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ELECTRODYNAMIC LOUDSPEAKER

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Fig. 1

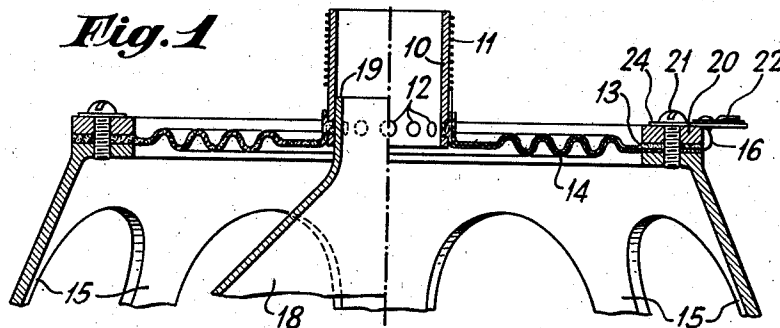


Fig. 2

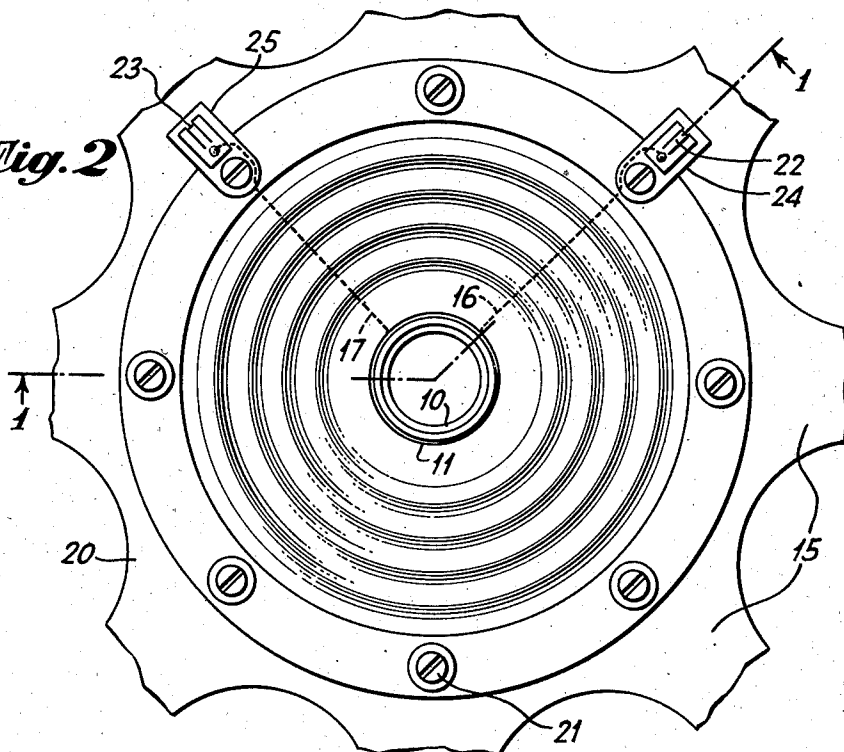
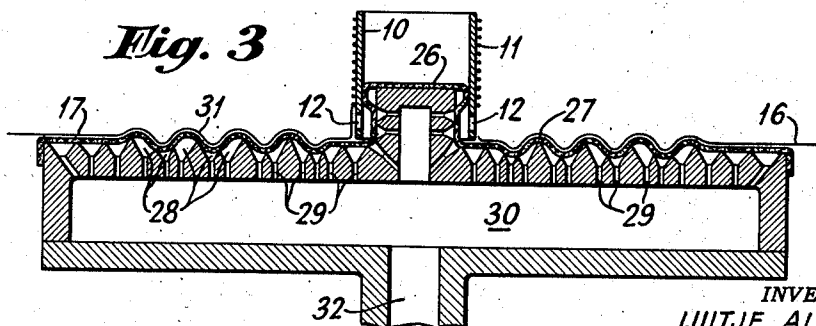


Fig. 3



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ELECTRODYNAMIC LOUDSPEAKER

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6 Claims. (Cl. 179—115.5)

This invention relates to a vibrating member for an electrodynamic oscillation converter or loudspeaker for transforming electric oscillations into acoustic vibrations or vice versa, said member being constituted by a diaphragm and a coil form having a centering member.

It is known to unite this centering member to the coil form by gluing. A vibrating member made in this manner has, however, the disadvantage that the sensitiveness of the vibrating system is reduced since due to the adhesive used the point of union between the coil form and the centering spider gets rigid and heavy.

The invention has for its object to avoid this disadvantage in that the coil form and the centering member are united not by gluing but by means of a matter moulded from a fibrous material. Such union does not bring about a rigid point of union and is in addition light by weight.

It is known to make the coil form and the centering spider separately from a readily fusible material, such as phenol condensate, and then to fuse these parts together.

According to the invention, the entire centering member is preferably made by moulding from a fibrous material, parts of the coil form being introduced into the fibrous material of the centering member. A centering spider of this kind is light by weight and most resilient normally to its plane.

In order that the invention may be clearly understood and readily carried into effect it will now be described more fully, by way of example, with reference to the accompanying drawing, in which

Fig. 1 is a sectional view showing a coil form and a centering member connected thereto by moulding and also a part of the diaphragm and of the frame.

Fig. 2 is a plan thereof.

Fig. 3 shows the manufacture of the centering member of the coil form.

Referring to Fig. 1, 10 designates a coil form of hard paper carrying a coil 11. At one of its ends the form 10 has formed in it a series of apertures 12. When the centering spider 13 is being moulded from the fibrous material the latter penetrates into these apertures so that after drying and compression of the spider the form is rigidly connected to it.

Such leaves made entirely of dipped moulded fibrous material are very light by weight and resilient in a direction normal to their planes but rigid in the direction of their planes so that

they are especially suitable as a centering spider since they afford proper centering but reduce but little the sensitiveness of the vibrating system.

The corrugations 14 of the spider enable larger amplitudes of the coil form during oscillation.

When the centering member is being moulded from the fibrous material the leading-in wires 16 and 17 for the coil are laid on the moulding form so that they are inserted into the fibrous material. The fact that they are surrounded on all sides by the fibrous material ensures attachment free from rustling noise and renders the leading-in wires safe from mechanical damage.

After the coil form with the coil and the centering spider are finished the diaphragm 18, which is generally also moulded from fibrous material, has its cylindrical end 19 connected by gluing to the inside of the coil form.

Due to this adhesion to the inside of the form the centering spider is not engaged by the adhesive so that it is not rendered rigid.

On its outer edge the material of the spider 13 is thick and is secured to the frame by means of a clamping ring 20 which is screwed to the frame 15 by means of screws 21. The connecting terminals 22 and 23 for the coil are arranged on two small plates 24 and 25 of insulating material fixed to the frame.

Fig. 3 shows a method of manufacturing the centering spider of the coil form 10. The moulding form 27 made of perforated sheet iron or wire gauze is first dipped without coil form into the aqueous fibrous material so that a thin layer of fibrous material is deposited throughout the whole form. The liquid is removed from the fibrous material that deposits on the form 27 by means of channels communicating with the sucking chamber 30 through passages 28 and bores 29 and is carried off through a tube conductor 32.

The coil form 10 is then put with the coil 11 and the leading-in wires on a mandrel 26 which is connected to the moulding form and the conductors 16 and 17 are laid on the thin fibrous layer already provided on the form and are forced into the corrugations 31 of the form. The end of the coil form which comprises the apertures 12 is also located over an active part of the moulding form which part is already provided with a thin fibrous layer, which enables the fibrous material also to deposit in and at the side of the apertures of the form.

When the moulding form is dipped again into the aqueous fibrous material the layer becomes

further deposited so that similar to the lower end of the coil form 10 in which the apertures 12 are formed the current leads 16 and 17 are surrounded by the fibrous material. After the centering member is dried and compressed the coil form 10 is connected to the member and the current leads are embedded in the material.

What I claim is:

1. The combination, in an electrodynamic loudspeaker, of a voice coil form provided with apertures and a centering member of fibrous material, said form and member being united solely by the penetration of the fibrous material of the latter into the apertures of the voice coil form.

2. The combination, in an electrodynamic loudspeaker, of a voice coil form provided with apertures at one end and a centering member of fibrous material, said form and member being united solely by the penetration of the fibrous material of the latter into the apertures of the former to provide an intimate union therebetween.

3. The combination, in an electrodynamic loudspeaker, of a voice coil form provided with apertures at one end and a centering member of fibrous material, said form and member being united solely by the penetration of the fibrous material of the latter into the apertures of the former to provide an intimate union therewith, circular corrugations formed in the centering member, and the voice coil having its terminal leads extending transversely of said corrugations and embedded within the fibrous material of the centering member.

4. In an electrodynamic loudspeaker provided with a voice coil form and a centering member, the method of uniting the centering member with the voice coil form, which consists in forming apertures at one end of the voice coil form, producing the centering member by accreting and integrating fibrous material upon a porous mold, and depositing during the formation of the centering member some of the accreted and integrated fibrous material within the apertures of the voice coil form.

5. In an electrodynamic loudspeaker provided with a voice coil form having cut-out portions and a centering member, the method of uniting the centering member with the voice coil form, which consists in forming the centering member by accreting and integrating fibrous material upon a porous mold, and depositing during the formation of the centering member some of the accreted and integrated fibrous material within the cut-out portions of the voice coil form.

6. In an electrodynamic loudspeaker provided with a voice coil form having apertures therein, a voice coil having terminal conductors and a centering member, the method of assembly which consists in forming the centering member by accreting and integrating fibrous material upon a porous mold, depositing during the formation of the centering member some of the accreted and integrated fibrous material within the apertures of the voice coil form, and embedding the voice coil terminal conductors between layers of the fibrous material in the formation of the centering member.

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