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AMPLIFIER FOR PHONOGRAPHS AND THE LIKE.

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1,381,430. Patented June 14, 1921.

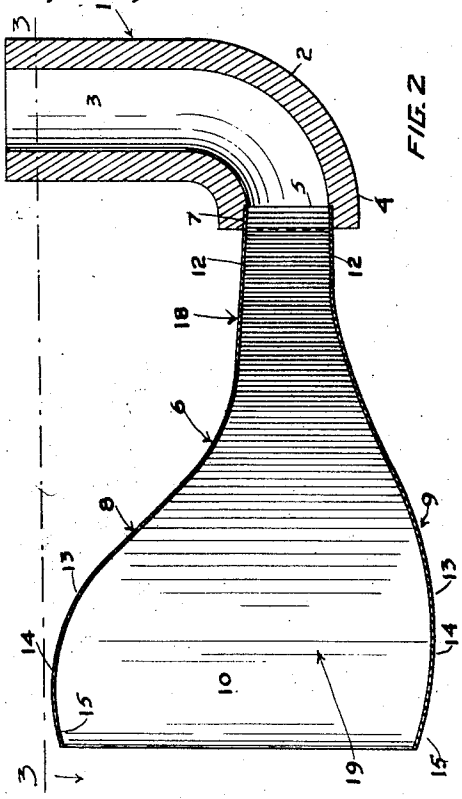


FIG. 2

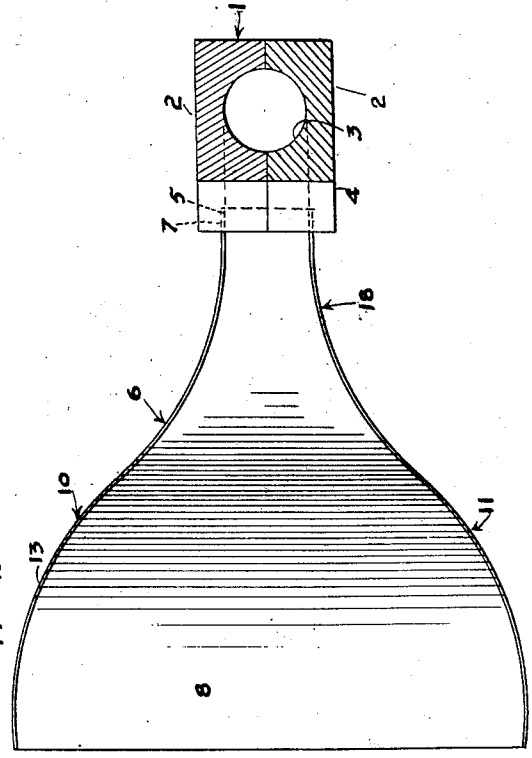


FIG. 3

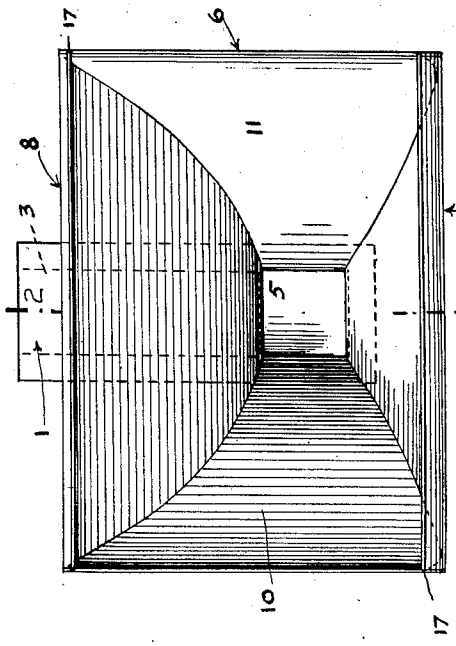


FIG. 1

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AMPLIFIER FOR PHONOGRAPHS AND THE LIKE.

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To all whom it may concern:

Be it known that I, EDWARD PHIPPS, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Amplifiers for Phonographs and the like, of which the following is a specification.

This invention resides in the provision of a phonograph tone amplifier which will enrich the quality of, and better articulate, the tones so as to render a more natural and harmonious reproduction of the original tones.

An object of the invention is to provide an amplifier of the character described which is constructed in a novel, simple, and relatively inexpensive manner and may be easily and quickly made and assembled.

The invention possesses other advantages and features, some of which, with the foregoing, will be set forth at length in the following description wherein I shall outline in full that form of the invention which I have selected for illustration in the drawings accompanying and forming a part of the present specification. In said drawings, I have shown one form of the construction of my invention but it is to be understood that I do not limit myself to such form, since the invention as expressed in the claims may be embodied in a plurality of forms.

Referring to the drawings:

Figure 1 is a front elevation of the sound amplifier of my invention.

Fig. 2 is a longitudinal sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2, showing the amplifier proper in top plan.

In carrying out my invention, I construct a sound amplifying chamber of relatively thin highly resonant wood somewhat after the manner usually followed in the art, but instead of having the flare of the chamber extend clear to the outer end thereof, I converge the walls of the chamber at the outer end and restrict the sound outlet opening of the chamber somewhat. This, I have found, causes better articulation of the tones. It is known in the art that very thin resonant wood produces better tone results in sound amplifiers but unless the thin wood is in some manner damped in its vibration tendency, too much vibration results, and spoils the tone. Sound amplifying chambers have heretofore been formed of wood of such thickness that the objections above noted were eliminated and consequently a very thin wood has not been successfully employed. I have found that by bending very thin sheets of wood into curves, preferably of substantially ogee form, and forming a chamber of said sheets, I place the wood under a certain tension which prevents too great a vibration but produces better resonating qualities and I thus may use exceptionally thin wood and obtain the advantages thereof without the objections heretofore encountered in the use of very thin wood.

In one form of the invention, as shown in the drawing, I employ a throat 1 preferably formed of similar wooden halves 2 joined in any suitable manner and having a circular opening 3 therethrough. This throat stands vertically, the upper end being suitably connected with the tone arm, not shown, whereas the lower end is curved outwardly, as at 4, and provided with a rectilinear opening 5. This opening 5 gradually merges into the circular opening 3. The amplifier 6 is mounted in the opening 5 in a recess 7 in said opening whereby the inner surfaces of the amplifier and opening 5 are flush with one another.

The amplifier comprises upper and lower portions or walls 8 and 9, and side walls 10 and 11. These walls are each made of one piece of very thin resonant wood veneer. The top and bottom walls 8 and 9 are curved in substantially ogee form and from their inner ends, their longitudinal edges extend parallel, as at 12, a short distance, then diverge outwardly in similarly rounding curves, as at 13, to points 14 near their outer end and from these points these side edges and the outer ends of these walls converge, as at 15, to the ends of the walls. Thus the side edges of the top and bottom walls define identical curves of substantially ogee outline. The degree of curvature of the bottom wall 9 is the same as that of the top wall to the point 14 and from this point is less than the degree of curvature of the top wall from a corresponding point to the outer end of said walls. This arrangement provides more sound area at the outer end of the box above a line drawn horizontally through the center point at the inner end of the box and produces certain acoustical results which tend to improve the quality of the tones.

The side walls 10 and 11 are curved in ogee form and their outer end portions converge slightly. These walls are of less width at their outer ends than the corresponding ends of the top and bottom walls and provide the rectangular outer end for the amplifier as shown, in which the horizontal dimensions of the end are greater than the vertical, so as to best suit the amplifier for use in modern phonographs. The longitudinal top and bottom edges of these walls 10 and 11 are curved identically respectively with the ogee curvature of the respective top and bottom walls 8 and 9, the lower longitudinal edges of these side walls being of less curvature from the point 14 to their outer ends than the upper longitudinal edges of said walls.

I may secure these walls together by providing grooves 17 on the opposed faces of the side walls 10 and 11, and mortising the side edges of the top and bottom walls in said grooves as shown in Fig. 1 of the drawing.

It will be seen that the sound amplifier or chamber of my invention comprises a reduced neck portion 18 at the inner end and an enlarged portion 19 at the outer end formed by the ogee curved wooden sheets joined together in box-like form. By converging the outer ends of the walls, I form a restricted sound outlet for a large sound chamber and cause the tones to be fully formed in the chamber before issuing therefrom and to issue in concentrated form, so that in all the tones are better articulated than in amplifiers which flare instead of converging at their tone outlet ends. This, with the degree of tension produced in the highly resonant thin wood of the amplifier by the peculiar curving of the walls thereof and also with the peculiar shape of the chamber, goes to make up a sound amplifier which will produce true, distinct, and fully harmonious tones marked with the presence of "quality" and with the absence of harshness and indistinctness of tone.

By having the ends of the walls turned inwardly or converged, I place the wood under such tension that a better acoustical result follows for reasons hereinbefore noted.

Since it is a known fact that a tensioned sheet of wood or other fibrous material has better resonating qualities than an untensioned sheet, it is seen that it is one of the most important features of this invention to provide for tensioning the entire area of the amplifier. Preferably this is accomplished by securing together a plurality of walls, each of which comprises a single continuous sheet of wood veneer and is formed longitudinally as an ogee curve, whereby said walls are maintained under stress.

I claim:—

1. A phonograph amplifier comprising a plurality of walls, each of which comprises a single continuous sheet of wood veneer formed longitudinally as an ogee curve, whereby said walls are maintained under stress.

2. A phonograph amplifier comprising a plurality of walls of relatively thin resonating material, each of said walls being formed as an ogee curve whereby said walls are maintained under stress.

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