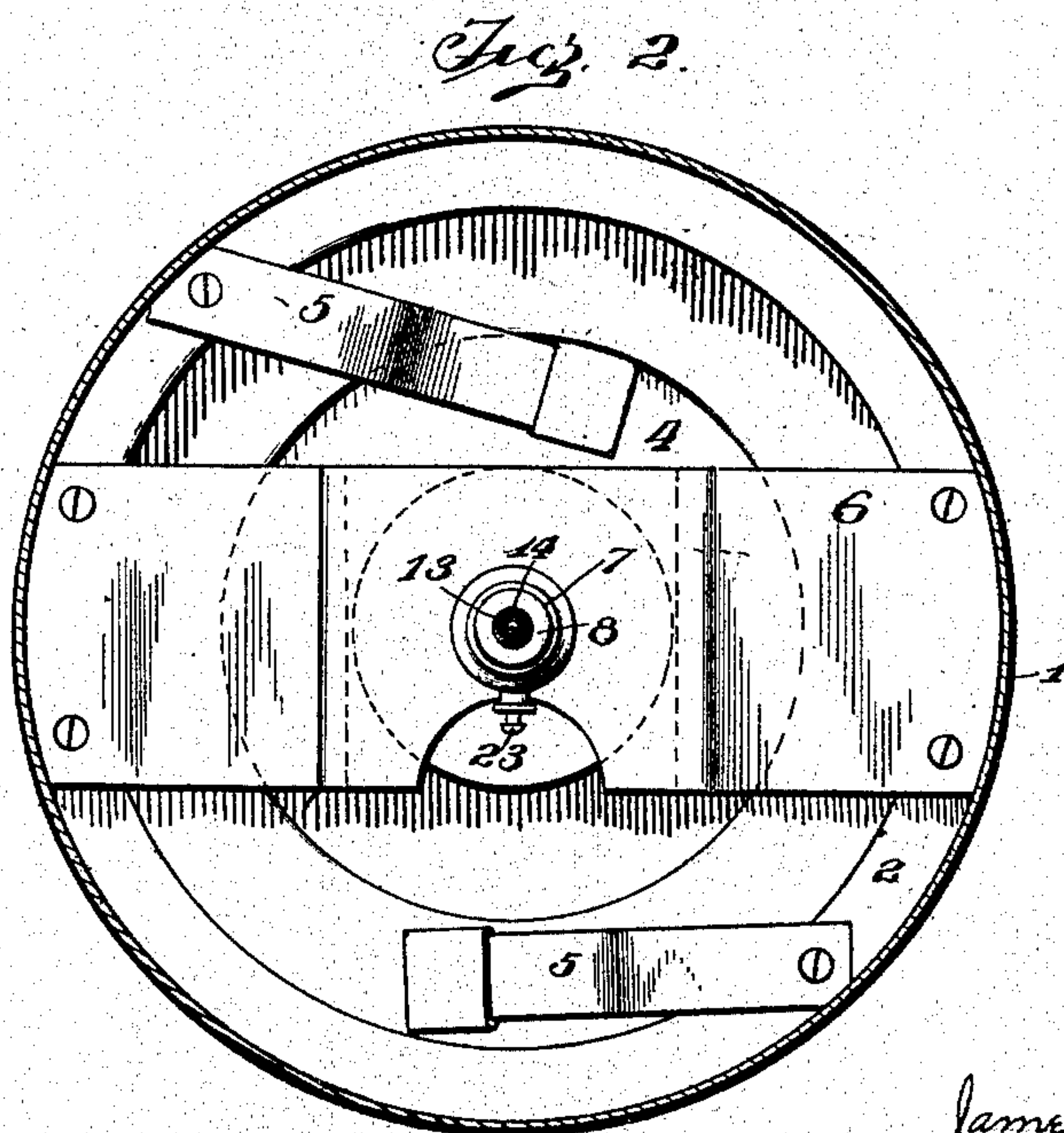
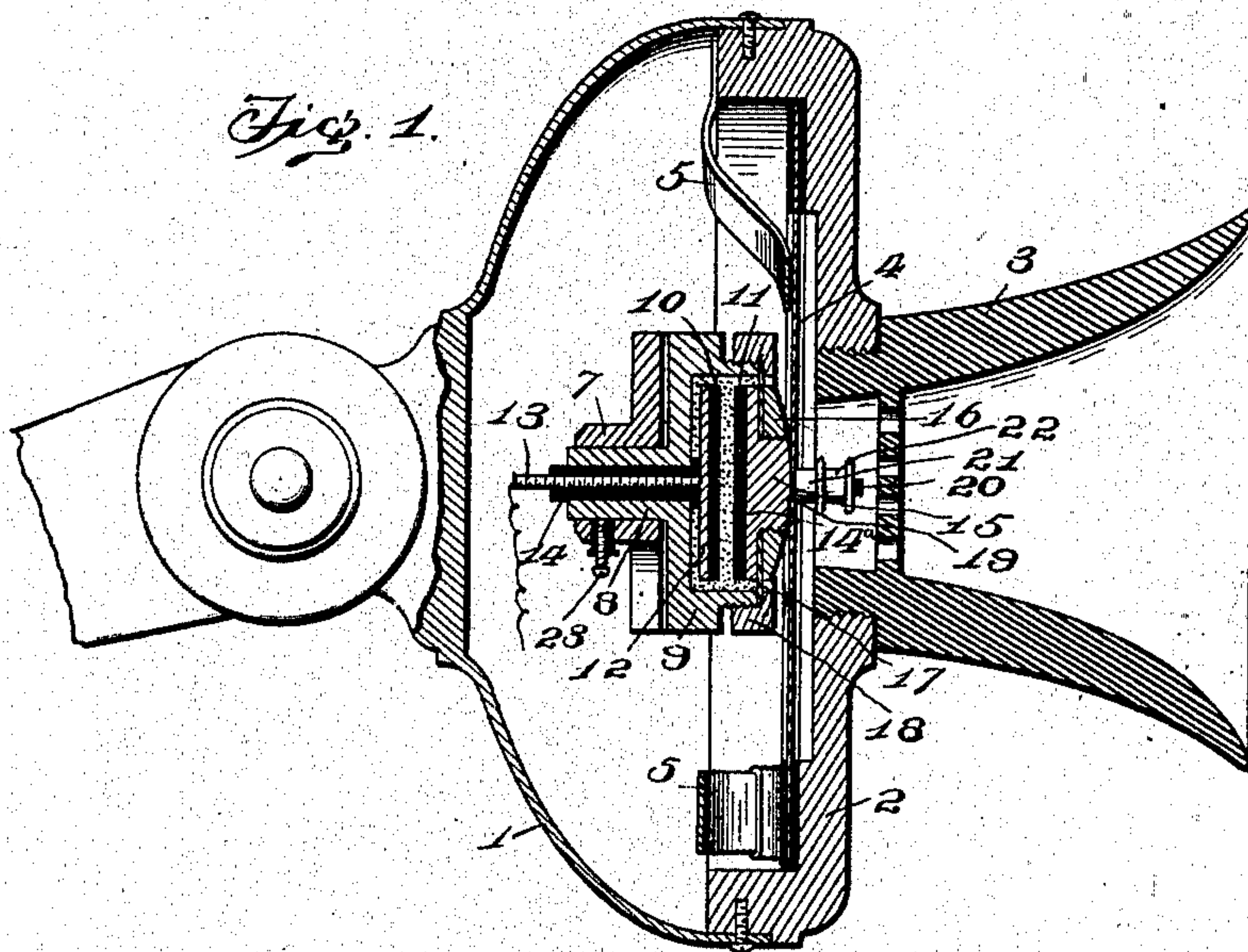


No. 719,972.

PATENTED FEB. 3, 1903.

J. A. WOTTON.
TELEPHONE TRANSMITTER.
APPLICATION FILED JUNE 8, 1901.

NO MODEL.



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES A. WOTTON, OF ATLANTA, GEORGIA, ASSIGNOR TO WOTTON ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF GEORGIA.

TELEPHONE-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 719,972, dated February 3, 1903.

Application filed June 8, 1901. Serial No. 63,790. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. WOTTON, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented certain new and useful Improvements in Telephone-Transmitters; and I do hereby 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.

My invention relates to improvements in telephone-transmitters, and particularly to that class of transmitters known as "variable-contact transmitters" employing finely-divided conducting material as a variable resistance medium between two electrodes, such instruments being commonly known as the "granular-button transmitter."

It consists in certain novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a vertical central section through a transmitter constructed in accordance with this invention, a portion of a supporting-arm for the same being shown in side elevation. Fig. 2 is a transverse section through the transmitter, revealing a rear elevation of the mechanism contained therein.

In transmitters of this kind as heretofore produced there has been difficulty in properly connecting the electrodes with the line-wire, it always being necessary to arrange one or more of the connecting-conductors in such a manner as to render them liable to being broken or injured. It has also been necessary in such instruments to employ vibrating means made of non-conducting material, which is liable to breakage and imperfect action.

My invention is designed as constructed to obviate these difficulties. For the sake of illustration I have shown in the drawings a transmitter much of which is similar to the well-known transmitters in common use on many of our telephone-lines. In this transmitter will be found the inclosing shell or casing 1 for supporting the front plate 2,

which carries the transmitting mechanism. The plate 2 is perforated and provided with the usual mouthpiece 3. Secured to the inside of the plate 2 is the usual sound-receiving diaphragm 4, held in position by the damping-springs 5 5. Secured to the rear face of the plate 2 is a cross-bar or plate 6, which carries the electrodes of the transmitter, which are disposed between the same and the diaphragm 4. The cross or bridge piece 6 is provided with a central bossed aperture, as at 7, in which is secured the stem 8 of a metallic cup or block 9. Within the cup 9 are arranged the fixed electrode 10 and the working electrode 11. Electrode 10 is formed of a solid carbon block or disk electroplated and soldered to a metallic backing or disk 12. The disk 12 is formed with a stem 13, which projects rearwardly through an aperture formed in the stem 8 of the cup 9. A sleeve of insulating material, as 14, surrounds the said stem 13 and thoroughly insulates the said stem and disk 12, with its carbon electrode 10, from the cup 9. The working electrode 11 is formed of a solid block of carbon secured to and carried by a metallic disk, as 14, by electroplating and soldering or otherwise, the said disk 14 being provided with a central projecting stud, as 15, which is screw-threaded and adapted to be engaged by a threaded washer 16. A thin metallic disk, as 17, carries the said working electrode, being formed with a central aperture, so as to fit over the stud 15, and being clamped to the disk 14 by the washer 16. The periphery of the flexible disk 17 rests against the outer edge of the cup 9 and is securely clamped against the same by a threaded collar or ring 18. The space within the cup 9 between the electrodes 10 and 11 is filled with finely-divided granules of carbon or other suitable material, as is usual in such transmitters, the said cup also having the usual lining of paper or other insulating material to insulate the carbon therefrom. The stud 15 is provided with a reduced projecting stem, as 20, which passes through an aperture 19 in the center of the sound-receiving diaphragm 4. Clamping-nuts, as 21 and 22, secure the said diaphragm 4 firmly against the stud 15. In assembling of parts after the working electrode has been tightly clamped

to the diaphragm 4 the binding-screw 23, which holds the stem 8 in place, is loosened to permit the diaphragm 4 to obtain its normal natural position, after which the said screw 23 is tightened to hold the cup 9 stationary. This adjustment permits of the perfect freedom of the working electrode and the diaphragm 4. By making the disk 17 of metal—such, for instance, as thin brass—the said disk is much stronger than the mica insulating-disks heretofore employed at this point and is not liable to breakage, being much more durable than the mica. The metallic disk 17 also affords a connection for the working electrode 11 with the cup 9, bridge-piece 6, and casing of the transmitter, the other electrode having been thoroughly insulated therefrom, as heretofore described. This obviates a difficulty which has been experienced heretofore in obtaining the proper electrical connection for both electrodes. It has been common to connect the fixed or back electrode through the casing instead of the working electrode, as in the present invention, and this has necessitated the use of fragile and easily-broken connectors for the working electrode, which further necessitated the employment of flexible disks of insulating material to movably hold the working electrode in position. I have thus overcome by my invention two very glaring faults in the otherwise very perfect instruments heretofore used, and have made a transmitter which is of greater commercial value, as well as more perfect in action, than its predecessors.

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

1. A telephone-transmitter, comprising a vibrating diaphragm, a rigid cup of conducting material, a fixed and a working electrode within the same, a variable-resistance medium between the electrodes, means for insulating the fixed electrode from the cup, a flexible disk of conducting material for supporting the working electrode in the cup and electrically connecting the said working electrode with the said cup, a circuit connection through the cup and disk to the working electrode, and means for connecting the said disk with the said diaphragm to receive its vibrations, substantially as described.

2. In a telephone-transmitter, the combination with a diaphragm, of a fixed electrode and a working electrode, a rigid inclosing means for said electrodes, a finely-divided conducting material between the same, and

insulating material for holding the fixed electrode in position, a flexible disk of conducting material for holding the working electrode movably in place in said inclosing means and keeping the finely-divided conducting material in place, the said disk forming a conductor for affording the proper electrical connection for the said working electrode with the electrode-inclosing means, and means connecting the said disk with the diaphragm so as to vibrate therewith, substantially as described.

3. In a transmitter, the combination with a suitable casing, of a sound-receiving diaphragm mounted therein, a rigid cup of conducting material, a fixed electrode mounted therein, comprising a block of carbon, a disk carrying the same, and a projecting stud extending from the disk, insulating means for holding the stud and disk in the said cup, the said stud affording a suitable electrical connection with the said fixed electrode, a working electrode mounted in suitable proximity to the fixed electrode, a finely-divided conducting material interposed between the two electrodes, a metallic disk carrying the said movable electrode and connecting the same with the diaphragm of the transmitter, a flexible disk of conducting material supporting the movable electrode holding the finely-divided conducting material in place and affording electrical connection through the cup with the casing of the transmitter, substantially as described.

4. A telephone-transmitter, comprising a vibrating diaphragm, a rigid cup of conducting material mounted to one side thereof, a fixed electrode mounted within the cup, but insulated therefrom and connected with one of the telephone-line wires, a movable electrode also mounted within said cup, a flexible metallic contacting disk holding the movable electrode in the cup and electrically connecting the said electrode and cup, means connecting the electrode-holding flexible disk with the vibrating diaphragm of the transmitter, and finely-divided conducting material inclosed within the cup and arranged between the electrodes thereof, substantially as described.

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

JAMES A. WOTTON.

Witnesses:

J. O. HARDWICK,
D. M. EASTON.