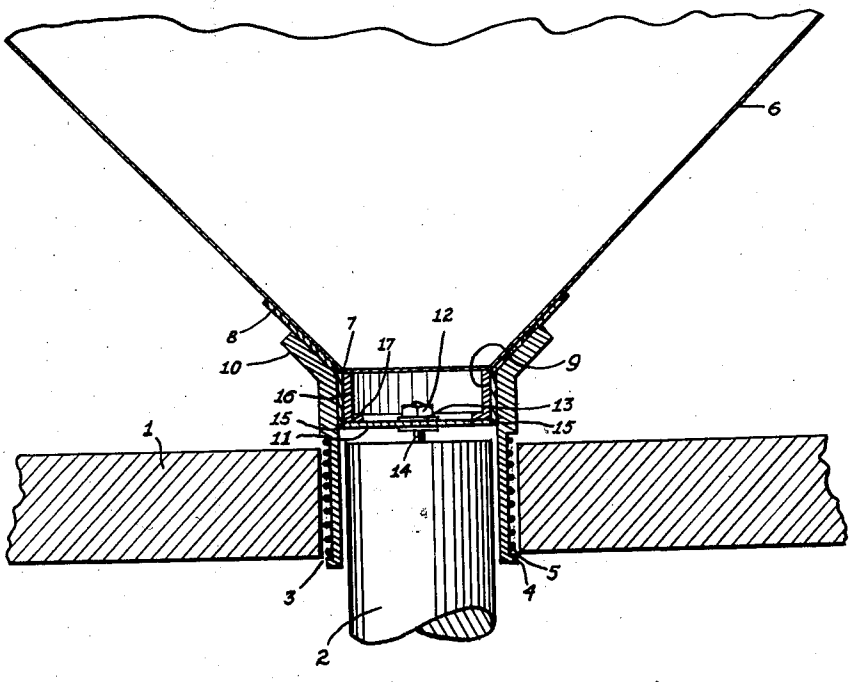
Feb. 12, 1935. P. R. DIJKSTERHUIS 1,990,858

ELECTRODYNAMIC DEVICE

Filed Oct. 26, 1931



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Patented Feb. 12, 1935 1,990,858

UNITED STATES PATENT OFFICE

1,990,858

ELECTRODYNAMIC DEVICE

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Application October 26, 1931, Serial No. 570,998
In Germany December 22, 1930

3 Claims. (Cl. 179—115.5)

This invention relates to an electrodynamic device for translating electric oscillations into acoustic vibrations or conversely, for example, loudspeakers, microphones, electric pick-up devices and the like. More particularly the invention relates to a device of the kind above referred to comprising a cone-shaped vibrating member which has fixed to it a cylinder for the speech current windings.

It has been found that difficulties may be encountered during the operation of devices of this type. In fact, after some time the cylinder becomes loose from the vibrating member at first at a single point and later on at several points, by which the working device is finally rendered impossible. Upon researches made in this respect it was found that this is due to the fact, that the vibrating member is not stiff enough at the strengthening point, so that the vibrating member and the cylinder cannot be considered as one rigid aggregate after having been fixed together.

In order to avoid this drawback according to the invention a stiffening ring is provided at the point of fixation of the vibrating member and the cylinder on the side of the vibrating member. It has been found, that even very thin rings may give a material stiffening provided they are mounted in the right manner. The invention is of particular importance if the coil cylinder is pasted on the vibrating member, since in this case the tearing off readily occurs.

It is known that it is required for obtaining a good reproduction to keep the total weight of the vibrating member, the coil cylinder carrying the windings and the required fastening means between said portions as small as possible. Consequently, the stiffening ring according to the invention is preferably made of a light material, for example, aluminum which may entail the drawback, however, that the reduction of the weight would be obtained at the cost of the stiffening. In order to overcome this difficulty it may be desirable in this case to give the ring an L-shaped section. It has been found in practice, that with such rings, even if they are made of extremely thin aluminum, the so-called aluminum foil, and pasted on the vibrating member, very good results are obtained.

The invention may be used with advantage in devices of the kind above referred to, comprising a truncated cone-shaped vibrating member, of which the small aperture is shut off by a cylindrical cap to the side wall of which the cylinder for the windings is fixed. As is known in these devices the bottom of the cylindrical cap may be used with advantage for obtaining that the vibrating member together with the cylinder fixed thereto is carried by a device fixed to the magnet system. In this case there is a great risk of a tearing off between the tube wall and the cylinder wall. If, however, a stiffening ring having an L-shaped section be provided at the inner side of the cap in such a manner that one leg of the L is fixed to the side wall and the other leg to the bottom of the cap, then the said drawback does no longer occur even at the most abrupt amplitude modification of the vibrating member.

The invention will be more clearly understood by reference to the accompanying drawing, representing, by way of example, one embodiment thereof.

On the drawing part of a magnet system of a loudspeaker according to the invention is illustrated. The annular pole and the central pole are designated by 1 and 2 respectively. A cylinder 4 provided with wire windings 5 for the speech currents is movably mounted in the annular air gap 3 formed by these poles. The cylinder is fixed to a truncated, cone-shaped, vibrating member 6, of which a small aperture is shut off at 7 by a cap 8 made, for example, of textile fabric which has been pressed into the desired shape before being mounted on the vibrating member. As clearly appears from the drawing the cap consists of a flange-shaped portion which is fixed to the cone and of a cylindrical portion 9 to the outer wall of which the cylinder 4 for the windings is fixed. Moreover, the cylinder is provided with a conical rim 10 which is fixed on the conical part of the cap 8 so as to establish a good joint between the cylinder and the vibrating member. The attachment of the cap 8 to the cone as well as of the cylinder to the cap is preferably effected by means of some agglutinant or other. The aggregate consisting of cone, cap and coil cylinder comprising the windings is carried by the central pole 2 of the magnet system, since the bottom 11 of the cap 8 is fixed to a pin 14 extending from the central pole piece by means of a nut 12 and washers 13. It has been found, that during the operation of such a loudspeaker the joint between the cylinder 4 and the portion 9 of the cap 8 often breaks down. As a matter of fact this tearing off will begin at the point denoted by 15 on the drawing, and finally it may become so great, that the cylindrical portion of the cylinder becomes entirely loose from the cylindrical portion 9 of the cap 8. According to the invention this drawback is avoided by fix-

ing a thin aluminum ring having an L-shaped section at the inner side with one leg 16 of the L to the side wall and with the other leg 17 to the bottom of the cylindrical portion 9. This attachment is preferably effected by pasting.

What I claim is:

1. An electro-dynamic device comprising a truncated, conical member, a cylindrical member for supporting a speech current winding, a speech current winding on said cylindrical member, a fabric member interposed between said conical member and said cylindrical member, a stiffening member pressing a portion of the fabric member against the inner surface of said cylindrical member and means associated with said fabric member for centering said conical member.

2. An electro-dynamic acoustic device comprising a truncated, cone-shaped, vibratile member, a cylindrical member for a speech current winding joined with said vibratile member, a speech current winding on said cylindrical member, a centering member for said vibratile member, said centering member extending between said vibratile member and said cylindrical member, and a metallic stiffening member positioned inside said cylindrical member and arranged to press a portion of said centering member against the inner surface of said cylindrical member.

3. A vibratile system for an electrodynamic loudspeaker comprising a truncated conical diaphragm, a voice coil form, said voice coil form having a cylindrical portion and a conical flange at one end thereof, a voice coil on said cylindrical portion, a fabric member clamped between the conical flange on said voice coil form and said truncated diaphragm adjacent the smaller base thereof, said fabric member extending across the smaller base of said truncated diaphragm, a reinforcing member clamping a portion of said fabric member against the inner surface of the cylindrical portion of said voice coil form and means securing said fabric member to a suitable support.

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