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(54) **FIGURE TOY**

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(57) **ABSTRACT**

A figure toy generating a sound and an underwater sound when being sunk in water. The figure toy which can float on a water, comprises: a toy body (**1**) composed so that a water can flow into an interior thereof when the toy body is sunk in a water; a water sensor (**22**) provided at the interior of the toy body, for detecting an entrance of a water to a predetermined position at the interior of the toy body; and a sound generation member (**18**) for generating a sound according as the water sensor detects the entrance of the water or not.

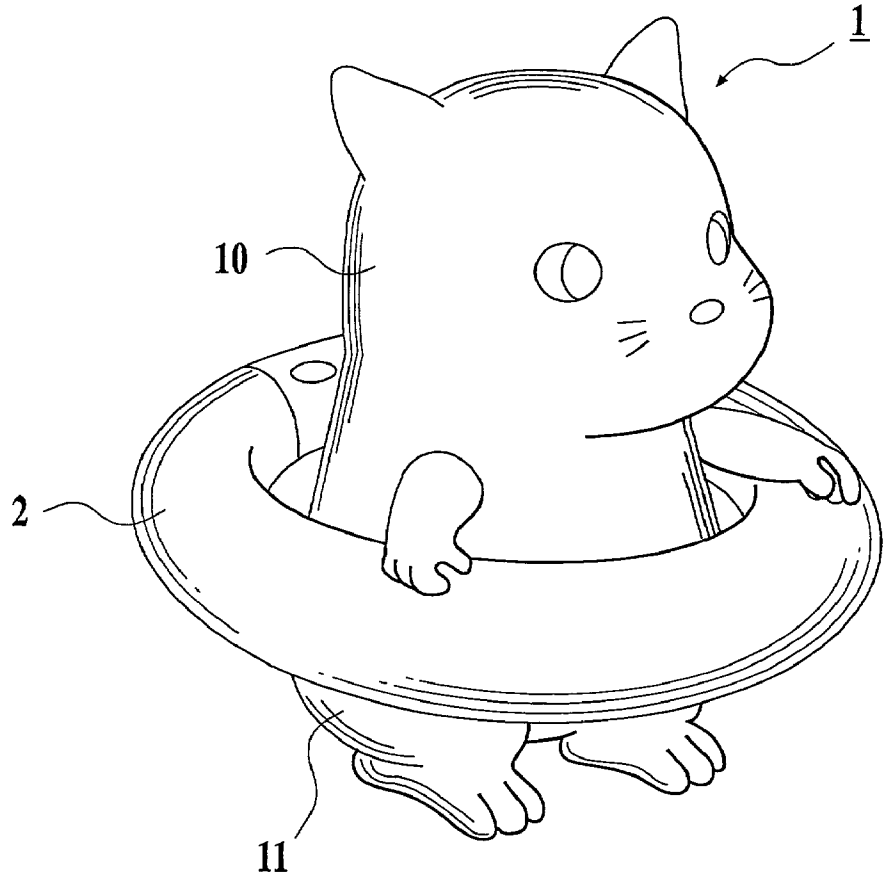

FIG.1

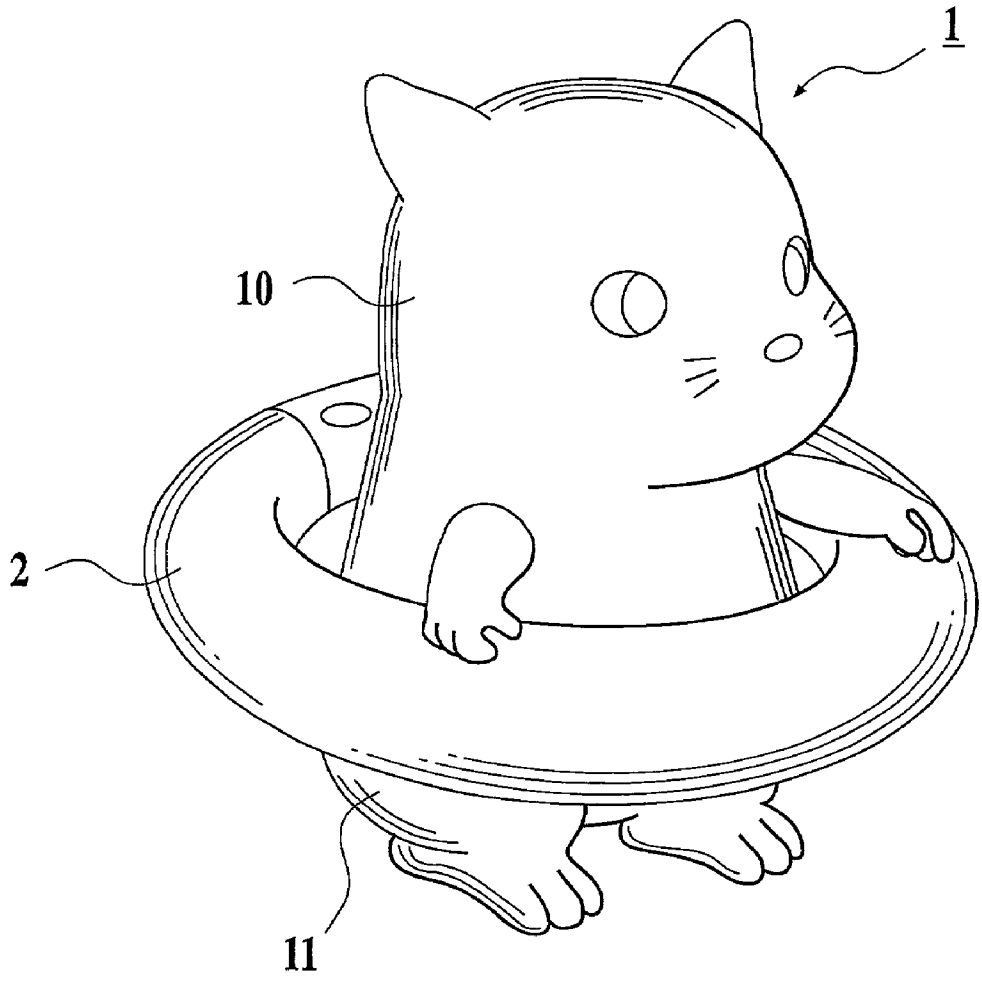

FIG.2

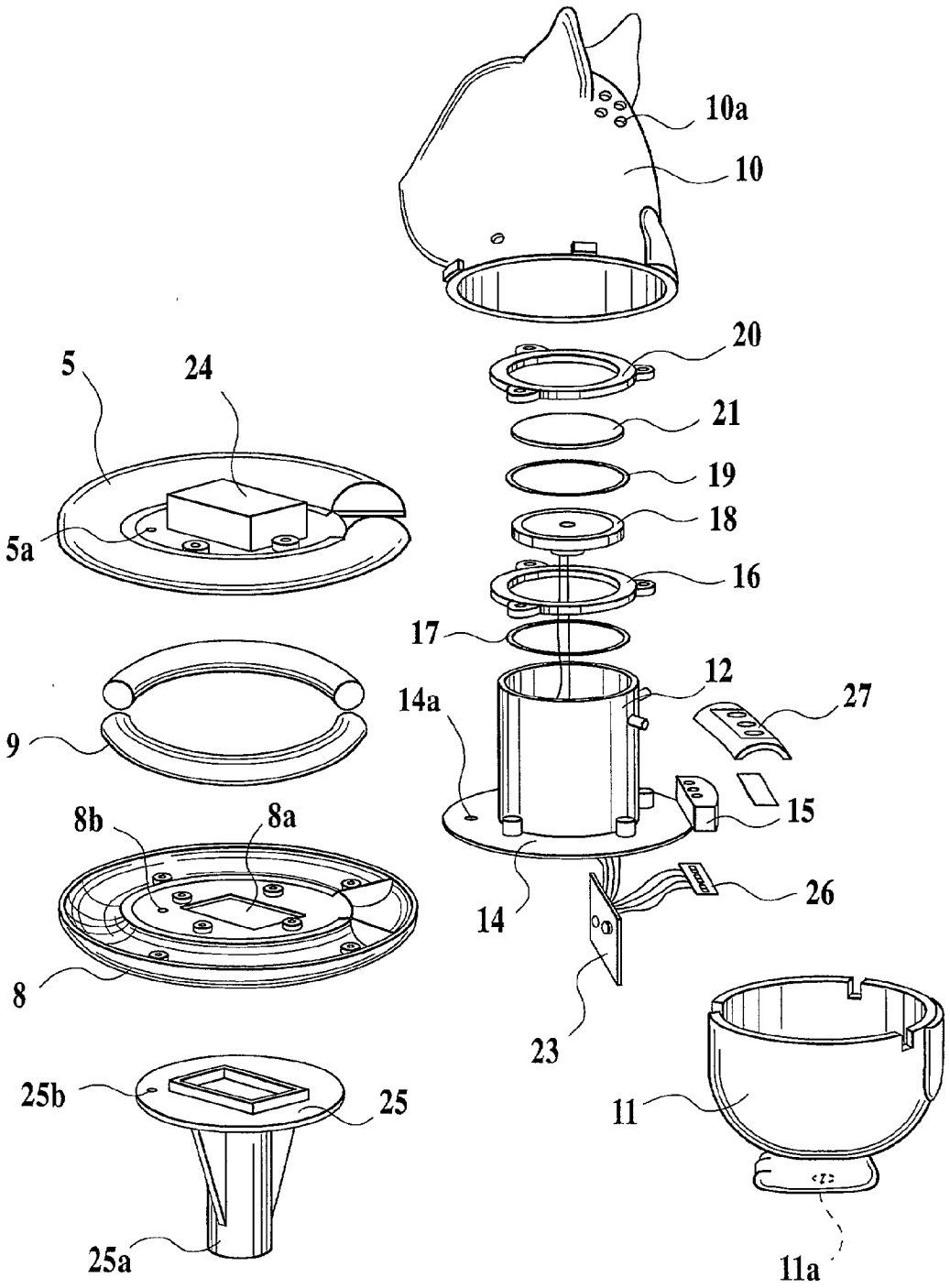
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FIG.3

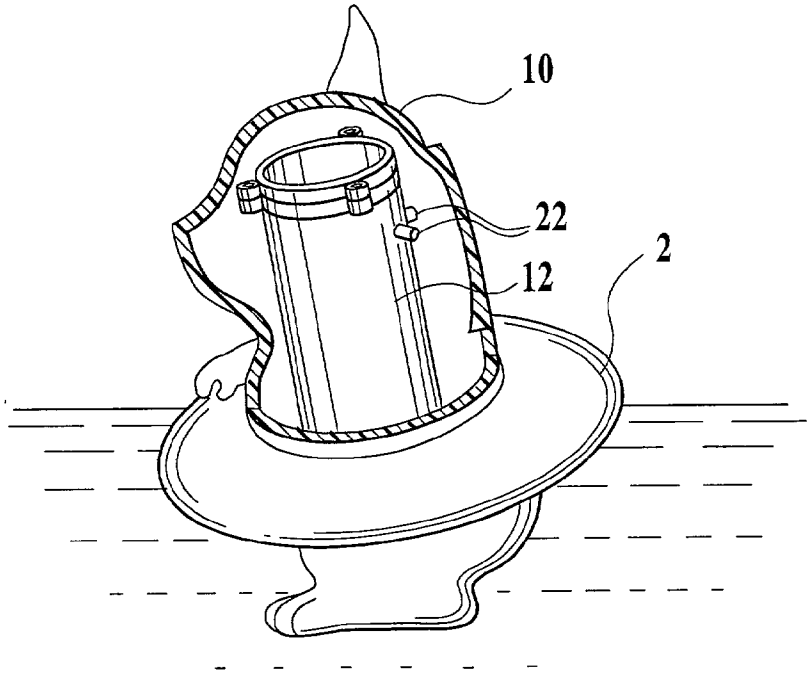

FIG.4

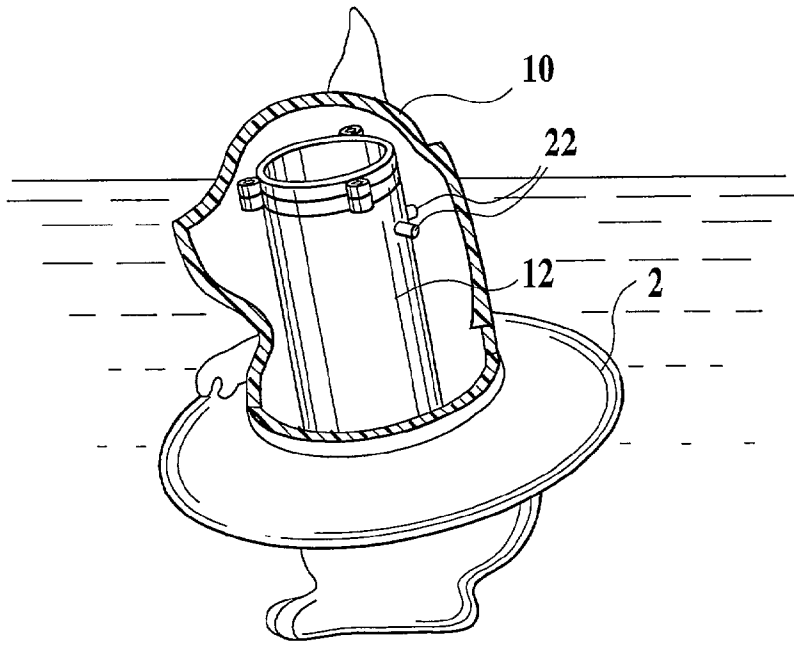

FIG.5

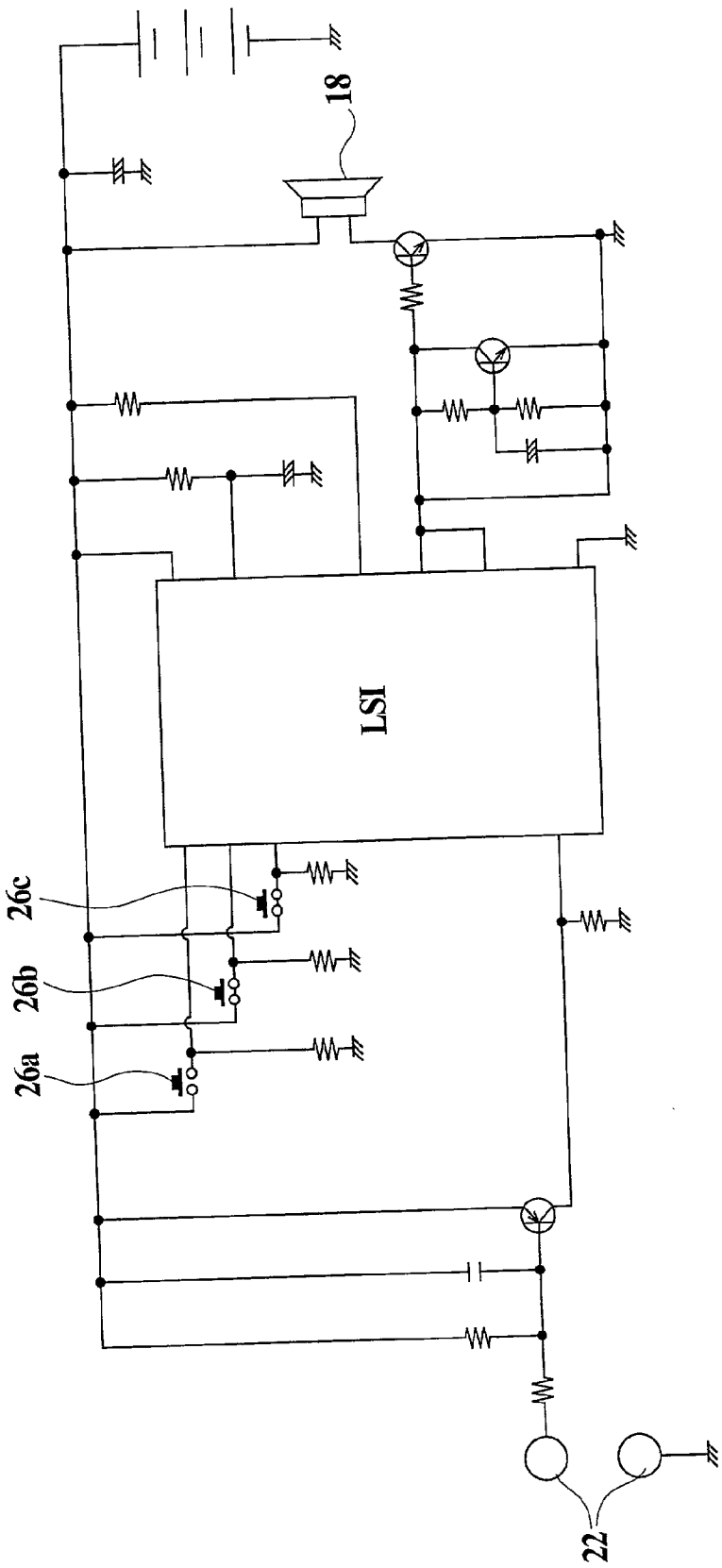

FIGURE TOY

[0001] BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to figure toys and, in particular to figure toys which can generate a sound and so on when being sunk in water.

[0004] 2. Description of Related Art

[0005] According to an earlier development, water play figure toys waterproofed or water-resistant are known, for example, wherein the water play figure toy is intended to play floating the toy on a water or a hot water of a bathtub, a pool and so on, splashing a water on the toy, and so on. Further, most of the water play figure toys are well known, wherein the water play figure toy simulates a human, an animal, an animated character or the like.

[0006] Some of such water play figure toys according to an earlier development as described above are not only waterproofed or water-resistant but also, for example, generates a sound by operating a sound generation member contained in an interior thereof.

[0007] However, the water play figure toy having the sound generation member as described above, according to an earlier development has a structure so as to generate a sound immediately a power supply button or the like is operated. Accordingly, there has been a problem that the water play figure toy is monotonous and uninteresting.

SUMMARY OF THE INVENTION

[0008] The present invention was developed in view of the above-described problems.

[0009] An object of the present invention is to provide a figure toy generating a sound and an underwater sound when being sunk in water.

[0010] In accordance with one aspect of the present invention, a figure toy which can float on a water, comprises: a toy body (for example, a toy body **1** shown in **FIG. 1**) composed so that a water can flow into an interior thereof when the toy body is sunk in a water; a water sensor (for example, a pair of water sensors **22** shown in **FIGS. 3 and 4**) provided at the interior of the toy body, for detecting an entrance of a water to a predetermined position at the interior of the toy body; and a sound generation member (for example, a speaker **18** shown in FIG. **2**) for generating a sound according as the water sensor detects the entrance of the water or not.

[0011] Herein, for example, the sound is considered as a word, a melody, a sound effect and/or another sound.

[0012] Further, although the toy body is composed so that the water can flow into the interior thereof when the toy body is sunk in the water, the toy body may be composed so that the water has flowed into the interior thereof in the state wherein the toy body floats on the water. It is necessary that more water flow into the interior of the toy body when the figure toy is brought from the state wherein the toy body floats on the water to the state wherein the toy body is sunk in the water.

[0013] According to the figure toy as described above, when the toy body is sunk in the water, the water flows into the interior of the toy body. Thereafter, when the water sensor detects the entrance of the water, the sound generation member generates the sound.

[0014] For example, the figure toy capable of floating on the water, as described above comprises a toy body composed so that the water can flow into the interior thereof, an electric unit waterproofed and provided at the interior of the toy body, a water sensor provided at the electric unit, for detecting whether the water flows into the interior of the toy body or not, and an electric and electronic circuit board contained in the interior of the electric unit, for controlling the speaker to generate a predetermined sound when the water sensor detects that the water flows into the interior of the toy body.

[0015] According to the figure toy as described above, when the toy body is sunk in the water, the water flows into the interior of the toy body. Thereafter, the water sensor detects that the water flows into the interior of the toy body, and outputs the detection signal to the electric and electronic circuit board. Thereby, the speaker generates a predetermined sound. In such a case as described above, the figure toy outputs the bubbling sound when the water flows into the interior of the toy body and the sound generated from the speaker together. Consequently, it is possible that the figure toy provides an extremely impressive and interesting sound effect to children.

[0016] Preferably, according to a figure toy as described above, the toy body is formed so as to imitate any one of a human, an animal and an animated character, and the water sensor is provided at a position in or above a height corresponding to an mouse portion of the toy body.

[0017] According to the figure toy as described above, when at least the mouse of the toy body is sunk in the water, the sound generation member generates the sound.

[0018] Preferably, according to a figure toy as described above, the sound generated from the sound generation member includes an underwater sound.

[0019] According to the figure toy as described above, when the figure toy is sunk in the water, the sound generation member generates the sound including the underwater sound.

[0020] Preferably, according to a figure toy as described above, the sound generation member generates a normal sound when the water sensor does not detect the entrance of the water, and a sound including an underwater sound when the water sensor detects the entrance of the water.

[0021] Herein, the normal sound is a sound generated in the air.

[0022] According to the figure toy as described above, when the figure toy is brought from the state wherein the toy body floats on the water to the state wherein the toy body is sunk in the water, the sound generated from the sound generation member changes from the normal sound to the sound including the underwater sound.

[0023] Preferably, according to a figure toy as described above, the sound generation member generates the sound intermittently at certain intervals a predetermined time.

[0024] In such a case as described above, the predetermined time the sound generation member generates the sound may be determined voluntary or gradually. Further,

the sound generation member may generate a predetermined word and a melody continuously or count the number.

[0025] According to the figure toy as described above, it is possible that the figure toy is used as a timer.

[0026] Preferably, according to a figure toy as described above, the sound generation member generates the sound continuously for a predetermined time.

[0027] In such a case as described above, the predetermined time while the sound generation member is generating the sound is determined voluntary or gradually.

[0028] According to the figure toy as described above, it is possible that the figure toy is used as a timer.

[0029] In accordance with another aspect of the present invention, a figure toy which can float on a water, comprises: a toy body composed so that a water can flow into an interior thereof when the toy body is sunk in a water; a water sensor provided at the interior of the toy body, for detecting an entrance of a water to a predetermined position at the interior of the toy body; and a sound generation member for generating a sound, and changing the sound generated thereby when the water sensor detects the entrance of the water.

[0030] According to the figure toy as described above, the figure toy is sunk in the water, and thereby it is possible that the sound generation member changes the sound.

[0031] Preferably, a figure toy as described above, further comprises: a plurality of water sensors provided at a plurality of different positions from one another in a height thereof, on the interior of the toy body; wherein the sound generation member generates a different sound according as the water sensor provided at the position in a depth wherein the toy body is sunk in water detects the entrance of the water or not.

[0032] For example, the sound generation member generates a splash sound when the toy body is sunk in the water shallowly, a bubbling sound when the toy body is sunk in the water deeply, and so on.

[0033] According to the figure toy as described above, according to the depth wherein the toy body is sunk in the water, the sound generation member changes and generates the sound.

[0034] Preferably, a figure toy as described above, further comprises: a light emission member for emitting a light when the water sensor detects the entrance of the water.

[0035] The light emission member may be all the toy body or one part of the toy body. Further, preferably, the light emission member lights the light at the same time wherein the sound generation member generates the sound.

[0036] According to the figure toy as described above, the light emission member lights the light when the toy body is sunk in the water so that it is possible to provide a more interesting figure toy to children.

[0037] Preferably, a figure toy as described above, further comprises: a drive member for moving a predetermined portion of the toy body when the water sensor detects the entrance of the water.

[0038] Therefore, for example, if the toy body is formed so as to imitate any one of a human, an animal and an animated character, the figure toy may flap arms and legs thereof. In order to easily realize the figure toy as described above, the drive member may comprise a motor, such a drive mechanism for moving arms and legs as a link, a gear, a com, a wrapping connector mechanism or a combination thereof, and a control member for controlling the motor and the drive mechanism. Further, preferably, the drive member moves the predetermined portion of the toy body at the same time wherein the sound generation member generates the sound.

[0039] According to the figure toy as described above, the drive member moves the predetermined portion when the toy body is sunk in the water so that it is possible to provide a more interesting figure toy to children.

BRIEF DESCRIPTION OF THE DRAWINGS

[0040] The present invention will become more fully understood from the detailed description given hereinafter and the accompanying drawings which are given by way of illustration only, and thus are not intended as a definition of the limits of the present invention, and wherein:

[0041] **FIG. 1** is a perspective view showing an embodiment of a figure toy of the present invention;

[0042] **FIG. 2** is an exploded perspective view showing the figure toy shown in **FIG. 1**;

[0043] **FIG. 3** is a view showing a state wherein the figure toy shown in **FIG. 1**, floats on the water;

[0044] **FIG. 4** is a view showing a tater wherein the figure toy shown in **FIG. 1**, is sunk in the water; and

[0045] **FIG. 5** is a block diagram showing a circuit contained in the figure toy shown in **FIG. 1**.

PREFERRED EMBODIMENT OF THE INVENTION

[0046] Hereinafter, an embodiment of a figure toy of the present invention will be explained with reference to FIGS. **1** to **5**, in detail.

[0047] **FIG. 1** shows a perspective view showing an embodiment of a figure toy of the present invention, and **FIG. 2** shows an exploded perspective view showing the figure toy shown in **FIG. 1**.

[0048] The figure toy comprises a toy body **1** formed so as to simulate any one of a human, an animal, an animated character and so on.

[0049] Further, the figure toy comprises a float member **2** formed so as to simulate a swimming ring, at a substantially center position in the vertical direction of the toy body **1**. The float member **2** is composed of an upper float board **5** and a lower float board **8**. A float **9** is contained between the upper float board **5** and the lower float board **8**, wherein the float **9** is made of, for example, foam polystyrene. A surround body **12** formed so as to be cylindrical is provided on the float member **9**.

[0050] The surround body **12** comprises a flange portion **14** at a lower edge thereof. A switch attachment mount **15** is provided at the flange portion **14**. A wiring circuit board **23** on which various electric and electronic elements are mounted is provided at an interior of the surround body **12**.

A switch operation button **27** is provided on the switch attachment mount **15**, and a switch **26** is provided under the switch attachment mount **15**. The switch **26** is connected to the electric and electronic elements mounted on the wiring circuit board **23** electrically.

[**0051**] A speaker base **16** like a ring is provided at an upper edge portion of the surround body **12** through an O-like ring **17**. A speaker **18** is disposed at the speaker base **16**. A speaker cover **20** like a ring is attached at the speaker base **16** through the O-like ring **19** and a rubber seat **21**.

[**0052**] Further, as shown in **FIGS. 3 and 4**, a pair of water sensors **22** is provided at the surround body **12**. The pair of water sensors **22** is connected to the electric and electronic elements mounted on the wiring circuit board **23** electrically.

[**0053**] Herein, the rubber seat **21** mainly protects the speaker **18** from water. The rubber seat **21** may be put on the speaker cover **20**.

[**0054**] An upper body **10** of the toy body **1** is provided so as to surround the surround body **12** at the float member **2**. A sound emission hole **10***a* is provided at the upper body **10**.

[**0055**] A battery containing box **24** opening downward is provided at the upper float board **5**. An opening **8***a* is formed corresponding to an opening of the battery containing box **24**, at the lower float board **8**. A cover body **25** is attached at a rear side of the lower float board **8**. Although an attachment structure of the cover body **25** is not shown in figures, the cover body **25** is attached at the lower float board **8** by a screw. A support member **25***a* is disposed in standing at the cover body **25**.

[**0056**] A lower body **11** of the toy body **1** is provided so as to surround the cover body **25** at the lower float board **8** so that the lower body **11** can be installed in and taken away the lower float board **8**. Because the lower body **11** is bendable, the lower body **11** is supported so as not to change the form thereof by the support member **25***a*.

[**0057**] Hole portions **11***a*, **25***b*, **8***b*, **5***a* and **14***a* into which a water can flow are provided at a sole portion of the lower body **11**, the cover body **25**, the lower float board **8**, the upper float board **5** and the flange portion **14** of the surround body **12**, respectively. The hole portions **11***a*, **25***b*, **8***b*, **5***a* and **14***a* are provided so as to agree with each other. Further, it is not needless to say that the portion of a unit body, the switch **26** and the battery containing box **24** are perfectly waterproofed so that the water cannot flow into the interiors thereof.

[**0058**] **FIG. 5** shows a circuit board contained in the figure toy according to the embodiment of the present invention.

[**0059**] Three switches as the switch **26** are mounted on the circuit board, and each of the switches is connected to a LSI (Large Scale Integrated circuit) electrically. The switches as the switch **26** are an ON/OFF switch **26***a* for turning on and off the power supply, a selection switch **26***b* for changing a melody to be generated from the speaker **18** and a volume switch **26***c* for changing a volume of a sound to be generated from the speaker **18**. Corresponding to the switches **26***a* to **26***c*, three switch operation buttons as the switch operation button **27** are provided.

[**0060**] Further, in **FIG. 5**, the reference numeral **22** denotes the water sensor described above.

[**0061**] Next, a function according to the embodiment of the present invention will be explained, as follows.

[**0062**] According to the embodiment of the present invention, first, as shown in **FIG. 3**., when the toy body **1** is put in a bathtub or the like, the toy body **1** floats on the water by a buoyancy of the float member **2**. At the time, although the water flows into the lower body **11** from the hole portion **11***a*, the toy body **1** cannot be sunk into the water because the toy body **1** has the buoyancy of the float member **2**.

[**0063**] In such a state as described above, when the power supply is turned on by pushing the switch operation button **27** of the ON/OFF switch **26***a* of the power supply, a predetermined melody is generated from the speaker **18**. Therefore, children can play with the toy body **1** as listening the melody. In this case, it is possible that the predetermined melody is changed to another melody by pushing the switch operation button **27** of the selection switch **26***b* of the melody.

[**0064**] Next, as shown in **FIG. 4**, when the toy body **1** is sunk in the water, the water flowed from the hole portion **11***a* of the lower body **11** flows into the interior of the upper body **10** through the hole portions **11***a*, **25***b*, **8***b*, **5***a* and **14***a*. When the water flows into the water sensor **22**, the water sensor **22** detects the entrance of the water and outputs a detection signal to the wiring circuit board **23**. Thereby, according to the embodiment, the melody is stopped and the sound for counting the numbers from 1 to 10 is generated from the speaker **18**.

[**0065**] In this case, the bubbling sound when the water flows into the interior of the toy body **11** and the sound for counting the number generated from the speaker **18** can be emitted together, and the children can hear the sounds. Accordingly, the figure toy makes an impression of counting the number in the water. As a result, it is possible that the children can get an extremely impressive and interesting sound effect from the figure toy.

[**0066**] In the case wherein the children stop playing with the figure toy, the power supply is tuned off by pushing the switch operation button **27** of the ON/OFF switch **26***a* of the power supply. Thereby, the figure toy stops all the function thereof. According to the embodiment of the present invention, the figure toy further comprises an automatic power off function for automatically turning the power supply off in the case wherein the switch **26** is not operated for more than a predetermined time.

[**0067**] Consequently, according to the embodiment, the figure toy has the buoyancy of the float member **2**, so that it is possible that children play with the figure toy in the state wherein the toy body **1** floats on the water. Further, when the toy body **11** is sunk in the water, the toy body **1** can generate a sound from the speaker **18**, so that it is possible that children play with the figure toy easily. And further, the toy body **11** generates a sound so that it is possible that children get an impressive and interesting sound effect from the figure toy.

[**0068**] Although the present invention has been explained according to the above-described embodiment, it should also be understood that the present invention is not limited to the embodiment and various changes and modifications may be made to the invention without departing from the gist thereof.

[0069] For example, according to the embodiment of the present invention, the figure toy only generates a sound. However, the figure toy may have a structure so as to move a hand, a foot and so on when being sunk in the water. Further, the figure toy may have some water sensors and a structure so as to change the sound and the function according to a depth when being sunk in the water.

[0070] Further, according to the embodiment of the present invention, the figure toy as shown in **FIG. 1** has been explained as an example of the figure toy of the present invention. However, it is possible that the figure toy of the present invention is applied to a submarine toy, a ship toy and so on. In this case, it is possible that the submarine toy, the ship toy and so on carry on the different function according as they float on the water and they are sunk in the water.

[0071] And further, the figure toy may emit a light and/or carry on a predetermined function instead of generating a sound or in addition to generating a sound, when the figure toy is sunk in the water.

[0072] According to the present invention, a main effect can be obtained, as follows.

[0073] The figure toy which can float on the water, comprises: the toy body composed so that the water can flow into the interior thereof when the toy body is sunk in the water; the water sensor provided at the interior of the toy body, for detecting the entrance of the water to the predetermined position at the interior of the toy body; and the sound generation member for generating the sound according as the water sensor detects the entrance of the water or not.

[0074] Accordingly, when the figure toy is sunk in the water, the water flows into the interior of the toy body. Thereafter, when the water sensor detects the entrance of the water, the sound generation member can generate the sound. Consequently, it is possible to provide the figure toy wherein the children can get an extremely impressive and interesting sound effect.

[0075] The entire disclosure of Japanese Patent Application No. Tokugan 2000-030990 filed on Feb. 8, 2000 including specification, claims, drawings and summary are incorporated herein by reference in its entirety.

What is claimed is:

1. A figure toy which can float on a water, comprising:

a toy body composed so that a water can flow into an interior thereof when the toy body is sunk in a water;

a water sensor provided at the interior of the toy body, for detecting an entrance of a water to a predetermined position at the interior of the toy body; and

a sound generation member for generating a sound according as the water sensor detects the entrance of the water or not.

2. A figure toy as claimed in claim 1, wherein the toy body is formed so as to imitate any one of a human, an animal and an animated character, and the water sensor is provided at a position in or above a height corresponding to an mouse portion of the toy body.

3. A figure toy as claimed in clam **1**, wherein the sound generated from the sound generation member includes an underwater sound.

4. A figure toy as claimed in claim 1, wherein the sound generation member generates a normal sound when the water sensor does not detect the entrance of the water, and a sound including an underwater sound when the water sensor detects the entrance of the water.

5. A figure toy as claimed in claim 1, wherein the sound generation member generates the sound intermittently at certain intervals a predetermined time.

6. A figure toy as clamed in claim 1, wherein the sound generation member generates the sound continuously for a predetermined time.

7. A figure toy which can float on a water, comprising:

a toy body composed so that a water can flow into an interior thereof when the toy body is sunk in a water;

a water sensor provided at the interior of the toy body, for detecting an entrance of a water to a predetermined position at the interior of the toy body; and

a sound generation member for generating a sound, and changing the sound generated thereby when the water sensor detects the entrance of the water.

8. A figure toy as claimed in claim 1, further comprising:

a plurality of water sensors provided at a plurality of different positions from one another in a height thereof, on the interior of the toy body;

wherein the sound generation member generates a different sound according as the water sensor provided at the position in a depth wherein the toy body is sunk in the water detects the entrance of the water or not.

9. A figure toy as claimed in claim 7, further comprising:

a plurality of water sensors provided at a plurality of different positions from one another in a height thereof, on the interior of the toy body;

wherein the sound generation member generates a different sound according as the water sensor provided at the position in a depth wherein the toy body is sunk in the water detects the entrance of the water or not.

10. A figure toy as claimed in claim 1, further comprising:

a light emission member for emitting a light when the water sensor detects the entrance of the water.

11. A figure toy as claimed in claim 7, further comprising:

a light emission member for emitting a light when the water sensor detects the entrance of the water.

12. A figure toy as claimed in claim 1, further comprising:

a drive member for moving a predetermined portion of the toy body when the water sensor detects the entrance of the water.

13. A figure toy as claimed in claim 7, further comprising:

a drive member for moving a predetermined portion of the toy body when the water sensor detects the entrance of the water.

* * * * *