



(11) **EP 3 235 756 A1**

(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
25.10.2017 Bulletin 2017/43

(51) Int Cl.:
B65D 51/24 (2006.01) **B65D 55/02** (2006.01)
B65D 47/36 (2006.01)

(21) Application number: **15869370.5**

(86) International application number:
PCT/CN2015/097971

(22) Date of filing: **18.12.2015**

(87) International publication number:
WO 2016/095863 (23.06.2016 Gazette 2016/25)

(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
Designated Extension States:
BA ME
Designated Validation States:
MA MD

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(30) Priority: **18.12.2014 CN 201420813867 U**
18.12.2014 CN 201420817978 U
20.04.2015 CN 201520241700 U
18.06.2015 CN 201520425861 U
17.07.2015 CN 201520523121 U
25.08.2015 CN 201520648110 U

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(54) **BOTTLE CAP PROVIDED WITH IDENTIFICATION CODE**

(57) The present invention discloses a bottle cap, wherein the bottle cap has an identification code (two-dimensional code or digital code) in a preset region, and due to flexible use of the identification code, the bottle

cap realizes application to commodity anti-counterfeiting, point accumulating marketing, product tracing, goods fleeing prevention and other aspects.

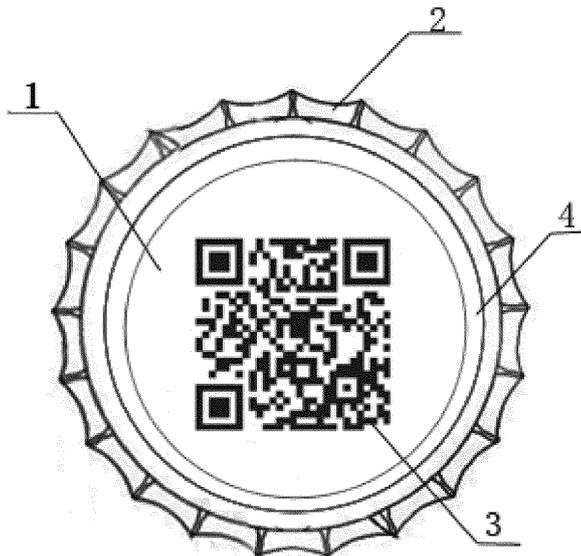


FIG. 1

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Description

BACKGROUND

TECHNICAL FIELD

[0001] The invention relates to a bottle cap for packaging fast moving consumer goods, in particular to a bottle cap with an identification code (two-dimensional code or digital code) in a preset region, thereby realizing the bottle cap applied to commodity anti-counterfeiting, point accumulating marketing, product tracing, goods fleeing prevention and other aspects.

RELATED ART

[0002] Along with popularization of intelligent phones, people increasingly depend on a cellphone to obtain various pieces of information. It is an important means to obtain the information by using two-dimensional code application taking the cellphone as an important inlet. At present, no matter pamphlets, newspaper, television or internet all contain massive two-dimensional codes. A consumer can connect the cellphone to a designated webpage to obtain a content by using the cellphone to slightly swipe the two-dimensional code on various media.

[0003] Although being very popular in application, the two-dimensional codes are mainly concentrated on application of product propagation. Currently, the two-dimensional codes are not much too applied in aspects of fast moving consumer goods such as beverage, alcohols, health care products, seasonings, etc., even one of the products has uses the two-dimensional code, one type of products has one code which is similar to a one dimensional code on the product and only intends to facilitate the consumer to quickly obtain product information instead of anti-counterfeiting.

[0004] Since competition of a selling market is fierce day by day, products, especially famous brand products, of many manufacturers have a huge risk of counterfeiting, as so far, the manufacturers invest a lot in anti-counterfeiting and source tracing of the products. But as a fact that one product has one code is not realized, the anti-counterfeiting effect is slight. Several anti-counterfeiting techniques realize the fact that one product has one code, but due to huge investment, a consumer positive anti-counterfeiting method is complex and lags behind, an anti-counterfeiting and source tracing rate of the products is relatively low, and a real anti-counterfeiting and source tracing action is not realized.

[0005] In daily life, bottled liquid fast moving consumer goods are common, bottle caps used for product packaging are various, and common bottle caps comprise spiral bottle caps, tinplate bottle caps (also called as crown caps) and pull ring bottle caps, etc. The spiral bottles caps are mainly used for mineral water and beverage of plastic package, the tinplate bottle caps are mainly used

for beer and beverage of glass bottles, and the pull ring bottle caps are mainly used for edible oil, soybean sauce, vinegar, etc. In prior art, for the bottle cap-based anti-counterfeiting code, a label with an anti-counterfeiting coating or a label which remains remaining a bottom after being uncovered is pasted to the bottle cap, but a defect of using these two labels is that the labels are very easily and maliciously scraped or uncovered by people by a retail market.

SUMMARY

[0006] A technical problem of the present invention is to provide a bottle cap with an identification code. The bottle cap has the identification code in a predetermined region, which can be used for realizing applications of commodity anti-counterfeiting, point accumulating marketing, product tracing, goods fleeing prevention and other aspects.

[0007] In order to realize the objective of the present invention, according to a first aspect of the present invention, there is provided an anti-counterfeiting bottle cap, comprising a cap body, an information layer, an adhesive layer and a sealing gasket, wherein the information layer is sprayed to the inner wall of the top of the cap body; and the upper surface of the sealing gasket is pasted to the inner side of the top of the cap body printed with the information layer, and the edge of the lower surface of the sealing gasket is provided with an annular sealing groove allowing a bottle opening to embed.

[0008] More preferably, the information layer is a two-dimensional code or digital code printed by ink.

[0009] According to a second aspect of the present invention, there is provided a bottle cap with an anti-counterfeiting label, which comprises a bottle cap body and an anti-counterfeiting label; the anti-counterfeiting label comprises at least a four-layer structure: a plastic thin film layer, a holographic information layer, an ink information layer and an adhesive layer from top to bottom in sequence; the anti-counterfeiting label is attached to the outer side of a top cap of the bottle cap by the adhesive layer; and the top cap of the bottle cap body is made of a transparent plastic or semi-transparent plastic material.

[0010] More preferably, the ink information layer is a printed two-dimensional code or digital code.

[0011] More preferably, the bottle cap comprises a cap wall and the top cap; the outer side of the cap wall is provided with vertical antiskid textures, and the inner side is provided with spiral textures matched with threads at a bottle opening; and the inner wall of the top cap is provided with an inner seal ring in liquid and gas sealing with the inner wall of the bottle opening and an outer seal ring in liquid and gas sealing with the outer wall of the bottle opening.

[0012] According to a third aspect of the present invention, there is provided a pull ring bottle cap with paired

anti-counterfeiting codes, which comprises an upper cap body and a lower cap body; a tearable inner plug piece and a pull ring are arranged in the lower cap body; and the upper surface of the upper cap body is provided with a two-dimensional code; and the lower surface of the inner plug piece is provided with a second anti-counterfeiting code, corresponding to the two-dimensional code one to one.

[0013] More preferably, the two-dimensional code contains URL linking information.

[0014] More preferably, the second anti-counterfeiting code is a digital code.

[0015] More preferably, the two-dimensional code arranged on each bottle cap is unique.

[0016] More preferably, the upper cap body and the lower cap body are connected by a connecting piece or rotating shaft.

[0017] More preferably, the upper cap body is provided with an inner press cylinder therein, the top of the lower cap body is provided with a flow guide port, and when the upper cap body is overturned, the inner press cylinder is embedded into the flow guide port.

[0018] More preferably, a tearing line is arranged between the inner plug piece and the flow guide port; or the inner plug piece is connected to an interior of the flow guide port by an indentation line.

[0019] Or, more preferably, the inner wall of the upper cap body is provided with threads, and external threads are arranged at the coincided positions of the lower cap body and the upper cap body.

[0020] According to a fourth aspect of the present invention, there is provided a bottle cap with double identification codes, which comprises a cap body; a two-dimensional code information layer, an adhesive layer and an edible sealing gasket are downwards arranged at the inner side of the cap body in sequence; and a bottom ink layer and a surface ink layer are upwards arranged at the top side of the cap body in sequence; the bottle cap further comprises a character code information layer, and the character code information layer is a visible bottom ink layer exposed after a partial area of the surface ink layer is removed.

[0021] More preferably, the character code information layer consists of letters and/or numbers and is arranged in one row or divided into multiple rows for arraying.

[0022] More preferably, the two-dimensional code information layer and the character code information layer are associated in information, and in addition, the two-dimensional code information layers arranged on different bottle caps are different in information, and the character code information layers arranged on different bottle caps are different in information.

[0023] More preferably, the cap body is made of a metallic material.

[0024] More preferably, the cap body is a crown cap comprising a top and a skirt.

[0025] More preferably, a printed pattern layer is arranged between the bottom ink layer and the surface ink

layer.

[0026] According to a fifth aspect of the present invention, there is provided a bottle cap with three identification codes, which comprises a cap body, wherein a bottom ink layer and a surface ink layer are upwards arranged on the top side of the cap body in sequence; the bottle cap further comprises an information layer; the information layer is a visible bottom ink layer exposed after a partial area of the surface ink layer is removed, the information layer comprises a first two-dimensional code information layer and a character code information layer which are arranged at different regions of the top of the bottle cap;

[0027] A second two-dimensional code information layer, an adhesive layer and a sealing gasket are downwards arranged at the inner side of the cap body in sequence.

[0028] More preferably, the first two-dimensional code information layer and the character code information layer are same in information.

[0029] Or, more preferably, the first two-dimensional code information layer and the character code information layer are different in information.

[0030] More preferably, the first two-dimensional code information layer, the second two-dimensional code information layer and the character code information layer are associated in information, and in addition, the first two-dimensional code information layers arranged on different bottle caps are different in information, the second two-dimensional code information layers arranged on different bottle caps are different in information and the character code information layers arranged on different bottle caps are different in information.

[0031] More preferably, the character code information layer consists of letters and/or numbers and is divided into one row or multiple rows for arraying.

[0032] More preferably, the information in the character code information layer comprises data characters and error correction characters, wherein the error correction characters are obtained by the data characters according to an error correction algorithm.

[0033] More preferably, the cap body is made of a metallic material and the cap body is a crown cap comprising a top and a skirt.

[0034] More preferably, a printed pattern layer is arranged between the bottom ink layer and the surface ink layer.

[0035] According to a sixth aspect of the present invention, there is provided a bottle cap with double two-dimensional code information layers, which comprises a cap body, wherein a bottom ink layer and a surface ink layer are upwards arranged on the top side of the cap body in sequence; the bottle cap further comprises a first two-dimensional code information layer; the first two-dimensional code information layer is a visible bottom ink layer exposed after a partial area of the surface ink layer is removed, and a second two-dimensional code information layer, an adhesive layer and a sealing gasket are

downwards arranged at the inner side of the cap body in sequence.

[0036] More preferably, the area of the first two-dimensional code information layer to the total area of the cap body is not smaller than 10%.

[0037] More preferably, a character code information layer is further arranged at the top side of the cap body and consists of letters and/or numbers and is divided into one row or multiple rows for arraying.

[0038] More preferably, the first two-dimensional code information layer and the character code information layer are positioned at the same side region of the cap body.

[0039] More preferably, the information in the character code information layer comprises data characters and error correction characters, wherein the error correction characters are obtained by the data characters according to an error correction algorithm.

[0040] More preferably, the first two-dimensional code information layer, the second two-dimensional code information layer and the character code information layer are associated in information, and in addition, the first two-dimensional code information layers arranged on different bottle caps are different in information, the second two-dimensional code information layers arranged on different bottle caps are different in information and the character code information layers arranged on different bottle caps are different in information.

[0041] More preferably, a printed pattern layer is arranged between the bottom ink layer and the surface ink layer.

[0042] More preferably, the first two-dimensional code information layer and the printing pattern layer respectively are positioned at different regions of the cap body, or the first two-dimensional code information layer and the printed pattern layer are overlapped.

[0043] More preferably, the bottom ink layer is a fluorescent or transparent bottom oil layer.

[0044] More preferably, a two-dimensional code in the first two-dimensional code information layer is a DM code, and a two-dimensional code in the second two-dimensional code information layer is a QR code.

[0045] The bottle cap according to the present invention is simple in structure and convenient to use. In addition, the identification code (two-dimensional code or digital code) is arranged at the predetermined region of the bottle cap, thereby not only meeting normal information query requirements in a production and selling process, but also preventing the identification code participating in an activity from being damaged or counterfeited in the selling process and ensuring legal rights of a manufacturer and a consumer.

BRIEF DESCRIPTION OF THE DRAWINGS

[0046]

FIG. 1 is a bottom view of an anti-counterfeiting bottle cap in a first group of embodiments of the present

invention;

FIG. 2 is a schematic diagram of a cap body in the first group of embodiments of the present invention;

FIG. 3 is a sectional view of an anti-counterfeiting bottle cap in a first group of embodiments of the present invention;

FIG. 4 is a structural schematic diagram of an anti-counterfeiting label in a second group of embodiments of the present invention;

FIG. 5 is a structural schematic diagram of a bottle cap body in the second group of embodiments of the present invention;

FIG. 6 is a bottom view of a bottle cap body in the second group of embodiments of the present invention;

FIG. 7 is a structural schematic diagram of a bottle cap body in the second group of embodiments of the present invention;

FIG. 8 is a structural schematic diagram of a bottle cap body in the second group of embodiments of the present invention;

FIG. 9 is a structural schematic diagram of a first pull ring bottle cap in a third group of embodiments of the present invention;

FIG. 10 is a three dimensional structural schematic diagram of the first pull ring bottle cap in the third group of embodiments of the present invention;

FIG. 11 is a three dimensional structural schematic diagram of a second pull ring bottle cap in the third group of embodiments of the present invention;

FIG. 12 is a top structural schematic diagram of the second pull ring bottle cap in the third group of embodiments of the present invention;

FIG. 13 is a sectional structural schematic diagram of a bottle cap with double identification codes in a fourth group of embodiments of the present invention;

FIG. 14 is a front schematic diagram of the bottle cap with double identification codes in the fourth group of embodiments of the present invention;

FIG. 15 is a rear schematic diagram of the bottle cap with double identification codes in FIG. 14;

FIG. 16 is a front schematic diagram of another em-

bodiment in the fourth group of embodiments of the present invention;

FIG. 17 is a rear schematic diagram of the bottle cap with double identification codes in FIG. 16;

FIG. 18 is a front schematic diagram of the bottle cap with three identification codes in a fifth group of embodiments of the present invention;

FIG. 19 is a rear schematic diagram of the bottle cap as shown in FIG. 18;

FIG. 20 is an A-A sectional structural schematic diagram of the bottle cap as shown in FIG. 18;

FIG. 21 is a front schematic diagram of the bottle cap with double two-dimensional code information layers in a sixth group of embodiments of the present invention;

FIG. 22 is a rear schematic diagram of the bottle cap as shown in FIG. 21; and

FIG. 23 is an A-A sectional structural schematic diagram of the bottle cap as shown in FIG. 21.

DETAILED DESCRIPTION

[0047] Technical content of the present invention is described in detail in combination with drawings and specific embodiments.

[0048] In a first group of embodiments of the present invention, there is provided a bottle cap with an anti-counterfeiting function (short for anti-counterfeiting bottle cap), comprising a cap body, an information layer, an adhesive layer and a sealing gasket, wherein the information layer is positioned at the inner side of the top of the cap body. In one embodiment of the present invention, the information layer is a two-dimensional code. The information layer can also be a digital code or a character code. The sealing gasket covers the top of the cap body and is pasted to the top of the cap body by the adhesive layer, thereby on one hand, being used for sealing the information layer, and on the other hand, realizing liquid and gas isolation between the interior and exterior of a bottle. The information layer is sealed to the top of the cap body by the transparent sealing gasket pasted by the adhesive layer, thereby facilitating a consumer to obtain the information carried by a two-dimensional code and preventing liquid from being polluted and the two-dimensional code from being damaged.

Embodiment 1

[0049] Refer to FIG. 1, an anti-counterfeiting bottle cap in the present embodiment is made of a metallic material, and the cap body comprises a top 1 and a skirt 2. A two-

dimensional code 3 is formed by spraying a solvent such as ink to the middle of the inner side of the top 1. When the bottle cap is produced, the two-dimensional code is precisely sprayed on a designated position by a special UV ink spraying device on a whole iron sheet. The transparent adhesive layer is added on the iron sheet and adhesive is dried by a drying device. Then the whole iron sheet is machined into bottles cap one by one. Then the sealing gasket is pasted to the top of the bottle cap by using a high temperature device. The information layer can be isolated from the alcohol liquid in the bottle by the sealing gasket, the information layer is prevented from being damaged by dissolving of the liquid, and pollution to the liquid is avoided.

[0050] The sealing gasket 4 is a round transparent silica gel gasket, the upper surface seals the information layer in a two-dimensional code manner by the adhesive layer, and the edge of the lower surface adopts an annular groove-like structure which is matched with the top of the cap body in size; after the bottle cap is covered, a bottle opening can be embedded into the sealing groove to isolate liquid in the bottle from outside; and the sealed edge of the sealing gasket is prevented from being corroded by the liquid, and from falling off.

[0051] According to the present invention, the two-dimensional code is sealed in the bottle cap by the sealing gasket 4, so that each bottle of beverage or wine has a two-dimensional code of unique identity, thereby facilitating manufacturer inspection personnel to recognize a beer bottle cap to query goods fleeing information by a special device or cellphone and meanwhile obtaining anti-counterfeiting information of commodity.

Embodiment 2

[0052] Refer to FIG. 2, an anti-counterfeiting bottle cap in the present embodiment is made of a plastic material, and the cap body comprises an upper cap body 21 and a lower cap body 22. The information layer is sprayed or printed to the inner side of the upper cap body. The upper surface of the sealing gasket 4' (not shown in the figure) is pasted to the inner side of the upper cap body 21 by an adhesive layer and is used for sealing the information layer and preventing liquid in the bottle from corroding the information layer; the edge of the lower surface thereof is also provided with a sealing groove for matching with the edge of a threading part 23 of the lower cap body 22. The lower cap body comprises the spiral part 23 at the upper end and a cap wall 24 at the lower end; and the inner side of the cap wall 24 is provided with threads or a snap ring matched with a bottle body.

Embodiment 3

[0053] Refer to FIG. 3, an anti-counterfeiting bottle cap in the present embodiment comprises a cap body, comprising a cylindrical cap wall 31 and a top cap 32. An information layer is sprayed or printed at the inner side

of the top cap 32. The inner wall of the cap wall is provided with threads 33 matched with a bottle opening. The upper surface of a sealing gasket seals the information layer by an adhesive layer, and the edge of the lower surface is also provided with a sealing groove 34 for matching with the edge of a bottle opening.

[0054] According to the anti-counterfeiting bottle cap in the present embodiment, a two-dimensional code is sealed in the bottle cap by the sealing gasket and the anti-counterfeiting bottle cap has following beneficial effects: (1) after a consumer opens the bottle cap, anti-counterfeiting information query can be performed by the two-dimensional code; (2) liquid is prevented from being polluted and the two-dimensional code is prevented from being polluted; (3) for marketing activities such as point accumulating and lottery drawing, the consumer opens the bottle cap, and then the consumer can connect to a background by scanning the two-dimensional code with a cellphone, and participates into the point accumulating and lottery drawing activities; and (4) each bottle cap is printed with a unique two-dimensional code, manufacturer inspection personnel can query goods fleeing information by using a special device or the cellphone to recognize a beer bottle cap.

[0055] In a second group of embodiments of the present invention, there is provided a bottle cap with an anti-counterfeiting label, which comprises a bottle cap body and an anti-counterfeiting label. The anti-counterfeiting label is attached to the outer side of the top of the bottle cap body. Refer to FIG. 4, the anti-counterfeiting label comprises a four-layer structure: a plastic thin film layer 1, a holographic information layer 2, an ink information layer 3 and an adhesive layer 4 from top to bottom in sequence, wherein the holographic information layer 2 is reversely printed on the plastic thin film layer 1, and can be printed with a product brand, a product name and other special patterns or anti-counterfeiting marks. The holographic information layer 2 has different images when observed from different angles, and generates a rainbow effect. The ink information layer 3 is printed in the middle of the holographic information layer 2. Specifically, the ink information layer 3 in the present embodiment is two-dimensional code information. The bottom-most layer of the anti-counterfeiting label is the adhesive layer 4, by which, the anti-counterfeiting label can be attached to the outer side of the top cap. The anti-counterfeiting label of the present invention adopts a composite structure, and thus has non-transferability. Once the anti-counterfeiting label is torn open, no chance of recovery exists, thereby achieving certain anti-counterfeiting effect.

Embodiment 4

[0056] Refer to FIG. 5, a bottle cap body in the present embodiment comprises a cap body 11 and a breaking ring 12. The cap body 11 comprises a cylindrical cap wall 13 and a top cap 14. The outer side of the cap wall 13 is

provided with vertical antiskid textures 15, and the inner side is provided with spiral textures 16 matched with threads at a bottle opening position. The top cap is made of a transparent plastic material, and the inner wall is provided with an inner seal ring 17 in liquid and gas sealing with the inner wall of the bottle opening and an outer seal ring 18 in liquid and gas sealing with the outer wall of the bottle opening respectively. The inner seal ring is higher than the outer seal ring. A positioning snap ring 19 is arranged at the inner side of the breaking ring 12. A breaking line is arranged between the breaking ring 12 and the cap body 11. When the bottle cap is opened, the breaking line is broken, the cap body is opened by rotated and the whole cap body can be opened.

[0057] Since the top cap 14 is made of a transparent or semi-transparent plastic material, when the anti-counterfeiting label is attached to the outside side of the top cap, the two-dimensional information (refer to FIG. 6) can be clearly observed from the inner side of the top cap 14 without subsequent operation, and anti-counterfeiting and source tracing can be directly performed on a product by directly scanning a two-dimensional code with an intelligent terminal device. Compared with a manner of printing the two-dimensional information to the inner side of the top cap 14, the present invention has the advantage of effectively reducing pollution to liquid in a bottle and damage to information since the information is printed into the bottle cap.

Embodiment 5

[0058] Refer to FIG. 7, the bottle cap body in the present embodiment comprises an upper cap body 21, a hinging part 23 and a lower cap body 23. The upper cap body is connected to the lower cap body 23 by the hinging part 22 to realize opening and closing of the cap body. Threads matched with a bottle opening are arranged at the inner side of the lower cap body 23. In the present embodiment, an anti-counterfeiting label is attached to the outer side of the upper cap body 21. The upper cap body 21 in the present embodiment is made of a transparent or semi-transparent plastic material. The anti-counterfeiting label is pasted to the upper cap body 21. After the upper cap body is opened, associated information of a product can be observed and queried from the inner side of the upper cap body 21.

Embodiment 6

[0059] Refer to FIG. 8, a bottle cap body in the present embodiment is made of a plastic material and comprises an upper cap body 31 and a lower cap body 32. The upper end of the lower cap body is provided with a threading part 33 for matching with the threads in the cap wall of the upper cap body. Threads or a snap ring is arranged at the inner side of the cap wall of the lower cap body and is used for matching with a bottle opening and realizing connection. The top of the upper cap body is made

of a transparent or semi-transparent plastic material, and is used for pasting the anti-counterfeiting label. A consumer can query associated information of a product by screwing up the upper cap body.

[0060] In conclusion, the bottle cap according to the present invention integrates ink information such as the two-dimensional code with the holographic anti-counterfeiting label, and the anti-counterfeiting information such as the two-dimensional code can be observed intuitively through the transparent or semi-transparent plastic bottle cap. The two-dimensional code is hidden at the outer part of the bottle cap, pollution to liquid in the bottle is effectively prevented, and the two-dimensional code is prevented from damaged and counterfeited. Due to non-reuse of the anti-counterfeiting label, an anti-counterfeiting effect of the bottle cap is greatly improved. Each bottle cap is printed with a unique two-dimensional code, and manufacturer inspection personnel can query goods fleeing information by scanning the two-dimensional code of a beer bottle cap with a specific device or cellphone. For marketing activities such as point accumulating and lottery drawing, a consumer can open the bottle cap, and then the consumer can connect to a background by scanning the two-dimensional code with the cellphone, and participates into the point accumulating and lottery drawing activities. In addition, the bottle cap is simple in structure, and the anti-counterfeiting label is non-reusable, thereby greatly improving an anti-counterfeiting effect of the bottle cap.

[0061] In a third group of embodiments of the present invention, there is provided a pull ring bottle cap with paired anti-counterfeiting codes, which comprises an upper cap body and a lower cap body; a tearable inner plug piece and a pull ring are arranged in the lower cap body, in addition, a two-dimensional code is arranged at the upper surface of the upper cap body, and the lower surface of the inner plug piece is provided with a second anti-counterfeiting code, corresponding to the two-dimensional code one to one. The two-dimensional code can comprise independent URL linking information, the second anti-counterfeiting code can be a digital code which is usually 4-6 bits, the two-dimensional code and the digital code are in one to one correspondence, that is, one two-dimensional code corresponds to only one digital code; in addition, the two-dimensional code on each bottle is unique and is equivalent to an account, the digital code is not unique and is equivalent to a password, and a combination of the two-dimensional code and the digital code is unique, thereby uniquely verifying a bottle cap identity. The second anti-counterfeiting code can also be a two-dimensional code. With combination of the two-dimensional code as a account and the two-dimensional code as a password, the paired anti-counterfeiting codes uniquely verify a bottle cap identity.

[0062] Two embodiments are combined for describing a structure of a pull ring bottle cap according to the present invention.

Embodiment 7

[0063] It can be known in combination with FIG. 9 and FIG. 10 that in the present embodiment, the pull ring bottle cap comprises an upper cap body 1 and a lower cap body 2 connected by a connecting piece 3; the upper cap body 1 can be overturned relative to the lower cap body 2; the lower cap body 2 is arranged at the top of a bottle body, a tearable inner plug piece 4 and a pull ring 5 are arranged in the lower cap body 2, and the pull ring 5 is arranged on the inner plug piece 4 and used for pulling the same. When the upper cap body 1 is overturned, the inner plug piece 4 can be taken out of the lower cap body 2 by pulling the pull ring 5, thereby opening the bottle body.

[0064] As shown in FIG. 9, on the pull ring bottle cap, a two-dimensional code 10A is arranged on the upper surface of the upper cap body 1, and a second anti-counterfeiting code 10B is arranged on the lower surface of the inner plug piece 4; the two-dimensional code 10A and the second anti-counterfeiting code 10B are in one to one correspondence and constitute a verification code of single products. A complete verification code of the product can be obtained by only taking down the inner plug piece 4, thereby participating in corresponding activities and obtaining points or draw a lottery. Therefore, the bottle cap is difficult to counterfeit and high in anti-counterfeiting degree. In addition, the two-dimensional code 10A arranged on the upper cap body 1 is unique, and can be directly used for selling source tracing or goods fleeing prevention.

[0065] In the present embodiment, in order to conveniently store liquid in a bottle, corresponding auxiliary structures are arranged on the upper cap body 1 and the lower cap body 2. As shown in FIG. 10, an inner press cylinder 7 is arranged in the upper cap body 1, a flow guide port 6 is formed in the top of the lower cap body, and a tearing line is arranged between the inner plug piece 4 and the flow guide port 6; or the inner plug piece 4 can be connected to an interior of the flow guide port 6 by an indentation line. After the upper cap body 1 is overturned and buckled on the lower cap body 2, the inner press cylinder 7 is tightly embedded into the inner wall of the flow guide port 6 to seal the bottle opening, and the flow guide port 6 can be a complete cylinder or provided with a side opening. Of course, the upper cap body 1 and the lower cap body 2 can be sealed by clamping grooves that are not shown. In addition, in the structure, the upper cap body 1 and the lower cap body 2 can be connected by a rotating shaft, and the upper cap body 1 can rotate around the rotating shaft to realizing opening and closing of the bottle cap.

Embodiment 8

[0066] In combination with FIG. 11 and FIG. 12, in the present embodiment, a pull ring bottle cap comprises an upper cap body 11 and a lower cap body which are sep-

arable and are connected by threads; in addition, multiple tearable connecting ribs can be arranged between the upper cap body 11 and the lower cap body 12, and the connecting ribs can be torn by rotating the upper cap body 11, thereby realizing separating between the upper cap body 11 and the lower cap body 12. The lower cap body 12 is set at the top of a bottle body and has a coinciding part capable of extending into the upper cap body 11, external threads are arranged at the outer wall of the coincided part of the lower cap body 12 and the upper cap body 11, corresponding internal threads are arranged at the inner wall of the upper cap body 11, and the upper cap body 11 is rotated to cover the lower cap body 12, thereby sealing a bottle opening.

[0067] As shown in FIG. 11, an inner plug piece 14 is arranged in the lower cap body 12, and a pull ring 15 for pulling is arranged on the inner plug piece 14; and the inner plug piece 14 is connected to an interior of the lower cap body 12 by a tearing line or an indentation line. By pulling the pull ring 15, the inner plug piece 14 can be taken out of the lower cap body 12 to opening a sealing opening.

[0068] In FIG. 11 and FIG. 12, on the pull ring bottle cap, a two-dimensional code 20A is arranged on the upper surface of the upper cap body 11, and a second anti-counterfeiting code 20B is arranged on the lower surface of the inner plug piece 14; the two-dimensional code 20A and the second anti-counterfeiting code 20B are in one to one correspondence and constitute a verification code of single products. A complete verification code of the product can be obtained by only taking down the inner plug piece 14, thereby participating in corresponding activities and obtaining points or draw a lottery.

[0069] Structures of the two pull ring bottle caps are described as above, the two-dimensional code is arranged at the upper surface of the upper cap body, a second anti-counterfeiting code is arranged at the lower surface of the inner plug piece (sealed in a bottle body), so that a product sealed by the pull ring bottle cap is not easy to counterfeit and good in anti-counterfeiting effect. In addition, the pull ring bottle cap with the paired anti-counterfeiting codes further has the advantages of simplicity in manufacturing and lower cost. A laser engraving device or a code spraying device is adopted to manufacture the two-dimensional code at the front surface of the pull ring bottle cap, and then the digital code corresponding to the two-dimensional code is manufactured on the conveyor belt or at the back of the inner plug piece of the overturned pull ring bottle cap, thereby obtaining the pull ring bottle cap with the paired anti-counterfeiting codes. The second anti-counterfeiting code can also be a two-dimensional code.

[0070] After the pull ring bottle cap is endowed with the codes, a production enterprise uses the pull ring bottle cap to seal a product. When the product with the pull ring bottle cap is invested into the market and purchased by a consumer, the consumer can participate in activities provided by the manufacturer in following manners: (1)

the consumer scans the two-dimensional code on the front surface of the bottle cap by using recognizing software of a cellphone; (2) the consumer accesses to a background by a URL of the two-dimensional code and accesses an activity website of the manufacturer; (3) the consumer is prompted to pull the pull ring open and input the digital code on the back of the inner plug piece; and (4) activity information provided by the manufacturer is shown to participate in the manufacturer activities. Specific activity information can be anti-counterfeiting, points accumulating, lottery drawing, source tracing and other contents, and the manufacturer can further set other activity information.

[0071] In addition, since the two-dimensional code arranged at the upper cap body of the pull ring bottle cap is unique for single products, the manufacturer or consumer can query the source tracing information without opening the cap of the product by scanning the two-dimensional code on the bottle cap. On one hand, the consumer can predict the authenticity of the product in advance, and on the other hand, the manufacturer can query whether goods fleeing exist.

[0072] Compared with the prior art, according to the pull ring bottle cap according to the present invention, paired anti-counterfeiting codes are arranged at the upper surface of the upper cap body and the lower surface of the inner plug piece in the lower cap body. After scanning the two-dimensional code, the consumer can obtain related links, and then pulls the pull ring to tear the inner plug piece open to obtain the second anti-counterfeiting code, thereby participating in activities, points obtaining or lottery drawing. The anti-counterfeiting codes are arranged in pair, and the second anti-counterfeiting code is hidden at the lower surface of the inner plug piece, thereby preventing damage or counterfeiting.

[0073] In a fourth group of embodiments of the present invention, there is provided a bottle cap with dual identification codes. Two embodiments are combined for describing a structure of the bottle cap with dual identification codes.

Embodiment 9

[0074] As shown in FIG. 13, the bottle cap with the dual identification codes according to the present invention comprises a cap body 1; a two-dimensional code information layer 4 and an adhesive layer 8 are downward arranged at the inner side of the cap body 1 in sequence; a bottom ink layer 7 and a surface ink layer 6 are upwards arranged at the top side of the cap body 1; and after a partial area of the surface oil surface 6 is removed by a laser engraving process etc., the exposed visible bottom ink layer 7 forms a character code information layer 3. The character code information layer 3 containing different information can be formed by changing a path of the laser engraving. Information in the character code information layer 3 consists of letters and/or numbers which are shorter in length, thereby facilitating recognition in a

production process and realizing a faster velocity. Character strings in the character code information layer 3 are arranged in one row or multiple rows for arraying. In order not to affect a product appearance, the bottom ink layer 7 adopts fluorescent ink or transparent ink. In addition, a printed pattern layer is arranged between the bottom ink layer 7 and the surface ink layer 6 (not shown in figure).

[0075] In the bottle cap with the dual identification codes according to the present invention, information in the two-dimensional code information layer and information in the character code information layer are associated and have a unique corresponding relationship and constitute two identification codes of the bottle cap. Two-dimensional codes arranged on different bottle caps are different, character codes arranged on different bottle caps are different and the two identification codes respectively become identity identifications of the bottle cap. The two-dimensional code information layer 4 can be used for participating in points accumulating, lottery drawing and other activities after a consumer damages the package. The two-dimensional code information layer 4 is arranged at the inner side (inner surface) of the cap body 1 and can prevent the two-dimensional code participating in the activities from being damaged or counterfeited in a selling process. The character code information layer 3 arranged at the top side of the cap body is used for preventing goods fleeing in a production and selling process.

[0076] As shown in FIG. 14 and FIG. 15, a bottle cap according to the present embodiment is a crown cap made of a metallic material, the cap body comprises a top 11 and a skirt 12. The top 11 is provided with a character information code layer 13 consisting of letters and/or numbers, the character information code layer 13 is engraved at the middle of the top side or a position close to the periphery of the top 11 with a laser engraving device, and can be engraved in one row or a plurality of rows. A two-dimensional code information layer 14 can be formed by spraying a solvent such as ink in the middle of the inner side of the top 11.

[0077] As shown in FIG. 15, a sealing gasket 15 is arranged at the inner side of the crown cap and is arranged at the surface of the adhesive layer and the second two-dimensional code information layer 14. The sealing gasket 15 is made of an edible silica gel material and is arranged to isolate the second two-dimensional code information layer 14 from the liquid in a bottle, the second two-dimensional code information layer 14 is prevented from being dissolved and damaged by liquid, and the second two-dimensional code information layer 14 is prevented from polluting the liquid in the bottle. The sealing gasket 15 is usually a round transparent silica gel gasket and contacts with the adhesive layer with the upper surface. The edge of the lower surface of the sealing gasket 15 has an annular groovy structure, which is matched with the top of the cap body in size; when the bottle cap is covered, a bottle opening can be embedded into a

sealing groove of the sealing gasket 15 to isolate liquid in the bottle from outside; and the sealing edge of the sealing gasket is prevented from being corroded by liquid and from falling off.

[0078] In the present embodiment, information in the second two-dimensional code information layer 14 and information in the character code information layer 13 which are arranged on the bottle cap correspond to and are associated with each other, and a production manufacturer or dealer can determine a two-dimensional code at the inner side of the bottle cap by recognizing the character code at the outer side of the bottle cap, thereby ensuring that the normal proceeding of the marketing activity is ensured by regulating a lottery winning range of the two-dimensional code. Each bottle of beverage or beer has unique identity by arranging different two-dimensional codes at the inner side of each bottle cap, and a consumer can participate into the activity of the manufacturer by obtaining the two-dimensional code.

Embodiment 10

[0079] As shown in FIG. 16 and FIG. 17, the present embodiment provides an injection molding plastic bottle cap. A cap body comprises an upper cap body and a lower cap body which are separable; and a plurality of connecting ribs is arranged between the upper cap body and the lower cap body. The upper cap body is rotated to tear the connecting ribs and realize separating between the upper cap body and the lower cap body. The lower cap body is arranged at the top of a bottle body and realizes connection between the bottle cap and the bottle body. In addition, corresponding threads are arranged at the inner side of the upper cap body and the outer side of the bottle opening, and sealing between the bottle cap and the bottle body is realized.

[0080] In the present embodiment, a character code information layer 23 is arranged at the top side of the upper cap body, a two-dimensional code information layer 24 is arranged at the inner side of the upper cap body, and information in the character code information layer 23 and information in the two-dimensional code information layer 24 are associated and correspond to each other. The character code information layer 23 and the two-dimensional code information layer 24 can be shaped by injection molding together with the plastic cap body 20, or formed on the plastic cap body 20 by a laser engraving process, etc.

[0081] The above two embodiments respectively introduce a technical solution of setting dual identification codes on the crown cap and the separable plastic cap. Similarly, the dual identification codes according to the present invention can be arranged on bottle caps of other structures, for example, the dual identification codes are arranged on a bottle cap only comprising a cylindrical cap wall and a top.

[0082] The bottle with the dual identification codes according to the present invention is described by exam-

pling. The character codes are arranged on the top side (external surface) of the cap body and are used for preventing goods fleeing in a production and selling process; and the two-dimensional code is arranged at the inner side (internal surface) of the cap body and can be used for a consumer to participate activities such as points accumulating and lottery drawing after the consumer damages a package. The information in the two-dimensional code information layer and information in the character code information layer are associated, have a unique corresponding relationship and constitute two identification codes of the bottle cap. The two-dimensional codes and character codes arranged on different bottle caps are different and become unique identity of the bottle cap. By associating the character codes and the two-dimensional codes in a production chain, normal proceeding of the marketing activities is ensured, and the two-dimensional code is prevented from being simulated or damaged in a selling chain.

[0083] The bottle cap according to the present invention is simple in structure and convenient to use. The dual identifications codes are arranged on the bottle cap, thereby meeting normal information query requirements in a production and selling process, preventing the two-dimensional code participating in the activities from being damaged and counterfeited in a selling process, and ensuring legal rights of a manufacturer and a consumer at the same time.

[0084] In a fifth group of embodiments of the present invention, there is provided a bottle cap with three identification codes.

[0085] In combination with structural schematic diagrams as shown in FIG. 18, FIG. 19 and A-A sectional structural schematic diagrams as shown in FIG. 20, the bottle cap with three identification codes according to the present invention comprises a cap body. A bottom ink layer 17 and a surface ink layer 18 are upwards arranged on the top side of the cap body in sequence, and the visible bottom ink layer 17 exposed after a partial area of the surface ink layer 18 is removed by a laser engraving process, etc. forms an information layer. The information layer comprises a first two-dimensional code information layer 14 and a character code information layer 13 (refer to FIG. 18 and FIG. 20). In order not to affect a product appearance, the bottom ink layer 17 adopts fluorescent ink or transparent ink. In addition, a printed pattern layer (not shown in figure) is arranged between the bottom ink layer 17 and the surface ink layer 18. A second two-dimensional code information layer 15, an adhesive layer and a sealing gasket 16 (see FIG. 19) are downwards arranged at the inner side of the cap body in sequence. Information of the first two-dimensional code information layer 14, information in the second two-dimensional code information layer 15 and information in the character code information layer 13, which are arranged on different bottle caps are different; the information of the first two-dimensional code information layer 14, the information in the second two-dimensional code information layer 15 and the information in the character code information layer 13, which are arranged on the same bottle cap correspond to each other. Therefore, the information of the first two-dimensional code information layer 14, the information in the second two-dimensional code information layer 15 and the information in the character code information layer 13 constitute three identification codes of the bottle cap together.

er 15 and the information in the character code information layer 13, which are arranged on the same bottle cap correspond to each other. Therefore, the information of the first two-dimensional code information layer 14, the information in the second two-dimensional code information layer 15 and the information in the character code information layer 13 constitute three identification codes of the bottle cap together.

[0086] Specifically, the bottle cap as shown in FIG. 18 and FIG. 19 is a crown cap made of a metallic material, and a cap body comprises a top 11 and a skirt 12. The top side of the top 11 is provided with a character code information layer 13 and a first two-dimensional code information layer 14. The information in the character code information layer 13 consists of letters and/or numbers which are shorter in length, thereby facilitating recognition in a production process and realizing a faster recognition process; information in the first two-dimensional code information layer also facilitates recognition, and many kinds of two-dimensional code recognizers suitable for handheld use or use of a portable terminal exist in prior art.

[0087] The character code information layer 13 consists of letters and/or numbers, and the character code information layer 13 can be engraved in the middle of the top side or the position close to the periphery of the top 11 by a laser engraving device and can be engraved in one row or multiple rows. Information in the character code information layer 13 can only comprise data characters and can further comprise data characters and error correction characters. The error correction characters are obtained by the data characters according to an error correction algorithm. A coding method and decoding method for the character codes constituted by the data characters and the error correction characters can refer to the specification disclosed in Chinese Invention Patent Application CN201510363185.7 and is not repeated herein. The character codes with an error correction function are used to prevent the character codes from being misread in a use process.

[0088] The first two-dimensional code information layer 14 is also engraved at the middle of the top side or the position close to the periphery of the top 11 by a laser engraving device. The character code information layer 13 and the first two-dimensional code information layer 14 are arranged in different regions of the top side of the cap body. Information in the first two-dimensional code information layer 14 and information in the character code information layer 13 can be same. A two-dimensional code in the first two-dimensional code information layer 14 can be a two-dimensional code formed by coding the information in the character code information layer. The information in the first two-dimensional code information layer 14 can also be different from the information in the character code information layer 13.

[0089] The information in the first two-dimensional code information layer 14 and the information in the character code information layer 13 are used for preventing

goods fleeing and source tracing querying and can also be used for other purposes. When the information in the first two-dimensional code information layer 14 and the information in the character code information layer 13 are used for preventing goods fleeing simultaneously, the first two-dimensional code information layer at the top side of the cap is scanned or the information in the character code information layer is input into a query system in a machine recognition or manual inputting manner to perform goods fleeing query on the bottle cap, and source tracing query can also be performed. In an actual query process, one of the manners can be selected for use, the character code or two-dimensional code can be automatically recognized for fast query when a scanning device exists and the character code information can be input into the query system for query when no scanning device exists.

[0090] As shown in FIG. 19, a second two-dimensional code information layer 15 is arranged at the inner side (internal surface) of the cap body, and the second two-dimensional code information layer 15 can be an information layer formed by spraying a solvent such as ink to the middle of the top 11. As the second two-dimensional code information layer 15 is arranged at the inner side of the bottle cap and cannot be obtained by a consumer before purchasing, the second two-dimensional code information layer 15 can be used for the consumer to participate in activities such as points integrating and lottery drawing after the consumer damages a package, and can be used for anti-counterfeiting.

[0091] A sealing gasket 16 is commonly arranged at the inner side of the crown cap, and the sealing gasket 16 is arranged at the surface of the second two-dimensional code information layer 15 and an adhesive layer. The sealing gasket 16 is made of an edible silica gel material, and is arranged to isolate the second two-dimensional code information layer 15 from liquid in a bottle, and prevent the liquid from dissolve and damage the second two-dimensional code information layer 15 and prevent the second two-dimensional code information layer from polluting the liquid in the bottle. The sealing gasket 16 is usually a round transparent silica gel gasket, the upper surface of which contacts with the adhesive layer, and the edge of the lower surface of the sealing gasket 16 has an annular groove-like structure which is matched with the top of the cap body in size; after the bottle cap is covered, a bottle opening can be embedded into the sealing groove of the sealing gasket 16 to isolate the liquid in the bottle from outside; and the sealed edge of the sealing gasket is prevented from being corroded by the liquid and from falling off.

[0092] In the bottle cap with the three identification codes according to the present invention, information in the first two-dimensional code information layer, information in the second two-dimensional code information layer and information in the character code information layer are associated, have a unique corresponding relation and constitute three identification codes. The information

in the first two-dimensional code information layer arranged on different bottle caps is different, the information in the second two-dimensional code information layer arranged on different bottle caps is different and the information in the character code information layer arranged on different bottle caps is different. The character code information layer and the first two-dimensional code information layer at the top side of the cap body can be used simultaneously for goods fleeing prevention in a production and selling process. The bottle cap provides two goods fleeing querying manners, automatic recognition fast query can be realized when a scanning device exists and character code information can be manually input into a query system for query when no scanning device exists, use is convenient, and the bottle cap is suitable for various selling environments. The product can be subjected to goods fleeing preventing or source tracing querying by any identification code in the two identification codes. The second two-dimensional code information layer arranged at the inner side of the bottle cap is used for points accumulating, lottery drawing and other activities after a consumer damages a package and can also be used for anti-counterfeiting query. The second two-dimensional code information layer is arranged at the inner side of the cap body, and which can prevent a second two-dimensional code participating the activity from being damaged or counterfeited.

[0093] In addition, the information in the first two-dimensional code information layer, the information in the second two-dimensional code information layer and the information in the character code information layer correspond to one another and are associated, and a production manufacturer or dealer can determine a two-dimensional code at the inner side of the bottle cap by recognizing the character code at the outer side of the bottle cap, thereby ensuring that the normal proceeding of the marketing activity is ensured by regulating a lottery winning range of the two-dimensional code. Each bottle of beverage or beer has unique identity by arranging different two-dimensional codes at the inner side of each bottle cap, and a consumer can participate into the activity of the manufacturer by obtaining the two-dimensional code.

[0094] Therefore, the three identification codes are arranged on the bottle cap, thereby meeting the normal information query requirements in a production and selling process, preventing the two-dimensional code participating in the activity from being damaged or counterfeited in a selling process and ensuring legal rights of the manufacturer and the consumer. In addition, the bottle cap provides two goods fleeing query manners, automatic fast query can be performed when a scanning device exists, and character code information can be manually input into the query system for query when no scanning device exists, and use is convenient.

[0095] The crown cap with three identification codes is introduced in above embodiment. The three identification codes according to the present invention can be ar-

ranged on a bottle cap of other structures, for example, the three identification codes are arranged on an injection molding bottle cap only comprising a cylindrical cap wall and a top.

[0096] According to the bottle cap with three identification codes according to the invention, the character code information layer and the first two-dimensional code information layer are arranged at the top side (external surface) and are used for preventing goods fleeing in a production and selling process, the information in the first two-dimensional code information layer and the information in the character code information layer can be same or different; the second two-dimensional code information layer is arranged at the inner side (internal surface) and is used for the consumer to participate in points accumulating, lottery drawing and other activities after the consumer damages the package. The information in the first two-dimensional code information layer, the information in the second two-dimensional code information layer and the information in the character code information layer are associated, have a corresponding relation and constitute three identification codes. The first two-dimensional code information layer at the top side of the cap body is scanned or the information in the character code information layer is input into a query system to perform goods fleeing query on the bottle cap and source tracing query can also be performed, and by scanning the second two-dimensional code information layer at the inner side of the bottle cap, the consumer can participate in the activities and can perform anti-counterfeiting query.

[0097] The bottle cap according to the present invention is simple in structure and convenient to use, and in addition, the three identifications codes are arranged on the bottle cap, thereby meeting normal information query requirements in a production and selling process, preventing the two-dimensional code participating in the activities from being damaged and counterfeited in a selling process and ensuring legal rights of a manufacturer and a consumer at the same time. In addition, the bottle cap provides two goods fleeing query manners, automatic fast query can be performed when a scanning device exists, and character code information can be manually input into the query system for query when no scanning device exists, and use is convenient.

[0098] A sixth group of embodiments of the present invention provides a bottle with dual two-dimensional code information layers.

[0099] It can be known from structural schematic diagram as shown in FIG. 21, FIG. 22 and an A-A sectional structural schematic diagram as shown in FIG. 23, the bottle cap with the dual two-dimensional code information layers comprises a cap body. A bottom ink layer 17 and a surface ink layer 18 are upwards arranged at the top side of the cap body in sequence, and the visible bottom ink layer 17 exposed after a partial area of the surface ink layer 18 is removed by a laser engraving process forms a first two-dimensional code information layer 13. In addition, the visible bottom ink layer 17 exposed after

a partial area of the surface ink layer 18 is removed by a laser engraving process forms a character code information layer (not shown in the figure), and the character code information layer and the first two-dimensional code information layer can be arranged at different regions of the top of the cap body and can also be arranged at the same side region of the top of the cap body. By changing a path of laser engraving, the first two-dimensional code information layer 13 and the character code information layer containing different pieces of information can be formed. In order not to affect a product appearance, the bottom ink layer 17 adopts fluorescent ink or transparent ink. In addition, a printed pattern layer is arranged between the bottom ink layer 17 and the surface ink layer 18 (not shown in figure). The first two-dimensional code information layer 13, the character code information layer and the printed pattern layer can be positioned in different regions of the cap body; or one of the first two-dimensional code information layer 13 and the character code information layer, and the printed pattern layer are positioned in the same region, and the other one of the first two-dimensional code information layer 13 and the character code information layer is positioned in the other side region. When the first two-dimensional code information layer 13 and the character code information layer and the printed pattern layer are positioned in the same region, the first two-dimensional code information layer 13 and the character code information layer can be overlapped.

[0100] A second two-dimensional code information layer 15, an adhesive layer and a sealing gasket 16 are downwards arranged at the inner side of the cap body (refer to FIG. 22). Information in the first two-dimensional code information layer 13, the second two-dimensional code information layer 15 and the character code information layer, which are arranged at different bottles caps are different; in addition, the information in the first two-dimensional code information layer 13, the second two-dimensional code information layer 15 and the character code information layer, which are arranged at the same bottle cap are in unique correspondence; and the information in the first two-dimensional code information layer 13, the second two-dimensional code information layer 15 and the character code information layer constitute multiple identification codes of the bottle cap.

[0101] Specifically, the bottle cap as shown in FIG. 21 and FIG. 22 is a crown cap made of a metallic material, the cap body comprises a top 11 and a skirt 12, the top side of top 11 is provided with the first two-dimensional code information layer 13. The first two-dimensional code information layer 13 is engraved at the middle of the top side or a position close to the periphery of the top 11 with a laser engraving device. The area of the first two-dimensional code information layer 13 to the total area of the cap body is not smaller than 10%, and more preferably between 13-20%, thereby ensuring effective recognition on the first two-dimensional code information layer 13. The information in the first two-dimensional code infor-

mation layer 13 can be fast recognized by many kinds of two-dimensional code recognizers suitable for handheld use or use of a portable terminal exist in prior art. By scanning the first two-dimensional code information layer 13 at the top side of the cap body, the bottle cap can be subjected to goods fleeing query, and source tracing query can also be performed.

[0102] As shown in FIG. 22, the second two-dimensional code information layer 15 is arranged at the inner side (internal surface) of the cap body and can be an information layer formed by spraying a solvent such as ink to the middle of the inner side of the top 11. The second two-dimensional code information layer 15 is arranged at the inner side of the bottle cap and thus cannot be obtained by a consumer before purchasing, so the second two-dimensional code information layer 15 can be used for the consumer to participate in activities such as points integrating and lottery drawing after the consumer damages a package and can be used for anti-counterfeiting. The information in the second two-dimensional code information layer 15 and the information in the first two-dimensional code information layer 13 are different. The variety of two-dimensional codes used by the second two-dimensional code information layer 15 and the first two-dimensional code information layer 13 can be same or different. For example, the first two-dimensional code information layer 13 uses a DM code, and the second two-dimensional code information layer 15 uses a QR code.

[0103] A sealing gasket 16 is usually arranged at the inner side of the crown cap and is arranged at the surface of the adhesive layer and the second two-dimensional code information layer 15. The sealing gasket 16 is made of an edible silica gel material and is arranged to isolate the second two-dimensional code information layer 15 from the liquid in a bottle, the second two-dimensional code information layer 15 is prevented from being dissolved and damaged by liquid, and the second two-dimensional code information layer 15 is prevented from polluting the liquid in the bottle. The sealing gasket 16 is usually a round transparent silica gel gasket and contacts with the adhesive layer with the upper surface. The edge of the lower surface of the sealing gasket 16 has an annular groovy structure, which is matched with the top of the cap body in size; when the bottle cap is covered, a bottle opening can be embedded into a sealing groove of the sealing gasket 16 to isolate liquid in the bottle from outside; and the sealing edge of the sealing gasket is prevented from being corroded by liquid and from falling off.

[0104] In addition, a character code information layer is arranged at the top side of the cap body. The first two-dimensional code information layer 13 and the character code information layer are arranged in different regions or same region of the top side of the cap body. Information in the first two-dimensional code information layer 13 and information in the character code information layer can be same. A two-dimensional code in the first two-dimen-

sional code information layer 13 can be a two-dimensional code by coding the information in the character code information layer. The information in the first two-dimensional code information layer 13 and the information in the character code information layer can be different.

[0105] The information in the first two-dimensional code information layer 13 and the information in the character code information layer are used for preventing goods fleeing and source tracing querying and can also be used for other purposes. When the information in the first two-dimensional code information layer 13 and the information in the character code information layer are used for preventing goods fleeing simultaneously, the first two-dimensional code information layer at the top side of the cap is scanned or the information in the character code information layer is input into a query system in a machine recognition or manual inputting manner to perform goods fleeing query on the bottle cap and of course, source tracing query can also be performed. In an actual query process, one of the manners can be selected for use, the character code or two-dimensional code can be automatically recognized for fast query when a scanning device exists and the character code information can be input into the query system for query when no scanning device exists.

[0106] The character code information layer consists of letters and/or numbers, and the character code information layer can be engraved in the middle of the top side or the position close to the periphery of the top 11 by a laser engraving device and can be engraved in one row or multiple rows. Information in the character code information layer is shorter in length, thereby facilitating recognition in a production process and realizing a faster recognition speed. The information in the character code information layer 13 can only comprise data characters and can further comprise data characters and error correction characters. The error correction characters are obtained by the data characters according to an error correction algorithm. A coding method and decoding method for the character codes constituted by the data characters and the error correction characters can refer to the specification disclosed in Chinese Invention Patent Application CN201510363185.7 and is not repeated herein. The character codes with an error correction function are used to prevent the character codes from being misread in a use process.

[0107] In the bottle cap with the multiple two-dimensional code information layers according to the present invention, information in the first two-dimensional code information layer, information in the second two-dimensional code information layer and information in the character code information layer are associated, have a unique corresponding relation and constitute three identification codes. The information in the first two-dimensional code information layer arranged on different bottle caps is different, the information in the second two-dimensional code information layer arranged on different bottle caps is different and the information in the charac-

ter code information layer arranged on different bottle caps is different. The character code information layer at the top side of the cap body and the first two-dimensional code information layer can be used for goods fleeing preventing in a production and selling process. The second two-dimensional code information layer arranged at the inner side of the bottle cap is used for points accumulating, lottery drawing and other activities after a consumer damages a package and can also be used for anti-counterfeiting query. The second two-dimensional code information layer is arranged at the inner side of the cap body, and which can prevent a second two-dimensional code participating the activity from being damaged or counterfeited.

[0108] In conclusion, the bottle cap with the dual two-dimensional code information layers meets the normal information query requirements in a production and selling process, prevents the two-dimensional code participating in the activity from being damaged or counterfeited in a selling process and ensures legal rights of the manufacturer and the consumer. In addition, the character code information layer is arranged at the front surface of the bottle cap, thereby providing two goods fleeing query manners, automatic fast query can be performed when a scanning device exists, and character code information can be manually input into the query system for query when no scanning device exists, use is convenient, and the bottle cap is suitable for various selling environments. By any one of the two identification codes, a product can be subjected to goods fleeing prevention or source tracing query.

[0109] The crown cap with the dual two-dimensional code information layers is introduced in above embodiment. The structure with the dual two-dimensional code information layers according to the present invention can be arranged on bottle caps of other structures, for example, the dual two-dimensional code information layers are arranged on an injection molding bottle only comprising a cylindrical cap wall and a top.

[0110] According to the bottle cap with the dual two-dimensional code information layers according to the invention, the first two-dimensional code information layer is arranged at the top side (external surface) and the character code information layer is arranged at the top side at the same time, both of which are used for preventing goods fleeing in a production and selling process, the information in the first two-dimensional code information layer and the information in the character code information layer can be same or different; the second two-dimensional code information layer is arranged at the inner side (internal surface) and is used for the consumer to participate in points accumulating, lottery drawing and other activities after the consumer damages the package. The information in the first two-dimensional code information layer, the information in the second two-dimensional code information layer and the information in the character code information layer are associated, have a corresponding relation and constitute three identification

codes. The first two-dimensional code information layer at the top side of the cap body is scanned or the information in the character code information layer is input into a query system to perform goods fleeing query on the bottle cap and source tracing query can also be performed, and by scanning the second two-dimensional code information layer at the inner side of the bottle cap, the consumer can participate in the activities and can perform anti-counterfeiting query.

[0111] The bottle cap according to the present invention is simple in structure and convenient to use, and in addition, the dual two-dimensional code information layers are arranged on the bottle cap, thereby meeting normal information query requirements in a production and selling process, preventing the two-dimensional code participating in the activities from being damaged and counterfeited in a selling process and ensuring legal rights of a manufacturer and a consumer at the same time.

[0112] The bottle cap with the identification code according to the present invention is described in detail. For those ordinary skilled in the art, any obvious modification made on the present invention without departing from an essence spirit of the present invention will violate the patent of the present invention and should undertake corresponding legal responsibility.

Claims

1. An anti-counterfeiting bottle cap, **characterized by** comprising a cap body, an information layer, an adhesive layer and a sealing gasket, wherein the information layer is sprayed to the inner wall of the top of the cap body; and the upper surface of the sealing gasket is pasted to the inner side of the top of the cap body printed with the information layer, and the edge of the lower surface is provided with an annular sealing groove allowing a bottle opening to embed.

2. The anti-counterfeiting bottle cap according to claim 1, **characterized in that:**

the information layer is ink.

3. The anti-counterfeiting bottle cap according to claim 1, **characterized in that:**

the information layer is a two-dimensional code.

4. The anti-counterfeiting bottle cap according to claim 1, **characterized in that:**

the sealing gasket is made of a silica gel material.

5. The anti-counterfeiting bottle cap according to

claim 4, **characterized in that:**

the size of the sealing gasket is matched with the top.

6. The anti-counterfeiting bottle cap according to claim 1, **characterized in that:**

the cap body comprises a top and a skirt.

7. The anti-counterfeiting bottle cap according to claim 6, **characterized in that:**

the cap body is made of a metallic material.

8. The anti-counterfeiting bottle cap according to claim 1, **characterized in that:**

the cap body comprises an upper cap body and a lower cap body; and the upper end of the lower cap body is provided with a threading part for matching with the threads in the cap wall of the upper cap body, and threads or a snap ring is arranged at the inner side of the cap wall of the lower cap body and is used for matching with a bottle opening.

9. The anti-counterfeiting bottle cap according to claim 1, **characterized in that:**

the cap body comprises a cylindrical cap wall and a top.

10. A bottle cap with an anti-counterfeiting label, **characterized by** comprising a bottle cap body and an anti-counterfeiting label, wherein the anti-counterfeiting label comprises at least a four-layer structure: a plastic thin film layer, a holographic information layer, an ink information layer and an adhesive layer from top to bottom in sequence; the anti-counterfeiting label is attached to the outer side of a top cap of the bottle cap by the adhesive layer; and the top cap of the bottle cap body is made of a transparent plastic or semi-transparent plastic material.

11. The bottle cap with an anti-counterfeiting label according to claim 10, **characterized in that:**

the ink information layer is a two-dimensional code.

12. The bottle cap with an anti-counterfeiting label according to claim 10, **characterized in that:**

the bottle cap body comprises a cap wall and a top cap; the outer side of the cap wall is provided with vertical antiskid textures, and the inner side

is provided with spiral textures matched with threads at a bottle opening; and the inner wall of the top cap is provided with an inner seal ring in liquid and gas sealing with the inner wall of the bottle opening and an outer seal ring in liquid and gas sealing with the outer wall of the bottle opening.

13. The bottle cap with an anti-counterfeiting label according to claim 12, **characterized in that** the bottle cap body further comprises a breaking ring, the breaking ring is connected with the cap body by a breaking line, and a positioning snap ring is arranged at the inner side of the breaking ring.

14. The bottle cap with an anti-counterfeiting label according to claim 10, **characterized in that** the bottle cap body comprises an upper cap body, a hinging part and a lower cap body; the upper cap body is connected to the lower cap body by the hinging part; and threads matched with a bottle opening are arranged at the inner side of the lower cap body.

15. The bottle cap with an anti-counterfeiting label according to claim 10, **characterized in that** the bottle cap body comprises an upper cap body and a lower cap body; and the upper end of the lower cap body is provided with a threading part for matching with the threads in the cap wall of the upper cap body, and threads or a snap ring is arranged at the inner side of the cap wall of the lower cap body and is used for matching with a bottle opening.

16. A pull ring bottle cap with paired anti-counterfeiting codes, comprising an upper cap body and a lower cap body, a tearable inner plug piece and a pull ring being arranged in the lower cap body, and **characterized in that:**

the upper surface of the upper cap body is provided with a two-dimensional code; and the lower surface of the inner plug piece is provided with a second anti-counterfeiting code, corresponding to the two-dimensional code one to one.

17. The pull ring bottle cap according to claim 16, **characterized in that:**

the two-dimensional code contains URL linking information.

18. The pull ring bottle cap according to claim 17, **characterized in that** the second anti-counterfeiting code is a digital code.

19. The pull ring bottle cap according to claim 16,

characterized in that

the two-dimensional code arranged on each bottle cap is unique.

20. The pull ring bottle cap according to claim 16, **characterized in that:** 5

the upper cap body and the lower cap body are connected by a connecting piece or rotating shaft. 10

21. The pull ring bottle cap according to claim 20, **characterized in that**

the upper cap body is provided with an inner press cylinder therein, the top of the lower cap body is provided with a flow guide port, and when the upper cap body is overturned, the inner press cylinder is embedded into the flow guide port. 15

22. The pull ring bottle cap according to claim 21, **characterized in that:** 20

a tearing line is arranged between the inner plug piece and the flow guide port; or the inner plug piece is connected to an interior of the flow guide port by an indentation line. 25

23. The pull ring bottle cap according to claim 16, **characterized in that:** 30

the inner wall of the upper cap body is provided with threads, and external threads are arranged at the coincided positions of the lower cap body and the upper cap body. 35

24. The pull ring bottle cap according to claim 23, **characterized in that:**

a plurality of connecting ribs is arranged between the upper cap body and the lower cap body. 40

25. The pull ring bottle cap according to claim 24, **characterized in that:** 45

the inner plug piece is connected to an interior of the lower cap body by a tearing line or an indentation line.

26. A bottle cap with double identification codes, comprising a cap body and **characterized in that:** 50

a two-dimensional code information layer, an adhesive layer and a sealing gasket are downwards arranged at the inner side of the cap body in sequence; and a bottom ink layer and a surface ink layer are upwards arranged at the top side of the cap body in sequence; the bottle cap 55

further comprises a character code information layer, and the character code information layer is a visible bottom ink layer exposed after a partial area of the surface ink layer is removed.

27. The bottle cap according to claim 26, **characterized in that:**

the two-dimensional code information layer and the character code information layer are associated in information, and in addition, the two-dimensional code information layers arranged on different bottle caps are different in information, and the character code information layers arranged on different bottle caps are different in information.

26. The bottle cap according to claim 26, **characterized in that:**

the character code information layer consists of letters and/or numbers and is divided into one row or multiple rows for arraying.

29. The bottle cap according to claim 26, **characterized in that:**

the bottom ink layer is a fluorescent or transparent bottom ink layer.

30. The bottle cap according to claim 26, **characterized in that**

the cap body is made of a metallic material.

31. The bottle cap according to claim 30, **characterized in that**

the cap body is a crown cap comprising a top and a skirt.

32. The bottle cap according to claim 26, **characterized in that:**

a printed pattern layer is arranged between the bottom ink layer and the surface ink layer.

33. A bottle cap with three identification codes, comprising a cap body and **characterized in that:**

a bottom ink layer and a surface ink layer are upwards arranged on the top side of the cap body in sequence; the bottle cap further comprises an information layer; the information layer is a visible bottom ink layer exposed after a partial area of the surface ink layer is removed, and the information layer comprises a first two-dimensional code information layer and a character code information layer which are arranged at different regions of the top of the bottle cap;

and
a second two-dimensional code information layer, an adhesive layer and a sealing gasket are downwards arranged at the inner side of the cap body in sequence.

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34. The bottle cap according to claim 33, **characterized in that:**

the first two-dimensional code information layer and the character code information layer are same in information.

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35. The bottle cap according to claim 33, **characterized in that:**

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28. The bottle cap according to claim 26, **characterized in that:**

the character code information layer consists of letters and/or numbers and is divided into one row or multiple rows for arraying.

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29. The bottle cap according to claim 26, **characterized in that:**

25

the bottom ink layer is a fluorescent or transparent bottom ink layer.

30. The bottle cap according to claim 26, **characterized in that**

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the cap body is made of a metallic material.

31. The bottle cap according to claim 30, **characterized in that**

35

the cap body is a crown cap comprising a top and a skirt.

32. The bottle cap according to claim 26, **characterized in that:**

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a printed pattern layer is arranged between the bottom ink layer and the surface ink layer.

33. A bottle cap with three identification codes, comprising a cap body and **characterized in that:**

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a bottom ink layer and a surface ink layer are upwards arranged on the top side of the cap body in sequence; the bottle cap further comprises an information layer; the information layer is a visible bottom ink layer exposed after a partial area of the surface ink layer is removed, and the information layer comprises a first two-dimensional code information layer and a character code information layer which are arranged at different regions of the top of the bottle cap; and

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a second two-dimensional code information layer, an adhesive layer and a sealing gasket are downwards arranged at the inner side of the cap body in sequence.

34. The bottle cap according to claim 33, **characterized in that:**

the first two-dimensional code information layer and the character code information layer are same in information.

35. The bottle cap according to claim 33, **characterized in that:**

the first two-dimensional code information layer and the character code information layer are different in information.

36. The bottle cap according to any one of claims 33 to 35, **characterized in that:**

the first two-dimensional code information layer, the second two-dimensional code information layer and the character code information layer are associated in information, and in addition, the first two-dimensional code information layers arranged on different bottle caps are different in information, the second two-dimensional code information layers arranged on different bottle caps are different in information and the character code information layers arranged on different bottle caps are different in information.

37. The bottle cap according to claim 33, **characterized in that:**

the character code information layer consists of letters and/or numbers and is divided into one row or multiple rows for arraying.

38. The bottle cap according to claim 33, **characterized in that:**

the information in the character code information layer comprises data characters and error correction characters, wherein the error correction characters are obtained by the data characters according to an error correction algorithm.

39. The bottle cap according to claim 33, **characterized in that:**

the bottom ink layer is a fluorescent or transparent bottom ink layer.

40. The bottle cap according to claim 33, **characterized in that:**

the cap body is made of a metallic material and the cap body is a crown cap comprising a top and a skirt.

41. The bottle cap according to claim 33, **characterized in that:** 5

a printed pattern layer is arranged between the bottom ink layer and the surface ink layer. 10

42. A bottle cap with double two-dimensional code information layers, comprising a cap body and **characterized in that:**

a bottom ink layer and a surface ink layer are upwards arranged on the top side of the cap body in sequence; the bottle cap further comprises a first two-dimensional code information layer; the first two-dimensional code information layer is a visible bottom ink layer exposed after a partial area of the surface ink layer is removed, and a second two-dimensional code information layer, an adhesive layer and a sealing gasket are downwards arranged at the inner side of the cap body in sequence. 15 20 25

43. The bottle cap according to claim 42, **characterized in that**

the area of the first two-dimensional code information layer to the total area of the cap body is not smaller than 10%. 30

44. The bottle cap according to claim 42, **characterized in that:** 35

a character code information layer is further arranged at the top side of the cap body and consists of letters and/or numbers and is divided into one row or multiple rows for arraying. 40

45. The bottle cap according to claim 44, **characterized in that:**

the first two-dimensional code information layer and the character code information layer are positioned at the same side region of the cap body. 45

46. The bottle cap according to claim 44, **characterized in that:** 50

the information in the character code information layer comprises data characters and error correction characters, wherein the error correction characters are obtained by the data characters according to an error correction algorithm. 55

47. The bottle cap according to claim 44, **characterized in that:**

the first two-dimensional code information layer, the second two-dimensional code information layer and the character code information layer are associated in information, and in addition, the first two-dimensional code information layers arranged on different bottle caps are different in information, the second two-dimensional code information layers arranged on different bottle caps are different in information and the character code information layers arranged on different bottle caps are different in information.

48. The bottle cap according to claim 42, **characterized in that:**

a printed pattern layer is arranged between the bottom ink layer and the surface ink layer.

49. The bottle cap according to claim 48, **characterized in that:**

the first two-dimensional code information layer and the printing pattern layer respectively are positioned at different regions of the cap body, or the first two-dimensional code information layer and the printed pattern layer are overlapped.

50. The bottle cap according to claim 42, **characterized in that:**

the bottom ink layer is a fluorescent or transparent bottom oil layer.

51. The bottle cap according to claim 42, **characterized in that:**

a two-dimensional code in the first two-dimensional code information layer is a DMcode two-dimensional code, and a two-dimensional code in the second two-dimensional code information layer is a QRcode two-dimensional code.

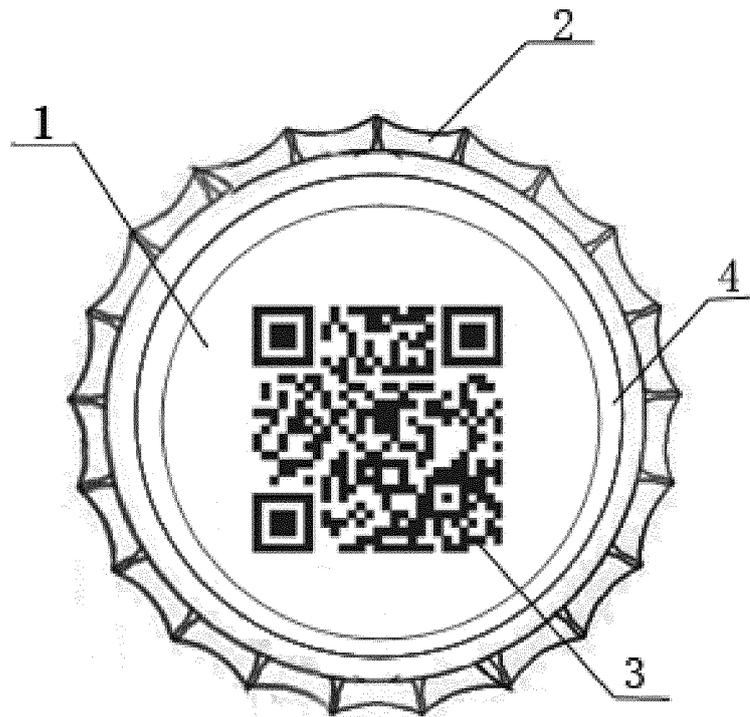


FIG. 1

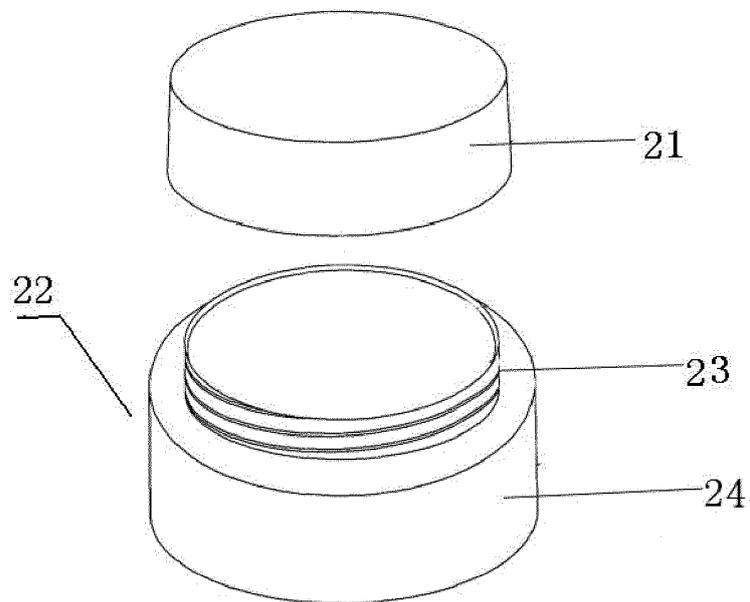


FIG. 2

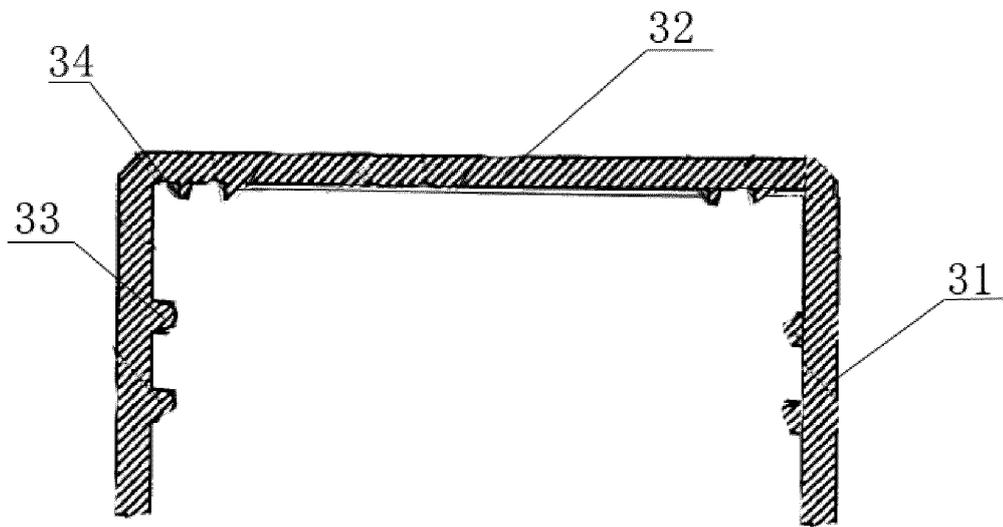


FIG. 3

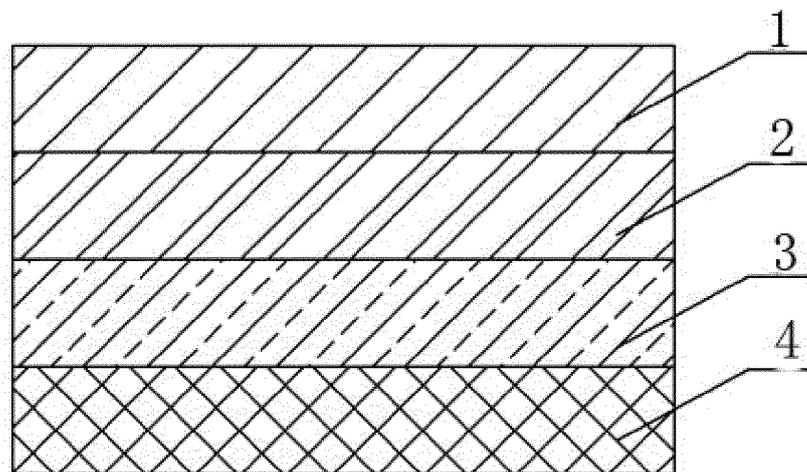


FIG. 4

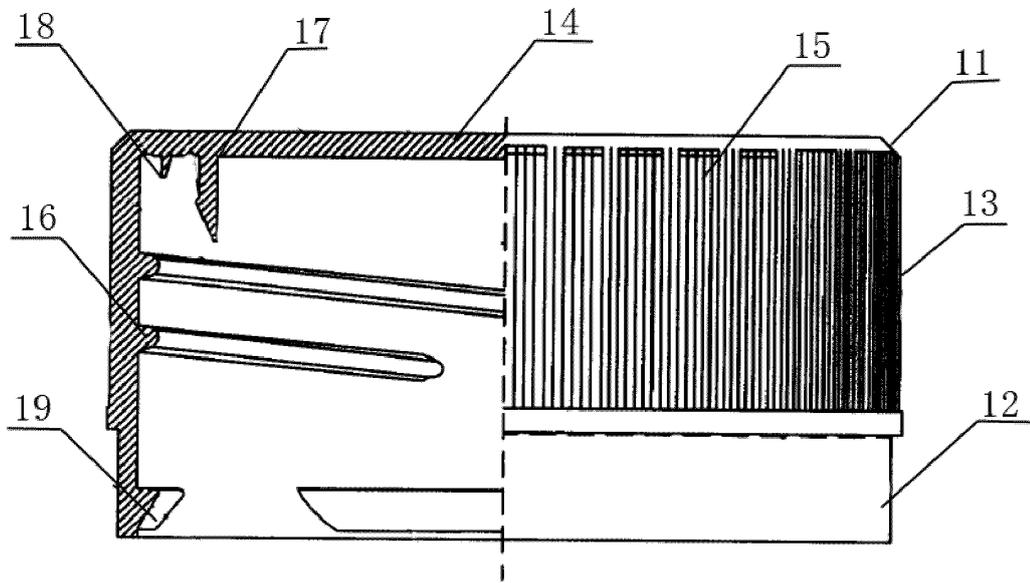


FIG. 5

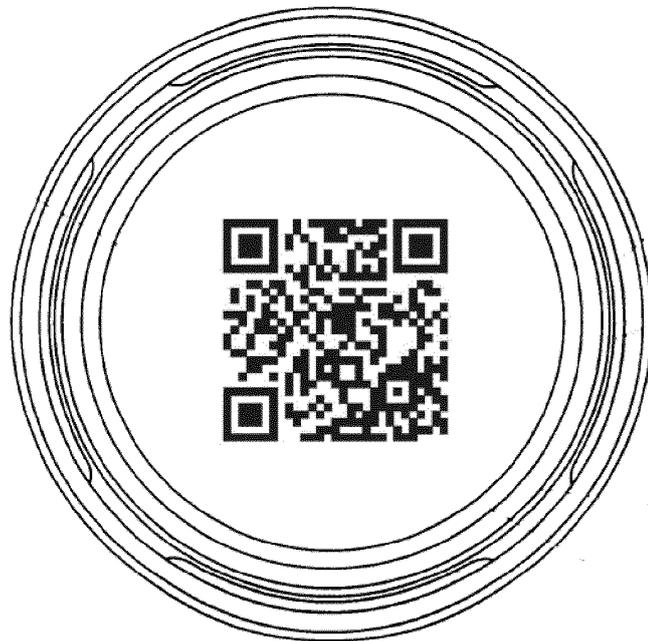


FIG. 6

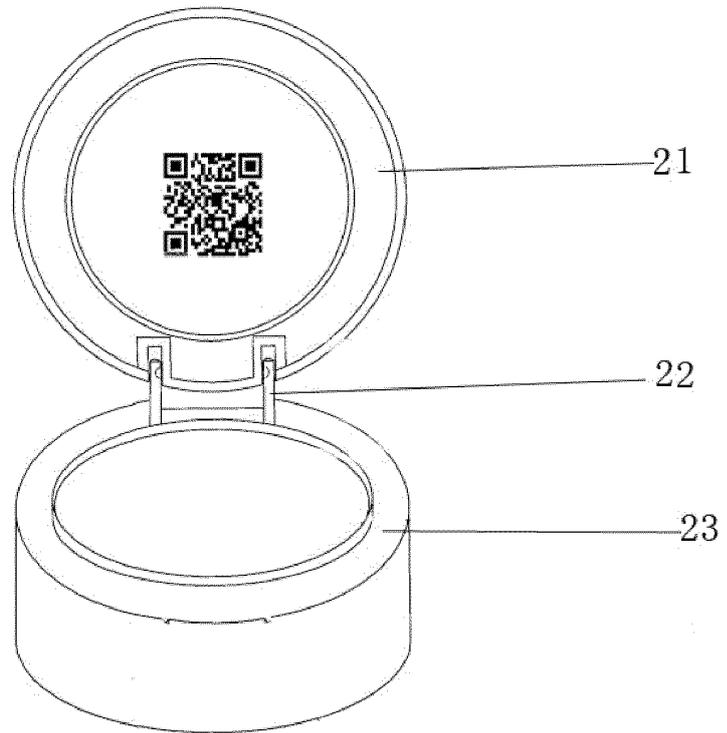


FIG. 7

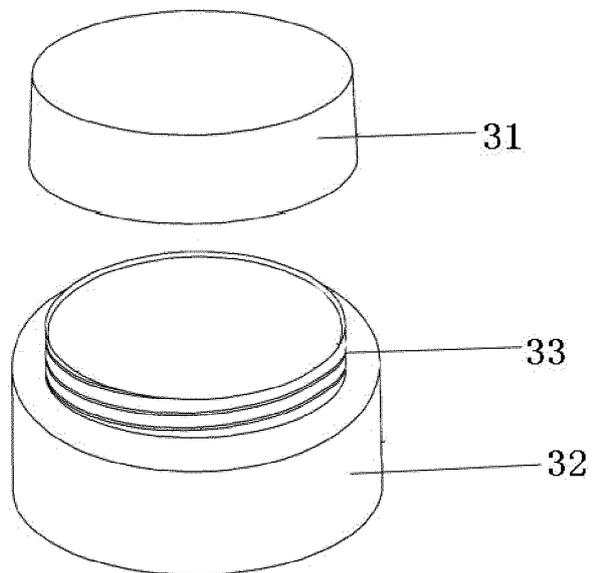


FIG. 8

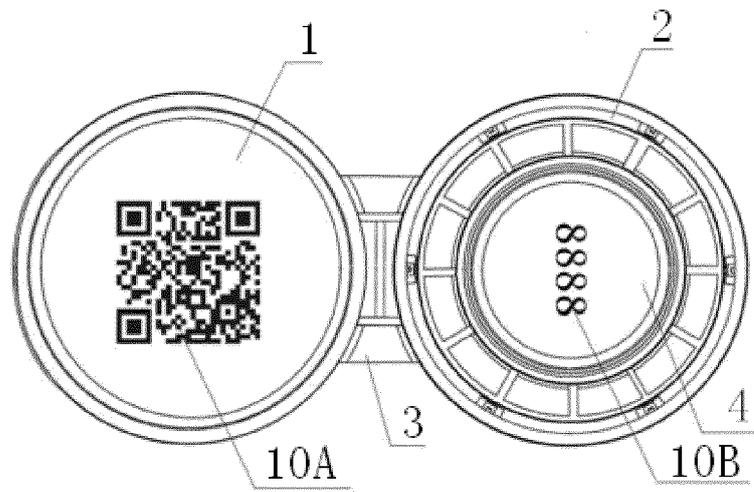


FIG. 9

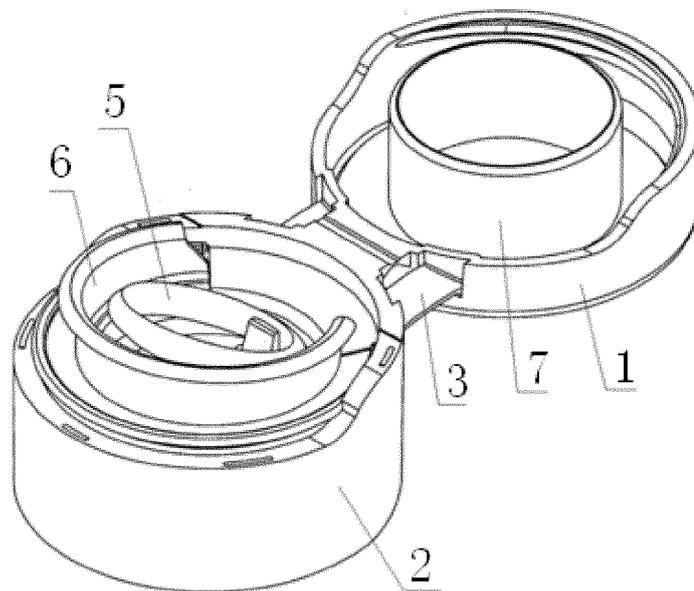


FIG. 10

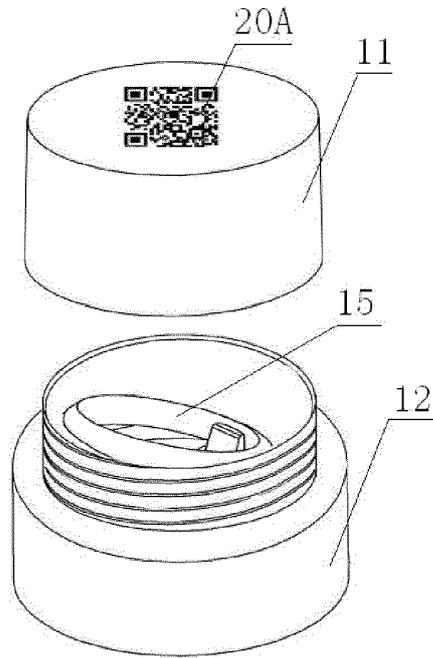


FIG. 11

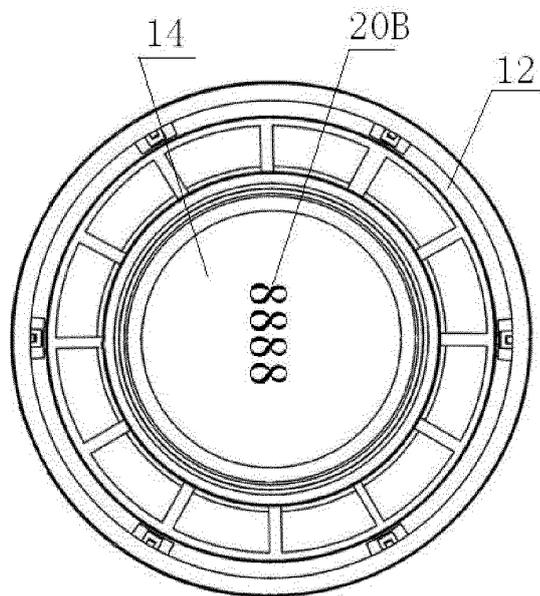


FIG. 12

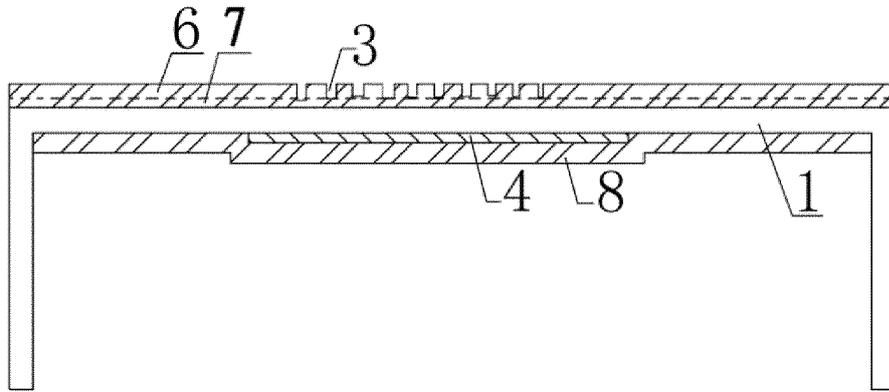


FIG. 13

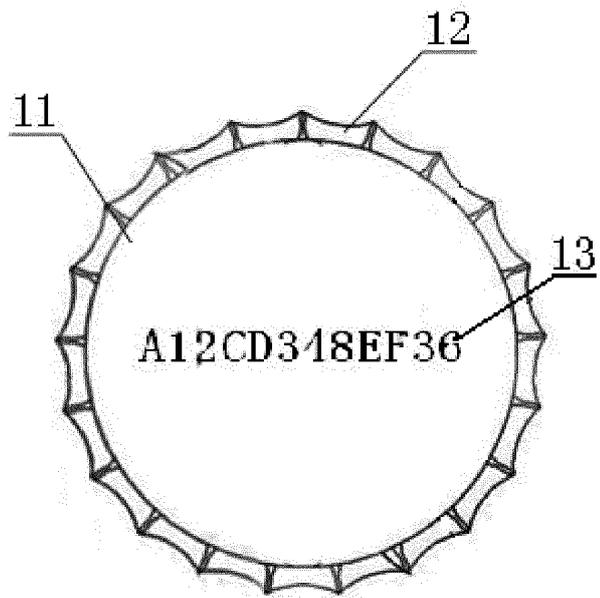


FIG. 14

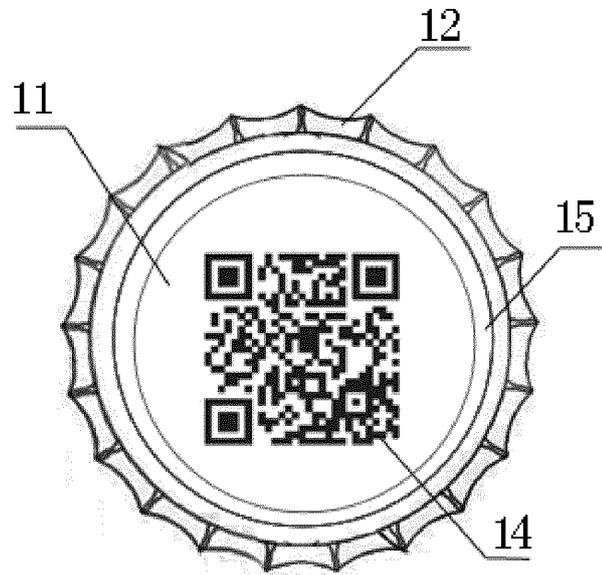


FIG. 15

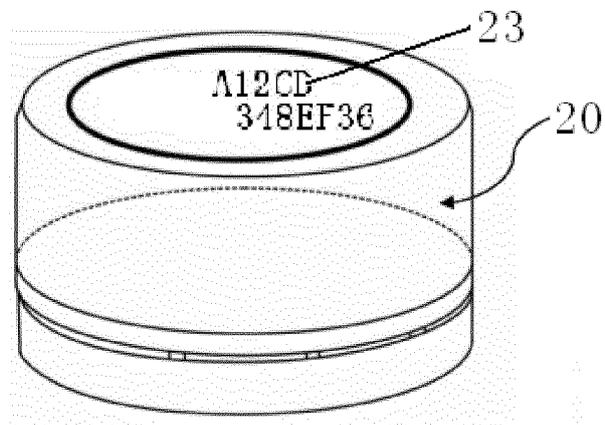


FIG. 16

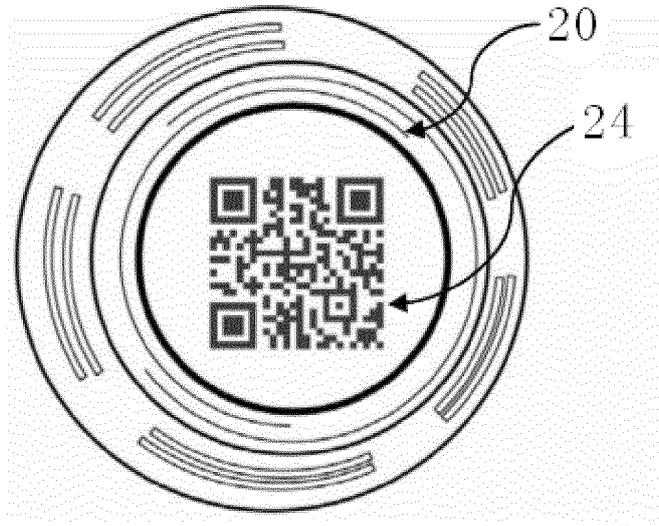


FIG. 17

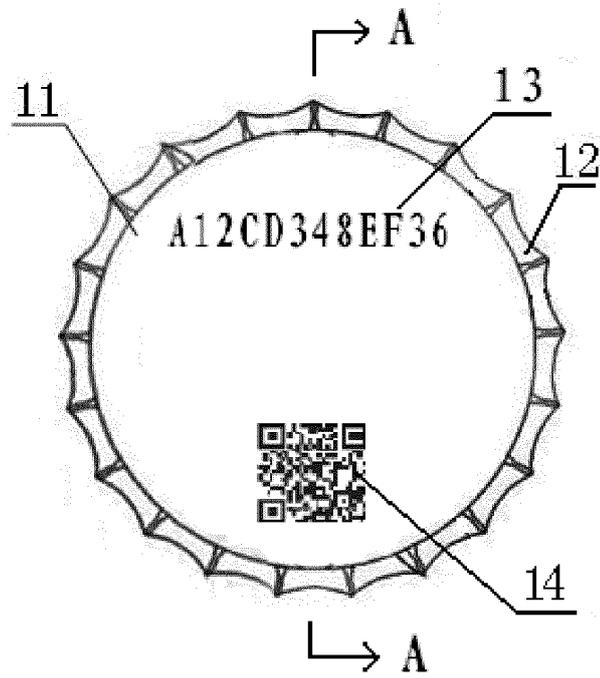


FIG. 18

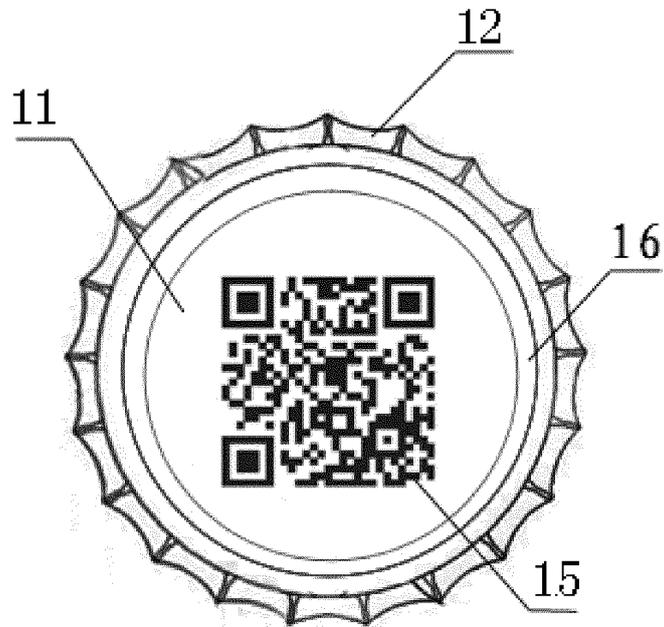


FIG. 19

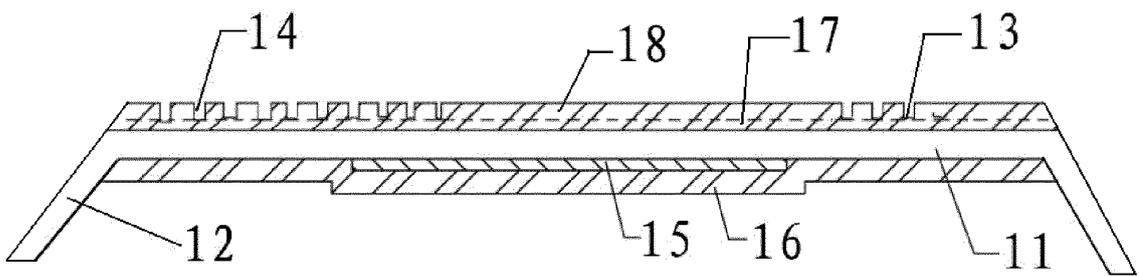


FIG. 20

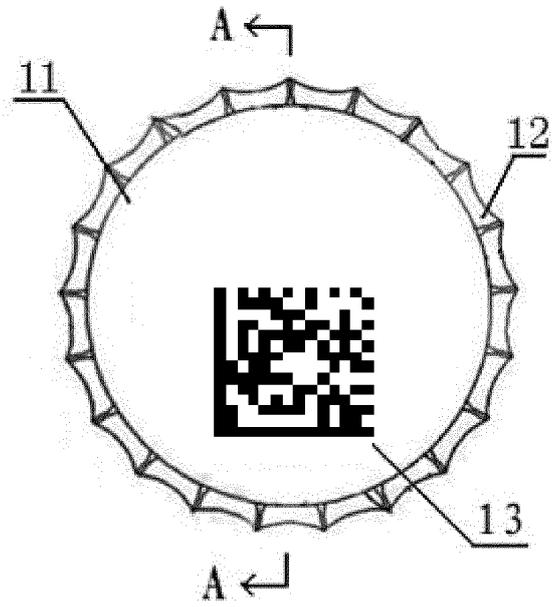


FIG. 21

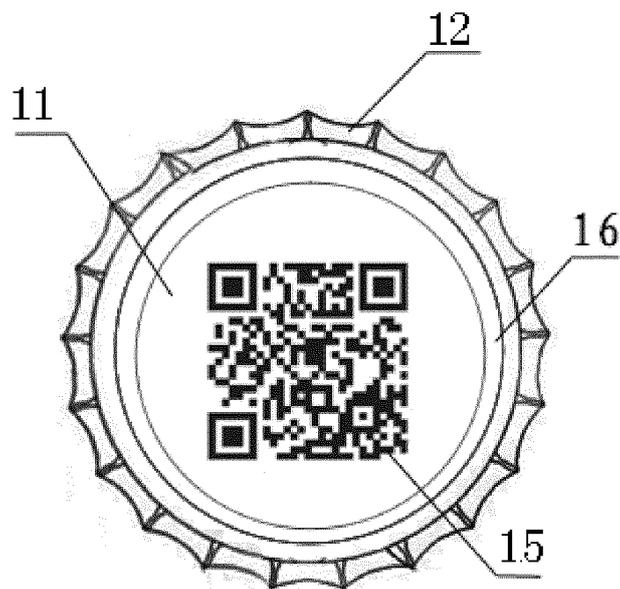


FIG. 22

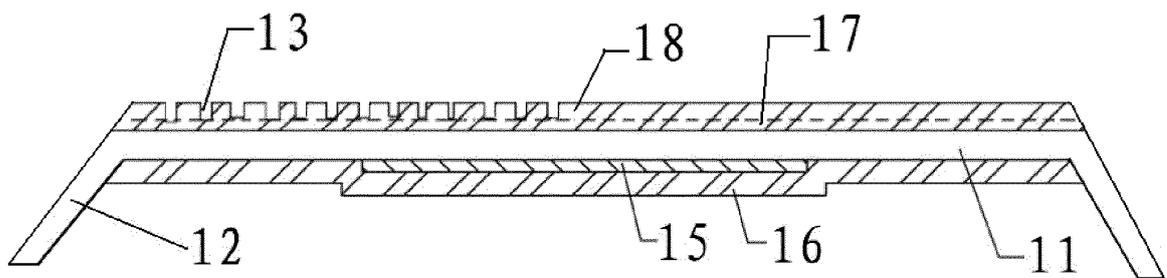


FIG. 23

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2015/097971

A. CLASSIFICATION OF SUBJECT MATTER

B65D 51/24 (2006.01) i; B65D 55/02 (2006.01) i; B65D 47/36 (2006.01) i
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNABS, CNKI, VEN: identification code, information, cover?, lid?, cap?, two dimensional code, code?, communicat+, seal+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 204341644 U (XINMA INTEROPERABILITY (BEIJING) TECHNOLOGY CO., LTD.), 20 May 2015 (20.05.2015), claims 1-9	1-9
PX	CN 204341645 U (XINMA INTEROPERABILITY (BEIJING) TECHNOLOGY CO., LTD.), 20 May 2015 (20.05.2015), claims 1-6	10-15
PX	CN 204606553 U (XINMA INTEROPERABILITY (BEIJING) TECHNOLOGY CO., LTD.), 02 September 2015 (02.09.2015), claims 1-10	16-25
PX	CN 204713684 U (XINMA INTEROPERABILITY (BEIJING) TECHNOLOGY CO., LTD.), 21 October 2015 (21.10.2015), claims 1-7	26-32
A	CN 202574927 U (ZHENJIANG BANGDE INFORMATION TECHNOLOGY CO., LTD.), 05 December 2012 (05.12.2012), description, paragraphs 0013-0016, and figure 3	1-51
A	CN 101948024 A (DOMINO CODING LTD.), 19 January 2011 (19.01.2011), the whole document	1-51
A	CN 204010023 U (SHANGHAI TY TECHNOLOGY CO., LTD.), 10 December 2014 (10.12.2014), the whole document	1-51

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 19 February 2016 (19.02.2016)	Date of mailing of the international search report 10 March 2016 (10.03.2016)
Name and mailing address of the ISA/CN: State Intellectual Property Office of the P. R. China No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088, China Facsimile No.: (86-10) 62019451	Authorized officer LIU, Dandan Telephone No.: (86-10) 010-62085405

Form PCT/ISA/210 (second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2015/097971

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 3997306 B2 (KAWABATA et al.), the whole document	1-51
A	JP 2006107075 A (TOKUJOYA KK), 20 April 2006 (20.04.2006), the whole document	1-51

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INTERNATIONAL SEARCH REPORT
 Information on patent family members

International application No.

PCT/CN2015/097971

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Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
CN 204341644 U	20 May 2015	None	
CN 204341645 U	20 May 2015	None	
CN 204606553 U	02 September 2015	None	
CN 204713684 U	21 October 2015	None	
CN 202574927 U	05 December 2012	None	
CN 101948024 A	19 January 2011	None	
CN 204010023 U	10 December 2014	None	
JP 3997306 B2	24 October 2007	JP 2006240673 A	14 September 2006
JP 2006107075 A	20 April 2006	None	

Form PCT/ISA/210 (patent family annex) (July 2009)

REFERENCES CITED IN THE DESCRIPTION

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