Dec. 12, 1950 D. G. MUNSON 2,533,498

MAGNET SUPPORT FOR RADIO SPEAKERS

Filed June 19, 1948

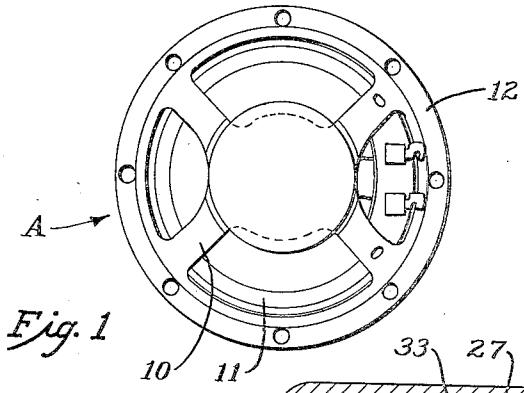


Fig. 1

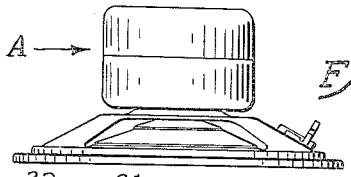


Fig. 2

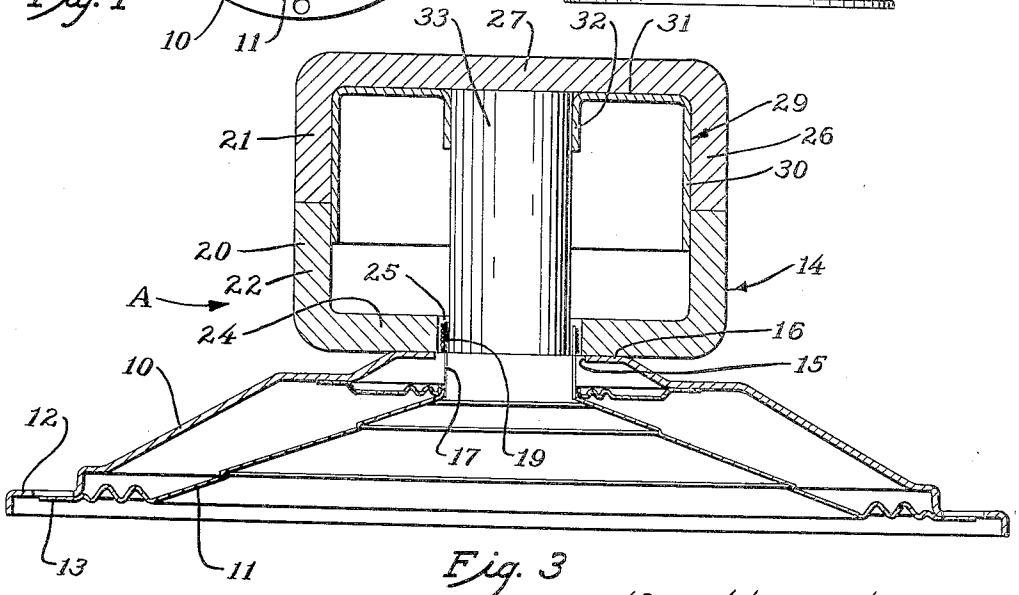


Fig. 3

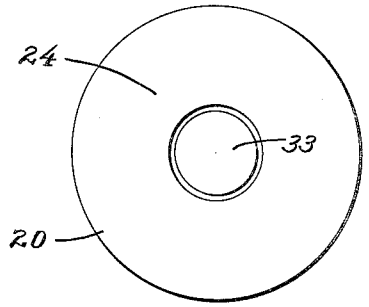


Fig. 4

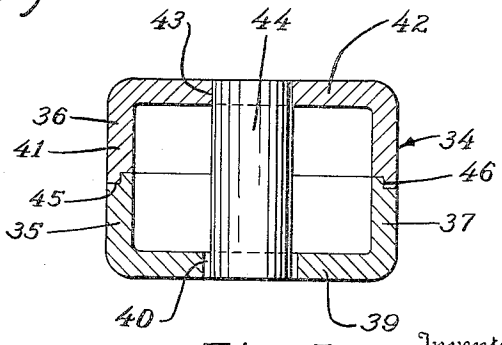


Fig. 5

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Patented Dec. 12, 1950

2,533,498

UNITED STATES PATENT OFFICE

2,533,498

MAGNET SUPPORT FOR RADIO SPEAKERS

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Application June 19, 1948, Serial No. 33,981

3 Claims. (Cl. 179—119)

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My invention relates to an improvement in radio speakers and deals particularly with the manner in which the magnet thereof is supported.

In the manufacture of radio speakers, it is common practice to form a round or rectangular metallic pot for conducting the magnetic flux from one pole to a point spaced from the other. The pot or holder is usually provided with an aperture into which one end of the magnet or pole piece extends, the walls of the aperture being spaced from the magnet or pole piece a distance sufficient to allow the speaker coil to be interposed therebetween. The magnetic flux is conducted from the opposite end of the magnet so that the coil may extend between metallic walls of opposite polarity.

The object of the present invention is to produce a speaker at an extremely low cost of production and which is efficient and effective in operation.

A feature of the present invention lies in the provision of means for automatically aligning the magnet with the aperture in the pot. Care must be taken to center the magnet within the aperture as the air space or gap therebetween is extremely small. With my novel construction the magnet and aperture are automatically aligned.

A feature of the present invention lies in the provision of a speaker pot formed of two parts arranged in abutting or telescoping relation. One of the parts is provided with an aperture for accommodating the magnet. The other part is provided with an aperture into which the magnet extends. When the two parts are assembled the magnet is automatically centered with respect to the aperture.

A feature of the present invention lies in the provision of a speaker pot which may be easily formed in a punch press or the like. The parts of my speaker pot are cup shaped in form and may be drawn into finished position by means of a punch press. Thus the cost of producing the speaker pot is maintained at a minimum.

A feature of the preferred form of my construction lies in the provision of a cup shaped element having a central aperture formed therein which may if desired be drawn into a central boss or sleeve. This aperture supports the magnet and holds the same centered with respect to the remainder of the part.

A further feature of the present invention lies in the provision of a two part pot for a loud speaker in which the parts are interfitting so that the magnet supported by one part will be in proper relation to the aperture formed in the other part.

These and other objects and novel features of my invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of my specification:

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Figure 1 is a rear elevational view of a loud speaker showing the general construction thereof.

Figure 2 is a plan view of the speaker illustrated in Figure 1.

Figure 3 is a sectional view through the speaker showing the pot construction.

Figure 4 is an elevation view of the pot and magnet removed from the speaker.

Figure 5 is a sectional view through a modified form of pot construction.

The loud speaker A illustrated in the drawings may be of any suitable type or design, one such construction being illustrated. The speaker A includes a metallic frame or spider 10 which acts as a support for the cone shaped diaphragm 11. The frame 10 is provided with a ring shaped periphery 12 to which the periphery 13 of the diaphragm 11 is secured. The speaker pot is illustrated in general by the numeral 14 and is secured to the spider or frame near the center thereof. The center portion of the spider 10 is provided with an aperture 15 and the portion of the spider adjacent this aperture is off-set as indicated at 16 for attachment to the pot 14. The pot may be welded or otherwise affixed to the spider and is concentric with relation thereto.

A sleeve 17 of paper or other suitable material projects rearwardly from the center of the cone and acts to support the speaker coil 19. The coil 19 is supported near the extremity of the sleeve 17 and is arranged in the gap between the portions of the pot which are of opposite polarity.

As indicated in Figure 3 of the drawings the speaker pot 14 includes a pair of opposed cup shaped elements 20 and 21. The member 20 includes a generally cylindrical peripheral flange 22 and a disc like wall 24 at the forward end thereof. The wall 24 is provided with an aperture 25 therethrough which is coaxial with the cylindrical sleeve or wall 22.

The member 21 also includes a cylindrical wall 26 and a disc like wall 27 secured integrally to one end thereof. The members 20 and 21 are identical except for the aperture 25 in the member 20. The pot members 20 and 21 are designed to lie in edge abutting relation as illustrated.

A magnet supporting member 29 is arranged within the cup shaped elements 20 and 21. The member 29 includes a cylindrical sleeve 30 having a ring like inwardly extending flange 31 issuing from one end thereof. A concentric sleeve 32 is provided on the flange 31 extending in spaced relation to the cylindrical wall 30 and concentric therewith. A cylindrical magnet 33 is supported by the sleeve 32 and is of sufficient length to extend into or through the aperture 25. If it is preferred the magnet 33 can include a shorter length of magnetic material with a pole piece secured coaxially therewith and extending from one end thereof.

In the construction of my speaker pot the pot members 20 and 21 are preferably drawn from a sheet of flat metal into the cup shape form. The aperture 25 is punched in the pot wall 24 preferably simultaneously with the formation of the member 20. As both of the members 20 and 21 may be mainly formed on the same die the cost of manufacture is low.

The inner magnet support 29 may be pressed of somewhat thinner material and may be formed or drawn on a punch press or the like. As a result the inner member 29 may be economically constructed in volume.

In assembling the speaker pot the magnet 33 is pressed into the sleeve 32 so as to extend coaxial therewith. As the sleeve 32 is coaxial with the outer shell or sleeve 30 the magnet is centered within its support.

The supporting member 29 is preferably next pressed into the pot member 20 so that the free edge of the wall 30 is in overlapping or telescoping relation with the wall 22 of the member 20. As the wall 30 is concentric or coaxial with the magnet and as the aperture 25 is coaxial with the wall 22, the magnet will extend in coaxial relation to the aperture. The magnet is of sufficient length in preferred form to extend through the aperture 25 and is spaced from the walls of the aperture a distance sufficient to accommodate the paper sleeve 17 and the coil 19 wound thereabout. Preferably the coil is located directly between the end portion of the magnet and the walls of the aperture so as to be influenced by the force of the magnet.

The pot member 21 may next be telescoped over the member 29 until the free edges of the walls 22 and 26 abut. The end of the magnet is preferably in contact with the inner surface of the wall 27. The three parts of the pot may be merely held together by friction or if preferred may be welded or otherwise connected. Furthermore, the pot may be assembled as described either before the pot member 20 is attached to the spider 10 or after this attachment has been made.

In Figure 5 of the drawings I disclose a modified form of speaker pot illustrated in general by the numeral 34. This pot 34 is formed of two parts rather than the three parts previously described. However, the structure of Figure 5 has the disadvantage that the abutting edges of the two sections must be machined or otherwise shaped to interfit.

The speaker pot 34 includes two cup shaped sections 35 and 36. The section 35 includes a generally cylindrical outer wall 37 and an end closure wall 39 having a central aperture 40 therein. The pot section 36 includes a generally cylindrical outer wall 41 and an end closure wall 42 having a central aperture 43 therein. The aperture 43 is somewhat smaller in diameter than the aperture 40 and the cylindrical magnet 44 is pressed into the aperture 43 to extend coaxial with the outer sleeve 36. The magnet 44 is also of sufficient length to extend through or substantially through the aperture 40 in the closure wall 39 and is coaxial therewith.

A peripheral groove 45 in the free edge of the cylindrical wall 37 is designed to accommodate the projecting tongue or flange 46 on the free edge of the wall 41. The interfitting of the tongue 46 into the groove 45 holds the two parts of the speaker pot properly aligned. Obviously both sections of the pot are of equal outer diameter and interfit in the manner described. As has

been described an important feature of my structure lies in the fact that when the speaker is assembled all of the parts automatically align. Secondly the pot construction is inexpensive as the parts thereof may be formed on a punch press or similar device. Furthermore, it should be noted that the pot forms an enclosure for the magnet and eliminates the necessity of providing gaskets or other seals for closing the gap between the magnet and the pot. With the conventional construction a gasket is provided between the magnet and the pot so as to prevent dust and dirt from entering the gap.

In accordance with the patent statutes, I have described the principles of construction and operation of my radio speakers, and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A speaker pot including a cup shaped element having a cylindrical outer wall and an integral end closure, said end closure having an axial aperture therein, a magnet supporting element including a cylindrical wall in telescoping relation and frictional contact with the wall of said cup shaped element, a ring like flange on said cylindrical wall, and a sleeve integral with said ring like flange and concentric with said cylindrical wall of said magnet support, and a magnet supported in frictional contact with said sleeve and extending into said aperture.

2. The structure described in claim 1 and including a second cup shaped element arranged in edge abutting relation with the first named cup shaped element and contacting the cylindrical wall and the flange of said magnet supporting element.

3. A speaker pot including a pair of generally cup-shaped elements arranged in edge abutting relation, a magnet support including a cup-shaped body having an outer wall in frictional contact with the outer wall of one of said cup-shaped elements and having a disc-like flange connected to the outer wall and in contact with the base of said one cup-shaped element, the peripheral wall of the magnet support extending beyond the end of said one cup-shaped element, an integral coaxial sleeve on said disc-like flange coaxial with the peripheral wall of the magnet support, a magnet frictionally engaged within said sleeve and having one end in contact with said one cup-shaped element, the other cup-shaped element having an aperture therethrough coaxial with the peripheral wall thereof, the other end of said magnet extending into said aperture, said other cup shaped element being in frictional contact with the projecting portion of said magnet support.

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