

June 21, 1966

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TOY MUSICAL INSTRUMENT WITH REPLACEABLE  
VOICE ACTUATED DIAPHRAGM  
Filed Sept. 5, 1963

3,256,636

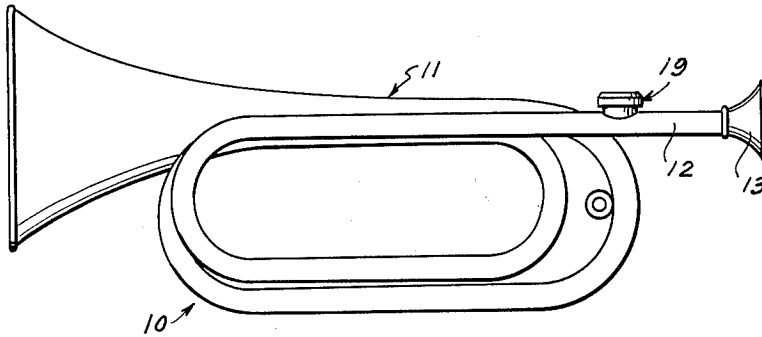


Fig. 1.

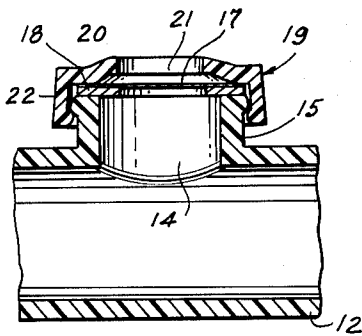


Fig. 3.

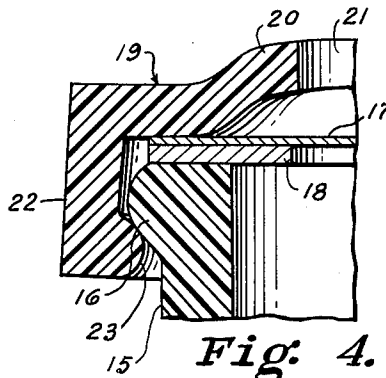


Fig. 4.

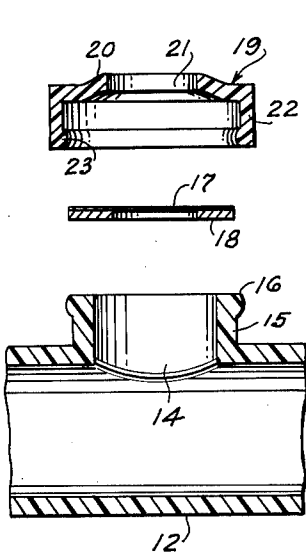


Fig. 2.

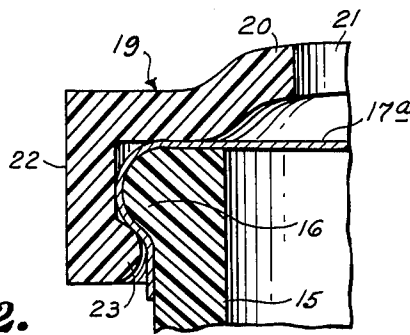


Fig. 5.

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1

2

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**TOY MUSICAL INSTRUMENT WITH REPLACE-  
ABLE VOICE ACTUATED DIAPHRAGM**

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Filed Sept. 5, 1963, Ser. No. 306,874

2 Claims. (Cl. 46-182)

This invention relates generally to toy musical instruments, particularly of the type known as kazoos, wherein a more or less musical buzzing sound is produced when the user hums into a tube having an opening in the wall thereof across which there is stretched a membrane or piece of paper to be vibrated by the introduced humming sound.

In previously existing toy musical instruments of the described character, the opening in the tube wall has a cup-shaped, internally threaded socket extending therearound, and the flexible paper membrane is adhesively secured on a cardboard or other substantially rigid supporting ring which seats against the bottom of the socket and is retained in the latter by a centrally apertured, threaded retaining cap screwed into the socket.

The foregoing existing arrangement is disadvantageous in that the threaded engagement of the retaining cap in the socket is a relatively time consuming, and hence costly assembly step, and further in that, upon puncturing of the original paper membrane, the same cannot be easily replaced, for example, merely by a piece of tissue paper, as the cooperating threaded cap and socket are not adapted to maintain a piece of soft paper in a tensioned or taut condition.

Accordingly, it is an object of this invention to provide a toy musical instrument of the described character preferably formed to simulate the appearance of a real wind instrument, for example, a bugle, trumpet, saxophone, clarinet or the like, and wherein the structure for supporting the flexible paper membrane is constructed and arranged for quick and easy assembly, and also for inexpensive production by conventional plastic molding techniques, thereby to reduce the cost of the toy musical instrument.

A further object is to provide a toy musical instrument of the described character wherein the paper membrane mounted on a cardboard ring and forming part of the toy, as manufactured, may be replaced merely by a piece of tissue or other easily vibrated paper in the event of puncturing or other damage to the originally supplied membrane.

In accordance with an aspect of this invention, a toy musical instrument includes a hollow body preferably molded of a plastic material to simulate the appearance of a real musical instrument and having a tubular portion terminating in a mouthpiece into which a child can hum, such tubular portion having an opening in the wall thereof surrounded by an outwardly directed, annular flange formed with an external bead and on which the cardboard supporting ring secured to the original paper membrane may seat, and a retaining cap of resilient, elastic plastic material having a centrally apertured, outwardly dished circular wall with a depending peripheral rim provided with an internal bead intended to snap over the external bead of the flange when the cap is pushed onto the latter for yieldably retaining the cap on the flange with the peripheral portion of the paper diaphragm gripped between the peripheral portion of the apertured wall of the cap and the edge of the annular flange.

In accordance with a further feature of this invention, the internal and external beads of the cap and flange, respectively, are shaped so that their interengagement urges

the cap axially onto the flange beyond the position at which the original paper membrane and its cardboard supporting ring are gripped therebetween. Thus, in the event of damage to the original membrane, the same can be replaced by a suitably cut piece of tissue paper or the like which is stretched over the edge of the flange and held in the desired operative taut condition by engagement of the cap on the flange.

The above, and other objects, features and advantages of this invention, will be apparent in the following detailed description of an illustrative embodiment thereof which is to be read in connection with the accompanying drawing, forming a part hereof and wherein:

FIG. 1 is a side elevational view of a toy musical instrument embodying the present invention;

FIG. 2 is an enlarged, exploded sectional view of the parts of the toy musical instrument of FIG. 1 embodying the invention;

FIG. 3 is a view similar to that of FIG. 2, but showing the several parts in assembled relationship;

FIG. 4 is a further enlarged, fragmentary sectional view showing the cooperative assembled relationship of the parts, particularly when the toy musical instrument incorporates the original paper membrane; and

FIG. 5 is a fragmentary sectional view similar to that of FIG. 4, but showing a replacement paper membrane installed in the instrument.

Referring to the drawing in detail, and initially to FIG. 1 thereof, it will be seen that a toy musical instrument embodying the present invention, and there generally identified by the reference numeral 10, includes a body 11 in the form of a wind musical instrument, for example, in the form of a bugle, as shown, or a trumpet, saxophone, clarinet and the like, and which is preferably blow molded of linear polyethylene. The body 11 has a tubular portion 12 terminating in a mouthpiece 13 into which a child can hum. As shown on FIG. 2, the tubular portion 12 has an opening 14 in the wall thereof with an outwardly directed annular flange 15 extending around the opening 14 and having an external annular bead 16 of generally semi-circular cross-section extending around the outer edge portion or mouth of the flange.

The humming sound introduced at the mouthpiece 13 is effective to vibrate a paper membrane 17 stretched across the outer edge of flange 15 surrounding opening 14. The toy instrument 10 is originally supplied with the paper membrane 17 in the form of a disk which, at its outer peripheral portion, is adhesively secured to a cardboard or other substantially rigid ring 18 dimensioned to rest or seat on the outer edge of flange 15 (FIGS. 3 and 4).

A retaining cap 19 is provided for releasably holding the membrane 17 and its supporting ring 18 on flange 15 and is preferably injection molded of polyethylene or other plastic materials which are elastically resilient, at least to some extent. The cap 19 includes an upwardly dished, circular wall 20 having a central aperture or opening 21, and a depending peripheral rim 22 formed with an internal, annular bead 23 of substantially semi-circular cross-section extending along its lower or free edge (FIG. 2). The cap 19 is diametrically dimensioned in relation to the flange 15 so that the inner diameter at the bead 23 is less than the outer diameter at the bead 16. In installing the cap 19 on flange 15 following the seating of the paper membrane 17 on the latter, the cap is pushed downwardly or axially over the flange 15 and the bead 23 rides over the bead 16 and causes radial spreading of the rim 22 of the cap. When bead 23 passes below the maximum diameter of bead 16, as on FIGS. 3 and 4, the elasticity of the rim 22 tends to return the latter to its original condition so that the interengagement

3

of the beads 16 and 23 yieldably resists removal of the cap 19 from flange 15 and thereby retains the membrane 17 in its operative position. By reason of the upwardly dished configuration of wall 20 of the cap, the latter does not interfere with the vibration of the paper membrane 17 to produce a buzzing musical sound in response to humming introduced at the mouthpiece 13.

As shown particularly on FIG. 4, the rim 22 of cap 19 is axially or vertically dimensioned so that, when the peripheral portion of membrane 17 and ring 18 are clamped between the underside of wall 20 and the edge of flange 15, the interengagement of beads 16 and 23 still effects radial spreading of rim 22, whereby the elasticity of rim 22 and the engagement of bead 23 with bead 16 urges the cap 19 further onto the flange 15. If the original paper membrane 17 is damaged, the same may be replaced by a piece of tissue paper 17a (FIG. 5) stretched across the mouth of flange 15 and having its edge portion wrapped downwardly over bead 16. By reason of the described vertical dimensioning of rim 22, when the original membrane 17 and its supporting ring 18 are replaced by the relatively thinner tissue paper 17a, the cap 19 moves further onto the flange 15 to effect gripping engagement of the tissue paper 17a between the peripheral portion of the underside of wall 20 and the top edge of flange 15 and also between the beads 16 and 23, thereby to securely hold the tissue paper 17a in its taut operative condition. During the downward movement of cap 19 onto flange 15, the frictional engagement of bead 23 with the peripheral portion of the piece of tissue paper 17a wrapped over bead 16 will serve to tighten or stretch the latter across the mouth of flange 15.

It will be seen that, with the above described construction embodying this invention, the several parts of the toy musical instrument 10 can be conveniently produced, preferably from plastic materials, by existing inexpensive molding techniques, and that the assembly of the several parts can be quickly and easily effected merely by snapping the cap 19 over the flange 15. Further, the described construction makes it possible to easily replace the originally supplied paper membrane 17 by a suitably cut out piece of any available tissue paper thereby permitting continued use of the toy even after damage to the original paper membrane.

Although an illustrative embodiment of the invention has been described in detail herein with reference to the accompanying drawing, it is to be understood that the

4

invention is not limited to that precise embodiment, and that various changes and modifications may be effected therein by one skilled in the art without departing from the scope or spirit of the invention, except as defined in the appended claims.

What is claimed is:

1. In a toy musical instrument, the combination of
  - (A) a hollow body including a tubular portion with a mouthpiece at one end, said tubular portion having an opening in the wall thereof with an outwardly directed annular flange extending around said opening, said flange having an external bead adjacent the edge thereof;
  - (B) a flexible membrane stretched across said opening and seating on said edge of the flange, said flexible membrane consisting of a paper disk secured at its peripheral portion on a rigid ring; and
  - (C) a retaining cap of substantially elastic material including a centrally apertured wall engageable with the peripheral portion of said membrane seated on the flange, and a peripheral rim depending from said apertured wall and having an internal bead to snap over said external bead of said flange when said cap is pressed onto said flange, said external and internal beads being axially located on said flange and rim, respectively, to further urge said cap onto said flange when said paper disk and ring are clamped between said wall of the cap and said edge of the flange, so that said membrane can be replaced by a piece of relatively thinner paper clamped between said cap and flange.

2. In a toy musical instrument, the combination as in claim 1; wherein said body is of blow molded linear polyethylene and said cap is of injection molded polyethylene.

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