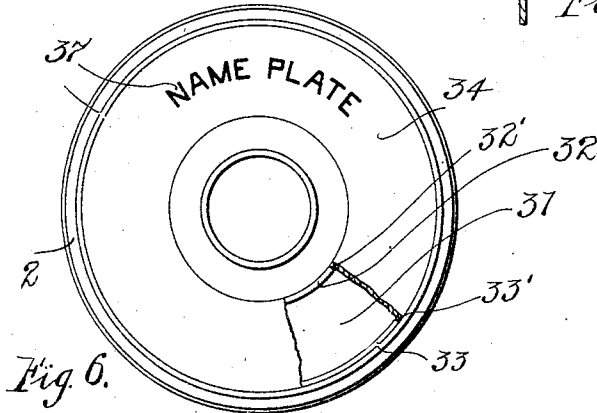
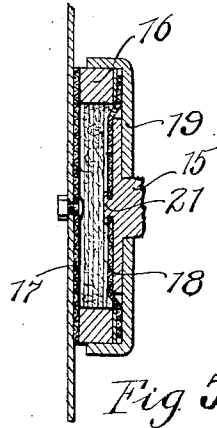
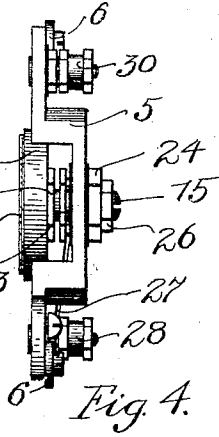
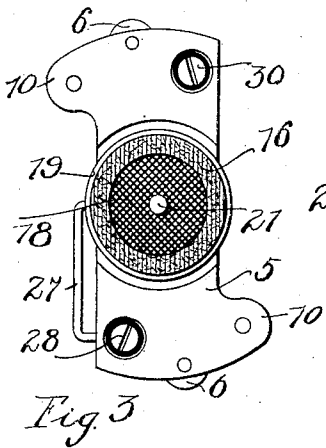
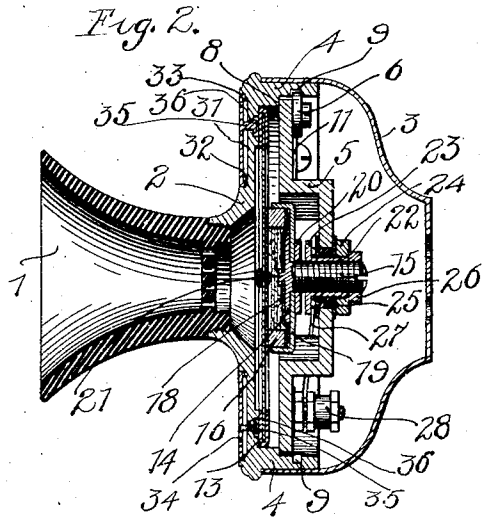
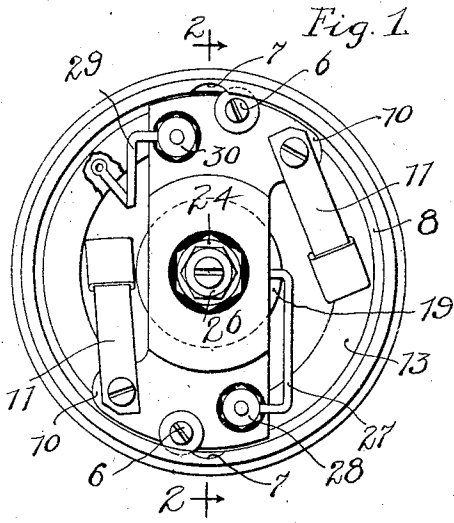




PATENTED APR. 4, 1905.

W. KAISLING.
TELEPHONE TRANSMITTER.
APPLICATION FILED NOV. 23, 1903.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM KAISLING, OF CHICAGO, ILLINOIS, ASSIGNOR TO STROMBERG-CARLSON TELEPHONE MANUFACTURING COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

TELEPHONE-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 786,444, dated April 4, 1905.

Application filed November 23, 1903. Serial No. 182,391.

To all whom it may concern:

Be it known that I, WILLIAM KAISLING, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Telephone-Transmitters, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to telephone-transmitters, particularly to transmitters in which electrodes are employed between which is disposed the comminuted material and about which electrodes is disposed a containing-ring forming, with said electrodes, the electrode-chamber. To produce the best transmission results, this containing-ring should be of soft and yielding material, such as plush or felt, which readily follows all vibrations of the diaphragm, but which ring should be rigid in a radial direction to prevent distortion of the electrode-chamber.

One of the objects of my invention is to provide supporting and enforcing means for an inclosing ring, which means will in no way prevent free response of the ring to the diaphragm vibrations, but which prevents radial enlargement or distortion of the ring due to the pressure thereagainst of the diaphragm. I therefore provide a rigid cup or chamber the walls of which encircle the ring and prevent radial enlargement and distortion thereof. As pressure is brought upon the diaphragm, due to sound impacts, the tendency will be for the ring to bulge inwardly on its inner face when thus confined at its outer face by the supporting-cup; but this bulging-in effect is counteracted by the expansion of the comminuted material in the electrode-chamber, the result being that the ring always maintains its radial thickness. I find that by thus inclosing and confining the ring the sound transmitting qualities of the transmitter are greatly increased.

My invention also contemplates an improved manner of separably securing a name-plate to the transmitter. Heretofore it has been

customary to represent the manufacturer's name by letters which were integrally cast with some portion of the transmitter-frame. It sometimes is desirable, however, where different companies use the same transmitter to have on only the name of the company employing the transmitter, and for this purpose I provide a name-plate which may be provided with any lettering and which may be readily attached to the transmitter.

The accompanying drawings will more clearly illustrate my invention, and Figure 1 thereon represents a rear view of the transmitter, the protecting-cap being removed. Fig. 2 is a vertical sectional view taken on line 2 2 of Fig. 1. Fig. 3 is a front view of the rear electrode-supporting bridge. Fig. 4 is an elevation view of the rear electrode and supporting-bridge removed from the frame. Fig. 5 is a detail view showing the ring enforcing-cup, and Fig. 6 is a front view of the transmitter-frame, showing a name-plate attached, part of said plate being removed.

Like characters of reference refer to like parts in the various figures.

A mouthpiece 1 is screw-threaded into a front supporting-plate 2, about the rear periphery of which the inclosing casing 3 is secured. A flange 4 of the front plate extends to the rear, and a solid metal bridge 5 fits concentrically within this flange, the bridge being provided with flange-headed screws 6 6, which upon being brought into register with notches 7 7 permit the forward movement of the bridge to seat itself upon the shoulder 8 at the bottom of the flange, whereby upon slight rotation of the bridge the flanges of the screws engage with suitable slots 9 9, and upon slight withdrawal of the screws 6 6 the flanges are secured rigidly in place against said shoulder. The bridge is provided with ears 10 10, from which extend rubber-soled spring-clips 11 11, which serve to press the diaphragm forward against the front plate 2, a rubber washer 13 being provided about the periphery of the diaphragm to insulate it from the frame.

In this transmitter the diaphragm prefer-

ably forms the front electrode, the rear electrode 14 being secured to the front end of a stem 15. A ring 16, which may be of plush or felt, encircles the electrodes to form with them an electrode-chamber to contain the comminuted material. To properly entangle the comminuted material to prevent packing thereof, I provide a disk of gauze 17, secured to the diaphragm or front electrode, and a disk of gauze 18 over the rear electrode. To prevent radial distortion of the ring-section, I provide a reinforcing rigid cup or chamber 19, encircling the outer periphery of the ring 16. The stem 15 is preferably threaded its entire length, and the enforcing-ring 19 may be clamped about said stem between the rear electrode 14 and a washer 20, engaging the stem. The front face of the rear electrode may be provided with a headed projection 21, by means of which the gauze disk 18 may be held in place. The stem 15 passes through a bushing 22, which engages the threads on the stem. This bushing is provided with a flange 23 on its inner end and threaded to be engaged at its outer end by a washer 24, whereby the bushing may be clamped to the rear wall of the bridge 5. Insulation 25 is disposed about the bushing and between the flanges thereof to entirely insulate the bushing from the bridge. The end of the electrode-stem is provided with a notch for engagement by a screw-driver or other instrument, whereby the rear electrode may be adjusted, and a locking-nut 26 engages about the end of the stem to hold it in any adjusted position. A conductor 27 is secured between the flange 23 and the insulation 25, and thus electrically connects the rear electrode with a terminal post 28, mounted upon but insulated from the bridge member 5. As the diaphragm now compresses the ring 16, due to sound-impacts, the section of the ring is reduced longitudinally and the tendency will be for this section to bulge inwardly and outwardly. This outward-bulging tendency, however, is prevented by the encircling cup 19, while the inward-bulging tendency is counteracted by the comminuted material, which owing to the decreased volume of the electrode-chamber, due to the pressure of the diaphragm, is forced outwardly against the inner wall of the ring, and thus radial distortion of the ring is prevented. A conductor 29 connects the diaphragm with a terminal post 30, also mounted upon but insulated from the bridge member 5. By means of the insulated terminal posts 28 and 30 the transmitter may be connected in circuit without including in circuit any of the exposed metallic parts of the transmitter, thereby preventing shocks to the user.

The front face of the frame 2 is cast to leave an annular depression 31, and this depression is provided with a raised inner shoulder 32 and an outer shoulder 33. An annular

name-plate 34 is also provided with an inner shoulder 32' and an outer shoulder 33', adapted for engagement with the shoulders 32 and 33 on the frame 2. The name-plate is provided with studs 35 35, adapted to extend through openings 36 36 through the frame 2, and when the name-plate is in position on the frame 2 these studs are flared over to rivet and secure the plate in place. Raised lettering 37 of any kind may be cast upon the outer face of the plate. By the provision of the shoulders 32 and 33 on the frame and the shoulders 32' and 33' on the plate the machine-work is greatly reduced, as it is only necessary to true up the engaging faces of the shoulders in order to provide a rigid seat for the name-plate.

I do not wish to be limited to the precise constructions as shown, as changes may readily be made without departing from the scope of my invention; but,

Having described my invention, I desire to secure by Letters Patent—

1. In a telephone-transmitter, the combination with a front and rear electrode, of an enclosing casing in which said electrodes are contained, a ring of yielding material forming an electrode-chamber with said electrodes, a threaded stem extending from said rear electrode, a reinforcing-cup of rigid material and separate from said casing encircling and engaging the outer periphery of said ring, and a clamping-nut for engaging said stem to clamp said cup against the rear electrode.

2. In a telephone-transmitter, the combination with a front and rear electrode, of an enclosing casing in which said electrodes are contained, a ring of yielding material forming an electrode-chamber with said electrodes, a cup of rigid material and separate from said casing encircling and engaging the outer periphery of said ring, a threaded stem extending from the rear electrode through the wall of said cup, a clamping-nut engaging said stem to clamp said cup against the rear electrode, and means for longitudinally adjusting said stem and the rear electrode secured thereto.

3. In a telephone-transmitter, the combination with a diaphragm serving as a front electrode, of a rear electrode, a ring of yielding material extending from said diaphragm and encircling the rear electrode, a cup of rigid material surrounding and engaging the outer periphery of said ring, a threaded stem extending from said rear electrode through the wall of said cup, a nut for engaging said stem to clamp the cup against the rear electrode, a supporting-bridge for said stem, and means for longitudinally adjusting said stem.

4. In a telephone-transmitter, the combination with a front supporting-frame, of a diaphragm disposed against the inner side of said frame and serving as the front electrode, a supporting-bridge engaging said front supporting-frame, a bushing in said bridge insulated therefrom, a stem passing through

said bushing and having threaded engagement therewith, said stem terminating at its forward end in the rear electrode, a ring of yielding material disposed between said diaphragm and said rear electrode, a cup of rigid material surrounding and engaging the outer periphery of said ring, a clamping-nut for engaging said stem and clamping said cup against the rear electrode, turning of said stem causing either inward or outward adjustment of the rear electrode, and a locking-nut for locking said stem in any adjusted position.

5. In a telephone-transmitter, the combination with a front supporting-frame, of a diaphragm insulated from and resting against the inner side of said frame, said diaphragm acting as the front electrode, a supporting-bridge secured to said front frame, a rear electrode supported from said bridging member, a ring of yielding material disposed between said diaphragm and the rear electrode, a cup of rigid material surrounding and engaging the outer periphery of said ring, means for longitudinally adjusting said rear electrode, and conductors leading from said diaphragm and said rear electrode, said conductors terminating in terminal posts insulated from the supporting-frame and bridge member.

6. In a telephone-transmitter, the combination with a front supporting-frame, of a rear inclosing frame engaging the front supporting-frame, a diaphragm resting against the front supporting-frame and forming one electrode, a rear electrode, a supporting-bridge within the rear inclosing frame to which the rear electrode may be rigidly secured, a felt ring disposed against the diaphragm and encircling the rear electrode, and a thin cup of rigid material surrounding the circumferential and rear surfaces of said felt ring and separably secured to the rear electrode, said cup serving to prevent radial expanding of the felt ring.

7. In a telephone-transmitter, the combination with a front supporting-frame, of a rear inclosing frame engaging said supporting-frame, a diaphragm resting against the front

frame and forming one electrode of the transmitter, a rear electrode, a felt ring resting against the diaphragm and encircling the rear electrode, a stem rigid with said rear electrode and extending rearwardly therefrom, a supporting-bridge secured to the rear of the front supporting-frame for receiving said stem, means for securing said stem in any longitudinal adjusted position, a thin rigid metallic cup securely clamped to the rear electrode and said stem, said cup resting against the circumferential surface and the rear surface of said felt ring.

8. In a telephone-transmitter, the combination with a front supporting-frame, of a rear inclosing frame engaging said supporting-frame, an annular depression in the front face of said supporting-frame, an inner and outer raised shoulder for said depression, and interchangeable name-plates adapted to fit in said depression and in contact with said shoulder.

9. In a telephone-transmitter, the combination with a front supporting-frame, of a rear inclosing frame engaging said supporting-frame, an annular depression in the front face of said supporting-frame, an inner and outer raised shoulder in said depression, and interchangeable annular name-plates provided with inner and outer shoulders adapted for engagement with the shoulders in said depression.

10. In a telephone-transmitter, the combination with a front and rear electrode of an inclosing casing in which said electrodes are contained, a ring of yielding material forming an electrode-chamber with said electrode, a threaded stem extending from said rear electrode, a reinforcing-cup of rigid material and separated from said casing encircling and engaging the outer periphery of said ring, and clamping-rings engaging said stem and said cup for clamping said cup to the rear electrode.

In witness whereof I hereunto subscribe my name this 9th day of November, A. D. 1903.

WILLIAM KAISLING.

Witnesses:

CHARLES J. SCHMIDT,
JOHN STAHR.