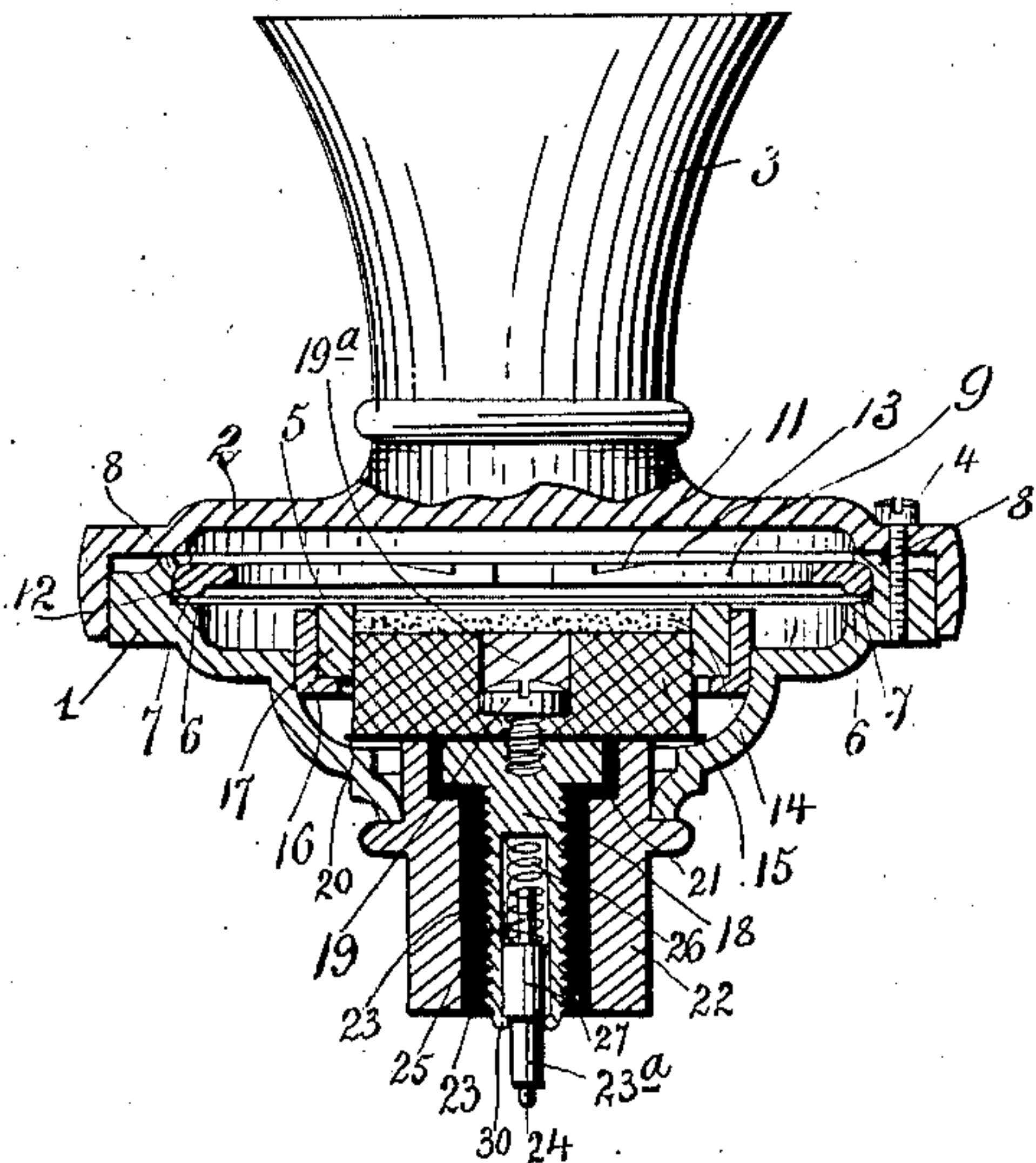


No. 840,069.

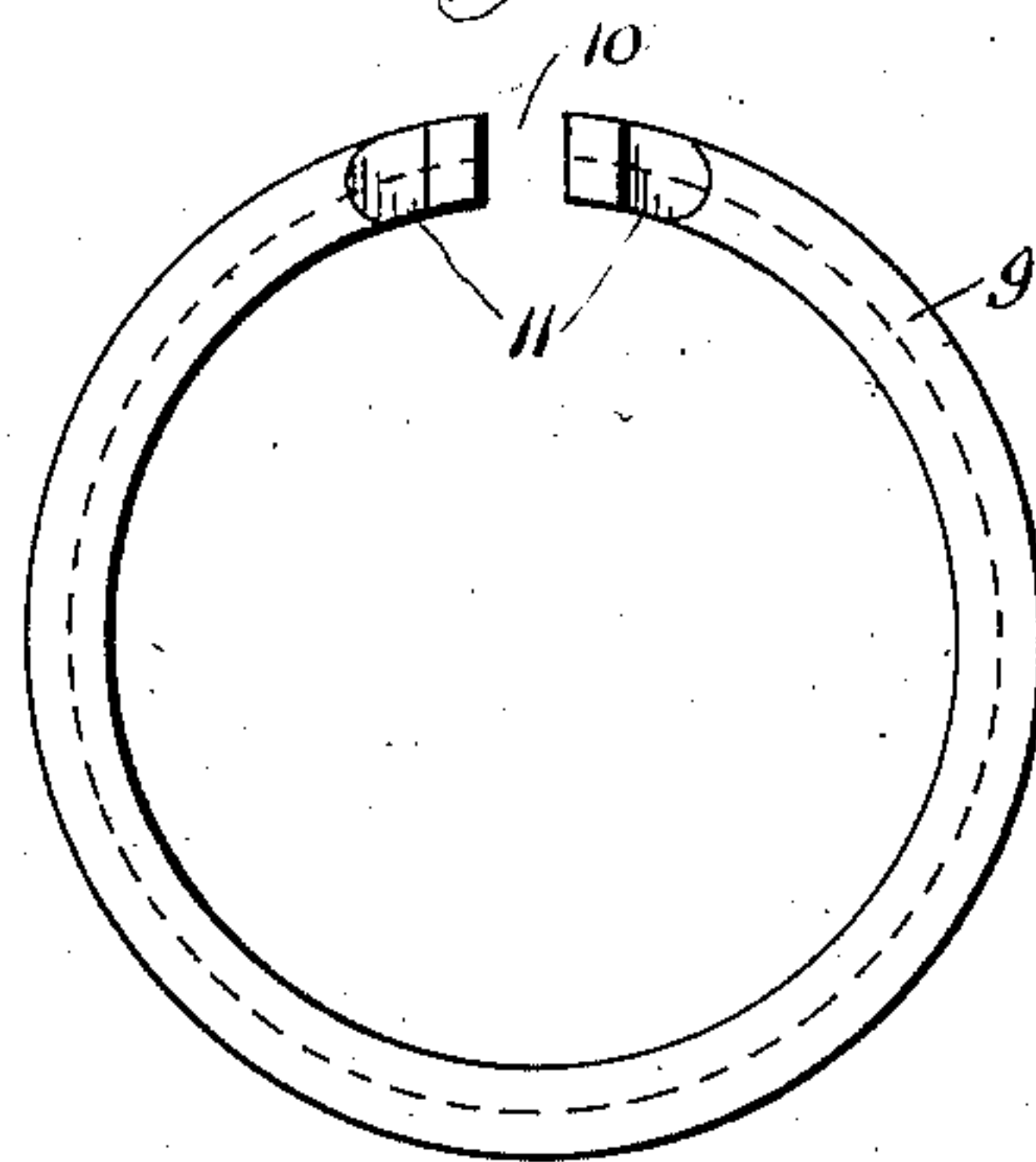
PATENTED JAN. 1, 1907.

A. LARSSON.  
TELEPHONE TRANSMITTER.  
APPLICATION FILED JAN. 23, 1906.

*Fig: 1.*



*Fig: 2.*



WITNESSES

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# UNITED STATES PATENT OFFICE.

ALFRED LARSSON, OF BUFFALO, NEW YORK.

## TELEPHONE-TRANSMITTER.

No. 840,069.

Specification of Letters Patent.

Patented Jan. 1, 1907.

Application filed January 23, 1906. Serial No. 297,425.

*To all whom it may concern:*

Be it known that I, ALFRED LARSSON, a subject of the King of Sweden, residing at Buffalo, New York, have invented certain new and useful Improvements in Telephone-Transmitters, of which the following is a specification.

My invention relates to improvements in telephone-transmitters, and embodies the several novel features and combinations of elements hereinafter described, and particularly pointed out in the appended claims.

The principal object of my invention is to provide means for retaining the telephone-diaphragm firmly in position, dispensing entirely with the use of screws for this purpose and employing an element as retaining means which exerts a uniform pressure upon the periphery of the diaphragm.

The second object of the invention is to afford the diaphragm protection against dust and moisture; and a further object is to provide within the transmitter itself a satisfactory and reliable spring contact for one of the electrodes.

In the accompanying drawings, wherein like reference characters refer to like parts throughout, I have illustrated the preferred form of my invention.

Figure 1 is a vertical sectional view of a telephone-transmitter, and Fig. 2 is a top plan view of the retaining means for the diaphragm.

Referring to the drawings, 1 indicates the transmitter-frame, to which the cap 2, carrying the mouthpiece 3, is suitably secured by screws 4. The transmitter-diaphragm is designated 5 and rests upon the plane under surface 6 of an interior annular groove 7, having an overhanging flange 8, beveled upon its interior face.

The means employed for keeping the diaphragm 5 upon its seat 6 comprise a resilient ring 9, open at 10 and provided near each end of the opening with an undercut portion 11, adapted to be engaged by a pair of pliers or like instrument. Upon its lower face the ring 5 is provided with an enlarged circumferential portion 12, presenting in cross-section a substantial ogee shape. The ring is adapted to be readily sprung into the annular groove 7 and to rest firmly upon the diaphragm 5, holding the latter in position.

13 represents a second diaphragm of suitable waterproof and flexible material, preferably

tin-foil, said diaphragm being situated over the transmitter-diaphragm 5 and the retaining element 9.

14 indicates carbon granules, which are inclosed upon one side by the diaphragm 5 and upon the other side by a carbon block 15.

16 represents a cap or holder suitably fastened to the transmitter-frame, 17 being a wall made of soft and flexible material, serving as a covering for the granules and carbon block.

18 is a metal screw to which the carbon 15 is secured by a countersunk screw 19, over which a felt washer 19<sup>a</sup> is placed, the screw 18 being insulated by means of a disk 20 and likewise having an insulating-cap 21, by means of which the screw 18 is insulated from the casing 22. Screw 18 is threaded within the socket 23, which also serves as insulating means.

As shown in Fig. 1, the screw 18 is longitudinally bored, a contact-pin 23<sup>a</sup> with a reduced point 24 being inserted into the bore. At the end opposite to the point 24 the pin 23<sup>a</sup> is reduced at 25, said reduced portion being surrounded by a spiral spring 26. At a point substantially intermediate its thick portion the pin 23<sup>a</sup> is provided with a collar 27, serving to keep the spring in place.

In inserting the pin 23<sup>a</sup> into the bore the edges 30 of the bore are turned in after the pin has been inserted, and thus the latter cannot easily work out of place.

In assembling the instrument the diaphragm 5 is positioned to rest upon the plane surface 6. Thereafter the retaining means 9 is pressed together by being grasped by pliers at the undercut ends 11 and then sprung into place over the diaphragm, the beveled portion of the overhanging flange 8 directing the element 9 downwardly into its proper place in the annular groove 7, with its lower edge resting upon the diaphragm 5. The tin-foil diaphragm 13 is then placed upon the upper face of the overhanging flange 8, the cap 2 placed thereon and screwed down, and the instrument made ready for use.

If the instrument is to be disassembled, the several parts are loosened in the reverse order from that in which they were put into place.

It is evident that if the transmitter is associated with a suitable holder which has a contact corresponding to the point 24 the point 24 will make a spring contact with the corresponding contact in such holder.



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

1. In a telephone-transmitter, the combination of a transmitter-diaphragm and means for retaining the same in position comprising a ring having an enlarged periphery adapted to rest upon the diaphragm.

2. In a telephone-transmitter, the combination of a transmitter-diaphragm and means for retaining the same in position comprising a resilient ring having an enlarged periphery adapted to rest upon the diaphragm.

3. In a telephone-transmitter, the combination of a transmitter-diaphragm, and means for retaining the same in position comprising a resilient ring having a depending periphery of enlarged diameter adapted to rest upon and exert uniform pressure upon the peripheral portion of the diaphragm.

4. In a telephone-transmitter, the combination of a transmitter-diaphragm, and means for retaining the same in position comprising a circular element having an open portion therein and having a periphery of enlarged diameter adapted to rest upon the diaphragm.

5. In a telephone-transmitter, the combination of a transmitter-diaphragm, and means for retaining the same in position comprising a resilient ring having an open portion therein and having an enlarged periphery, each end adjacent said open portion being undercut.

6. In a telephone-transmitter, the combination of a frame provided with an interior groove, a transmitter-diaphragm adapted to rest therein, and means for retaining the diaphragm in position comprising a resilient ring having an enlarged periphery adapted to rest upon the diaphragm.

7. In a telephone-transmitter, the combination of a frame, a groove therein having a plane lower surface and an overhanging beveled flange, a transmitter-diaphragm designed to rest upon the plane surface in said groove, and means for retaining the diaphragm in position comprising a resilient ring having an open portion therein and having a peripheral part of enlarged diameter.

8. In a telephone-transmitter, the combination of a frame, a groove therein, a diaphragm adapted to rest in said groove and means for retaining the diaphragm in position comprising a resilient ring having an open portion therein and having a peripheral part of enlarged diameter, each end of said ring adjacent the open portion being undercut.

9. In a telephone-transmitter, the combination of a frame, and inner groove therein, a diaphragm adapted to rest in said groove,

means for retaining said diaphragm in position, comprising a ring having an enlarged periphery adapted to rest upon the diaphragm, a dust and moisture excluding metal diaphragm arranged above said retaining means, and a transmitter-cap adapted to hold said dust and moisture excluding diaphragm in position.

10. In a telephone-transmitter, a diaphragm and a resilient ring for retaining same in position, said ring presenting, at its periphery, a substantially ogee shape in cross-section.

11. In a telephone-transmitter, a diaphragm and a resilient ring, for retaining the same in position, said ring presenting at its periphery, a substantially ogee shape in cross-section, and having an open portion, the ends adjacent said open portion being undercut.

12. In a telephone-transmitter the combination of a transmitter-diaphragm, means for retaining the same in position comprising a resilient ring having an enlarged periphery adapted to rest upon the diaphragm, and means for excluding moisture from said diaphragm comprising a second diaphragm of metal superimposed upon said retaining means.

13. In a telephone-transmitter, the combination of a transmitter-diaphragm, means for retaining the same in position comprising a resilient ring having an open portion therein and an enlarged periphery adapted to rest upon the diaphragm, and means for excluding moisture from said diaphragm comprising a second diaphragm of tin-foil superimposed upon said retaining means.

14. In a telephone-transmitter, a frame, a diaphragm within the frame, a carbon block below the diaphragm, a screw associated with said carbon block and a pin inserted longitudinally into said screw, said pin being retained within said screw by first being inserted therein and thereafter having the edges of the bore, wherein said pin is contained, turned in.

15. In a telephone-transmitter, a frame, a transmitter-diaphragm within the frame, a carbon block below the diaphragm, a screw held to said carbon block, a pin inserted into said screw and a spiral spring surrounding a part of said pin, said pin being retained within said screw by first being inserted therein and thereafter having the edges of the bore, wherein said pin is contained, turned in.

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

ALFRED LARSSON.

Witnesses:

KLAS WEMAN,  
HENRIETTA BABINGTON.