

F. GOTTSCHALK.
 TELEPHONE TRANSMITTER.
 APPLICATION FILED FEB. 10, 1912.

1,045,969.

Patented Dec. 3, 1912.

2 SHEETS-SHEET 1.

FIG. 1.

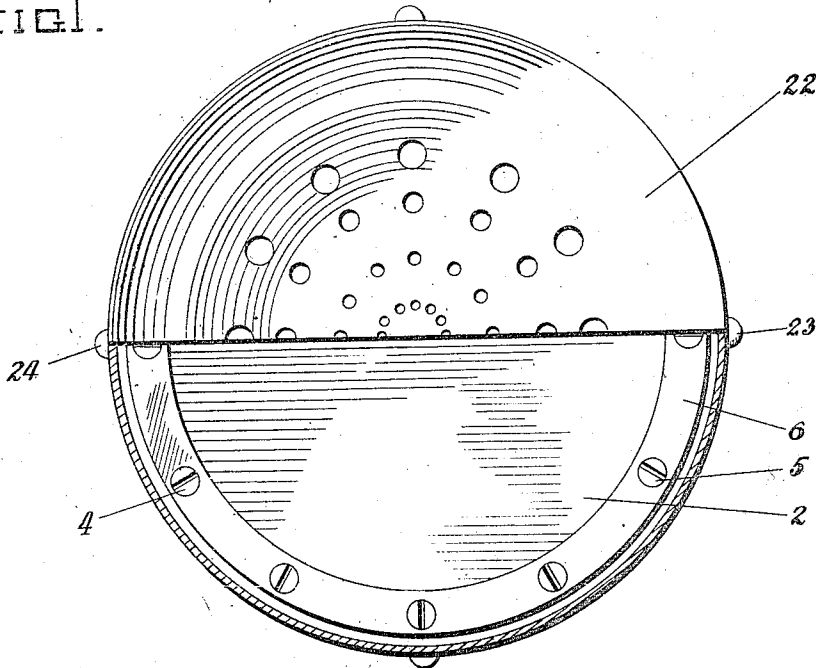
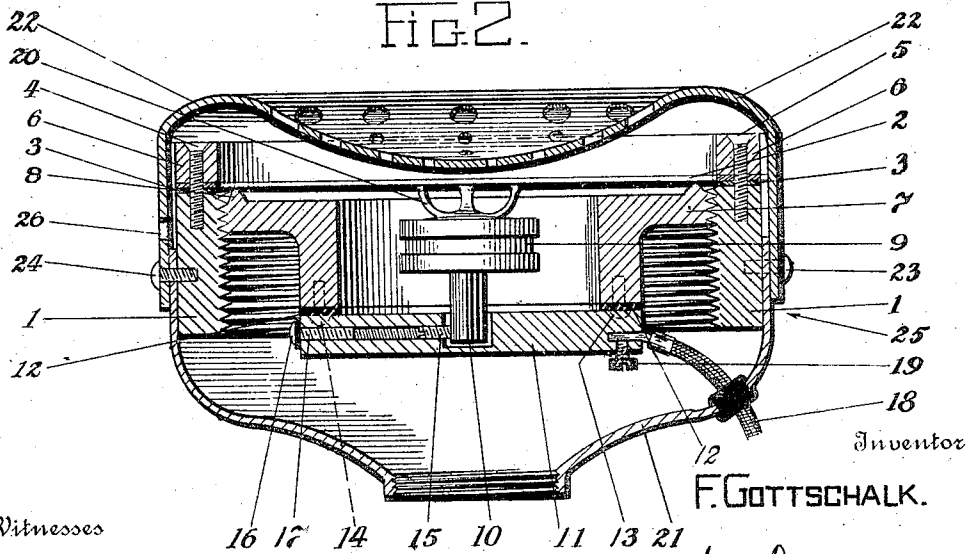


FIG. 2.



Witnesses

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2 SHEETS—SHEET 2.

FIG. 3.

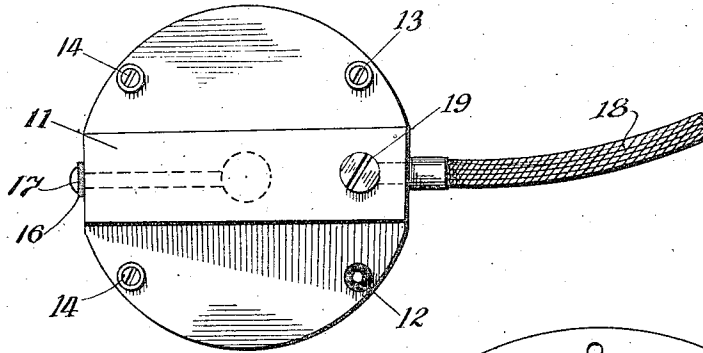


FIG. 4.

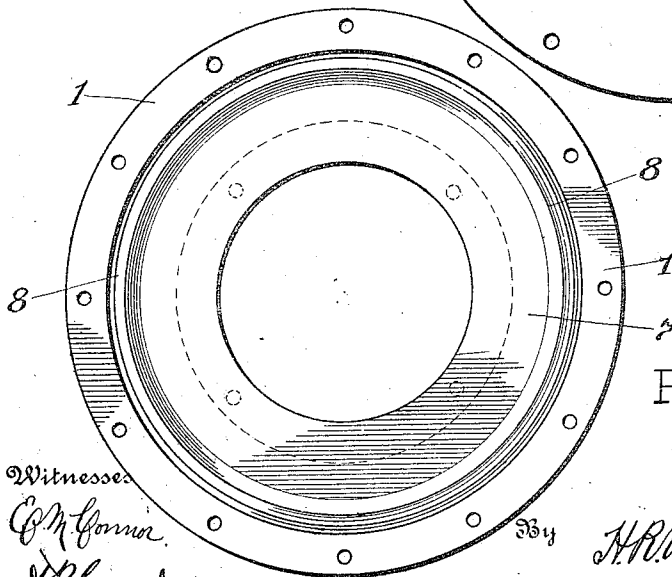
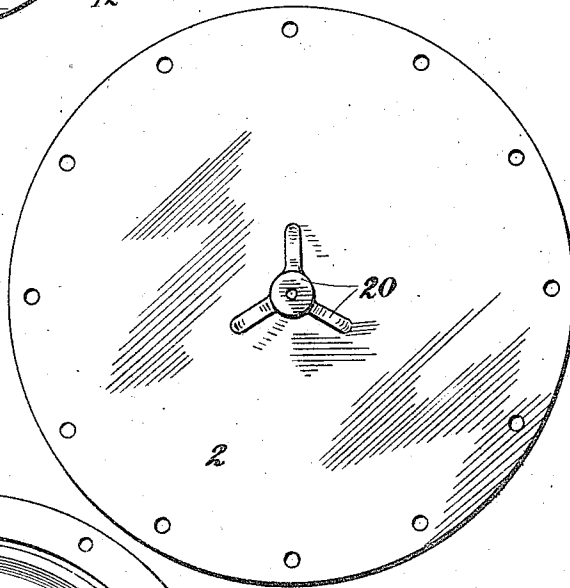


FIG. 5. Inventor
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UNITED STATES PATENT OFFICE.

FELIX GOTTSCHALK, OF NEW YORK, N. Y.

TELEPHONE-TRANSMITTER.

1,045,969.

Specification of Letters Patent.

Patented Dec. 3, 1912.

Application filed February 10, 1912. Serial No. 676,807.

To all whom it may concern:

Be it known that I, FELIX GOTTSCHALK, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Telephone-Transmitters, of which the following is a specification, reference being had to the accompanying drawing.

My invention relates to telephone transmitters and consists of an improved construction whereby the interior of the instrument is made air and water tight, the usual forwardly projecting mouthpiece is eliminated, and a more simple and efficient structure secured than heretofore. There are other advantages which are hereinafter described and claimed.

In the accompanying drawings:—Figure 1, represents a plan view of the transmitter embodying this invention, a portion of the guard being removed in order to show a portion of the interior construction. Fig. 2, is a central sectional view through the transmitter, the diaphragm being shown only partly in section. Fig. 3, is a detail of the terminal piece used in the transmitter shown in these drawings. Fig. 4, is a detail of the diaphragm used, showing a spider member connected thereto, and Fig. 5, is a detail of the filler block and the holding ring used in this transmitter.

Similar reference characters refer to similar parts throughout the drawings.

1 is a ring forming an internally threaded casing, the sound receiving diaphragm 2 is placed across the front of this casing, and a piece of suitable packing 3, such as lead or semi-vulcanized rubber, is used to form an air-tight joint. The diaphragm is clamped to the casing by means of the screws indicated at 4 and 5, a suitable number of which are disposed through the clamping ring 6. After the diaphragm is secured in position the filler block 7 is screwed into the casing, and the annular rib 8 forces the diaphragm outwardly, thereby tauting or stretching same in a very perfect manner. It is obvious that other means can be used besides the thread, as shown, to hold the filler block in place—for instance screws passing through the casing and engaging the block. Such modifications I deem within the scope of my invention. This stretched diaphragm I find to be much more efficient than the usual type, it being more susceptible to the

delicate sound vibrations without having annoying side tones. This method of stretching eliminates the necessity of damping springs, and the filler block in addition forms a water-tight joint where it engages the diaphragm packing.

In the center of the filler block is a chamber just large enough to hold the cell 9 containing the variable resistance medium. This cell may be of any well known type and constitutes that portion of the transmitter through which an electric current must pass to be subjected to varying impulses from the sound receiving diaphragm 2. The cell shown in the drawing is of a well known type having its insulated electrode toward the diaphragm, and its frame electrode toward the rear of the instrument, stem 10 being a part of the cell frame. My method of mounting this stem in its support I consider to be a separate invention and have embodied same in my application for Letters Patent for "transmitter casings," Serial No. 677,112, but I disclose this method here, as it is peculiarly adapted to this type of transmitter, although it is obvious that it may be used with other structures.

The stem 10 is placed in the recessed terminal piece 11, which is insulated from the casing 1 by packing shown at 12 and by suitably bushed screws 13 and 14. The stem is secured in place by the adjustment screw 15, and to prevent the ingress of moisture or air I provide the packing 16 and screw 17, thereby closing the opening above 15. At 18 is shown the connecting cord or wire which is held in the terminal piece by suitable means such as the screw 19.

The front electrode is connected to the diaphragm by means of a spider 20, having two or more legs, the outer ends of which touch the diaphragm at interperipheral points. I find increased efficiency is obtained by placing the spider legs one-third the distance from the center to the edge of the diaphragm, although the best position differs with the diaphragm thickness and may be determined by experiment. The spider may be secured to the diaphragm, or may be simply pressed against it.

To provide means for mounting the transmitter on the telephone instrument I provide the usual back-shell 21, and inclose the front of the instrument with the guard 22, having suitable apertures through it to permit the sound waves to impinge on the dia-

phragm. This guard is so shaped that it laps over the back shell as shown, thereby permitting the same screws 23 and 24 to hold guard, back-shell, and transmitter together, thus eliminating all but one joint or seam (at 25) on the outside of the instrument. I also provide a hole 26 at the bottom of the guard to drain any saliva or other moisture that may collect in the front of the instrument.

In use, the transmitter being placed in a suitable circuit, current will flow from the casing 1 (which is connected to one side of the circuit) to the diaphragm 2, to spider 20, to the front cell electrode, through the variable resistance medium to the rear electrode, to the cell stem 10, to terminal piece 11 and to the circuit connection 18; and it will be observed that the interior of the instrument is at all times effectually sealed, thereby permitting the circuit wire to be attached or the cell adjusted without danger of permitting the entrance of moisture—so fatal to the cell and other interior parts.

Owing to the efficiency of a transmitter constructed in this manner, the usual flaring mouthpiece is unnecessary, and the sanitary and easily cleansed guard as shown may be used. The entire instrument may be plunged in any germicide solution without injury, as the interior is not only moisture-proof, but all air chambers are eliminated by the filler block, and therefore the small amount of air confined in the interior cannot expand or contract sufficiently to affect the adjustment of the instrument.

I claim:

1. In a telephone transmitter, a casing, a metallic diaphragm on said casing, a clamping ring on said diaphragm, means for holding said casing ring and diaphragm together to form a water-tight joint between the diaphragm and casing, a resistance cell, means

for connecting said cell with said diaphragm at two or more interperipheral points, and a filler block adapted to stretch said diaphragm outwardly against said ring.

2. In a telephone transmitter, a metallic diaphragm, a casing, means for holding said diaphragm at all points of its periphery to the casing, means for stretching said diaphragm outwardly from said casing, a perforated guard over said diaphragm, an insulated back-plate over said stretching means, and transmitter mechanism inclosed in the chamber formed by the diaphragm casing and back-plate.

3. In a telephone transmitter, a perforated metallic guard, a drain hole at the bottom of said guard, a metallic diaphragm back of said guard, a casing supporting said diaphragm, internal threads on the casing, a filler block having a threaded edge engaging the threads in said casing, an aperture in said filler block, transmitter mechanism in said aperture, and a supporting member for said cell forming a closure for said aperture.

4. In a telephone transmitter, a metallic diaphragm secured at its periphery to a casing, water-tight means interposed between said diaphragm and the casing, a transmitter cell within said casing and inclosed by said casing, a terminal in electrical connection with one side of the circuit of said cell, a back shell covering the rear of said casing, a guard covering the front of said casing and overlapping said back shell, and means for holding the casing back-shell and guard together.

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

FELIX GOTTSCHALK.

Witnesses:

H. G. TORREY,

CHARLES TAYLOR.