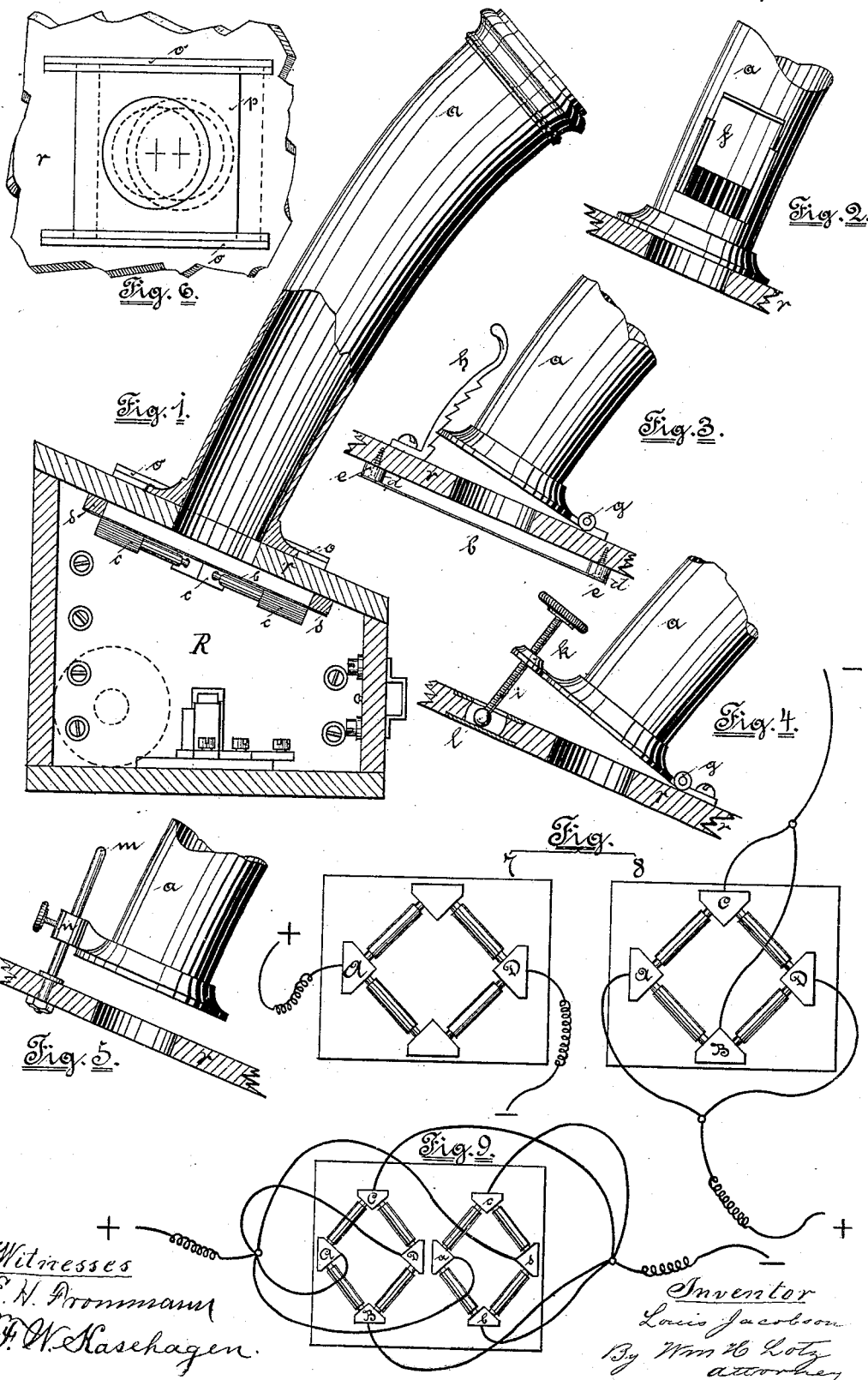


(No Model.)

L. JACOBSON.
BATTERY TELEPHONE.

No. 266,292.

Patented Oct. 24, 1882.



Witnesses
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UNITED STATES PATENT OFFICE.

LOUIS JACOBSON, OF BERLIN, GERMANY.

BATTERY-TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 266,292, dated October 24, 1882.

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To all whom it may concern:

Be it known that I, LOUIS JACOBSON, of Berlin, in the Kingdom of Prussia and Empire of Germany, have invented a certain new and useful Improvement in Battery-Telephones, respectively transmitters, respectively microphones, of which the following is a specification.

The object of my invention is to produce in telephones a greater distinctness and loudness of the sound emitted; and it consists of a tube applied to the casing or box of the transmitter, into which the words are spoken, so that the vibrations are concentrated and fall upon the diaphragm with increased intensity; also, of devices connected with said tube for modifying the sound-waves to transmit the words with more clearness, all as more fully herein-after described and specifically claimed.

In the accompanying drawings, forming a part hereof, Figure 1 represents a sectional view of the casing of the telephone, with its accessories, and having my improvement. Figs. 2, 3, 4, 5, and 6 represent, in connection with the tube, different devices for modifying the sounds; and Figs. 7, 8, and 9 illustrate several modes of arranging the metallic connections of the fluctuating contacts in the circuit.

Like letters designate corresponding parts in all the figures.

R denotes the casing of the telephone, containing the accessories, as induction-coil, with primary and secondary wire, switch, &c. The diaphragm *b*, carrying the fluctuating contacts *c*, is fastened in proper distance to lid *r* of the box by means of a small frame, *d*, as in Fig. 1, or by means of screws and small thimbles *e*, as in Fig. 3, which thimbles may be placed near the corners of the diaphragm, or more or less toward the middle.

a is a tube, made of any suitable material or shape, and attached to the lid in a manner that the sounds spoken therein will be directed through the opening in the lid of the casing directly upon the diaphragm, whereby the vibrations or undulations of the air will be more powerful in their action upon the diaphragm.

With such a tube the articulated sounds can be transmitted by a telephone a greater distance than without it, and the words will be emitted at the receiving end more loud and distinct.

In using very sensitive microphones, and when the voice of the person speaking into the transmitter is very loud and shrill, it often happens that the reproduced sound becomes very harsh at the receiving-station, and is accompanied by a disagreeable noise. To obviate this I have the tube arranged to allow a portion of the air propelled by the speaker into the tube, and of the sound-waves in said air to escape, thereby modifying the boundings of the sound-waves against the diaphragm and the vibrations of the same.

Figs. 2 and 6 represent different devices for adjustment of the tube, which I will now describe.

In Fig. 2 the tube is provided with one or several openings in its sides, which can be closed or regulated by a slide, *f*. The more said slide is opened the more undulations can escape, and the transmitted sounds become more distinct, though a little weaker.

Figs. 3 and 4 show an arrangement according to which the tube is hinged to the lid of the microphone and can be moved in the hinges *g* away from the lid. In order to secure the tube in the position a person may find well adapted to its sound, a toothed or notched spring, *h*, Fig. 3, may be used to receive the lower edge of the tube in its notches; or a screw, *i*, Fig. 4, passing through a nut, *k*, projecting from the lower edge of the tube, may be employed, the foot end resting in the lid of the apparatus by means of a ball-joint, *l*.

Fig. 5 shows an arrangement to move the tube more or less away from the opening in the lid. A rod, *m*, firmly attached to the lid, carries the tube by means of a lug, *n*, sliding on the said rod *m*, and provided with a set-screw to retain the tube at any desired distance from the opening.

Fig. 6 is also an arrangement to move the tube away from the opening in the lid, but in another direction. The tube is carried by a

plate, *p*, sliding in guides *o*, fastened on the lid of the instrument. In the position as shown in Fig. 1 the sounds fall full upon the diaphragm; but when the plate *p*, with the tube, is shifted aside, as in Fig. 6, the sounds can only in part fall upon the diaphragm. The tube or hose need not be attached on the lid of the instrument, but can be fastened just as well on any side, or even on the bottom of the box. Besides, the diaphragm can be placed on one side of the box and the tube on another.

Figs. 7, 8, and 9 illustrate several modes of arranging the metallic connections of the fluctuating contacts in the circuit. The wires or conducting-threads can be tied to A (from the positive pole) and to D, (from the negative pole,) as in Fig. 7, or (in order to decrease the electrical resistance) to A and D (from the positive pole) and to B and C, (from the negative pole,) as in Fig. 8, and, finally, when more than one set of fluctuating contacts are used, to A D *a d* (from the positive pole) and to B C *b c*, (from the negative pole,) as shown in Fig. 9.

It is obvious that the form, material, size, shape, &c., of the diaphragm and the tube, as well as the nature or number of the fluctuating contacts, may be varied for bringing about the same results, and I do not wish to be restricted to any particular construction herein described.

What I claim as my invention is—

In an electric speaking-telephone, and in combination therewith, a tube or mouth-piece and means, substantially as shown and described, for adjusting the same relatively to the opening in the diaphragm-inclosing box or casing to admit of the escape of a portion of the sound-waves, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LOUIS JACOBSON.

Witnesses:

GUSTAVE DITTMAR,
BERTHOLD ROE.