

(No Model.)

W. A. MASON.  
TELEPHONE TRANSMITTER.

No. 532,979.

Patented Jan. 22, 1895.

Fig. 1.

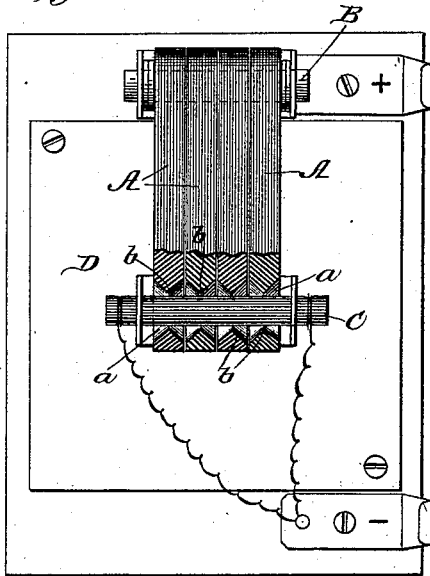


Fig. 2.

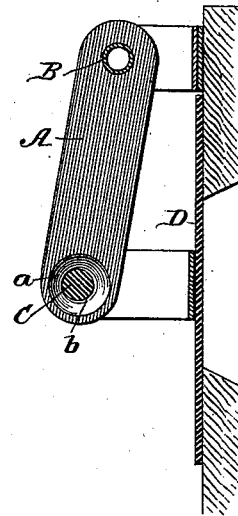


Fig. 3.

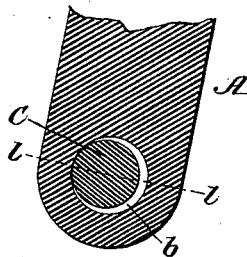
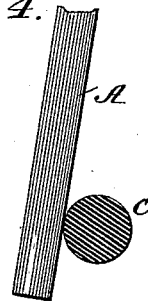


Fig. 4.



WITNESSES:

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WILLIAM A. MASON, OF SUMTER, SOUTH CAROLINA.

## TELEPHONE-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 532,979, dated January 22, 1895.

Application filed October 26, 1894. Serial No. 527,030. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. MASON, of Sumter, in the county of Sumter and State of South Carolina, have invented a new and useful Improvement in Telephone-Transmitters, of which the following is a specification.

My invention is an improvement upon that form of telephone transmitter in which one or more carbon pencils or bars hangs or leans from gravity against another carbon bar or pencil, the latter being attached to the vibrating diaphragm and forming one terminal of the circuit, while the gravitating pencils or bars form the other.

My improvement consists in constructing the gravitating or leaning bars with a hole through the same through which passes the other carbon electrode, and also in reaming out this hole on both sides so as to form a sharp circumferential edge at the point of contact whereby an extreme sensitiveness for low tones is obtained, without any jarring or confusion of sounds in the louder tones.

Figure 1 is a front view partly in section; Fig. 2, a side view partly in section of the electrodes of my improved transmitter, and Figs. 3 and 4 are enlarged details of the contact points of the electrodes, illustrating the difference between my contacts in Fig. 3, and an old form shown in Fig. 4.

In the drawings, A represents a series of parallel carbon bars or pencils, each independently and loosely hung upon a hollow metal tube B which, with said carbon bars or pencils, form one terminal of the talking circuit of the transmitter. The lower ends of these bars are provided with a circular hole *b* entirely through the same, which hole is reamed out or tapered upon each side, as at *a a*, so as to leave a sharp circumferential wedge shaped edge for the hole in the center of each bar which forms a bearing edge for said bar against the other electrode. C is the other electrode, which is a round carbon pencil arranged in horizontal position, fixed to the diaphragm D, and passing through all the holes *b* of the series of gravitating carbon bars A. These bars are arranged in an inclined position so as to lean lightly on one side of the holes *b* against the horizontal carbon pencil, the holes in the bars A being just

a trifle larger than the carbon electrode C which passes through them.

When the diaphragm and carbon electrode C are set to vibrating by the act of talking, the contact between said electrode and one side of the sharp circumferential edge of the gravitating bars produces the variable resistance between the electrodes that give great effectiveness in the transmission of the electric impulses and the reproduction of the tones of the voice through the other diaphragm, the sharpened edge serving to give great sensitiveness and clearness to all low tones, without involving any jar or confusion in the reproduction of the louder tones. The flat sides and closely adjacent position of the sides of the bars also keeps them in true parallel position, so that one bar has no tendency to ride upon or wedge against the next adjacent one.

By passing one electrode C through an opening in the bars A, the latter are all held in place without any encompassing yoke or external frame, so that the bars can never fall away from their true position, while the hollow metal suspending tube B permits of a very light construction and a perfect connection between the circuit wire and the gravitating bars A.

Another important distinction and function involved in the extension of one electrode through a hole in the other is as follows: The circular convex surface of the electrode C makes contact with the circular concave surface of the bars, which two curves are very nearly of the same radius, and as the convex surface vibrates against the concave surface in a line *ll*, Fig. 3, radial to the two curves, it brings into variable contact without any sliding friction a much larger surface, and a much quicker departure of these surfaces than where a carbon pencil simply rests tangentially upon the exterior of a convex surface. Thus in Fig. 4 which shows an old arrangement, the tangential arrangement of one of the straight electrodes on the curved surface of the other electrode makes a contact at practically a single point only on the convex periphery, while with my arrangement, shown in Fig. 3, the contact between the two curved surfaces is much

greater because the curves of the two circles are nearly coincident, and the sensitiveness of the variable contact is much greater.

Having thus described my invention, what  
5 I claim as new, and desire to secure by Letters Patent, is—

1. In a telephone transmitter, the combination of one or more loosely leaning or gravitating carbon bars or pencils having at their  
10 free ends an opening entirely through them; of a carbon electrode passing through said openings in the gravitating bars and serving the double function of making a vibrating electrical contact, and holding in place the  
15 gravitating bars, substantially as and for the purpose described.

2. In a telephone transmitter, the combination of one or more loosely leaning or gravi-

tating carbon bars or pencils having at their free ends an opening through them counter- 20 sunk to form a sharp circumferential bearing edge, and a carbon electrode passing through said opening and making vibratory contact with said edge substantially as and for the purpose described. 25

3. In a telephone transmitter, the combination of a series of loosely leaning or gravitating carbon bars having flat sides adjacent to each other and an opening through their free ends, and a carbon electrode passing through 30 said opening, substantially as and for the purpose described.

WILLIAM A. MASON.

Witnesses:

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