No. 659,691. Patented Oct. 16, 1900.

G. B. PERKINS.

TELEPHONE TRANSMITTER.

(Application filed Jan. 16, 1900.)

(No Model.)

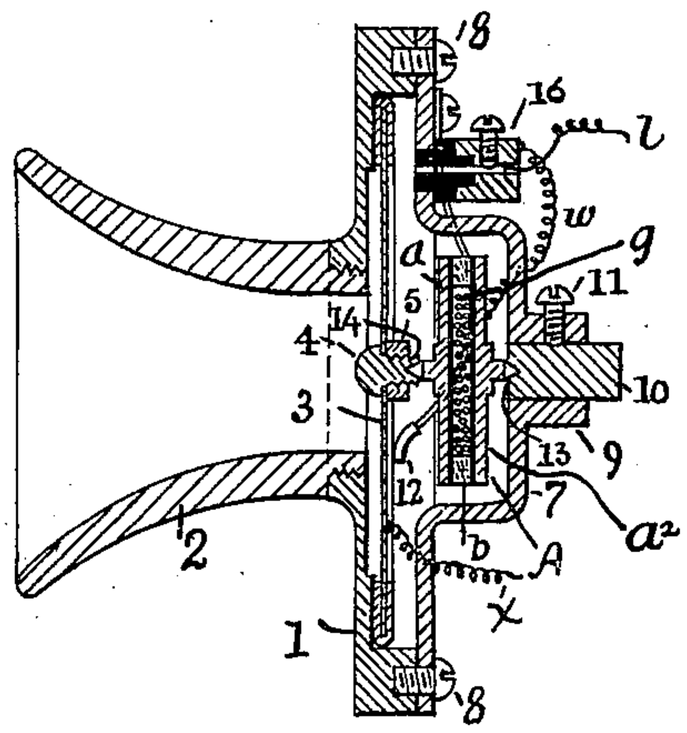

Fig. 1.

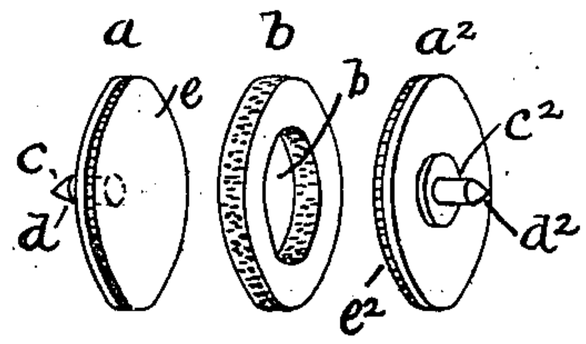

Fig. 2.

Witnesses.
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UNITED STATES PATENT OFFICE.

GEORGE B. PERKINS, OF MEDFORD, MASSACHUSETTS.

TELEPHONE-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 659,691, dated October 16, 1900.

Application filed January 16, 1900. Serial No. 1,642. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. PERKINS, residing at Medford, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Telephone-Transmitters, of which the following is a specification.

The present invention relates to telephone-transmitters or microphones, termed "long-distance" instruments, which employ a button of powdered or granular carbon in a loose and free state as the current-varying medium; and the invention relates specifically to the button or shell which constitutes the electrodes and which incloses the granular material and to the mode of its connection in the circuit, all of which I will proceed to describe, and point out in the appended claim.

Figure 1 of the drawings, which form a part of and illustrate this specification, is a section of a long-distance telephone-transmitter, and Fig. 2 shows the parts of the button detached from one another.

In the drawings, 1 is a metal frame or body, secured to which is the usual mouthpiece 2, the frame being open in its rear side and hollowed out to form a seat for the diaphragm 3 and also a resonating-chamber, as is usual.

7 is a bridge-piece extending across the rear of the open frame 1 and secured to the edges thereof by the screws 8. The bridge 7 has a hub 9 central thereof, in which is fitted the cylinder 10, which is adjusted and secured by the set-screw 11, and at the inner end of the cylinder is a beveled hole or bearing 13.

4 is a pin whose shank is screw-threaded and which extends through a hole in the center of the diaphragm and is secured by a nut 5 on the inner side. The inner end of the pin has a beveled bearing 14.

A is the button and consists of two electrodes formed of thin metal disks a and a^2, each having a spindle c and c^2, respectively, projecting from the center outwardly with pointed or beveled ends d d^2. Secured to the inner surface of each disk is a thin plate of carbon e, which covers the whole of said surface, so that the carbon plates are of the same diameter as the metal disks. The metal disks are of the same thickness from their centers to their circumferences.

b is an annulus or ring having square corners or edges, which may be cut or formed from a sheet of felt, light porous cloth, or other similar material whose outer surfaces are smooth or glazed and whose texture is of a sufficiently open and elastic or resilient nature to permit the ring to resume its normal thickness after being compressed, and yet sufficiently open to allow the escape of any gases that are sometimes generated by the passage of electricity through the granules g of carbon, which are located in the open part or cavity of the ring. One of the smooth faces of the ring b is cemented to the outer edge of one of the carbon plates e. The carbon granules are then poured into the cavity formed by the center of the ring, and then the other face of the ring is cemented to the outer edges of the second carbon plate e^2. To insure that there shall be a perfectly-cemented joint between the ring and the disks or electrodes a, it is necessary that the outer faces of the ring shall be smooth or glazed, as stated, and also for the same purpose it is required that the ring shall be cemented to the carbon and not to the metal. When the button is thus assembled, one of its spindles c is inserted in the bearing 14 of the pin 4 and the other spindle inserted in the bearing 13 in the cylinder 10. The latter is then adjusted and secured by the screw 11, which is also the tension-regulator for the transmitter.

12 is the damping-spring, pressing upon the diaphragm and secured to the frame 1.

The circuit through the transmitter will be from the wire x, diaphragm 3, pin 4, electrode a, granules g, electrodes a^2 to post 16 and out by wire 1. The wire x can of course be soldered to the electrode a directly. The button A can be easily transported, taken out from its bearings, and quickly renewed.

Having now described the invention, I claim—

The combination in a telephone-transmitter of a flat circular metal frame hollowed out to form a diaphragm-seat; a diaphragm having a bearing at its center, consisting of a pin whose shank extends through the diaphragm and is secured by a nut; a bridge extending across the rear of the frame and having an adjustable bearing and tension-regu-

lator centrally thereof; with a button suspended between the said bearings, consisting of two thin metal disk electrodes with outwardly-projecting spindles, and faced with carbon plates, separated by and cemented to a porous resilient annulus having smooth faces, the said annulus containing granulated carbon in a loose and free state, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 13th day of January, 1900.

GEORGE B. PERKINS.

Witnesses:
A. A. CUMING,
A. E. CUMING.