(No Model.)

T. A. EDISON.

ELECTRODE FOR TELEPHONE TRANSMITTERS.

No. 348,114. Patented Aug. 24, 1886.

Fig. 1.

Fig. 2.

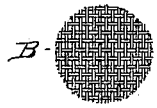


Fig. 3.

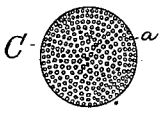
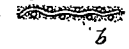


Fig. 4.

Fig. 5.



ATTEST

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INVENTOR:

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Atty's

UNITED STATES PATENT OFFICE

THOMAS A. EDISON, OF MENLO PARK, NEW JERSEY.

ELECTRODE FOR TELEPHONE-TRANSMITTERS.

SPECIFICATION forming part of Letters Patent No. 348,114, dated August 24, 1886.

Application filed October 14, 1885. Serial No. 179,869. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, have invented a certain new and useful Improvement in Electrodes for Telephone-Transmitters, of which the following is a specification.

This invention relates to the carbon electrodes or buttons for telephone-transmitters; and its object is to increase the effectiveness in use of such electrodes.

The carbon button of my invention consists of a base of textile or woven fabric (or of a certain equivalent material, hereinafter described) whose meshes are filled or impregnated and whose surfaces are covered with lamp-black, plumbago, or carbon in any other suitable form. The fabric may be fine wire-gauze, or any material woven from animal or vegetable fiber. I prefer to use veiling or other cloth of a similar texture. A flat piece of the material chosen, of the proper size for the carbon button, and usually of circular form, is laid upon a quantity of the powdered carbon, and more of the carbon is then placed upon the flat piece. Pressure is then applied in any suitable manner to the carbon and fabric, and the carbon is thus forced into the meshes or interstices of the fabric and fills the same, so that the fabric is thoroughly impregnated with the carbon and is covered on each side with a layer of carbon. For some forms of carbon a suitable glutinous or sticky material is employed to unite the carbon particles. With lamp-black, however, no such thing is required. I have found that carbon buttons of this character are more effective in use than those composed wholly of carbon, and I think the reason for this is that at those parts of the button where the carbon lies upon the threads or wires of the fabric the surface is higher than at those parts where it is forced into the meshes between the threads, and therefore the surface of the button is provided with a great number of minute raised contact parts, whereby better contact is attained with the opposing surface than where the button has a perfectly-flat surface.

I prefer the fabric of animal or vegetable fiber to the metal gauze, because the wires of the latter are smooth and slippery and do not retain the carbon upon their surfaces under pressure, like the threads of the former.

Instead of the textile fabric I may employ a disk of thin paper perforated with a large number of small holes so thickly that its structure is similar to that of a woven fabric. This evidently may be considered the equivalent of the textile fabric. The carbon is pressed into the apertures and remains upon the surface of the intermediate paper in the same manner as above described.

The base of textile fabric, or its equivalent, holds the carbon together, so that the whole forms an integral structure.

My invention is illustrated in the accompanying drawings, in which Figure 1 represents a piece of animal or vegetable fabric for the base of a carbon button; Fig. 2, a piece of wire-gauze for the same purpose; Fig. 3, a piece of perforated paper for the same purpose; Fig. 4, a complete carbon button, and Fig. 5 is an exaggerated sectional view of such carbon button.

A is a circular disk cut from a piece of veiling or similar fabric; B, a disk of wire-gauze; C, a disk of paper closely perforated with a large number of minute apertures, *a*. The piece of one or another material is placed between layers of carbon, and the whole is pressed into an integral structure, as above set forth.

The carbon *b*, covering the fabric and filling its interstices, is shown in an exaggerated manner in Fig. 5, and the complete carbon button D is seen in Fig. 4.

In my Patent No. 203,015, of April 30, 1878, is set forth a carbon electrode composed of a number of fibers, each separately covered with carbon and all rolled into a wad or tuft. My present invention, however, provides a better construction, inasmuch as it produces a flat button, which is more convenient in use and can be substituted in any ordinary telephone for the usual carbon button, and does not require a binding to hold it together. The present method of manufacture also is much more simple and economical than that required to produce the article set forth in the patent referred to.

What I claim is—

1. An electrode for a telephone-transmitter, consisting of a flat piece of textile fabric, or

its equivalent, impregnated and covered with carbon, substantially as set forth.

2. An electrode for a telephone-transmitter, consisting of a flat piece of animal or vegetable fabric, or its equivalent, impregnated and covered with carbon, substantially as set forth.

3. An electrode for a telephone-transmitter, consisting of a flat piece of veiling impregnated and covered with carbon, substantially as set forth.

4. An electrode for a telephone-transmitter, consisting of a flat piece of textile fabric, or its equivalent, impregnated and covered with lamp-black, substantially as set forth.

5. The method herein described of forming an electrode for a telephone-transmitter, consisting in placing a piece of textile fabric between layers of carbon and pressing the whole together.

This specification signed and witnessed this 12th day of January, 1885.

THOS. A. EDISON.

Witnesses:
A. W. KIDDLE,
E. C. ROWLAND.