

(No Model.)

C. CLAMOND.
TELEPHONE TRANSMITTER.

No. 541,037.

Patented June 11, 1895.

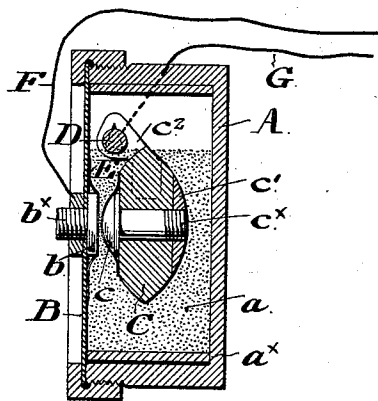


FIG. 1.

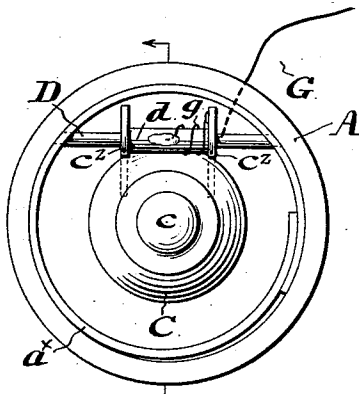


FIG. 2.

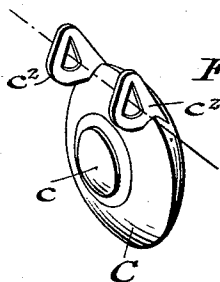


FIG. 3.

FIG. 5.

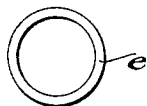


FIG. 6.

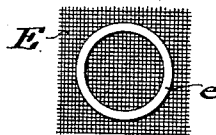
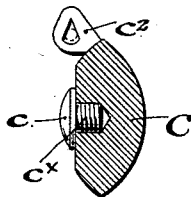


FIG. 4.



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UNITED STATES PATENT OFFICE

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TELEPHONE-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 541,037, dated June 11, 1895.

Application filed March 20, 1895. Serial No. 542,446. (No model.)

To all whom it may concern:

Be it known that I, CHARLES CLAMOND, a citizen of the Republic of France, and a resident of Paris, in the Department of the Seine, Republic of France, have invented certain new and useful Improvements in Telephone-Transmitters, of which the following is a specification.

My invention relates to apparatus for telephonic transmission in which plastic viscid conducting paste of the character set forth in United States Letters Patent No. 486,244, granted to me November 15, 1892, constitutes a microphonic element.

My invention is conveniently embodied in such telephonic transmitting apparatus as is represented in the accompanying drawings, and hereinafter described. The particular subject-matter which I claim as novel is definitely set forth in the claiming clauses.

In the drawings, Figure 1 is a central vertical side sectional elevation through a micro-telephonic transmitter embodying my improvements. Fig. 2 is a front elevational view of the transmitter represented in Fig. 1, the diaphragm being supposed to be removed. Fig. 3 is a view in perspective of the pendulous electrode removed from the casing. Fig. 4 is a central vertical side sectional elevation of a slightly-modified form of said pendulous electrode. Fig. 5 is a plan view of a ring of paper or equivalent material by the aid of which I find it convenient to apply to the electrodes the insulating-covering hereinafter referred to. Fig. 6 is a similar view of a patch of any preferred insulating fabric to be employed as said insulating-covering.

Similar letters of reference indicate corresponding parts.

In the drawings, A represents the shell or casing of the transmitter which may be of any preferred insulating material and of cylindrical or other desired form. The casing is chambered out or made hollow to adapt it to serve as a receptacle to contain the pendulous electrode C hereinafter referred to, and a quantity of plastic viscid conducting paste *a* of the character set forth in my Patent No. 486,244, referred to, by which the pendulous electrode is encompassed. The open front of the casing is closed by a sound-receiving vi-

bratory diaphragm B, of mica, sheet metal, or other suitable material, which is centrally provided with a vibratory electrode conveniently constituted by a disk of brass or other material which may be applied to the diaphragm by means of a screw shank *b*^x or in any other desired manner.

C is what I, for convenience of description, term the pendulous electrode, the same being conveniently made in the button-like form represented in the drawings, of lead or other ponderous conducting material, and provided as to its face which opposes the diaphragm with a knob *c* of brass or other suitable conductor fixedly secured to it in any convenient manner. This knob may be considered as the pendulous terminal or terminal proper of the pendulous electrode, in the same sense that the disk *b* may be considered as the vibratory terminal or terminal proper of the diaphragm or vibratory electrode,—and its application to the pendulous button of which it forms an integral part may be such as convenience of manufacture may dictate.

I have shown the knob *c* in Fig. 1 as secured by being provided with a screw shank *c*^x which passes axially through the pendulous electrode and is armed with a nut *c*['] at the rear face thereof, and in Fig. 4 as secured by being provided with a screw shank which screws into a threaded socket in the substance of the button and does not pass entirely through it.

The pendulous electrode is for the purpose of its suspension conveniently provided as to its upper portion with a pair of corresponding preferably parallel and vertically-disposed hollow lugs or ears *c*².

D is a suspending rod transversely disposed within the upper portion of the casing preferably in a horizontal position and in a plane parallel with that of the diaphragm. This rod which passes through the hollow lugs of the pendulous electrode serves to support the latter, and is intentionally applied at such a distance from the diaphragm that the normal tendency of the pendulous electrode is to move toward the diaphragm, contact with the terminal *b* of which is, however, prevented by the intervention of a layer of the viscid paste which envelops the pendulous electrode and

at all times prevents direct contact between the opposing conducting terminals of the pendulous and the vibratory electrodes.

The application of the suspending rod to the casing may be effected in various ways. I find it convenient to provide the casing with a circular retaining ring a^x of resilient metal adapted to be sprung into the cavity of the casing, within suitably disposed apertures in which ring the ends of the suspending rod are entered.

To secure retention of the ring in the desired position, I prefer to form it as a split ring normally of greater diameter than that of the hollow interior of the casing, and by overlapping its ends compress it to the proper diameter to cause it, when introduced within the casing, to retain itself therein by its expansion. I also, in order to insure the lateral centering of the pendulous electrode with respect to the diaphragm, prefer to apply to the suspending rod a hollow metal sleeve d , which I term the centering sleeve, and which is as long as the space between the ears of the pendulous electrode, and of a diameter sufficiently great to prevent its passing through the openings in the ears. When this sleeve has been placed between the ears and the rod slipped through both it and the ears, it may be fixed to the rod by a rivet, screw, or other fastening device.

In order to prevent any possible metallic contact between the vibratory and pendulous electrodes, that is to say, between the terminals respectively constituted by the disk b and the knob c with which said electrodes are respectively provided,—I cover both the disk and the knob, or either one of them, with a patch of silk gauze or bolting cloth E , or equivalent material.

A convenient way of applying and securing the gauze is by pasting a ring of paper e upon a flat patch of gauze, as shown in Figs. 5 and 6, then trimming off the portions of the gauze beyond the periphery of the ring, and then glueing or cementing the gauze-provided ring to the inner face of the diaphragm and another to the front face of the pendulous electrode.

The connections with the line are by the conducting wire F from the vibratory electrode, and by the conducting wire G from the pendulous electrode.

To insure effectual electrical connection of the wire G with the vibratory electrode, I not only connect the inner end of the wire G directly to the suspending rod G , but I also provide a supplemental conductor g loosely wound in spiral form around the centering

sleeve of the rod and fixedly connected at one extremity with said sleeve and at the other extremity with one of the ears of the pendulous electrode. Not being tightly wound this supplemental conductor, of course, opposes no obstacle to the oscillation of the pendulous electrode.

It will, of course, be understood that the employment of a supplemental diaphragm to act as a sound-receiving diaphragm in front of the diaphragm B , will in no wise alter or modify the invention.

Having thus described my invention, I claim—

1. In a telephonic transmitter, a pendulous electrode suspended within plastic viscid microphonic conducting paste, in combination with a vibratory diaphragm electrode between which and the suspended electrode the paste intervenes.

2. In a telephonic transmitter, the combination of a vibratory diaphragm electrode,—a pendulous electrode contained within a receptacle adjacent to said diaphragm,—the receptacle aforesaid,—and a plastic viscid conducting paste also contained within said receptacle, enveloping said pendulous electrode, and intervening between it and the vibratory electrode,—substantially as set forth.

3. In a telephonic transmitter, the combination of a vibratory diaphragm electrode,—a pendulous electrode contained within a receptacle adjacent to said diaphragm,—an insulating covering applied to the terminal of one of said electrodes,—the receptacle aforesaid,—and a plastic viscid conducting paste also contained within said receptacle, enveloping said pendulous electrode, and intervening between it and the vibratory electrode,—substantially as set forth.

4. In a telephonic transmitter,—in combination with a casing or kindred receptacle the front of which is closed by a vibratory diaphragm electrode, and which contains plastic viscid conducting paste,—a pendulous electrode suspended within said casing and normally tending to make contact with the vibratory electrode, but prevented from so doing by the paste which envelope it and intervenes between it and the vibratory electrode,—substantially as set forth.

In testimony that I claim the foregoing as my invention I have hereunto signed my name this 8th day of March, A. D. 1895.

CHARLES CLAMOND.

In presence of—

O. KERR,
CLYDE SHROPSHIRE.