Nov. 11, 1930. E. G. SEIBERT 1,781,605

REPRODUCING DEVICE

Filed Oct. 4, 1929

Fig. 1.

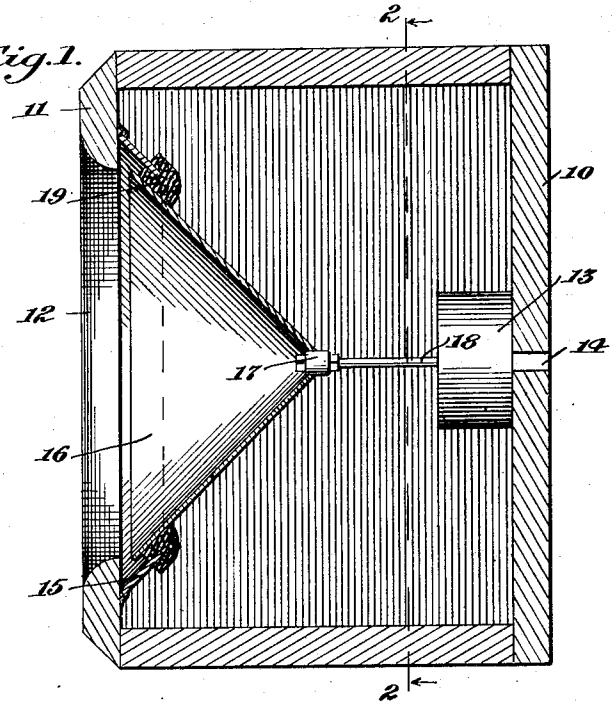
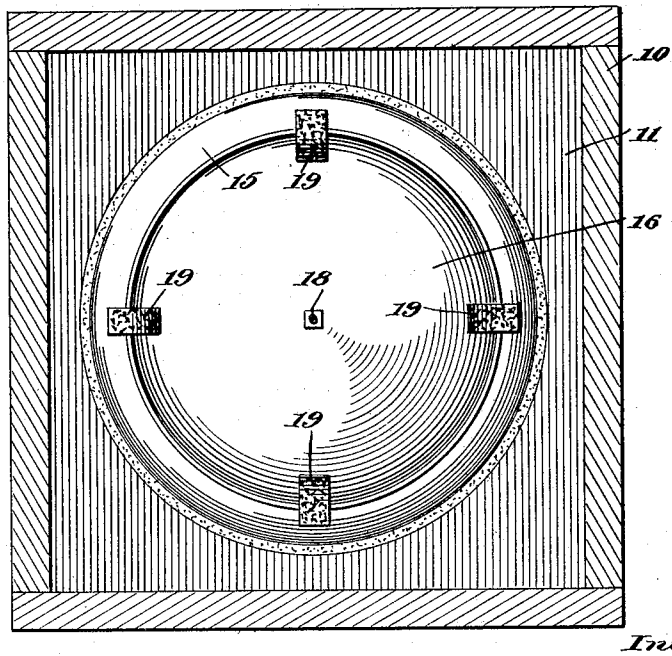


Fig. 2.



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UNITED STATES PATENT OFFICE

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REPRODUCING DEVICE

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This invention relates to improvements in reproducers, and more particularly relates to the provision of an improved type of cone diaphragm and mounting for such purposes.

One of the objects of the present invention is to provide a cone diaphragm which has a free edge, and which is supported at points removed from such edge.

Another object of this invention is to provide a support or mounting for the cone which permits free vibration of the cone.

A further object of the invention is to provide a cone mounting which permits an adjustment of the position of the cone to accommodate it to the driving unit of the reproducer.

With these and other objects in view as will appear in the course of the following specification and claims, a constructional form of the invention is set forth on the accompanying drawing, in which:

Figure 1 is a transverse sectional view through a reproducer embodying the present invention.

Fig. 2 is a rear elevational view of the cone taken substantially on the section line 2—2 of Fig. 1.

According to this invention, a cone is provided which is mounted with its edge free, by the provision of flexible and compressible supporting members in contact with the cone at points removed from its free edge: it being preferred to employ a material of the nature of sponge rubber for these supporting members.

In the drawing, a conventional reproducer case is shown as comprising the side, top and end walls 10 and having a front wall 11 provided with a mouth 12. The driving unit or electromagnetic portion of the reproducer 13 is illustrated as secured to the rear wall of the reproducer, opposite a passage 14 therethrough by which the conducting leads may be led to this electromagnetic unit.

Within the casing and surrounding the aperture 12 a truncated mounting cone 15 is secured as by gluing. Within this truncated mounting cone is located the reproducing cone 16, proper, which is connected at its apex by a suitable binding sleeve and connection 17 with the link 18 which leads to the electromagnetic unit 13 in known manner. The reproducing cone 16 is secured in spaced relationship to the mounting cone 15 by means of a plurality of cushions 19 which are preferably formed of sponge rubber or similar flexible and compressible material which is not competent to transmit vibrations from the reproducing cone to the mounting cone. As shown in Fig. 1, these cushions are preferably provided with a slit which freely engages over the smaller edge of the truncated mounting cone 15, so that they may slide thereon, while engaging with frictional resistance on this mounting cone to oppose such relative movement of the cones: and on the other hand are secured by cementing to the reproducing cone 16. As shown in Fig. 2, the cushions are preferably of relatively small dimension in the peripheral direction of the cone, so that they in no wise tend to absorb or diminish the capacity for vibration of the reproducing cone, but at all times afford it a free opportunity to vibrate in accordance with the sound waves as transmitted thereto by movements of the connecting link 18. This movement of the cushions 19 upon the mounting cone 15 permits accurate adjustment of the reproducing cone with respect to the electromagnetic unit 13, to correct for any small variations in position of this latter unit, so that any stresses imposed upon the reproducing cone 16 by the cushions will be balanced and will not lead to any warping of the cone or distortion of the sound reproduction.

It will particularly be noted that sound vibrations imparted to the air within the casing 10, from the rear surface of the reproducing cone 16, are substantially prevented from issuing through the aperture 12, by the interposition of the mounting cone 15 in their path. In other words, these sound vibrations are not heard by an auditor, and hence there is no interference between these waves and the direct sound reproduction from the outwardly directed surface of the reproducing cone 16, thus leading to a freedom from interference and a better and more faithful reproduction of the sound as

represented by the fluctuations of the electric current entering the electromagnetic unit 13.

It is obvious that the invention is not limited solely to the form of execution shown, but that it may be modified in many ways within the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent is:

1. A reproducer comprising a cone and means connected to the apex thereof to produce vibrations thereof, and cushions to support said reproducing cone mounted in contact therewith at points removed from the free edge of said cone.

2. A reproducer comprising a reproducing cone and means connected to the apex thereof for vibrating the same, a truncated mounting cone surrounding the free edge of said reproducing cone, and cushions interposed between the mounting cone and the reproducing cone to support the latter, the said cushions being formed of a material which is substantially incapable of transmitting vibrations.

3. A reproducer as in claim 2, in which the cushions are attached to the reproducing cone at points removed from the free edge thereof.

4. A reproducer as in claim 2, in which the cushions are of sponge rubber and are fixedly secured to the reproducing cone at points removed from the free edge thereof, and are provided with slits by which the individual cushions frictionally embrace the smaller edge of the mounting cone.

5. A reproducer comprising a reproducing cone and a driving device therefor connected to the apex thereof for vibrating the same, and a plurality of sponge rubber cushions for supporting the reproducing cone, said cushions permitting a relative movement of the cone with respect to its support while opposing a frictional resistance to such movement.

6. A reproducer comprising a casing having an aperture in one wall thereof, a truncated mounting cone secured to said casing and surrounding said aperture, a reproducing cone and means connected to the apex thereof for vibrating the same, the free edge of said reproducing cone being located within said mounting cone, so that the mounting cone substantially prevents the emission of sound waves produced by the rear surface of the reproducing cone, and cushioning means connecting said cones to support the reproducing cone, said cushioning means substantially preventing the transmission of vibrations of the reproducing cone to the mounting cone.

In testimony whereof, I affix my signature.

EDWARD G. SEIBERT.