

(No Model.)

F. D. TORRE.
SOUND REFLECTOR FOR TELEPHONES.

No. 304,413.

Patented Sept. 2, 1884.

Fig. 1.

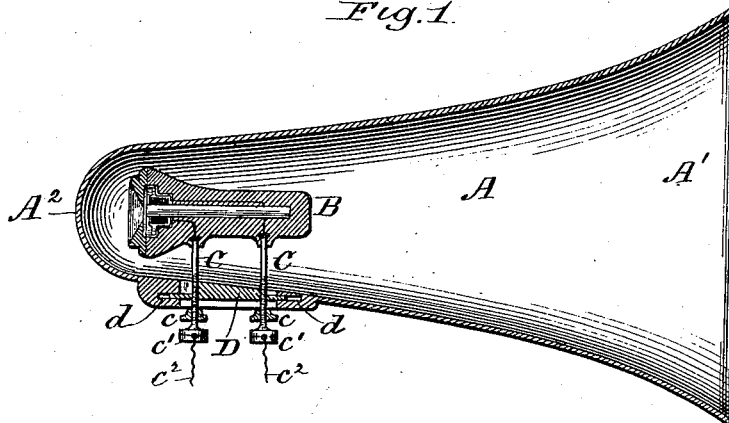


Fig. 2.

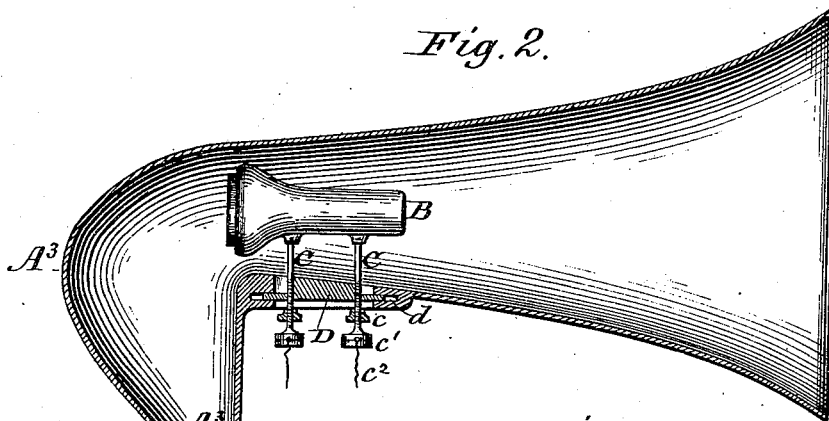
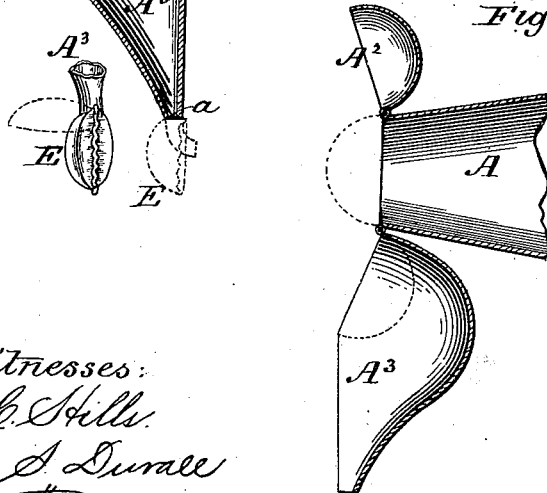


Fig. 3.



Witnesses:
L. C. Hills.
Wm. J. Durall

Inventor:
Frank Della Torre
by E. E. Masson
att'y.

UNITED STATES PATENT OFFICE.

FRANK DELLA TORRE, OF BALTIMORE, MARYLAND.

SOUND-REFLECTOR FOR TELEPHONES.

SPECIFICATION forming part of Letters Patent No. 304,413, dated September 2, 1884.

Application filed March 27, 1884. (No model.)

To all whom it may concern:

Be it known that I, FRANK DELLA TORRE, a citizen of the United States, residing at Baltimore, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Sound-Reflectors for Telephones, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of this invention is the focusing and accumulation of sound, either before or after its transmission by any of the well-known devices and instrumentalities of conveying sound, by the use of vibrations or pulsations of electrical currents, or by the use of any sound-conductor.

The device which I have invented to attain the object set forth consists, generically, in a sound receiving and condensing instrument, which may be adapted to be used in connection with any sound receiving and transmitting device, as a telephone of either the electrical or mechanical class.

Referring to the drawings, Figure 1 is a central vertical section of my apparatus having arranged therein an ordinary electrical telephone. Fig. 2 is a like section of a similar instrument modified in regard to its adaptation as a receiving-instrument, and Fig. 3 is still another modification of my apparatus in the same particular.

Like letters refer to like parts in all the figures.

A represents the simplest form of a trumpet-shaped receiver for my apparatus, which is that of a conical tube having a flaring mouth, A', and a semi-spherical apex, A², and provided with means for supporting the sound receiving and transmitting instrument B within the same, and on a line coincident with the axis of the tube, the sound-receiving end of the instrument being arranged toward the semi-spherical apex of the eophone. In this instance the sound receiving and delivering instrument is represented as being an ordinary electrical telephone, the diaphragm of which is presented toward the apex and focus of the apparatus, and the whole of which is supported in the axial line of the flaring tube A by standards C, which also serve as electrical conductors. The standards are screw-threaded

and provided with set-nuts *c*, and with binding-nuts *c'*, in which the usual electric conductors, *c''*, are secured. The screw-threaded supports of the telephone pass through a slide, D, the inner surface of which is a continuation of and flush with the inner surface of the trumpet-shaped tube A, and the edges of which ride in grooves *d*, formed in the edges of an opening through the wall of said tube A, which the said slide is intended to close. The grooves *d* are of such depth as to permit a movement of the slide transversely to and in line with the axial line of the apparatus, whereby adjustment of the slide in all directions in a horizontal plane may be had, while by means of the screw-threaded standard C vertical adjustment of the telephone is had. In this manner a telephone or other sound-receiving instruments may be supported within the tube A adjustably, whereby it may be brought directly and accurately into position, whatever may be the temperature and pressure of the atmosphere, so that the diaphragm thereof or sound-receiving portion may be located accurately in the focus of the apex of the apparatus. This being the construction of my invention in its simplest form, the operation of the same is as follows:

The operator, to send sounds, holds the instrument before his face, somewhat after the manner of speaking in a trumpet, the entire face, if desired, being inclosed within the flaring mouth-piece, and, speaking, the sound-waves strike against the inner wall of the semi-spherical apex, and are reflected to its focus. The sound-transmitting instrument, being adjusted with its diaphragm at the focus, receives the sound-waves, as it were, condensed and concentrated, so that mild tones are intensified, or at least preserved from diffusion into the surrounding air, as would be the case without the use of my apparatus. The sounds having been directed in this manner to the diaphragm of the conducting-instrument, its vibrations or pulsations are communicated to any suitable distance, and received by an apparatus exactly or substantially like that which is described, and in receiving the sounds the same advantage is secured, in that they are not diffused or lost in the atmosphere, but are received against the inner wall of the apex of

the tube A, and are reflected to the person receiving it at the flaring mouth-piece thereof if its inner end is semi-spherical.

In the modification shown in Figs. 2 and 3 the object to be attained is to adapt the apparatus to the concentration of sounds received therein, and to conduct them, in a concentrated form, to the ear of the operator. This may be accomplished in several specific manners, all involving the same principle of operation, which is to extend the tube A laterally from the apex in order to preserve its reflecting function. In Fig. 2 such an extension is shown at A³, substantially in a parabolic form, which terminates in an orifice, *a*. This extension in this instance is formed integrally with the body of the tube A. In Fig. 3, however, said extension is formed as a movable section thereof, as is also the semi-spherical apex A², which is hinged at opposite sides of the body of the tube A, so that either may be closed upon the end and serve the function of sound-transmitting or sound-receiving intermittently, the first requiring the apex A² to be folded to the position shown in dotted lines over the end of the body, while as a receiver the said section is turned outwardly, as shown in full lines, and the extension A³ is swung over the end of the body portion.

If desired, a conch-shell, E, or other shell may be applied to the orifice *a* of the extension, as shown in dotted lines, Fig. 2, and the small ends of the parabolic sound-reflector A³ may be made to enter the end of the slot in said shell or its convex surface. It may even pass through a portion of the shell and enter with-

in a person's ear, while the remaining surface of the slotted shell rests against the sound-directing folds and ridges of his ear.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a telephone, of a conical tube having a substantially semi-spherical closed apex, the inclosed telephone being arranged relatively and axially, substantially as specified.

2. The combination of a telephone provided with suitable standards mounted in an adjustable slide, with a conical tube having a substantially semi-spherical apex, and adapted to receive the slide, substantially as specified.

3. The combination of a sound-transmitting instrument, a conical tube having a substantially semi-spherical apex, provided with a substantially-conical lateral extension having an orifice at its end, substantially as specified.

4. The combination of a conical tube, A, having the flaring conical mouth A', and the semi-spherical apex A², with the telephone B, provided with the standards C, mounted in a slide, D, substantially as shown and described.

5. The combination of the conical tube A with the pivoted pieces A² A³, having semi-spherical and parabolic walls and focus, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK DELLA TORRE.

Witnesses:

E. E. MASSON,
L. C. HILLS.