

G. L. COLEMAN.
MOUNTING FOR SOUND BOXES.
APPLICATION FILED JAN. 29, 1906.

946,014.

Patented Jan. 11, 1910.

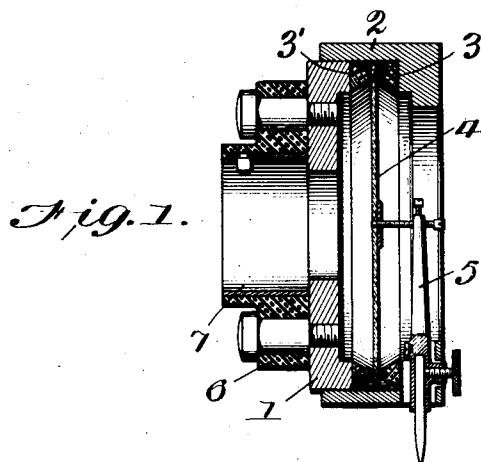


Fig. 1.

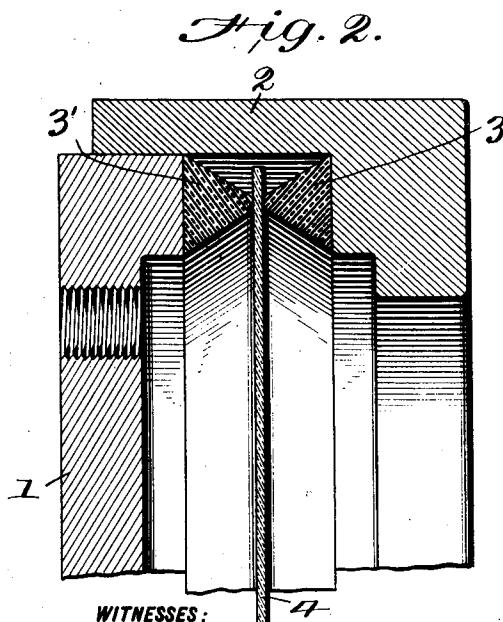


Fig. 2.

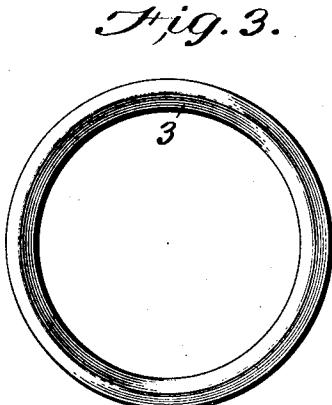


Fig. 3.

WITNESSES:

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MOUNTING FOR SOUND-BOXES.

946,014.

Specification of Letters Patent. Patented Jan. 11, 1910.

Application filed January 29, 1906. Serial No. 298,372.

To all whom it may concern:

Be it known that I, GEORGE L. COLEMAN, a citizen of the United States, residing in Camden, in the county of Camden and State 5 of New Jersey, have invented certain new and useful Improvements in Mountings for Sound-Boxes, of which the following is a full, clear, and complete disclosure.

My invention relates to certain improvements in sound recording and reproducing devices, and more particularly to that part 10 of the same known as sound boxes.

The object of my invention is to provide a means for mounting a diaphragm in the 15 sound boxes in such a manner that the volume is greater and quality of the tone is much clearer and more distinct and natural than heretofore rendered.

With this object in view, my invention 20 consists in providing a simple and efficient means for securing the diaphragm in the sound box, whereby the vibratory action of the diaphragm is rendered more efficient and the diaphragm more sensitive to the action 25 of the sound waves and movement of the stylus bar.

My invention further consists in features 30 of construction and manner of operation which will be hereinafter more fully described in the following specification and the accompanying drawing, in which like reference characters refer to corresponding parts.

In the drawing, Figure 1 is a transverse 35 section of the sound box, showing the needle and part of the stylus bar in elevation; Fig. 2 is an enlarged fragmentary portion of Fig. 1; Fig. 3 is an elevation of one of my gasket rings.

Referring to Figs. 1 and 2, 1 represents 40 the sound box frame, which is made up of the sections 1 and 2, the cylindrical wall of the latter being slipped over the cylindrical wall of the former. The section 2 is provided 45 on its interior surface with a step or seat for the reception of one of the rings or gaskets 3. Section 1 has its upper periphery constructed in the form of an annular seat for the reception of the other rings 50 or mountings 3'. These rings or gaskets are composed of a soft rubber or other yielding material and may be resilient, so that in their normal condition they are of such a configuration as to conform to their bearing 55 surfaces in the sound box, from which they

may be removed when contracted. The said rings or mountings are triangular in cross section, and have their base portions bearing against their respective seats and their edges oppositely disposed for the purpose of 60 retaining the diaphragm 4 in position. Connected with the diaphragm in any suitable manner is the stylus bar 5, and to the face of section 1 of the box is attached the usual rubber ring 6, within which is the tubular 65 sleeve 7 for attachment to the horn and supporting the arm of the reproducing machine. The oppositely disposed circular edges of the mounting rings 3-3' may be sharp or knife-like, but I prefer to slightly 70 round or bevel the same. The diaphragm 4 is confined between these circumferential edges, and is in slight contact around that portion of its edges within and adjacent to its periphery. The sections 1 and 2 of the 75 sound box may be so adjusted to each other as to bring the circumferential edges of the rings 3-3' into contact with the diaphragm, according to the tension required.

Although I have described my rings as being detachable and having their circumferential edges in contact with the diaphragm, this arrangement is not essential, as the said yielding portions may be integral with the sound box, or the circumferential edges may 80 be in contact with the said box instead of the diaphragm, provided that those parts of the rings between which the diaphragm is supported are in contact with that portion 85 thereof which is within and adjacent to its 90 periphery, and further, I have described the annular mountings or rings as being triangular in cross section, but the same may be of any other configuration in cross section, provided circumferential edges of contact 95 are presented.

It will be seen, from the above description, that the diaphragm is free at its edges and that the only portions of the same that are in contact are those that lie immediately between the edges of the yielding rings and by virtue of the yielding action of the rings and the circumferential nature of the contact, the interference with the vibratory action of the diaphragm is reduced to a minimum.

The above described means for mounting the diaphragm is illustrated in its preferred form, but I do not wish to limit myself to such, as other forms may be employed without departing from my invention as claimed.

Neither do I wish to be restricted by the terms used to describe the different parts set forth, nor by the exact construction herein illustrated and described, but reserve the right to utilize any modification or equivalents thereof, provided the same are within the scope of my invention, as pointed out in the appended claims.

Having thus described my invention, what I claim and desire to protect by Letters Patent of the United States is:—

- 5 1. In a sound recording and reproducing machine, the combination of a pair of soft yielding rings, triangular in cross section, with a diaphragm retained between them, the edge of said diaphragm being free.
- 10 2. In a sound recording and reproducing machine, the combination with a casing of soft yielding rings, triangular in cross section and oppositely disposed, with a diaphragm retained between said rings, the edge of said diaphragm being free.
- 15 3. In a sound box, a pair of soft yielding rings, each having one face thereof tapered to form an edge and a diaphragm retained between said edges, the edge of said diaphragm being free.
- 20 4. In a sound box, a pair of soft yielding rings, each having one face thereof tapered to form an edge and its opposite facing flat to conform to a seat, and a diaphragm retained between said rings, the edge of said diaphragm being free.
- 25 5. In a sound box, a pair of yielding rings of soft material each having one face thereof tapering to form an edge and a diaphragm retained between said edges.
- 30 6. In a sound box, a pair of yielding rings, made of solid soft rubber or a like composition, each having one face thereof tapered to form an edge and a diaphragm retained between said edges.
- 35 7. In a sound box a pair of rings made of solid soft rubber or a similar composition, and being triangular in cross section, and a diaphragm retained between said rings.
- 40 8. In a sound box, a pair of solid soft rings, each having one face thereof tapered to form an edge, and a diaphragm retained between said edges.
- 45 9. In a sound box, a pair of solid soft resilient rings, each having one face thereof tapered to form an edge and a diaphragm retained between said edges.
- 50 10. A sound box made up in sections, one section having an annular seat or shoulder therein and another section having a corre-

sponding seat, a pair of soft yielding rings each having one face thereof tapered to form an edge and its opposite face flat and bearing against one of said seats, and a diaphragm retained between the edges of said rings, said sections being longitudinally slid able with respect to each other.

11. A sound box made up in sections, one section having an annular seat or shoulder therein and another section having a corresponding seat, a pair of soft rubber rings, each having one face thereof tapered to form an edge and its opposite face flat and bearing against one of said seats, and a diaphragm retained between the edges of said rings, said sections being longitudinally slid able with respect to each other.

12. A sound box made up in sections, one section having an annular seat or shoulder therein and another section having a corresponding seat, a pair of soft solid rubber rings, each having one face thereof tapered to form an edge and its opposite face flat and bearing against one of said seats, and a diaphragm retained between the edges of said rings, said sections being longitudinally slid able with respect to each other.

13. In a sound box a pair of yielding portions of soft material, each portion being tapered to form an edge and a diaphragm held between said edges.

14. In a sound box a pair of yielding portions of soft material, each portion being tapered to form an edge, and a diaphragm held between said edges, the edge of said diaphragm being free.

15. In a sound box a pair of yielding portions of soft material and a diaphragm held between the said portions, each portion being substantially V-shaped in cross section and converging toward said diaphragm.

16. In a sound box the combination with a casing of a yielding tubular extension secured to the rear side thereof and a non-yielding lining in said yielding tubular extension, the inner edge of said lining being in contact with the rear side of said casing and the outer edge of said lining being flush with the rear face of said extension.

In witness whereof I have hereunto set my hand this twenty-sixth day of January, 1906.

GEORGE L. COLEMAN.

Witnesses:

W.M. EARLY,
CHAS. K. BENNETT.