

A. A. JAHNKE.
MICROPHONE TRANSMITTER.
APPLICATION FILED NOV. 18, 1910.

1,007,031.

Patented Oct. 24, 1911.

Fig. 1.

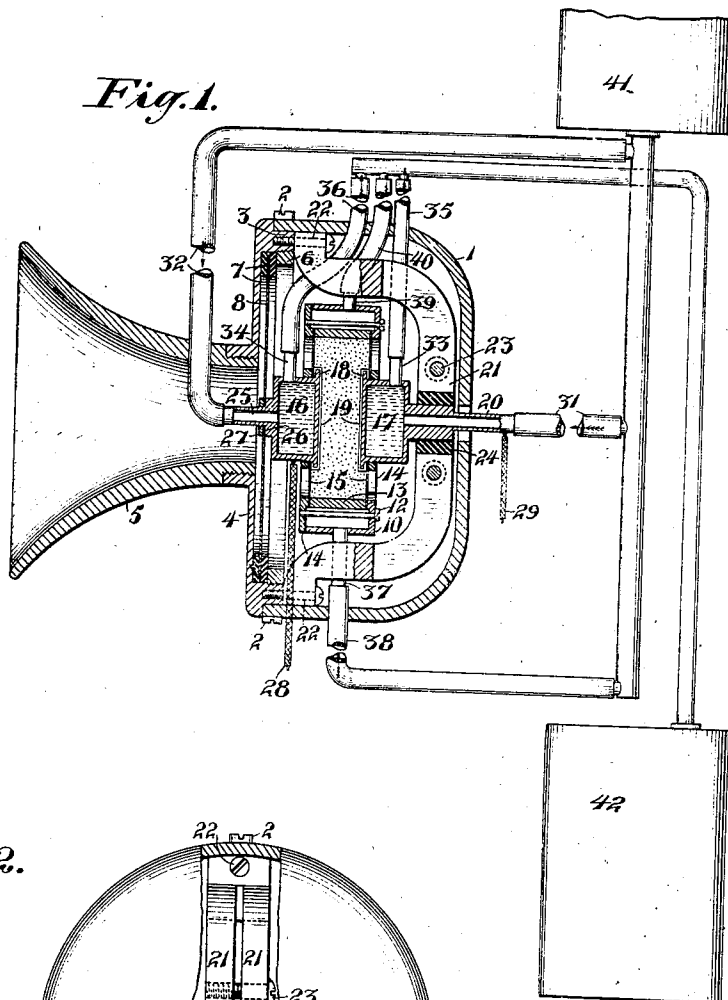
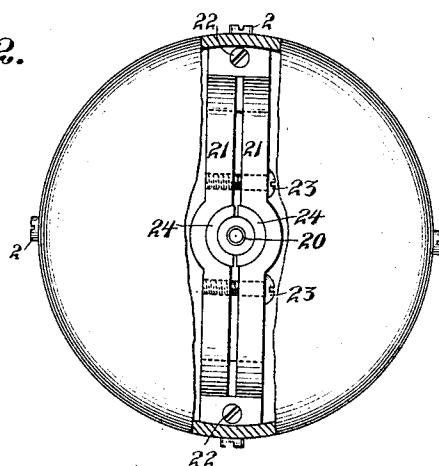


Fig. 2.



WITNESSES

N. B. Keating
H. C. Giedner

INVENTOR

BY

A. A. Jahnke
Wm. Wright
ATTORNEY

UNITED STATES PATENT OFFICE.

ALBERT A. JAHNKE, OF RICHMOND, CALIFORNIA, ASSIGNOR, BY MESNE ASSIGNMENTS,
TO NATIONAL WIRELESS TELEPHONE & TELEGRAPH CO., A CORPORATION OF THE
TERRITORY OF ARIZONA.

MICROPHONE-TRANSMITTER.

1,007,031.

Specification of Letters Patent.

Patented Oct. 24, 1911.

Application filed November 18, 1910. Serial No. 592,951.

To all whom it may concern:

Be it known that I, ALBERT A. JAHNKE, a citizen of the United States, residing at Richmond, in the county of Contra Costa and State of California, have invented new and useful Improvements in Microphone-Transmitters, of which the following is a specification.

The present invention relates to improvements in microphone transmitters, the object of the invention being to provide a device of this character in which an exceedingly large transmission current can be used, variations in said current being produced by the vibrations of the transmitter diaphragm without unduly heating that portion of the transmission circuit in which the resistance is varied.

In the accompanying drawings, Figure 1 is a vertical section of the transmitter; Fig. 2 is a broken rear view of the same.

Referring to the drawing, 1 indicates a casing, within which is secured, by screws 2, a flange 3 of a disk 4, to which is secured the mouthpiece 5. Secured within said flanged disk 4 by a threaded ring 6 are rings 7 of insulating material such as lava, which will withstand great heat, between which rings 7 is clamped the edge of a circular diaphragm 8 of suitable material such as aluminum capable of vibration. Within the casing 1 is contained an annular receptacle 10, made of light material, such as macadamite or aluminum, and formed of sections, secured by screws 12. Between an inner annular wall 13 of said receptacle and the side walls 14 thereof are clamped two circular sheets 15 of mica. Through a large central hole in each sheet is passed a cooling receptacle, the receptacle 16 nearest to the diaphragm extending forward toward said diaphragm, and the receptacle 17 remote therefrom extending rearward from said diaphragm. Each receptacle has a flange 18 abutting against the corresponding mica disk, and the two opposing sides of said receptacles are covered with a facing 19 of an iridium platinum alloy. The receptacle 17 is formed with a tube 20 extending therefrom, which is clamped between metal yokes 21 secured by screws 22 to the flange 3, said yokes being screwed together by screws 23, insulating material 24, such as lava, being interposed between said tube and

yokes. The receptacle 16 is movable, having a tube 25 extending outwardly therefrom and passing through a central hole in the diaphragm 8, said tube having a shoulder 26 abutting against said diaphragm, and there being screwed on said tube against said diaphragm a nut 27. The space within the internal wall 13 and between the two mica disks 15 and the two iridium-platinum facings 19 is filled with carbon granules. Conducting wires 28, 29, are connected, the one to the receptacle 16 and the other to a part of the tube 20 which extends outside the casing 1.

The following is the mode of use of the transmitter. A heavy current is passed through said wires, the variable resistance portion of the circuit of said current consisting of the carbon granules between the iridium platinum facings or terminals 13. Upon talking into the mouth-piece, the diaphragm 8 is set in vibration, which produces corresponding vibration of the receptacle 16 and of the facing 19 carried thereby. The other facing being stationary, the distance between said facings and consequently the resistance to the passage of the electric current is varied with the vibration of the diaphragm. It is, of course, very old in the art to use auditory vibrations of a diaphragm to vary the resistance of carbon granules in order to vary the current passed through said granules. Heretofore, however, it has not been possible to use a large current as the means for transmitting such vibrations for the reason that a large current unduly heats the carbon granules and causes them to fuse and adhere together. My invention consists in the means for preventing this result. For this purpose, there are attached to the tubes 20 and 25 rubber tubes 31, 32, through which a liquid, as alcohol, flows into the receptacles 17, 16, said liquid flowing out by pipes 33, 34, connected with rubber tube 35, 36. In like manner the annular receptacle 10 is filled with alcohol by a pipe 37 leading thereto connected with a rubber tube 38 and the alcohol escapes therefrom at the top by a pipe 39 connected with a rubber tube 40. It is necessary that the outlet pipes should be at the top of the several receptacles in order to insure their being filled at all times. The inlet pipes can lead from a suitable tank

41 which can be filled from time to time, the outlet pipes in like manner discharging into a suitable receptacle 42.

The inner wall 13 of the annular receptacle is made of what is known as lavite, the chemical composition of which is



This material when cool is not porous, or at least not sufficiently so to permit a liquid to escape therethrough, but when heated it is sufficiently porous to permit alcohol vapor in the annular chamber 10 to escape there-through. This alcohol vapor escaping into the chamber containing the carbon granules has the effect of cooling said granules but its principal function is to reduce the electric resistance between the iridium platinum facings 19. When said facings approach each other by the auditory vibrations of the diaphragm, the alcohol vapor is pushed outward from between said facings and through the pores of the surrounding wall 13, and when they recede from each other it is, for the same reason, sucked inward. This movement takes place in the same rapid succession as the vibrations of sound. The result is a constant variation in the variable resistance portion of the electric circuit and therefore a constant variation in the current produced in the transmission circuit.

I claim:—

1. The combination of two terminals in an electric circuit, carbon granules between said terminals, a receptacle for a volatile liquid, a porous wall for said receptacle and separating it from the carbon granules, a diaphragm for receiving sound vibrations, and a connection between said diaphragm and one of said terminals, whereby the dis-

tance between the terminals is varied with the vibration of the diaphragm, and means for maintaining a circulation of said liquid through said receptacle, substantially as described.

2. The combination of two hollow terminals in an electric circuit, carbon granules between said terminals, means for maintaining a circulation of liquid through said hollow poles, a receptacle for a volatile liquid, a porous wall for said receptacle and separating it from the carbon granules, a diaphragm for receiving sound vibrations, and a connection between said diaphragm and one of said terminals, whereby the distance between the terminals is varied with the vibration of the diaphragm, substantially as described.

3. The combination of two hollow terminals in an electric circuit, carbon granules between said terminals, means for maintaining a circulation of liquid through, said hollow poles, a receptacle for a volatile liquid, a porous wall for said receptacle and separating it from the carbon granules, a diaphragm for receiving sound vibrations, flexible walls for inclosing said carbon granules, each wall connecting the porous wall with one of the terminals, and a connection between said diaphragm and one of said terminals, whereby the distance between the terminals is varied with the vibration of the diaphragm, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ALBERT A. JAHNKE.

Witnesses:

FRANCIS M. WRIGHT,
D. B. RICHARDS.