May 6, 1958 A. A. DE LISSE 2,833,898

VIBRATOR MOUNT

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Fig. 1.

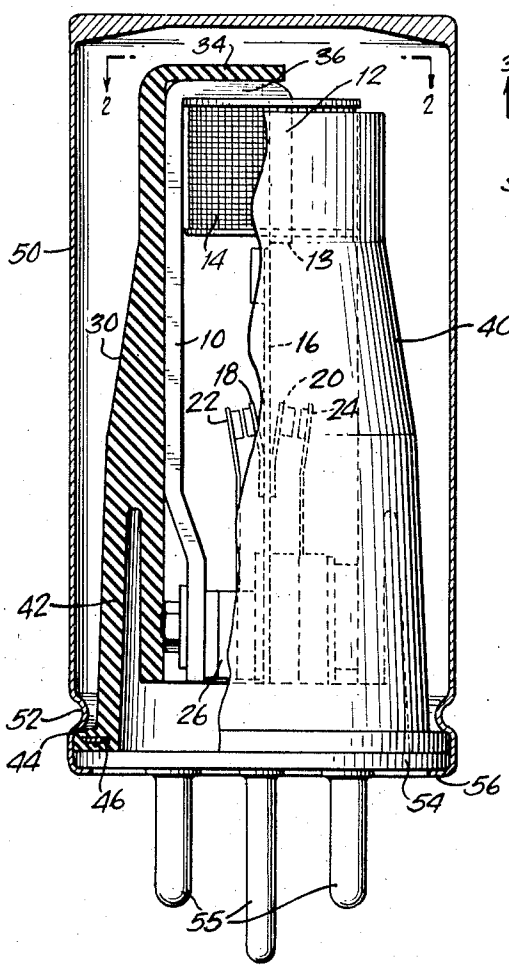


Fig. 2.

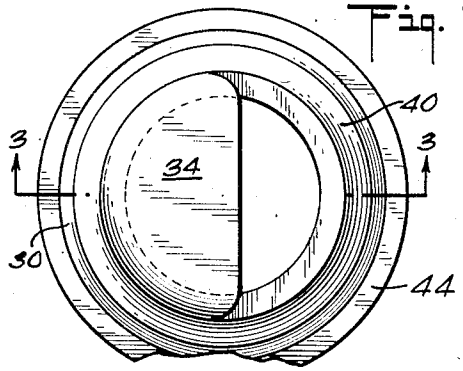
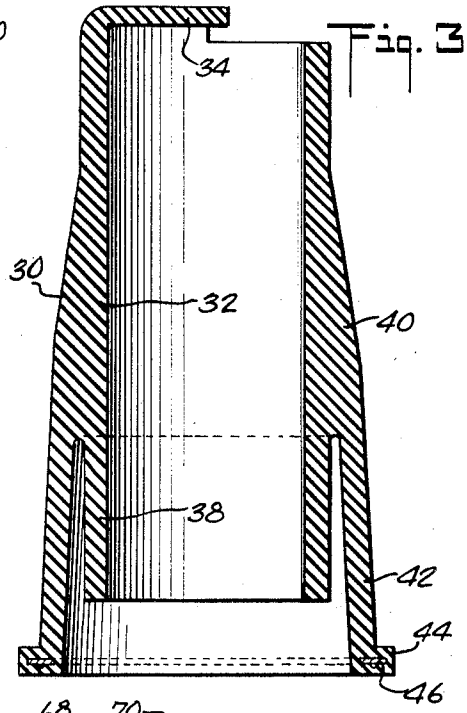


Fig. 3.



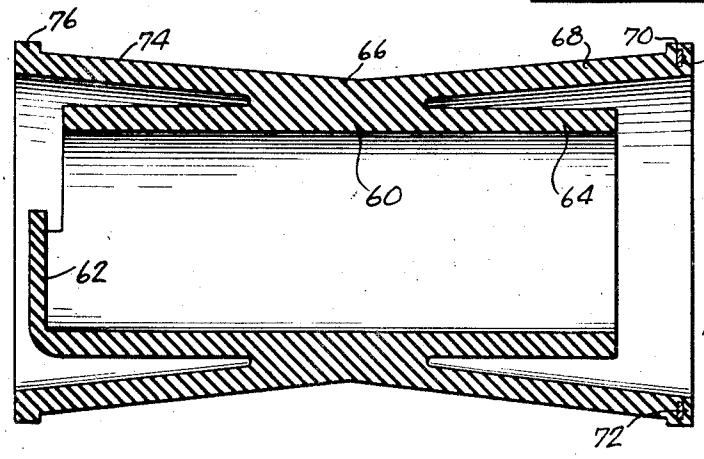


Fig. 4.

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VIBRATOR MOUNT

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3 Claims. (Cl. 200—168)

This invention relates to vibrator assemblies and particularly to a mounting for such type assemblies wherein an undesired transmission of mechanical and acoustical vibrations is greatly reduced.

Electrical vibrator assemblies are well-known in the art and are commonly used in power supplies for battery operated radios and other electrical apparatus utilizing a low voltage direct current source as the primary source of operating power. Units of this general type employ a vibrator reed that periodically interrupts the direct current produced by the low voltage source in a manner well known in the art. However, the necessary operation of the vibrating member therein results in undesirable vibratory effects, both mechanical and acoustical, which are oftentimes transmitted through the vibrator assembly mount to the associated components of the apparatus in which the vibrator assembly is incorporated. The presence of mechanical and acoustical vibrations externally of the vibrator assembly is in general highly detrimental and undesirable.

This invention may be briefly described as an improved mount for electrical vibrator assemblies whereby undesired transmission of mechanical and acoustical vibrations resulting therefrom is greatly reduced.

The object of this invention is the provision of an improved mount for electrical vibrator assemblies.

Other objects and advantages of the invention will be made apparent in the following description and claims and illustrated in the accompanying drawings which disclose, by way of example, the principles underlying the invention and the presently preferred embodiments of the vibrator assembly mount incorporating those principles.

Referring to the drawings:

Fig. 1 is a side elevational view, partially in section, of a vibrator assembly and mount therefor embodying the principles of this invention;

Fig. 2 is a plan view of the unit illustrated in Fig. 1 as viewed from the line 2—2 in Fig. 1;

Fig. 3 is a section taken on the line 3—3 of Fig. 2 and showing only the vibrator assembly mount; and

Fig. 4 is a sectional view of an alternative construction for a vibrator assembly mount.

Referring to the drawings and particularly to Figs. 1 through 3, there is shown a vibrator assembly employing the novel mount that forms the subject matter of this invention. The vibrator unit proper forms no part of this invention and any suitable type of vibrator unit may be used. For the purposes of illustration, however, the vibrator unit may include an elongated frame member 10 having one end 12 thereof deformed into a U-shape with the downwardly dependent arm portion 13 thereof serving as an armature for and supporting a coil 14. Disposed beneath the end of the dependent arm portion 13 is a vibrating reed 16 having a pair of contact members 18 and 20 mounted thereon and adapted to engage, upon displacement of the reed 16, fixed contact members 22 and 24, respectively. The frame 10, reed

16, and contact members 18, 20, 22 and 24 are conventionally mounted together with suitable interposed insulating members to form a base member generally designated as 26. The entire vibrator unit is adapted to be enclosed in the novel mount generally designated 30.

The configuration of the novel mount 30 is best illustrated in Fig. 3. As there shown, the mount 30 is adapted to be molded in one piece of suitable resilient material, preferably a rubber of high purity, to form an integral unit of the shape shown. As illustrated, the mount 30 includes a cylindrical vibrator unit receiving sleeve 32 of substantially uniform diameter sized to closely encompass the entire vibrator unit and to position the same therewithin as best shown in Fig. 1. The upper end of the vibrator unit receiving sleeve 32 is provided with an integral and horizontally disposed partial cap 34 sized to cover the horizontally disposed portion 36 of the U-shaped end of the frame member 10 and thereby serves the dual function of positioning the vibrator unit during assembly as well as encompassing the exposed portion of the frame when in assembled relationship. The lower portion of the sleeve 32 terminates in a dependent inner skirt portion 38 adapted to encompass the base section 26 of the vibrator unit proper. The mid section of the sleeve 32 is of gradually increasing thickness, as at 40, so as to provide a supporting structure for an elongated dependent outer skirt portion 42. The outer skirt portion 42 extends beyond the end of the inner skirt portion 38 and terminates in a horizontally disposed flange portion 44 molded around and enclosing a pressure ring 46.

In assembly, the vibrator unit receiving sleeve 32 is expanded and the vibrator unit proper is inserted therein so that the upper surface 36 of the frame member 10 abuts the horizontally disposed cap 34 and the base section 26 is contained within the lower portions of the dependent inner skirt 38. The sleeve 32 is then permitted to contract around and thereby firmly engage the vibrator unit disposed therein. The mount 30 and the enclosed vibrator unit are then inserted in a conventional metallic vibrator can 50 with the flanged portion 44 containing the pressure ring 46 being disposed immediately beneath an inwardly directed bead 52. A terminal containing base plate 54 having the terminals 55 thereof connected by suitable leads to the vibrator elements is then placed under pressure against the underside of the flanged portion 44 and is secured in position by rolling the dependent edge 56 of the can thereover as illustrated in Fig. 1. The pressure ring 46 disposed within the flanged portion 44 serves to prevent the mount 30 from being displaced upwardly past the bead 52 by the action of the base plate 54 during assembly of the unit, and the disposition of the ring 46 intermediate the bead 52 and the base plate 54 after assembly serves to position the mount 30 containing the vibrator unit within the can 50.

In the assembled unit, as illustrated in Fig. 1, the entire vibrator unit proper is supported by and within the vibrator unit containing sleeve 32 and is thereby suspended freely within the can 50. The only path of contact with the can 50, apart from the leads, occurs through the elongated dependent outer skirt portion 42. Utilization of the mount 30 thus effects complete enclosure of the portion of the vibrator unit wherein the undesired mechanical and acoustical vibratory effects are generated by vibration absorbing material. Mechanical transmission of the undesired vibratory effects to the can 50 can be effected only through the elongated dependent outer skirt portion 42 which, because of the dampening effect of the mid section 40 of increased thickness and extreme length of the necessary path of travel, results in a minimization of transmittal of vibratory effects to the

can 50 and thereby results in a vibrator assembly of improved quality.

Fig. 4 illustrates another configuration for a vibrator mount adapted to be molded in one piece from suitable resilient material, preferably a rubber of high purity. In this embodiment the mount includes a cylindrical vibrator unit receiving sleeve 60 of substantially uniform diameter sized to closely encompass the entire vibrator unit and position the same therewithin. The upper end of the vibrator unit receiving sleeve 60 is provided with an integral and horizontally disposed partial cap 62 sized to cover the horizontally disposed portion 36 of the U-shaped end of the frame member 10. The lower portion of the receiving sleeve 60 terminates in a dependent inner skirt portion 64 adapted to encompass the base section 26 of the vibrator unit proper. The mid portion 66 of the sleeve 60 is of increased thickness so as to provide a supporting structure integral with the sleeve 60 for an elongated dependent outer skirt portion 68. The dependent outer skirt portion 68 extends beyond the end of the inner skirt portion 64 and terminates in a horizontally disposed flange portion 70 molded around and enclosing a pressure ring 72. The mid section 66 of increased thickness also serves to provide a support for a second integral and upwardly extending skirt portion 74 terminating in a flanged portion 76.

In assembly, the vibrator unit receiving sleeve 60 is expanded and the vibrator unit proper is inserted therein so that the upper surface 36 of the frame member 10 abuts the horizontally disposed cap 62 and the base section 26 is contained within the lower portions of the dependent inner skirt 64. The sleeve 60 is then permitted to contract around and thereby firmly engage the vibrator unit disposed therein. The mount and the enclosed vibrator unit is then inserted in a conventional metallic vibrator can and is assembled in a manner similar to that described above in conjunction with the embodiment of Figs. 1 to 3.

In the assembled unit, the flange 76 of the outer skirt portion 74 is adapted to peripherally engage the can adjacent the junction of the top and side walls thereof and to thereby provide an additional support for the assembled unit. In this mount the entire vibrator unit proper is supported by and within the vibrator unit containing sleeve 60 and is thereby suspended freely within the can 50 and is positioned against sidewise displacement thereof by the engagement of the flanges 70 and 76 of the outer skirt portions 68 and 74 respectively within the metallic can.

In accordance with the provisions of the patent statutes, I have herein described the principle of operation of this invention, together with the elements which I now consider to constitute a workable embodiment thereof, but I desire to have it understood that the structure disclosed is only illustrative and the invention can be carried out by other means. Also, while it is designed to use the various features and elements in the combinations and relations described, some of these may be altered and modified without interfering with the more general results outlined.

Having thus described my invention I claim:

1. A one piece moldable mount for vibrator units formed of resilient material comprising a vibrator unit receiving sleeve sized to closely and compressively contain a vibrator unit therewithin, a dependent outer skirt portion integral with said sleeve adjacent the mid length thereof and extending beyond the end of said sleeve, and an outwardly extending flange portion on the dependent end of said outer skirt portion for positioning said vibrator containing mount in a completed vibrator assembly with a vibrator unit contained within said sleeve freely suspended therewithin.

2. A one piece moldable mount for vibrator units formed of resilient material comprising a vibrator unit receiving sleeve sized to closely and compressively contain a vibrator unit therewithin and having a vibrator unit positioning cap at one end thereof and a dependent skirt portion at the other end thereof, a dependent outer skirt portion integral with said sleeve adjacent the mid length thereof and extending beyond the extremity of said dependent skirt portion of said sleeve, and an outwardly extending flange portion on the dependent end of said outer skirt portion for positioning said vibrator unit containing mount in a completed vibrator assembly with the vibrator unit freely supported therewithin.

3. A one piece moldable mount for vibrator units formed of resilient material comprising a vibrator unit receiving sleeve sized to closely and compressively contain a vibrator unit therewithin and having a vibrator unit positioning cap at one end thereof and a dependent skirt portion at the other end thereof, a first dependent outer skirt portion integral with said sleeve adjacent the mid length thereof and extending beyond the extremity of said dependent skirt portion of said sleeve, a second outer skirt portion integral with said sleeve adjacent the mid length thereof and extending beyond said partial cap, and an outwardly extending flange portion on the dependent end of said first outer skirt portion for positioning said vibrator containing mount in a completed vibrator assembly.

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