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CONTAINER CAP AND WHISTLE

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Fig. 1.

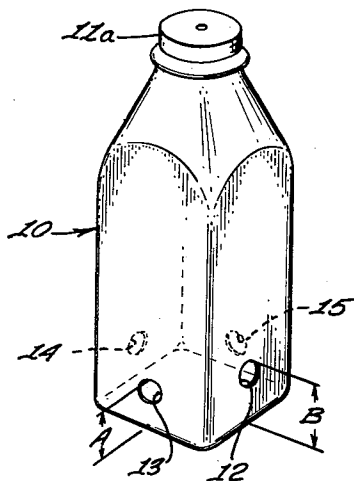


Fig. 2.

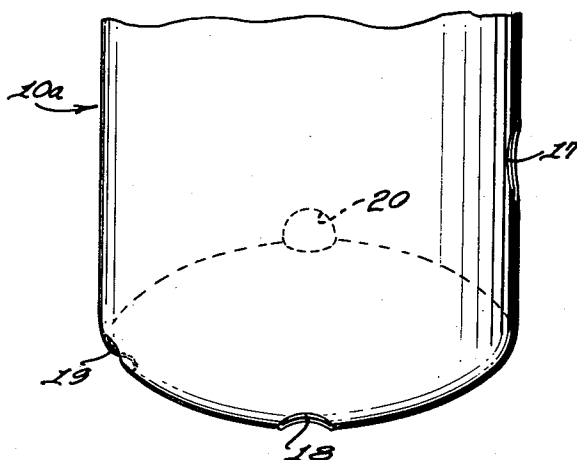


Fig. 4.

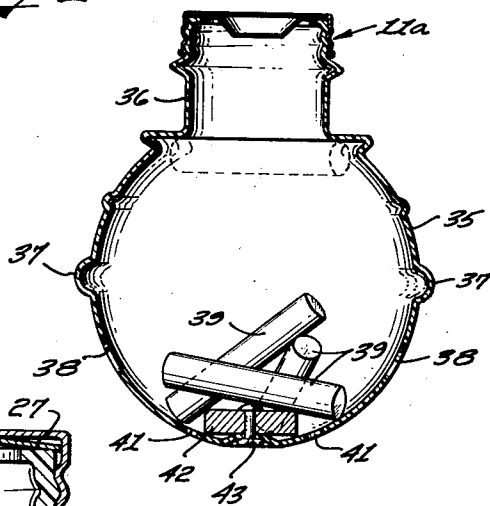
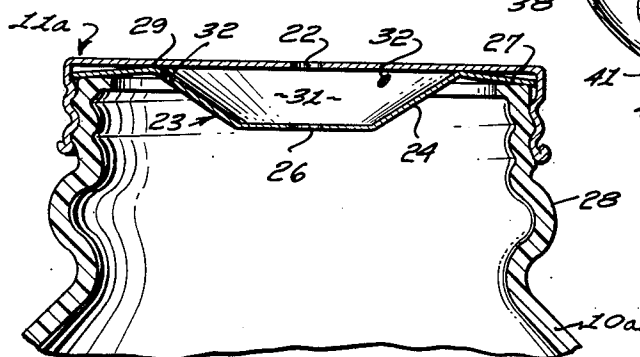


Fig. 3.



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CONTAINER CAP AND WHISTLE

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4 Claims. (Cl. 46-178)

This invention relates to a toy which warbles in response to gravitational outflow of water from a substantially sealed chamber, and to a self-draining octave-changing whistle which is incorporated therein. The application is a continuation-in-part of my co-pending patent application Serial No. 152,353, now abandoned, filed November 14, 1961, for Combination Whistling Play Bottle and Roly Poly Toy. Said application is a continuation-in-part of patent application Serial No. 68,434, now abandoned, filed November 10, 1960, which in turn is a continuation-in-part of application Serial No. 14,481, filed March 11, 1960, now Patent No. 2,959,889, issued November 15, 1960, for Toy Embodying Whistle Operated by Gravitational Outflow of Water While the Toy Is in the Air.

An object of the invention is to provide a water-whistling toy incorporating a self-draining whistle which does not choke up and lose its effectiveness after the whistle chamber has been filled with water.

A further object is to provide a water-warbling toy in which the warbling action is more pleasing and bird-like after the whistle chamber has been filled with water than it is when the walls of the whistle chamber are dry, and which changes octaves after the whistle chamber has been filled with water.

A further object is to provide a highly simple and economical whistle cap construction which requires no adhesive or fasteners to assemble the same, and which provides an effective seal with the top of the container even though the sealing pressure is light.

These and other objects and advantages of the invention will be more fully set forth in the following specification and claims, considered in connection with the attached drawing to which they relate.

In the drawing:

FIGURE 1 is an elevational view of a water-warbling play bottle constructed in accordance with the present invention;

FIGURE 2 is a fragmentary elevational view of the lower portion of a play bottle corresponding generally to that of FIGURE 1 but having different openings, and being cylindrical as distinguished from square;

FIGURE 3 is an enlarged vertical sectional view of the upper portion of the bottle, and illustrating the novel self-draining octave-changing cap mounted thereon; and

FIGURE 4 is a vertical sectional view of a combination play bottle and roly-poly toy.

Referring first to FIGURE 1, the invention is illustrated as incorporated in a children's play bottle 10, although it is to be understood that numerous other shapes (including blow-molded or injection-molded ducks, whales, etc.) may be utilized. The illustrated play bottle has a size and shape approximating that of a quart milk bottle, or preferably somewhat larger than a quart, the size of the bottle having a bearing upon the duration of the warbling action which results when the water-filled toy is lifted out of a body of water such as in a bathtub or play pool. The play bottle has a screw cap 11a to be described subsequently, relative to FIGURE 3.

Provided in the lower portion of bottle 10 are a plurality, illustrated as four, openings or holes 12-15 adapted to permit inflow and outflow of water from the substantially-sealed chamber defined by the walls of the bottle and by the screw cap 11a.

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The diameter of the smallest one of the whistle openings in the screw cap 11a is sufficiently small, in comparison to the combined cross-sectional areas of the openings 12-15, that the whistling noise generated upon draining of water through the openings from the water-filled bottle simulates the warble of a canary. Stated otherwise, the whistle opening is made sufficiently small in cross-sectional area that air is forced to bubble in through one of the openings 12-15 (the uppermost opening, when water drains from the bottle while it is upright, cap uppermost). When each air bubble enters the opening in the bottle, the degree of partial vacuum within the bottle (and consequently the rate of inflow of air through the whistle openings) is momentarily reduced, the end result being that a warbling sound is generated.

The duration of the warbling sound depends upon the location and size of the openings 12-15, it being important that one of the openings be at a much higher elevation than the others. The quality of the warbling action depends also upon the particular construction of the whistling cap 11a and upon whether or not the whistling cap has been submerged. The latter factors will be described hereinafter in connection with FIGURE 3.

The square bottle illustrated in FIGURE 1 corresponds (except for the cap), to the one illustrated in FIGURES 14 and 15 of the above-cited patent, which patent gives a more complete general description of the warbling action than that presented in the preceding paragraphs. As is described in the patent, one of the holes 12 in the bottle or container 10 is disposed at a substantially higher elevation than that of the other holes 13-15 therein. Stated otherwise, each hole 13-15 is spaced from the bottom of the container by a distance A which is substantially less than the distance B by which hole 12 is separated from the container bottom.

For a one-quart bottle 10 having three five-eighths inch holes 13-15 disposed in the same plane, and one five-eighths inch hole 12 disposed at an elevation one-half inch higher, the warble action will commence when the bottle is substantially full instead of being delayed until the water level has descended to a few inches above the openings. This assumes that the whistle cap has openings as described in the patent and as will be described in connection with FIGURE 3.

Referring next to FIGURE 2, a quart-size cylindrical play bottle 10a is illustrated, having a diameter of three and one-quarter inches and a height on the order of eight and one-half inches. A single round hole 17 is provided in the side wall of the bottle at a distance one and one-half inches above the bottom of the bottle (measured to the center of the hole). Three holes 18-20 are provided in the rounded corner where the side wall of the bottle intersects the bottom wall thereof. The holes 17-20 are spaced approximately 90-degrees apart. The diameter of hole 17 is five-eighths inch, whereas that of each of the holes 18-20 is approximately seven-sixteenths inch. The holes 18-20 serve both as warble-causing holes and as drain holes which prevent the bottle from being stored with water in it. The bottle 10a is quite stiff, being preferably blow-molded of high-density polyethylene.

Whistle Cap Construction

The construction of the whistle cap 11a is an extremely important feature of the present invention. As shown in FIGURE 3, the whistle cap comprises a sheet metal bottle top or jar top, such as is conventionally sold for sealing of containers, having a diameter on the order of 48 millimeters. At the center of the cap is formed a round hole 22.

A metal disc 23, having an outer diameter only slightly smaller than the inner diameter of the cap immediately adjacent the radial wall thereof, but larger than the inner

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diameters of threads, is forced (snapped) into the cap to the position shown in FIGURE 3. Thus, the threaded portion of the cap maintains the disc 23 against falling out after unthreading of the cap from the bottle. The disc may be formed of soft aluminum, and may be snapped into the cap by means of a simple pressing tool.

At the center portion of the disc is formed a frustoconical bulge 24 the center of which is provided with a round hole 26 which is registered with the hole 22 in cap 11a. The rim or flange portion 27 of the disc, radially outwardly of bulge portion 24, is not perfectly perpendicular to the axis of the device but instead is slightly frustoconical as illustrated in FIGURE 3. It follows that when the cap is threaded tightly on the neck 28 of the bottle 10a (which is the same bottle shown in FIGURE 2), the rim or flange 27 is flexed upwardly (from the illustrated position) to effect close seating of the disc against the cap around an annular seat portion 29 of the disc. The whistle chamber 31 is thus substantially sealed, despite the absence of any adhesive, rivets, solder, etc. Furthermore, the seal between disc 23 and the extreme upper surface of neck 28 is substantially improved, even though the cap is not tightly in position and the seating pressure is light.

It is an important feature that the chamber 31 within the whistle will drain itself of water substantially immediately, when air is flowing through the whistle in either direction. To accomplish this result, the cap hole 22 is made larger than the disc hole 26, and a plurality of holes 32 are provided in the disc adjacent seat portion 29 and communicating with chamber 31. The holes or openings 32 are much smaller than the holes in the cap and disc.

Even after the bottle is fully immersed in the body of water in the bathtub or play pool, so that the whistle chamber 31 becomes substantially full of water, such chamber will drain rapidly after the bottle has been lifted (cap uppermost) completely out of the body of water. This is because the partial vacuum within the bottle, resulting from discharge of water out the holes or openings 17-20, causes water to discharge from whistle chamber 31 not only through the opening 26 but also through the drain holes 32. It is believed that the water is drawn by capillary action (surface tension) into the sharp corner adjacent seat 29. Thus, as the water discharges from the bottle out openings 17-20, more water moves adjacent the openings 32 and discharges therethrough from chamber 31.

Should the whistle chamber 31 contain water while the bottom of the bottle is pushed downwardly into the body of water, the resulting increase in pressure within the bottle forces air upwardly through the disc hole 26 and also through the drain openings 32. The water therefore erupts upwardly through the cap hole 22 to clear the chamber, it being an important feature that air flow through openings 32 moves the water away from seat 29 so that it is in a position to erupt.

It has been found that the provision of the drain openings 32 does not reduce the effectiveness of the whistle during discharge of water from the bottle. Furthermore, and very surprisingly, the presence of water in the whistle chamber 31 has been found to produce the effect of rendering the warble much more bird-like, especially in that it momentarily changes octaves in a pleasing manner. This is particularly true when the bottle is somewhat tilted from the vertical during discharge of water therefrom, as is usually the case when the bottle is held by a child. The reason for this improvement in warble action is not understood, but it is clear that the warble action is improved in comparison to the warble which occurs before the chamber 31 has been submerged in the body of water.

As a specific example, the diameter of the cap hole 22 may be 0.137 inch, and that of hole 26 may be 0.113 inch. Each of the three drain holes 32 may have a diameter of 0.052 inch. Such drain holes are provided at

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120-degree intervals. Such cap is preferably employed with a bottle identical to that described in connection with FIGURE 2.

Method of Operation

It has been discovered that the operation of the toy is improved substantially if it is shaken once or twice only (not continuously) just after it has been lifted completely out of the water. While thus being shaken, and thereafter, the toy is held generally vertically or (preferably) inclined about 20 or 30 degrees from the vertical. The direction of incline should be such that hole 17 faces upwardly.

The shaking insures that in all cases, regardless of the condition of the water or the presence or absence of soap or detergent, the warble will commence at once and will be very bird-like and pleasant sounding. Furthermore, the described octave-changing action is very pronounced.

The described method is only employed where the entire toy (whistle cap and all) has been completely submerged in water, so that the whistle chamber is filled with water.

Embodiment of FIGURE 4

FIGURE 4 illustrates a combination play bottle and roly-poly toy having a cap 11a and associated whistle disc 23 identical to that described relative to FIGURE 3. The toy has a one-piece generally spherical body 35 with an integral neck 36 which may be shaped identically to the upper end of the bottle previously described.

The body 35 and its neck 36 are formed by blow molding, preferably of high-density polyethylene. Clown faces are molded at both sides of the body, the noses being indicated at 37. Holes 38 are provided in the mouths of the clowns, being adapted to receive a plurality of cylindrical wooden pegs 39. Also, small holes 41 are punched at the bottom of the body to provide a warbling whistle action and to serve as drain openings.

A metal weight 42 is riveted by rivet 43 at the bottom pole of the body, being sufficiently heavy to create a roly-poly action.

On land, the child uses the toy as a roly-poly, with the pegs making rattling noises. Also, the pegs 39 are "fed" to the clowns through the holes 38, being then dumped out of the bottle after cap 11a is removed.

In water, with the pegs inside and cap 11a tightly in place, the weight 42 operates to right the toy as soon as it is dropped onto the surface of the water. The toy then sinks while maintaining its upright condition. The water entering the various holes 38 and 41 causes air to be expelled through the whistle cap to sound the same. Sinking continues until the water level is approximately at the lower end of neck 36, at which time the pegs 39 are seated around the bottom of neck 36 as shown in phantom line. For this purpose, the "hat" of the clown is shaped as a peg seat. The pegs thus act as floats, to prevent further sinking of the toy.

After the toy has thus assumed the indicated substantially-submerged condition, the child grasps the protruding neck 36 and lifts the same. Air is therefore drawn in through the whistle cap to sound it. After the toy is lifted completely out of the water, water streams out the clown's mouth and the whistle warbles, as described in the cited patent and above in this specification.

Various embodiments of the present invention, in addition to what has been illustrated and described in detail, may be employed without departing from the scope of the accompanying claims.

I claim:

1. A self-draining whistle construction, comprising a first element having a round center opening therein, and a second element mounted adjacent said first element and having a round center opening therein substantially registered with said opening in said first element, said elements defining a whistle chamber therebetween, said elements engaging each other at an annular junction region

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around said chamber and at which the angle between said elements in said chamber is relatively small and acute, one of said elements having a drain opening therein adjacent said junction and communicating with said chamber.

2. The invention as claimed in claim 1, in which said drain opening is provided in only said second element, and in which the center opening in said first element is substantially larger than that in said second element.

3. The invention as claimed in claim 2, in which said first element is a sheet metal screw-cap.

4. A whistle cap, comprising a screw cap having a generally radial wall and an internally-threaded skirt portion, and a disc disposed in said cap adjacent said wall and having a diameter larger than the inner diameters

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of the threads in said skirt, said disc being unconnected to said cap, said cap and disc being shaped to define a whistle chamber therebetween and having registered central openings communicating with said chamber.

References Cited in the file of this patent

UNITED STATES PATENTS

956,504	Pinelli	Apr. 26, 1910
1,425,945	Congdon	Aug. 15, 1922
1,687,086	Erb	Oct. 9, 1928
2,032,192	Wheeler	Feb. 25, 1936
2,485,142	Duncan	Oct. 18, 1949
2,867,492	Wintriss	Jan. 13, 1959
2,880,548	Marr	Apr. 7, 1959
2,923,091	Rodgers	Feb. 2, 1960