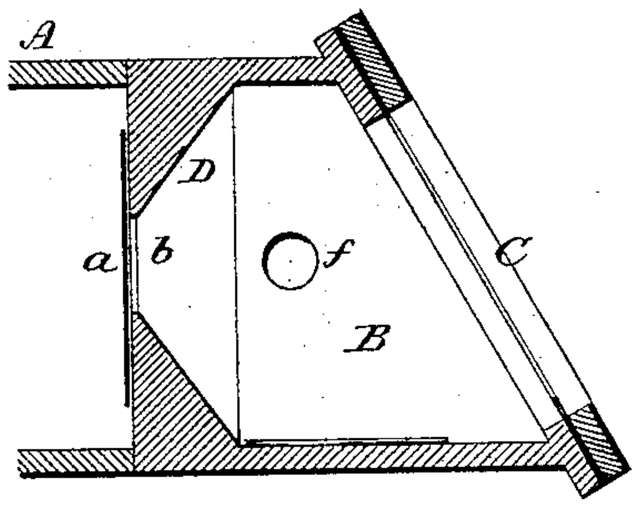
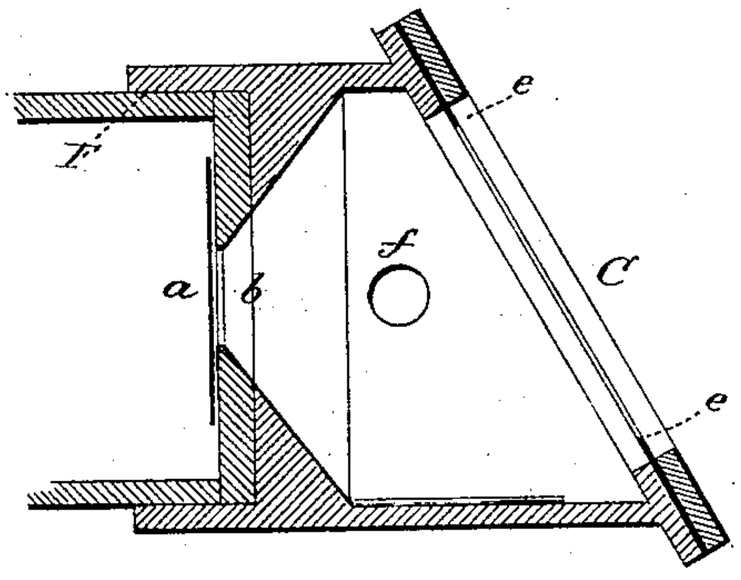


Fig. 3



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AARON S. NICHOLS, OF NEW HAVEN, CONNECTICUT.

MOUTH-PIECE FOR TELEPHONE-TRANSMITTERS.

SPECIFICATION forming part of Letters Patent No. 271,903, dated February 6, 1883.

Application filed December 7, 1882. (No model.)

To all whom it may concern:

Be it known that I, AARON S. NICHOLS, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Mouth-Pieces for Telephone-Transmitters; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a perspective view; Fig. 2, a longitudinal vertical central section; Fig. 3, a longitudinal vertical central section of a removable chamber constructed for attachment to the common transmitter.

This invention relates to an improvement in transmitters for telephonic communication.

In the usual construction of transmitters several difficulties exist. The best results on a transmitter are attained by having the mouth at a certain position with relation to the diaphragm, and any variation from this point detracts from the efficiency of the instrument, making it the more difficult to be heard. Again, the best results are attained by a certain strength of voice. If the voice be too loud, then the vibrations are so strong as to produce a rattling sound, which interferes with hearing. If it be too low, then the vibrations are not of sufficient strength to be heard distinctly. Again, a large proportion of transmitters are used in offices or public places, where, speaking even in the required tone of voice, the talking will interfere with the business of the office or expose the object of the conversation, which it is desired should be secret, it many times occurring that a person desires to communicate to another party something concerning a person present, or the business of that person, which communication he would desire to make and get a reply while that person is present, but which he cannot do without that person having some knowledge of what the communication is. Other difficulties in the use of the ordinary telephonic communication exist, and are too well known to require further illustration.

The object of this invention is to overcome these difficulties and render the telephone a strictly secret mode of communication, as well as to avoid disturbance to the parties near or in the same apartment where communication is being made; and the invention consists in a chamber outside of and surrounding the exposed part of the diaphragm, with an opening, preferably upon the side opposite the diaphragm, fitted to receive the mouth and the adjacent parts of the face, so that the lips of the speaker are within the chamber, and the opening substantially closed by the adjacent parts of the face, and so that the vibrations imparted to the atmosphere from his voice will consequently be confined within the chamber and be directed to the diaphragm independent of the surrounding atmosphere, and whereby the communications may be best made in a whisper, and consequently not heard, except by the party listening at the other end of the line, and as more fully hereinafter described.

A represents the transmitter-box, of common construction; *a*, the diaphragm; *b*, the opening through the front of the transmitter to the exposed portion of the diaphragm. Outside of this opening is a chamber, B, which may be and preferably is made as an extension of the transmitter-box, and forms practically the door, it being hinged, as seen in Fig. 1, in the usual manner of hinging the door or mouth-piece of a transmitter. In the front of the transmitter is an opening, C, made to receive the lips of the speaker, and so as to permit the adjacent parts of the face to enter, the opening, as shown at *d*, being elongated upward to receive and conform substantially to the shape of the nose, so that a person may place his lips within said opening, the elongation of the opening permitting the introduction of the nose, and so that the edge of the opening will closely fit the adjacent parts of the face and practically close the opening when the person is speaking. For convenience of the speaker this front should be inclined backward and toward the diaphragm, as shown. The inner wall of the chamber is made funnel-shaped, as at D, which concentrates the voice upon the diaphragm. Preferably the opening is fitted with a light flexible cushion, so as to easily fit the face. This is best done by a soft material—such as felt or leather—having a hole cut through it corresponding to the opening in the

front, but of smaller dimensions, and introduced into the front, so as to leave an inwardly-projecting edge, *e*, of the material to form the cushion. This readily yields as the face is presented, and so as to more perfectly close the opening than would be done were it not for such a cushion. There should be a small opening, *f*, at some convenient point, for the admission of air, but not sufficiently large to interfere with the vibrations imparted by the voice to the air within the chamber. The depth of the box—that is, the distance from the opening in the front to the diaphrgm—must be that which will fix the proper position for the mouth relatively to the diaphragm, and so that the proper position is fixed. By thus confining the air around the diaphragm, so that the entire vibration produced by the voice will be concentrated upon the diaphragm, a whisper produces the best result. In whispering there is very little, if any, difference in persons. The strength of the whisper will be substantially the same in all cases, differing, therefore, from the voice in speaking. Hence, the opening properly adjusted to the diaphragm as described, a whisper produces the best result. The transmitter is fitted for all persons, and because the vibrations are confined within the chamber without possibility of escape no sound produced by those whispering inside the box can be heard outside, and communications can be most readily carried on by whispering in the chamber; yet, if persons so desire, they may, by standing at a distance from the opening, speak in the usual tone of voice and make their communications in the usual manner.

As there are very many transmitters in use, it will be desirable in some cases to provide this whispering-chamber for such transmitters. In that case they are made, as seen in Fig. 3, with a recess, F, at the rear corresponding to the standard size of transmitters and so as to set over the front, bringing the opening in the back of the chamber into line with the opening in the transmitter-front.

The speaking-opening into the hole may be made on other sides than the front; but the best results may be attained by having it directly in front of the diaphragm, as shown.

I claim—

1. In combination with the diaphragm for transmitting sounds, a chamber outside said diaphragm constructed with an opening to receive the mouth and adjacent parts of the face, whereby the speaking will be produced entirely within said chamber, substantially as described.

2. In combination with the diaphragm for transmitting sounds, a chamber outside said diaghragm constructed with an opening to receive the mouth and adjacent parts of the face, whereby the speaking will be produced entirely within said chamber, the inner side of said chamber made funnel shape, contracting toward the diaphragm-opening, substantially as described.

3. In combination with the diaphragm for transmitting sounds, a chamber outside said diaphragm, constructed with an opening to receive the mouth and adjacent parts of the face, whereby the speaking will be produced entirely within said chamber, the opening for the mouth and adjacent parts of the face provided with a cushion against which the parts of the face may rest, substantially as described.

4. In combination with the diaphragm for transmitting sounds, a chamber outside said diaphragm constructed with an opening to receive the mouth and adjacent parts of the face, whereby the speaking will be produced entirely within said chamber, the said chamber provided with an opening, *f*, substantially as and for the purpose described.

5. In combination with a transmitter for vocal communication, consisting of a diaphragm arranged in rear of an opening in front of the transmitter, a detachable chamber arranged to be set over the front of the transmitter, said chamber constructed with an opening to receive the mouth and adjacent parts of the face, whereby the speaking will be produced entirely within said chamber and concentrated upon the diaphragm, substantially as described.

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