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(54) **Method of protecting a flexible container or a flexible tube, and flexible tube especially for pastes, gels, creams and ointments**

(57) Method of protecting flexible container or flexible counter-element characterized in that to at least one surface (A) of counter-element (1) is mounted, preferably glued, one side of double-sided adhesive belt (2), coated with a securing protective layer (3) which is detachable and divided into sectors (4), and next is peel of a securing protective layer (3) from at least one of the sectors (4),

and emptied from the substance part of container (7) from the direction of end of the weld (5) of counter-element (1) is bending in the direction of flow of the substance that means the direction of the channel/channels outflow of the substance preferably direction of nut (6), and then is glued to the emptied from the substance part of container (7) on the belt (2) in place securing protective layer (3) and unglued sector (4).

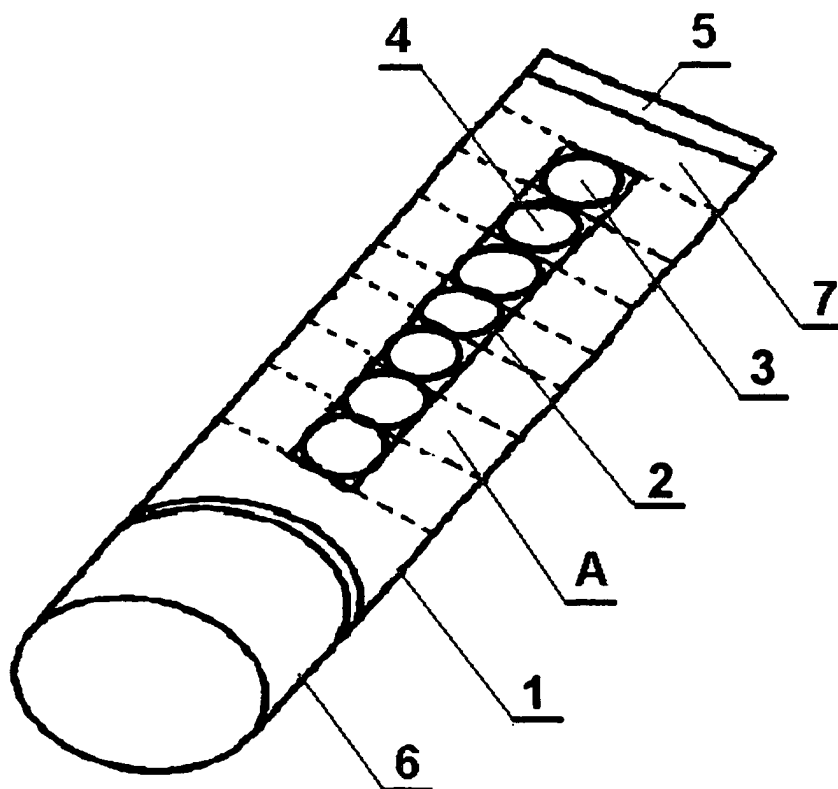


Fig. 1

Description

[0001] The present invention relates to a method of protecting flexible container or flexible tube and flexible tube especially for pastes, gels, creams and ointments. are also called the effective "flush to empty substance" system-SQOO.

[0002] The current flexible tube are made of soft material, easily, engaged in the compression, extrusion, causing under-contained its product, which is in arrears in the package and completely unused, and the package itself, after a partial squeezing out its contents, it looks unsightly, is still a lot of space, and its subsequent use is inconvenient and inefficient.

[0003] From Patent US20090095769 is known a tube containing the both of their surfaces evenly spaced fasteners of male and female, allowing collapse of the empty tube by combining with each male and female connectors in order to protect the tube from unrolling. Connectors are male and female snaps.

[0004] From the polish description of a utility model nr 58,411 in known a protecting for all types of containers against unauthorized opening and is characterized by the fact that at the surface, the container rim is made of at least one hole, and cover the container has at least one tongue Situated in the hole when the container is closed. The tongue has on one surface protrusions in the shape of interlocking triangles.

[0005] From the polish description of a utility model nr 57690 is known a container, especially of plastic with a visible security closure. The container is on the perimeter skirt guided performance, working with a recessed lid, with the performance of the circuit is interrupted, where he placed a safety net, which is a cross-sectional shape. Security is linked horizontal part of the container by perforation and vertical part, directly from the form-fitting performance, including through the perforations. In addition, security is weakening shaped cutouts in the form of rectangles and placed under the horizontal part of the brackets. Securing the closure so shaped container can be used in various types of containers, especially plastic. Provides secure and tight closure and opening of the container free from selected first opening.

[0006] The purpose of this invention is to provide a flexible tube design and construction, which effectively secure tube or container from self unroll after using a part of content of tube make it partly empty.

[0007] Method of protecting flexible container or flexible tube **characterized in that** to at least one surface of tube is mounted, preferably glued, one side of double-sided adhesive belt, coated with a securing protective layer which is detachable and divided into sectors, and next is peel of a securing a protective layer from at least one of the sectors, and emptied from the substance part of container from the direction of end of the weld of tube is bending in the direction of flow of the substance that means the direction of the channel/channels outflow of the substance preferably direction of nut, and then is

glued to the emptied from the substance part of container on the belt in place securing protective layer and unglued sector, where the steps described above are repeated several times to completely empty the container from substance.

[0008] Flexible tube especially for pastes, gels, creams and ointments **characterized in that**, at least one surface of tube is mounted one of surface of a belt, coated with a protective layer of protection, divided into sectors.

[0009] The width of the belt is not greater than the width of the end of the weld of tube.

[0010] The length of the belt is not greater than the length of the tube.

[0011] The securing protective layer is not greater than the size of the belt.

[0012] The sector of securing protective layer has a length at least 1 mm and width at least 1mm.

[0013] Sector of securing protective layer are mutually spaced apart of at least 0.01 mm.

[0014] Sector are rectangular, square, circle or trapezoid.

[0015] As the securing protective layer is used a: wax paper, aluminum foil, parchment, foil or PVC transparent film.

[0016] As the belt is used a belt made in one of the technology: lane spraying, gluing, including the imposition of layers, double-sided adhesive strip, strip assemblage.

[0017] Method of protecting flexible container or flexible tube **characterized in that**, on the empty part flexible tube is spirally wounded a security rigid consisting of the ear ended by two parallel bars although a longer one is a counter-element, and then counter-element security rigid is bending preferably closely the surface of tube preventing unroll the tube, where the action described above is repeated several times to completely empty the container from substance.

[0018] Method of protecting flexible container or flexible tube **characterized in that**, the empty part of the flexible tube is bending in the direction of flow of the substance and next is mounted on the back folded tube locking element preferably a cap and / or clip, where the action described above is repeated several times to completely empty the container from substance.

[0019] Method of protecting flexible container or flexible tube **characterized in that**, to at least one of the surfaces is applied preferably point to point glueing adhesive substance and the empty part of the flexible tube is bending in the direction of flow of the substance and folded by press against the surfaces to one another, until the permanent join is made, where the action described above is repeated several times to completely empty the container from substance.

[0020] The invention will be used in flexible tube, including tubes, containers used for tube, for example toothpaste, adhesives, gels, ointments, food products, technical toothpastes and other products with the consistency of a soft, where will serve as a protected emptied

before the un-roll the tube and the retreat of the substance contained in the tube.

[0021] The invention enables full use of the product contained in the tube, given the opportunity to regularly empty the content of tube, and look smooth, esthetically during it's use.

[0022] The invention is explained on the drawings on which Fig. 1 shows the flexible tube a view from the side, Fig.2 shows the steps how to secure the flexible container in a side view, Fig.3 shows the different types of sectors, Fig.4 shows a flexible tube with a locking - blocking belt, Fig. 5 shows a flexible tube with a mounted clip.

Example 1 (Single belt, tangent sectors)

[0023] At least one surface A of tube 1 is attached to the surface of a belt 2, coated with a securing protective layer 3 divided into sectors 4. Width of the belt 2 is not greater than the width of the end of the weld 5 of tube 1 and is 5 cm. The length of the belt 2 is not greater than the length of tube 1 and is 10 cm.

[0024] The securing protective layer 3 is not greater than the size of the belt 2 and is 5 cm.

[0025] Sector 4 for securing protective layer 3 has a length of d_s 1 cm and width s_s 5cm.

[0026] Sector 4 for securing protective layer 3 are mutually tangent.

[0027] As the securing protective layer 3 we applied a wax paper with a thickness of 0.1 mm. As the belt 2 we applied a self-adhesive strip on both sides.

[0028] In order to protect against unglue a securing protective layer 3 from at least one of the sectors 4 and emptied of the substance of the container 7 from the end weld 5 of tube 1 is bending in the direction of flow of the substance that means the direction of the channel / channels outflow preferably a nut 6 and then is glued to the emptied from the substance part of container 7 to the belt 2 in place of securing protective layer 3 and unglued sector 4 securing, where the steps described above is repeated several times to completely empty the container of the substance.

[0029] Presented at Figure 1.

Example 2 (many belts, separate sectors)

[0030] At least one of the surface A tube 1 is attached to the surface of a belt 2, coated with a securing protective layer 3 divided into sectors 4

[0031] Belt 2 width is not greater than the width of the end of the weld 5 of container 1 and is 5cm. The length of the belt 2 is not greater than the length of container 1 and is 10 cm.

[0032] The securing protective layer 3 is not greater than the size of the belt 2 and is 5 cm.

[0033] Sector 4 for securing protective layer 3 has a length of d_s 0.5 cm width and s_s 5cm.

[0034] Sector 4 for securing protective layer 3 are mutually separated by h_s for about 0.5 cm. As the securing

protective layer 3 we applied a wax paper with a thickness of 0.1 mm. As the belt 2 we applied a self-adhesive strip on both sides.

[0035] In order to protect against unglue a securing protective layer 3 from at least one of the sectors 4 and emptied of the substance of the container 7 from the end weld 5 of tube 1 is bending in the direction of flow of the substance that means the direction of the channel / channels outflow preferably a nut 6 and then is glued to the emptied from the substance part of container 7 to the belt 2 in place of securing protective layer 3 and unglued sector 4 securing, where the steps described above is repeated several times to completely empty the container of the substance.

[0036] Presented at Figure 3.

Example 3 (many belts, separate sectors)

[0037] At least one of the surface A tube 1 is attached to the surface of a belt 2, coated with a securing protective layer 3 divided into sectors 4. Width of the belt 2 is not greater than the width of the end of the weld 5 of container 1 and is 5cm. The length of the belt 2 is not greater than the length of container 1 and is 10 cm.

[0038] The securing protective layer 3 is not greater than the size of the belt 2 and is 5 cm.

[0039] Sector 4 for securing protective layer 3 has a length of d_s 0.2 cm width and s_s 5cm.

[0040] Sector 4 for securing protective layer 3 are mutually separated by h_s about 3 cm. As the securing protective layer 3 we applied a wax paper with a thickness of 0.1 mm. As the belt 2 we applied a self-adhesive strip on both sides.

[0041] In order to protect against unglue a securing protective layer 3 from at least one of the sectors 4 and emptied of the substance of the container 7 from the end weld 5 of tube 1 is bending in the direction of flow of the substance that means the direction of the channel / channels outflow preferably a nut 6 and then is glued to the emptied from the substance part of container 7 to the belt 2 in place of securing protective layer 3 and unglued sector 4 securing, where the steps described above is repeated several times to completely empty the container of the substance.

[0042] Presented at Figure 3.

Example 4

[0043] On the emptied part 7 of flexible tube 1 is spirally wounded a secure rigid 8 consisting of ear 9 ended by two parallel bars although the longer one is a counter-element 10, and then counter-element (10) security rigid (8) is bending preferably closely the surface of tube preventing unroll the tube, where the action described above is repeated several times to completely empty the container from substance.

[0044] Presented at Figure 4.

Example 5

[0045] Element **12** is mounted on the back - rigid **11** of tube has a length of 10 cm, the ridge has a width of 5 cm.

[0046] Emptied part of the flexible container **1** is folded in the direction of flow of the substance and next is mounted on the back -rigid **11** folded tube locking element **12** - clip and sides of the clip is folded tightly on the outside of the container, with the action described above is repeated several times to completely empty the container of the substance.

[0047] Presented at Fig.5.

Claims

1. Method of protecting flexible container or flexible tube **characterized in that** to at least one surface (**A**) of tube (**1**) is mounted, preferably glued, one side of double-sided adhesive belt (**2**), coated with a securing protective layer (**3**) which is detachable and divided into sectors (**4**), and next is peel of a securing a protective layer (**3**) from at least one of the sectors (**4**), and emptied from the substance part of container (**7**) from the direction of end of the weld (**5**) of tube (**1**) is bending in the direction of flow of the substance that means the direction of the channel/channels out-flow of the substance preferably direction of nut (**6**) , and then is glued to the emptied from the substance part of container (**7**) on the belt (**2**) in place securing protective layer (**3**) and unglued sector (**4**), where the steps described above are repeated several times to completely empty the container from substance.
2. Flexible tube especially for pastes, gels, creams and ointments **characterized in that**, at least one surface (**A**) of tube (**1**) is mounted one of surface of a belt (**2**), coated with a protective layer of protection (**3**), divided into sectors (**4**).
3. Flexible tube according to claim 2, **characterized in that**, the width of the belt (**2**) is not greater than the width of the end of the weld (**5**) of tube (**1**)
4. Flexible tube according to claim 2, **characterized in that**, the length of the belt (**2**) is not greater than the length of the tube (**1**)
5. Flexible tube according to claim 2, **characterized in that**, the securing protective layer (**3**) is not greater than the size of the belt (**2**)
6. Flexible tube according to claim 2, **characterized in that**, the sector (**4**) of securing protective layer (**3**) has a length (**d_s**) at least 1 mm and width (**ss**) at least 1 mm.
7. Flexible tube according to claim 2, **characterized in that**, sector (**4**) of securing protective layer (**3**) are mutually spaced apart (**h_s**) of at least 0.01 mm
8. Flexible tube according to claim 2, **characterized in that**, sector (**4**) are rectangular, square, circle or trapezoid.
9. Flexible tube according to claim 2, **characterized in that**, as the securing protective layer (**3**) is used a: wax paper, aluminum foil, parchment, foil or PVC transparent film.
10. Flexible tube according to claim 2, **characterized in that**, as the belt (**2**) is used a belt made in one of the technology: lane spraying, gluing, including the imposition of layers, double-sided adhesive strip, strip assemblage.
11. Method of protecting flexible container or flexible tube **characterized in that**, on the empty part (**7**) flexible tube (**1**) is spirally wounded a security rigid (**8**) consisting of the ear (**9**) ended by two parallel bars although a longer one is a counter-element (**10**), and then counter-element (**10**) security rigid (**8**) is bending preferably closely the surface of tube preventing unroll the tube, where the action described above is repeated several times to completely empty the container from substance.
12. Method of protecting flexible container or flexible tube **characterized in that**, the empty part of the flexible tube (**1**) is bending in the direction of flow of the substance and next is mounted on the back (**11**) folded tube locking element (**12**) preferably a cap and / or clip, where the action described above is repeated several times to completely empty the container from substance.
13. Method of protecting flexible container or flexible tube **characterized in that**, to at least one of the surfaces is applied preferably point to point glueing adhesive substance and the empty part of the flexible tube (**1**) is bending in the direction of flow of the substance and folded by press against the surfaces to one another, until the permanent join is made, where the action described above is repeated several times to completely empty the container from substance.

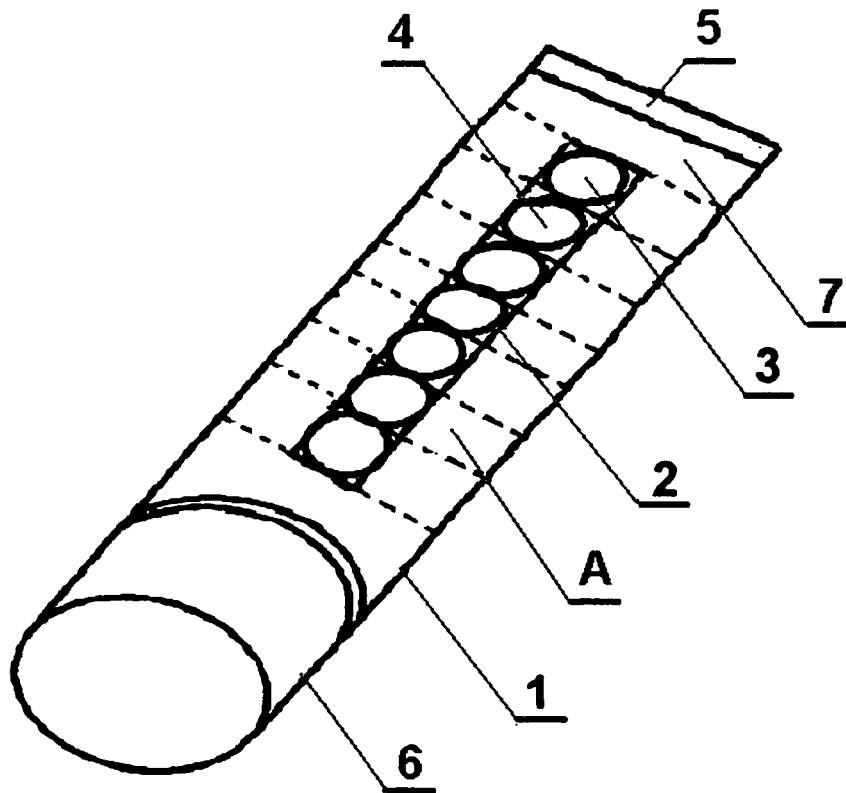


Fig. 1

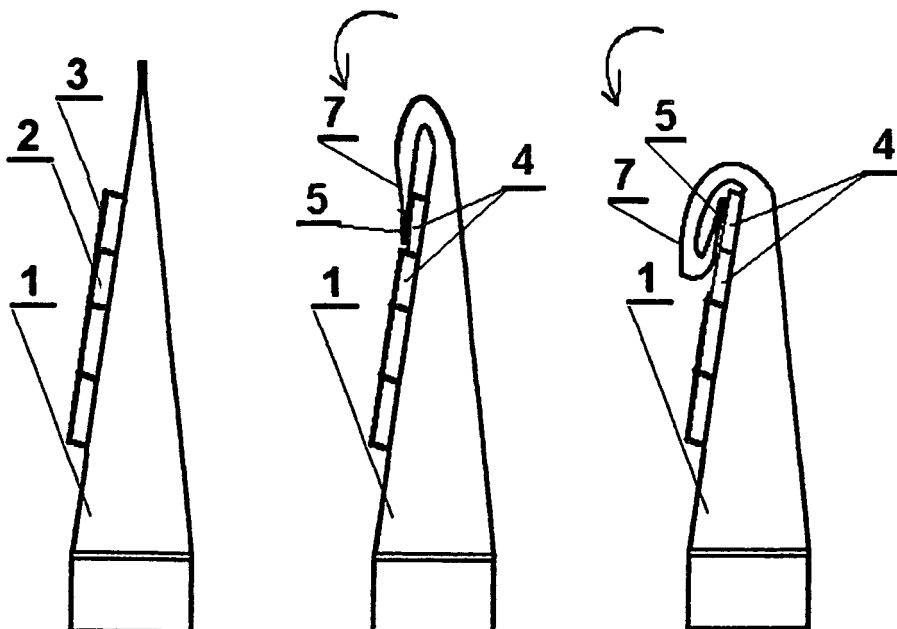


Fig. 2

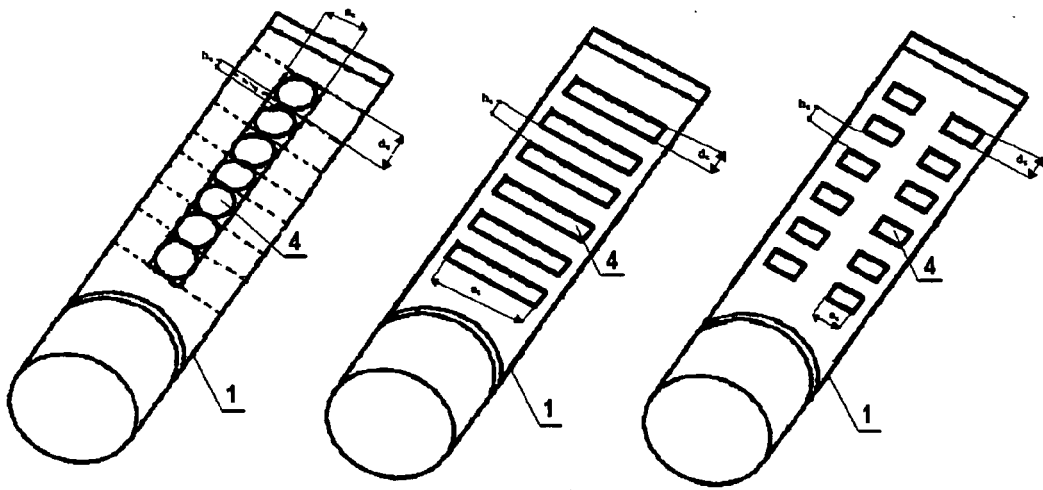


Fig.3

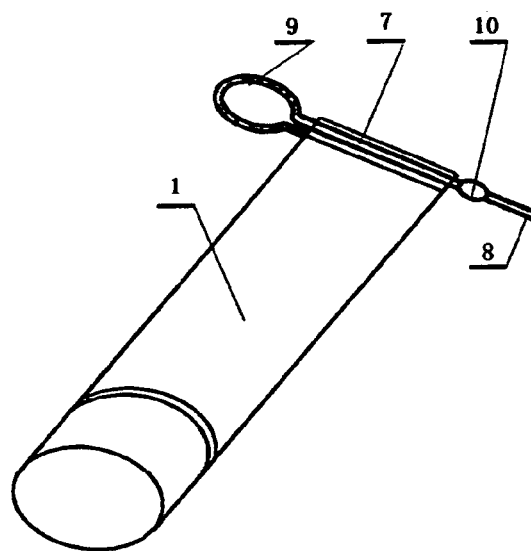


Fig. 4

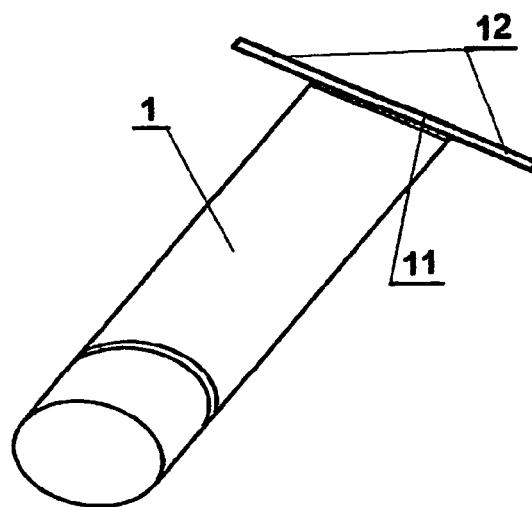


Fig. 5



EUROPEAN SEARCH REPORT

Application Number
EP 11 46 0051

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 11 April 2012	Examiner Duc, Emmanuel
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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