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(54) Rotating drum of vending machines with money box

Rotierende Trommel für Verkaufsautomaten mit Geldbehälter

Tambour rotatif pour un distributeur automatique avec cassette pour argent

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Description

OBJECT OF THE INVENTION

[0001] The object of the present invention is a rotating drum of vending machines with money box which allows the user to extract a soluble product contained in a recipient which forms part of a column thereof, in which each of the recipients is partially inserted in that immediately above.

[0002] The present invention is characterized by the presence of a rotating drum which separates and collects the bottom recipient of the column from that immediately above, so that when a turn is made of the money box handle, the recipient falls into a discharge tube thereof so that the user can collect them.

[0003] The recipients have in their interior the soluble product delimited by a film which prevents it from spilling out and which is adjacent to the recipient immediately below, since in the column of recipients these are arranged in the reverse position to that of their use.

BACKGROUND OF THE INVENTION

[0004] Vending machines with money box are very well known in the state of the art which allow, once a coin is inserted, a handle to be turned and a can or similar to be extracted from the machine.

[0005] Among the aforementioned machines is the Portuguese patent with publication number PT101787 referring to a modular display device of articles and of their distribution with natural selection which has a receptacle into which the products fall on rotating the money box handle through 180° and wherein on being rotated through a further 180°, the products are made to fall into a discharge tube of the same so that the user can collect them.

[0006] Likewise the Spanish patent is known with publication number ES2116942 referring to a dispensing mechanism for cans and similar in vending machines with money box which comprises a rotating drum in the form of a tubular body which has an opening for the entry of a can or similar inside a stationary piece, arranged concentrically to the drum.

[0007] Also it is known the patent GB190906306 referred to improvements in machines for vending or delivering merchandise such as liquids or solid substances in powdered or granular form which discloses a rotating drum of vending machines with money box which have one column of recipients located above the rotating drum whereby the drum has a groove which allows the last recipient of the column to fall by gravity to the interior of the rotating drum and at the same time that it retains the remaining recipients of the column outside of the rotating drum, where in the column, each of the recipients is partially inserted in that immediately above.

[0008] In the foregoing mechanisms, the recipient immediately above of the bottom recipient doesn't begin to travel the first segment of the spiral until the bottom recipient falls into the interior of the drum by the effect of gravity, reason why there is no continuity in the column of recipients, and the recipient inmediately above of the bottom recipient can be blocked between the column of recipients and the rotating drum.

[0009] All these drawbacks are overcome by means of the invention that is now disclosed.

DESCRIPTION OF THE INVENTION

[0010] The present invention relates to a rotating drum of vending machines with money box which allows the user to extract a soluble product contained in a recipient which is part of a column thereof.

[0011] This type of recipient, which is not the object of the present invention, is usually plastic cups which are arranged in a column in the reverse position to that of their final use.

[0012] The recipients have in their interior the soluble product delimited by a film which prevents it from spilling out and which is adjacent to the bottom of the recipient immediately below, so that each of the recipients is partially inserted in that immediately above, a gap existing between the upper rims of two consecutive recipients due to the soluble product.

[0013] The vending machines wherein the rotating drum of the present invention is inserted, have a rotating circular recipient holder with a series of holes along its periphery to hold the lower elements of each of the columns of products, containers or recipients.

[0014] The rotating drum is hollow in order to house the recipients, where its external wall is spiral in form, so that the initial part begins on the periphery of the drum and after one turn, the final part finishes facing the initial part through the interior of the drum, and separated by a certain distance.

[0015] Furthermore, the spiral grows in height in the first segment, there being a step thereafter that maintains the height constant until the final segment.

[0016] Thus, initially, before turning the money box handle to make the rotating drum rotate, the product column selected by the user of the circular recipient holder is located on the external wall of the rotating drum and more specifically, on the area behind the step in height.

[0017] When the user turns the money box handle, the drum rotates, so that the bottom recipient which is inside that immediately above, proceeds to pass along the last segment of the spiral until reaching the initial segment.

[0018] In that instant, on continuing to turn the money box handle, the bottom recipient travels the last segment of the spiral while the recipient immediately above begins to travel the first segment of the spiral.

[0019] Due to the presence of the remaining recipients of the column, the recipient immediately above the bottom recipient begins to travel the spiral, whilst the last recipient falls into the interior of the drum by the effect of gravity on completion of the spiral.

[0020] On completing the full turn of the money box handle, the first part of the spiral is in the bottom part, adjacent to the discharge tube of the machine, whereby the recipient falls in its position of use to be collected by the user.

[0021] In that position, the selected column of recipients is again located over the area behind the step in height of the external wall of the rotating drum, whereby the recipient that now occupies the bottom position cannot fall inside the rotating drum, the machine being ready for a new operation of extraction of a recipient after introducing a coin in the money box.

[0022] Afterwards, the user removes the film that protects the soluble product, fills the recipient with hot or cold water, and stirs it to prepare his drink.

DESCRIPTION OF THE DRAWINGS

[0023] The present descriptive specification is supplemented with a set of drawings which illustrate the preferred embodiment of the invention but which are not restrictive.

Figure 1 shows a view in perspective of the rotating drum of vending machines with money box object of the invention.

Figure 2 shows a view in rear elevation of the rotating drum in the starting position after the column of recipients is selected.

Figure 3 shows a view in rear elevation of the rotating drum in the position in which the bottom recipient rests on the last part of the spiral and that immediately above on the initial part.

Figure 4 shows a view in rear elevation of the rotating drum in the position in which the bottom recipient has fallen by gravity into the interior of the rotating drum and that immediately above rests on the spiral.

Figure 5 shows a view in rear elevation of the rotating drum in the final position, in which the bottom recipient falls by gravity into the discharge tube so that the user can collect it.

Figure 6 shows a view in perspective of the recipient holder on which are located the columns of the recipients with the diverse types of soluble products.

PREFERRED EMBODIMENT OF THE INVENTION

[0024] In the light of the foregoing, the object of the present invention is a rotating drum (1) of vending machines with money box which allows the user to extract a soluble product (2) contained in a recipient (3.1, 3.2) which forms part of a column (3) thereof.

[0025] Although each recipient becomes the bottom one when that preceding it has fallen in the rotating drum, for a better understanding of the invention it will be considered that the column of recipients has only two recipients (3.1, 3.2), the bottom one (3.1) and that immediately above (3.2).

[0026] The recipients (3.1, 3.2) hold in their interior the soluble product (2) delimited by a plastic film (4) which prevents it spilling out and which is adjacent to the base of the bottom recipient (3.1), so that each of the recipients (3.1, 3.2) is partially inserted in that immediately above (3.2), since a gap exists between the two consecutive recipients (3.1, 3.2) due to the soluble product (2).

[0027] The vending machines wherein the rotating drum (1) of the present invention is inserted, have a rotating circular recipient holder (5) with a series of holes (5.1) around its periphery to house the bottom elements of each of the columns of products, containers or recipients (3.1, 3.2).

[0028] The rotating drum (1), hollow in order to house the recipients, has an external wall in spiral form, so that the initial segment (1.1) begins on the periphery of the rotating drum (1) and after one turn, its final segment (1.2) finishes facing the initial segment (1.1) through the interior of the rotating drum (1) and is separated from the initial segment (1.1) by a certain distance, which in this example of preferred embodiment is the thickness of the soluble product (2) of the recipients (3.1, 3.2).

[0029] Moreover, the spiral grows in height in the initial segment (1.1), there being thereafter a step which maintains the height constant over the final segment (1.2) of the spiral.

[0030] Initially, before turning the money box handle to make the drum (1) rotate, shown in Figure 2, the product column selected by the user of the circular recipient holder (5) rests on the external wall of the rotating drum and more specifically, on the area behind the step in height which corresponds with the initial area (1.2.1) of the final segment (1.2).

[0031] When the user rotates the money box handle, the bottom recipient (3.1) rests on the final segment (1.2) of the spiral while the front rim (3.2.1) of the recipient immediately above (3.2) rests on the initial segment (1.1) of the spiral, as is shown in Figure 3.

[0032] When the rotation continues, the bottom recipient (3.1) does not find support on the spiral and falls to the interior of the rotating drum (1) by the effect of gravity, as shown in Figure 4.

[0033] On completing the full turn of the money box handle, the first segment (1.1) of the spiral is located on the bottom part of the rotating drum (1), adjacent to a discharge tube of the machine, whereby the bottom recipient (3.1) falls once again by gravity, this time to the discharge tube to which the user has access.

[0034] In that position, the selected column of recipients rests on the initial area (1.2.1) of the final segment (1.2) of the spiral, the machine being ready for a new operation of extraction of a recipient from any of the columns (3) mounted in the circular recipient holder (5), after

the introduction of a coin in the money box.

[0035] Focusing on the essence of the invention, this relates to a rotating drum (1) of vending machines with money box of among those which have at least one column (3) of products, containers or recipients (3.1, 3.2) located above the rotating drum (1) that has a spiral which allows the last recipient (3.1) of the column (3) to fall by gravity to the interior of the rotating drum (1) at the same time that it retains the remaining recipients of the column (3) outside of the rotating drum (1), where in the column, each of the recipients (3.1, 3.2) is partially inserted in that immediately above **characterised in that** the spiral has an initial segment (1.1) which begins on the periphery of the rotating drum (1) and after one turn of spiral, a final segment (1.2) finishes facing the initial segment (1.1) through the interior of the rotating drum (1), and is separated from the initial segment (1.1) by a certain distance.

[0036] The essential nature of this invention is not altered by variations in materials, form, size and arrangement of the component elements, described in a non-restrictive manner, this being sufficient for an expert to proceed to the reproduction thereof.

Claims

1. Rotating drum of vending machines with money box of among those which have at least one column (3) of products, containers or recipients (3.1, 3.2) located above the rotating drum (1) that has a spiral which allows the last recipient (3.1) of the column (3) to fall by gravity to the interior of the rotating drum (1) at the same time that it retains the remaining recipients of the column (3) outside of the rotating drum (1), where in the column, each of the recipients (3.1, 3.2) is partially inserted in that immediately above **characterised in that** the spiral has an initial segment (1.1) which begins on the periphery of the rotating drum (1) and after one turn of spiral, a final segment (1.2) finishes facing the initial segment (1.1) trough the interior of the rotating drum (1), and is separated from the initial segment (1.1) by a certain distance.

2. Rotating drum of vending machines with money box according to claim 1 **characterized in that** above the rotating drum (1) is a rotating circular recipient holder (5) with a series of holes (5.1) around its periphery to house the bottom elements of each of the columns (3) of products, containers or recipients (3.1, 3.2) selectable by the user.

3. Rotating drum of vending machines with money box according to claim 1 **characterized in that** the recipients (3.1, 3.2) have in their interior a soluble product (2) delimited by a film (4) which prevents it spilling out and which is adjacent to the base of the bottom recipient (3.1).

4. Rotating drum of vending machines with money box according to claim 3 **characterized in that** the space between the final segment (1.2) and the initial segment (1.1) of the spiral is equal to the thickness of soluble product (2) of the recipients (3.1, 3.2).

5. Rotating drum of vending machines with money box according to claim 1 **characterized in that** the spiral grows in height in the initial segment (1.1), there being thereafter a step which maintains the height constant along the final segment (1.2) of the spiral.

6. Rotating drum of vending machines with money box according to claim 1 **characterized in that** initially, before turning the money box handle to make the rotating drum (1) rotate, the column (3) of recipients (3.1, 3.2) rests on the external wall of an initial area (1.2.1) of the final segment (1.2) of the spiral.

7. Rotating drum of vending machines with money box according to claim 6 **characterized in that** when the user turns the money box handle, the bottom recipient (3.1) rests on the final segment (1.2) of the spiral while the front rim (3.2.1) of the recipient immediately above (3.2) rests on the initial segment (1.1) of the spiral.

8. Rotating drum of vending machines with money box according to claim 7 **characterized in that** on continuing to turn the handle of the money box, the bottom recipient (3.1) does not encounter support on the spiral and falls to the interior of the rotating drum (1) by the effect of gravity.

9. Rotating drum of vending machines with money box according to claim 8 **characterized in that** on completing the full turn of the money box handle, the first segment (1.1) of the spiral is located in the bottom part of the rotating drum (1), adjacent to a discharge tube of the machine, whereby the bottom recipient (3.1) falls once again by gravity, this time to a discharge tube to which the user has access.

10. Rotating drum of vending machines with money box according to claim 8 **characterized in that** on completing the full turn of the money box handle, the selected column of recipients rests on the initial area (1.2.1) of the final segment (1.2) of the spiral, leaving the machine ready for a new extraction operation.

11. Rotating drum of vending machines with money box according to claim 1 **characterized in that** in the column (3) the recipients (3.1, 3.2) are arranged in the reverse position to that of use.

12. Rotating drum of vending machines with money box according to claim 9 **characterized in that** the bottom recipient (3.1) falls to the discharge tube in the

position of use.

Patentansprüche

1. Rotierende Trommel in Verkaufsautomaten mit Geldbehälter und mindestens einer Säule (3) aus Produkten, Behältern oder Gefäßen (3.1, 3.2), die über der rotierenden Trommel (1) angebracht sind, welche eine Spirale umfasst, die den schwerebedingten Fall des letzten Behälters (3.1) der Säule (3) ins Trommelinnere freigibt und gleichzeitig die verbleibenden Behälter der Säule (3) außerhalb der Trommel (1) hält, während jeder der Behälter (3.1, 3.2) teilweise in den unmittelbar darüber liegenden Behälter eingefügt ist, wobei ein Anfangsabschnitt (erster Abschnitt, 1.1) der Spirale von der Peripherie (dem Rand) der rotierenden Trommel (1) ausgeht und ein Endabschnitt (1.2) nach einer Umdrehung der Spirale durch das Innere der rotierenden Trommel (1) dem Anfangsabschnitt (1.1) gegenüberliegt und von letzterem Abschnitt einen bestimmten Abstand einhält.

2. Rotierende Trommel in Verkaufsautomaten mit Geldbehälter nach Anspruch 1, **dadurch ausgezeichnet, dass** über der rotierenden Trommel (1) eine runde rotierende Halterung (5) für Behälter angebracht ist, die an ihrer Peripherie (ihrem Rand) über eine Reihe von Öffnungen (5.1) verfügt, welche die unteren Produkte, Behälter oder Gefäße (3.1, 3.2) der Säulen (3) beherbergen, unter denen der Benutzer wählen kann.

3. Rotierende Trommel in Verkaufsautomaten mit Geldbehälter nach Anspruch 1, **dadurch ausgezeichnet, dass** die Behälter (3.1, 3.2) in ihrem Inneren ein lösliches Produkt (2) enthalten, das von einem Film (4) überzogen ist, der das Verschütten verhindert und neben dem unteren Abschnitt des unteren Behälters (3.1) angebracht ist.

4. Rotierende Trommel in Verkaufsautomaten mit Geldbehälter nach Anspruch 3, **dadurch ausgezeichnet, dass** der Abstand zwischen dem Endabschnitt (1.2) und dem Anfangsabschnitt (1.1) der Spirale der Dicke des in den Behältern (3.1, 3.2) vorhandenen löslichen Produkts (2) gleicht.

5. Rotierende Trommel in Verkaufsautomaten mit Geldbehälter nach Anspruch 1, **dadurch ausgezeichnet, dass** die Höhe der Spirale im Anfangsabschnitt (1.1) zunimmt, aber danach eine Stufe angebracht ist, welche die Höhe der Spirale entlang ihres Endabschnitts (1.2) konstant hält.

6. Rotierende Trommel in Verkaufsautomaten mit Geldbehälter nach Anspruch 1, **dadurch ausgezeichnet, dass** anfänglich, bevor man den Handhebel des Geldbehälters betätigt, um die rotierende Trommel (1) in Drehung zu versetzen, die Säule (3) aus Behältern (3.1, 3.2) an der Außenwand einer Anfangsfläche (1.2.1) des Endabschnitts (1.2) der Spirale anliegt.

7. Rotierende Trommel in Verkaufsautomaten mit Geldbehälter nach Anspruch 6, **dadurch ausgezeichnet, dass** der untere Behälter (3.1) nach Drehung des Handhebels des Geldbehälters durch den Benutzer auf dem Endabschnitt (1.2) der Spirale zum Stehen kommt, während der vordere Rand (3.2.1) des unmittelbar darüber liegenden Behälters (3.2) auf dem Anfangsabschnitt (1.1) der Spirale ruht.

8. Rotierende Trommel in Verkaufsautomaten mit Geldbehälter nach Anspruch 7, **dadurch ausgezeichnet, dass** der untere Behälter (3.1) bei weiterer Drehung des Handhebels des Geldbehälters auf der Spirale keine Auflage mehr findet und schwerebedingt ins Innere der rotierenden Trommel (1) fällt.

9. Rotierende Trommel in Verkaufsautomaten mit Geldbehälter nach Anspruch 8, **dadurch ausgezeichnet, dass** der Anfangsabschnitt (1.1) der Spirale nach einer vollen Umdrehung des Handhebels des Geldbehälters auf dem unteren Teil der rotierenden Trommel (1) neben einem Ausgaberohr der Maschine zum Stillstand kommt, wodurch der untere Behälter (3.1) erneut schwerebedingt fällt, diesmal ins Ausgaberohr, zu dem der Benutzer Zugang hat.

10. Rotierende Trommel in Verkaufsautomaten mit Geldbehälter nach Anspruch 8, **dadurch ausgezeichnet, dass** die gewählte Säule aus Behältern nach einer vollen Umdrehung des Handhebels des Geldbehälters auf der Anfangsfläche (1.2.1) des Endabschnitts (1.2) der Spirale aufliegt und die Maschine somit für einen neuerlichen Entnahmevorgang bereit ist.

11. Rotierende Trommel in Verkaufsautomaten mit Geldbehälter nach Anspruch 1, **dadurch ausgezeichnet, dass** die Behälter (3.1, 3.2) in der Säule (3) in der dem Gebrauch entgegengesetzten Position angeordnet sind.

12. Rotierende Trommel in Verkaufsautomaten mit Geldbehälter nach Anspruch 9, **dadurch ausgezeichnet, dass** der untere Behälter (3.1) in Gebrauchsposition ins Ausgaberohr fällt.

Revendications

1. Tambour tournant de distributeurs automatiques

avec un coffret-tirelire du type ayant au moins une colonne (3) de produits, conteneurs ou récipients (3.1, 3.2) situés au-dessus du tambour tournant (1) a une spirale qui permet que le dernier récipient (3.1) de la colonne (3) tombe par pesanteur à l'intérieur du tambour tournant (1) en même temps qu'elle retient le reste des récipients de la colonne (3) en dehors du tambour tournant (1), où dans la colonne, chacun des récipients (3.1, 3.2) est partiellement inséré dans celui immédiatement supérieur, **caractérisé en ce que** la spirale a un segment initial (1.1) qui commence dans la périphérie du tambour tournant (1) et après un tour de spirale, un segment final (1.1) termine en regard du segment initial (1.1) à travers l'intérieur du tambour tournant (1), et se sépare du segment initial (1.1) par une certaine distance.

2. Tambour tournant de distributeurs automatiques avec coffret-tirelire selon la revendication 1 **caractérisé en ce qu'**au-dessus le tambour tournant (1) se trouve un support de récipient circulaire tournant (5) avec une série d'orifices (5.1) autour de sa périphérie pour loger les éléments inférieurs de chacune des colonnes (3) des produits, conteneurs ou récipients (3.1, 3.2) sélectionnables par l'utilisateur.

3. Tambour tournant de distributeurs automatiques avec coffret-tirelire selon la revendication 1, **caractérisé en ce que** les récipients (3.1, 3.2) ont en leur sein un produit soluble (2) délimité par un film (4) qui prévient son échappement et qui est attenant à la base du récipient inférieur (3.1)

4. Tambour tournant de distributeurs automatiques avec coffret-tirelire selon la revendication 3, **caractérisé en ce que** l'espace entre le segment final (1.2) et le segment initial (1.1) de la spirale est identique à l'épaisseur du produit soluble (2) des récipients (3.1, 3.2).

5. Tambour tournant de distributeurs automatiques avec coffret-tirelire selon la revendication 1, **caractérisé en ce que** la spirale grandit en hauteur dans le segment initial (1.1), en ayant par la suite une étape qui maintient constante la hauteur le long du segment final (1.2) de la spirale.

6. Tambour tournant de distributeurs automatiques avec coffret-tirelire selon la revendication 1, **caractérisé en ce qu'**initialement, avant de tourner la poignée du coffret-tirelire pour faire tourner le tambour tournant (1), la colonne (3) des récipients (3.1, 3.2) s'appuie sur la paroi externe d'une zone initiale (1.2.1) du segment final (1.2) de la spirale.

7. Tambour tournant de distributeurs automatiques avec coffret-tirelire selon la revendication 6, **caractérisé en ce** lorsque l'utilisateur tourne la poignée du coffret-tirelire, le récipient inférieur (3.1) s'appuie sur le segment final (1.2) de la spirale tandis que le rebord (3.2.1) du récipient immédiatement supérieur (3.2) s'appuie sur le segment initial (1.1) de la spirale.

8. Tambour tournant de distributeurs automatiques avec coffret-tirelire selon la revendication 7, **caractérisé en ce que** lorsque l'on continue a tourner la poignée du coffret-tirelire, le récipient inférieur (3.1) ne trouve pas assise sur la spirale et tombe à l'intérieur du tambour tournant (1) par l'effet de la pesanteur.

9. Tambour tournant de distributeurs automatiques avec coffret-tirelire selon la revendication 8, **caractérisé en ce qu'**en complétant le tour complet de la poignée du coffret-tirelire, le premier segment (1.1) de la spirale est situé dans la partie inférieur du tambour tournant (1), attenant à un tube de décharge du distributeur, de la sorte le récipient inférieur (3.1) tombe à nouveau par pesanteur, cette fois dans un tube de décharge auquel a accès l'utilisateur.

10. Tambour tournant de distributeurs automatiques avec coffret-tirelire selon la revendication 8, **caractérisé en ce qu'**en complétant le tour complet de la poignée du coffret-tirelire, la colonne sélectionnée de récipients s'appuie sur la zone initiale (1.2.1) du segment final (1.2) de la spirale, en laissant le distributeur prêt pour une nouvelle opération d'extraction.

11. Tambour tournant de distributeurs automatiques avec coffret-tirelire selon la revendication 1, **caractérisé en ce que** dans la colonne (3), les récipients sont disposés dans la position inversée à celle d'utilisation.

12. Tambour tournant de distributeurs automatiques avec coffret-tirelire selon la revendication 9, **caractérisé en ce que** le récipient inférieur (3.1) tombe dans le tube de décharge dans la position d'utilisation. g

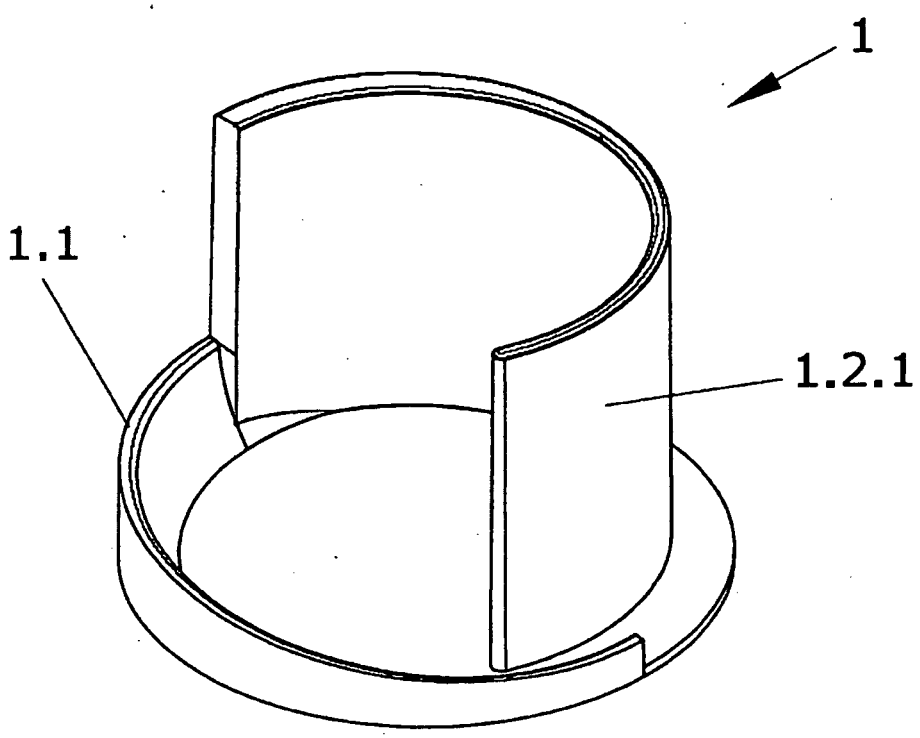

FIG.1

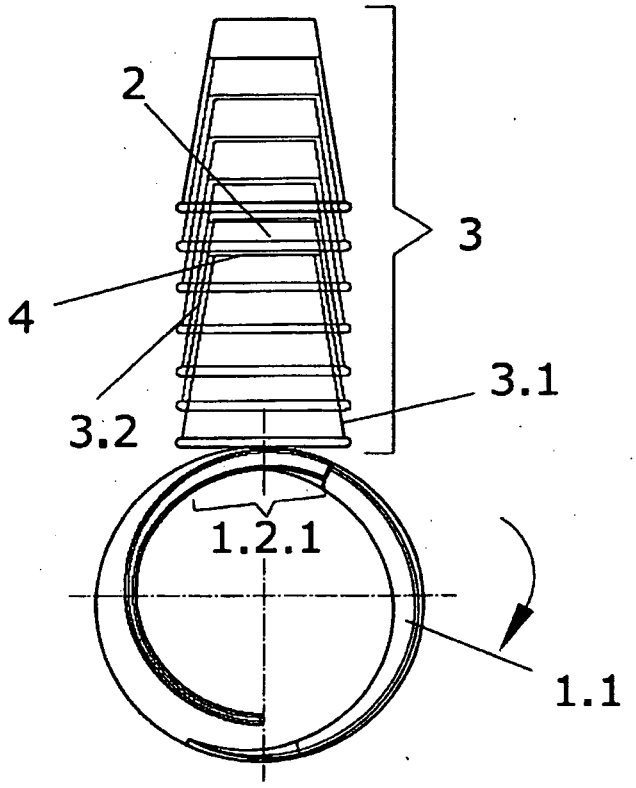

FIG.2

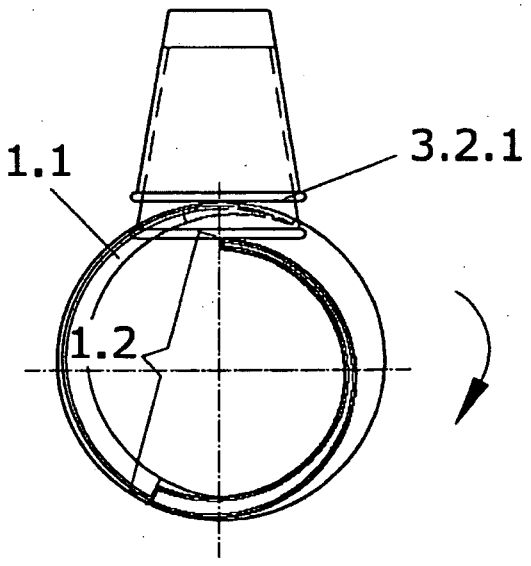

FIG.3

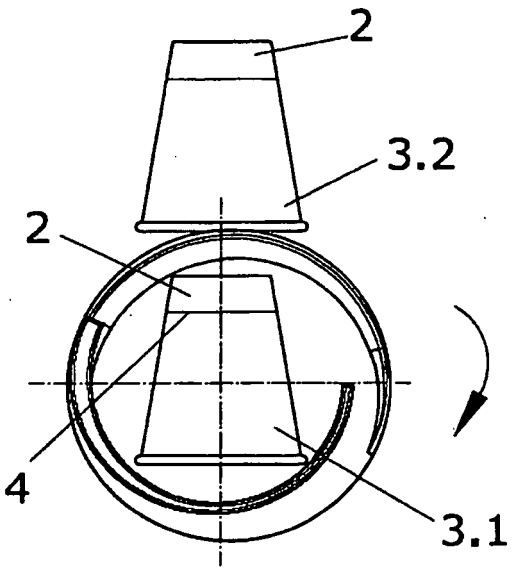

FIG.4

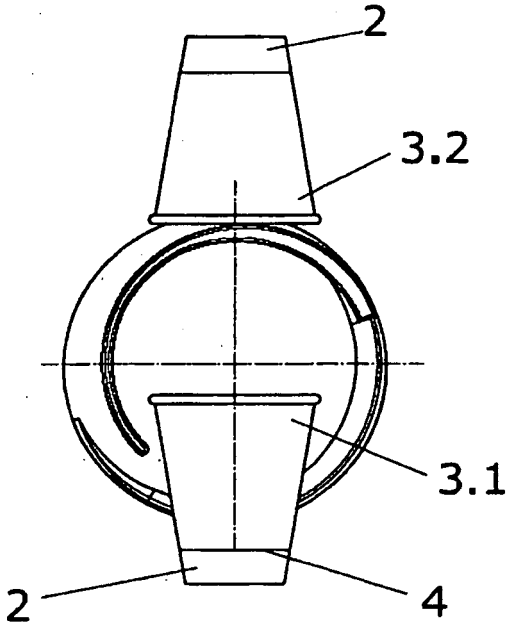

FIG.5

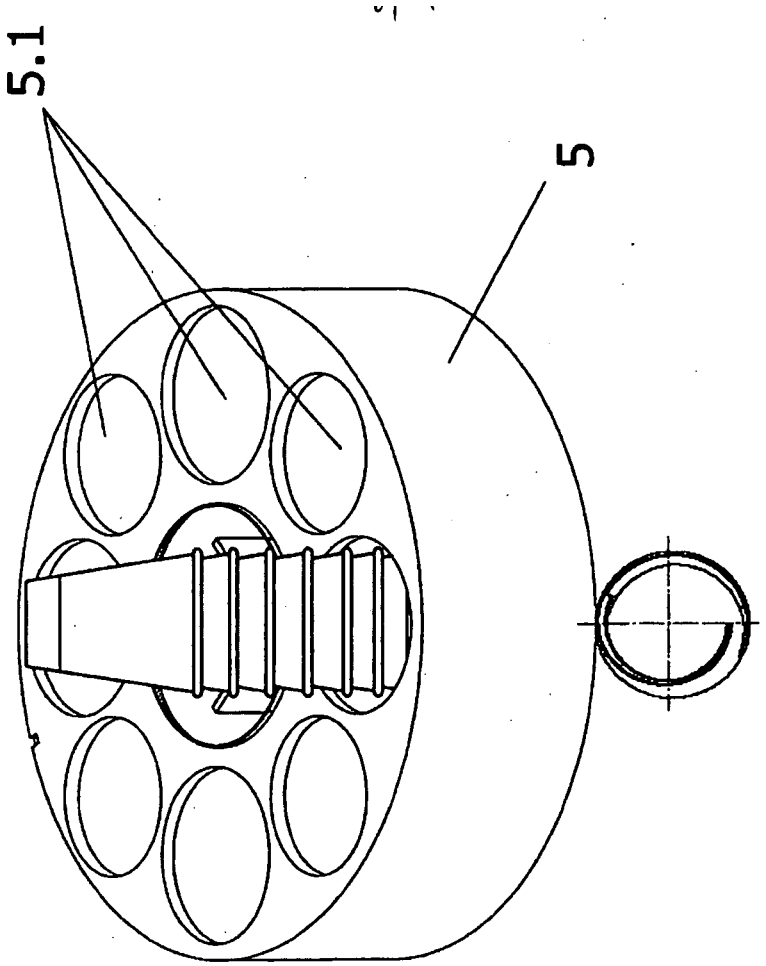

FIG.6

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- PT 101787 **[0005]**
- ES 2116942 **[0006]**
- GB 190906306 A **[0007]**