(No Model.)

F. BLAKE.

SPEAKING TELEPHONE.

No. 395,476. Patented Jan. 1, 1889.

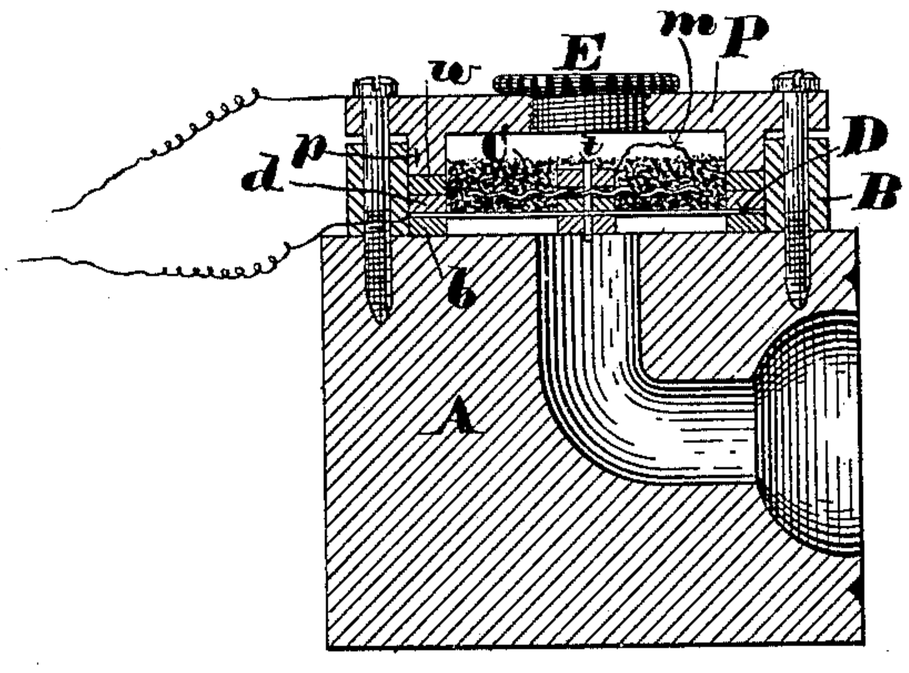

Fig. 1.

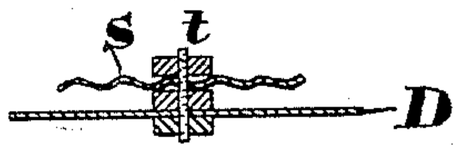

Fig. 2.

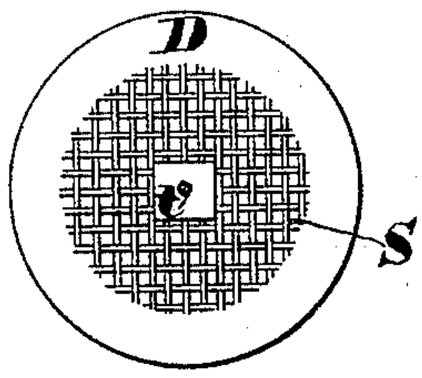

Fig. 3.

WITNESSES:

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FRANCIS BLAKE, OF WESTON, MASSACHUSETTS.

SPEAKING-TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 395,476, dated January 1, 1889.

Application filed August 14, 1886. Serial No. 210,876. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS BLAKE, of Weston, Massachusetts, have invented a new and useful Improvement in Speaking-Telephones, of which the following is a specification.

The invention relates to that class of transmitters in which the variable-resistance portion of the circuit consists of a powdered or granulated material resting loosely upon a horizontal diaphragm used as one of the electrodes.

It consists in the combination, with the horizontal diaphragm thus used as an electrode and carrying such powdered or granulated material loosely upon its upper surface, of a second electrode, being of larger cross-section, in constant contact with said granulated material and having free edges, but mechanically connected at its center with the center of the diaphragm, to vibrate with it.

The invention may be put in practical form, as will hereinafter appear, by making a slight modification in the instrument described and shown in my Patent No. 314,312, dated March 24, 1885.

In the drawings, Figure 1 is a sectional elevation of a telephone-transmitter embodying the said invention. Figs. 2 and 3 are respectively a sectional elevation and a plan of the second electrode and diaphragm, showing the manner in which they are connected.

A is a block of wood supporting the telephone and containing the aperture *a*, through which speech is uttered.

B is a ring of non-conducting material, and *b* is a metallic ring resting on the block A within the ring B.

D is a metallic diaphragm resting at its edges upon the ring *b*, and *d* is a second metallic ring resting on the diaphragm, while *w* is a ring of non-conducting material resting on ring *d*.

P is a metallic clamping-plate having a ring projection, *p*, that rests upon ring *w*.

S is the second electrode, rigidly secured to the diaphragm by a threaded pin, *t*, of non-conducting material and three nuts. (Not lettered.)

In the construction shown the second electrode is made of wire gauze or netting; but a disk of metal, or metal in any form, having a large cross-section buried in the granulated material and rigidly connected with the diaphragm at its center would answer for the present invention.

The several rings *b*, *d*, *w*, and *p* and the diaphragm have all the same diameter, and the instrument is held together by screws passing through plate P and ring B into block A.

C is the granulated material. It is poured into the instrument through a hole in clamping-plate P, which is closed by a screw-plug, E.

As before stated, this instrument, above described as embodying the present invention, closely resembles in construction the telephone-transmitter described and shown in my Patent No. 314,312, dated March 24, 1885. The second electrode of the present application, however, differs from that of my said patent, in not having its edges clamped.

A battery-wire clamped between metallic rings *b* and *d* makes connection with the diaphragm electrode, while the other battery-wire is attached, as shown, to one of the clamping-screws and makes connection with the second electrode through that screw, clamping-plate P, ring *p*, and a wire, *m*, clamped between ring *p* and ring *w*, the other end of which is clamped between one of the nuts and the electrode.

The granulated material, being carried by the diaphragm, is in an exceedingly thin layer, so that it is thrown up by the diaphragm at each vibration, and there is less tendency to pack than when it is not so carried.

I claim—

In a telephone employing a granulated conducting material—as the variable-resistance portion of a circuit—a transmitting-diaphragm carrying said granulated material loosely upon its upper surface, of a second electrode of large cross-section buried in said granulated material and mechanically connected with the center of the diaphragm to vibrate with it, the said second electrode having free edges, substantially as described.

FRANCIS BLAKE.

Witnesses:
C. W. HUNTINGTON,
WM. S. ROGERS.