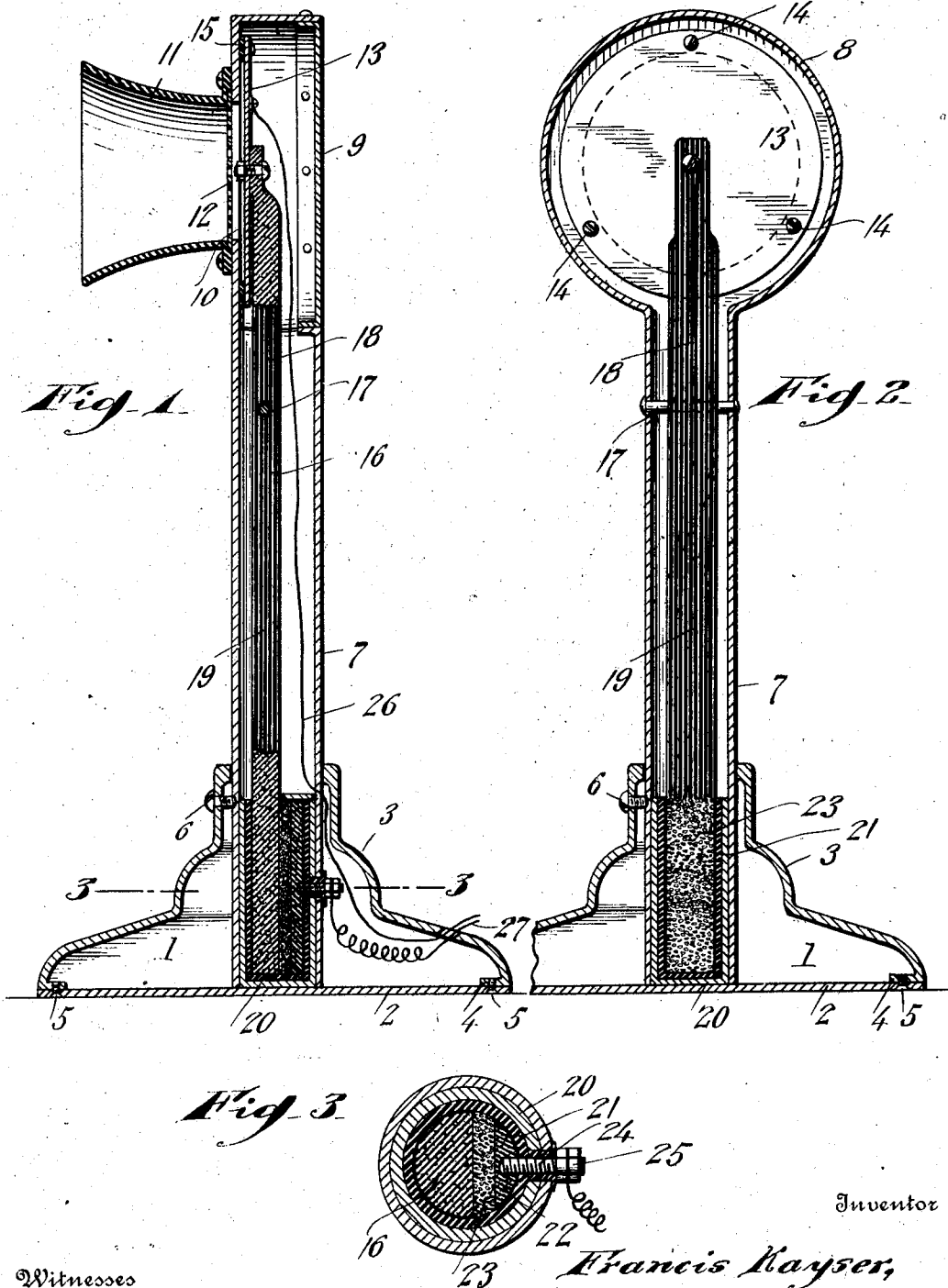


F. KAYSER.
TRANSMITTER.

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1,061,849.

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Witnesses

Thos. Freeman
John J. McCarty

Inventor

Francis Kayser,
By Victor J. Evans
Attorney

UNITED STATES PATENT OFFICE.

FRANCIS KAYSER, OF PHILADELPHIA, PENNSYLVANIA.

TRANSMITTER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANCIS KAYSER, a citizen of the United States of America, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Transmitters, of which the following is a specification.

This invention relates to improvements in sound transmitters and has particular application to telephone transmitters of that type employing a diaphragm and a carbon electrode.

In carrying out the present invention, it is my purpose to provide a transmitter of the class described wherein the diaphragm will be at all times under the tension and the carbon electrode in a similar condition so that the transmitter will, in effect, be tuned in such manner as to transmit sound waves with ease and facility and bring about a clear reproduction of such waves at the other end of the line in which the transmitter is installed.

It is also my purpose to provide a telephone transmitter of the type set forth wherein the tension on the diaphragm and carbon electrode may be varied and the amount of resistance offered to the electric current by the carbon changed thereby enabling the device to be adapted to the exigencies and circumstances of any particular case, for instance, in cases of long distance transmitters it might be found desirable to decrease the amount of resistance in the circuit, while, conversely, it might be found advantageous to increase the resistance to the current on a short line as contra-distinguished from long distance.

Furthermore I aim to provide a telephone transmitter which will embrace the desired features of simplicity, efficiency and durability and which may be readily dismantled or disassembled for cleaning, repairing or other purposes.

A further object of my invention is the provision of a transmitter wherein pressure will be applied to carbon granules so that the variation of resistance of a constant pressure through a fixed dimension will be

greater after a certain pressure has been applied to the granules out of the initial pressure immediately succeeding the contact.

Another purpose of the invention is to provide a constant carbon contact and to decrease the hiatus of loose contact incident to the granules.

A still further object of the invention is to provide a sound transmitter wherein vibration of the diaphragm and the pressure on the carbon granules will be confined more or less thereby eliminating the possibility of imperfect contact due to displacement of the vibrations of the diaphragm through a relatively small space tending to decrease the sending capacity of the instrument.

With the above and other objects in view, the invention consists in the construction, combination and arrangement of parts hereinafter set forth in and falling within the scope of the claims.

In the accompanying drawing, Figure 1 is a vertical sectional view through a transmitter constructed in accordance with my present invention. Fig. 2 is a similar view taken at right angles to Fig. 1, parts being shown in elevation, and Fig. 3 is a cross sectional view on the line 3—3 of Fig. 1.

Referring now to the accompanying drawing in detail, the numeral 1 indicates the base of the transmitter comprising, in the present instance a disk-like bottom wall 2 and a casing or hood 3 having the lower edge thereof inturned to provide a flange 4 resting upon the marginal edge of the disk-like bottom wall 2 and detachably secured thereto through the medium of screws or the like 5. Suitably secured within the base 1 as by means of set screws 6 is one end of a vertical hollow standard 7 having the free end thereof enlarged to form a circular housing 8 in open communication with the hollow standard and provided with a removable wall 9 whereby access may be had to the housing when desired. The opposite wall of the housing 8 is formed with an opening 10 and has suitably fastened thereto on the outer side thereof a mouth piece 11,

the usual perforated disk 12 being disposed over the opening 10 in the housing and clamped to the respective wall of such housing between the wall of the opening 10 and the adjacent end of the mouth piece, as clearly illustrated in Fig. 1.

The numeral 13 designates a diaphragm capable of vibration under the action of sound waves and disposed at the rear of the opening 10 in the front wall of the housing 8. The marginal edge of this sound transmitting diaphragm 13 is fastened by means of screws or the like 14 to the inner face of the front wall of the housing, a suitable rubber ring 15 being interposed between such edge of the disk and the adjacent wall of the housing. A carbon lever 16 is disposed vertically within the standard 7 and is pivoted adjacent to one end upon a pivot bolt 17 carried by the standard to form a short arm 18 and a long arm 19. The free end of the short arm 18 of the lever is suitably fastened to the sound transmitting diaphragm 13 at a point approximately centrally thereof, while the free end of the long arm 19 of the lever is disposed within a metallic receptacle 20 resting within the lower end of the standard 7 and lined with suitable insulating material 21. A carbon plate 22 is also mounted within the receptacle and the confronting faces of the carbon plate and the adjacent end of the carbon lever are spaced apart, while a suitable quantity of carbon granules 23 is interposed between such confronting faces. Extending outwardly from the receptacle 20 and the adjacent part of the hollow standard 7 is an adjusting screw 24 having one end thereof suitably secured to the carbon plate 22, while the opposite or outer end is equipped with locking nuts 25. Secured to the rear face of the sound transmitting diaphragm 13 is one terminal of a circuit wire 26, while to the adjusting screw 24 is fastened one terminal of a second circuit wire 27, the wires entering and leaving the transmitter by way of an opening 28 formed in the base 1.

From the foregoing description taken in connection with the accompanying drawing, the construction, mode of operation and manner of employing my improved transmitter will be readily apparent. It will be seen that the diaphragm, the carbon lever and the carbon granules are all included in the electric circuit. Consequently, a vibratory movement is imparted to the carbon lever 16 in the vibration of the sound transmitting diaphragm 13 under the action of the sound waves and, owing to the relatively long arm 19 of the carbon lever the amount of resistance in the circuit, due to the carbon granules 23, is varied in the actual use of the transmitter, while by means

of the adjustable or movable carbon plate 22, the amount of resistance in the circuit may be varied to adapt the instrument to circumstances or exigencies of any particular case.

It will be noted that the transmitting diaphragm is under tension at all times and the amplitude of the reproduced sound waves capable of being multiplied. The diaphragm being under tension is tuned while the carbon granules which determine the amount of resistance in the talking circuit may be so adjusted or regulated as to increase the volume of the sound waves at the reproducing end of the line.

While I have herein shown and described one preferred form of my invention by way of illustration, I desire it to be understood that I do not limit or confine myself to the precise details of construction herein described and delineated, as modification and variation may be made within the scope of the claims and without departing from the spirit of the invention.

I claim:

1. A transmitter comprising a sound transmitting diaphragm, a vertical carbon lever composed of a short arm and a relatively long arm, a rigid connection between the free end of the short arm of said lever and said diaphragm, a receptacle in which the free end of the long arm of said lever is disposed, a carbon plate in said receptacle spaced apart from the adjacent end of the respective arm of said lever, and carbon granules interposed between the confronting faces of said lever and plate.
2. A transmitter comprising a sound transmitting diaphragm, a vertical carbon lever composed of a short arm and a relatively long arm, a rigid connection between the free end of the short arm of said lever and said diaphragm, a receptacle in which the free end of the long arm of said lever is disposed, a carbon plate in said receptacle spaced apart from the adjacent end of the respective arm of said lever, carbon granules interposed between the confronting faces of said lever and plate, and means for adjusting said plate toward and away from the adjacent end of said lever.
3. A transmitter comprising a base, a hollow standard secured to the base and extending upwardly therefrom and having the free end thereof formed to provide a circular housing, one wall of said housing being formed with an opening, a mouth piece secured to said wall of the housing and surrounding the opening therein, a diaphragm secured to the inner wall of the face of said housing at the rear of the opening therein, a carbon lever pivoted within said hollow standard in such manner as to provide a short arm and a long arm, a connection between the free end of said short

arm and the diaphragm, a receptacle resting within the lower end of said hollow standard and receiving the free end of the long arm of said lever, a carbon plate disposed within said receptacle and spaced
5 apart from the adjacent end of said lever, carbon granules interposed between the confronting faces of said plate and lever, and

electric circuit wires connected to said diaphragm and carbon plate respectively.

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

FRANCIS KAYSER.

Witnesses:

HELEN G. DALEY,
ANNA M. RICHARD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."