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(54) **Roll-on applicator device for a container of powder deodorant products**

(57) A roll-on applicator device for powder products suitable for being attached to a container of said products, comprising a sleeve (1) with a tubular member (2) for connection to the container, a distributor ball (6) placed in the sleeve and partially projecting from one of its ends, annular means (7) for the support of the distributor ball integral with and inside the sleeve, and means (5) for

retaining it in the sleeve such as to allow its free rotation. Below the annular support means (7), inside the sleeve (1), an annular wall (8) is provided, extending therefrom and tilted towards the distributor ball, to define a chamber (10) for holding a sufficient quantity of powder for ensuring powdering of the distributor ball for the entire duration of a normal deodorant action.

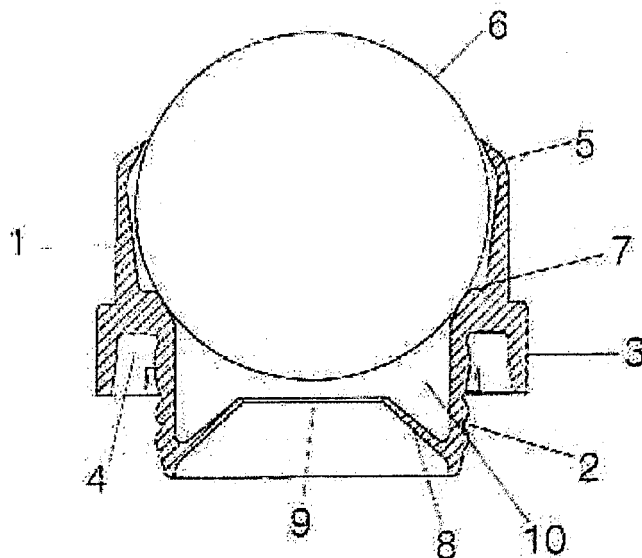


Fig. 2

Description

[0001] The present invention relates in general to the area of application of powder products and more specifically relates to an applicator device for distributing powder products from a container over a surface. More particularly the invention relates to a roll-on applicator device for powder deodorant products.

[0002] In the present description the term "deodorant product" is understood to include any product for bodily hygiene with deodorant, antiperspirant and similar functions.

[0003] Numerous systems for distributing powder products over a surface are known. In the area of hygiene and cosmetic products the use has been proposed of an applicator device of the so-called roll-on type for the distribution of a powder antiperspirant product to avoid dispersion in the air of particles of powder with the related unpleasant effect of coating with powder and the possibility of causing inconvenience for the user who accidentally inhales these particles of powder (see for example the European patent application no. EP790018).

[0004] The roll-on distribution system is formed by a ball engaged rotatingly in an inside cylindrical sleeve engaged in turn, by pressure or screwing, in the neck of the container. Said system is ideal for liquid or gelatinous compounds but not for powders, as the layer of powder that adheres to the ball and which, by rotation, is transferred onto the surface of the body, is soon used up. In fact, in the normal use of similar products, the container is held in a vertical or slightly tilted position, but with the opening wherefrom the powder issues turned upwards. In this position, due to the effect of gravity, the product in powder form held in the container is on the bottom of the same container, thus obliging the user to turn the container over continuously to allow the distributor ball to come into contact with the deodorant powder.

[0005] In order to seek to avoid this disadvantage, a roll-on applicator for powders has been proposed with a slim annular chamber around the ball. Instead of a straight cylinder the section of the sleeve wherein the ball engages is slightly convex so as to form, with the surface of the ball, a small chamber where the powder, by turning over the container, can be deposited in a quantity considered sufficient, but which in practice is found in any case to be insufficient for complete distribution of the product, thus obliging the user to turn over the container further and in practice leaving the problem unsolved.

[0006] US patent no. 6042289 sought to solve the problem of the quantity of powder in contact with a rotating, cylindrical or spherical distributor element by inserting under said distributor element a concave chamber where, during the initial overturning, the powder necessary for a satisfactory distribution would be deposited. However the quantity of powder that actually succeeds in entering this concave chamber is small because, when again overturning the container to bring it into the position of use, the powder falls with an axial trajectory, while it

would require a diagonal trajectory to enter the concave chamber in an optimal manner.

[0007] The object of the present invention is to provide a roll-on applicator device suitable for being attached to containers of powder deodorant products that succeeds in achieving effective contact between the applicator ball and the deodorant powder for a length of time sufficient for normal use of similar products.

[0008] A further object of the present invention is to provide an applicator device of the type mentioned above that allows use of the container in a substantially vertical position, i.e. with the distributor ball turned upwards.

[0009] These objects are achieved with the roll-on applicator device according to the present invention wherein a sleeve is provided, fitted with means suitable for freely retaining, and for forming the support of, the distributor ball. Immediately under said means a chamber is provided for temporary holding of the powder, formed by an annular wall that extends from the internal face of the sleeve and is tilted towards the distributor ball. By overturning the container the powder easily enters this chamber and in a sufficient quantity for allowing the distribution of the powder deodorant product on the body surface, without the need to overturn the container additional times.

[0010] Other features and advantages of the roll-on applicator device according to the present invention will be made clearer by the following description of one of its embodiments, given by way of a non-limiting example with reference to the accompanying drawings in which:

Figure 1 shows a side view of the roll-on applicator device according to the present invention;

Figure 2 shows a vertical section of the roll-on applicator device of Figure 1;

Figure 3 shows in an enlarged, sectioned view a detail of the applicator device of Figure 1.

[0011] Referring to Figure 1, 1 denotes a sleeve ending on one side with a tubular member 2, having a diameter smaller than that of the sleeve and ribbed circumferentially, and with a portion 3 of greater diameter that forms, together with the member 2, an annular chamber 4. Tubular member 2 is suitable for engaging, with moderate forcing, in the neck of a container of deodorant powder, not shown, in such a way that the free edge of said neck engages in the annular chamber 4, forming in this way a sealed connection between the sleeve 1 and the container. The sleeve 1, on the side opposite to the tubular member 2, has slight curving 5 of its edge inwards to retain a distributor ball 6 in the sleeve 1, in a projecting manner therefrom and without however preventing its rotation.

[0012] As shown in Figures 2 and 3, the tubular member 2 ends, inside the sleeve, with an annular shoulder 7, whereon the distributor ball 6 rests freely, whereas near the opposite end it has an annular wall 8 projecting internally and tilted towards the distributor ball 6, immediately above. This annular wall 8, which defines a central

opening 9, forms, together with the internal wall of the tubular member 2, a chamber 10 wherein, by overturning the container, the powder product accumulates, passing through the central opening 9.

[0013] During use the distributor ball rolls over the body surface due to its sliding thereon and to a light pressure applied by the user. During this movement the container is tilted slightly in various directions with continuity and this movement is sufficient to help deposit a layer of powder coming from the chamber 10 onto the surface of the distributor ball 6.

[0014] In this way the objects of the invention are achieved in full, in that the accumulation chamber 10 of the powder ensures adequate restoration of the layer of powder on the distributor ball 6 for a distribution of deodorant powder of normal duration.

[0015] It should be noted how in the present invention both the support of the distributor ball and the chamber for containing the powder product are part of the applicator device. This aspect distinctly differentiates the applicator device according to the present invention from that illustrated in US patent no. 6042289, where the chamber for accumulation of the powder product is formed integrally with the wall of the same container of the product, so that the present invention has the additional advantage of not requiring the use of containers with a special internal structure, but instead containers of a conventional type can be used.

[0016] Variations and/or modifications may be made to the applicator device for roll-on powder deodorant products according to the present invention without thereby departing from the scope of the invention as set forth in the following claims.

Claims

1. Roll-on applicator device for powder products designed to be attached to a container of said products, comprising a sleeve (1) with a tubular member (2) for the connection to the container, a distributor ball (6) placed in said sleeve (1) and partially projecting from one of its ends, annular support means (7) of said distributor ball (6) integral with, and inside, said sleeve (1), and means for rotatably retaining (5) it inside said sleeve (1), **characterized in that** below said annular support means (7), inside said sleeve (1), an annular wall (8) is provided, extending therefrom and tilted towards said ball, so as to define a chamber (10) for holding a sufficient quantity of powder for ensuring powdering of the distributor ball (6) throughout the duration of a normal deodorant action.
2. Roll-on applicator device for powder products according to claim 1, wherein said tubular member (2) has a width smaller than that of said sleeve (1), said annular support means (7) being formed by the end

of said tubular member (2) extending in said sleeve (1).

3. Roll-on applicator device for powder products according to claim 1 or 2, wherein said sleeve (1), at said tubular member (2), has a widened portion defining an annular housing (4) wherein the neck of said container engages.
4. Roll-on applicator device according to any one of the previous claims, wherein said tubular member (2) projects from said sleeve (1).
5. Roll-on applicator device according to any one of the previous claims, wherein said retaining means comprise a reduction in the diameter of the edge of said sleeve (1) at the end opposite that wherefrom said tubular member (2) extends.

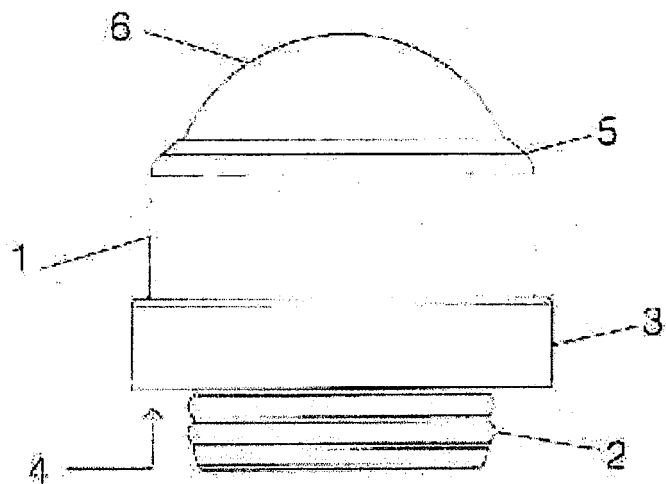


Fig. 1

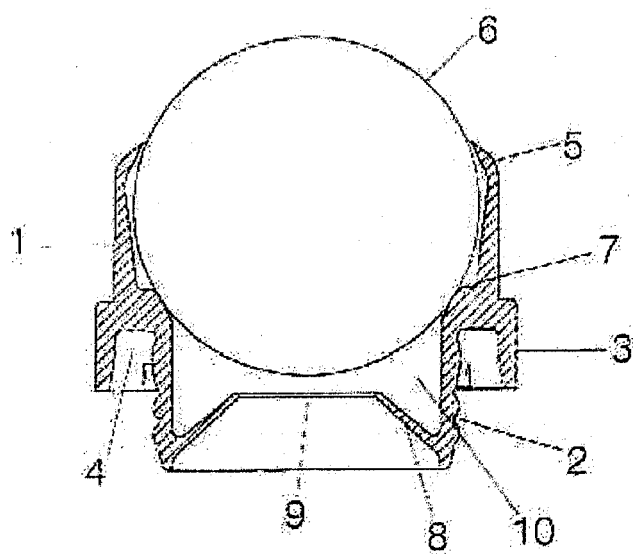


Fig. 2

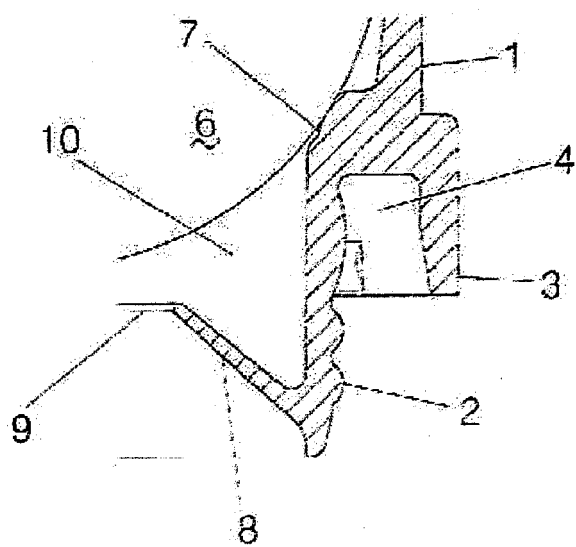


Fig. 3



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EUROPEAN SEARCH REPORT

Application Number
EP 05 11 2224

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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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 10 March 2006	Examiner Koob, M
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 05 11 2224

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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10-03-2006

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