Nov. 8, 1955 G. S. CARBONNEAU 2,722,991

LOUD SPEAKER CONE MOUNTING

Filed Sept. 13, 1951

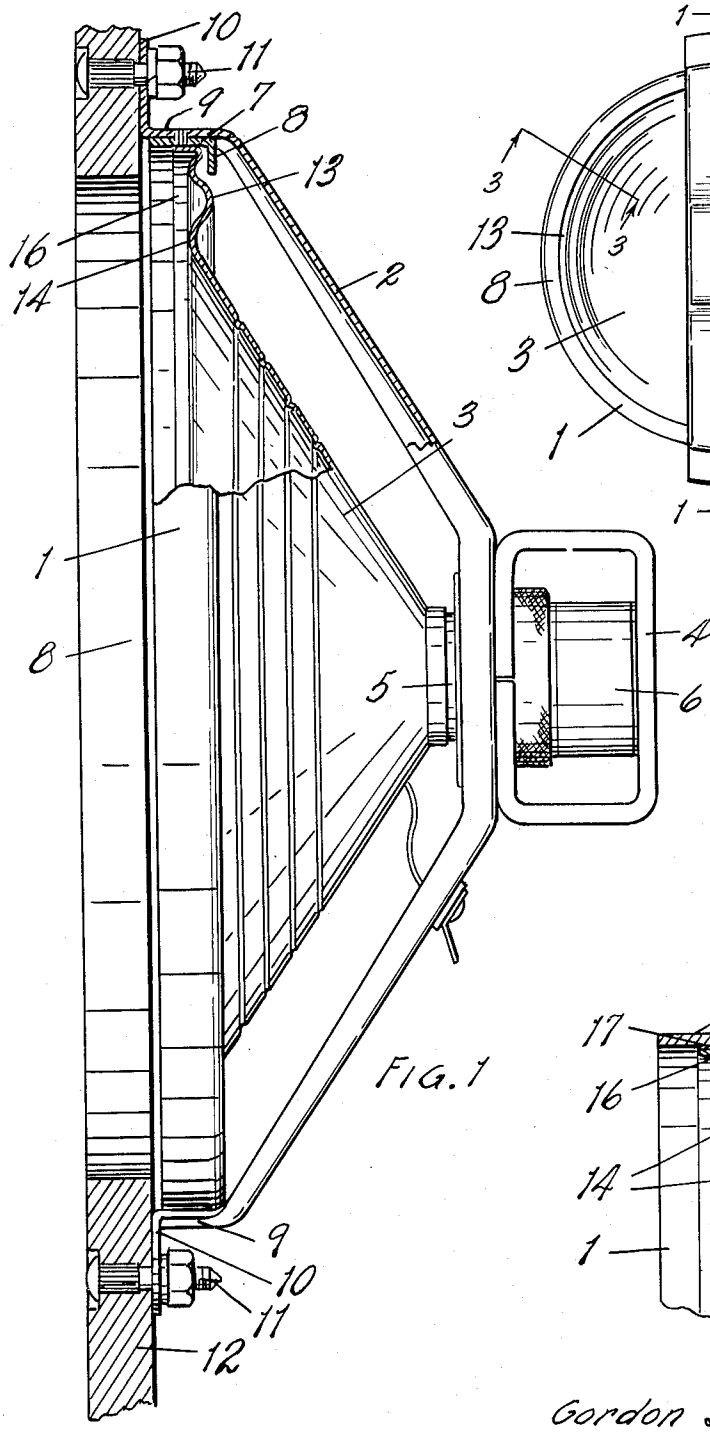


FIG. 1

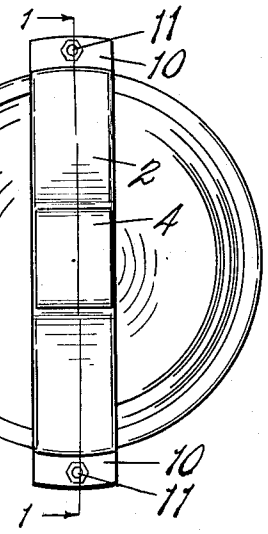


FIG. 2

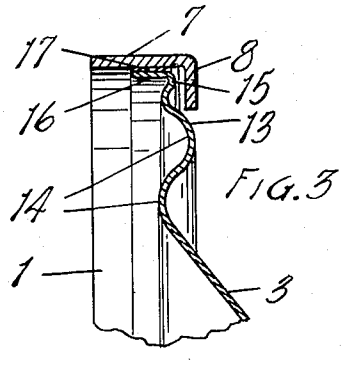


FIG. 3

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United States Patent Office 2,722,991 Patented Nov. 8, 1955

2,722,991

LOUD SPEAKER CONE MOUNTING

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Application September 13, 1951, Serial No. 246,350

6 Claims. (Cl. 181—31)

This invention relates to improvements in loud speaker cone mounting.

The principal objects of this invention are:

First, to provide an improved form of mounting ring for the cone of a loud speaker which is more universally adaptable for mounting on various forms of supports.

Second, to provide a novel form of connection between the cone and mounting ring of a loud speaker which renders it impossible for the cone and ring to be improperly assembled.

Third, to provide a ring and cone assembly for a loud speaker which can be assembled at a minimum of cost without sacrificing any operational qualities of the speaker.

Fourth, to provide a clamp ring and mounting that requires a minimum of metal for any given size of speaker.

Fifth, to provide a clamp ring that provides a maximum of protection for the speaker cone during mounting of the speaker.

Other objects and advantages relating to details of my invention will be apparent from a consideration of the following description and claims.

The drawings, of which there is one sheet, illustrate a preferred form of my speaker.

Fig. 1 is an elevational view, partially broken away in cross section, of my speaker operatively mounted on a support panel.

Fig. 2 is a rear elevational view of the speaker.

Fig. 3 is an enlarged fragmentary cross sectional view through the rim of the speaker taken along the plane of the line 3—3 in Fig. 2.

My loud speaker consists generally of a clamp ring 1 and magnet supporting strap 2 bridging the ring diametrically on its rear side. The ring 1 is secured to and supports the forward side of the speaker cone 3, and a flux loop 4 is secured to the base of the strap 2 at the rear of the speaker. The usual form of the voice coil tube 5 and magnet 6 operatively and magnetically connect the magnet structure with the rear of the cone. My invention lies in the formation and connection of the ring 1 to the forward end of the diaphragm 3.

As is most clearly illustrated in Fig. 3, the ring 1 consists of a cylindrical flange 7 having an inwardly turned flat annular flange 8 on its rear side. The strap 2 has forwardly turned legs 9 welded to the outsides of the flange 7. Outturned mounting feet 10 on the end of the legs have holes punched therein to align with and receive the mounting bolts 11 for mounting the ring and speaker on a supporting panel 12. The feet 10 desirably project slightly forwardly of the ring 1. The forward end of the speaker cone 3 is provided on its forward side with an outwardly turned and generally flat annular portion 13. The annular portion 13 is provided with annular corrugations 14 which permit the body of the diaphragm to vibrate under the influence of the voice coil and magnet to produce sound in the well known manner. The rim of the annular portion 13 is

turned forwardly in a fold 15 to form the forwardly projecting cylindrical flange 16, the outer surface of which is approximately the same diameter as the inner surface of the cylindrical flange 7 on the ring. The flange 16 on the diaphragm is secured as by the adhesive 17 to the inner surface of the flange 7.

Attention is called to the fact that the flat annular flange 8 on the mounting ring overlies the rear of the diaphragm thus giving protection, along with the legs 9, against damage by tools slipping through the diaphragm while mounting the speaker. The connection between the flange 7 and the diaphragm 3 is largely independent of the skill or accuracy of the workmen making the assembly, as it is impossible for the diaphragm to be mounted radially off center of the cylindrical flange 7. Thus it is impossible to assemble the diaphragm and ring with the diaphragm supported more rigidly along one side than the other, thus causing unsymmetrical vibration of the diaphragm and faulty sound reproduction. The accurate formation of the cylindrical flange 16 relative to the body of the diaphragm 3 is easily and mechanically controlled during the forming of the diaphragm, and the possibility of human error in the assembly of the speaker is largely eliminated. The position of the diaphragm flange 16 can be adjusted slightly along the ring flange 7 to properly locate the apex of the diaphragm and the voice coil tube 5 with respect to the magnet.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. Loud speaker construction comprising, a mounting ring of folded sheet metal having a cylindrical flange with an unflanged circular forward edge and with an inwardly turned annular flange bent from the rear edge thereof, a cone shaped diaphragm having a radially outwardly turned annular portion on its forward end, said annular portion having flexing corrugations formed therein, a cylindrical mounting flange turned sharply forwardly from the rim of said annular portion and secured telescopically within and directly to said cylindrical flange on said ring by adhesive, a forwardly opening U-shaped supporting strap bridging the back of said ring and supporting a magnet structure cooperative with the apex of said cone, the forward ends of the arms of said strap being secured to the outside of said cylindrical flange and projecting slightly forwardly therefrom, and radially outturned attaching feet on the forwardly projecting portions of said arms adapted to be secured to a support.

2. Loud speaker construction comprising, a mounting ring of folded sheet metal having a cylindrical flange with an unflanged circular forward edge and with an inwardly turned annular flange bent from the rear edge thereof, a diaphragm, and a cylindrical mounting flange turned from the rim of said diaphragm and secured telescopically within and directly to said cylindrical flange on said ring in spaced relation to said inwardly turned flange.

3. Loud speaker construction comprising, a mounting ring adapted to support the periphery of a diaphragm, a diaphragm mounted on said ring, a forwardly opening concave strap diametrically bridging the back of said ring and having the forward ends of its arms secured to the outside of said ring and projecting slightly forwardly from the foremost portions of said diaphragm and ring, the mid portion of said strap being adapted to support a magnet structure for coaction with a diaphragm mounted on said ring, and radially outturned attaching feet on the forwardly projecting portions of said arms adapted to be secured to a support.

4. Loud speaker construction comprising, a mounting

ring adapted to support the periphery of a diaphragm, a diaphragm mounted on said ring, a forwardly opening concave strap diametrically bridging the back of said ring and having the forward ends of its arms secured to the outside of said ring, the mid portion of said strap being adapted to support a magnet structure cooperative with a diaphragm mounted on said ring, and radially outturned attaching feet on the forward ends of the arms of said strap located forwardly of the points of attachment between the arms and ring and adapted to be secured to a support.

5. Loudspeaker construction comprising, a mounting ring of folded sheet metal having a cylindrical flange with an inwardly directed annular flange bent from one end thereof, a diaphragm having a cylindrical flange turned from its periphery and telescopically received in and secured directly to said cylindrical flange on said ring, a supporting strap having forwardly projecting arms and diametrically bridging the back of said ring, a magnet structure supported by said strap and cooperative with said diaphragm, the forward ends of the arms of said strap being secured to the outside of said cylindrical flange on said ring, and radially outturned attaching feet on the forward ends of said arms adapted to be secured to a support.

6. Rim construction for a loudspeaker comprising, a mounting ring of folded sheet metal and angular cross section disposed with one flange arranged cylindrically

and the other radially inwardly along the back of the ring, means forming angular feet at diametrically opposed sides and on the outside of said ring and projecting forwardly therefrom, said feet being adapted to attach said ring to a support, a diaphragm having a curvilinear outline and having corrugations formed around the periphery thereof, and a cylindrical flange on the periphery of said diaphragm positioned telescopically within and secured directly by adhesive to the cylindrical flange of said ring in spaced relation to the inwardly extending flange thereof.

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