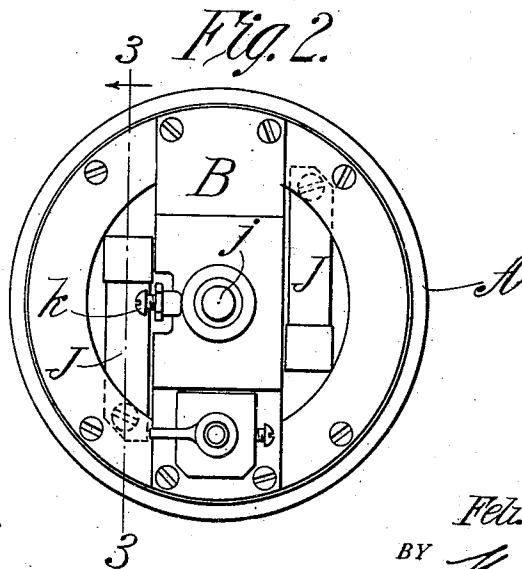
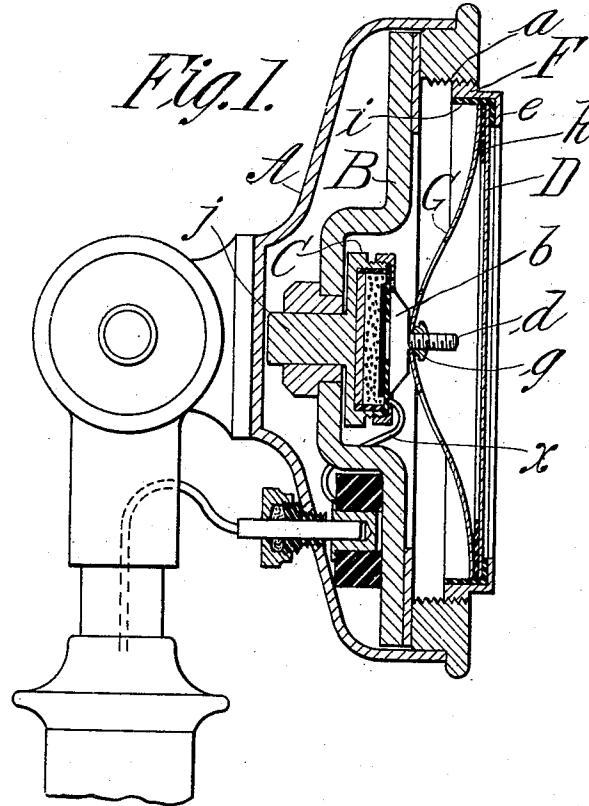


977,620.

F. GOTTSCHALK.
TELEPHONE TRANSMITTER.
APPLICATION FILED JAN. 28, 1910.

Patented Dec. 6, 1910.

2 SHEETS—SHEET 1.



WITNESSES:

H. L. Sprague
R. M. Mowry

INVENTOR,

Felix Gottschalk

BY

W. J. Bell
ATTORNEY.

977,620.

F. GOTTSCHALK.
TELEPHONE TRANSMITTER.
APPLICATION FILED JAN. 28, 1910.

Patented Dec. 6, 1910.
2 SHEETS—SHEET 2.

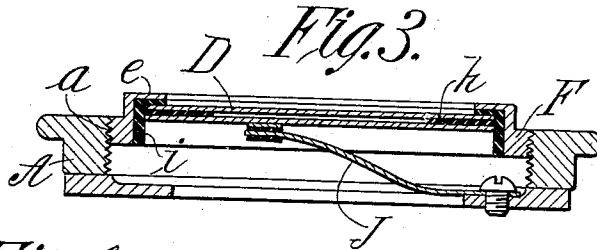


Fig. 4.

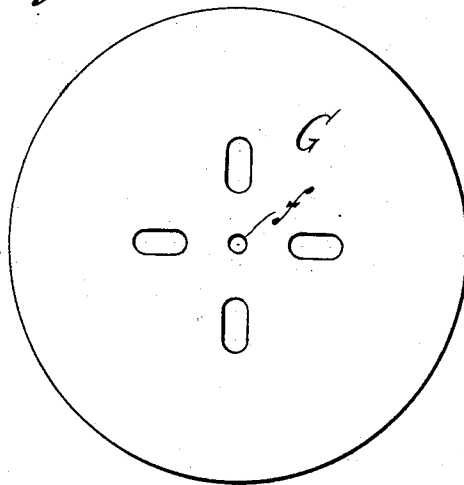
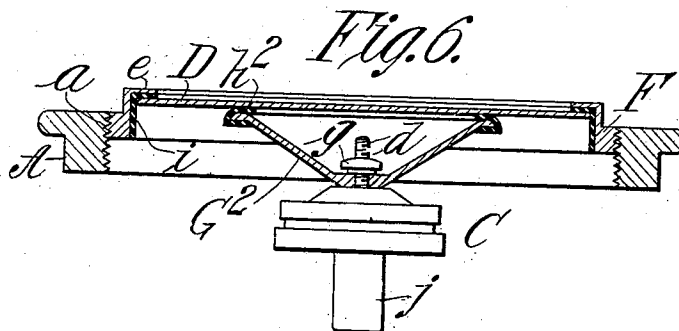
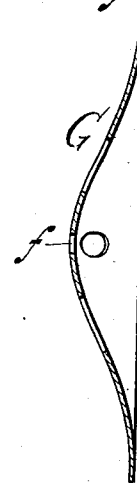


Fig. 5.



WITNESSES:

H. L. Sprague
R. M. Moway

INVENTOR,

Felix Gottschalk,

BY

W. H. Bell
ATTORNEY.

UNITED STATES PATENT OFFICE.

FELIX GOTTSCHALK, OF NEW YORK, N. Y.

TELEPHONE-TRANSMITTER.

977,620.

Specification of Letters Patent.

Patented Dec. 6, 1910.

Application filed January 28, 1910. Serial No. 540,526.

To all whom it may concern:

Be it known that I, FELIX GOTTSCHALK, a citizen of the United States of America, and resident of 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 full, clear, and exact description.

This invention relates to improvements in telephone transmitters, and more particularly pertains to the combinations or arrangements of parts to acquire a transmitter which is improved in the following respects: That the requirement of the ordinary forwardly projecting mouthpiece is excluded; that the instrument is constituted a sanitary one in every respect; that it is one of the highest operative efficiency owing to its capability of delicate and faithful transmission of the vibrations produced by the sound waves without loss of reproductive results in the slightest variations thereof; that it is more nearly proof against the destructive action of moisture, especially that from the breath of the speaker penetrating within the casing; and that it is not only of simplified and cheapened construction, but it is also susceptible of an easy assemblage and adjustment of its parts and a displacement or removal of any of the parts as occasion therefor may require.

The invention is hereinafter described in conjunction with the accompanying drawings and set forth in the claims.

In the drawings:—Figure 1 is substantially a central vertical sectional view, on an enlarged scale, from front to rear of a telephone transmitter of the Bell type in which my present improvements are embodied. Fig. 2 is a rear view of the transmitter, on a somewhat smaller scale, as seen with the rear portion of the casing removed; Fig. 3 is a sectional view, somewhat enlarged, of the forward portion of the instrument as taken on line 3—3, Fig. 2; Figs. 4 and 5 are respectively a rear and a central sectional view of a cup-shaped shell which is comprised in the novel portion of the instrument. Fig. 6 is a sectional view centrally through the forward portion of the instrument representing a slight modification.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings,—A represents the casing of the transmitter represented as of the usual form as at present found in the Bell instru-

ment; and the casing has a comparatively large circular aperture *a* through its front.

B represents the usual bridge supported within the casing, mounted on which is the resistance cup C which comprises the front electrode *b* between which and the rear electrode, as usual, is the granular carbon. The front electrode *b* has a forwardly projecting screw threaded stud *d*.

D represents the diaphragm which is contained in a ring F which is screw engaged in the apertured front of the casing A and has an inwardly extending shoulder-constituting flange *e*, the construction of such ring being such that the disk diaphragm is restrained against radial and forward displacement by the internal circular wall of the ring and by its shoulder.

G represents a member or appliance located between the diaphragm and the front electrode and in substantial contact with both of said parts of the instrument, such member constituting the medium for the transmission of the vibrations produced by the sound waves on the diaphragm to the front or "top" electrode. This interposed medium G is preferably constituted by a very thin and light metallic shell of dished or cup shape, forwardly widening and having its back at its converged portion provided with a perforation *f* whereby it is somewhat loosely engaged about the stud *d* which projects forwardly from the front electrode. The small nut *g* engaged on the threaded stud *d* when set up against the back of the dished or forwardly flaring cup G, binds the latter against the electrode; and the said cup shaped shell G, as especially represented in Figs. 1 and 5 is of a size diametrically approximate that of the disk diaphragm; and it has its marginal portion so formed as to have more or less of such marginal portion in plane with, and facewise contact against, the diaphragm; although for considerations of operativeness of the instrument a thin ring *h* of mica or waxed or gummed paper is interposed between the diaphragm disk and the approximate marginal portions of the metallic shell G; and the diaphragm and shell are also separated by an insulating lining ring *i* from the metallic ring F and the casing A in which the ring is detachably fitted.

The resistance cup C which is carried at the forward portion of the stem may be adjusted forwardly and readwardly through

the bridge so that when the diaphragm carrying ring is screwed home the resistance cup may be properly positioned to insure that the shell G will have the proper nature of contact with, or in proximity to, the diaphragm; and the resistance cup will be held in its adjusted position by the confining screw *h*. It is, therefore, to be understood that the cup shaped shell is in circuit with the front electrode, the diaphragm disk is insulated from the casing, while the casing is in metallic connection with the back electrode, the wire *x* having connection, as usual, with the front electrode, these conditions last referred to being unchanged from the customary ones in ordinary telephones; although it is not necessary to depend upon this particular method of electrical circuit, as the back electrode might be insulated from the casing, having the wire *x* connected therewith, then not requiring that the diaphragm be insulated from the casing; or again any of the known methods for the course of the electric current may be employed.

The springs J J arranged oppositely from the axial center of the instrument and provided and operating substantially as usual may exert their tensioning effect against the diaphragm through the medium of the cup shaped shell G by having their free ends yielding in contact against the latter, or the free ends of the springs having the rubber cushion *h*² thereon may have bearings directly against the diaphragm outside of the cup shaped shell G², which may, as represented in Fig. 6, be of considerably lessened diameter than that of the diaphragm.

It will be appreciated from the foregoing descriptions and the drawings accompanying same that this instrument is one presenting a closed character at its front at which a large diaphragm area is exposed; and the front aspect of the instrument is one of attractive simplicity. And the instrument, moreover, is one having the capability of a most delicate adjustment as between the resistance cup and the medium constituted by the member G which is interposed between the front electrode and the disk diaphragm.

I claim:—

1. In a telephone transmitter, a casing having an apertured front, and a resistance cup, comprising the electrodes, within the casing, a diaphragm located at, and closing, the apertured front of the casing forward of the front electrode, and a shell provided with a flat marginal portion interposed between the diaphragm and front electrode for the transmission therethrough of vibrations from the former to the latter.

2. In a telephone transmitter, a casing having an apertured front, and a resistance cup, comprising the electrodes, within the

casing, a diaphragm located at, and closing, the apertured front of the casing forward of the front electrode, and a forwardly opening cup shaped member in contact at its forward portion with the margin of the rear side of the diaphragm, and at its rear portion with the front electrode of the resistance cup.

3. In a telephone transmitter, a casing having an apertured front, and a resistance cup within the casing comprising the electrodes, one thereof having a forwardly projecting stud, a diaphragm located at, and closing, the apertured front of the casing, and a thin walled shell having a perforation in the rear portion thereof and engaged about said stud with such rear portion against the front electrode, and having its forward portion in contact against the margin of the diaphragm.

4. In a telephone transmitter, a casing having an apertured front, and a resistance cup within the casing comprising the electrodes, one thereof having a forwardly projecting stud, a diaphragm located at, and closing, the apertured front of the casing, a thin walled shell having a perforation in the rear portion thereof and engaged about said stud with such rear portion against the front electrode, and having its forward portion in contact against the margin of the diaphragm, and a nut screw engaged on said stud and binding the shell to the front electrode.

5. In a telephone transmitter, the combination with the casing having a comparatively large aperture in its front, and having therewithin the resistance cup comprising the electrodes, of a ring screw-engaged in the apertured front of the casing and having an inwardly extending shoulder-constituting flange, a diaphragm disk restrained against radial and forward displacement by said ring and its shoulder, and a medium between the margin of the diaphragm disk and the front electrode for the transmission of vibrations from the one to the other.

6. In a telephone transmitter, the combination with the casing having a comparatively large aperture in its front and having therewithin the resistance cup comprising the electrodes, of a ring, detachably connected in the apertured front of the casing, and having a diaphragm disk therewithin, and a forwardly opening cup shaped shell, the rear portion of which is in contact against the front electrode, while its widened forward portion is located within said ring and has a contact against the rear surface of the diaphragm.

7. In a telephone transmitter, the combination with the casing having a comparatively large aperture in its front and having therewithin the resistance cup comprising the electrodes, the front one thereof having a forwardly projecting screw threaded stud, 130

of a ring screw engaged in the apertured
front of the casing and having an inwardly
extending shoulder-constituting flange, a
diaphragm disk restrained against radial
5 and forward displacement by said ring and
its shoulder, a rearwardly convergent mem-
ber having an aperture in its back, engaged
about said stud, in contact against the front
electrode, and having its forward portion
10 extended within said ring, and in contact

against the diaphragm, and a nut screwing
on the stud against the rear portion of said
rearwardly convergent member.

Signed by me at New York, N. Y., in pres-
ence of two subscribing witnesses.

FELIX GOTTSCHALK.

Witnesses:

J. J. LOCKWOOD,
F. J. McADAMS.