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(54) **ROTARY DOSING DEVICE**

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(76) **Inventor: Shi Peng, Shenzhen (CN)**

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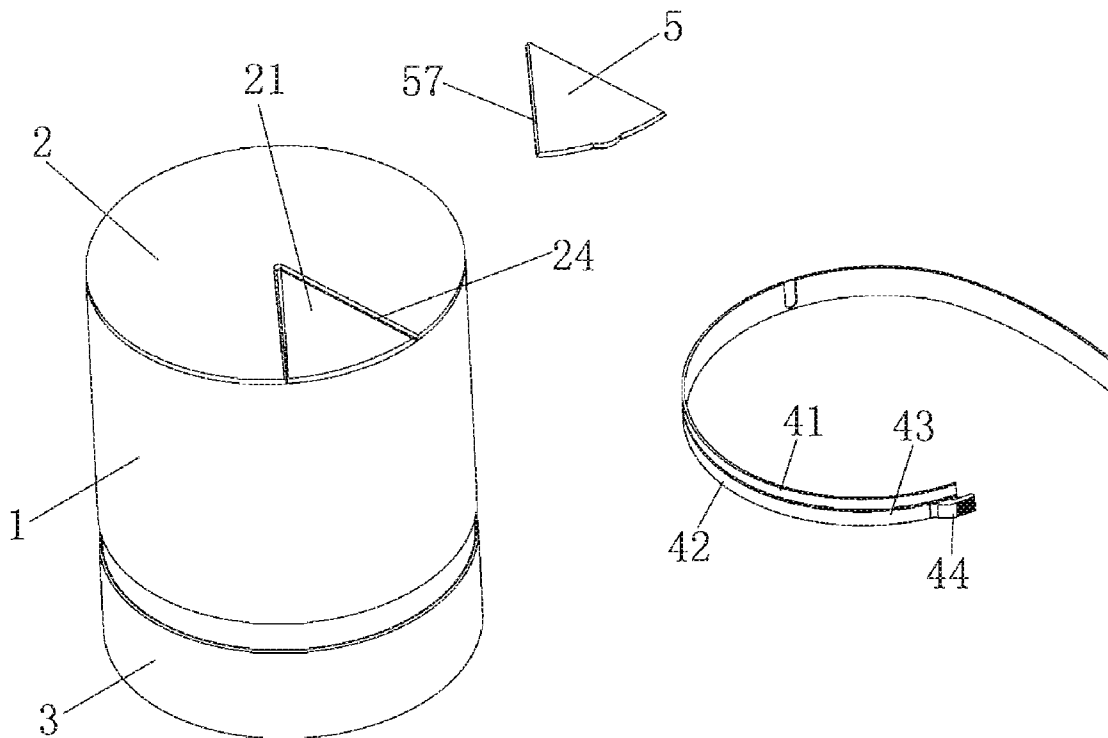
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**B65D 25/04 (2006.01)**

(57) **ABSTRACT**

A rotary dosing device includes a rotating bucket, a container body, a cap top having an opening, a first restraining element, and a second restraining element. The rotating bucket has at least two partitioned dosing slots. The container body is rotatably coupled with the rotating bucket. The cap top is capped on the container body. The first restraining element is connected to both the container body and the rotating bucket for applying and removing restriction to movement between the container body and the rotating bucket in a packaging state and a using state respectively. By means of providing the first restraining element and the second restraining element, when the dosing device is not in use, the rotating bucket is prevented from rotating with respect to the container body and the opening is prevented from opening, so that the dosing device is convenient for packaging and transporting.



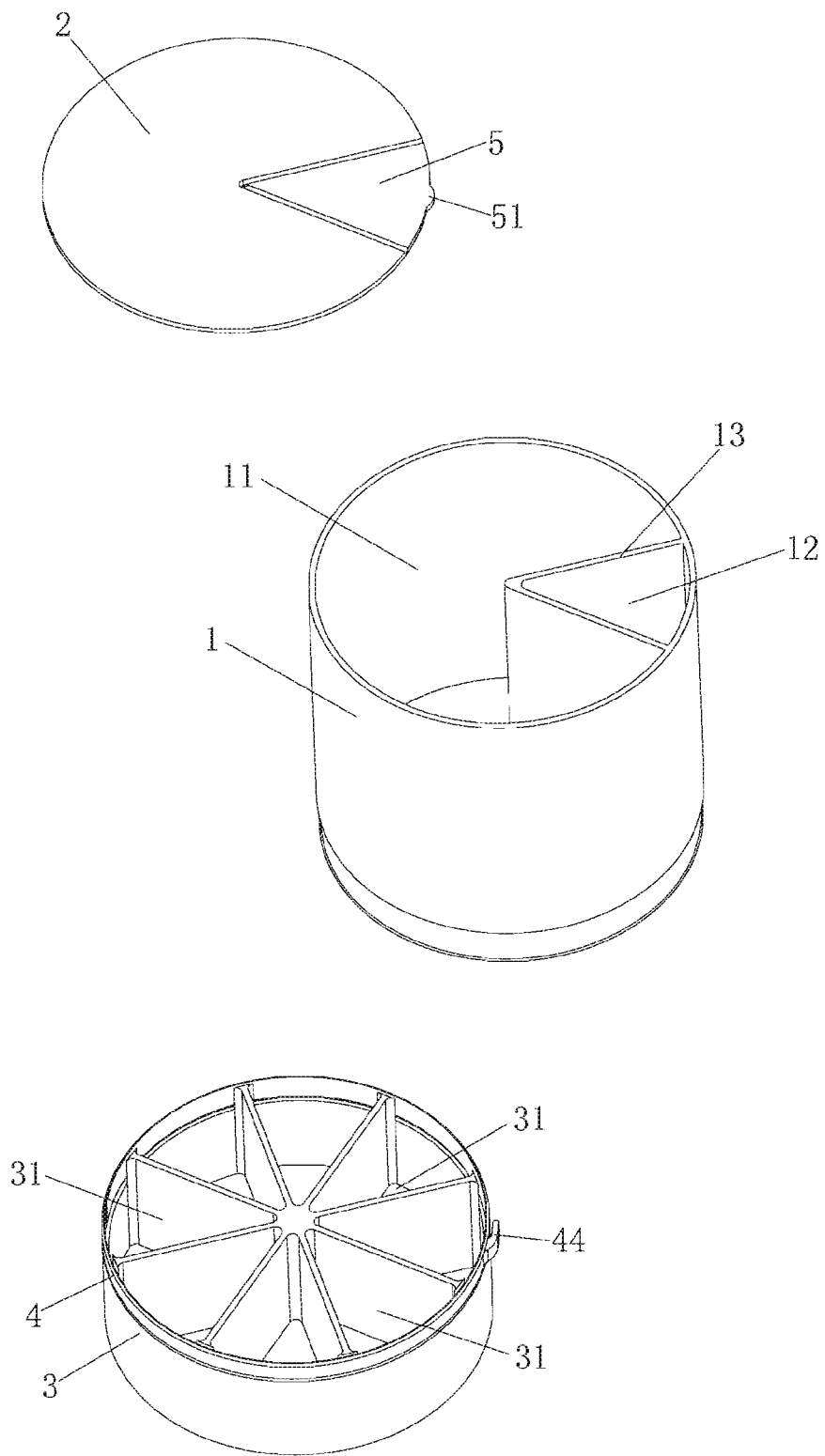


Fig. 1

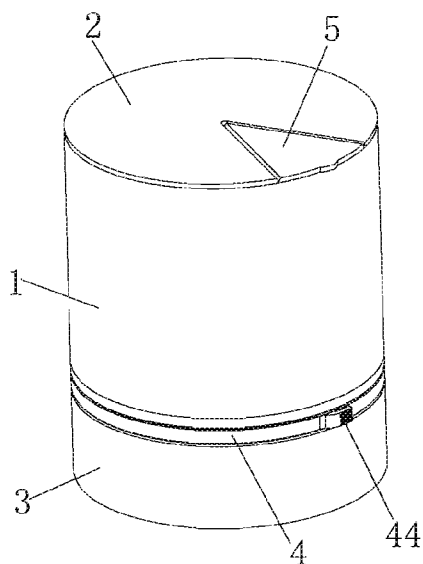


Fig. 2

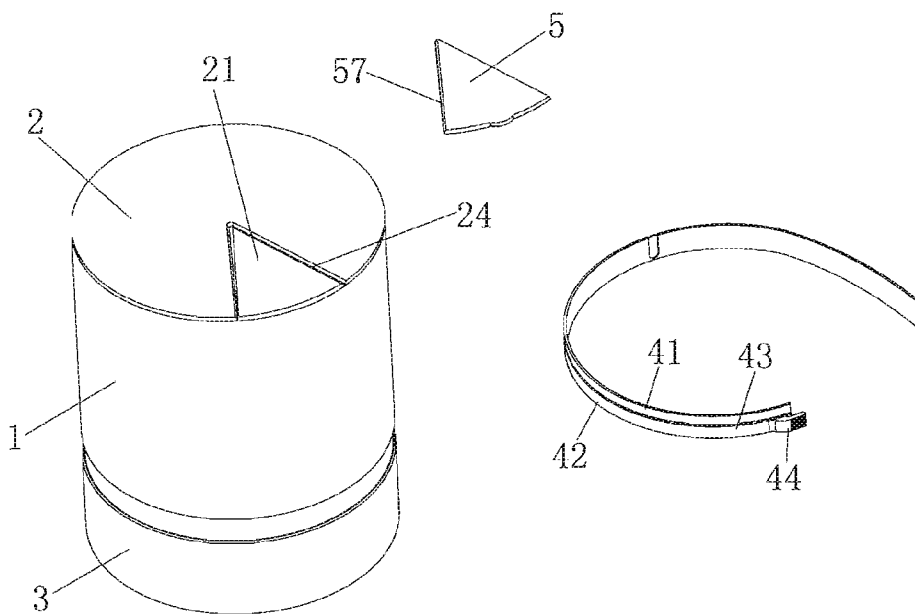


Fig. 3

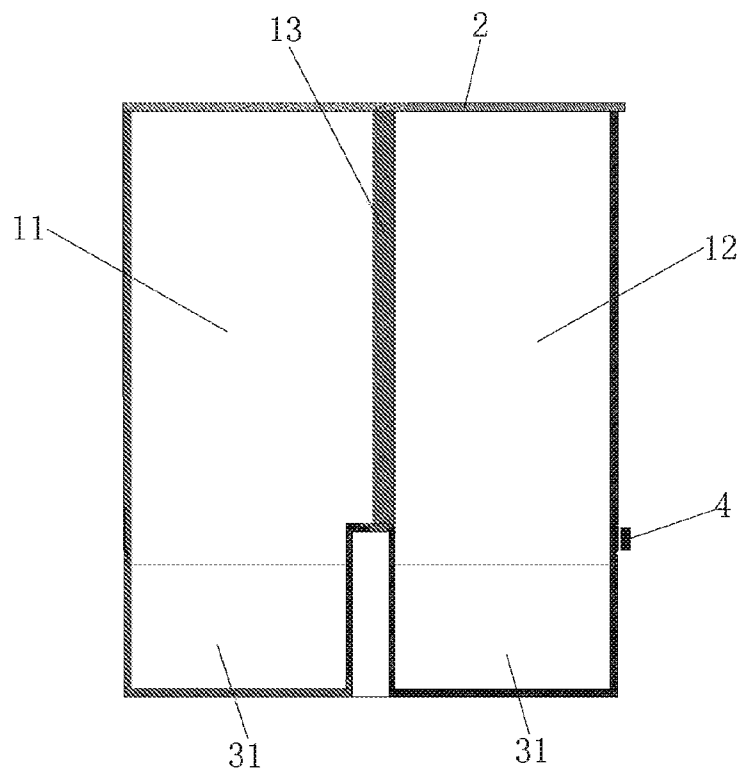


Fig. 4

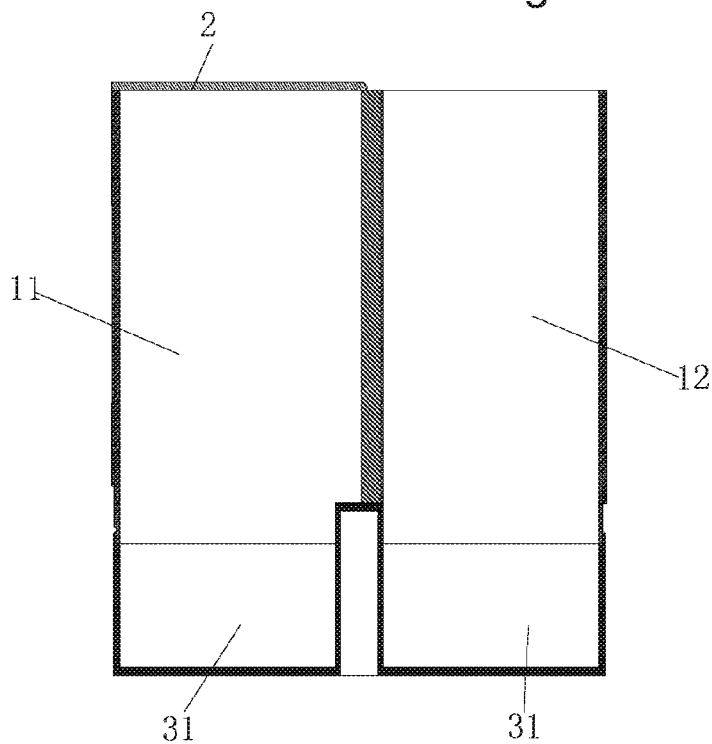


Fig. 5

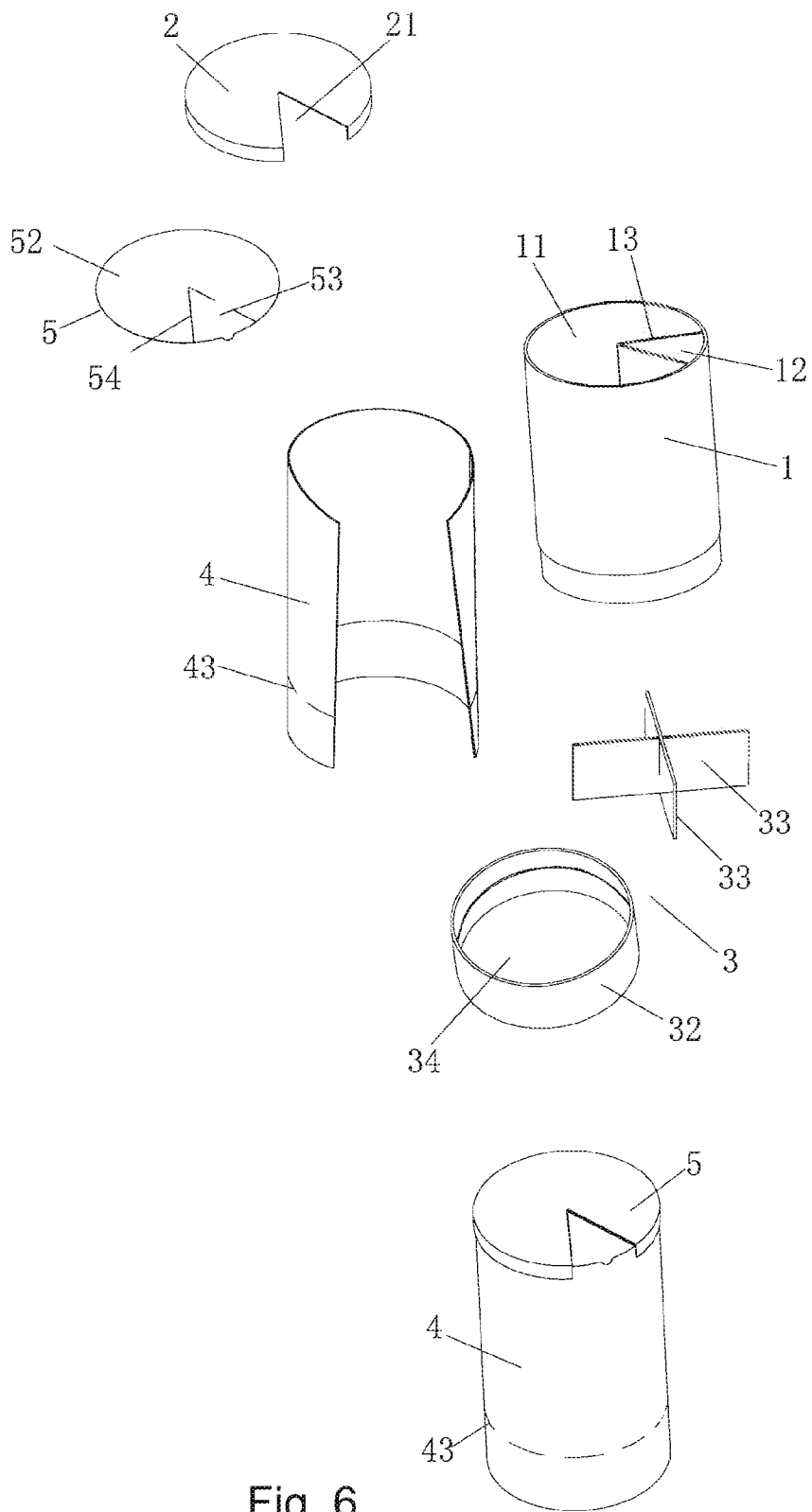


Fig. 6

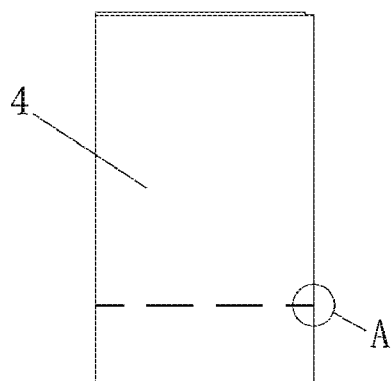


Fig. 7

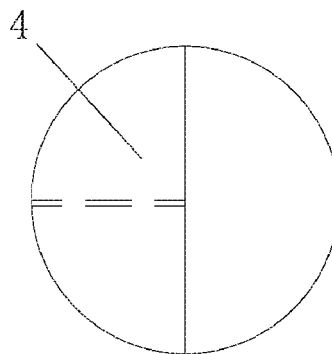


Fig. 8

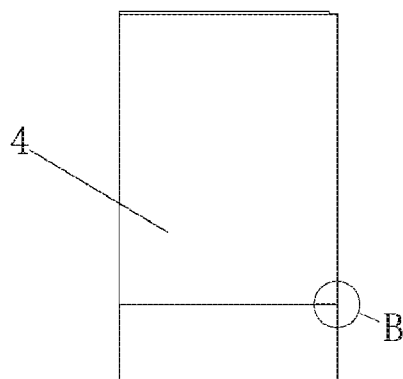


Fig. 9

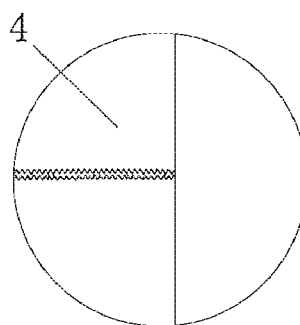


Fig. 10

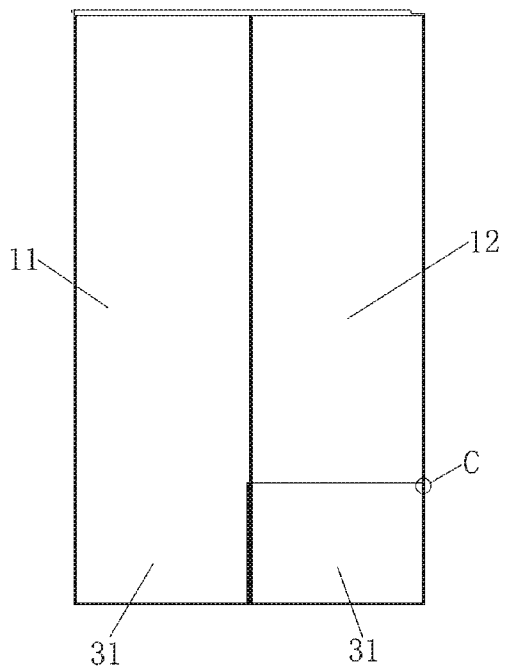


Fig. 11

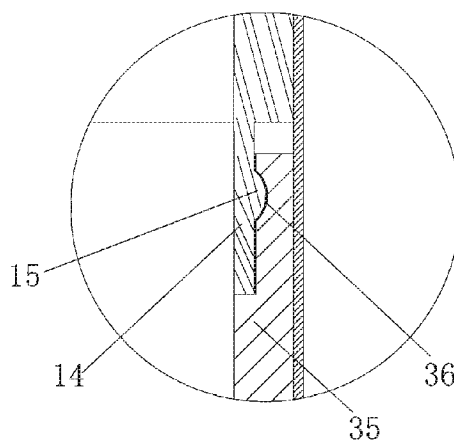


Fig. 12

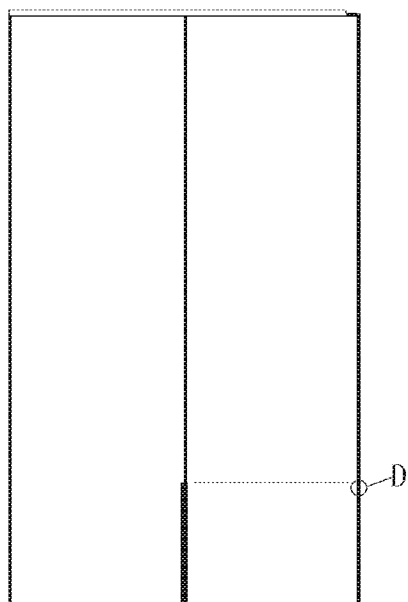


Fig. 13

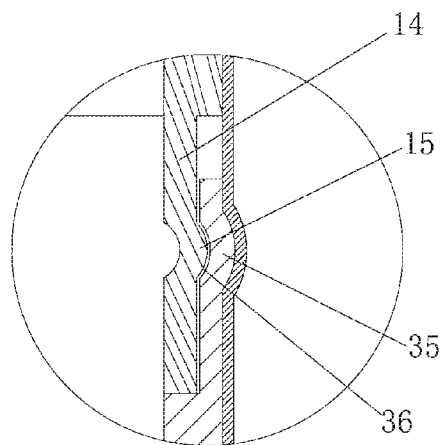


Fig. 14

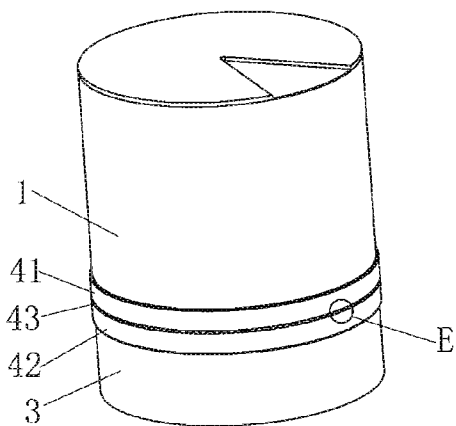


Fig. 15

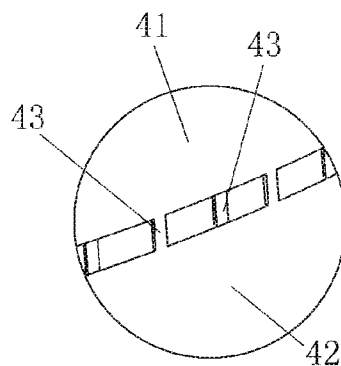


Fig. 16

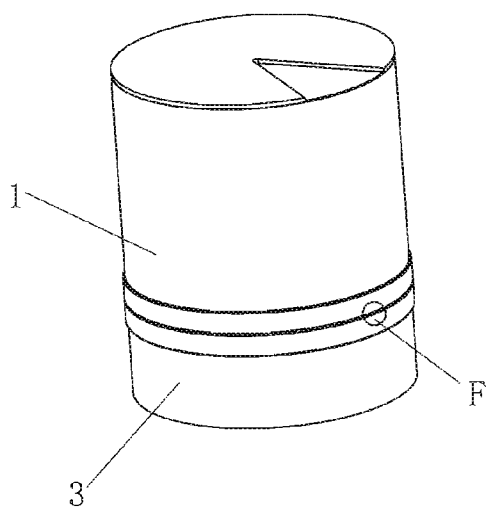


Fig. 17

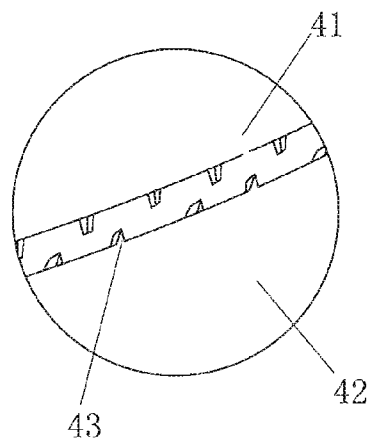


Fig. 18



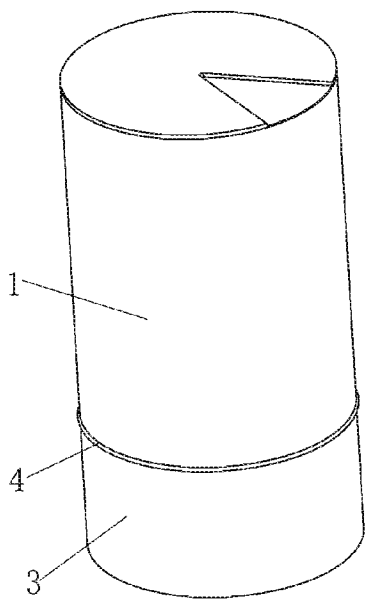


Fig. 19

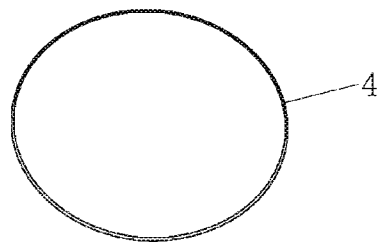


Fig. 20

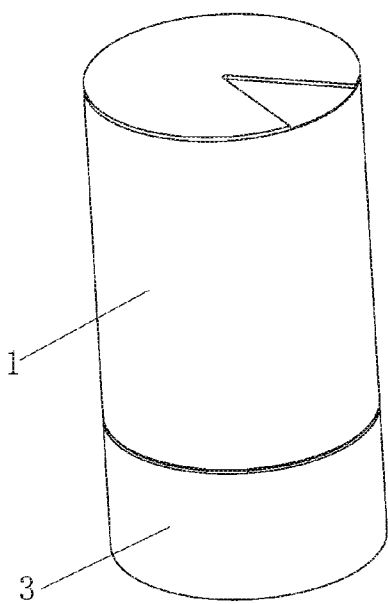


Fig. 21

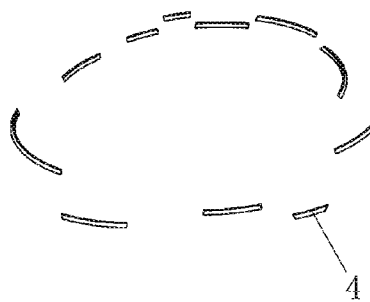


Fig. 22

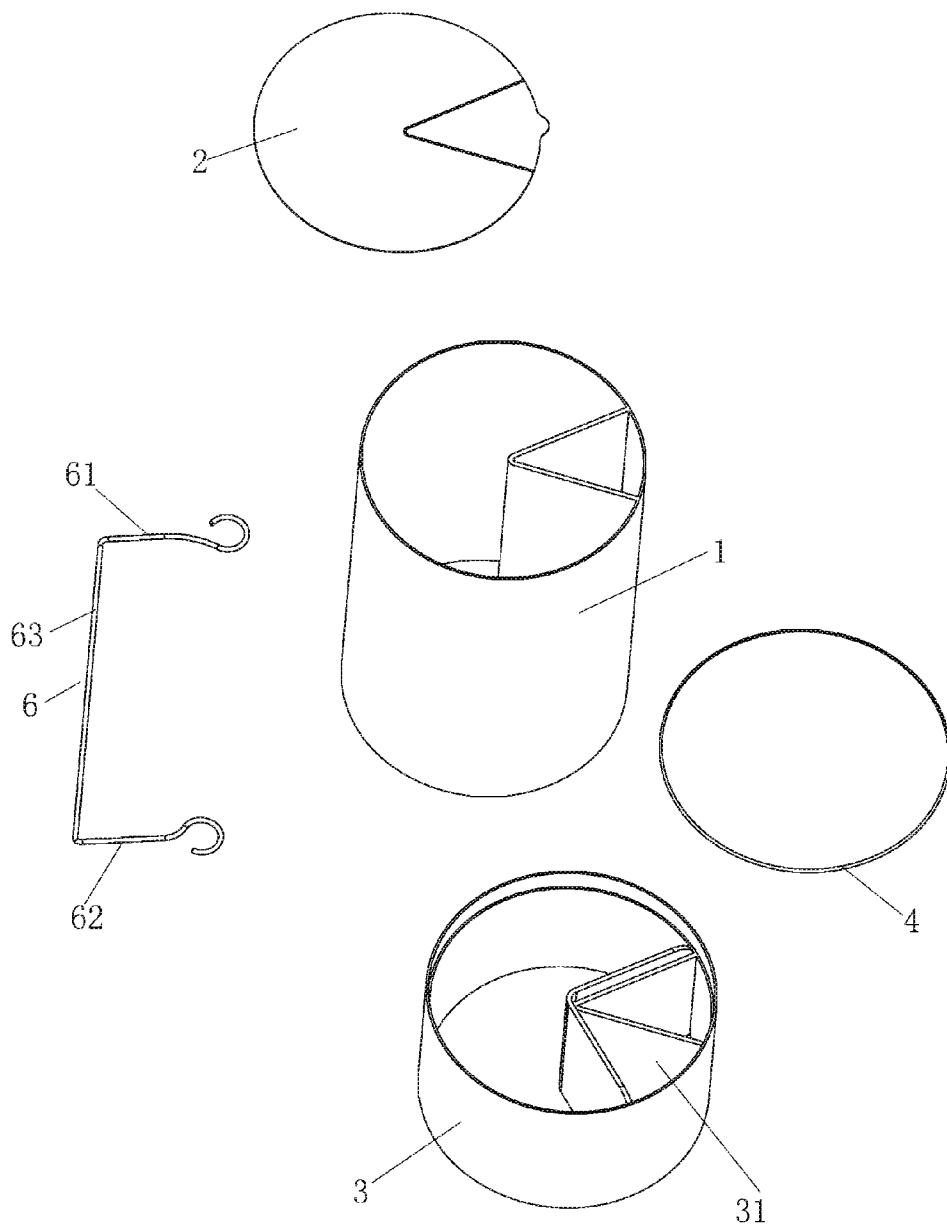


Fig. 23

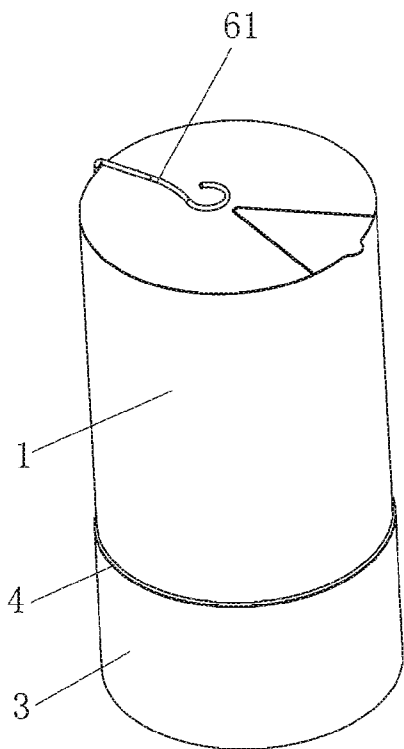


Fig. 24

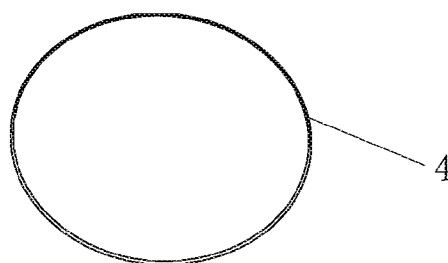


Fig. 25

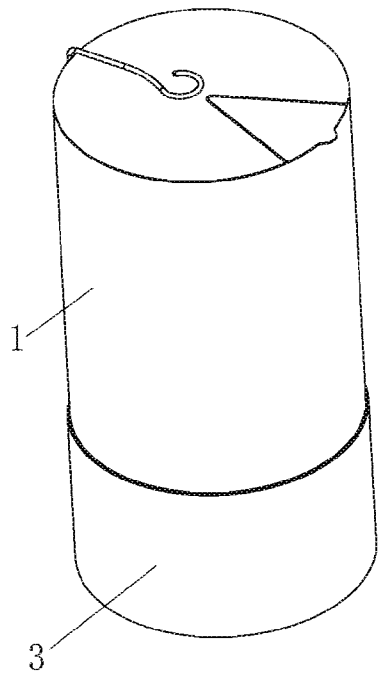


Fig. 26

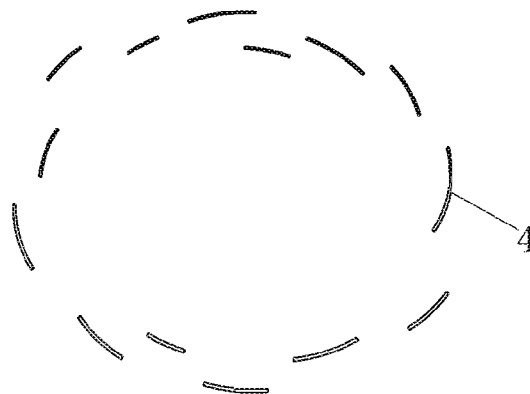


Fig. 27

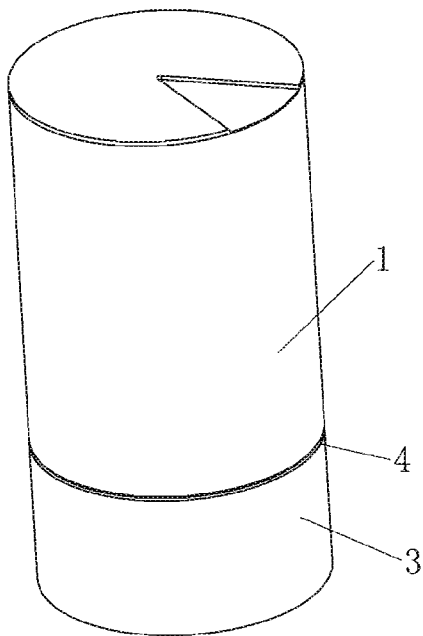


Fig. 28

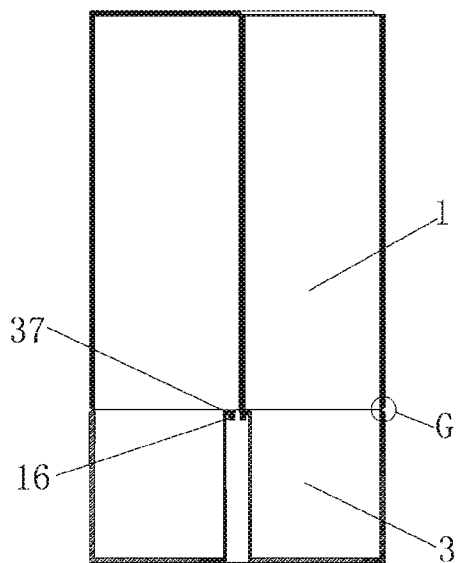


Fig. 29

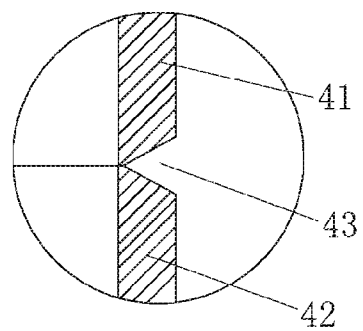


Fig. 30

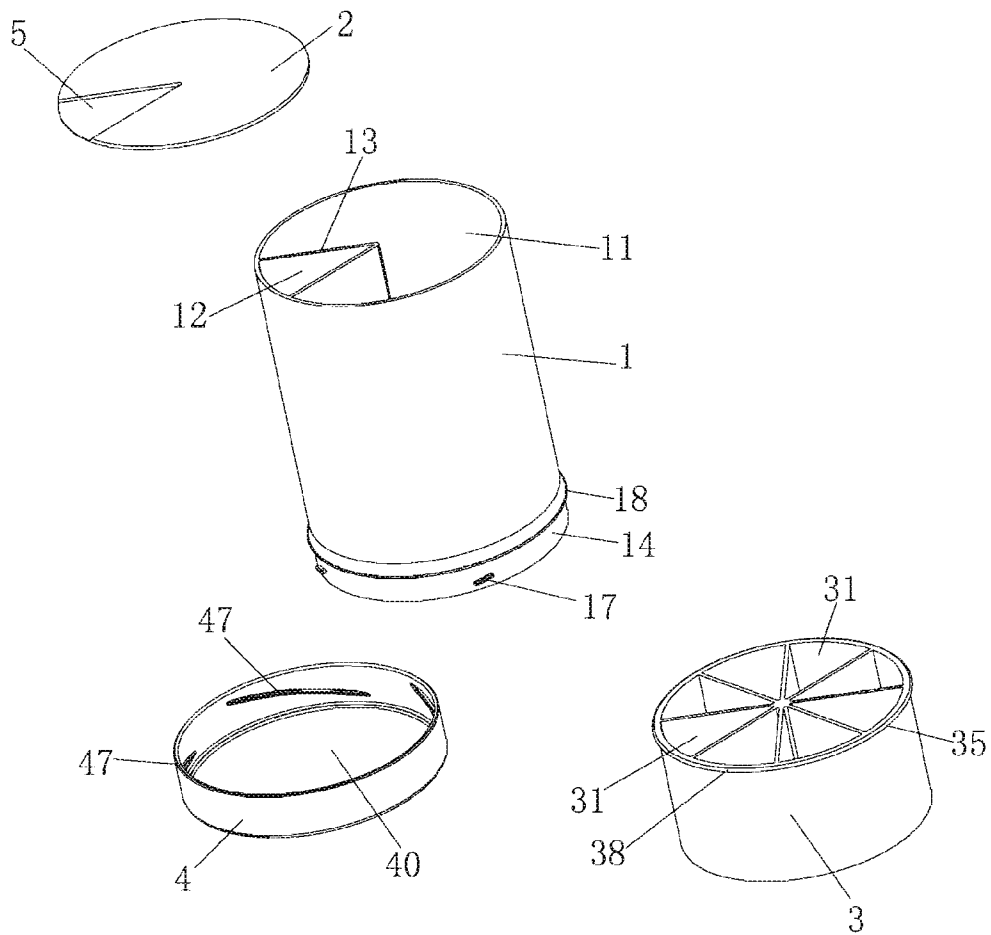


Fig. 31

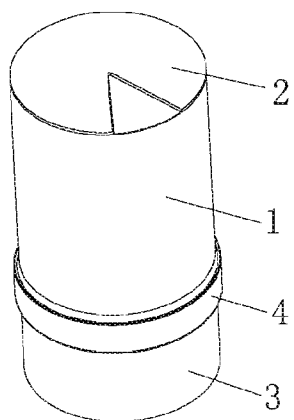


Fig. 32

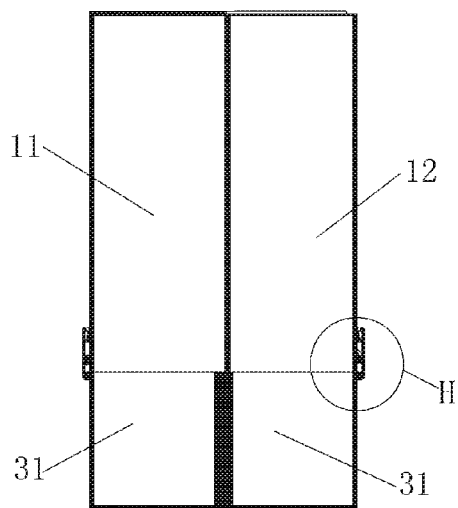


Fig. 33

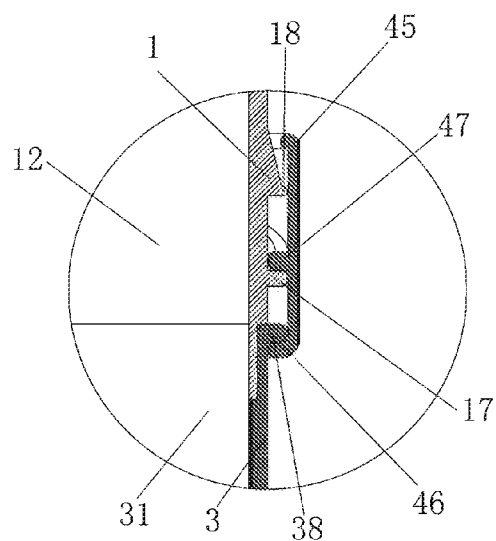


Fig. 34

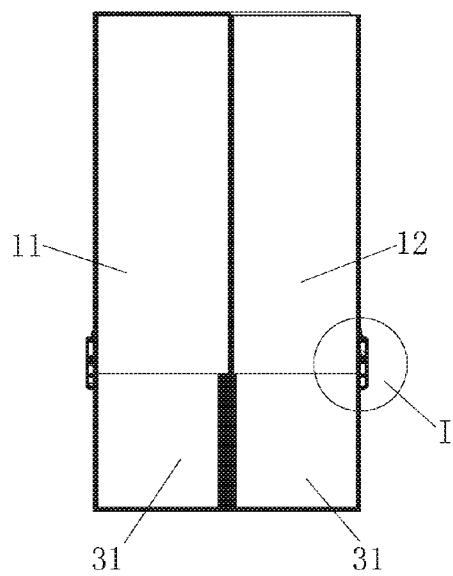


Fig. 35

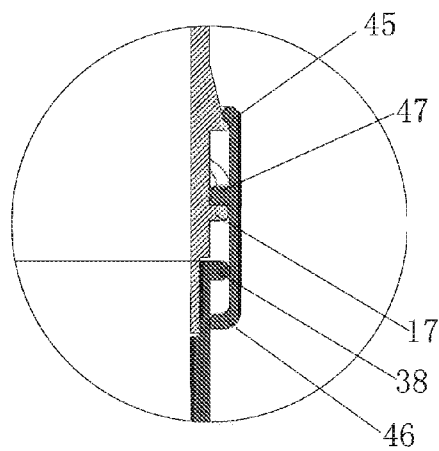


Fig. 36

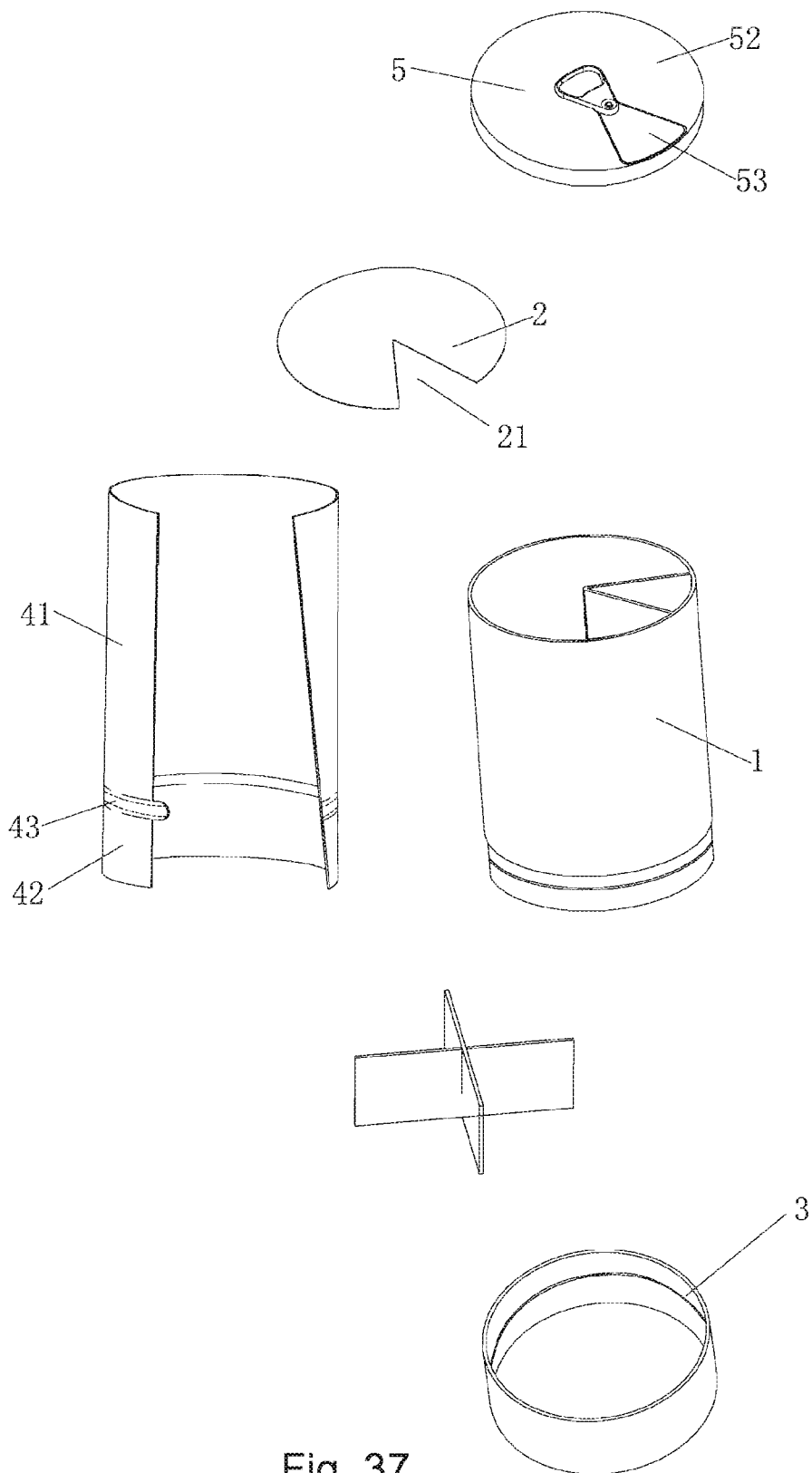


Fig. 37

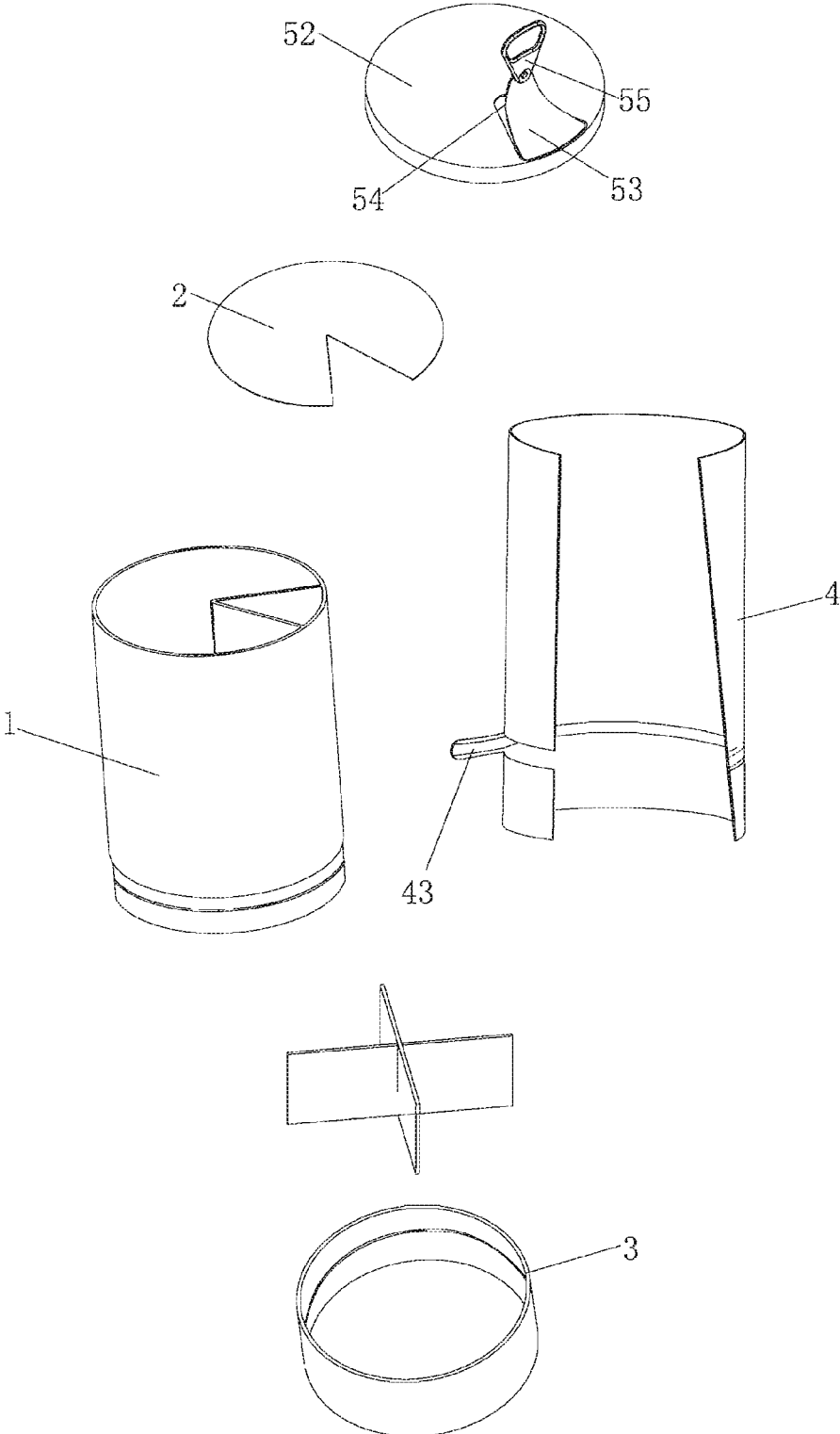


Fig. 38



## ROTARY DOSING DEVICE

### BACKGROUND OF THE PRESENT INVENTION

**[0001]** 1. Field of Invention

**[0002]** The present invention relates to a rotary dosing device.

**[0003]** 2. Description of Related Arts

**[0004]** A conventional rotary dosing device comprises a container body, a rotating bucket and a cap top. The rotating bucket, which has a plurality of dosing slots which are not communicated with each other, is rotatably coupled with the container body. The cap top, which is provided with an opening for dispensing material in the dosing slots, is covered on the container body. However, this kind of dosing device has an disadvantage that the rotating bucket is easy to rotate with respect to the container body, so that it is inconvenient for packaging and transporting.

### SUMMARY OF THE PRESENT INVENTION

**[0005]** The invention is advantageous in that it overcomes the disadvantage of the conventional art and provides a rotary dosing device that is convenient for packaging and transporting.

**[0006]** Additional advantages and features of the invention will become apparent from the description which follows, and may be realized by means of the instrumentalities and combinations particular point out in the appended claims.

**[0007]** According to the present invention, the foregoing and other objects and advantages are attained by a rotary dosing device comprising a container body, a rotating bucket, a cap top, a first restraining element and a second restraining element. The container body has an inlet passage and a discharge passage which are partitioned from each other. The rotating bucket is rotatably coupled with the container body, wherein the rotating bucket has at least two dosing slots which are partitioned from each other and defines at least two working positions, wherein in each of the working positions, at least one of the dosing slots of the rotating bucket is communicated with the inlet passage and another one of the dosing slots of the rotating bucket is communicated with the discharge passage. The cap top is capped on the container body, wherein the cap top has an opening. The first restraining element is connected to the container body and the rotating bucket for shifting between a packaging state in which movement between the container body and the rotating bucket is restricted and a using state in which restriction of movement between the container body and the rotating bucket is removed. The second restraining element is provided on the cap top for closing the opening in the packaging state and opening the opening of the cap top in the using state.

**[0008]** Preferably, the first restraining element is breakable material which is easy to be broken in the using state.

**[0009]** Preferably, the first restraining element is covered on a lower portion of an outer surface of the container body and an upper portion of an outer surface of the rotating bucket.

**[0010]** Preferably, the first restraining element comprises a first connecting portion connected to the container body, a second connecting portion connected to the rotating bucket, a middle connecting portion connecting the first connecting portion with the second connecting portion, wherein in the using state, at least one of the first connecting portion, the second connecting portion, and the middle connecting portion is torn up.

**[0011]** Preferably, the intensity of the first connecting portion and the second connecting portion is lower than the intensity of the middle connecting portion, wherein in the using state, at least one of the first connecting portion and the second connecting portion is torn up.

**[0012]** Preferably, the intensity of the first connecting portion and the second connecting portion is higher than the intensity of the middle connecting portion, wherein in the using state, the middle connecting portion is torn up.

**[0013]** Preferably, the first restraining element is a breakable ring encircled on the container body and the rotating bucket.

**[0014]** Preferably, the first restraining element is covered on a bottom side of the container body and a top side of the rotating bucket, wherein the first restraining element comprises a first thread portion and a bottom fringe provided on an inner surface thereof, wherein the container body comprises a second thread portion, wherein in the packaging state, the first thread portion is engaged with the second thread portion, and the bottom fringe hooks the rotating bucket in position, wherein in the using state, the bottom fringe is detached from the rotating bucket.

**[0015]** Preferably, the first restraining element is covered on a bottom side of the container body and a top side of the rotating bucket.

**[0016]** Preferably, the rotary dosing device further comprises a resilient frame comprising a first holding section, a second holding section, and a connecting section connecting the first holding section with the second holding section, wherein the first holding section is provided above the cap top and is biasing against the cap top, wherein the second holding section is provided below the rotating bucket and is biasing against the rotating bucket.

**[0017]** Preferably, the container body comprises a first engaging surface, wherein the rotating bucket comprises a second engaging surface rotatably coupled with the first engaging surface, wherein one of the first engaging surface and the second engaging surface comprises a protrusion member, while the other of the first engaging surface and the second engaging surface has a groove, wherein the protrusion member is retained in the groove.

**[0018]** Preferably, the second restraining element comprises a tearable first edge, wherein the opening has a second edge is shaped and sized to coupled with the second restraining element in such a manner that the first edge is connected to the second edge.

**[0019]** Preferably, the second restraining element is attached to the cap top, wherein the second restraining element comprises a first portion and a second portion which are connected to each other by tearable edges thereof, wherein the second portion is covered on the opening.

**[0020]** The present invention has the following advantages: Firstly, by means of providing the first restraining element and the second restraining element, when the rotary dosing device is not in use, the rotating bucket is prevented from rotating with respect to the container body and the opening is prevented from opening, so that the rotary dosing device is convenient for packaging and transporting; Secondly, by means of providing a breakable first restraining element, the rotary dosing device is prevented from repeating using, furthermore, when the first restraining element is covered on the connecting portion of the container body and the rotating bucket, effects such as sealing and moisture proof can be achieved.

[0021] Still further objects and advantages will become apparent from a consideration of the ensuing description and drawings.

[0022] These and other objectives, features, and advantages of the present invention will become apparent from the following detailed description, the accompanying drawings, and the appended claims.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0023] FIG. 1 is an exploded view of a rotary dosing device according to a preferred embodiment of the present invention.

[0024] FIG. 2 is a perspective view illustrating the rotary dosing device being in a packing state according to the above preferred embodiment of the present invention.

[0025] FIG. 3 is a perspective view illustrating the rotary dosing device being in a using state according to the above preferred embodiment of the present invention.

[0026] FIG. 4 is a sectional view illustrating the rotary dosing device being in the packing state according to the above preferred embodiment of the present invention.

[0027] FIG. 5 is a sectional view illustrating the rotary dosing device being in the using state according to the above preferred embodiment of the present invention.

[0028] FIG. 6 is an exploded view of a rotary dosing device according to a second preferred embodiment of the present invention.

[0029] FIG. 7 is a sectional view illustrating the rotary dosing device being in the packing state according to the above second preferred embodiment of the present invention.

[0030] FIG. 8 is an enlarged view of A in FIG. 7.

[0031] FIG. 9 is a sectional view illustrating the rotary dosing device being in the using state according to the above second preferred embodiment of the present invention.

[0032] FIG. 10 is an enlarged view of B in FIG. 9.

[0033] FIG. 11 is sectional view illustrating the connecting structure of the container body and the rotating bucket of the rotary dosing device according to the above second preferred embodiment of the present invention.

[0034] FIG. 12 is an enlarged view of C in FIG. 11.

[0035] FIG. 13 is sectional view illustrating an alternative connecting structure of the container body and the rotating bucket of the rotary dosing device according to the above second preferred embodiment of the present invention.

[0036] FIG. 14 is an enlarged view of D in FIG. 13.

[0037] FIG. 15 is a perspective view illustrating a rotary dosing device being in the packaging state according to a third preferred embodiment of the present invention.

[0038] FIG. 16 is an enlarged view of E in FIG. 15.

[0039] FIG. 17 is a sectional view illustrating the rotary dosing device being in the using state according to the above third preferred embodiment of the present invention.

[0040] FIG. 18 is an enlarged view of F in FIG. 17.

[0041] FIG. 19 is a perspective view illustrating the rotary dosing device being in the packing state according to a fourth preferred embodiment of the present invention.

[0042] FIG. 20 is a schematic view illustrating the first restraining element being in the packing state according to a fourth preferred embodiment of the present invention.

[0043] FIG. 21 is a perspective view illustrating the rotary dosing device being in the using state according to the above fourth preferred embodiment of the present invention.

[0044] FIG. 22 is a schematic view illustrating the first restraining element being in the using state according to the above fourth preferred embodiment of the present invention.

[0045] FIG. 23 is an exploded view of a rotary dosing device according to a fifth preferred embodiment of the present invention.

[0046] FIG. 24 is a perspective view illustrating the rotary dosing device being in the packaging state according to the above fifth preferred embodiment of the present invention.

[0047] FIG. 25 is a schematic view illustrating the first restraining element being in the packing state according to the above fifth preferred embodiment of the present invention.

[0048] FIG. 26 is a perspective view illustrating the rotary dosing device being in the using state according to the above fifth preferred embodiment of the present invention.

[0049] FIG. 27 is a schematic view illustrating the first restraining element being in the using state according to the above fifth preferred embodiment of the present invention.

[0050] FIG. 28 is a perspective view of a rotary dosing device according to a sixth preferred embodiment of the present invention.

[0051] FIG. 29 is a sectional view of the rotary dosing device according to the above sixth preferred embodiment of the present invention.

[0052] FIG. 30 is an enlarged view of G in FIG. 29.

[0053] FIG. 31 is an exploded view of a rotary dosing device according to a seventh preferred embodiment of the present invention.

[0054] FIG. 32 is a sectional view of the rotary dosing device according to the above seventh preferred embodiment of the present invention.

[0055] FIG. 33 is a sectional view illustrating the rotary dosing device being in the packaging state according to the above seventh preferred embodiment of the present invention.

[0056] FIG. 34 is an enlarged view of H in FIG. 33.

[0057] FIG. 35 is a sectional view illustrating the rotary dosing device being in the using state according to the above seventh preferred embodiment of the present invention.

[0058] FIG. 36 is an enlarged view of I in FIG. 35.

[0059] FIG. 37 is an exploded view of a rotary dosing device according to an eighth preferred embodiment of the present invention.

[0060] FIG. 38 is an exploded view illustrating the rotary dosing device being in the using state according to the above eighth preferred embodiment of the present invention.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0061] The present invention is further described in details through the preferred embodiments and the accompanying drawings as follow.

[0062] Referring to FIG. 1 to FIG. 5 of the drawings, a rotary dosing device according to a preferred embodiment of the present invention is illustrated, wherein the rotary dosing device comprises a container body 1, a cap top 2, a rotating bucket 3, a first restraining element 4, and a second restraining element 5. The container body 1 has an inlet passage 11 and a discharge passage 12 which are partitioned by a partition panel 13. The cap top 2 is capped on the container body 1 and can be removed therefrom. The cap top 2 closes and seals the top side of the inlet passage and has an opening 21 corresponding to the discharge passage. The rotating bucket 3, which is rotatably coupled with the container body, has at least two dosing slots 31 which are evenly distributed along a circumference of a circle with respect to an rotating axle thereof. The rotating bucket 3 and the container body 1 can be

coupled with each other in lock-hook manner or by frictional contact, so that the rotating bucket 3 is not easy to detach from the container body.

[0063] The first restraining element 4 is used to restrict the rotation movement between the rotating bucket and the container body. Accordingly, the first restraining element 4, which is a band shape substance, comprises a first connecting portion 41 connected with the container body, a second connecting portion 42 connected with the rotating bucket, and a middle connecting portion 43 provided between the first connecting portion 41 and the second connecting portion 42 for connecting the first connecting portion 41 and the second connecting portion 42. The intensity of the first connecting portion 41 and the second connecting portion 42 is lower than the intensity of the middle connecting portion 43. The first restraining element 4 may be provided with a first handle 44 provided at an end thereof.

[0064] The second restraining element 5, which is provided at the opening 21 of the cap top 2, can be provided with a detachable second handle 51. Accordingly, the second restraining element 5, which is shaped and sized to coupled with the opening 21, comprises a tearable first edge 57. The opening 24 has a second edge 24. In a packaging state, the first edge 57 is connected with the second edge 24, and in a using state, the first edge 57 is detached from the second edge 24, so that the opening 21 is opened.

[0065] A top portion of the rotating bucket 3 is sleeved with a bottom portion of the container body 1. The first connecting portion 41 of the first restraining element 4 is integrated with the bottom portion of the container body 1, while the second connecting portion 42 of the first restraining element 4 is integrated with the top portion of the rotating bucket 3. It is worth to mention that the connecting manner can be hot melting.

[0066] The rotary dosing device has a packing state and a using state. When in the packing state, the first restraining element 4 restricts the movement between the rotating bucket 3 and the container body 1, the second restraining element 5 closes and seals the opening 21 of the cap top. When the first restraining element 4 and the second restraining element 5 are torn apart via the first handle 41 and the second handle 51 respectively, the rotary dosing device is shifted to the using state, wherein the first connecting portion 41 and the second portion 42 of the first restraining element are torn apart from the container body 1 and the rotating bucket 3 respectively, so that the first restraining element is torn up, the second restraining 5 leaves away from the opening 21. Since the restriction to the movement between the container body and the rotating bucket and the opening is opened, a user can normally use the rotary dosing device then.

[0067] The rotating bucket has a plurality of working positions each having at least a dosing slot 31 which is communicated with the inlet passage and at the same time having at least another dosing slot which is communicated with the discharge passage. The rotary dosing device can be using for measuring and dispensing material such as solid powder, solid particles, gum, pills, chocolate chips, candy and other substance.

[0068] Referring to FIG. 6 to FIG. 12 of the drawings, a rotary dosing device according to a second preferred embodiment of the present invention is illustrated, wherein the rotary dosing device comprises a container body 1, a cap top 2, a rotating bucket 3, a first restraining element 4, and a second restraining element 5. Accordingly, the container body, the

cap top 2, the rotating bucket 3, the first restraining element 4, and the second restraining element 5 can be made of paper or other material.

[0069] The container body 1 has an inlet passage 11 and a discharge passage 12 which are partitioned by a partition panel 13. The cap top 2 closes and seals the top side of the inlet passage and has an opening 21 corresponding to the discharge passage.

[0070] The rotating bucket 3 comprises a base covering 32 and two radial panels 33 penetrating each other to form a cross structure. The base covering 32 has a installing cavity 34, wherein the two radial panels 33 are provided in the installing cavity 34 in such a manner that the installing cavity is divided into four dosing slot 31 which are not communicated with each other.

[0071] The first restraining element 4, which is used to restrict the movement between the container body and the rotating bucket, can wrap around the integral outer surface of the container body and the integral outer surface of the rotating bucket. Accordingly, the first restraining element 4 is connected to both the outer surface of the container body and the rotating bucket. It is worth to mention that the first restraining element has a middle connecting portion 43 which has a relatively lower intensity.

[0072] The second restraining element 5 is attached to the cap top and comprises a first portion 52 and a second portion 53 which are connected by a tearable rim 54. Accordingly, the second portion 53 is covered on the opening 21 of the cap top.

[0073] When in use, the rotating bucket is rotated with respect to the container body, the middle connecting portion 43 of the first restraining element 4 is torn up to destroy the first restraining element, so that the restriction to the movement between the container body and the rotating bucket is removed, and the second restraining element 5 is torn up to open the opening 21.

[0074] The container body 1 comprises a first engaging portion 14 at a bottom side thereof, the rotating bucket 3 comprises a second engaging portion 35 at a top side thereof sleeved on the first engaging portion 14. Accordingly, the first engaging portion 14 is coupled with the second engaging portion 35 by frictional engagement. The first restraining element 4 is encircled around the first engaging portion 14 is coupled with the second engaging portion 35. In order to increase the friction between the first engaging portion 14 is coupled with the second engaging portion 35, an inner surface (first engaging surface) of the first engaging portion 14 has at least a protrusion member 15 while an outer surface (second engaging surface) of the second engaging portion 35 has at least a corresponding groove 36, wherein the protrusion member 15 is embedded into the corresponding groove 36 so that the rotating bucket 3 is prevented from detaching from the container body 1. In an alternative embodiment, the inner surface of the first engaging portion 14 is provided with at least a groove, an outer surface of the first engaging portion 14 is provided with at least a protrusion member 15; the outer surface of the second engaging portion is provided with at least a protrusion member while the inner surface of the second engaging portion is provided with at least a groove 36, as shown in FIG. 13 to FIG. 14 of the drawings.

[0075] Referring to FIG. 15 to FIG. 18 of the drawings, a rotary dosing device according to a third preferred embodiment of the present invention is illustrated. The first restraining element 4 comprises a first connecting portion 41 connected with the container body, a second connecting portion

**42** connected with the rotating bucket, and a plurality of middle connecting portions **43** provided between the first connecting portion **41** and the second connecting portion **42**. The intensity of the plurality of middle connecting portions **43** is lower than the intensity of the first connecting portion **41** and the second connecting portion **42**. When the rotating bucket is rotated, the plurality of middle connecting portions are torn up to destroy the first restraining element, so that the restriction to the movement between the rotating bucket **3** and the container body **1** is removed.

**[0076]** Referring to FIG. 19 to FIG. 22 of the drawings, a rotary dosing device according to a fourth preferred embodiment of the present invention is illustrated. The first restraining element **4** is a breakable ring made of viscous material such as paraffin wax. The breakable ring is adhered and wrapped on the connecting part between the rotating bucket **3** and the container body **3**. When the rotating bucket is rotated, the breakable ring is broken down and destroyed, so that restriction to the movement between the rotating bucket and the container body is removed.

**[0077]** Referring to FIG. 23 to FIG. 27 of the drawings, a rotary dosing device according to a fifth preferred embodiment of the present invention is illustrated, wherein the rotary dosing device comprises a container body **1**, a rotating bucket **3** and a frame **6**. The frame **6**, which has resilient ability, comprises a first holding section **61**, a second holding section **62**, and a connecting section connecting the first holding section **61** and the second holding section **62**. The first holding section **61** and the second holding section **62** can be vertically extended from the connecting section **63**. The first holding section **61** is provided above the cap top **2** and is biasing against the cap top **2**, the second holding section **62** is provided below the rotating bucket **3** and is biasing against the rotating bucket **3**, so that the container body, the cap top and the rotating bucket are biasing against each other because of resilient ability of the frame. Thus the rotating bucket is prevented from detaching from the container body. It is worth to mention that the second restraining element **5** can be a breakable ring as shown in FIG. 20 of the drawing.

**[0078]** The rotating bucket **3** can have two dosing slot **31** so that just by rotating the rotating bucket leftward or right ward, the material contained in the dosing slot can be dispensed out, so that the operation of the dosing process can be simplified.

**[0079]** Referring to FIG. 28 to FIG. 30 of the drawings, a rotary dosing device according to a sixth preferred embodiment of the present invention is illustrated. The rotary dosing device comprises a first restraining element **4** comprising a first connecting portion **41**, a second connecting portion **42**, and a middle connecting portions **43**. The intensity of the middle connecting portion **43** is lower than the intensity of the first connecting portion **41** and the second connecting portion **42**. The middle connecting portion can have a V-shape groove structure. When the rotating bucket is rotated, the plurality of middle connecting portions are torn up to destroy the first restraining element, so that the restriction to the movement between the rotating bucket **3** and the container body **1** is removed.

**[0080]** The container body **1** comprises a first block **16** provided at a bottom side thereof, the rotating bucket **3** comprises a second block **37** provided at a top side thereof, wherein when the container body is assembled with the rotating bucket, the first block **16** hooks the second block **37** so that the rotating bucket is prevented from detaching from the container body. The first connecting portion **41** of the first

restraining element is integrated with the bottom portion of the container body **1**, the second connecting portion **42** is integrated with the top portion of the rotating bucket **3**. The container body, the first restraining element, and the rotating bucket can be made of paper, wherein in the packaging state, the container body, the first restraining element, and the rotating bucket are integrated to form a one-piece structure.

**[0081]** Referring to FIG. 31 to FIG. 36 of the drawings, a rotary dosing device according to a seventh preferred embodiment of the present invention is illustrated, wherein the rotary dosing device comprises a container body **1**, a cap top **2**, a rotating bucket **3**, a first restraining element **4**, and a second restraining element **5**. The container body **1** has an inlet passage **11** and a discharge passage **12** which are partitioned by a partition panel **13**. The cap top **2** is capped on the container body **1** and can be removed therefrom. The cap top **2** closes and seals the top side of the inlet passage. The rotating bucket **3** has a plurality of dosing slots **31** which are evenly distributed along an circumference of a circle with respect to an rotating axle thereof.

**[0082]** The container body **1** comprises a first engaging portion **14** at a bottom side thereof, wherein the first engaging portion **14** comprises a second thread portion **17** and a ring-shape protrusion edge **18** provided on an outer surface thereof. The rotating bucket **3** comprises a second engaging portion **35** at a top side thereof, wherein the second engaging portion **35** is provided with a ring-shape second protrusion edge **38**. The first restraining element **4** is a ring-shape structure having a longitudinal penetrating cavity **40**. The first restraining element **4** comprises a ring-shape top fringe **45** on top of an inner surface thereof, a ring-shape bottom fringe **46** on bottom of the inner surface thereof, and a first thread portion **47** in the middle of the inner surface thereof. The top fringe **45** corresponds to the first protrusion edge **18**, the bottom fringe **46** corresponds to the second protrusion edge **38**. The second engaging portion **35** wrapped on the first engaging portion **14** in such a manner that the second engaging portion **35** is coupled with the first engaging portion with frictional engagement, so that the rotating bucket **3** is prevented from detaching from the bottom side of the container body. It is worth to mention that the first and second thread portion can be continual and integral threads or fractional threads.

**[0083]** When assembling the rotary dosing device, the first restraining element **4** is covered on the bottom side of the container body and the top side of the rotating bucket **3**. When in the packaging state, the first thread portion **47** is engaged with the second thread portion **17**, the bottom fringe **46** is hooked on the second protrusion edge **38** of the rotating bucket, the top fringe **45** is away from the first protrusion edge **18** of the container (The top fringe **45** is spacedly aligned with the first protrusion edge **18**). When in use, the first restraining element **4** is rotated, the first thread portion **47** is disengaged with the second thread portion **17** (The first thread portion **47** is completely detached from the second thread portion **17**, or part of the first thread portion **47** is still engaged with the second thread portion **17**), the bottom fringe **46** is detached from the second protrusion edge **38** of the rotating bucket (The top fringe can be hooked with the first protrusion edge of the container body, or the top fringe is not required to be hooked with the first protrusion edge of the container body), so that the total dosing device is ready for being in a using

state in which the rotating bucket can rotate with respect to the container body so that measuring and dispensing of the material can be achieved.

[0084] Referring to FIG. 37 to FIG. 38 of the drawings, a rotary dosing device according to a eighth preferred embodiment of the present invention is illustrated, wherein the rotary dosing device has a similar structure with the rotary dosing device of the above second preferred embodiment except the structure of the first restraining element and the second restraining element. According to this preferred embodiment, the first restraining element 4 comprises a first connecting portion 41, a second connecting portion 42 and a middle connecting portion connecting the first connecting portion 41 and the second connecting portion 42. The first connecting portion is fixed to an outer wall of the container body, the intensity of the middle connecting portion 43 is lower than the intensity of the first connecting portion and the second connecting portion. When the rotating bucket is rotated with respect to the container body, the middle connecting portion is torn up, so that restriction to the movement between the container body and the rotating bucket is removed. The rotating bucket may have a same structure with the rotating bucket of the second preferred embodiment.

[0085] The second restraining element 5 is attached to the cap top and comprises a first portion 52 and a second portion 53 which are connected by a tearable rim 54. Accordingly, the second portion 53 is covered on the opening 21 of the cap top and is further provided with a pulling ring 55, so that when pulling the pulling ring 55, the rim 54 of the second portion is detached from the first portion, so that the opening 21 is opened.

[0086] The rotary dosing device of the present invention comprises a cap top, a container body, a rotating bucket, a first restraining element and a second restraining element. The cap top is capped on the container body. The container body has an inlet passage and a discharge passage which are partitioned with each other. The rotating bucket has at least two dosing slots and is rotatably coupled with the container body. The first restraining element is connected with the container body and the rotating bucket, while the second restraining element is provided on the cap top. When the dosing device is in the packaging state, the first restraining element is used to restrict the movement between the container body the rotating bucket, the second restraining element closes and seals the opening of the cap top. When in the using state, the restriction from the first restraining element is removed, the opening of the cap top is opened. The first restraining element can be a breakable material that is easy to be broken. The second restraining element can open the opening of the cap top when in the using state. When the opening of the cap top is opened, the second restraining element can be completely detached from the opening, or has an outer rim still connecting to the opening. The container body, the rotating bucket, the first restraining element and the second restraining element in the above preferred embodiments can be combined to assemble a rotary dosing device. For example, the cap top and the container body in the first preferred embodiment can be combined with the first restraining element, the second restraining element and the rotating bucket of the fifth preferred embodiment to obtain a rotary dosing device.

[0087] The above description is disclosed to enable any person skilled in the art to make and use the present invention. Preferable embodiments are provided in the above description only as examples and modifications which are apparent

to those skilled in the art. The general principles defined in the above description would be applied to other embodiments, alternatives, modifications, equivalents, and applications without departing from the spirit and scope of the present invention

1. A rotary dosing device, comprising:

- a container body having an inlet passage and a discharge passage which are partitioned from each other;
- a rotating bucket rotatably coupled with said container body, wherein said rotating bucket has at least two dosing slots which are partitioned from each other and defines at least two working positions, wherein in each of said working positions, at least one of the dosing slots of said rotating bucket is communicated with said inlet passage and another one of the dosing slots of said rotating bucket is communicated with said discharge passage;
- a cap top capped on said container body, wherein said cap top has an opening;
- a first restraining element connected to said container body and said rotating bucket for shifting between a packaging state in which movement between said container body and said rotating bucket is restricted and a using state in which restriction of movement between said container body and said rotating bucket is removed; and
- a second restraining element provided on said cap top for closing said opening is said packaging state and opening said opening of said cap top in said using state.

2. The rotary dosing device, as recited in claim 1, wherein said first restraining element is breakable material which is easy to be broken in said using state.

3. The rotary dosing device, as recited in claim 2, wherein said first restraining element comprises a first connecting portion connected to said container body, a second connecting portion connected to said rotating bucket, a middle connecting portion connecting said first connecting portion with said second connecting portion, wherein in said using state, at least one of said first connecting portion, said second connecting portion, and said middle connecting portion is torn up.

4. The rotary dosing device, as recited in claim 2, wherein said first restraining element is a breakable ring encircled on said container body and said rotating bucket.

5. The rotary dosing device, as recited in claim 1, wherein said first restraining element is covered on a bottom side of said container body and a top side of said rotating bucket, wherein said first restraining element comprises a first thread portion and a bottom fringe provided on an inner surface thereof, wherein said container body comprises a second thread portion, wherein in said packaging state, said first thread portion is engaged with said second thread portion, and said bottom fringe hooks said rotating bucket in position, wherein in said using state, said bottom fringe is detached from said rotating bucket.

6. The rotary dosing device, as recited in claim 1, wherein said first restraining element is covered on a bottom side of said container body and a top side of said rotating bucket.

7. The rotary dosing device, as recited in claim 1, further comprising a resilient frame comprising a first holding section, a second holding section, and a connecting section connecting said first holding section with said second holding section, wherein said first holding section is provided above said cap top and is biasing against said cap top, wherein said

second holding section is provided below said rotating bucket and is basing against said rotating bucket.

8. The rotary dosing device, as recited in claim 1, wherein said container body comprises a first engaging surface, wherein said rotating bucket comprises a second engaging surface rotatably coupled with said first engaging surface, wherein one of said first engaging surface and said second engaging surface comprises a protrusion member, while the other of said first engaging surface and said second engaging surface has a groove, wherein said protrusion member is retained in said groove.

9. The rotary dosing device, as recited in claim 1, wherein said second restraining element comprises a tearable first edge, wherein said opening has a second edge is shaped and sized to couple with said second restraining element in such a manner that said first edge is connected to said second edge.

10. The rotary dosing device, as recited in claim 1, wherein said second restraining element is attached to said cap top, wherein said second restraining element comprises a first portion and a second portion which are connected to each other by tearable edges thereof, wherein said second portion is covered on said opening.

11. The rotary dosing device, as recited in claim 2, wherein said second restraining element comprises a tearable first edge, wherein said opening has a second edge is shaped and sized to couple with said second restraining element in such a manner that said first edge is connected to said second edge.

12. The rotary dosing device, as recited in claim 2, wherein said second restraining element is attached to said cap top, wherein said second restraining element comprises a first portion and a second portion which are connected to each other by tearable edges thereof, wherein said second portion is covered on said opening.

13. The rotary dosing device, as recited in claim 3, wherein said second restraining element comprises a tearable first edge, wherein said opening has a second edge is shaped and sized to couple with said second restraining element in such a manner that said first edge is connected to said second edge.

14. The rotary dosing device, as recited in claim 3, wherein said second restraining element is attached to said cap top,

wherein said second restraining element comprises a first portion and a second portion which are connected to each other by tearable edges thereof, wherein said second portion is covered on said opening.

15. The rotary dosing device, as recited in claim 4, wherein said second restraining element comprises a tearable first edge, wherein said opening has a second edge is shaped and sized to couple with said second restraining element in such a manner that said first edge is connected to said second edge.

16. The rotary dosing device, as recited in claim 4, wherein said second restraining element is attached to said cap top, wherein said second restraining element comprises a first portion and a second portion which are connected to each other by tearable edges thereof, wherein said second portion is covered on said opening.

17. The rotary dosing device, as recited in claim 5, wherein said second restraining element comprises a tearable first edge, wherein said opening has a second edge is shaped and sized to couple with said second restraining element in such a manner that said first edge is connected to said second edge.

18. The rotary dosing device, as recited in claim 5, wherein said second restraining element is attached to said cap top, wherein said second restraining element comprises a first portion and a second portion which are connected to each other by tearable edges thereof, wherein said second portion is covered on said opening.

19. The rotary dosing device, as recited in claim 8, wherein said second restraining element comprises a tearable first edge, wherein said opening has a second edge is shaped and sized to couple with said second restraining element in such a manner that said first edge is connected to said second edge.

20. The rotary dosing device, as recited in claim 8, wherein said second restraining element is attached to said cap top, wherein said second restraining element comprises a first portion and a second portion which are connected to each other by tearable edges thereof, wherein said second portion is covered on said opening.

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