vide a possibility of equalisation between the outside air and the enclosed air, without sound waves being able to reach the rear side of the fixed electrode. This can, for example, be effected by cutting into the sealing surface of the part closing the air chambers a spiral groove which connects the outside air with the enclosed air.

One embodiment of the invention is shown by way of example in the accompanying drawings, in which

Fig. 1 is a section along the line 1—1 of Fig. 2 through a microphone, which, in accordance with the invention, in addition to the bores closed at one end contains bores which communicate with separate air chambers,

Fig. 2 a section on line 2—2 of Fig. 1,

Fig. 3 an interior view of a rear sealing plate of the microphone,

Fig. 4 a section along the line 4—4 of Fig. 3 but on a very enlarged scale, and

Figs. 5 and 6 air cushion bores at different distances apart.

The microphone 1 is closed on one side by the cap 2 with protective apertured plate 3. The membrane 4 consisting of collodion film with metal coating is pasted on the projecting edge 6 of the fixed electrode 5 in such a manner that the metal coating is not electrically connected with the edge 6. The edge 6 is only slightly higher than the surface of the fixed electrode, so that the air cushion between membrane and fixed electrode is very small. The smaller the distance between membrane and fixed electrode the greater the damping of the membrane. Oscillations arise only opposite the holes 7, the size and depth of the majority of which is for example so selected that the portions of the membrane covering the mouths of the bores possess a natural frequency of 10,000 Hertz or more, which corresponds to bores of a depth of 7—8 mm. At the rear of the fixed electrode 5 is provided an annular chamber 10 into which extend several bores 7^1 for example six. These possess therefore a very much greater air volume than the others whereby a certain partial augmentation of the low frequencies takes place. The annular chamber 10 is closed by the cover 11. In its sealing surface 12 a fine spiral groove 13 is cut, which allows the air to enter the annular chamber 10 along a long path, but prevents all sound waves from passing to the interior of the chamber.

In order to modify the nature of the oscillations the distances A between the bores 7 may be made different. The distance between the individual holes is always made at least slightly greater than the diameter of the holes. As shown in Fig. 6 this distance may, however, be considerably increased for obtaining particular effect. In this case the vibrations of the portions of the membrane above the bores 7 extend only slightly beyond the edge of the bores, and the broad, very thin layer of air between the bores 7 has a strong damping effect on the membrane.

The connection of the metal coating with the electric lead-in is effected by an insulated contact pin 8, which is connected with the membrane at 9.

In place of the annular chamber other arrangements may be provided, for example, each of the bores 7^1 can be individually connected with an increased air space, or bores of different width or depth may be provided.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A microphone, more particularly a condenser microphone, having a thin, slightly stressed membrane, the restoring force of which is mainly determined by air cushions, characterised in that the fixed electrode is provided both with closed bores of such a diameter and such a size, that the air columns situated therein have a natural frequency above the audible range and also with bores, which possess a greater volume than the first mentioned bores or are connected with separate air chambers and favour the lowest frequencies by resonance.

2. A microphone as claimed in claim 1, in which an annular space into which certain bores extend is provided at the rear of the fixed electrode.

3. A microphone as claimed in claim 1 or 2, in which the air chamber or chambers communicate with the outside air in such a way, for example by means of a spiral groove cut into the sealing surface, that sound waves cannot penetrate.

4. A microphone as claimed in any of the preceding claims, in which the membrane consists of non-conducting film with a metallic coating for instance a collodion film coated with beaten gold.

5. A microphone according to claim 4, in which the metallic coating does not extend to the edge of the membrane so that the marginal zone of the non-conducting film itself serves as insulation between the electrodes.

6. A microphone substantially as described with reference to or as shown in the accompanying drawing.

Dated this 17th day of July, 1933.