

(No Model.)

G. A. TOWER, M. HUNTER & J. P. EASTWOOD.
TELEPHONE.

No. 546,965.

Patented Sept. 24, 1895.

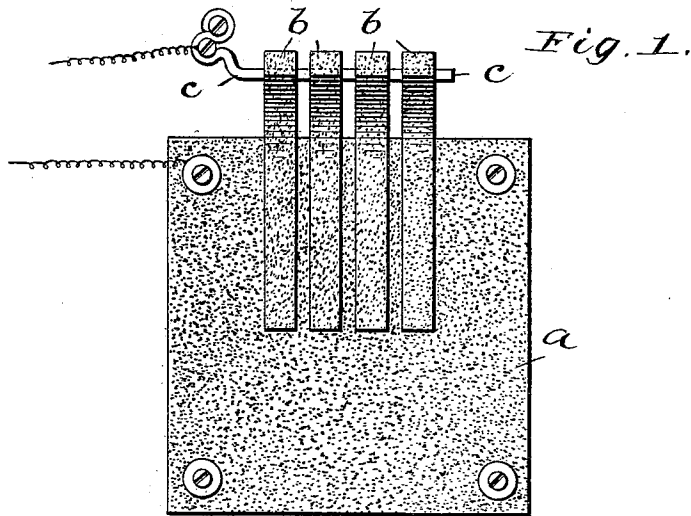
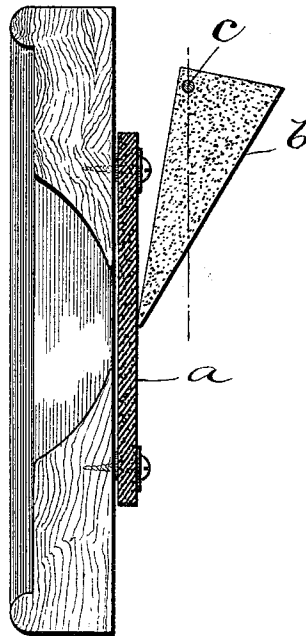


Fig. 2.



Witnesses
Chas. A. [Signature]
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UNITED STATES PATENT OFFICE.

GEORGE A. TOWER, MAURICE HUNTER, AND JOSEPH POWELL EASTWOOD,
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TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 546,965, dated September 24, 1895.

Application filed December 20, 1894. Serial No. 532,471. (No model.)

To all whom it may concern:

Be it known that we, GEORGE A. TOWER, MAURICE HUNTER, and JOSEPH POWELL EASTWOOD, citizens of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented certain new and useful Improvements in Telephones, of which the following is a specification, reference being had therein to the accompanying drawings.

In the drawings, Figure 1 is a rear view of the diaphragm with the pendants in position, and Fig. 2 is a vertical section of the front portion of the transmitter-box.

This invention has reference to a transmitter of the type wherein the modifications in the current are produced by changes in the resistance of the electrodes, which consist of carbon or other low-resistance plates; and the object of these improvements is to produce a transmitter which shall possess the advantages of compactness, durability, and simplicity in a high degree, and which shall at the same time be delicate in operation, so as to efficiently reproduce the fine variations in sound-waves, as more fully hereinafter set forth.

The preferred form of our transmitter is shown in the accompanying drawings, in which the letter *a* designates the diaphragm, which consists simply of a carbon plate secured over the opening in the front of the transmitter-box and having attached to it one of the conductors, and *b* a series of carbon pendants pivotally hung behind the diaphragm and adapted to normally bear against the same at or near its middle. Each of these pendants is approximately triangular in shape, and is pivotally supported on a horizontal rod *c* at or near its front upper corner, the perpendicular of the triangle being its front edge, the base its upper edge, and the hypotenuse its rear edge, the greater part of the mass of carbon being disposed to the rear of a vertical line passing through the pivotal point, to thereby cause the lower tapered end of the plate to normally swing forward and rest lightly against the diaphragm. The rod *c* is attached to a convenient part of the trans-

mitter-box and lies in the rear of and above the upper edge of the diaphragm, and the plates are separated and hang in parallelism. The other conductor is connected to the pendants through the supporting-rod. It will be observed that as all the pendants are out of contact and have an independent movement they are therefore in multiple and will divide the current, each pendant taking its quota.

The essential advantages of our construction are, first, simplicity of construction, one of the carbon electrodes acting, also, as the diaphragm; secondly, compactness, the working parts being arranged close up to the door of the transmitter-box; thirdly, durability, there being no electrodes fastened to the diaphragm or pendants by glue, screws, or otherwise to come loose; fourthly, permanency of adjustment, the pressure of the pendant electrodes against the diaphragm being delicately regulated by simply filing off the triangles either in front of the pivotal point or in the rear thereof, according as the pressure is too light or too strong, which once done is done for all time; fifthly, freedom from dust accumulation on contact-points, the construction being such that there are no ledges for dust to lodge upon, and, sixthly, the avoidance of all rattling and jumping during loud talking, the inertia due to the comparatively large amount of carbon in the pendants accomplishing this much-desired result without at the same time (by reason of the disposition of the mass in each pendant) destroying the delicacy of pressure against the diaphragm. The essential feature of this invention, therefore, lies in pivotally hanging one or more carbon electrodes in the rear of a carbon (or other low resistance) diaphragm in a such manner that the preponderance of weight in the electrodes will fall to the rear of the pivot, and thereby cause the electrodes to swing forward by gravity and bear lightly against the diaphragm, whereby the above advantages are secured.

Having thus fully described our invention, what we claim is—

In a telephone transmitter, the combination of a support having an opening, a plate of carbon secured rigidly over the opening and

forming the diaphragm, a horizontal rod supported in the rear of the diaphragm, a series of pendent carbon electrodes pivotally hung from said rod and normally bearing against
5 the diaphragm at or near its center, each of said pendants being approximately triangular in shape and having the supporting rod passing through it near its upper front corner, the perpendicular of the triangle being
10 its front edge, the base its upper edge and the hypotenuse its rear edge, the preponderance of weight being disposed to the rear of its pivot, one of the conductors being connected to the diaphragm and the other to the rod

supporting the pendant, substantially as described. 15

In testimony whereof we affix our signatures in presence of witnesses.

GEO. A. TOWER.

MAURICE HUNTER.

JOSEPH POWELL EASTWOOD.

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