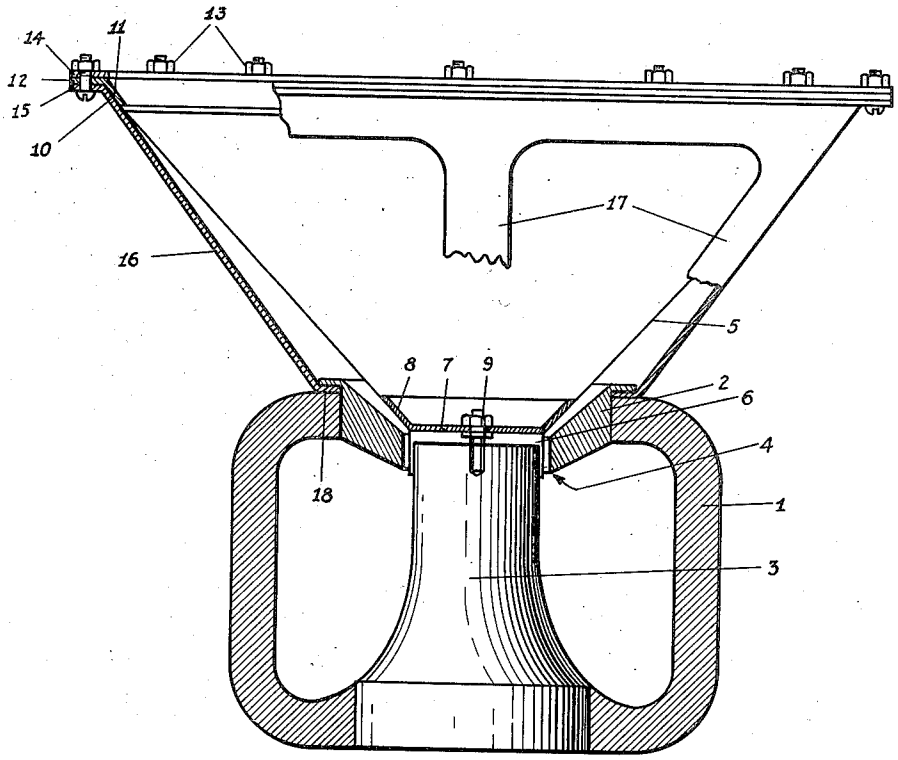
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ELECTRODYNAMIC LOUDSPEAKER

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ELECTRODYNAMIC LOUDSPEAKER

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5 Claims. (Cl. 179—115.5)

This invention relates to an electrodynamic loudspeaker comprising a magnet, one of the pole pieces of which consists of a soft-iron ring.

According to the invention the ring and the magnet have clamped between them the means of supporting the diaphragm. This ensures that special means of attachment for the supporting members can be dispensed with and in addition that the clamping operation can be effected simultaneously with the placing in position of the ring. If, as is the practice, the ring is pressed into the magnet this method will assist materially to reduce the time of manufacturing the loudspeaker, also because any screws of attachment can be dispensed with, which is very important when loudspeakers of the said kind are to be produced in bulk.

The idea of the invention is preferably applied to loudspeakers furnished with a conical diaphragm the edge of which is secured to a carrier by means of a resilient substance. In such a case the carrier is clamped to the magnet system in the manner above referred to. In the said construction, this has the advantage of permitting during assembly of first suspending in the magnet the ring and the carrier and then suspending in the carrier the cone to which the coil for the speech modulated currents is attached and also the means for centering it.

In order that the invention may be clearly understood and readily carried into effect one construction in accordance therewith will now be described more fully with reference to the accompanying drawing.

In the figure, 1 designates a permanent magnet the pole pieces of which are formed by a soft-iron ring 2 and a soft-iron central stud 3 which are arranged relatively to each other to form an air gap 4. A coil 6 for the speech modulated currents which is secured to a conical diaphragm 5 is arranged in the said air gap in which it is kept centered, for example, by a flexible hood-shaped body 7, having its flange shaped edge 8 glued to the cone and being centrally fixed to the central pole by means of a small bolt 9.

The edge 10 of the cone 5 has glued to it a strip 11 of a yielding substance, say thin leather, which has its edge 12 clamped by means of small bolts 13 between a metal ring 14 and the edge 15 of a metal frame 16. This frame is in the shape of a frustrum and is provided with spokes 17 united on the underside by an annular part 18 which according to the invention is clamped between the ring 2 and the magnet 1. The clamping is effected by pressing the ring and the flange 18 of the cone carrier 16 simultaneously in one operation into an opening in the magnet designed for this purpose. This construction ensures not only a simple manufacture but also an important stiffening of the cone carrier.

The magnet system consists of a case-shaped body the lateral wall of which is bent in so as to form an annular air gap with the axially disposed cylindrical stud or pole piece 3 which is secured to the base of the case-shaped body. The part of the lateral wall which is situated in the neighbourhood of the air gap consists of a soft iron ring having such a section that the angles formed by the upper and the lower surface of the ring and the upper side and the lateral side of the stud which are at right angles to each other respectively are substantially equal. This construction has a great advantage in that the stud can have the usual cylindrical form that is to say such a form that from the point of attachment in the box it gradually decreases in section so as to have at least in the neighbourhood of the air gap, and throughout constant sections. A stud which is so constructed is preferable to a stud the cross section of which is larger near the gap than at the other points, as with a given volume of the gap the height of the latter depends on the diameter of the stud in the neighbourhood of the air gap and on the width of the air gap, and the height cannot be too small as in this case the leakage coefficient would receive an excessive value.

Having now described my invention what I claim is:

1. An electrodynamic loudspeaker comprising a magnet one of the pole pieces of which consists of a soft-iron ring, and means for supporting the loudspeaker diaphragm clamped between the ring and the magnet.

2. Electrodynamic acoustic apparatus comprising a magnet system, a diaphragm, and a rigid member extending from said magnet system to the peripheral edge of said diaphragm for supporting said diaphragm, said rigid member including a flanged portion, and a flange on a part of said magnet system adapted to clamp the flanged portion on said member in place.

3. Electrodynamic acoustic apparatus comprising a magnet system including a portion having an annular flange, a diaphragm, a frustum shaped member for supporting said diaphragm from the larger base thereof, and an annular flange at the smaller base of said frustum shaped member adapted to be clamped under the annular flange on said magnet system.

4. Acoustic apparatus comprising a conical dia-

phragm, a multi-part magnet system positioned adjacent the apex portion of said diaphragm and operatively associated therewith, and a rigid member extending from said magnet system to the peripheral edge of said diaphragm, said rigid member having a part thereof clamped between parts of said multi-part magnet system, one of the last-mentioned parts being a pole piece of the magnet system and the other part being the structure constituting the main body of the magnet system.

5. Electro-dynamic acoustic apparatus comprising a magnet system, said magnet system including at least two parts connected in series with respect to the flow of magnetic flux therethrough, a diaphragm, and a housing for said diaphragm having a portion clamped between said two parts of the magnet system and retained thereby solely by friction, said housing being adapted to support the peripheral edge of said diaphragm.

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