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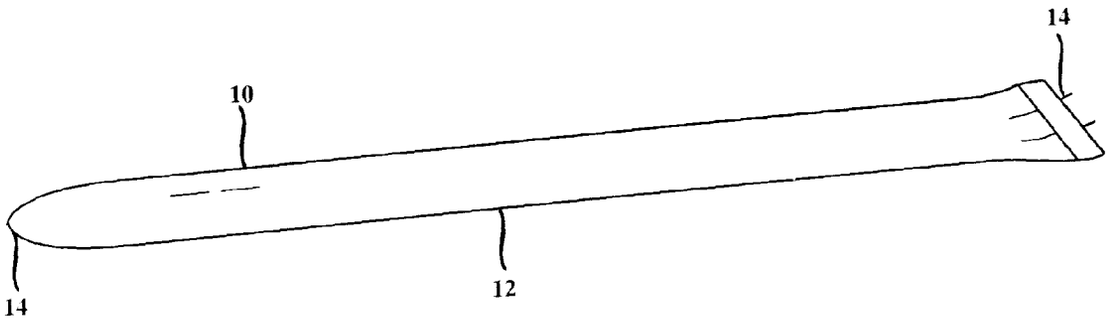
(54) Amusement device

(57) An inflatable noise maker (10) has a substantially cylindrical hollow member (12), made of a flexible, substantially non-stretchable material. The member (12) is sealable at both ends (14) and houses a column of gas. The gas is at a pressure such that, when the member (12) is transversely folded, the gas reaches a pressure above atmospheric pressure, thereby tensioning both distal ends (14) of the folded member (12) such that the distal ends (14) of the noise maker (19) vibrate at at least one audible frequency when struck.

FIG. 1



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Description

FIELD AND BACKGROUND OF THE INVENTION

The present invention relates to amusement devices for making audible sounds in general. In particular it concerns an inflatable device which makes an audible sound when struck.

It is well known that supporters at football games and like sporting events generally exhibit a desire to express themselves audibly. The human voice is conventionally supplemented by use of a rotating rattle. Such rattles, however, in order to produce the required sound level must be large and are therefore inconvenient to carry. The production costs of such a rattle from durable materials is also relatively high resulting in high prices. A cheap, easily portable alternative sound producing device would be highly desirable.

In the field of inflatable devices, a wide variety of recreational products are available including rubber balloons of various shapes and sizes. Many of these exhibit slight resonant properties but, due to the elastic properties of the rubber, inflation is achieved without sufficient increase in pressure and corresponding surface tension for the balloon to become highly resonant.

It would be desirable to produce an inflatable or gas-filled device sufficiently resonant to be used for making sound, which would be easily portable and could be produced at low-cost.

SUMMARY OF THE INVENTION

The present invention is an amusement device for making audible sound.

Hence, there is provided according to the teachings of the present invention, an amusement device for producing audible sound, the amusement device comprising a substantially cylindrical hollow member, the member having a first sealable end and a second sealable end, the member being made of a flexible, substantially non-stretchable material, the member housing a column of gas at a pressure greater than atmospheric pressure so as to tension the member such that the device vibrates at at least one audible frequency when struck.

According to a further feature of the present invention the member is sufficiently flexible that it can be folded transversely, thereby raising the pressure of the gas.

According to a further feature of the present invention the member displays information.

According to a further feature of the present invention one of the sealable ends is substantially conical.

According to a further feature of the present invention the material is a heat-sealable polymer.

According to a further feature of the present invention there is also provided an openable sealing element connected to one of the sealable ends.

According to a further feature of the present invention the openable sealing element is a valve element normally preventing the escape of gas.

According to a further feature of the present invention the valve element is substantially planar.

According to a further feature of the present invention there is also provided a plurality of fins attached to the member.

There is also provided according to the teachings of the present invention, an amusement device for producing audible sound, the amusement device comprising: (a) an inflatable cylinder made of a flexible, substantially non-stretchable material, the inflatable cylinder having a first sealable end and a second sealable end, the inflatable cylinder being transversely foldable when inflated to provide a first portion and a second portion, the first portion initiating vibration of at least one audible frequency when struck against the second portion; and (b) a valve element mounted within the first sealable end.

According to a further feature of the present invention the inflatable cylinder displays information.

According to a further feature of the present invention one of the sealable ends is substantially conical.

According to a further feature of the present invention the material is a heat-sealable polymer.

According to a further feature of the present invention the valve element is substantially planar.

According to a further feature of the present invention there is also provided a plurality of fins attached to the inflatable cylinder.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is herein described, by way of example only, with reference to the accompanying drawings, wherein:

FIG. 1 is a perspective view of a first embodiment of an amusement device, constructed and operative according to the teachings of the present invention for producing sound;

FIG. 2A is a perspective view of a second embodiment of an amusement device which includes a valve element, the amusement device being constructed and operative according to the teachings of the present invention, shown packaged compactly;

FIG. 2B is a perspective view of the amusement device of Figure 2A in its inflated state;

FIG. 3A is an exploded view of the valve element of Figure 2A;

FIG. 3B is a side elevational cross section through the valve element of Figure 2A;

FIG. 4 is a perspective view of part of an amusement device having an alternative openable sealing element;

FIG. 5 is a perspective view of a third embodiment of an amusement device which has additional fins, constructed and operative according to the teach-

ings of the present invention; and

FIG. 6 is a perspective view illustrating the use of the amusement device of Figure 2.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is of an amusement device for producing audible sound.

The principles of an amusement device according to the present invention may be better understood with reference to the drawings and the accompanying description.

Referring now to the drawings, Figure 1 shows an amusement device, generally designated **10**, having a hollow cylindrical member **12** and sealable ends **14**. Cylindrical member **12** is formed from a flexible, substantially non-stretchable material, preferably polyethylene or a similar plastic. This choice of material enables extremely simple and cheap production of the invention through heat sealing the ends of a length of polyethylene tubing.

Amusement device **10** is a ready-to-use device in which cylindrical member **12** is filled during manufacture with a gas or gases, for example air, forming a column of gas at above atmospheric pressure. The prevailing pressure of this column of gas acts radially outward on cylindrical member **12** causing it to be under tension. Cylindrical member **12** under tension together with the enclosed column of gas forms a system which vibrates resonantly when struck. The one or more frequencies at which resonance occurs vary in relation to the pressure of the gas in cylindrical member **12**. Typically, the resonance produced is not a pure resonance at a single frequency. Instead, device **10** resonates at some combination of frequencies corresponding to a metallic ringing sound.

An important feature in accordance with certain embodiments of the invention is that cylindrical member **12** is sufficiently flexible to enable it to be folded transversely during use, substantially perpendicular to its length, as will be further described in reference to Figure **6** below. When cylindrical member **12** is folded the column of gas is restricted thereby raising the pressure of the contained air above the initial inflation pressure. This feature is particularly significant in a user-inflated embodiment of the invention, described below, in which inflation may be performed orally. Although the invention functions effectively at pressures commonly achievable by oral inflation, its performance may be significantly improved by further increasing the pressure.

It is an important additional feature of an embodiment of this invention that cylindrical member **12** carries a design on a part or all of its surface. The design may include information for the purposes of advertising, or to express the support of the user for a particular sports team or other organization.

With reference now to Figures 2A and 2B, there is shown a user-inflated embodiment of an amusement device, generally designated **11**, according to the teachings of the present invention. In its deflated state, device **11** may be folded compactly for ease of storage as shown in Figure 2A. Figure 2B shows device **11** in its inflated state. Device **11** is similar to device **10**, and equivalent elements are labelled similarly. Device **11** has a valve element **16** included in end **14** of cylindrical member **12**.

A preferred structure of valve element **16** is illustrated in Figures 3A and 3B. Valve element **16** is preferably of planar design, allowing device **11** to be folded and stored extremely compactly in its deflated state. This embodiment of the invention also allows simple and cost-effective production through heat-sealing end **14** with valve element **16** in position.

Valve element **16** has an upper valve sheet **18**, and a lower valve sheet **20**, both made of a flexible heat-sealable material. Upper valve sheet **18** and lower valve sheet **20** are connected along two substantially parallel sealed lines **22**, thereby forming a flattened tube **23**. Sealed lines **22** extend from one end of valve element **16** towards the opposite end, but leave openable flaps **21**. Lower valve sheet **20** is slightly longer than upper valve sheet **18**, thereby facilitating manual separation of flaps **21**. One or more pairs of sealed ribs **24** partially transverse valve element **16**. Valve element **16** is positioned within end **14** of cylindrical member **12** such that flaps **21** extend outward from cylindrical member **12**.

To inflate device **11**, flaps **21** are separated, exposing an opening formed by the ends of sealed lines **22** and the intermediate parts of valve sheets **18** and **20**. Device **11** can then be inflated by application of air pressure orally or by other means. The air pressure separates upper valve sheet **18** from lower valve sheet **20** between sealed lines **22** allowing passage of air through tube **23**. When the source of air pressure is removed, valve sheets **18** and **20** return to their initial flat shape, aided by sealed ribs **24**, thereby closing valve element **16**. In the inflated state, illustrated in Figure **3B**, reverse pressure on valve element **16** further tends to maintain closure between valve sheets **18** and **20**. Deflation can be performed by insertion of any long thin, preferably hollow, item such as a drinking straw between flaps **21** through valve element **16**, thereby manually separating upper valve sheet **18** from lower valve sheet **20** permitting air to escape.

As was mentioned, valve element **16** as herein described is particularly advantageous. However, openable sealing elements of other types may also be used. These could be alternative designs of valve or stopper. In reference to Figure 4, one such possibility is shown, in which an aperture piece **26** is incorporated into end **14** of cylindrical member **12**, and in which a stopper **28** is provided to seal aperture piece **26**.

With reference now to Figure 5, a further embodiment of the invention generally designated **13** is shown, in which cylindrical member **12** has additional fins **30**

and may be used in conjunction with a target **32**. Fins **30** may be of solid flat construction, made from cardboard or like material, or they may be further inflatable additions to cylindrical member **12**. Amusement device **13** has a shaped end **34** specially shaped to be suited for throwing use of device **13**. Shaped end **34** may be conical or in the shape of a spearhead, or any other appropriate shape. Shaped end **34** may be combined with any of the herein described embodiments of the invention.

With reference now to Figure 6, in the preferred mode of use, device **11** is folded transversely as described above. Cylindrical member **12** is held near the fold on both sides of the fold, and one portion **40** of cylindrical member **12** is made to strike against another portion **42** of cylindrical member **12** to initiate vibrations. Portions **40** and **42** may be the ends or other intermediate parts of cylindrical member **12**. Sound may also be produced without folding cylindrical member **12** by striking it against any non-sharp hard object to initiate vibrations. The invention may additionally be used for throwing.

It will be appreciated that the above descriptions are intended only to serve as examples, and that many other embodiments are possible within the scope and the spirit of the invention.

Claims

1. An inflatable noise maker comprising a substantially cylindrical hollow member, said member having a first sealable end and a second sealable end, said member being made of a flexible, substantially non-stretchable material, said member housing a column of gas, said column of gas being at a pressure such that when said member is transversely folded, said gas is at a pressure greater than atmospheric pressure so as to tension both distal ends of said folded member such that said distal ends of the noise maker vibrate at at least one audible frequency when struck.

2. The inflatable noise maker as in claim 1, wherein said member is sufficiently flexible that it can be folded transversely, thereby raising the pressure of said gas.

3. The inflatable noise maker as in claim 1, wherein said member displays information.

4. The inflatable noise maker as in claim 1, wherein one of said sealable ends is substantially conical.

5. The inflatable noise maker as in claim 1, wherein said material is a heat-sealable polymer.

6. The inflatable noise maker as in claim 1, further comprising an openable sealing element connected to one of said sealable ends.

7. The inflatable noise maker as in claim 6, wherein said openable sealing element is a valve element normally preventing the escape of gas.

8. The inflatable noise maker as in claim 7, wherein said valve element is substantially planar.

9. The inflatabie noise maker as in claim 1, further comprising a plurality of fins attached to said member.

10. An alternately inflatable and deflatable noise maker system comprising:

    (a) an inflatable cylinder made of a flexible, substantially non-stretchable material, said inflatable cylinder having a first sealable end and a second sealable end, said cylinder being inflatable to a tension such that it vibrates at at least one audible frequency when struck;
    (b) a valve element mounted within said first sealable end made up of two sheets connected along two substantially parallel sealed lines to form a flattened tube; and
    (c) a rigid member for insertion into said flattened tube to deflate said cylinder.

11. The noise maker system as in claim 10, wherein said inflatable cylinder displays information.

12. The noise maker system as in claim 10, wherein one of said sealable ends is substantially conical.

13. The noise maker system as in claim 10, wherein said material is a heat-sealable polymer.

14. The noise maker system as in claim 10, further comprising a plurality of fins attached to said inflatable cylinder.

15. The noise maker system as in claim 10, wherein said rigid member is hollow.

16. A method for producing audible sound, the method comprising:

    (a) providing a device made up of a substantially cylindrical hollow member, said member having a first sealable end and a second sealable end, said member being made of a flexible, substantially non-stretchable material, said member housing a column of gas at a pressure greater than atmospheric pressure so as to tension said member such that the said device vibrates at at least one audible frequency when

struck; and,
(b) striking said device.

17. The method as in claim 16, further comprising transversely folding said member to provide a first portion and a second portion, thereby raising the pressure of said gas.

18. The method as in claim 17, wherein said striking of said device is effected by contacting said first portion and said second portion together.

19. An inflatable noise maker comprising:

(a) a substantially cylindrical hollow member, said member having a first sealable end and a second sealable end, said member being made of a flexible, substantially non-stretchable material, said member housing a column of gas, and
(b) a valve element connected to one of said sealable ends and extending outwardly from said sealable end, made up of two sheets connected along two substantially parallel sealed lines to form a flattened tube.

20. The noise maker of claim 19, wherein said sheets form separable flaps at their outwardly remote end.

21. The noise maker of claim 20, wherein one of said flaps extends beyond the other.

FIG. 1

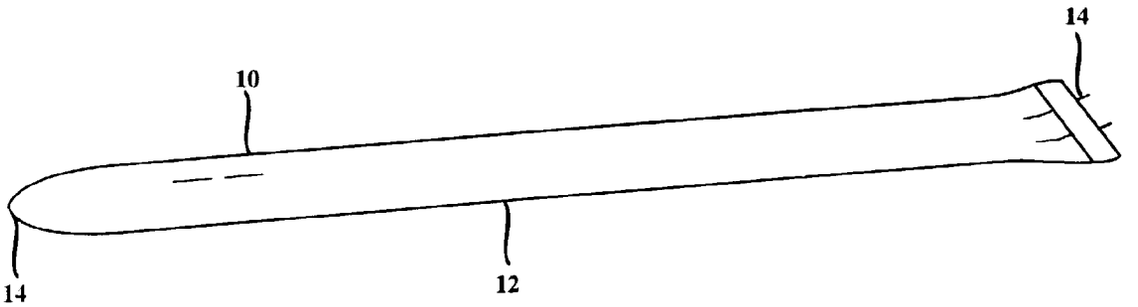

FIG. 2A

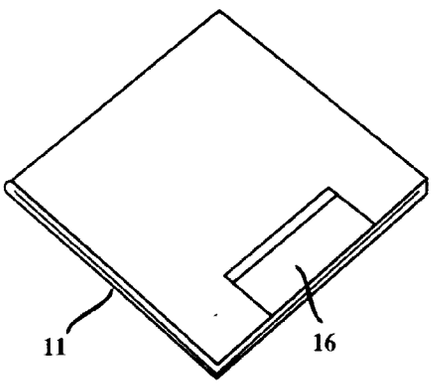

FIG. 2B

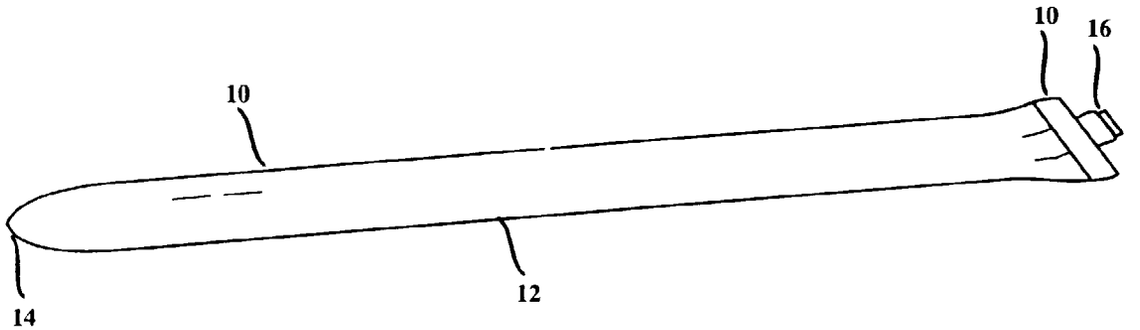

FIG. 3A

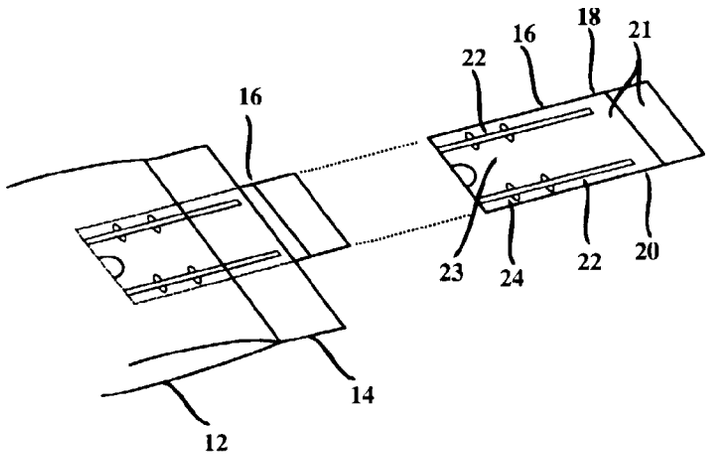

FIG. 3B

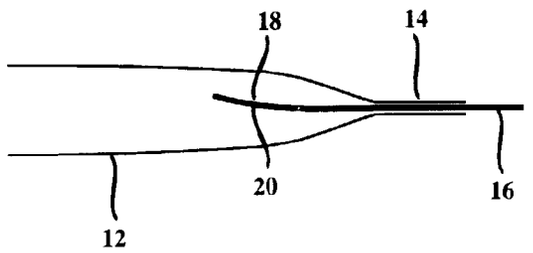

FIG. 4

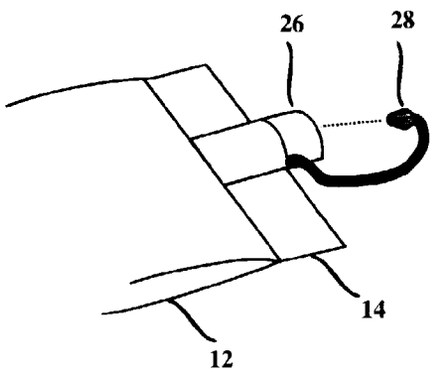

FIG. 5

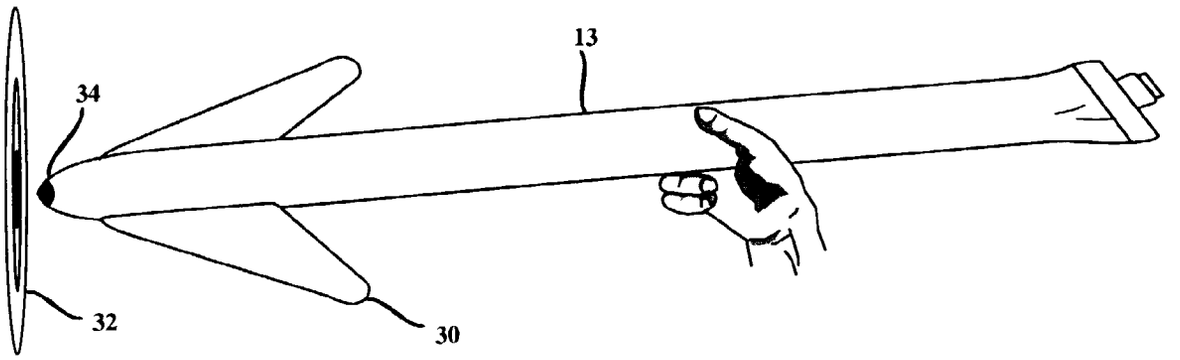

FIG. 6