Nov. 14, 1950 H. HORNE 2,529,693

MUSICAL INSTRUMENT

Filed May 9, 1946

Fig 1

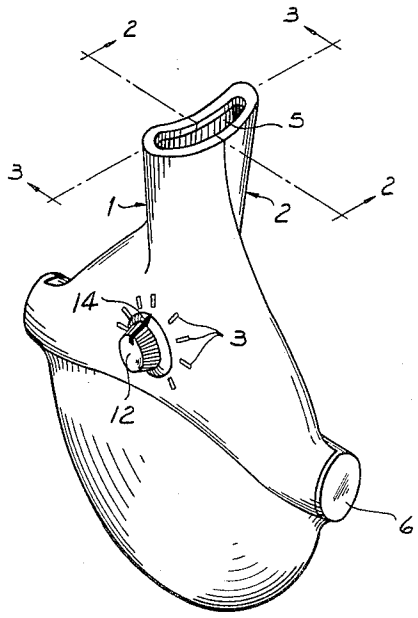


Fig 2

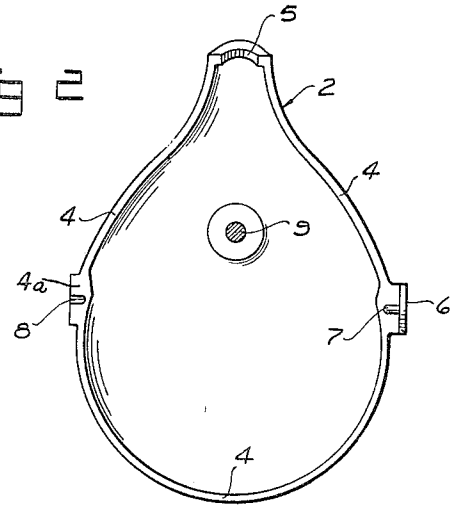
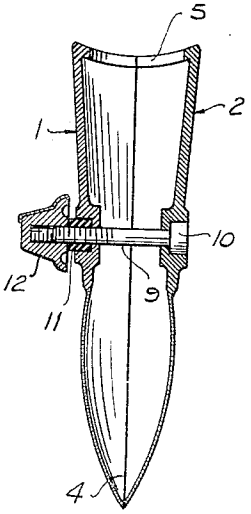


Fig 3



INVENTOR.
HAL HORNE

BY

Mock & Blum
ATTORNEYS

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MUSICAL INSTRUMENT

Hal Horne, New York, N. Y.

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5 Claims. (Cl. 46—182)

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My invention relates to a new and improved sound-producing or sound-modifying instrument.

The principal object of my invention is to improve the instrument described in U. S. Patent No. 2,274,897, dated March 3, 1942. This patent clearly discloses the method of using the device, namely, by singing or humming into its mouth.

One of the objects of my invention is to provide a device in which the pressure between the two abutting faces of the shells or parts of the casing of the instrument can be regulated, in order to regulate the vibration and resonance characteristics and the tone of the instrument. Since one or both of the shells is resonant and vibrates under the action of the modified applied sound waves, the tone and pitch and musical characteristics which are produced by the instrument can be accurately regulated.

Other objects of the invention are stated in the annexed description and drawings which illustrate a preferred embodiment thereof.

Fig. 1 is a perspective view of the improved instrument.

Fig. 2 is an internal elevation of one of the shells of the casing, on the line 2—2 of Fig. 1.

Fig. 3 is a section on the line 3—3 of Fig. 1.

The device comprises respective shells 1 and 2 which are identical in construction, save that the exterior of the shell 1 is provided with index marks 3, which are not provided on the shell 2. Each of these outer shells 1 and 2 is provided with a respective planar mating edge-surface 4. Each said shell is provided with one-half of a mouth-opening 5. For convenience, shell 1 is designated as the front shell and shell 2 is designated as the rear shell.

At one side thereof, the shell 2 is provided with a disk-shaped head 6 and with a lateral pin-like projection 7. This head 6 and projection 7 extend transversely of the shell 2. Said disk-shaped head 6 and said projection 7 are integral with the respective part of the respective mating surface 4. At the other side of the shell 2, its mating flange 4 is provided with an extension 4a which has a lateral recess 8 which is laterally alined with the pin-like projection 7. When the respective shells 1 and 2 are interfitted, the projection 7 of one shell is located in the recess 8 of the other shell. This prevents the shells from turning or shifting relative to each other. The shells are held in contact with each other at their planar mating surfaces 4. These shells can be made of plastic or of any other material.

These shells are held in contact with each other

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under adjustable pressure at their planar abutting surfaces 4, by means of a bolt which has a shank 9 and a head 10. The head 10 is fixed to the respective recessed part of the shell 2, so that the head 10 cannot turn relative to the shell 2. This can be done by forcing the head 10 into the material of the shell 2, while said material is relatively soft. I can also use adhesive or any other suitable fixing means. The shank 9 extends through alined bores of the shells 1 and 2. A ring or gasket 11, made of soft rubber or any other suitable resilient and compressible material, is fixed in a respective recessed part of the shell 1, as by a tight frictional fit or in any other manner, and the shank 9 also extends through a bore of said gasket or ring 11. A pressure head 12 is adjustably fixed to the projecting end-portion of the shank 9. For this purpose, said projecting end-portion is externally threaded, and the pressure head 12 is provided with an internal tapped bore. The pressure head 12 has a planar wall which abuts the external planar wall of the ring or gasket 11. The pressure head 12 is provided with a pointer or arrow 14 which cooperates with the scale marks 3, in order to indicate the pressure upon the shells 1 and 2, which is exerted by the bolt 9—10, the pressure head 12, and the compressible gasket 11. By adjusting this pressure and the vibration of the shell or shells, the tone and pitch of the instrument can be accurately regulated.

The bolt 9—10 and the pressure head 12 thus operate as the sole means for holding the shells 1 and 2 to each other, in combination with the projections 7 and the recesses 8.

In this embodiment, the device has only a mouth-opening or inlet opening 5 and it is wholly closed save at said mouth-opening 5, so that the vibration is that of an enclosed column of air, plus the self-vibrations of the resonant shells 1 and 2. By regulating the pressure between the shells 1 and 2, the tone which is caused by the vibrations of such shells is accurately adjusted.

It would not depart from the invention if the device were provided with an outlet, but it is preferred to omit such outlet.

Due to the flexibility and resonance of said shells, or one of them, and since these shells can be held under light pressure, the edge walls of said shells may separate slightly rearwardly of the bolt 9—10, when the shells vibrate under the action of a sound wave which enters through the mouth or inlet 5.

The drawings are to scale, and reference is made thereto for further disclosure.

One or both of the shells 1 and 2 may be resonant and vibratory.

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

When the instrument is used, it can be conveniently held by gripping the two heads 6, so that the shells 1 and 2 are free to vibrate, and also to move transversely relative to each other.

As shown in Fig. 1, the respective heads 6 extend in respective opposed lateral directions from the respective shells 1 and 2, and the respective extensions 4a interfit with said heads 6. Hence, when the device is gripped at the heads 6 to exert lateral pressure on said heads, such lateral pressure does not interfere with the transverse vibrations of shells 1 and 2 rearwardly of heads 6. Since Fig. 3 is according to scale, it shows that the walls of shells 1 and 2 are thicker forwardly of bolt 9—10 and adjacent said bolt, than at the portions of said shells which are located rearwardly of heads 6. Hence the transverse clamping pressure of bolts 9—10 is taken up by the shells 1 and 2, substantially forwardly of heads 6, thus permitting the thin rear-portions of the shells 1 and 2 to vibrate freely and transversely.

Fig. 1 also shows that the front inlet mouth-portion 5 is of greater width or transverse dimension than height or lateral dimension, so that said mouth-portion has a transverse axis which is perpendicular to the lateral line which connects the central points of heads 6.

The assembled body of the device has a longitudinal axis on which the shank of the bolt 9—10 is located. As shown in Fig. 2, the bolt 9—10, which is designated as transverse clamping means, is located forwardly of heads 6.

I claim:

1. A sound-modifying instrument which has a hollow body which comprises two shells, said shells having abutting edge-flanges, said hollow body having an inlet mouth-portion at its front end, said hollow body having a front to rear longitudinal axis, each said shell having a respective head at its respective edge-flange, each said head being located rearwardly of said mouth-portion and forwardly of the rear end of said body, said heads extending transversely in respective opposed directions from the respective shells, each said shell having a respective edge-portion which abuts the inner face of the head of the other shell, said heads being located on a line extending laterally relative to said longitudinal axis, said hollow body having transverse clamping means which hold said edge-flanges in abutting relation, said shells being transversely vibratory in a zone which is located rearwardly of said transverse clamping means and said heads, said transverse clamping means being located rearwardly of said mouth-portion and forwardly of said rear end of said body.

2. A sound-modifying instrument according to claim 1, in which said shells are thinner in said zone than adjacent to and forwardly of said clamping means.

3. A sound-modifying instrument according to claim 1, in which said shells are thinner at said zone than adjacent to and forwardly of said clamping means, and said clamping means are located forwardly of said heads.

4. A sound-modifying instrument according to claim 2, in which said clamping means comprise a transverse bolt which is fixed to one of said shells and which extends through a transverse bore of the other shell to provide an external bolt-portion, said bolt-portion being externally threaded, and a clamping head which has an internally threaded recess, said clamping head being turnably located on said bolt-portion to abut the outer face of the respective adjacent shell.

5. A sound-modifying instrument according to claim 1, in which said mouth-portion is of flat shape, and said mouth-portion has a transverse dimension which is greater than its lateral dimension, so that said heads are superposed when said mouth-portion is held horizontally.

HAL HORNE.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
837,740	Phillips	May 12, 1908