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(56) Citations:  
DE 22 11 753 C3  
DE 198 12 133 A1  
DE 34 26 739 A1  
DE 33 27 615 AI

**The following information was taken from the documents submitted by the applicant**

Examination request filed per § 44 Patent Act

(54) Combination packaging

(57) Combination package (1) for packaging a first and a second flowable material (2, 3), which are kept separate until their use and which are mixed together for their use, wherein the mixture (4) is removed from a closable removal opening (5). The first material (2) is held by a first package part (6) and the second material (3) is held by a second package part (7), wherein the first package part (6) is configured to be screwed onto the second package part (7). The first package part (6) is configured as an essentially rotationally symmetrical screw cap (8) and has at an upper outer side (9) the removal opening (5) and at the inner side a downwardly open cuplike container (10), which contains the first material (2) and is closed liquid-tight by means of a separation film (11) at the container rim (12). The second package part (7) is closed liquid-tight by a plug (13), which is provided with a device (15) arranged at the plug base (14) for opening the separation film (11).

The plug (13) is configured as a cup and it closes the second package part (7) firmly against axial displacement. The plug base (14) has an inclined base (16), which is provided in the edge region (17) with a predetermined breaking zone (18), which is torn off from the container rim (12) when the two package parts (6, 7) are screwed together, while between an outer side wall (19) of the ...

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preamble of claim 1.  
Such a combination packaging is known from DE 198 12 153 A1 of the applicant. It has been found that the plug 12 according to Fig. 1 cannot be placed without problem in its closure position, since this is only in a frictional locking position, which requires a precise packaging process. Nevertheless, during a mass production unwanted leakage can occur due to an imprecise fit in the locking position.

It is therefore the problem to be solved by the invention to create a combination packaging of this category in which the plug during a mass production can be easily placed in its closure position and unwanted leakage can be prevented with certainty. Furthermore, the manual mixing process should be possible with a relatively slight expenditure of force.

This problem is solved by the characterizing features of claim 1. Further advantageous embodiments of the invention will emerge from the subclaims.

The invention is explained more closely by means of two sample embodiments. There are shown:

Fig. 1 in a sectional representation a combination package with a first and a second package part as a first sample embodiment;

Fig. 2 in a perspective view the second package part;

Fig. 3 in a top view a plug with piercing element;

Fig. 4 the combination package of Fig. 1, but in a phase of bringing together the two package parts;

Fig. 5 the combination package of Fig. 4, but in a fully assembled condition, and

Fig. 6 in a side view a second sample embodiment of an assembled combination package.

Fig. 1 shows a combination package 1 for packaging a first and a second flowable material 2, 3, which are kept separate until their use and which are mixed together for their use, wherein the mixture 4 is removed from a closable removal opening 5. The first material 2 is held by a first separate package part 6 and the second material 3 is held by a second separate package part 7. The first package part 6 is configured to be screwed onto the second package part 7, wherein the first package part 6 is configured as an essentially rotationally symmetrical screw cap 8 and has at an upper outer side 9 the removal opening 5 and at the inner side a downwardly open cuplike container 10, which contains the first material 2 and is closed liquid-tight by means of a separation film 11 at the container rim 12. The second package part 7 is closed liquid-tight by a plug 13, which is provided with a device 15 arranged at the plug base 14 for opening the separation film 11. The plug 13 is configured with a sealing collar 32 so that it closes the second package part 7 firmly against axial displacement. The plug base 14 is recessed and it has an inclined base 16, which is provided in the edge region 17 with a predetermined breaking zone 18, which is torn off from the container rim 12 when the two package parts 6, 7 are screwed together (internal thread

5 The inclined base 16 has an angle of inclination of around 8 degrees, so that there is a relatively short path for the separation of the plug base 14. Because

10 the piercing element 22 is not taller than an upper edge height 28 of the plug 13, it is ensured that the piercing element 22 only comes into contact with the separation film 11 after the liquid-tight connection 21 is produced. Until the time of  
15 removal of the mixture 4, the opening 5 remains closed by a cap 30. The first and the second package part 6, 7 are separated until use, for example, arranged alongside each other in a folded box (not shown). The two package parts 6, 7  
20 economically consist of plastic. The first material 2 is a powderlike product 25 and the second material 3 is a liquid product 26, while the mixture 4 is a cosmetic product, especially a cosmetic hair product such as a two-component permanent wave  
25 cosmetic. The screw cap 8 is provided with an internal thread 27 of larger diameter than the diameter of the container rim 12 of the cuplike container 10, while the separation film 11 has a diameter such that it is centrally guided by the  
30 internal thread 27 when placed on the cuplike container 10 for the closing (sealing). The removal opening 5 is closed by means of a cap 30 until the removal of the mixed materials 2, 3. The separation film 11 is weldable composite material  
35 of plastic and metal (e.g., aluminum), with the metal side arranged toward the piercing element 22 and it is welded to the container rim 12 by a usual welding method (such as ultrasound welding). This produces a better piercing behavior  
40 of the separation film 11. When the user brings the parts together, a distinct opening or activation noise can be heard and thus the activation can be determined. This noise is adjustable in its loudness by the toughness or brittleness of the plastic  
45 material. The producing of a predetermined breaking zone 18 is a tool-dependent and defined situation, while a plug 13 in a locking position is dependent on many tolerances. The plug 13 is easier to position by its inclined base 14 with  
50 predetermined breaking zone 18 than a plug which has to be placed in a locking position. The plug 13 with the predetermined breaking zone 18 is a tool-related piece as well as a defined use in the bottle neck, which is easy to install and has the least  
55 tolerance dependencies.

Fig. 2 and 3 show more clearly the cross-shaped piercing element 22. Preferably, the piercing element 22 is joined to the plug 13 as a single piece and is provided as an injection molded plastic part.

In order to bring the two package parts 6, 7 together to produce a mixture 4 of the two materials 2, 3, the first package part 6 is screwed onto the second package part 7, so that in the  
60 course of the screwing on at first a liquid-tight connection 21 occurs between the outer side wall 19 of the cuplike container 10 and the inner side wall 20 of the plug 13. Next, the separation film 11 is pierced by the piercing element 22, which is shown in Fig. 4. After this, the container rim 12 of the container 10 reaches the upper region 31 of the  
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from the container rim 14, which is shown by Fig. 5, whereupon the plug base 14 drops downward and the separation film 11 is opened entirely on top, so that the material 2 from the container 10 flows onto the material 3 and by manual shaking of the combination package 1 a ready to use mixture 4 is produced, which can be removed through the opening 5 by taking of the cap 30. A second sample embodiment of a combination container 1.1 is shown in Fig. 6, where the two package parts 6, 7 are also joined together as a package unit 23 prior to use, and a familiar tear-off safety device 24 prevents an unintentional mixing of the two materials 2, 3.

#### List of reference symbols

1,1.1 Combination package  
2 First material  
3 Second material  
4 Mixture  
5 Removal opening  
6 First package part  
7 Second package part  
8 Screw cap  
9 Upper outer side  
10 Cuplike container  
11 Separation film  
12 Container rim  
13 Plug  
14 Plug base  
15 Device  
16 Inclined base  
17 Edge region  
18 Predetermined breaking zone  
19 Outer side wall  
20 Inner side wall  
21 Liquid-tight connection  
22 Piercing element  
23 Package unit  
24 Safety device  
25 Powderlike product  
26 Liquid product  
27 Internal thread  
28 Rim height/plug 13  
29 External thread  
30 Cap  
31 Upper region  
32 Sealing collar

#### Patent claims

1. Combination package (1) for packaging a first and a second flowable material (2, 3), which are kept separate until their use and which are mixed together for their use, wherein the mixture (4) is removed from a closable removal opening (5), the first material (2) is held by a first package part (6) and the second material (3) is held by a second package part (7), the first package part (6) is configured to be screwed onto the second package part (7), wherein the first package part (6) is configured as an essentially rotationally symmetrical screw cap (8) and has at an upper outer side (9) the removal opening (5) and at the inner side a

5 second package part (7) is closed liquid-tight by a plug (13), which is provided with a device (15) arranged at the plug base (14) for opening the separation film (11),  
10 **characterized in that** the plug (13) is configured as a cup and it closes the second package part (7) firmly against axial displacement, the plug base (14) has an inclined base (16), which is provided in the edge region (17) with a predetermined  
15 breaking zone (18), which is torn off from the container rim (12) when the two package parts (6, 7) are screwed together, while between an outer side wall (19) of the cuplike container (10) and an inner side wall (20) of the plug (13) there is a liquid-tight connection  
20 (21).

2. Package according to claim 1, characterized in that the device (15) is outfitted as a cross-shaped piercing element (22).

25 3. Package according to claim 2, characterized in that the piercing element (22) is not taller than an upper rim height (28) of the plug (13).

4. Package according to claim 1, characterized in that the inclined base (16) of the plug base (14)  
30 has an angle of inclination of around 8 degrees.

5. Package according to claim 1, characterized in that the first and the second package part are separate until use.

6. Package according to claim 1, characterized in that the first and the second package part (6, 7) are also joined together as a package unit (23) until use.

7. Package according to claim 6, characterized in that a safety device (24) prevents an unintentional  
40 mixing of the two materials (2, 3).

8. Package according to claim 1, characterized in that the first and the second package part (6, 7) consist of plastic.

9. Package according to claim 1, characterized in that the first material (2) is a powderlike product (25) and the second material (3) a liquid product (26).

10. Package according to claim 1 and/or claim 8, characterized in that the mixture (4) of the two materials (2, 3) is a cosmetic product.

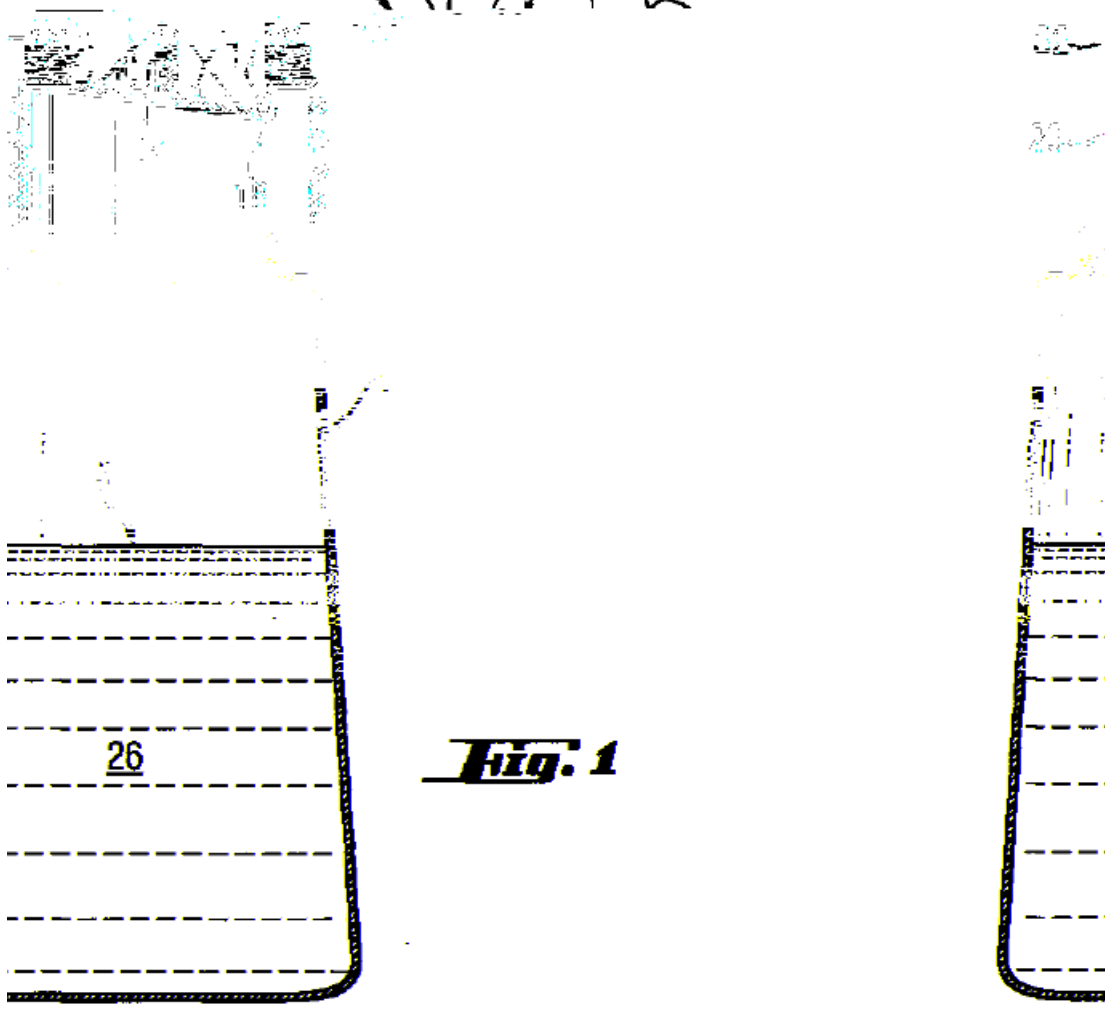
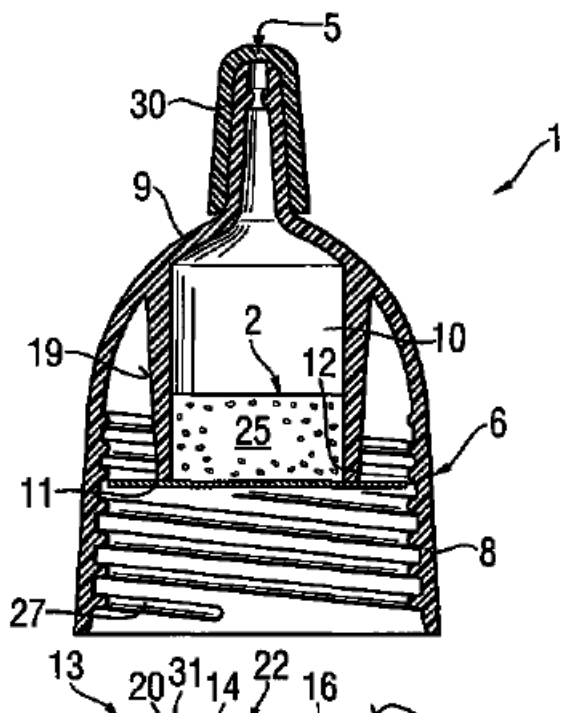
11. Package according to claim 10, characterized in that the cosmetic product is a permanent hair waving cosmetic.

12. Package according to claim 1, characterized in that the screw cap (8) is provided with an internal thread (27) of larger diameter than the diameter of the container rim (12) of the cuplike container (10), while the separation film (11) has a diameter such that, when placed on the cuplike container (10), it is guided by the internal thread (27) for the opening process.  
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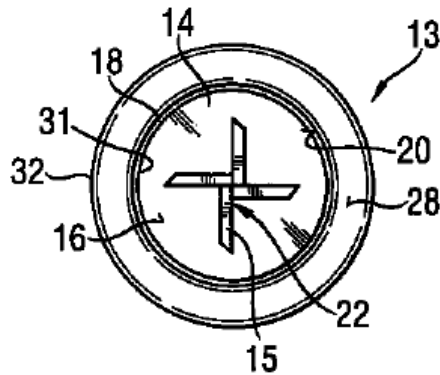
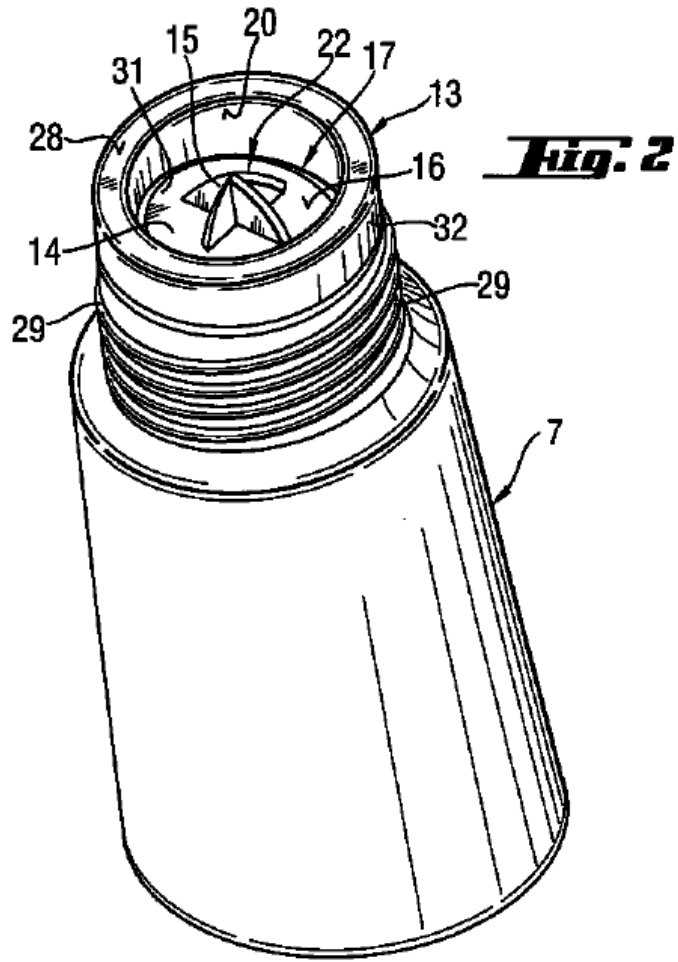
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**Fig. 1**



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