

(No Model.)

J. F. GILLILAND.
TELEPHONE TRANSMITTER.

No. 576,813.

Patented Feb. 9, 1897.

Fig. 1.

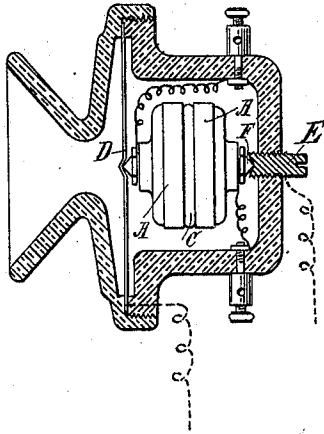


Fig. 2.

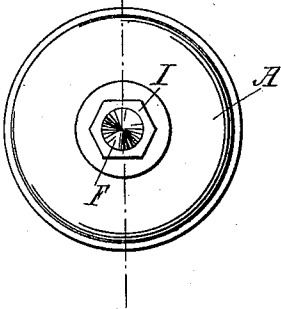
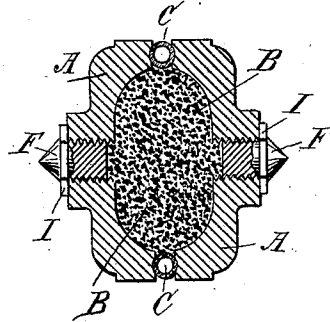


Fig. 3.



WITNESSES:

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JAMES F. GILLILAND, OF ADRIAN, MICHIGAN.

TELEPHONE-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 576,813, dated February 9, 1897.

Application filed December 21, 1895. Serial No. 572,844. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. GILLILAND, a citizen of the United States, and a resident of Adrian, in the county of Lenawee and State of Michigan, have invented a certain new and useful Telephone-Transmitter, of which the following is a specification.

My invention relates to electric telephone-transmitters, and more particularly to that class of transmitters in which a loose mass of granular or subdivided conducting material, such as carbon, is employed.

My invention relates especially to the construction of the containing chamber or cell inclosing the powdered or granular carbon or similar material and to the manner of mounting said chamber.

The invention consists, essentially, in making said chamber in two or more parts, which are fastened together at their edges to make a complete chamber by an elastic or yielding ring or washer. Said ring or washer may be of any yielding material which will permit the two or more halves or portions of the cell or chamber to move with relation to one another when the chamber is compressed between a suitable sound-receiving diaphragm or plate and a suitable back support or abutment, which latter may be rigid or may spring or yield, as may be desired.

I prefer to use rubber for the ring, and preferably employ a hollow ring sealed so as to act as a pneumatic cushion or damper.

On opposite faces of the chamber and preferably at or about the center are placed suitable bearings or means for supporting the chamber and making electrical connection therewith. These bearings are preferably conical bearings to afford a loose or free support for the chamber, whereby it may move readily and respond to sound-vibrations.

Having described the general nature of my invention, I will proceed to set forth one form of the same by reference to the accompanying drawings, in which—

Figure 1 is a section of an instrument, showing the chamber in position. Fig. 2 is a face view of the chamber. Fig. 3 is a central transverse section through the chamber.

A is a containing chamber or cell for the mass of carbon granules or powder B, which nearly or quite fills the chamber, but is capa-

ble of shifting its position in the hollow space provided for it. The chamber is made in two parts, preferably of the same form and size, though it is evident that they might be dissimilar. Each portion, as here shown, consists of a shallow cup or saucer shaped piece of carbon or similar material devoid of corners, in which the carbon powder or granules may become packed. The edges of the cups abut to form the hollow chamber and are fastened together by the ring C, which consists of a hollow endless tube of soft rubber seated in grooves in the edges of the two cups and cemented in said grooves by any suitable material, thus securing the two halves of the chamber together and also forming a seal to prevent the granules from escaping, while at the same time forming a yielding or elastic damper in the operation of the instrument. The chamber is supported between a diaphragm D and a suitable rear support or abutment E, as shown.

At opposite faces of the chamber are the bearings F F, preferably of metal, to assist in supporting the chamber in the manner shown. These bearings F are preferably conical in form, and each may consist of a metal screw or stud tapped into the carbon wall of the chamber A.

The conical studs rest in depressions in the diaphragm and in the abutment E, the latter consisting, preferably, of a set or adjustment screw which may be mounted in the rear wall of the instrument or on any other suitable rigid or spring support.

The electrical connections may be made by wires fastened under heads I upon the ends of the studs or bearings, as shown, but it is evident that the connections may be made through the diaphragm and the metal support E, as indicated by the dotted lines. The bearings are designed to afford a loose or free support for the chamber, whereby it may more readily be affected by all kinds of vibrations and may readily or freely change its position to prevent packing of the carbon powder or granules.

I do not limit myself to cementing the ring C, though it is preferable to use it as a means for securing the two portions of the chamber together in transportation or handling of the chamber when not in place in the case. When

the chamber is supported or compressed in the position shown, it is obvious that the two portions of the chamber will be prevented from falling apart and the ring will operate as a damper and to allow the two halves to move freely to and from one another even if the ring is not cemented. I prefer, however, to fasten them together by the yielding ring.

I do not limit myself to the use of the rubber ring, since other yielding or elastic material may be employed. Nor do I limit myself to the use of a hollow ring. A ring of soft or loose yarn or of soft blotting-paper could be employed instead of the rubber ring.

It will be observed that a granule-containing chamber constructed and mounted as herein shown and described constitutes in effect a compressible tension or resistance varying button and may be used as such in various forms of telephone-transmitter either with or without the metal bearings.

What I claim as my invention is—

1. The combination with the saucer-shaped electrodes provided with a groove about the facing edges, of a resilient non-conducting ring located in said grooves, granular conducting material confined between said electrodes, and opposite axial bearings for sup-

porting the united electrodes, substantially as and for the purpose set forth.

2. The combination with the diaphragm provided with the conical bearing and the adjustable abutment provided with a conical bearing, of the two electrodes provided with axial cones fitting said bearings, the resilient non-conducting connection between the edges of the electrodes, and the granular conducting material confined between the electrodes, as and for the purpose set forth.

3. In a telephone-transmitter, the combination with the diaphragm, of saucer-shaped carbon electrodes, a resilient non-conducting ring cemented between the edges of said electrodes, granular conducting material confined between said electrodes, and means for axially supporting the combined electrodes between the center of the diaphragm and the transmitter-case, as and for the purpose set forth.

Signed at New York, in the county of New York and State of New York, this 18th day of December, A. D. 1895.

JAMES F. GILLILAND.

Witnesses:

WM. H. CAPEL,
D. H. DECKER.