

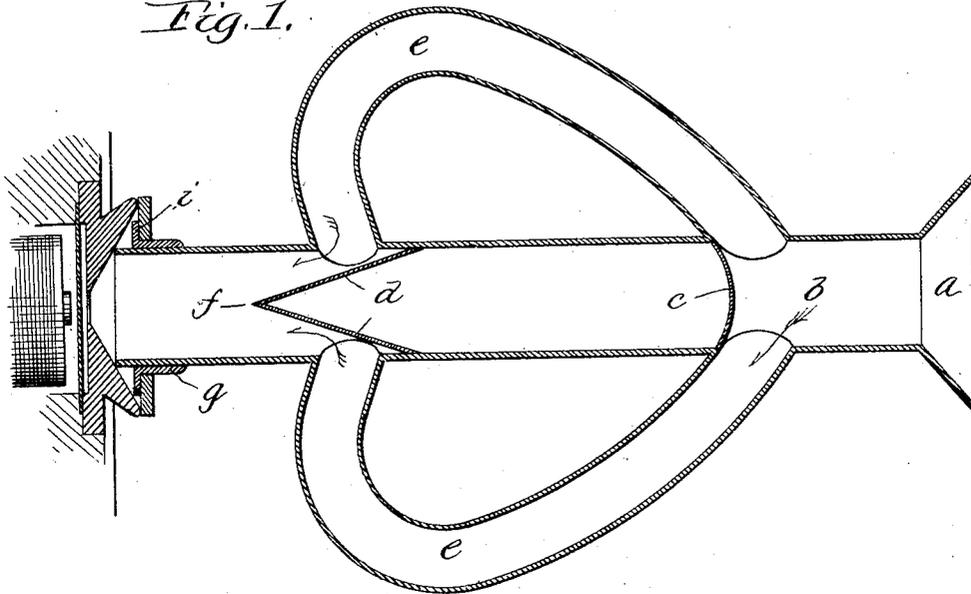
(No Model.)

L. H. SNYDER.  
SPEAKING TUBE ATTACHMENT FOR TELEPHONES.

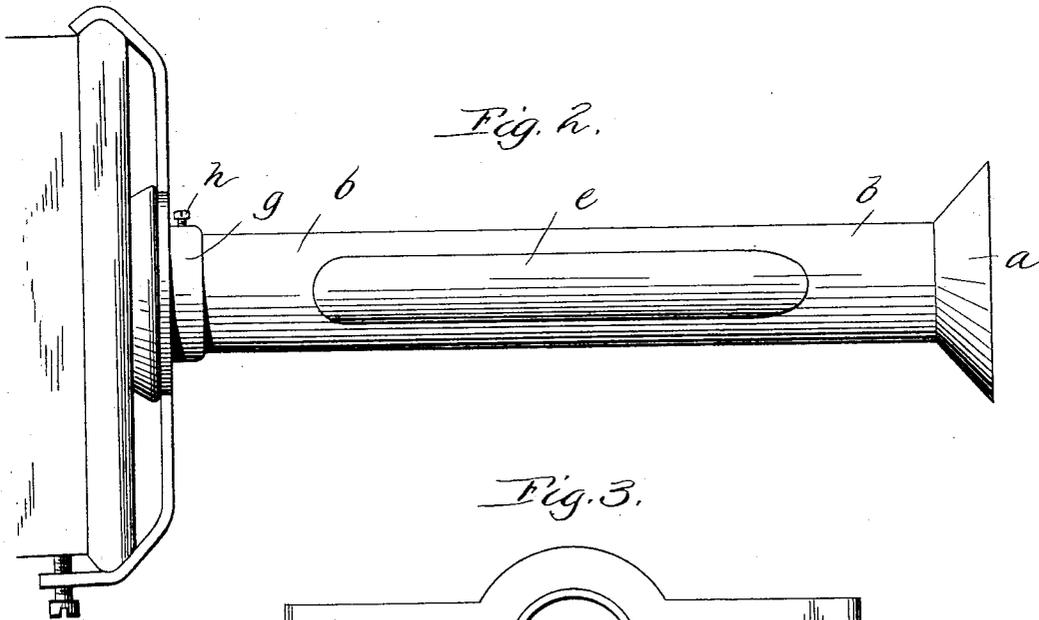
No. 463,556.

Patented Nov. 17, 1891.

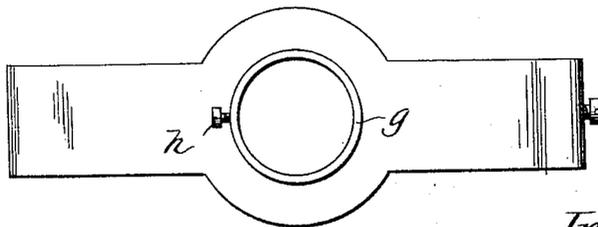
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses  
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# UNITED STATES PATENT OFFICE.

LEONDO H. SNYDER, OF SHARON, PENNSYLVANIA.

## SPEAKING-TUBE ATTACHMENT FOR TELEPHONES.

SPECIFICATION forming part of Letters Patent No. 463,556, dated November 17, 1891.

Application filed January 28, 1891. Serial No. 379,471. (No model.)

*To all whom it may concern:*

Be it known that I, LEONDO H. SNYDER, a citizen of the United States, residing at Sharon, in the county of Mercer and State of Pennsylvania, have invented certain new and useful Improvements in Speaking-Tube Attachments for Telephones; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved speaking-tube attachment for telephone-transmitters; and it consists of a device which can readily be adjusted to telephone-transmitters of any ordinary or special construction, and by means of which the sound of the voice is not only largely increased, but is at the same time concentrated at the required point within the telephone. This device, which I choose to term a "sound amplifier and concentrator," is of very simple construction, consisting merely of a straight tube, one end of which is provided with a suitable mouth-piece, while the other end is adapted to enter and cover or surround the transmitter of the telephone. Within this straight tube I provide a diaphragm placed near its front end and a diaphragm or concentrator placed a short distance from the end of the tube entering or covering the telephone-transmitter, the end or apex of said concentrator coming in close proximity to the transmitter. From either side of this straight tube, and connected therewith, is a curved tube of smaller diameter and of about one-half the capacity of the straight tube, leading from a point immediately in front of the front diaphragm to points directly opposite to the diaphragm or concentrator at the rear end of the said straight tube.

The construction and the object of the device will be more clearly understood by reference to the accompanying drawings, in which—

Figure 1 is a horizontal section; Fig. 2, a side elevation showing the device attached to the transmitter; Fig. 3, plan view of the clamp by means of which the device is secured to the telephone.

Referring to said drawings, *a* represents the mouth-piece; *b*, the straight tube within which

the diaphragm *c* and the diaphragm or concentrator *d* are placed.

*e e* are curved tubes leading from the diaphragm *c* to the diaphragm or concentrator *d*. The tubes are constructed preferably of brass, but may be of any other suitable material. The diaphragms may be of japanned sheet-iron, sheet-brass, or other like material.

*i* represents a flange intended to cover the round hole or opening inclosing the transmitter of the telephone, and through which flange the end of the tube *b* projects until it reaches and covers said transmitter. This flange is also provided with a collar *g*, which encircles the tube *b*, and is provided with a set-screw *h*, by means of which the tube *b* can be adjusted and secured at any desired projection through said flange and the apex *f* of the concentrator *d* be adjusted and secured at any desired distance from the transmitter.

The object of my invention is to overcome the difficulties experienced from vibration, caused by the direct action of the voice on the transmitter, which occurs to a greater or less extent in all telephones in which straight tubes or funnels are in use. This difficulty is entirely overcome by my invention through the peculiar arrangement of the diaphragm *c* and the diaphragm or concentrator *d*, in combination with the curved tubes *e e*. The theory of this combination, and its utility is clearly demonstrated in practice, is that in talking into the mouth-piece *a*, the voice striking the diaphragm *c*, the sound or vibration of air causing the sound is divided and passes through the curved tubes *e e* until it reaches the sides of the diaphragm or concentrator *d*, the result being an amplification of the sound and at the same time a concentration of the same at the exact point of transmission undisturbed by the vibration and confusion caused by the use of direct tubes or funnels.

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

1. A speaking-tube attachment for a telephone-transmitter, consisting of a straight tube adapted to enter and cover the transmitter, a curved diaphragm in said tube near the front end, and a V-shaped diaphragm in the

tube near the transmitter, and two or more curved tubes connected to said straight tube and leading from points in front of the curved diaphragm to points opposite the V-shaped diaphragm, substantially as described.

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2. In a speaking-tube attachment for tele-  
phones, the straight tube *b*, having a suitable  
mouth-piece, the diaphragms *c* and *d*, located  
in said tube, and curved tubes *e e*, connecting  
10 with the straight tube and leading from points  
in front of the diaphragm *c* to points oppo-

site the diaphragm *d*, an adjustable collar *i*,  
carried upon the straight tube for adjusting  
the end of the tube to the transmitter, and  
suitable means for securing the attachment 15  
in place, substantially as described.

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

LEONDO H. SNYDER.

Witnesses:

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