



(11) **EP 3 424 837 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
18.09.2019 Bulletin 2019/38

(51) Int Cl.:
B65D 51/24 (2006.01) A47G 19/22 (2006.01)
B65D 41/26 (2006.01)

(21) Application number: **17179655.0**

(22) Date of filing: **04.07.2017**

(54) **LUMINOUS CUP-SHAPED BODY**

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CORPS LUMINEUX EN FORME DE COUPELLE

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

(43) Date of publication of application:
09.01.2019 Bulletin 2019/02

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Description

BACKGROUND OF THE INVENTION

1. Technical field

[0001] The invention relates to a luminous cup-shaped body according to the preamble of claim 1.

2. Related art

[0002] Because light emitting diodes (LEDs) oppose advantages of low power consuming, long lighting distance and various color temperatures, they have excessively been applied in apparatuses of daily life. For example, LEDs are used in not only lighting, but also modeling cups and caps of PET bottles. This creates a new visual effect to attract people's attention and also increases an additional value of products.

[0003] However, existing products of luminous modeling cup or bottle cap still have drawbacks of power supplement and design of lighting status. For example, monotonous or partial light is generated, assembling is not easy, and portability and electricity maintenance and replacement are inconvenient.

[0004] DE 20 2012 102718 U1 discloses a luminous cup-shaped body according to the preamble of claim 1, which is not for use as cups and caps of bottles, but for storage of pencils on a writing desk. A torch, which is used as a lighting unit in case of emergency, is loosely supported on the base of the light-permissible cup in an upside-down orientation, i.e. with the light bulb facing the base of the light-permissible cup. The power supply is integrated in the torch. The power supply is not fixed on the base as a module separate to the lighting unit. A proximity switch is not provided in this configuration.

[0005] GB 2 161 134 A discloses a bottle for drinks provided with a screw-cap incorporated into or cooperating with a moulded bottom of a drinking cup. The rim of the cup comes into close proximity with the side of the bottle when the screw cap is in position, to maintain the cup clean and hygienic until it is required for use. When needed, simple unscrewing of the cap provides the user with a drinking cup into which the contents of the bottle can be poured.

[0006] US 2004/233661 A1 discloses a tumbler of the afore-mentioned general configuration, comprising a liquid holding portion having a flat opaque base with a domed light transmitting portion proximate the center thereof, means defining a bottom chamber with an area for indicia of branding, a circuit containing a battery for lighting an LED, a transistor switch, a resistor for desired impedance, and the LED, which is connected to the circuit and has a light emitting portion disposed in the dome. The bottom chamber is fixed to the liquid holding portion.

SUMMARY OF THE INVENTION

[0007] It is an object of the present invention to provide an enhanced luminous cup-shaped body enabling an easy and cost-effective assembly and enables a uniform lighting.

[0008] This problem is solved by a luminous cup-shaped body as claimed by claim 1. Further advantageous embodiments are the subject-matter of the dependent claims.

[0009] A luminous cup-shaped body according to the present invention is configured to enable the effect of a completely equably lighting by means of a light guiding structure.

[0010] The invention has other functions. The power supply module and the lighting unit can be easily assembled to the light-permissible cup by the arrangement of the posts, passing holes, positioning rods and through holes. By the engagement between the inner engagement ring of the cover and the outer engagement ring of the ring body, a sealing effect can be achieved.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011]

FIG. 1 is an exploded view of the luminous cup-shaped body of the invention;

FIG. 2 is an assembled view of the luminous cup-shaped body of the invention;

FIG. 3 is a perspective view of the luminous cup-shaped body of the invention;

FIG. 4 is a cross sectional view of the luminous cup-shaped body of the invention; and

FIG. 5 is a cross sectional view of the luminous cup-shaped body of the invention applied to a bottle.

DETAILED DESCRIPTION OF THE INVENTION

[0012] Please refer to FIGS. 1-4. The invention relates to a luminous cup-shaped body and includes a light-permissible cup 10, a power supply module 20 and a lighting unit 30.

[0013] The light-permissible cup 10 may be made of PMMA (poly (methyl methacrylate)) resin and has a base 11 and a ring body 12. The base 11 has a circular plate 111. A reflecting structure 1110 is disposed on a surface of the circular plate 111. The reflecting structure may be a reflecting sheet or a reflecting layer, by which the light emitted by the lighting unit 30 can be reflected. The center of the circular plate 111 is upright extended with a pair of posts 112. An interval 113 is formed between the posts 112. A receiving hole 114 is formed at the center of the circular plate 111 and between the posts 112. A slot 115 is formed in the top of each of the posts 112. A plurality of positioning rods 116 are formed on the surface of the circular plate 111 and around the posts 112.

[0014] The ring body 12 extends from the periphery of

the base 11. In the shown embodiment, the ring body 12 is, but not limited to, a circular body. Any other shapes are available. A light guiding slant 13 is arranged between the ring body 12 and the circular plate 111 for guiding the light to the ring body 12. The bottom of the ring body 12 is formed with an outer engagement ring 121. An inner surface and outer surface of the ring body are separately formed with a light guiding structure 122 which may be a texture pattern, printing pattern or etching pattern made by machining, printing or etching.

[0015] The power supply module 20 is fixed on the base 11 and includes a circuit board 21, a plurality of batteries 22 and a proximity switch 23. A side of the circuit board 21 is disposed with copper foil circuits (not shown). The plurality of batteries (22) are fixed on the circuit board 21 and are electrically connected to the copper foil circuits. The center of the circuit board 21 is provided with a passing hole 211. Two contacts 212 are arranged near the passing hole 211. Two through holes 213 are provided at two sides of each of the batteries 22. The proximity switch 23 is electrically connected to the copper foil circuits of the circuit board 21 through a conductive rod 231.

[0016] The lighting unit 30 of the instant embodiment is an LED having a lamp body 31 and two leads 32 electrically connected to the lamp body 31. The lamp body 31 correspondingly passes through the passing hole 211. The leads 32 are separately connected to the contacts 212 by soldering. The proximity switch 23 is used for turning on/off the lamp body 21.

[0017] When assembling, the passing hole 211 is passed by the posts 112, the lamp body 31 is also inserted into the receiving hole 114, and the positioning rods 116 separately pass through the through holes 213. Next, the proximity switch 23 is correspondingly connected to the posts 112 and is positioned in the slots 115 to make an electric connection with the circuit board 21 through the conductive rod 231.

[0018] Further, the luminous cup-shaped body of the invention includes a threaded ring 50. The threaded ring 50 upright extends from the base 11 and inside the ring body 12. The threaded ring 50 has a circular ring 51 and an inner thread 52 formed on an inner wall of the circular ring 51 so as to form a luminous bottle cap.

[0019] Further, the luminous cup-shaped body of the invention includes a cover 60 which correspondingly covers an exposed side of the base 11 for accommodating the power supply module 20 and the lighting unit 30 in a space between the cover 60 and the base 11. A periphery of the cover 60 is extended with an inner engagement ring 61 for engaging with the outer engagement ring 121 of the ring body 12.

[0020] When using, a user puts his/her finger on the center of the cover 60 to turn on the lighting unit 30 through the proximity switch 23. The light from the lighting unit 30 travels from the receiving hole 114 of the base 11 toward outside of the base 11. A part of the light continues to travel along inside of the ring body 12 upward and another part of the light emits outward through the

light guiding structure. As a result, the ring body 12 can be completed equably lit up.

[0021] Please refer to FIG. 5. The luminous cup-shaped body of the invention can be applied to a bottle 8. The lip 81 of the bottle 8 is formed with an outer thread 82 for screwing with the inner thread 52 of the threaded ring 50.

10 Claims

1. A luminous cup-shaped body comprising:

a light-permissible cup (10) having a base (11) and a ring body (12) extending from the base (11), wherein a light-guiding structure (122) is formed on a surface of the ring body (12) and the base (11) has a circular plate (111) and a receiving hole (114) formed in the circular plate (111); and

a lighting unit (30), which is installed on the base (11), has a lamp body (31) and is electrically connected to a power supply module (20);

characterized in that the power supply module (20) is fixed on the base (11) and includes a circuit board (21), a plurality of batteries (22) and a proximity switch (23), wherein a side of the circuit board (21) is disposed with copper foil circuits and the plurality of batteries (22) are fixed on the circuit board (21) and are electrically connected to the copper foil circuits, wherein the center of the circuit board (21) is provided with a passing hole (211), two contacts (212) are arranged near the passing hole (211) and two through holes (213) are provided at two sides of each of batteries (22), and wherein the base (11) has a pair of posts (112) extending from the circular plate (111), an interval (113) is formed between the posts (112), the receiving hole (114) is formed between the posts (112) and the lamp body (31) passes through the receiving hole (114), wherein

a slot (115) is formed in a top of each of the posts (112),

the proximity switch (23) is connected to the posts (112) and positioned in the slots (115), and the proximity switch (23) is electrically connected to copper foil circuits of the circuit board (21) through a conductive rod (231).

2. The luminous cup-shaped body of claim 1, wherein a light guiding slant (13) is arranged between the ring body (12) and the circular plate (111), and a reflecting structure (1110) is disposed on a surface of the circular plate (111).

3. The luminous cup-shaped body of any of the preceding claims, wherein the light guiding structure

(122) is formed by a texture pattern, printing pattern or etching pattern.

4. The luminous cup-shaped body of any of the preceding claims, wherein the circuit board (21) is provided with a passing hole (211), the lighting unit (30) has a lamp body (31) and two leads (32) electrically connected to the lamp body (31), the lamp body (31) correspondingly passes through the passing hole (211), and the leads (32) are separately connected to the contacts (212) by soldering. 5
5. The luminous cup-shaped body of any of the preceding claims, further comprising a threaded ring (50) upright extending from the base (11) and inside the ring body (12). 10
6. The luminous cup-shaped body of claim 5, wherein the threaded ring (50) has a circular ring (51) and an inner thread (52) formed on an inner wall of the circular ring (51). 15
7. The luminous cup-shaped body of any of the preceding claims, further comprising a cover (60) which correspondingly covers an exposed side of the base (11) for accommodating the power supply module (20) and the lighting unit (30) in a space between the cover (60) and the base (11). 20
8. The luminous cup-shaped body of claim 7, wherein a periphery of the cover (60) is extended with an inner engagement ring (61) for engaging with the outer engagement ring (121) of the ring body (12). 25

Patentansprüche

1. Leuchtkörper in Becherform, umfassend:

einen lichtdurchlässigen Becher (10) mit einer Basis (11) und einem sich ausgehend von der Basis (11) erstreckenden Ringkörper (12), wobei eine lichtleitende Struktur (122) auf einer Oberfläche des Ringkörpers (12) ausgebildet ist und die Basis (11) eine kreisförmige Platte (111) und ein in der kreisförmigen Platte (111) ausgebildetes Aufnahmeloch (114) aufweist; und eine Beleuchtungseinheit (30), die auf der Basis (11) montiert ist, einen Lampenkörper (31) aufweist und elektrisch mit einem Stromversorgungsmodul (20) verbunden ist;

dadurch gekennzeichnet, dass das Stromversorgungsmodul (20) auf der Basis (11) befestigt ist und eine Leiterplatte (21), eine Mehrzahl von Batterien (22) und einen Näherungsschalter (23) beinhaltet, wobei eine Seite der Leiterplatte (21) mit Kupferfolienschalungen angeordnet bzw. versehen ist und

die Mehrzahl von Batterien (22) auf der Leiterplatte (21) befestigt und elektrisch mit den Kupferfolienschalungen verbunden sind, wobei die Mitte der Leiterplatte (21) mit einem Durchgangsloch (211) versehen ist, zwei Kontakte (212) nahe dem Durchgangsloch (211) angeordnet sind und zwei Durchgangslöcher (213) an zwei Seiten von jeder der Batterien (22) vorgesehen sind, und wobei

die Basis (11) ein Paar von Stiften (112) aufweist, die sich ausgehend von der kreisförmigen Platte (111) erstrecken, ein Abstand (113) zwischen den Stiften (112) ausgebildet ist, das Aufnahmeloch (114) zwischen den Stiften (112) ausgebildet ist und der Lampenkörper (31) sich durch das Aufnahmeloch (114) hindurch erstreckt, wobei

ein Schlitz (115) an einem oberen Ende von jedem der Stifte (112) ausgebildet ist, der Näherungsschalter (23) mit den Stiften (112) verbunden und in den Schlitzen (115) positioniert ist, und der Näherungsschalter (23) über eine leitende Stange (231) elektrisch mit Kupferfolienschalungen der Leiterplatte (21) verbunden ist.

2. Leuchtkörper in Becherform nach Anspruch 1, wobei zwischen dem Ringkörper (12) und der kreisförmigen Platte (111) eine lichtleitende Schräge (13) angeordnet ist und eine reflektierende Struktur (1110) auf einer Oberfläche der kreisförmigen Platte (111) angeordnet ist. 30
3. Leuchtkörper in Becherform nach einem der vorhergehenden Ansprüche, wobei die lichtleitende Struktur (122) durch ein Texturmuster, ein gedrucktes Muster oder ein geätztes Muster ausgebildet ist. 35
4. Leuchtkörper in Becherform nach einem der vorhergehenden Ansprüche, wobei die Leiterplatte (21) mit einem Durchgangsloch (211) versehen ist, die Beleuchtungseinheit (30) einen Lampenkörper (31) und zwei mit dem Lampenkörper (31) elektrisch verbundene Leitungen (32) aufweist, der Lampenkörper (31) sich entsprechend durch das Durchgangsloch (211) hindurch erstreckt und die Leitungen (32) separat mit den Kontakten (212) durch Löten verbunden sind. 40
5. Leuchtkörper in Becherform nach einem der vorhergehenden Ansprüche, weiterhin umfassend einen Gewinding (50), der sich von der Basis (11) und innerhalb des Ringkörpers (12) aufrecht erstreckt. 45
6. Leuchtkörper in Becherform nach Anspruch 5, worin der Gewinding (50) einen kreisförmigen Ring (51) und ein Innengewinde (52) aufweist, das auf einer Innenwand des kreisförmigen Rings (51) ausgebil-

det ist.

7. Leuchtkörper in Becherform nach einem der vorhergehenden Ansprüche, weiterhin umfassend eine Abdeckung (60), die entsprechend eine freiliegende Seite der Basis (11) zur Aufnahme des Stromversorgungsmoduls (20) und der Beleuchtungseinheit (30) in einem Raum zwischen der Abdeckung (60) und der Basis (11) abdeckt.
8. Leuchtkörper in Becherform nach Anspruch 7, wobei ein Umfang der Abdeckung (60) mit einem inneren Eingriffsring (61) zum Eingriff mit dem äußeren Eingriffsring (121) des Ringkörpers (12) verlängert ist.

Revendications

1. Un corps lumineux en forme de coupelle comprenant:

une coupelle (10) perméable à la lumière, ayant une base (11) et un corps annulaire (12) s'étendant depuis la base (11), dans lequel une structure de guidage de la lumière (122) est formée sur une surface du corps annulaire (12) et la base (11) a une plaque circulaire (111) et un orifice de logement (114) formé dans la plaque circulaire (111) ; et

une unité d'alimentation (30), qui est installée sur la base (11), dispose d'un corps de lampe (31) et est connectée électriquement à un module d'alimentation électrique (20) ;

caractérisé en ce que le module d'alimentation électrique (20) est fixé sur la base (11) et comporte un circuit imprimé (21), une pluralité de batteries (22) et un commutateur de proximité (23), dans lequel

un côté du circuit imprimé (21) est disposé avec des circuits de feuille de cuivre et les multiples batteries (22) sont fixées sur le circuit imprimé (21) et sont électriquement connectées aux circuits de feuilles de cuivre, dans lequel le centre du circuit imprimé (21) est fourni avec un trou de passage (211), deux contacts (212) étant disposés proches du trou de passage (211) et deux trous traversant (213) sont disposés aux deux côtés de chacune des batteries (22), et dans lequel

la base (11) a une paire de montants (112) s'étendant depuis la plaque circulaire (111), un intervalle (113) étant formé entre les montants (112), l'orifice de logement (114) étant formé entre les montants (112) et le corps de lampe (31) passe au travers de l'orifice de logement (114), dans lequel

une fente (115) est formée dans une partie supérieure de chacun des montants (112),

le commutateur de proximité (23) est connecté aux montants (112) et positionné dans les fentes (115), et

le commutateur de proximité (23) est connecté électriquement aux circuits de feuille de cuivre du circuit imprimé (21) via une tige conductrice (23).

2. Le corps lumineux en forme de coupelle selon la revendication 1, dans lequel une inclinaison de guidage de lumière (13) est disposée entre le corps annulaire (12) et la plaque circulaire (111), et une structure réfléchissante (1110) est disposée sur une surface de la plaque circulaire (111).
3. Le corps lumineux en forme de coupelle selon l'une quelconque des revendications précédentes, dans lequel la structure de guidage de lumière (122) est formée par un motif de texture, un motif d'impression ou un motif de gravure.
4. Le corps lumineux en forme de coupelle selon l'une quelconque des revendications précédentes, dans lequel le circuit imprimé (21) est muni d'un trou de passage (211), l'unité d'éclairage (30) comporte un corps de lampe (31) et deux conducteurs (32) connectés électriquement au corps de lampe (31), le corps de lampe (31) traversant de manière correspondante le trou traversant (211) et les conducteurs (32) étant connectés séparément par soudure à des contacts (212).
5. Le corps lumineux en forme de coupelle selon l'une quelconque des revendications précédentes, comprenant en outre un anneau fileté (50) s'étendant vers le haut depuis la base (11) et à l'intérieur du corps annulaire (12).
6. Le corps lumineux en forme de coupelle selon la revendication 5, dans lequel la bague filetée (50) comporte une bague circulaire (51) et un filetage interne (52) formé sur une paroi interne de la bague circulaire (51).
7. Le corps lumineux en forme de coupelle selon l'une quelconque des revendications précédentes, comprenant en outre un couvercle (60) qui couvre de manière correspondante un côté exposé de la base (11) pour loger le module d'alimentation (20) et l'unité d'éclairage (30) au sein d'un espace entre le couvercle (60) et la base (11).
8. Le corps lumineux en forme de coupelle selon la revendication 7, dans lequel une périphérie du couvercle (60) est prolongée par une bague d'engagement interne (61) pour venir en prise avec la bague d'engagement externe (121) du corps annulaire (12).

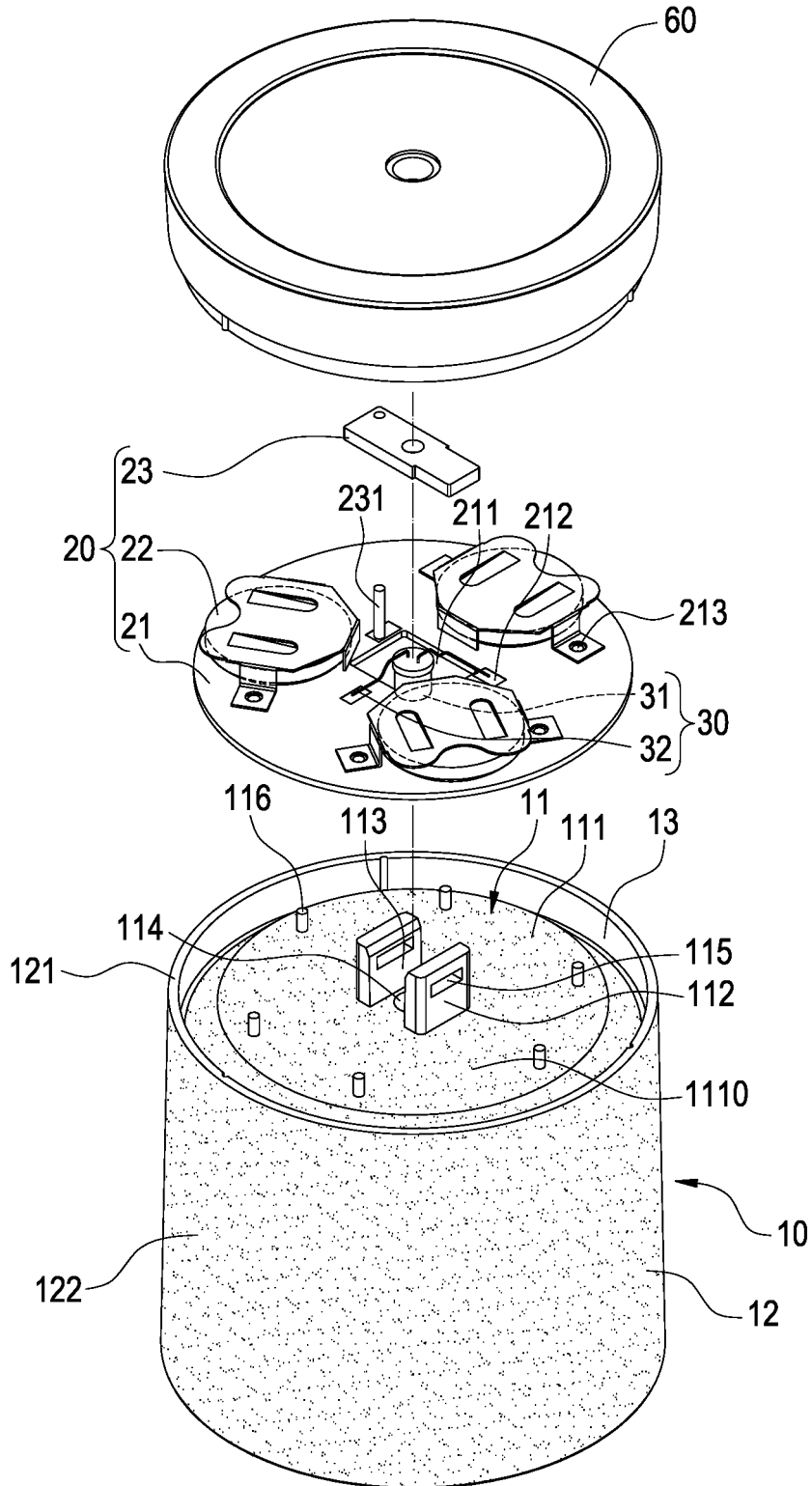


FIG.1

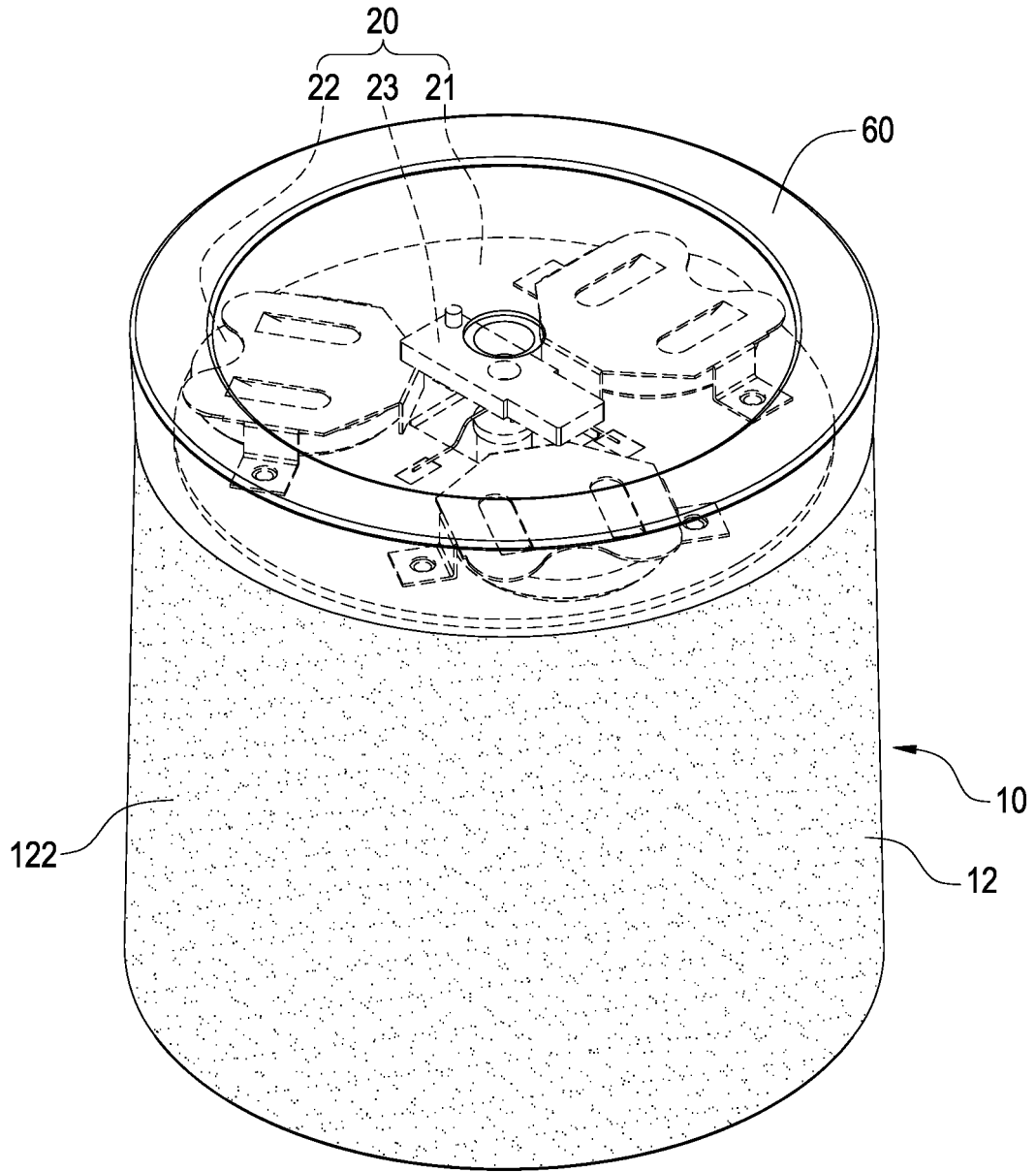


FIG.2

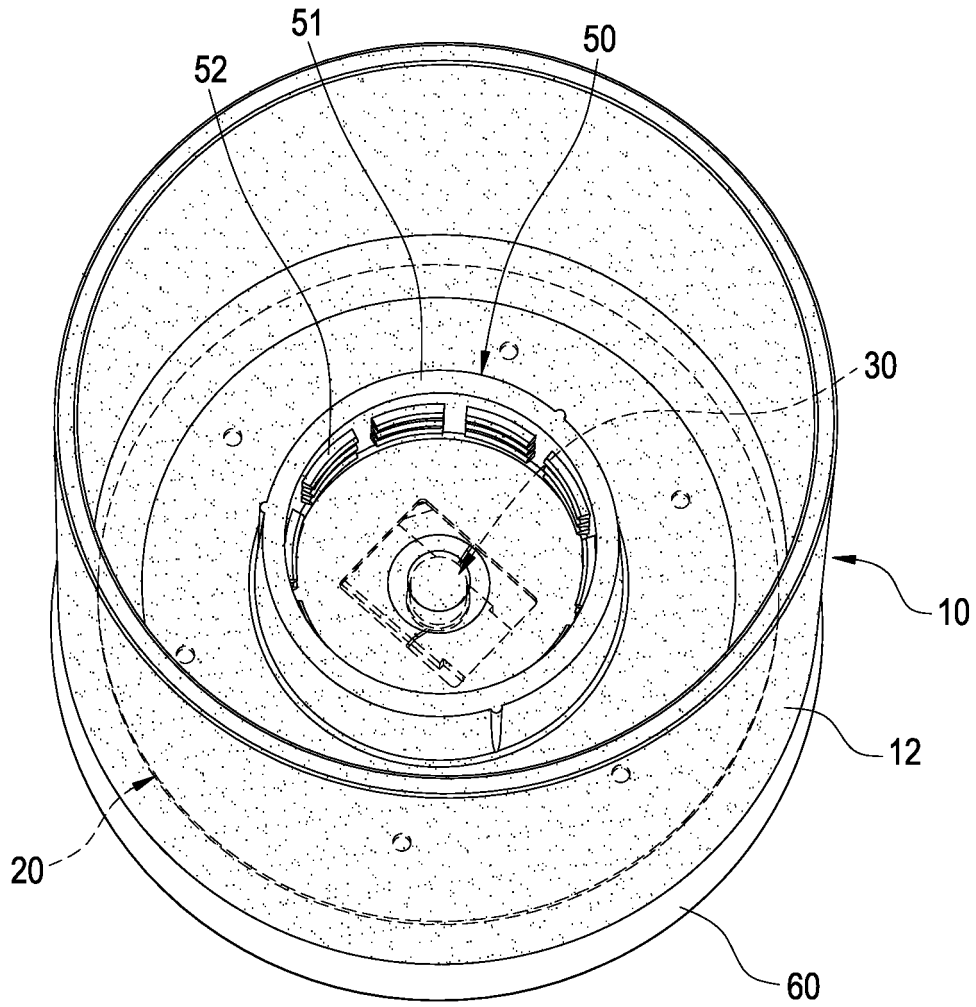


FIG.3

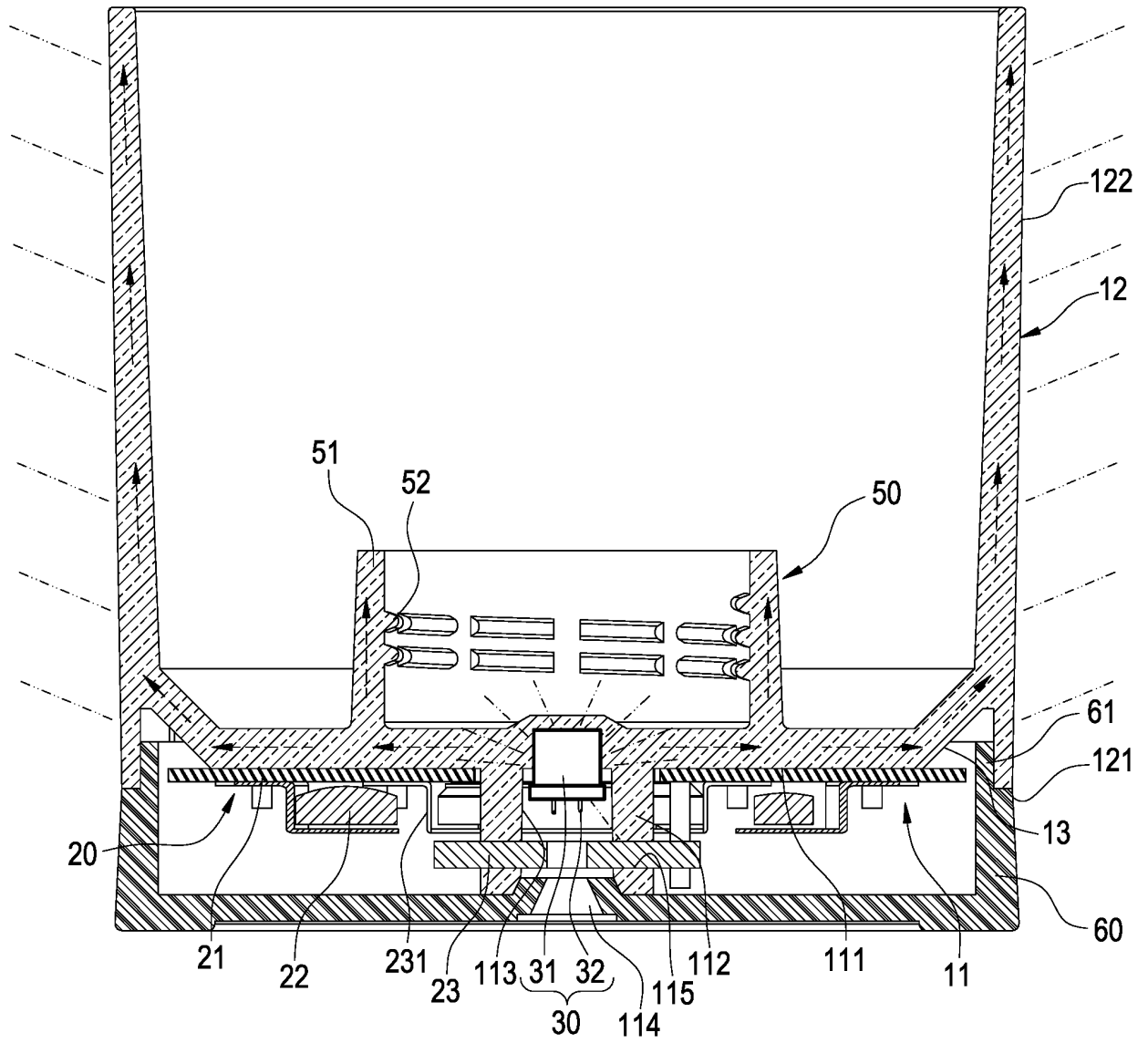


FIG.4

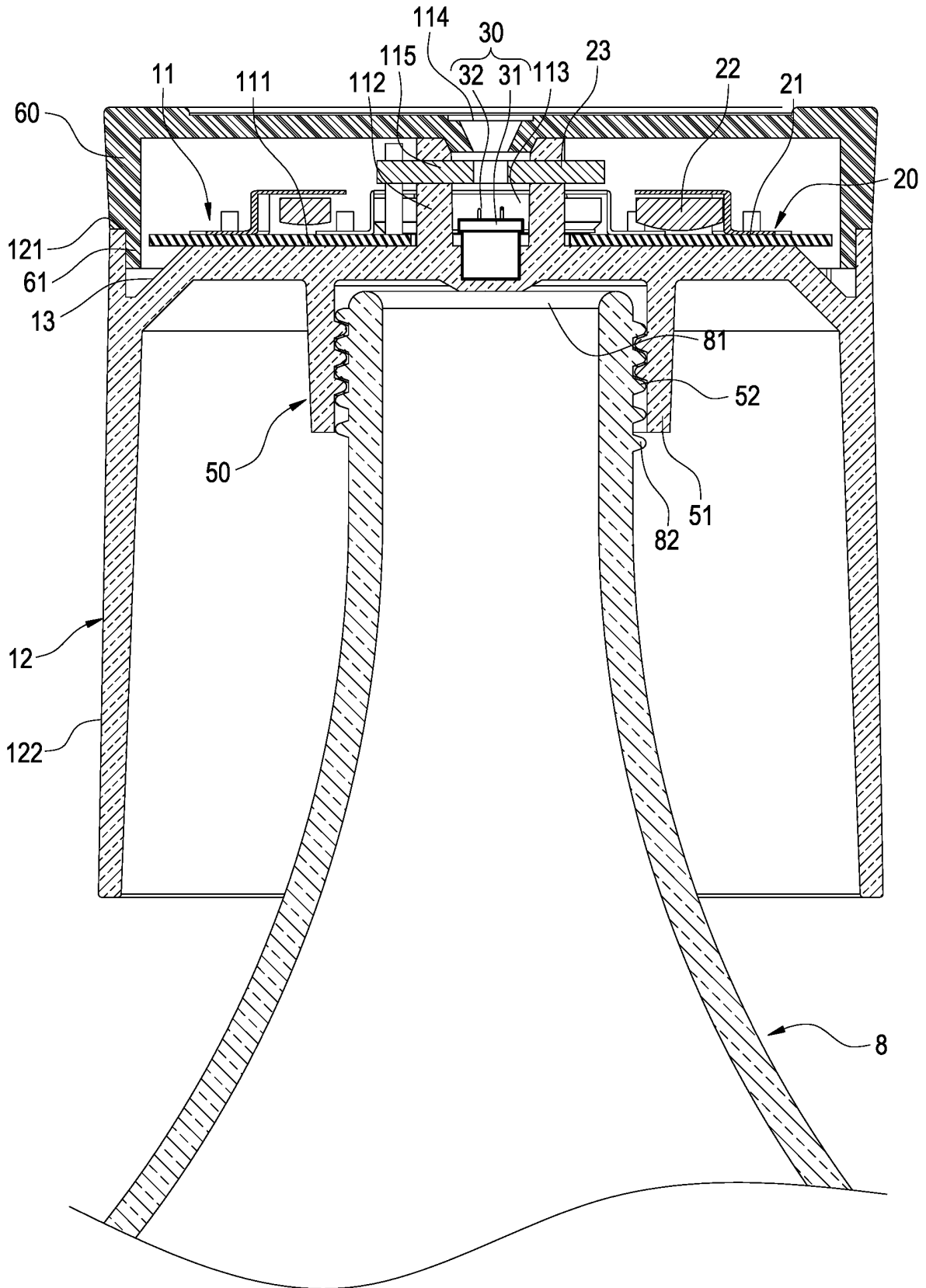


FIG.5

REFERENCES CITED IN THE DESCRIPTION

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