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T. A. EDISON

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MOUNTING FOR DIAPHRAGMS OF SOUND BOXES

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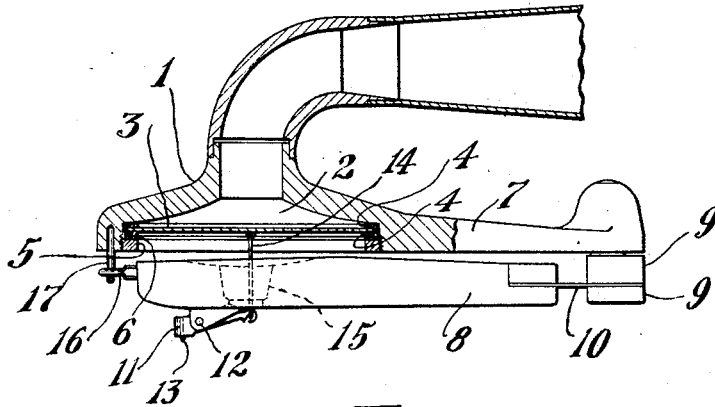


Fig. 1

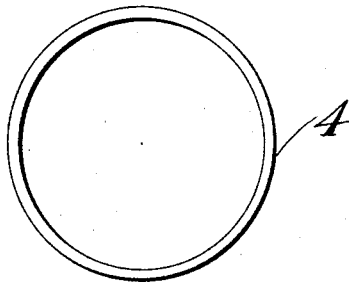


Fig. 2

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MOUNTING FOR DIAPHRAGMS OF SOUND BOXES

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My invention relates to mountings for the diaphragms of sound boxes and while particularly designed for use in phonographic sound boxes, my invention is also applicable to other types of sound boxes, such, for example, as telephone transmitters and receivers.

In order to obtain the best acoustic results, it is essential in the case of a sound box employing a vibratory diaphragm to mount the diaphragm resiliently in the sound box in order that the same may properly vibrate and function. For this purpose it has heretofore been customary to clamp the diaphragm of a sound box in position in the latter between gaskets formed of soft rubber. Rubber, however, deteriorates quite rapidly and where gaskets of this material are employed, such gaskets, in a comparatively short time, lose their elasticity and become hard and brittle. This is due, principally, to the presence of sulphur in the rubber and the fact that sulphur is subject to oxidation. When the rubber gaskets of a diaphragm mounting of a sound box have thus deteriorated, the diaphragm is apt to be loose in its mounting and the functioning thereof will be impaired. In the case of a phonograph reproducer, for example, such deterioration is likely to result in rattling, "blasting" and other imperfections in the reproduction. Moreover, the casings of phonograph reproducers are generally given an attractive finish by plating the same with gold or nickel, and because of the presence of the sulphur in the rubber gaskets, this finish frequently becomes badly tarnished.

The principle object of my invention is to provide an improved mounting for sound box diaphragms whereby the foregoing objections and defects will be obviated, and wherein the mounting will retain the desired resiliency for an indefinite period.

I have found that the foregoing object may be attained by employing in mountings of the character described gaskets of subereous material or cork instead of the usual soft rubber gaskets. Cork is highly suitable for this purpose for it is a substance which retains its elasticity indefinitely, and which, no matter

how long it is used, is practically unaffected by changes in atmospheric or weather conditions. This is undoubtedly due to the fact that cork is weather exposed for years in the formation thereof, and has reached the stage where it is no longer subject to any appreciable changes by reason of climatic conditions. While natural cork may be used for the gaskets of my improved mounting, it is extremely difficult to obtain any appreciable quantity of the same which is free from hard particles of bark and openings or crevices. Moreover, different lots of natural cork vary appreciably in resiliency or elasticity. Accordingly, it is practically impossible to produce gaskets of natural cork which will be of uniform resiliency and texture. I therefore preferably form the gaskets of the material known as composition cork. This material is made by grinding natural cork, eliminating all hard particles, such as pieces of bark and foreign substances, therefrom, and then pressing the ground cork into coherent sheets or slabs under enormous pressure. It is apparent that the composition cork thus produced is free from glue and glue-like substances. Moreover, this composition cork is of very uniform elasticity or resiliency and texture and is graded in accordance with the fineness of the ground cork from which it is formed. I preferably employ for the gaskets described, composition cork of a fine grade.

Further objects and features of my invention will be hereinafter more fully described and claimed.

In order that my invention may be more clearly understood, attention is directed to the drawing accompanying and forming a part of this specification, and in which:

Figure 1 is a sectional view of a phonograph reproducer equipped with a diaphragm mounting in accordance with my invention; and

Fig. 2 is a plan view of one of the gaskets used in the diaphragm mounting of the reproducer shown in Fig. 1.

Referring to Fig. 1 of the drawing, the reproducer shown is of the Edison type and comprises the usual cup 1 having a sound chamber 2 which is circular in cross-section.

The sound chamber 2 is provided with a seat for a diaphragm 3, said diaphragm being held against the seat at its edge portion between two annular packing rings or gaskets, 4, 4, by means of a locking ring 5 screwed into the cup. The gaskets 4, 4 are made of subereous material such as cork or composition cork, preferably the latter, as described above. A thin smooth metal bearing or clamping ring 6 is disposed between the lower gasket 4 and the locking ring 5 to prevent deformation of the gasket upon turning movement of the locking ring when the latter is tightened.

The reproducer cup 1 is provided with a rearward extension 7, and a floating weight 8 is pivotally connected to the extension 7 for movement about a vertical axis by means comprising pivot blocks 9, 9. The floating weight 8 is supported from the pivot blocks 9, 9 by means of a flat spring 10, one end of which is secured between the blocks 9, 9 and the other end of which is secured to the adjacent end of the floating weight. A stylus lever 11 is pivoted intermediate its ends at 12 on the floating weight 8, one end of this lever being provided with a reproducing stylus 13, and the opposite end thereof being connected to the center of the diaphragm 3 by means of a link 14. This link extends through a suitable opening 15 provided in the floating weight 8. A pin 16 secured to the forward end of the floating weight 8, extends within a loop 17 secured to the underside of the reproducer cup 1 and coacts with this loop to limit the vertical and lateral movements of the floating weight with respect to the reproducer cup.

While I have specifically described a preferred form of my improved diaphragm mounting, it is to be understood that the same is subject to various changes and modifications without departure from the spirit of my invention and the scope of the appended claims.

Having now described my invention, what I claim as new and desire to protect by Letters Patent is as follows:

1. A coherent resilient gasket for a diaphragm mounting of the character described formed of composition cork which is of substantially uniform texture and resiliency and which is free from glue and glue-like substances, substantially as described.

2. A coherent resilient gasket for a diaphragm mounting of the character described formed of composition cork from the cork of which all bark and hard foreign substances have been eliminated and which is free from glue and glue-like substances, substantially as described.

This specification signed this 28th day of April, 1925.

THOS. A. EDISON.