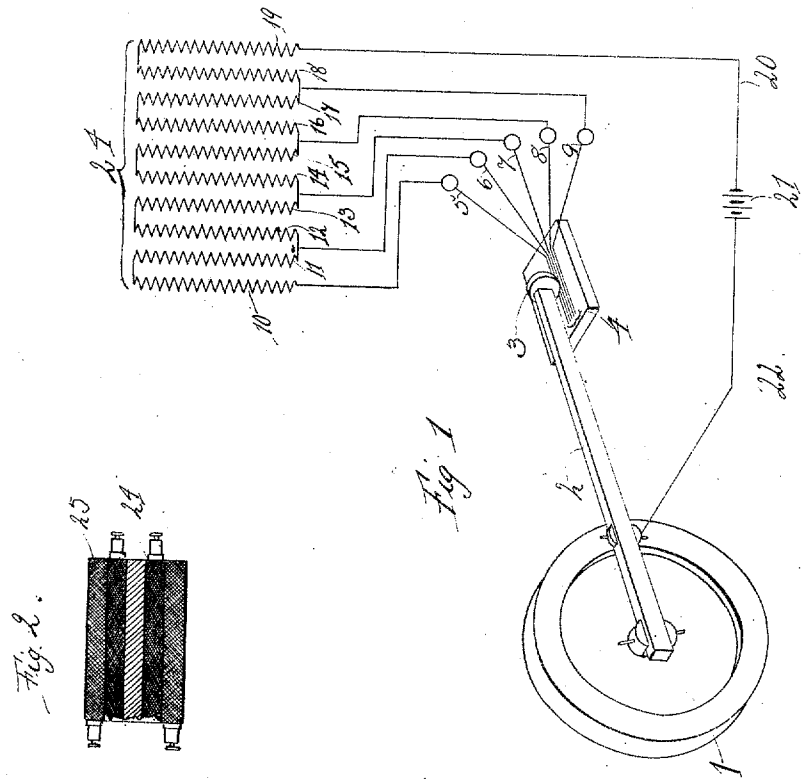


I. KITSEE.
TELEPHONY.

APPLICATION FILED JUNE 4, 1907.

988,876.

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TELEPHONY.

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To all whom it may concern:

Be it known that I, ISIDOR KITSEE, citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Telephony, of which the following is a specification.

My invention relates to an improvement in telephony. Its object is, to increase the efficiency of the vibrating diaphragm in producing telephonic impulses.

The underlying principle of my invention consists herein that, the numbers of convolutions of the primary coil of an inductorium are increased or decreased, in accordance with the vibrations of a diaphragm.

In the drawing, Figure 1 is a partially plan and partially diagrammatic view of a diaphragm embodying my invention. Fig. 2 is a sectional view of an inductorium.

1 is the diaphragm; 2 the lever attached thereto. This lever rests with its terminal, here shown as the wheel 3, on one or the other of the conducting lines 4.

The drawing shows five conducting lines connected to the wires 5, 6, 7, 8 and 9 respectively.

24 is the primary coil, as an entirety, illustrated here as to consist of the layers 10 to 19 inclusive. Each layer consists, as is usual, of a number of convolutions. The wire 5 connects here with the layer 10; the wire 6 with the conjunction of layers 11 and 12; the wire 7 with the conjunction of 13 and 14; the wire 8 with the conjunction of 15 and 16; and the wire 9 with the conjunction of 17 and 18. The layer 19 is connected through wire 20 with one pole of the battery 21, the other pole of which is in electrical contact with lever 2.

Different methods may be employed in producing the lines or conductors 4; but it must be borne in mind that the vibrations of the diaphragm 1 and therefore the movements of the lever 2, are very minute. In diaphragms used for phonographic work, it was found that a lever attached to this diaphragm and properly enlarged, may move about one-hundredth of an inch through the vibrations due to the impinging air waves. It is, therefore, essential that the necessary number of conductors should be placed in as small a space as possible.

One method of producing a compact device embracing a number of conductors insulated from each other is:—to insulate thin

sheets of platinum (each about one thousandth of an inch in thickness) and cement the same through said insulation. For this purpose, shellac answers, as experiments have proven, the purpose best. The surface is then rubbed down, so as to free the same from the insulation and present a good conducting surface to the wheel or other terminal of the lever.

Another method of producing the conductors 4 is: to provide the surface of a non-conductor with a cementing material, such for instance as shellac, covering the same with a conductor, such for instance as gold leaf, and cutting then said gold leaf with a very fine instrument into separate lines. It is obvious that the conductors 4 may be produced by other methods, but one of the two methods described will answer the purpose well.

The operation of the device is as follows: The terminal of the lever, here shown as the wheel 3, rests on one of the conductors 4 and is moved from one of these conductors to the other, by the vibrations of the diaphragm 1. Through this movement, a greater or lesser number of layers, each consisting of a number of convolutions, is placed in the circuit or cut out of same. Through this change in the number of convolutions included in the electric circuit, impulses will be induced in the secondary 25 of the inductorium and these impulses will be of an energy, proportional to the change in the primary coil 24.

I have shown in the drawing, each conductor connected to the junction of two layers in the primary, but it is obvious that the difference between one conductor and a second conductor, may include one, two, or more of such layers. The objective point is only to increase or decrease the layers or convolutions of the primary coil in accordance with the vibrations of the diaphragm.

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

1. Means to increase the efficiency of a diaphragm vibrating in accordance with the sound waves, said means comprising the primary of an inductorium and means to vary the number of active convolutions in said primary through the vibration of the stylus connected to the diaphragm.

2. Means to vary induced impulses, said means comprising a diaphragm and a primary and secondary of an inductorium, and

means to vary the active convolutions of said primary in accordance with the vibrations of said diaphragm.

3. Means to generate induced impulses with the aid of a vibrating diaphragm, said means comprising an inductorium, the primary thereof connected to a source of current and means to make active different numbers of convolutions of said primary through the different vibrations of said diaphragm.

4. In telephony, a vibrating diaphragm, an inductorium, a primary and secondary for said inductorium, an electric circuit for said primary and means operatively related to said diaphragm to increase or decrease the

number of inducing convolutions of said primary.

5. In telephony, means to generate secondary impulses in an inductorium, said means comprising an inductorium, the primary connected to a source of current and means, operatively related to a vibrating diaphragm, to vary the number of active convolutions in the primary of said inductorium.

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

ISIDOR KITSEE.

Witnesses:

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