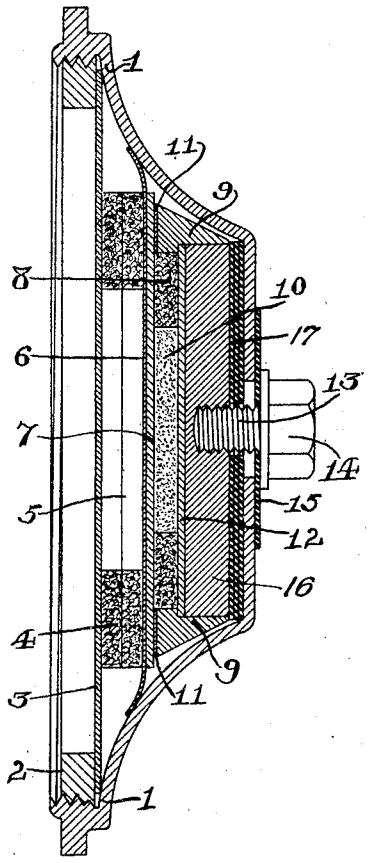
A. MARR.

SOUND TRANSMITTING INSTRUMENT.

APPLICATION FILED MAY 27, 1919.

1,388,963. Patented Aug. 30, 1921.



Alexander Marr
Inventor
by Knight Bros
atty

UNITED STATES PATENT OFFICE.

ALEXANDER MARR, OF BIGGIN HILL, ENGLAND.

SOUND-TRANSMITTING INSTRUMENT.

1,388,963. Specification of Letters Patent. Patented Aug. 30, 1921.

Application filed May 27, 1919. Serial No. 300,172.

To all whom it may concern:

Be it known that I, ALEXANDER MARR, subject of the King of Great Britain, residing at Biggin Hill, in the county of Kent and Kingdom of England, have invented certain new and useful Improvements in Sound-Transmitting Instruments, of which the following is a specification.

This invention relates to improvements in sound transmitting instruments, more particularly to microphonic instruments of the type in which the vibration of a diaphragm alters the resistance of a cell in the electrical transmitting circuit.

According to this invention the diaphragm is free to vibrate over its whole surface having no solid element in contact or connection with it but only a soft annulus or the like soft element in contact with it to form an air chamber communicating the vibrations to the carbon or the like electrode of a variable resistance cell.

The invention is more particularly described with reference to the accompanying drawings showing a microphone in sectional side view on an enlarged scale.

The casing 1 has secured in it, by means of a screwed or spring ring 2 the vibrating diaphragm 3. This diaphragm has contacting with it only one or more felt washers 4 forming an air space or air chamber 5, closed on the inner side by means of a sheet of metallic foil 6 which is held tightly against the curved inner edge of the casing 1 by said felt washers. Contacting with the other side of this sheet of metallic foil 6 is one carbon electrode 7 in the form of a thin plate which rests on a thick felt washer 8 and the electrode 7 is insulated from the carbon granules 10 or the like in the chamber 9, by a thin paper washer 11. The second carbon electrode 12 rests in the bottom of the chamber 9. The bottom 16 of the chamber 9 has screwed into it a set screw 13 provided with a nut 14 by means of which it is secured to the casing 1, being insulated from it by means of the insulating washer 15. Insulation 17 is disposed between the bottom 16 of the chamber 9 and the casing 1.

After assembling the electrode 12 within the chamber 9, the bottom 16 to which the screw 13 is secured, is slipped into place and the edge of the chamber 9 burred over it. This electrode can be held in position in the annular chamber 9 by cementing or glue arranged in the rim of the chamber 9.

I declare that what I claim is:—

1. A microphone, comprising a cell whose resistance varies with the pressure applied to its walls, a casing containing said cell, means to insulate one part of said cell from said casing, a sheet of metallic foil making flexible metallic contact between said casing and the other part of said cell, a vibrating diaphragm, and an annular member disposed between said diaphragm and cell for elastically retaining said foil in place and forming between said diaphragm and cell a centrally confined air space.

2. A microphone comprising a cell whose resistance varies with the pressure applied to its walls, a casing, a sheet of metallic foil contacting with said cell, flexible means maintaining said foil in contact with said cell, and a vibrating diaphragm.

3. A microphone comprising a cell whose resistance varies with the pressure applied to its walls, a casing, a diaphragm, a sheet of metallic foil, an annular soft washer contacting with an annular zone of said diaphragm and maintaining said metallic foil in contact with said casing and said cell.

4. A microphone comprising a cell whose resistance varies with the pressure applied to its walls, a casing, a diaphragm, a sheet of metallic foil, an annular soft washer contacting with an annular zone of said diaphragm and maintaining said metallic foil in contact with said casing and said cell, and simultaneously forming a confined air chamber to convey vibrations from the diaphragm to the cell.

5. A microphone comprising a carbon resistance cell, a casing, means to insulate one part of said cell from said casing, a sheet of metallic foil, and means to elastically hold said foil in contact with the other part of said cell and said casing.

6. A microphone comprising a carbon resistance cell, a casing, means to insulate one part of said cell from said casing, a sheet of metallic foil, and means to elastically hold said foil in contact with the other part of said cell and said casing, and a vibrating diaphragm spaced from said cell.

7. A microphone, comprising a cell whose resistance varies with the pressure applied to its walls, a vibration diaphragm spaced from said cell, a casing, means to clamp said diaphragm on its periphery, a sheet of foil disposed against said cell and also contacting said casing, a soft annular washer of felt con-

tacting between said diaphragm and said foil to elastically retain the foil in place and forming with said diaphragm and foil a confined air space.

8. A microphone comprising a vibration diaphragm clamped on its periphery, a washer of soft material contacting with an annular zone on said diaphragm, a carbon resistance cell contacting with the other side of said washer, said diaphragm and resistance cell coöperating with said washer to form an air space.

9. A microphone comprising a vibration diaphragm means to clamp said diaphragm at its periphery, a thick soft washer contacting with the diaphragm on a zone of less radius than itself, a casing for the diaphragm, a thin sheet of foil held elastically against the casing by the same annular packing washer, and a carbon resistance cell held against the center of said piece of metal foil.

In witness whereof, I have hereunto signed my name this 22nd day of March, 1919, in the presence of two subscribing witnesses.

ALEXANDER MARR.

Witnesses:

ROBERT LIONEL HARTLEY,

ROWLAND TEMPEST BERESFORD WYNN.