

C. E. SCRIBNER.
 TELEPHONE TRANSMITTER.
 APPLICATION FILED JULY 27, 1910.

Patented Jan. 14, 1913.

1,050,304.

Fig. 1.

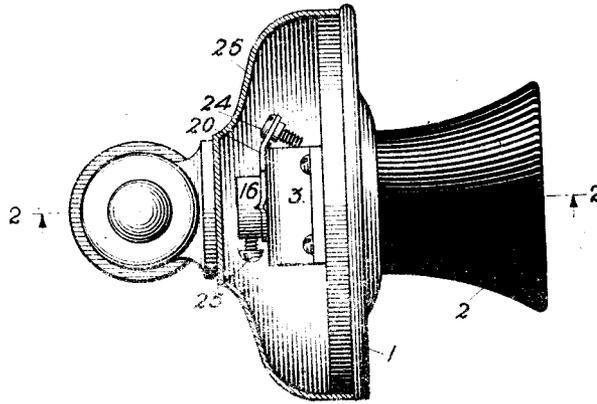


Fig. 2.

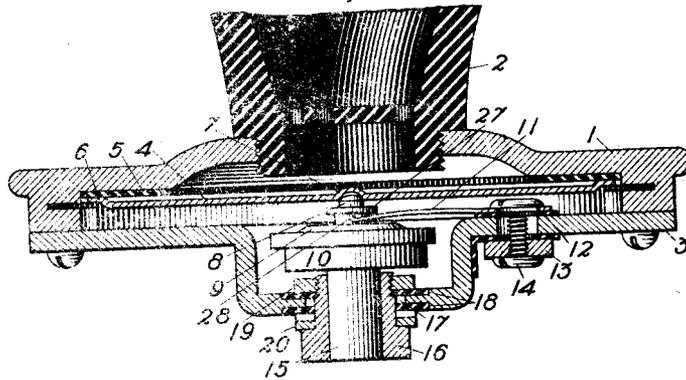


Fig. 3.

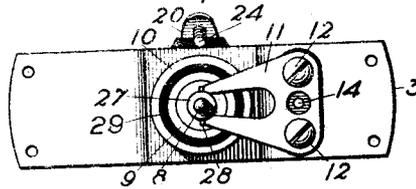
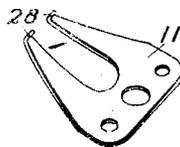


Fig. 4.



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UNITED STATES PATENT OFFICE.

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TELEPHONE-TRANSMITTER.

1,050,304.

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To all whom it may concern:

Be it known that I, CHARLES E. SCRIBNER, citizen of the United States, residing at Jericho, in the county of Chittenden and State of Vermont, have invented a certain new and useful Improvement in Telephone-Transmitters, of which the following is a full, clear, concise, and exact description.

This invention relates to telephone transmitters, its object being to provide a simple and inexpensive structure which permits assembly of the parts in their proper relative positions without requiring great accuracy in the machining or shaping of the parts, or special devices for adjustment.

According to the invention, the diaphragm is loosely seated in a part of the frame of the instrument and is held in place by pressure exerted at its central point by a stud projecting from the front electrode, a spring suitably supported in the frame bearing against a shoulder of the stud and serving to hold the front electrode with yielding pressure against the diaphragm. In the preferred construction this front electrode with its stud is a part of a granular button unit, the back electrode thereof being provided with a rearwardly extending stud and the two electrodes being held together in a well known way by a thin mica diaphragm. In assembling the instrument the granular button unit is allowed to take a position which will give the proper pressure against the diaphragm, this pressure being automatically secured by the set previously given to the spring; then the back electrode is secured to a bridge piece of the frame by means of a set screw or other device whereby it is rigidly held in place. The diaphragm may be provided with a small indentation at its center and the front electrode stud may be rounded or otherwise shaped so as to engage said indentation at substantially a point. The seat for the diaphragm is preferably made a little larger in diameter than the diaphragm so that the latter will not bind but will be free to take its natural position with respect to the granular button unit when the latter is secured to the bridge piece. The

diaphragm may also have a turned up circumferential flange which is flattened at its extreme edge, thus providing an annular bearing surface. At substantially the exact center of the diaphragm the front electrode makes contact therewith.

The invention will be fully understood by reference to the accompanying drawing, in which—

Figure 1 is a side elevation with the casing in section of a telephone transmitter embodying the invention; Fig. 2 is an enlarged fragmentary view in section along the line 2—2 of Fig. 1; Figs. 3 and 4 are detail views, Fig. 3 being an elevation of the bridge piece with the granular button unit in place, and Fig. 4 a perspective view of the spring for engaging the stud of the front electrode.

In the drawing, the frame 1 of the transmitter is provided with the usual mouth-piece 2 and bridge piece 3, a casing 26 serving to cover the working parts and to support the instrument. A diaphragm 4 is seated in the frame 1 but insulated therefrom by a washer 5 which may be of paper, the diaphragm having a turned up circumferential flange 6 flattened at its extreme edge. In the center of the diaphragm is a depression 7 engaged by the rounded end of a stud 8 secured to the front electrode 9 of a granular button unit 10, the radius of curvature of the stud end being slightly greater than that of the depression, so that contact will be made at the perimeter of the depression. The stud 8 has a flange 27 forming a shoulder against which the free upturned ends 28 of a spring 11 bear. This spring is held by but insulated from the bridge piece 3 by means of screws 12 and a tapped bar 13, a screw 14 being provided for connecting a wire to make electrical connection to the front electrode. The rear electrode of the granular button 10 is provided with a stud 15 passing freely through a hole in a tubular bolt 16. This bolt is of smaller diameter than an opening 17 in the bridge piece 3, but is held centrally positioned in said opening and therefore out of contact therewith by means of insulating

washers 18, preferably of mica. These washers are seated as shown in depressions on either side of the bridge piece. The bolt is held in place by a nut 19 and electrical connection to the back electrode through the bolt is provided for by a terminal washer 20 lying under the head of the bolt and held in place by it. A screw 24 is provided for making the electrical connection to the rear electrode.

In assembling the parts of this transmitter the tubular bolt 16 and its several washers are put in place and the nut 19 turned until the bolt is held rigidly. The granular button unit 10 is then inserted with its stud 15 lying loosely in place and the spring 11 fastened in place with its free ends engaging the shoulder of the stud back of the rim 9. The diaphragm 4 is then placed loosely in its seat against the paper washer 5 and the bridge piece is fastened securely to the frame 1 with the end of the front electrode stud 8 engaging the depression 7 at the center of the diaphragm. At this time the spring 11 will give somewhat, but will exert the proper pressure against the diaphragm and the position of the diaphragm in its seat will be adjusted to conform to any slight irregularities in the formation of the bridge and the position of the granular button therein. At the same time the stud 15 of the back electrode will be pushed backwardly and assume its proper position in the bolt opening. Finally the back electrode is rigidly held in place by the set screw 25. By this construction and arrangement the several parts will assume their natural positions without danger of any stress on the frail mica diaphragm 29 of the granular button unit, while the dampening pressure is automatically regulated by the set of a single spring and is exerted perpendicular to and at the exact center of support of the diaphragm and therefore without danger of distorting its shape.

Having thus described my invention, what I claim is:

1. In a telephone transmitter, the combination with a frame, a diaphragm seated therein and a bridge of said frame over the diaphragm, of an electrode having a stud extending toward and adapted to loosely engage only a central point in said diaphragm, a spring engaging said stud to hold the same with yielding pressure against the diaphragm and thus to retain the diaphragm in its seat, an opposing electrode, and adjustable means for holding the same to said bridge.

2. In a telephone transmitter, the combination with a frame, a diaphragm seated therein and a bridge over said diaphragm, of an electrode having a shouldered stud, a spring pressing against the shoulder of said

stud to hold the same in yielding contact with a central point in the diaphragm, an opposing electrode, and adjustable means for holding the same to said bridge.

3. In a telephone transmitter, the combination with a frame, a diaphragm seated therein, and a bridge over said diaphragm, of an electrode having a central stud rounded at its end and provided with a shoulder, a spring pressing against the shoulder of said stud to hold the same in yielding contact with a central depression in the diaphragm, an opposing electrode, and adjustable means for holding the same to said bridge.

4. In a telephone transmitter, the combination with a frame, a diaphragm seated freely therein and a bridge over said diaphragm, of a front electrode having a stud extending toward and adapted to loosely engage only a central point in said diaphragm, a spring carried by said bridge and having its free end bearing against said stud to hold the same in yielding contact against a central point in the diaphragm and thus to hold the diaphragm securely in its seat, a back electrode, and adjustable means for holding the same to said bridge.

5. In a telephone transmitter, the combination with a frame, a diaphragm seated therein and the bridge of the frame over said diaphragm, of a granular button unit comprising two electrodes and a thin insulating diaphragm, one of said electrodes having a stud extending toward and adapted to loosely engage a central point in the first mentioned diaphragm, and the other of said electrodes having a stud extending through an opening in said bridge, a spring engaging the first mentioned stud to hold the same with yielding pressure against the diaphragm, and adjustable means for fastening the last mentioned stud in the opening of said bridge.

6. In a telephone transmitter, the combination with a frame, of a diaphragm loosely seated therein and having a central depression, a bridge of the frame over said diaphragm, an electrode having a stud extending toward and adapted to engage only the depression in said diaphragm, a spring engaging said stud to hold said electrode in place with yielding pressure against the diaphragm, an opposing electrode, and adjustable means for holding the same to said bridge.

7. In combination, a transmitter frame, a diaphragm loosely seated in said frame, said diaphragm being of less diameter than its seating surface and having a central depression, a front electrode, a stud projecting from said electrode and engaging only said depression, and a spring engaging said stud.

8. In combination, a transmitter frame

having a flat bearing surface, a diaphragm loosely seated therein, the diameter of the diaphragm being less than that of the flat surface, said diaphragm being provided with a central depression, an electrode engaging the diaphragm only at said depression, and a spring mounted on the frame and engaging said electrode to hold the same against the diaphragm and the diaphragm against the flat surface of the frame. 10

In witness whereof, I, hereunto subscribe my name this 26 day of July A. D., 1910.

CHARLES E. SCRIBNER.

Witnesses:

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