ABSTRACT

A bubble producing toy includes a housing (1), a driving unit (3) received in the housing (1) and having a transmitting rod (31), a bracket (22) secured to the transmitting rod (31) and capable of rotating with the transmitting rod (31) together when the driving unit (3) rotates the transmitting rod (31), and at least one ring (21) secured to the bracket (22). The at least one ring (21) is used for producing bubbles when the brackets (22) rotates.
BACKGROUND

1. Technical Field

The present disclosure relates to a bubble producing toy for children.

2. Description of Related Art

Blowing bubbles is a popular activity for children, currently, available bubble producing toys includes two types: A first typical bubble producing toy includes a handle and a ring secured to the handle. The ring is dipped into the solution in a container and lifted out, then the user blows air through the ring to produce a stream of bubbles. This blowing process may be repeated as often as desired until the bubble solution is depleted, which may cause the face soreness. A second typical bubble producing toy includes a shell, a fan, rings, a container for storing solution. The fan, the rings, and the container are disposed within the shell. To produce bubbles, the rings are dipped into the solution in the container, then the fan is activated to blow the ring to produce bubbles. However, the size of the second typical bubble producing toy is too large to be carried. Furthermore, the container for storing solution are secured to the bubble producing toy, which result in the weight of the bubble producing toy being too heavy.

Therefore, there is a room for improvement in the art.

SUMMARY

Embodiments of the present invention relate to a bubble producing toy for children.

An embodiment of the bubble producing toy includes a housing, a driving unit received in the housing and having a transmitting rod, a bracket secured to the transmitting rod and capable of rotating with the transmitting rod together when the driving unit rotates the transmitting rod, and at least one ring secured to the bracket. The at least one ring is used for producing bubbles when the brackets rotates.

Wherein, each ring comprises a ring body defining an air passage and a plurality of first films, the first films are radially arranged on opposite sides of the ring body, each first film is aligned with the center of the ring body, and extends from an inner rim to an outer rim of the ring body, two adjacent first films are spaced apart from each other.

Wherein, a second film is arranged between two adjacent first films, the length of each second film is less than that of each first film, the second films are radially arranged on opposite sides of the ring body, each second film is aligned with the center of the ring body, and extends from the outer rim of the ring body to the middle of opposite surfaces of the ring body.

Wherein, the housing comprises a holding portion and a mounting portion, the holding portion defines a receiving space for receiving a battery, the driving unit is mounted in the mounting portion with the transmitting rod protruding out of the housing, a switch is mounted to the holding portion and is operable to turn on/off the driving unit.

Wherein, a fixing member is mounted in the mounting portion and is adapted to mount the driving unit in the mounting portion.

Wherein, the driving unit is a motor.

Wherein a rotating rod sleeves an end of the transmitting rod away from the driving unit; the bracket is coupled to the rotating rod by a connecting mechanism.

Wherein the bracket comprises two connecting arms; the connecting mechanism is a T joint having three head joints, one of head joints of the connecting mechanism is coupled to the rotating rod, the rest two head joints of the connecting mechanism are secured to the connecting arms of the bracket.

Wherein each connecting arm is substantially L shaped, a connecting member is secured to an end of each connecting arm for connecting the connecting arm with the connecting mechanism, two groups of rings are secured to ends of the connecting arms away from the connecting member, the size and number of the rings are different; ends of the connecting arms where the rings secured extend in the same direction.

Wherein the rotating rod is substantially polygonal, the connecting mechanism defines a latching groove fittingly receiving the polygonal rotating rod.

Wherein the bracket is substantially T shaped, the latching groove is defined at an end of the bracket, two groups of rings are symmetrically arranged at the other end of the bracket away from the latching groove.

Wherein the bracket is made of transparent material or translucent material, the bracket defines a receiving portion for receiving a LED.

Wherein the housing sets at least one transparent portion, a LED is disposed within the housing and corresponds to the at least one transparent portion.

Wherein the bubble producing toy further comprises a container, the container comprises a box, a cover covering the box, and a hanger secured to the box; the box defines a chamber for receiving the at least one ring, the shaped of the opening of the box is fitting for the at least one ring.

The following detailed description, together with the accompanying drawings will provide a better understanding of the nature and advantages of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Many aspects of the embodiments can be better understood with reference to the following drawings. The components in the drawings are not necessarily drawn to scale, the emphasis instead being placed upon clearly illustrating the principles of the embodiments. Moreover, in the drawings, like reference numerals designate corresponding parts through out the several views.

FIG. 1 is a schematic view of a bubble producing toy having a plurality of rings, in accordance with a first embodiment.

FIG. 2 is a disassembled view of the bubble producing toy of FIG. 1.

FIG. 3 is a schematic view of one of the rings of the bubble producing toy in FIG. 1.

FIG. 4 is a schematic view of a bubble producing toy having a plurality of rings, in accordance with a second embodiment.

FIG. 5 is a disassembled view of the bubble producing toy of FIG. 4.

FIG. 6 is a schematic view of a container for the bubble producing toy of FIG. 1.

FIG. 7 is a schematic view of a container for the bubble producing toy of FIG. 4.
The disclosure is illustrated by way of example and not by way of limitation in the figures of the accompanying drawings in which like reference indicate similar elements. It should be noted that reference to “an” or “one” embodiment in the disclosure are not necessarily to the same embodiment, and such references mean “at least one”.

[0031] Referring to FIGS. 1 and 2, illustrate a first embodiment of a bubble producing toy 100 for children. The bubble producing toy 100 includes a housing 1, a driving unit 3, a transmitting rod 31, a bracket 22, a rotating rod 4, and two substantially circular rings 21.

[0032] In the first embodiment, the housing 1 is substantially hollow cylindrical. The housing 1 is made of plastic material. The housing 1 includes a holding portion 11 and a mounting portion 12. The holding portion 11 defines a receiving space 18 for receiving a battery 181. A switch 13 is mounted to the holding portion 11. A metal stopper 131 is mounted to an inner sidewall of the holding portion 11 and corresponds to the switch 13. The switch 13 is operable to turn on/off the motor 3 and the LED 5.

[0033] The driving unit 3 is disposed within the mounting portion 12 by fixing members, such as bolts (not shown). The transmitting rod 31 is coupled to the driving unit 3 and is capable of being rotated by the driving unit 3. The driving unit 3 in the embodiment is a motor for rotating the transmitting rod 31. The driving unit 3 can be other mechanical driving device, for example, a spring-driven film engages with gear(s) for rotating the transmitting rod 31. A portion of the transmitting rod 31 protrudes out of the housing 1. The rotating rod 4 sleeves on an end of the transmitting rod 31 away from the driving unit 3 and is exposed out of the housing 1. The rotating rod 4 rotates together with the transmitting rod 31 when the transmitting rod 31 rotates. The bracket 22 includes two connecting arms 220. The connecting arms 220 are secured to opposite ends of the rotating rod 4. The connecting arms 220 connects with the rotating rod 4 by a connecting mechanism 6. In the first embodiment, the connecting mechanism 6 is a T joint for connecting two connecting arms 220 with the rotating rod 4. It is noteworthy that the number of the connecting arms 220 can be, but not limited to 2, the connecting mechanism 6 can be a multiple joint matches with the number of the connecting arms 220.

[0034] Each connecting arm 220 in the embodiment is substantially L-shaped. A connecting member 221 is secured to an end of each connecting arm 220. The connecting member 221 is adapted to connect the connecting arm 220 with the connecting mechanism 6. An end of each connecting arm 220 away from the connecting member 221 is bent to form a cantilever. The rings 21 are mounted to distal ends of the cantilevers. In another embodiment, the number and size of the rings 21 mounted to the cantilever may be different. The cantilever in the first embodiment extends in the same direction. One of head joints of the connecting mechanism 6 is coupled to the rotating rod 4, the rest two head joints of the connecting mechanism 6 are secured to the connecting arms 220 by the connecting members 221, whereby the connecting arms 220 are secured to the rotating rod 4.

[0035] The connecting arms 220 are made of transparent material or translucent material. Each connecting arm 220 in the embodiment defines a receiving hole for receiving a LED 5. The LED 5 is electrically connected to the battery 181 received in the receiving space 18. In another embodiment, the LED 5 may be mounted to another component of the bubble producing toy 100, for example, the LED 5 is mounted on an inner surface of the housing 1. The portion of the housing 1 corresponding to the mounted position of the LED 5 is made of transparent material or translucent material, to allow light emitted by the LED 5 to transmit therethrough.

[0036] In the embodiment, one of the rings 21 (referring herein as to a first ring member) is horizontally secured to one of the connecting arms 220, the other one of the rings 21 (referring herein as to a second ring member) is horizontally secured to the other connecting arm 220. The structure of the first ring member is different from that of the second ring member. The first ring member is composed of a single big ring with a first diameter. The second ring member is composed of a big ring with the first diameter and a plurality of small rings with a second diameter less than the first diameter. The small rings are disposed within the big ring. As the structure of the rings 21 secured to the connecting arms 220 are different, when the transmitting rod 31 rotates the connecting arms 220, bubbles with different size and quality are produced by the first and second rings 21. In another embodiment, the angle between the rings (21) and the corresponding connecting arms 220 may be different.

[0037] Referring to FIG. 3, each ring 21 includes an absorbing portion 211. The absorbing portion 211 includes a ring body 2113 and a plurality of first films 2111. The ring body 2113 defines a center hole 2114. The center hole 2114 acts as the air passage for allowing air pass therethrough to produce bubbles. The ring body 2113 and the center hole 2114 have the same center. The first films 2111 are radially and evenly arranged on opposite sides of the ring body 2113. Each first film 2111 is aligned with the center of the ring body 2113, and extends from an inner rim to an outer rim of the ring body 2113. Two adjacent first films 2111 are spaced apart from each other.

[0038] Furthermore, a second film 2112 is arranged between two adjacent first films 2111. The length of each second film 2112 is less than that of each first film 2111. Each second film 2112 are radially arranged on opposite sides of the ring body 2113. Each second film 2112 is aligned with the center of the ring body 2113, and extends from the outer rim of the ring body 2113 to the middle of opposite surfaces of the ring body 2113.

[0039] In the first embodiment, the first and second films 2111, 2112 are simultaneously arranged on opposite surfaces of the ring body 2113. In other embodiment, only the first films 2111 are arranged on opposite surfaces of the ring body 2113 without the second films 2113.

[0040] FIGS. 4 and 5, illustrate a second embodiment of a bubble producing toy 200. The bubble producing toy 200 includes a housing 1, a driving unit 3, a transmitting rod 31, a bracket 22, a rotating rod 4, and two groups of rings 21. The housing 1 is substantially gun shaped in the second embodiment. The housing 1 includes a holding portion 11 and a mounting portion 12. The holding portion 11 defines a chamber 18 for receiving a battery 181. A switch 13 is mounted to the holding portion 11. The switch 13 in the second embodiment is the trigger of the gun shaped housing 1. The switch 13 is operable to turn on/off the motor 3 and the LED 5.

[0041] A mounting member 17 is disposed within the mounting portion 12 for fixing the driving unit 3. The mounting member 17 is substantially hollow cylindrical, and defines a receiving space (not shown) for mounting the driving member 3. The mounting member 17 is mounted in the mounting portion 12 by bolts, rivets, and the like.
What is claimed is:

1. A bubble producing toy, comprising:
   a housing (1);
   a driving unit (3) received in the housing (1), the driving unit (3) having a transmitting rod (31);
   a bracket (22) secured to the transmitting rod (31) and capable of rotating with the transmitting rod (31) together when the driving unit (3) rotates the transmitting rod (31); and
   at least one ring (21) secured to the bracket (22) and used for producing bubbles when the brackets (22) rotates.

2. The bubble producing toy of claim 1, wherein each ring (21) comprises a ring body (2113) defining an air passage (2114) and a plurality of first films (2111), the first films (2111) are radially arranged on opposite sides of the ring body (2113), each first film (2111) is aligned with the center of the ring body (2113), and extends from an inner rim to an outer rim of the ring body (2113), two adjacent first films (2111) are spaced apart from each other.

3. The bubble producing toy of claim 2, wherein a second film (2112) is arranged between two adjacent first films (2111), the length of each second film (2112) is less than that of each first film (2111), the second films (2112) are radially arranged on opposite sides of the ring body (2113), each second film (2112) is aligned with the center of the ring body (2113), and extends from the outer rim of the ring body (2113) to the middle of opposite surfaces of the ring body (2113).

4. The bubble producing toy of claim 3, wherein the housing (1) comprises a holding portion (11) and a mounting portion (12), the holding portion (11) defines a receiving space (18) for receiving a battery (181), the driving unit (3) is mounted in the mounting portion (12) with the transmitting rod (31) protruding out of the housing (1), a switch (13) is mounted to the holding portion (11) and is operable to turn on/off the driving unit (3).

5. The bubble producing toy of claim 4, wherein a fixing member (17) is mounted in the mounting portion (12) and is adapted to mount the driving unit (3) in the mounting portion (12).

6. The bubble producing toy of claim 4, wherein the driving unit (3) is a motor.

7. The bubble producing toy of claim 1, wherein a rotating rod (4) sleeves an end of the transmitting rod (31) away from the driving unit (3); the bracket (22) is coupled to the rotating rod (4) by a connecting mechanism (6).

8. The bubble producing toy of claim 7, wherein the bracket (22) comprises two connecting arms (220); the connecting mechanism (6) is a T joint having three head joints, one of head joints of the connecting mechanism (6) is coupled to the rotating rod (4), the rest two head joints of the connecting mechanism (6) are secured to the connecting arms of the bracket (22).

9. The bubble producing toy of claim 8, wherein each connecting arm (220) is substantially L shaped, a connecting member (221) is secured to an end of each connecting arm (220) for connecting the connecting arm (220) with the connecting mechanism, two groups of rings (21) are secured to ends of the connecting arms (220) away from the connecting member (221), the size and number of the rings (21) are different; ends of the connecting arms (220) where the rings (21) secured extend in the same direction.

10. The bubble producing toy of claim 5, wherein the rotating rod (4) is substantially polygonal, the connecting mechanism (6) defines a latching groove fittingly receiving the polygonal rotating rod (4).
11. The bubble producing toy of claim 5, wherein the bracket (22) is substantially T shaped, the latching groove is defined at an end of the bracket (22), two groups of rings (21) are symmetrically arranged at the other end of the bracket (22) away from the latching groove.

12. The bubble producing toy of claim 1, wherein the bracket (22) is made of transparent material or translucent material, the bracket (22) defines a receiving portion for receiving a LED (5).

13. The bubble producing toy of claim 1, wherein the housing (1) sets at least one transparent portion, a LED (5) is disposed within the housing (1) and corresponds to the at least one transparent portion.

14. The bubble producing toy of claim 1, further comprising a container (7), wherein the container (7) comprises a box (71), a cover (74) covering the box (71), and a hanger (73) secured to the box (71); the box (71) defines a chamber (72) for receiving the at least one ring (21), the shaped of the opening of the box (71) is fitting for the at least one ring (21).