

(No Model.)

M. A. MOREHOUSE.
TELEPHONE TRANSMITTER.

No. 530,115.

Patented Dec. 4, 1894.

Fig. 2.

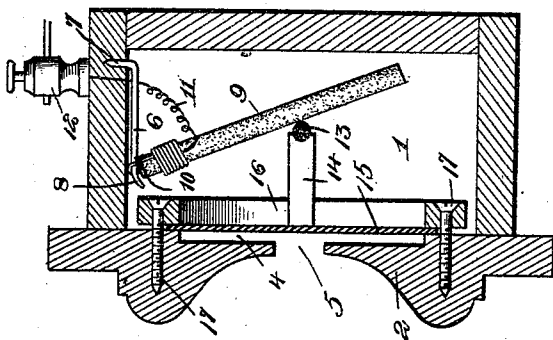
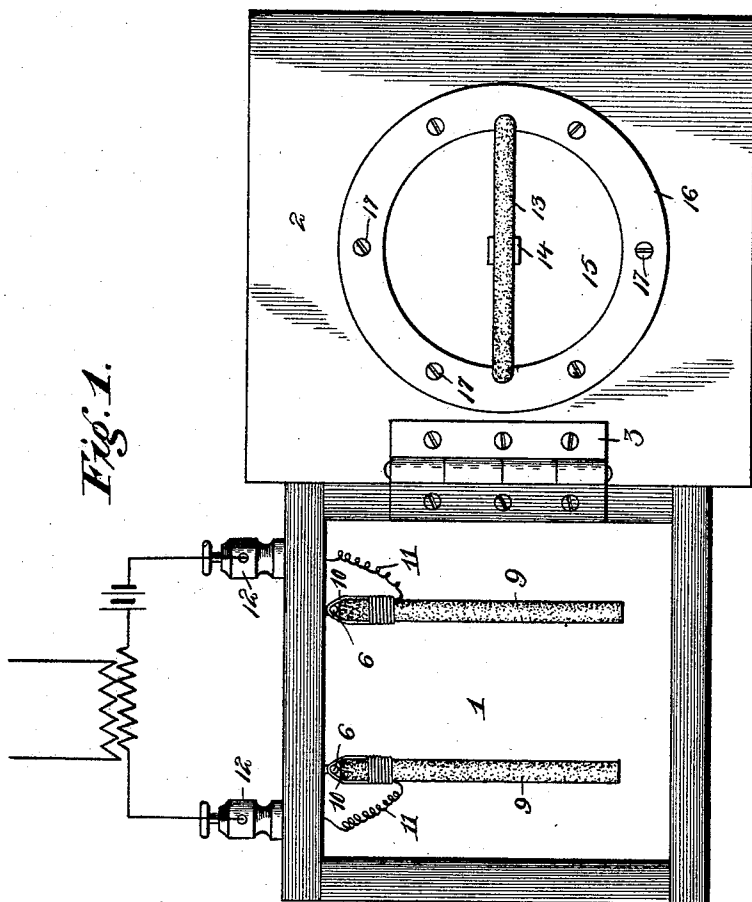


Fig. 1.



Inventor

Witnesses

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TELEPHONE-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 530,115, dated December 4, 1894.

Application filed March 28, 1894. Serial No. 505,457. (No model.)

To all whom it may concern:

Be it known that I, MILES A. MOREHOUSE, a citizen of the United States, residing at Wevertown, in the county of Warren and State of New York, have invented a new and useful Telephone-Transmitter, of which the following is a specification.

This invention relates to telephone transmitters; and it has for its object to effect certain improvements in telephone transmitters whereby the same shall be susceptible to the faintest sounds, and, therefore, have a high degree of sensitiveness, while at the same time being capable of receiving heavy sounds without being in the least injured.

To this end the main and primary object of the present invention is to construct a simple and efficient telephone transmitter, which shall embody the sensitive and desirable features of the microphone, whereby the transmitter will successfully reproduce all sound within the range of the human ear while at the same time retaining all the delicacy and power of the microphone, and thereby rendering telephonic transmission more successfully and practically accomplished.

With these and many other objects in view which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the accompanying drawings:—Figure 1 is a front elevation of a telephone transmitter constructed in accordance with this invention, the door of the transmitter box being shown open. Fig. 2 is a central vertical sectional view of the transmitter, all of the parts of which are shown in operative connection.

Referring to the accompanying drawings, 1 designates a transmitter box of the ordinary construction, that is open at its front side and is adapted to be inclosed by the box door 2, hinged at one edge on the hinge 3, to one side edge of the transmitter box, and said door 2 is provided at its inner side with the recess 4, and with the central sound opening 5, with which all ordinary transmitters are provided to admit of the free passage of the sound waves to the diaphragm of the transmitter.

Arranged within the top of the transmitter box 1, are the parallel supporting wires 6, se-

cured fast at their inner ends as at 7, into the box and extending transversely of the box toward the open front thereof, and said supporting wires 6, are disposed horizontally and are provided with downturned front ends or extremities 8, to provide for the ready attachment and detachment of the loosely suspended or pendent electrodes 9.

The loosely suspended or pendent electrodes 9, are preferably made of sticks or pencils of carbon and have attached to the upper ends thereof the silk or other suitable suspending cords 10, which loosely engage over the supporting wires 6, and provide means for loosely suspending the electrodes within the box from their upper ends, and also admitting of the transverse adjustment of the electrodes between the front and rear sides of the transmitter box as may be found necessary, while the transmitter is in service. The loosely suspended or pendent electrodes have suitably connected with the same near their upper ends the conducting coils 11, that are made of extremely fine and flexible wire so as not to interfere with the free adjustment and movement of the electrodes, and said coils 11 are connected at one end to the binding posts 12, secured to the top of the transmitter box and having the ordinary local circuit connections therewith, as shown in Fig. 1, of the drawings.

The pair of pendent electrodes 9, are adapted to be electrically connected or to have the circuit closed therethrough by means of the transverse electrode bar 13, that is also made of a round stick or pencil of carbon, and in the present invention is cemented or otherwise suitably secured to one end of the off-standing supporting arm 14, the other end of which is secured to the inner side of the vibrating disk or diaphragm 15.

The vibrating disk or diaphragm 15, is made of the usual diaphragm material that is employed in microphones and telephone transmitters, and which is adapted to be affected or vibrated by the sound waves that enter the front sound opening 5, of the transmitter box. The vibrating disk or diaphragm 15, is fitted over the inner recess 4, so as to be left perfectly free for its vibrations, and is securely fastened to the inner side of the door 2, by means of the clamping ring 16, made of wood

or other suitable material and detachably secured to the door by the screws 17 passing therethrough.

When the box door 2, is closed, the transmitter is ready for operation, and the transverse electrode bar 13, is held in a position within the transmitter box at one side of and directly in contact with the loosely suspended or pendent electrodes 9, so that the circuit will be closed between these two electrodes, while at the same time providing means for disturbing the electrical contact between the electrodes and said bar 13 in correspondence with the vibration of the disk or diaphragm 15, so that the proper sounds will be transmitted over the local and line circuits. By reference to Fig. 2, of the drawings, it will be seen that the electrodes 9, are arranged to lie on or contact with the transverse bar 13, at an angle, so that the vibrations of the diaphragm will cause a frictional movement between the electrode bar 13, and the hanging electrodes 9, at their points of contact, and this frictional movement or contact is decidedly different from the "make-and-break" contact between the electrodes or circuit closing parts of other microphones.

It will be readily seen that since the carbon electrode 13 and its supporting arm or stud 14, are rigidly attached to the vibrating diaphragm, the said electrode must vibrate in a horizontal line, and as the loosely hanging electrodes 9, lie across the transverse electrode 13, at an angle, sound waves reaching the diaphragm 15, through the opening 5, cause infinitesimal movements at the points of contact between the electrodes. It will further be noted that since there are two points of contact between the electrodes these frictional movements are eased and blended together so as to produce a softened current that perfectly reproduces the vibrations of the diaphragm, and it is to be noted that this frictional movement which is caused at the points of contact between the electrodes precludes the possibility of adjusting the electrodes to perfect unison, and therefore the frictional action of the two pendent electrodes are not absolutely alike, but blend together so as to overcome the difficulties heretofore existing in the successful application of the microphone to telephonic transmission.

Changes in the form, proportion and the

minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a telephone transmitter, the combination with the transmitter box and the vibrating diaphragm; of an electrode bar rigidly connected with one side of the diaphragm, parallel supporting wires arranged horizontally within the top of the transmitter box, and pendent electrodes adjustably connected at their upper ends to said wires and arranged to rest on said electrode bar at an angle, substantially as set forth.

2. In a telephone transmitter, the combination with the transmitter box and the vibrating diaphragm; of a transverse electrode bar rigidly connected with the inner side of the diaphragm, pendent electrodes arranged to rest on said transverse electrode bar at an angle, and a flexible connection loosely suspending the upper ends of the pendent electrodes at the top of the transmitter box for transverse adjustment, substantially as set forth.

3. In a telephone transmitter, the combination with the transmitter box and the diaphragm; of an offstanding supporting arm or stud secured to the inner side of the diaphragm, a transverse electrode bar attached to the inner end of said supporting arm or stud, parallel supporting wires arranged horizontally within the top of the transmitter box and connected at one end to the box, loosely suspended or pendent electrodes arranged to rest on the transverse electrode bar at an angle, flexible suspending cords connected to the upper ends of the pendent electrodes and loosely engaging over said supporting wires, and suitable electrical connections with said loosely suspended or pendent electrodes, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

MILES A. MOREHOUSE.

Witnesses:

CHARLES W. NOBLE,
ALFRED W. SLOCUM.