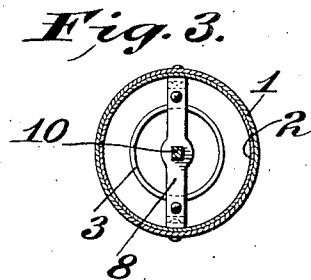
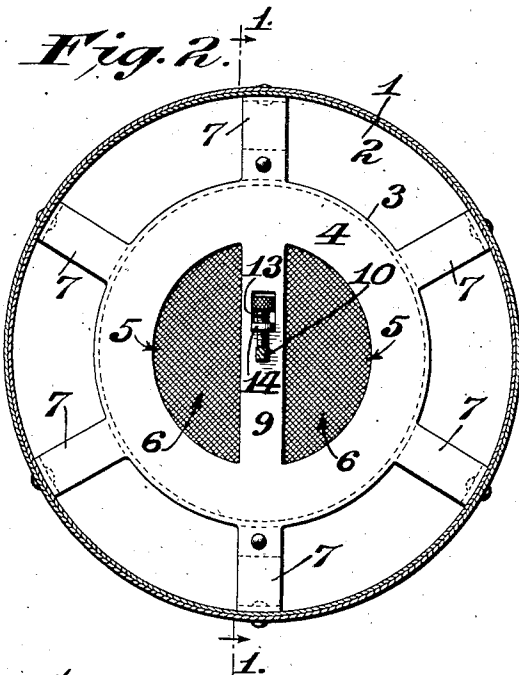
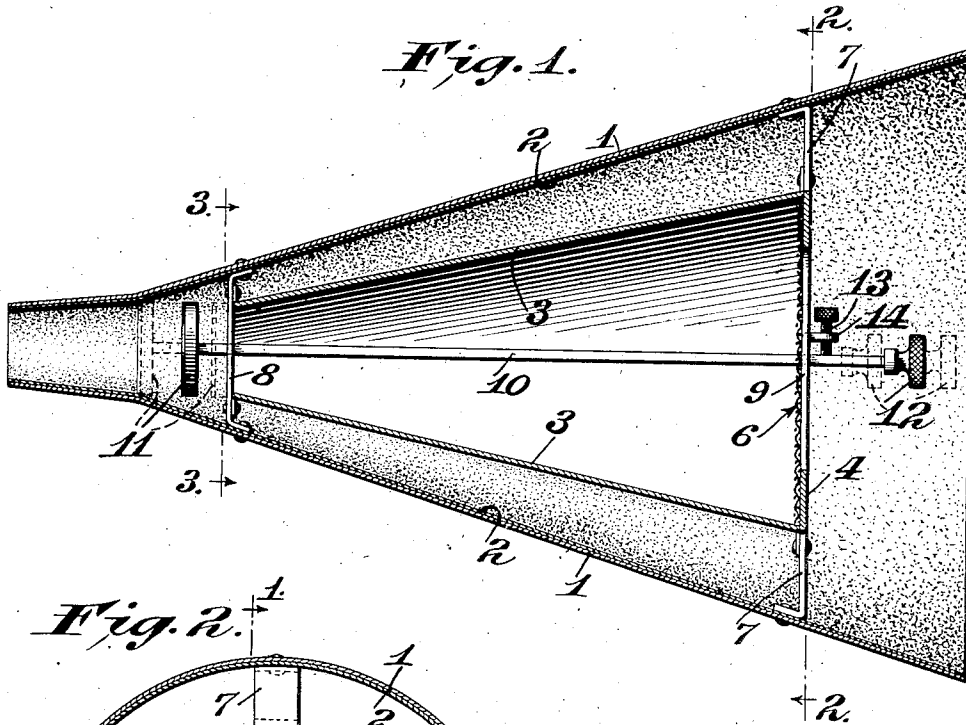


W. TATELBAUM.
AMPLIFYING HORN.
APPLICATION FILED JUNE 8, 1908.

931,161.

Patented Aug. 17, 1909.



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UNITED STATES PATENT OFFICE.

WILLIAM TATELBAUM, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-THIRD TO SIGOLOFF BROS. HARDWARE COMPANY, OF ST. LOUIS, MISSOURI, A PARTNERSHIP.

AMPLIFYING-HORN.

No. 931,161.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed June 8, 1908. Serial No. 437,438.

To all whom it may concern:

Be it known that I, WILLIAM TATELBAUM, a subject of the Czar of Russia, residing at the city of St. Louis, State of Missouri, United States of America, have invented a certain new and useful Improvement in Amplifying-Horns, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof, in which—

Figure 1 is a longitudinal-sectional view on line 1—1, Fig. 2, of my improved horn, showing the regulating valve in adjusted positions in dotted lines; Fig. 2 is a cross-sectional view on line 2—2, Fig. 1; and Fig. 3 is a cross-sectional view on line 3—3, Fig. 1.

This invention relates to a new and useful improvement in amplifying horns for phonographs, talking machines, and the like. Heretofore, so far as I am aware, horns for such machines have at times been provided with means for regulating the volume of the tone or sound waves or vibrations issuing therefrom, but in all such horns the tone or sound waves or vibrations have been more or less metallic.

The object of my invention is to produce a horn provided not only with means for regulating the volume of the tone or sound waves, but also with means which eliminates substantially all metallic vibrations from the tone or sound waves issuing from the horn, such latter means also spreading and rounding out said tone waves, modulating or modifying the same and making them sweet and distinct.

With this object in view, my invention consists in the novel construction of the several parts of my horn and in the novel arrangement and combination of the same, all as will hereinafter be described and afterward pointed out in the claims.

In the drawings, 1 is the outer shell of the horn, which can be made of paper, paste-board, metal, or any other suitable material. It is, however, usually and preferably made of metal, in which case it is lined preferably with flannelette 2, which covers the entire inner surface of horn 1.

Mounted centrally within horn 1 is what I call the inner resonant body or modulating horn 3. Horn 1 is open at both ends and, as shown in Fig. 1, is of smaller diameter at

its inner end than at its outer end, the resonant body or horn 3 being also of smaller diameter at its inner end than at its outer end and also being somewhat smaller than horn 1, thereby providing a space therebetween for the sound or tone waves entering the smaller end of horn 1, as shown clearly in Fig. 1. This horn 3 is preferably made of wood, paste-board, or any other suitable non-metallic material; it could, however, be also made of metal, in which case it would be completely covered with woven fabric or paper, so as to prevent the tone or sound waves from the talking machine striking directly against metal.

The outer end of horn 3 is provided with a circular cover or head-portion 4, which may be either made integral with horn 3 or separately therefrom and riveted or otherwise secured thereto. This head-portion 4 is provided with sound openings 5, which are preferably covered by gauze 6. The head-portion 4 is also provided with radial spider arms 7, whose ends are bent and riveted or otherwise secured to horn 1, thereby holding the front end of horn 3 in proper position in horn 1. The reduced or contracted inner end of horn 3 is preferably attached to a cross-bar 8, which bar is riveted or otherwise secured to horn 1, whereby the inner end of horn 3 is held in proper position in said horn 1.

Slidably mounted in suitable openings in bar 8 and in a cross-member 9 of head-portion 4 and extending through body 3 is a rod 10. On the inner end of rod 10 is a disk valve 11, which is adapted when properly adjusted to close the inner end of horn 1 for purposes hereinafter described. On the outer end of rod 10 is mounted a knob or handle 12, whereby said rod may be conveniently manipulated, and a set-screw 13 is mounted in a lug 14 on the bar 9, so as to impinge against rod 10 to hold the same in adjusted positions.

The operation of the parts of my horn is obvious. The tone or sound waves from the machine enter the inner opening of horn 1 and, striking against or contacting with valve 11, are spread toward the sides of the horn. The inner horn 3, against which the tone or sound waves also strike, being provided with the sound openings 5, acts somewhat like a violin or other resonant body.

and modifies or modulates said tone or sound waves, eliminating the harshness therefrom and making the same sweet, clear, round, and distinct. When the horn is in operative position on a talking machine or the like and the valve 11 is in its outermost position shown by dotted lines in Fig. 1, the tone or sound waves issuing from the horn are very low, but clear and distinct; as said valve is adjusted toward the larger end of the horn, the tone or sound waves issuing from the horn become louder and louder, in this way the volume of the tone or sound waves issuing from the horn being readily and easily regulated. As the parts of my horn against which the tone or sound waves strike are either non-metallic or, if metallic, covered by a non-metallic material, substantially all metallic vibrations in the tone or sound waves issuing from the horn are prevented, the inner horn 3 also assisting in eliminating any metallic vibrations in said tone or sound waves.

I have found from experience that my horn fully performs the objects heretofore stated. By the construction of my horn, substantially all metallic vibrations in the tone or sound waves are avoided; the volume of the tone or sound waves issuing from the horn is readily regulated; and the said tone or sound waves passing through and issuing from the horn are made by the means shown clear, mellow, and distinct.

While I have shown the inner body or horn 3 supported in position by the arms 7 and bar 8, it is obvious that other means could be provided for supporting the same in place; it is also obvious that, while said horn 1 and said inner horn or resonant body 3 are herein shown as being preferably circular in cross-section, they might, if desired, be of other shapes or forms, such as rectangular or horizontal, and also that other minor changes in the arrangement and construction of the several parts of my horn could be made and substituted for those herein shown and described without departing from the nature and principle of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In an amplifying horn, the combination with an outer shell open at both ends, of a hollow resonant sound-modulating body adapted to be supported within but away from the sides of said shell, whereby a space is provided for the passage of sound-waves between the outer surface of said body and the inner surface of said shell, said body being provided with sound-openings in its front end and the sides of said body being otherwise solid and imperforate; substantially as described.

2. In an amplifying horn, the combina-

tion with an outer shell open at both ends and of smaller diameter at its inner end than at its outer end, of a hollow resonant sound-modulating body adapted to be supported within but away from the sides of said shell, whereby a passage for the sound-waves is provided between the outer surface of said body and the inner surface of said shell, said body being also of smaller diameter at its inner end than at its outer end and being provided with sound-openings in its front end, the sides of said body being otherwise solid and imperforate; substantially as described.

3. In an amplifying horn, the combination with an outer shell open at both ends and of smaller diameter at its inner end than at its outer end, of a hollow resonant sound-modulating body adapted to be supported within but away from the sides of said shell, whereby a passage for the sound-waves is provided between the outer surface of said body and the inner surface of said shell, said body being also of smaller diameter at its inner end than at its outer end and being provided with sound-openings in its front end, the sides of said body being otherwise solid and imperforate, and an adjustable valve adapted to close the inner end of said shell for regulating the volume of the sound waves entering thereinto; substantially as described.

4. In an amplifying horn, the combination with an outer horn, of a second horn mounted in said outer horn and provided with sound openings at its outer end, said horn being adapted to modify or modulate the tone or sound waves passing through said outer horn, a rod slidably mounted in said second horn, and a valve on said rod adapted to close the inner end of said outer horn for regulating the volume of the tone or sound waves entering thereinto; substantially as described.

5. In an amplifying horn, the combination with an outer horn, of a second horn supported in said outer horn and provided with sound openings at its outer end, said second horn being adapted to modify or modulate the tone or sound waves passing through said outer horn, a rod slidably mounted in said second horn, a valve on said rod adapted to close the inner end of said outer horn for regulating the volume of the tone or sound waves entering thereinto, and means for holding said rod in adjusted positions; substantially as described.

6. In an amplifying horn, the combination with an outer horn, of a second horn, means for supporting said second horn in said outer horn, a head portion on the outer end of said second horn and provided with sound openings, a rod slidably mounted in said second horn, a valve on the inner end of said rod, and a set screw mounted on said

head portion and adapted to impinge against said rod for holding said rod in adjusted positions; substantially as described.

7. In an amplifying horn, the combination with an outer horn, of a non-metallic covering for the inner walls of said horn, a hollow body supported within but away from the walls of said outer horn, whereby a space is provided between said body and said horn for the passage of sound waves, said body being adapted to modify or modulate the tone or sound waves passing through said outer horn, and an adjustable valve adapted to close the inner end of said outer horn for regulating the volume of the tone or sound waves entering thereinto; substantially as described.

8. In an amplifying-horn, the combination with an outer horn open at both ends,

of a hollow resonant body adapted to be mounted in said outer horn and provided with sound-openings in its front end, the sides of said body being otherwise solid and imperforate, and supporting-members adapted to be attached to said outer horn and to said body for supporting said body within, but away from the side walls of, said outer horn, whereby a passage for the sound-waves is provided between said body and said outer horn; substantially as described.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM TATELBAUM.

Witnesses:

EDGAR W. JACOBS,

ADOLPH H. BIENENSTOK.