Nov. 2, 1948. H. HORNE 2,452,658

MUSICAL INSTRUMENT

Filed Dec. 12, 1944

Fig. 1

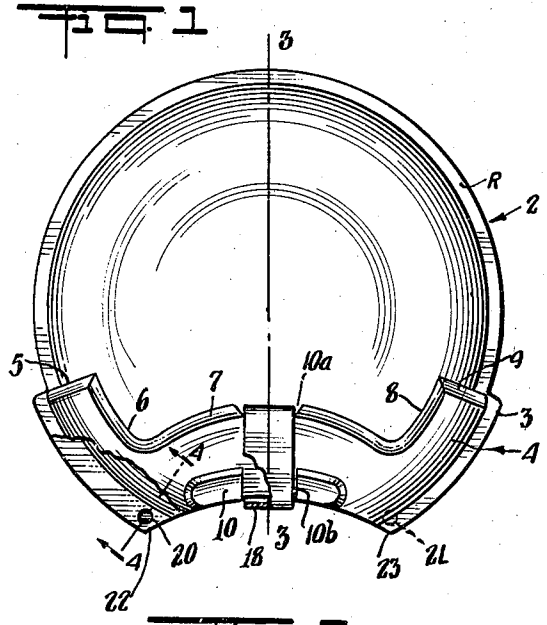


Fig. 2

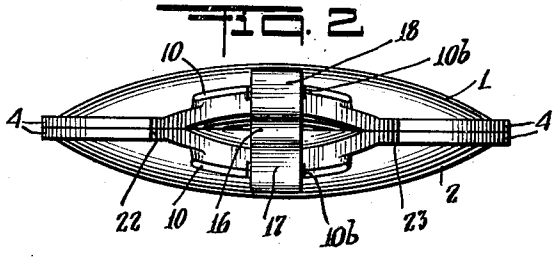


Fig. 3

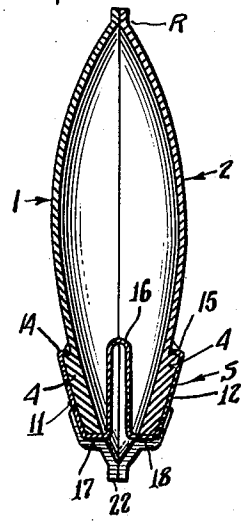
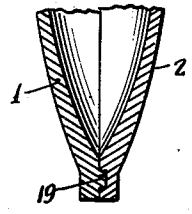


Fig. 4



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MUSICAL INSTRUMENT

Hal Horne, New York, N. Y.

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5 Claims. (Cl. 46—178)

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My invention relates to a new and improved musical instrument.

One of the objects of my invention is to provide improvements in the musical instrument which is described in U. S. Patent No. 2,274,897, dated March 3, 1942.

The improved instrument can be the same in size, shape, and dimensions as the instrument which is described in said U. S. Patent No. 2,274,897, save for the improved features described herein.

Another object of the invention is to provide an instrument in which the two body members are releasably connected to each other by resilient or spring means, thus making it unnecessary permanently to connect said body members by adhesive, or by heat and pressure.

Another object of my invention is to provide an improved instrument which, in comparison with the instrument disclosed in said U. S. Patent No. 2,274,897, can be played more easily by an inexperienced player. The improved instrument has superior resonance, and its tone can be easily controlled by manual pressure.

Other objects and advantages of my invention will be stated in the annexed description and drawings which illustrate a preferred embodiment thereof.

Fig. 1 is a top plan view of the improved instrument, part of the representation of the upper shell or body-member being omitted.

Fig. 2 is a front elevation of the improved instrument.

Fig. 3 is a sectional view on the line 3—3 of Fig. 1, showing both shells or body-members.

Fig. 4 is a sectional view on the line 4—4 of Fig. 1.

The drawings are substantially to scale, and reference is made thereto for any features which are not specifically described.

The illustrative type of the improved instrument which is disclosed herein, has respective shells or body-members 1 and 2. These body-members 1 and 2 can be made of any suitable material, either metallic or non-metallic. Said body members 1 and 2 are preferably resilient and resonant. They can be made of polystyrene resin or cellulose acetate, or of any other suitable moldable material, resinous or non-resinous. Polystyrene resin is made by polymerizing styrene or vinyl benzene. These body-members 1 and 2 are preferably identical, save where they have interfitting lugs and recesses.

The major portion of each shell or body-member 1 and 2 is of concavo-convex contour. Each said shell is provided with a respective rim or edge-portion R, which is of planar shape. At and adjacent to the mouth-portion or inlet-opening of the instrument, each shell is provided with a laterally enlarged flange 3. Each said flange 3 extends laterally beyond its respective rim R. Said flanges 3 have abutting faces which are planar. At its inlet-portion, each shell is reinforced by an external rib or boss 4 which has the inner edge-wall 5—6—7—8—9, which is shown in Fig. 2. Each said rib 4 has respective side edges which are coincident with the side edges of flanges 3. Each said external rib 4 is provided with an external lug 10.

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The portion 7 of each said inner edge-wall is provided with a recess 10*a*. A blade spring S detachably connects the shells 1 and 2 to each other. The spring S is made of resilient metal or other resilient material. Said spring S comprises outer legs 11 and 12, which have respective hook-ends 14 and 15, which fit in the respective recesses 10*a*. These hook-ends 14 and 15 engage the inner end-walls of recesses 10*a*. Said spring S also has internal legs which form a loop 16, of general U-shaped configuration. These internal legs are connected to the external legs by means of respective transverse spring-portions 17 and 18.

The spring S presses the shells 1 and 2 towards each other, so that said spring S holds the two shells 1 and 2 in abutting contact, at their respective flanges 3 and ribs 4 and also at their rims R. Said spring S may be the sole means for keeping the shells 1 and 2 in assembled relation. If desired, the shells may be provided with interfitting recesses and lugs or projections in their flanges 3, adjacent the inlet opening of the device. One of said lugs or projections 19 is shown in Fig. 4. The corresponding recesses or depressions 20 and 21 are shown in Fig. 1. The shells 1 and 2 are not fixed to each other by lugs 19 and recesses 20 and 21.

The inlet opening of the device is located between the points which are designated in Fig. 1 by the reference numerals 22 and 23.

The normal shape of spring S is shown in Fig. 3.

The external legs 11 and 12 fit in recesses 10*b* of the lugs 10. Hence the spring S is held against shifting relative to the shells 1 and 2, and the optional lugs 19 and their recesses 20 and 21, hold the shells 1 and 2 against relative lateral shifting.

The spring S is sufficiently bendable so that it can be separated from the shells 1 and 2, thus permitting the ready separation of the shells 1 and 2, and also permitting the replacement of one of the shells.

The spring S thus makes it unnecessary to connect the shells 1 and 2 to each other by adhesive or by means of heat and pressure. It also provides superior resonant effects, because the shells can vibrate transversely relative to each other, throughout the entire bodies of said shells, whereas in the former device, it was necessary to connect the flanges 3 to each other by means of adhesive or by means of heat and pressure. The main transverse vibration or resonance of the resilient shells 1 and 2 is behind the ribs 4, with little or no resonance at ribs 4 and flanges 3. Each edge-wall portion 9 is located substantially coincident with the rear end of a respective flange 3.

It will be noted that the shells 1 and 2 are wholly imperforate, thus providing an air column within said shells which vibrates when the instrument is played. When the instrument is played, the shells can vibrate slightly apart from each other throughout their entire edges behind the flanges 3, because the sole restraint is that of the spring S, which is located at the median portion of the inlet opening. Hence, the air column within the device remains substantially closed behind the inlet opening, because the separation of the shells, behind flanges 3, is relatively slight. The shells can also vibrate transversely relative to each other, at flanges 3, up to the inlet opening, because said flanges 3 are not fixed to each other. The legs of said spring S are aligned with the respective diameter of the device, said diameter being indicated by the line 3—3 of Fig. 1.

By exerting more or less manual transverse or lateral pressure upon the shells while the instrument is played, superior modifying effects of the sound can be produced, since the shells are free to move transversely relative to each other at all parts of said shells.

The invention is not limited to two identical shells, which are identical in self-vibration or resonance. One of the shells may be thicker and less vibrant than the other shell. One shell may be so thick that it is substantially non-vibrant. The shells may have any shape. The device may have internal parts and other additions to the simple illustrative embodiment disclosed herein.

Hence, when I specify that the wall of the casing instrument is vibrant, all of said wall or a part thereof, may be vibrant. Said casing is preferably wholly closed behind its inlet opening, when the parts of the casing are in the normal inactive position which is shown in Fig. 3, but the invention is not limited thereto. I prefer that the shells 1 and 2, which form the wall of the casing, should be imperforate or substantially imperforate. The spring S acts to limit the relative transverse vibration of the shells, at the inlet opening.

I have shown a preferred embodiment of my invention, but it is clear that numerous changes and omissions can be made without departing from its scope.

For example, the shells may be vibrant to any desired degree, up to the inlet opening. That is, the thicker or reinforced construction of the shells, at the ribs 4 is optional. Hence, the shells

may be self-vibrant to any desired degree, at any part thereof. The rib 4 may be omitted, in only one of said shells.

Even if the shells are permanently fixed to each other, adjacent the inlet opening or at any other part of the instrument, the resilient biasing spring is a valuable additional feature, in providing superior resonant effect.

The biasing means of the spring are the legs 11 and 12, which are external to the assembled casing. The members 17 and 18 and the internal legs which form the loop 16, are merely convenient optional means for connecting the external legs 11 and 12 to each other.

I claim:

1. A musical instrument which comprises a casing which has an inlet opening, the wall of said casing comprising a plurality of assembled shells, said wall being vibrant, a blade spring removably located at said inlet opening, said spring having external legs which are external to the interior space of said casing, said spring having internal legs which are located in said interior space, said spring having transverse legs which obstruct a part of said inlet opening, said external legs resiliently biasing said shells against each other, said shells being separable from each other, said blade spring being the sole means to hold said shells in assembled relation.

2. A musical instrument according to claim 1, in which said external legs are external to the outer faces of said shells, said external legs having hook-ends which engage respective outer wall-portions of said shells.

3. A musical instrument which comprises a casing which has an inlet opening, the wall of said casing being vibrant and comprising a plurality of assembled shells which are separable from each other, said shells having abutting edge-portions, blade spring means located at said inlet opening and biasing said edge-portions against each other, said blade spring means being the sole means to hold said shells in assembled relation, said blade spring means and the external walls of said shells being shaped to interfit so as to prevent any lateral shift between said shells and said blade spring means.

4. A musical instrument according to claim 3, in which said shells are substantially imperforate, and said wall is normally closed behind said inlet opening.

5. A musical instrument which comprises a casing which has an inlet opening, the wall of said casing being vibrant and comprising a plurality of assembled shells which are connected to each other in normal position in which said wall is normally substantially closed behind said inlet opening, a blade spring which has biasing legs which are external to said casing, said biasing legs abutting the external faces of said shells and biasing said shells against each other, said blade spring being the sole means to hold said shells in assembled relation, said biasing legs being connected to each other at said inlet opening.

HAL HORNE.

REFERENCES CITED

The following references are of record in the file of this patent:

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