(No Model.)

# W. C. LOCKWOOD.

## TELEPHONY.

No. 518,742. Patented Apr. 24, 1894.

Fig. 1.

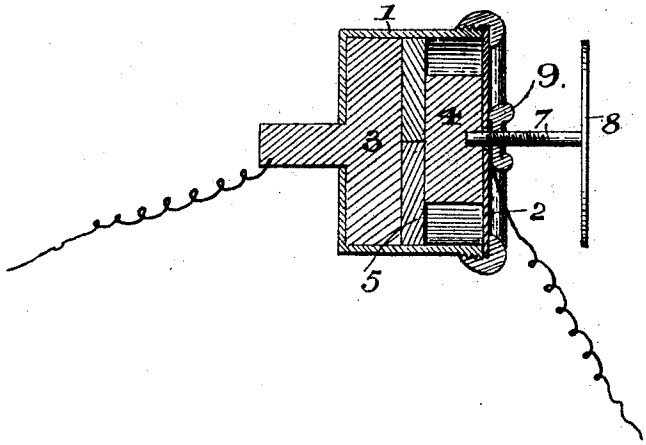


Fig. 2

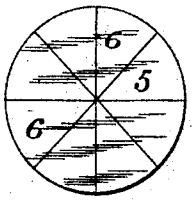



Fig. 3.

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# UNITED STATES PATENT OFFICE.

WILLIAM C. LOCKWOOD, OF NEW YORK, N. Y., ASSIGNOR OF ONE-FOURTH TO JOHN H. FLAGG, OF SAME PLACE.

## TELEPHONY.

SPECIFICATION forming part of Letters Patent No. 518,742, dated April 24, 1894.

Application filed June 27, 1892. Serial No. 438,149. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM C. LOCKWOOD, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Telephony; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in telephony and it is primarily designed to furnish an improved electrode for telephonic transmitters to take the place of the carbon usually employed for such purpose.

In order to produce effective carbon electrodes, much labor is involved and time expended in compacting the carbon, by compression, and in polishing and finishing the contact surface thereof so as to make effective contact with the opposite electrode, rendering it difficult and expensive to produce a perfect electrode. My invention is intended to obviate these objections and produce an electrode of the requisite conductivity, which can be cheaply constructed, shaped and finished, and which will remain in perfect working order for an indefinite period.

The invention further has for its objects to arrange and combine the parts of the transmitter in such manner as to insure constant and perfect contact of the electrodes under the variable pressure to which they are subjected by the vibrations of the diaphragm, and still further to improvements in the combination and arrangement of the parts of the transmitter, in detail, as more fully hereinafter explained.

The above mentioned objects I attain by the means set forth in the following description and illustrated in the accompanying drawings, in which—

Figure 1 represents a sectional view of a portion of a transmitter showing my invention; Fig. 2 a detached face view of one of the electrodes, and Fig. 3 detached perspective view of a portion of said electrode.

In the construction of my improved electrode, I employ dry chloride of silver, which I fuse in the ordinary manner employed in making the fused chloride of silver, known as "horn silver," and while fused I run the molten mass into molds of suitable size and shape to form the electrode. The form is usually that of a disk or button, similar to that of the carbon electrodes ordinarily employed. The molded mass after cooling, is connected with an electro positive element such as zinc, for instance, and placed in a vessel or cell containing an exciting solution, preferably salt water, the zinc and the silver chloride, with the solution constituting a single cell of a galvanic battery, in which an electric current is generated passing from the zinc to the chloride and from the chloride back to the zinc. The connection may be made by means of a wire or other conductor, or the zinc, may be placed in direct contact with the chloride, in either case a galvanic action being established which alters the character of the chloride, changing it from a non-conductor to a conductor having properties particularly adapting it to the use in microphonic transmitters. The button, disk or article may be used in any description of transmitter in which contact electrodes are employed, and may take the place of either electrode or both of the electrodes may be formed of the material. In practice, however, I prefer to employ it in the manner shown in the accompanying drawings, in which—

The reference numeral 1 indicates a cup or cylinder of glass or other non conducting material, having fitted to its mouth or clamped at one end a diaphragm 2 of mica or other suitable material.

The numeral 3 indicates the bottom of the cup, or a suitable head of conducting material secured in the end of the cylinder opposite to that at which the diaphragm is affixed.

The numeral 4 indicates the electrode secured to the mica diaphragm, which is preferably constructed of the chloride of silver and in the manner just above described, but which may be constructed of carbon, as usual, or of other material, in which case the opposite electrode 5 is preferably constructed of the new material above described. The electrode 5 is disk shaped and is made up of flat

segmental sections 6 loosely set together as shown. These sections may be of any suitable number, eight being preferable and such number being represented in the present instance. The mica diaphragm is connected by means of a threaded rod 7 with the ordinary diaphragm 8 of the transmitter, the rod extending into the electrode 4, the mica diaphragm and said electrode being clamped together by means of a clamping nut 9. To the electrodes are connected the usual conducting wires leading to the primary coil of an inductorium or to the line.

It is evident that the electrode constructed of the improved material may be applied to transmitters of the ordinary description or to transmitters already in use, and that other means may be employed for preparing the electrode from the chloride of silver, without departing from my invention and hence I do not desire to limit myself to the method of preparation, or the precise construction of the transmitter shown. The chloride of silver after fusing may be compacted by pressure, or mixed with other substances to increase the cohesion, density and durability of the electrode.

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

1. An electrode for telephone transmitters consisting of chloride of silver, as specified.

2. An electrode for telephone transmitters consisting of chloride of silver fused, molded into shape and subjected to the action of an electric current substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

WM. C. LOCKWOOD.

Witnesses:
THEO. MUNGEN,
JOHN CULLEN.