W. G. SABINE.

SOUND MODIFYING DEVICE.

APPLICATION FILED NOV. 20, 1912.

1,065,888. Patented June 24, 1913.

FIG. 1.

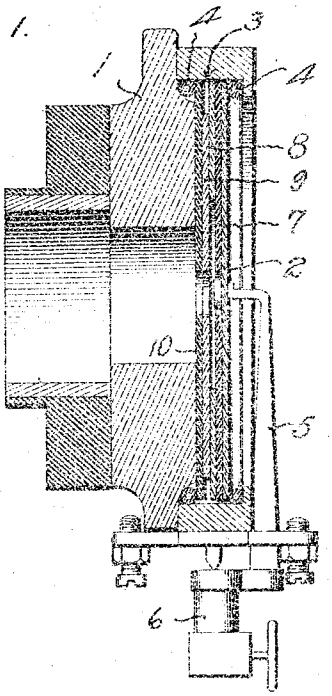
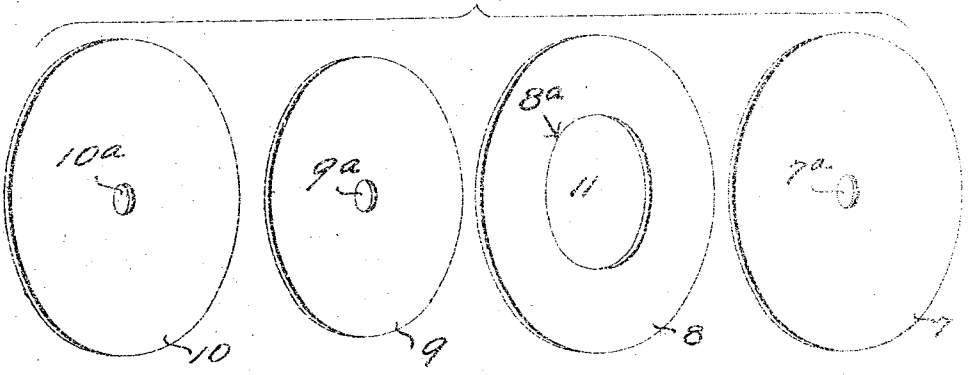


FIG. 2.



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SOUND-MODIFYING DEVICE.

1,065,888. Specification of Letters Patent. Patented June 24, 1913.

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To all whom it may concern:

Be it known that I, WILLIAM G. SABINE, a citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Sound-Modifying Devices, of which the following is a specification.

The present invention relates in general to sound reproducing machines, and more particularly to novel means for modifying the sound so as to clarify the same and muffle or soften the harsh metallic ring which is always incident to such machines.

One of the objects of the invention is the provision of a sound modifying device which is simple and inexpensive in its construction, and which will operate in an effective manner to modify and soften the sound of the instrument and do away with the whizzing or grating sound.

A further object of the invention is the provision of a device of this character which is susceptible of being constructed in such a manner as to be applied in the form of an attachment to the usual sound boxes now in common use.

With these and other objects in view, the invention consists in certain combinations and arrangements of the parts as will more fully appear as the description proceeds, the novel features thereof being pointed out in the appended claims.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is an enlarged elevation of a conventional form of sound box of the kind usually employed with a disk type of talking machine, the view illustrating the sound box fitted with the improved sound modifying device claimed herein. Fig. 2 is a detail perspective view showing the several parts of the invention in a separated relation.

Corresponding and like parts are referred to in the following description and indicated in all the view of the drawings by the same reference characters.

In the present instance the sound modifying device is shown as constructed in the form of an attachment so as to be applied to a sound box of the conventional construction. The sound box itself does not constitute any part of the present invention, and may be briefly referred to as including a casing 1 provided upon one side thereof with the usual means for attachment to the swinging arm or other equivalent member of a sound reproducing machine, the opposite side of the casing being formed with an open chamber 3 within which the diaphragm 2 is mounted. This diaphragm is held in position between rings 4 of some soft material such as rubber which fits within the chamber 3, and the central portion of the diaphragm is connected in the usual manner to the inwardly extended end of a stylus carrying bar 5. The opposite end of this stylus carrying bar is rigid with a head 6 which is suitably mounted in the ordinary manner upon the casing 1 so as to have the necessary rocking or vibratory movement, and is provided with the usual socket to receive the stylus point.

The sound modifying attachment comprises a plurality of disks 7, 8, 9, and 10, which are of several different materials assembled in face to face relation and held clamped together as a unit at one side of and against the diaphragm 2.

Referring to the materials from which the disks are made, and the individual functions of each, it will be observed that the disks 7 and 10 are made of thin sheet rubber and are provided with the central sound openings 7^a and 10^a respectively. The disk 8 is made of parchment and differs from the other disks only in the particular of its central opening 8^a being of much greater diameter than any of the openings in said other disks. The disk 9 is made of metal and its diameter is less than that of any of the other disks. However, the said disk 9 is provided with a central opening 9^a whose diameter substantially corresponds to that of the openings 7^a and 10^a in their respective disks.

In assembling the attachment above described the rubber disk 7 is placed next to the diaphragm 2 and face to face therewith, so that the opening 7^a is opposite the junction of the stylus bar 5 with the diaphragm 2. Next to this thin rubber disk is placed the parchment disk or ring 8, which by reason of its enlarged central opening 8^a provides within such opening an auxiliary sound

clarifying chamber 11, one side of which is formed by the disk 7, and the other side of which is formed by the metal disk 9 which comes next in order after the parchment has been placed in position. The metal disk preserves the distinctness of the sound waves, while the parchment and rubber packing so modifies the sound as to eliminate the whizzing or grating sound incident to the travel of the needle over the record and the reproduction of the selection.

The assembling of the device is completed by placing the rubber disk 10, which is a duplicate of the disk 7, next to the metal disk 9, so that it is concentric with the other disks, and so that the opening 10^a is opposite the junction of the stylus bar with the diaphragm similar to the opening 7^a in the disk 7. It may also be observed that by reason of the metal disk 9 being of less diameter than the chamber 3 within which it is located, the edges of said disk are spaced from and out of contact with the metallic wall of the said chamber 3, thus permitting the said metal disk to have its independent vibration as it may be influenced by the vibrations of the main diaphragm communicated through the first rubber disk 7 and the intervening parchment sheet 8. This construction and arrangement of parts has been found to be very sensitive and reliable in its action to modify and soften the harsh grating sound and metallic ring which usually accompanies the operation of the ordinary gramophone.

In those forms of sound boxes where the diaphragm is made of metal, such as aluminum, satisfactory results may be secured in the present invention, by omitting the metal disk and simply utilizing the two rubber disks with the parchment disk between, although it will be understood that in the conventional form of sound box within which the common mica or equivalent diaphragm is employed, the particular arrangement of disks herein described is the one preferred and ordinarily employed.

I claim:

1. A modifying attachment for sound boxes, comprising, in combination with the main diaphragm, a laminated muffling unit clamped within the sound box at the inner side of the diaphragm and including a pair of rubber disks, one of which is arranged against the diaphragm, a metal disk arranged against one of the rubber disks, and a parchment disk interposed between the metal disk and the other rubber disk.

2. A modifying attachment for sound boxes, comprising, in combination with the main diaphragm, a laminated muffling unit clamped within the sound box at the inner side of the diaphragm and including a pair of rubber disks, one of which is arranged against the diaphragm, a metal disk located between the rubber disks and of less external diameter than the same, and a parchment disk interposed between the metal disk and one rubber disk and having an internal auxiliary sound clarifying chamber.

3. A modifying attachment for sound boxes, comprising in combination with the main diaphragm, a laminated muffling unit clamped within the sound box at the inner side of the diaphragm and including a pair of rubber disks of uniform diameter and having central openings therein, one of the rubber disks being arranged against the diaphragm, a metal disk arranged against one of the rubber disks and of less external diameter than the same, and also having a central opening, and a parchment disk of substantially the external diameter of the rubber disks and having a concentric hole of greater diameter than those of the other disks, said parchment disk being interposed between the metal disk and the other rubber disk.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

WILLIAM G. SABINE.

Witnesses:
AGNES A. JOHNSTON,
E. E. MILLER.