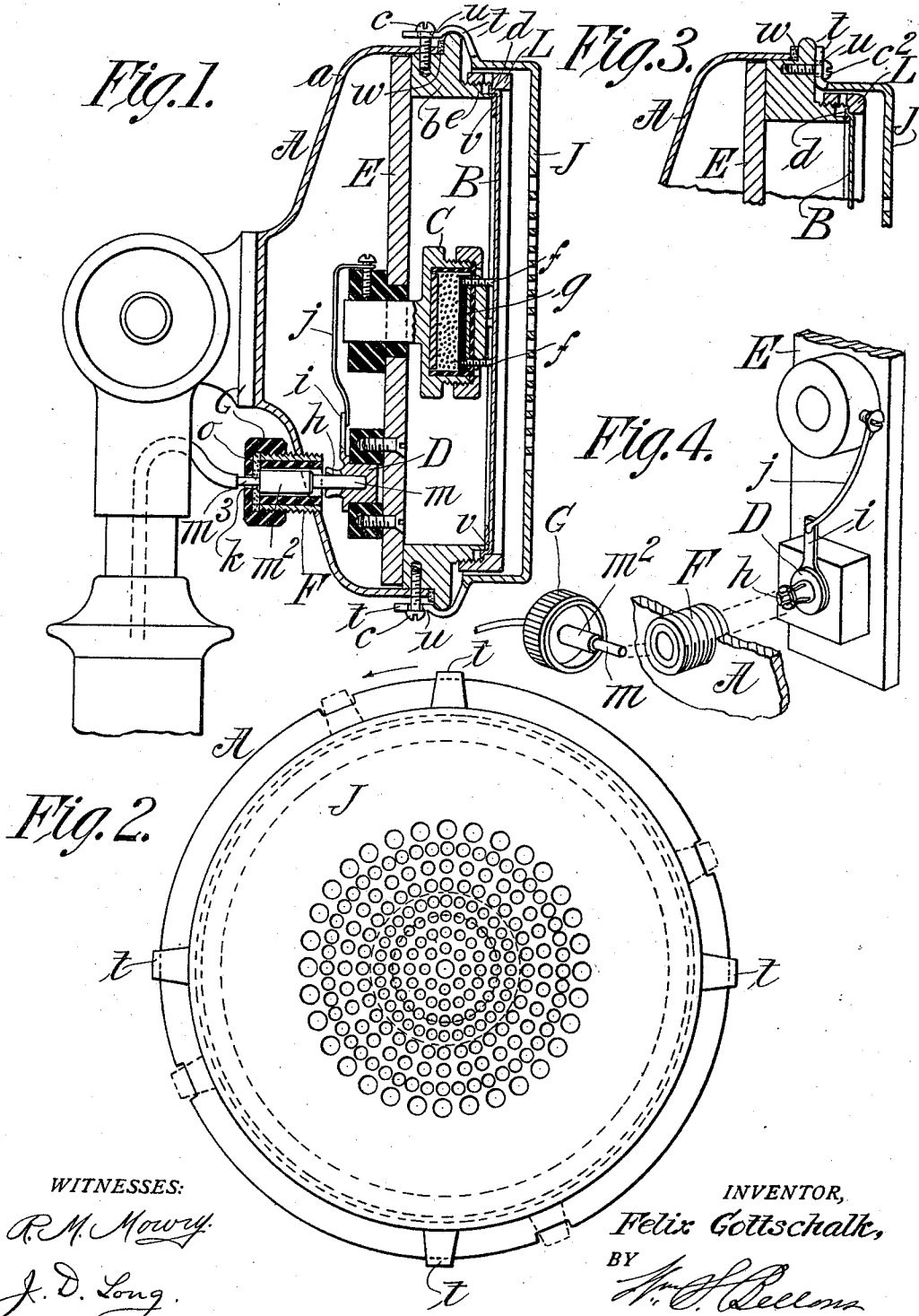


F. GOTTSCHALK.
 TELEPHONE TRANSMITTER.
 APPLICATION FILED AUG. 11, 1910.

1,000,795.

Patented Aug. 15, 1911.

2 SHEETS—SHEET 1.



WITNESSES:
R. M. Mowry
J. D. Long

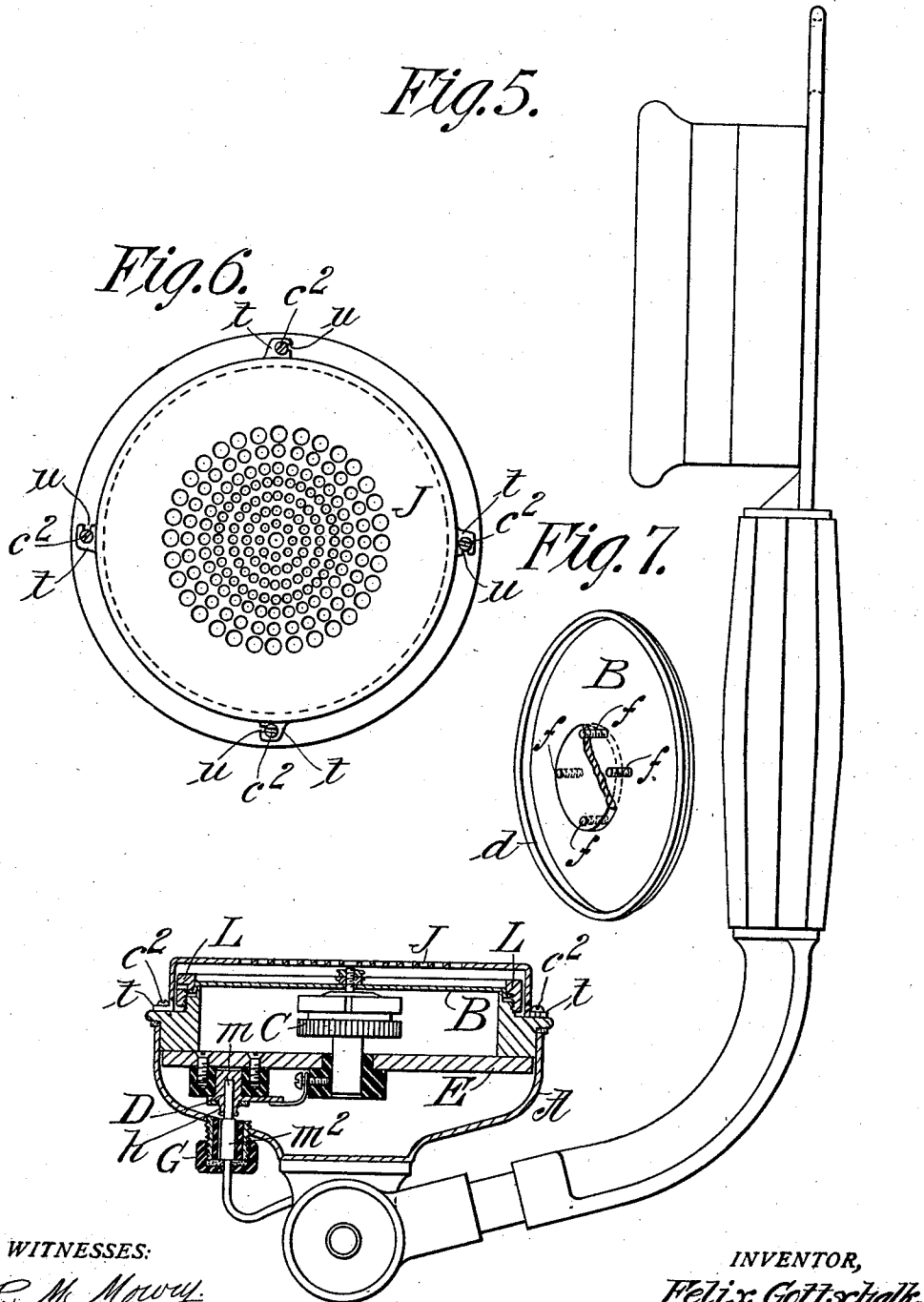
INVENTOR,
Felix Gottschalk,
 BY
W. J. Bell
 ATTORNEY.

1,000,795.

F. GOTTSCHALK.
TELEPHONE TRANSMITTER.
APPLICATION FILED AUG. 11, 1910.

Patented Aug. 15, 1911.

2 SHEETS—SHEET 2.



WITNESSES:
R. M. Mowry.
J. D. Long.

INVENTOR,
Felix Gottschalk,
BY
M. J. Bellomy,
ATTORNEY.

UNITED STATES PATENT OFFICE.

FELIX GOTTSCHALK, OF NEW YORK, N. Y.

TELEPHONE-TRANSMITTER.

1,000,795.

Specification of Letters Patent. Patented Aug. 15, 1911.

Application filed August 11, 1910. Serial No. 576,744.

To all whom it may concern:

Be it known that I, FELIX GOTTSCHALK, a citizen of the United States of America, and resident of the city 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 relating to improvements in telephone transmitters is applicable on instruments of the Bell and several other types.

An object of the invention is to provide constructions and combinations or arrangements of parts whereby the transmitter is proof against the entrance thereinto of air, moisture, dust or dirt, both at the front at which the diaphragm is located and at the rear through which the telephone wire, connected with one of the electrodes of the resistance cup, leads.

Another object is to improve the construction whereby the vibratory impulses of the diaphragm produced by talking thereagainst will be transmitted to the resistance cup in an extremely satisfactory manner and for the improvement of the reproduction of the speech.

Another object is to provide constructions and arrangements whereby the terminal of the electric wire for the transmitter may be placed in electrical connection with the metallic block inside of the casing,—which block is electrically connected with one of the electrodes,—without opening or taking apart the sectionally made shell or transmitter casing. And other objects are to generally improve, simplify and increase the operative efficiency, durability and prolonged life for the use of the transmitter.

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

In the drawings, Figure 1 is a central vertical sectional view from front to rear, on a somewhat enlarged scale, of a stand transmitter of the Bell type in which the present improvements are embodied. Fig. 2 is a front view showing the aspect of the transmitter having the guard at the front thereof. Fig. 3 is a partial sectional view showing a slight modification in the formation of the guard for a slightly different

manner of engagement on the casing, from that represented in Fig. 1. Fig. 4 is a perspective view showing rearwardly located parts and equipment of the instrument which are hereinafter particularly described. Fig. 5 is a side elevation, with the transmitter portion in section, of a telephone set which unlike the "stand" set is held by the hand while listening and talking and on which the applicability of the present improvements is indicated. Fig. 6 is a plan view of the guard-provided transmitter shown in Fig. 5. Fig. 7 is a perspective view showing the improved construction of combined diaphragm and front electrode.

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

In the drawings, A represents the casing of the transmitter comprising rear section *a* of bell or cup shape and the front annular section *b* closely fitted into the rear section and confined by the headed screws *c*. The opening at the front of the casing is, when a drum head diaphragm is employed as here represented, completely closed by such diaphragm, and as shown the very thin metallic diaphragm is made with a marginal rearwardly and then outwardly turned portion *d* and has its engagement next inside of such angularly turned marginal portions disposed in front of and close to the forward edge of the annular ring *e* which is forwardly extended from, and as an integral part of, the casing section *b*. The diaphragm B has a plurality of separated thin metallic studs or pins *f f* in a distributed arrangement around its center which rearwardly extend from a rigid connection with the diaphragm to rigid connection with the front electrode *g* of the carbon containing resistance cup C. The studs or pins while formed unitary with the diaphragm do not penetrate or require the perforation of the latter, and they do not require in conjunction therewith any nuts or parts which facewise engage and have a dampening effect upon the diaphragm; and in practice they are secured to the rear side of the diaphragm by soldering, brazing or welding. The provision of the several diaphragm and electrode connecting studs having a distributed arrangement near the center of the diaphragm and at the zone or area of maximum vibration, conduces to in-

creased intensity in the transmission of the articulatory impulses through the resistance cup.

D represents a metallic block, supported by insulation on the rear of the bridge E within the casing, provided with a rearwardly opening socket *h*, the walls of which are split and constrictive, as indicated in Fig. 4. This block is by its plate like extension *i* and wire *j* in electrical connection with one of the electrodes in the resistance cup.

The transmitter casing is made with a portion or bushing piece F appearing as a tubular boss rearwardly protruding beyond the surface of the casing and externally screw threaded. The hole, lined with insulating material, through this tubular portion of the casing is in axial alinement with the socket *h* in the metallic piece D.

m represents the terminal tip of the electric wire of the transmitter which has the usual connection with the resistance cup, but it is here shown as made with a shoulder m^2 produced by a diametrically enlarged rear portion of the wire terminal or tip.

G represents a cup shaped member having an opening *k* centrally therethrough while its cylindrical portion is internally threaded for a screw engagement with the passaged boss like rear portion of the casing.

o represents a ring or layer of compressible material interposed between the end of the boss F and the plane annular flange or back of the cup shaped coupling member G; and in an encircling relation to the telephone wire m^3 where the latter adjoins the terminal tip.

It is always possible by simply unscrewing the coupling member G to draw the terminal tip out from its engagement with the metallic block D, without taking apart the sections of the transmitter casing and to as readily place the terminal tip in its friction tight connection or slip fit engagement in the constrictive walled socket of said block, as occasion for replacement or repair may require; and the screwing home of the coupling member not only locks the connection and prevents the terminal tip from becoming pulled out, but by its compression of the packing material *o* insures an absolutely tight closure of the passage through which the wire terminal enters the casing and precludes the entrance of air, moisture or dust. And the screw engaging member G, when applied and tightened on the part F, through its engagement with the shouldered terminal tip forces the latter deeply into the constrictive walled socket of the block D securing perfection of contact.

The transmitter casing made mouthpieceless and equipped with a foraminous guard J in the front of and separated from, the diaphragm, utilizes, as represented in Fig. 1, the screws *c c*, which connect the separable

sections of the casing together, for also affording means for the supporting engagement of the guard on the casing.

The guard proper is provided with a plurality of rearwardly extending supporting arms *t t* suitably bent or curved where necessary to accommodate themselves to the beaded peripheral portion of the transmitter casing; and the rearward extremities of the arms are arranged substantially in parallelism to each other and to the axis of the casing and have recesses *u* which open to their edges and by which the supporting arms when brought to embracing relations about the transmitter casing and rotatively moved acquire engagements with the necks of the casing screws and are by the heads of the latter, when the screws are fully screwed in, confined or locked to the casing. It is only necessary to put on or take off the guard that the screws be slightly turned outwardly so that the space between the bases of the screw heads and the face of the casing is a little greater than the thickness of the edgewise recessed arms.

In Figs. 3, 5, and 6, the guard is indicated as having the supporting arms *t* thereof made with angularly and outwardly turned extremities in a common plane to be set against the flat front face portion of the casing at which the studs or screws c^2 are provided. The form and relative arrangement of the edgewise opening recesses *u* in the several supporting arms of the guard are best represented in Fig. 6.

In Fig. 1 *v* represents a ring of elastic rubber, or it may be a compressible ring of other material, interposed between the rear surface of the diaphragm adjacent its angularly turned margin and the forward edge of the casing ribs *e* which ring when the diaphragm is tensioned by the screw engaging annular confining member L increases the certainty of the absolutely tight closure of the front of the casing, and such compressible ring forming a bearing support for the margin of the diaphragm on the casing amplifies the capability of vibration of the diaphragm. This ring *v* of rubber may, as represented in Fig. 1, be wide enough to overlap a considerable portion of the diaphragm near its margin and to act as a damper for the diaphragm. If deemed necessary or desirable a packing ring *w* may be interposed where the sections *a* and *b* of the casing are adjoined.

I claim:—

1. A telephone transmitter having interiorly therein a metallic block provided with a rearwardly opening socket and connected with one of the electrodes, the transmitter casing having an apertured portion rearwardly in line with said socket, and the terminal tip of the telephone wire adapted for insertion through the said apertured rear

portion of the casing for a slip fit engagement in said socket, and a device for making a tight closure between the terminal tip and the apertured portion of the casing through which it is inserted, and means which engages the terminal tip and forces it to and holds it in its place in said socket.

2. A telephone transmitter having interiorly therein a metallic connection piece for the terminal of the telephone wire, the casing of the transmitter having at its rear portion a tubular rearwardly extending screw threaded boss, the terminal tip of the telephone wire provided with a shoulder and adapted to be entered through said boss and engaged with said connection piece, a cup shaped and centrally apertured member surrounding the terminal tip and engaging the shoulder thereof and also screw engaging said threaded boss and a packing within said cup shaped member and between same and the boss, to be compressed about the entering portion of the terminal tip under the coercion of the said screw engaging parts.

3. A telephone transmitter made with an opening through its front and having a forwardly protruding annular rib surrounding said opening, having a portion of its external wall screw threaded, a diaphragm having a rearwardly and outwardly turned marginal portion covering the opening of the casing, a ring of compressible material interposed at the rear side of the diaphragm between the portion thereof adjacent its rearwardly turned part and the forward edge of said rib and retained against displacement by said rearwardly turned portion, and a confining ring having screw engagement with the threaded portion of the casing and also having an engagement with the marginal outturned portion of the diaphragm.

Signed by me at New York city, N. Y., in presence of two subscribing witnesses.

FELIX GOTTSCHALK.

Witnesses:

C. H. BUSH,
A. E. MORRIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."