(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 2 017 187 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
15.09.2010 Bulletin 2010/37

(51) Int Cl.:
B65D 47/08 *(2006.01)* ***B65D 81/32*** *(2006.01)*

(21) Application number: **08252317.6**

(22) Date of filing: **07.07.2008**

(54) **A dispensing spout arrangement for a multi-chamber container**

Ausgabeanordnung für einen Behälter mit mehreren Kammern

Agencement de buses de distribution pour récipient multi-chambre

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

(30) Priority: **19.07.2007 GB 0714096**

(43) Date of publication of application:
21.01.2009 Bulletin 2009/04

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Description

[0001] The present invention relates generally to containers with a plurality of chambers for storing products separately and particularly to a dispensing spout arrangement for such containers.

[0002] There are a variety of circumstances in which two or more products are used as part of the same operation. For example, hair shampoo and conditioner tend to be supplied as separate products with both being required in quick succession. In some cases the products are supplied separately because they may be required to be used either separately or together. In other cases, two or more components of a product must be kept separate until the point of use whereupon they are mixed to form a final, active product. For convenience, containers have been developed which comprise a plurality of chambers so that multi-stage or multi-component products can be conveniently stored together.

[0003] In many cases dispensing of the products from such multi-chambered containers is facilitated by a nozzle and conveniently such nozzles are provided as separate components which are attachable to the chamber outlets (which are commonly defined by bottle necks).

[0004] It is common to form multi-chambered containers from plastics materials, for example by blow-moulding. These processes require the plastics material to be heated prior to moulding, which necessitates a cooling step after formation. It is well known that during the cooling process the container may shrink and undergo structural changes. This means that during the cooling process the relative positions of bottlenecks defining chamber outlets can be subject to change and variation. This in turn produces difficulties in applying nozzles to the bottleneck.

[0005] Document WO 98/46500 disclosed a dispensing spout with two nozzles, interconnected by a V-section link.

[0006] The present invention seeks to address the problems presented by shrinkage of multi-chamber containers.

[0007] According to a first aspect of the present invention there is provided a dispensing spout arrangement for a container having a plurality of chambers each with an outlet, the arrangement comprising a plurality of dispensing nozzles for association with respective chamber outlets, in which the nozzles are interconnected by two resilient links such that they are movable with respect to each other.

[0008] The spout arrangement may be formed as a single-piece article as this simplifies production. Because the nozzles are interconnected by two resilient links they will be movable with respect to each other even when formed integrally.

[0009] The present invention therefore provides a multi-nozzle arrangement which allows the interconnected nozzles to be applied together to the container. Although the nozzles are interconnected, because they are joined by two resilient links they are movable, which allows the nozzles to be aligned with their respective outlets and to take account of variations in the relative positions thereof.

[0010] By allowing the nozzles to be re-aligned on the container, getting the nozzles to align with the outlets is made easier and reduces the risk to damage to the outlets upon application. Furthermore, by ensuring that the nozzles are each applied properly to their respective outlets this ensures that the risk of less than secure connection being made and, if appropriate, a less than satisfactory seal at the outlet.

[0011] Each link may comprise a curved or angled arm. Each arm may be connected to the respective nozzles via a thinned hinge section.

[0012] If the spout arrangement is formed from mouldable material, such as a plastics material, the resilient link can form the conduit between nozzles for the flow of material (such as in an injection moulding process).

[0013] Commonly, containers with two chambers are used and accordingly the spout arrangement may comprise two nozzles. However, containers with three or more chambers are, of course, possible and the present invention envisages dispensing spouts with three or more nozzles as appropriate. Of course not all the dispensing nozzles in a spout arrangement need to be interconnected; for example, a container with four chambers could be associated with two dispensing spouts each with two nozzles. Furthermore, not all outlets of a container necessarily have a dispensing nozzle associated with them.

[0014] According to a further aspect of the present invention there is provided a dispensing closure for a container having a plurality of chambers each with an outlet, the closure comprising a base and a dispensing spout arrangement as described herein carried thereon or thereby.

[0015] It is often the case that closures are associated with multi-chamber containers. The present invention therefore also envisages a closure incorporating a multi-nozzle dispensing spout. The benefits of a single-piece dispensing spout arrangement in which the nozzles are movable with respect to each other also apply to the application of the spout to the dispensing closure, because this allows the spout to accommodate variations in the position of nozzle sockets in the closure.

[0016] The closure may further comprise a lid and in one embodiment the lid is hingedly attached to the base, for example by a snap-hinge arrangement.

[0017] According to a further aspect of the present invention there is provided, in combination, a multi-chamber container and a dispensing closure as described herein.

[0018] The present invention will now be more particularly described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of a dispensing spout arrangement formed according to the present invention;

Figure 2 is a further perspective view of the spout arrangement of Figure 1;

Figure 3 is a side elevation of the spout arrangement of Figures 1 and 2;

Figure 4 is an under plan view of the spout arrangement of Figures 1 to 3;

Figure 5 is a plan view of a closure base formed according to the present invention;

Figure 6 is a side elevation of a closure incorporating the base of Figure 5 and shown fitted with the dispensing spout arrangement of Figures 1 to 4;

Figure 7 is an under plan view of the closure of Figure 6;

Figure 8 is a side view of the closure of Figures 6 and 7 together with a multi-chamber container formed according to the present invention;

Figure 9 is a perspective view of a dispensing spout arrangement formed according to an alternative embodiment;

Figure 10 is a perspective view of a dispensing spout arrangement formed according to a further embodiment; and

Figure 11 is a perspective view of a dispensing spout arrangement formed according to a still further embodiment.

[0019] Referring first to Figures 1 to 4 there is shown a dispensing spout arrangement generally indicated 10. The spout arrangement 10 comprises two dispensing nozzles 20a, 20b, which in this embodiment are substantially identical. Each nozzle 20a, 20b comprises a centrally positioned hollow feed tube 21 a, 21 b which is generally frusto-conical in shape. Each tube 21 a, 21 b is flared at one end and at the other end is connected at its periphery to a circular base plate 22a, 22b.

[0020] At the periphery of the base plates 22a, 22b a cylindrical side wall 23a, 23b projects in the same direction as the tubes 21 a, 21 b so as to be coaxial with the tubes 21 a, 21 b and extend over part of their length so that the tubes are recessed slightly into the side walls.

[0021] At the opposite end of the side walls 23a, 23b from the plate 22a, 22b the side walls terminate with an annular flange 24a, 24b which extends radially outwardly therefrom.

[0022] The flanges 24a, 24b are interconnected by two generally V-shape link arms 25a, 25b.

[0023] The link arms 25a, 25b comprise a central elbow 26a, 26b from which extend links 27a, 28a and 27b, 28b. Each of the links is connected to its respective flange via a thinned hinge section 29a, 30a and 29b, 30b.

[0024] The connecting arms 25a, 25b allow the nozzles 20a, 20b to be articulated with respect to each other in a variety of planes so that they are freely movable with respect to each other within certain limits. So, for example, relative axial, twisting, torsion and lateral movement between the nozzles 20a, 20b can be accommodated.

[0025] Referring now to Figure 5 there is shown a closure base generally indicated 40. The base 40 comprises a generally rectangular top plate 45 within which are formed two circular nozzle sockets 50a, 50b. In addition, the plate 45 includes cut-outs 51 a, 51 b which mirror the shape of the link arms 25a, 26b of the dispensing nozzles 20a, 20b.

[0026] Each nozzle socket 50a, 50b has a pair of retention clips 52a, 53a and 52b, 53b. The clips receive respective flanges 24a, 24b of the nozzles 20a, 20b (as shown best in Figure 7).

[0027] As shown best in Figures 6 and 7, the dispensing spout arrangement 10 is received by the base 40 so that the nozzles 20a, 20b are clipped into it and held firm. The nozzles 20a, 20b are received in the sockets 50a, 50b and the link arms 25a, 25b are received by the cut-outs 51 a, 51 b. Because the nozzles 20a, 20b can move relative to each other the spout 10 can accommodate variations in the exact relative positions of the sockets 50a, 50b.

[0028] Referring now to Figure 6 the closure 60 incorporating the base 40 of Figure 5 is shown in more detail. The closure 60 also comprises a lid 65 connected to the base 40 by a hinge 70.

[0029] The base 40 comprises the top plate 45 and a skirt 46 which depends from the periphery thereof.

[0030] Referring now to Figure 8 the closure of Figure 6 is shown presented to a container 75. The container comprises a generally cylindrical body 76 with an internal partition 77 which divides the interior into two discrete chambers 78, 79.

[0031] Each chamber 78, 79 has an associated outlet defined by a respective neck 80, 81.

[0032] In use, the closure 60 is lowered onto the container 75 from above so that the closure side skirt 46 fits over the body 76 and so that the necks 80, 81 are received by the bases of the feed tubes 21 a, 21 b. Some suitable form of connection means between the closure and the container is provided (not shown), for example retention clips or beads. A seal may be provided between the necks 80, 81 and the tubes 21 a, 20b, for example a bore seal due to tight fitting dimensions.

[0033] When the closure 60 is applied to the container 75 the nozzles 20a, 20b are free to move relative to each other in order to allow re-alignment during capping to accommodate variations in the relative positions of the necks 80, 81.

[0034] Referring now to Figures 9, 10 and 11 three alternative embodiments for dispensing spouts are shown. In each case for the spout arrangement 110, 210, 310, the respective nozzles 120a, 210b, 220a, 220b, 320a, 320b are substantially identical to those shown in Figure 1. The only differences between the arrangements 110, 210, 310 are in the link arms.

[0035] In the case of the spout arrangement 110 shown in Figure 9, the link arms comprise two shallow U-shape connectors 125a, 125b. The arrangement 210 shown in Figure 10 has link arms 225a, 225b in the form of zig-zag connectors. The spout arrangement 310 shown in Figure 11 has two link arms 325a, 325b in the form of

two generally arcuate and oppositely curved connectors.

Claims

1. A dispensing spout arrangement (10) for a container having a plurality of chambers each with an outlet, the arrangement comprising a plurality of dispensing nozzles (20a, 20b) for association with respective chamber outlets, **characterised in that** the nozzles are interconnected by two resilient links (25a, 25b) such that they are movable with respect to each other.

2. A dispensing spout as claimed in Claim 1, in which the arrangement is formed as a single piece.

3. A dispensing spout arrangement as claimed in Claim 1 or Claim 2, in which each link comprises a curved or angled arm (125a, 125b, 225a, 225b, 325a, 325b).

4. A dispensing spout arrangement as claimed in Claim 3, in which each arm is connected to its respective nozzles via a thinned hinge section (29a, 30a, 29b, 30b)

5. A dispensing spout arrangement as claimed in any preceding claim, in which the arrangement comprises two nozzles.

6. A dispensing spout arrangement as claimed in any preceding claim, in which the arrangement is formed from a plastics material.

7. A. dispensing closure for a container having a plurality of chambers each with an outlet, the closure comprising a base and a dispensing spout arrangement as claimed in any preceding claim carried on or by the base.

8. A closure as claimed in Claim 7, further comprising a lid hingedly attached to the base.

9. In combination, a multi-chamber container and a dispensing closure as claimed in Claim 7 or Claim 8.

Patentansprüche

1. Dispenserstutzen-Aggregat (10) für einen Behälter mit mehreren Kammern, die jeweils einen Ausgang aufweisen, wobei das Aggregat mehrere Dispenserdüsen (20a, 20b) enthält, die mit den entsprechenden Kammerausgängen verbunden sind, **dadurch gekennzeichnet, dass** die Düsen derart durch zwei elastische Glieder (25a, 25b) gekoppelt sind, dass sie gegeneinander bewegt werden können.

2. Dispenserstutzen gemäß Anspruch 1, **dadurch gekennzeichnet, dass** das Aggregat einteilig ausgebildet ist.

3. Dispenserstutzen-Aggregat gemäß Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** jedes Glied einen gekrümmten oder angewinkelten Arm (125a, 125b, 225a, 225b, 325a, 325b) aufweist.

4. Dispenserstutzen-Aggregat gemäß Anspruch 3, **dadurch gekennzeichnet, dass** jeder Arm in einem dünneren Abschnitt (29a, 30a, 29b, 30b) an seine dazugehörige Düse angelenkt ist.

5. Dispenserstutzen-Aggregat gemäß einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** das Aggregat zwei Düsen aufweist.

6. Dispenserstutzen-Aggregat gemäß einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** das Aggregat aus einem Kunststoff gefertigt ist.

7. Dispenser-Verschluss für einen Behälter mit mehreren Kammern, die jeweils einen Ausgang aufweisen, **dadurch gekennzeichnet, dass** der Verschluss eine Basis und ein Dispenserstutzen-Aggregat gemäß einem der vorhergehenden Ansprüche aufweist, das an oder von der Basis getragen wird.

8. Verschluss gemäß Anspruch 7, **dadurch gekennzeichnet, dass** er weiterhin einen Deckel aufweist, der gelenkig an der Basis befestigt ist.

9. Kombination eines Mehrkammer Behälters und eines Dispenser-Verschlusses wie in Anspruch 7 oder 8 beansprucht.

Revendications

1. Agencement (10) de becs de distribution pour un récipient ayant une pluralité de chambres dotées chacune d'une sortie, l'agencement comprenant une pluralité de buses de distribution (20a, 20b) à associer avec les sorties de chambre respectives, **caractérisé en ce que** les buses sont reliées entre elles par deux éléments de liaison élastiques (25a, 25b), de sorte qu'elles sont mobiles les unes par rapport aux autres.

2. Agencement de becs de distribution selon la revendication 1, **caractérisé en ce que** l'agencement est formé d'un seul tenant.

3. Agencement de becs de distribution selon la revendication 1 ou 2, **caractérisé en ce que** chaque élément de liaison comprend un bras incurvé ou angulaire (125a, 125b, 225a, 225b, 325a, 325b).

4. Agencement de becs de distribution selon la revendication 3, **caractérisé en ce que** chaque bras est relié à ses buses respectives par l'intermédiaire d'une partie d'articulation amincie (29a, 30a, 29b, 30b).

5. Agencement de becs de distribution selon l'une quelconque des revendications précédentes, **caractérisé en ce que** l'agencement comprend deux buses.

6. Agencement de becs de distribution selon l'une quelconque des revendications précédentes, **caractérisé en ce que** l'agencement est formé à partir d'une matière plastique.

7. Fermeture de distribution pour un récipient ayant une pluralité de chambres dotées chacune d'une sortie, **caractérisée en ce que** la fermeture comprend une base et un agencement de becs de distribution selon l'une quelconque des revendications précédentes, porté sur ou par la base.

8. Fermeture selon la revendication 7, **caractérisé en ce qu'**elle comprend en outre un couvercle fixé de manière articulée sur la base.

9. En combinaison, récipient à chambres multiples et fermeture de distribution selon la revendication 7 ou 8.

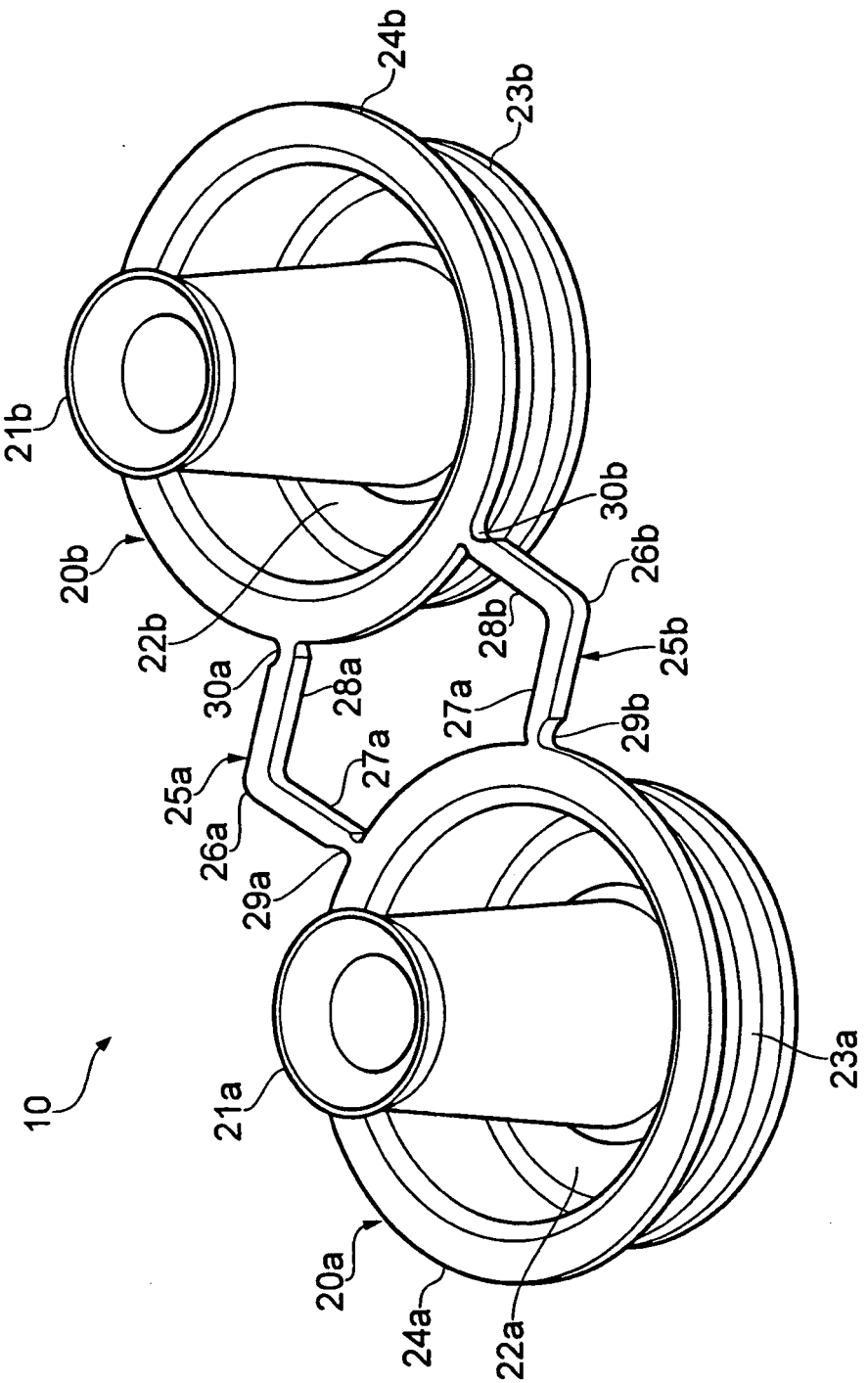

10
21b
20b
22b
30a
28a
27a
25a
26a
29a
24b
23b
30b
26b
28b
25b
27a
29b
21a
20a
24a
22a
23a

FIG. 1

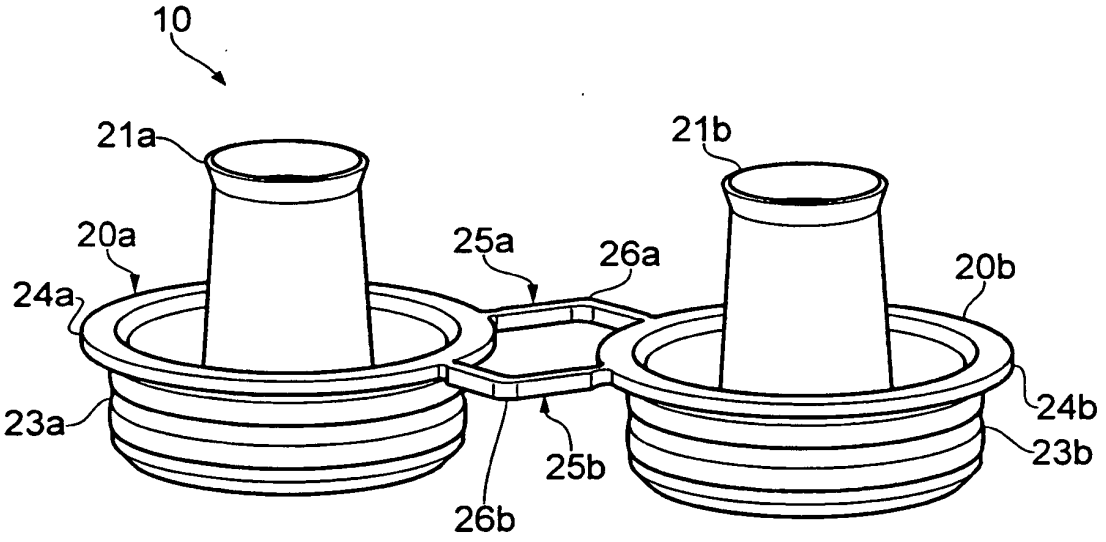

10
21a
21b
20a
25a
26a
20b
24a
24b
23a
23b
25b
26b

FIG. 2

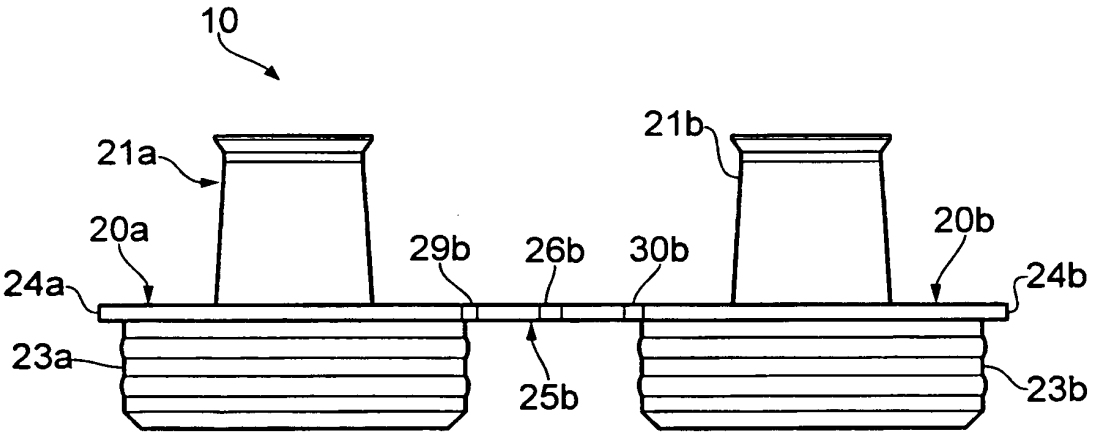

10
21a
21b
20a
29b
26b
30b
20b
24a
24b
23a
25b
23b

FIG. 3

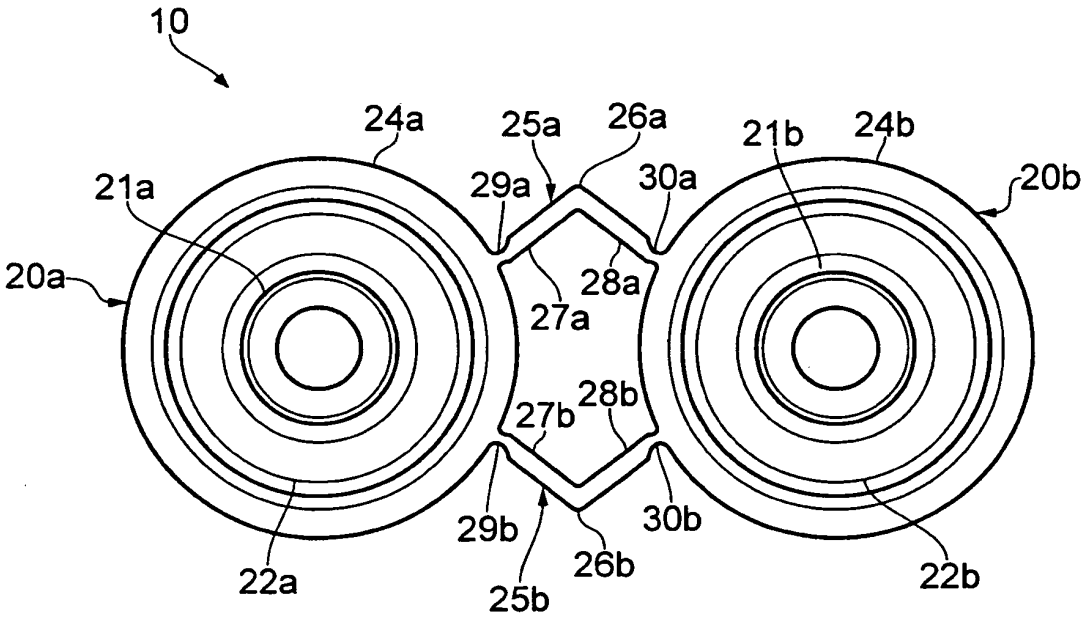

10
24a
25a
26a
21b
24b
21a
29a
30a
20b
20a
28a
27a
28b
27b
29b
30b
26b
22a
25b
22b

FIG. 4

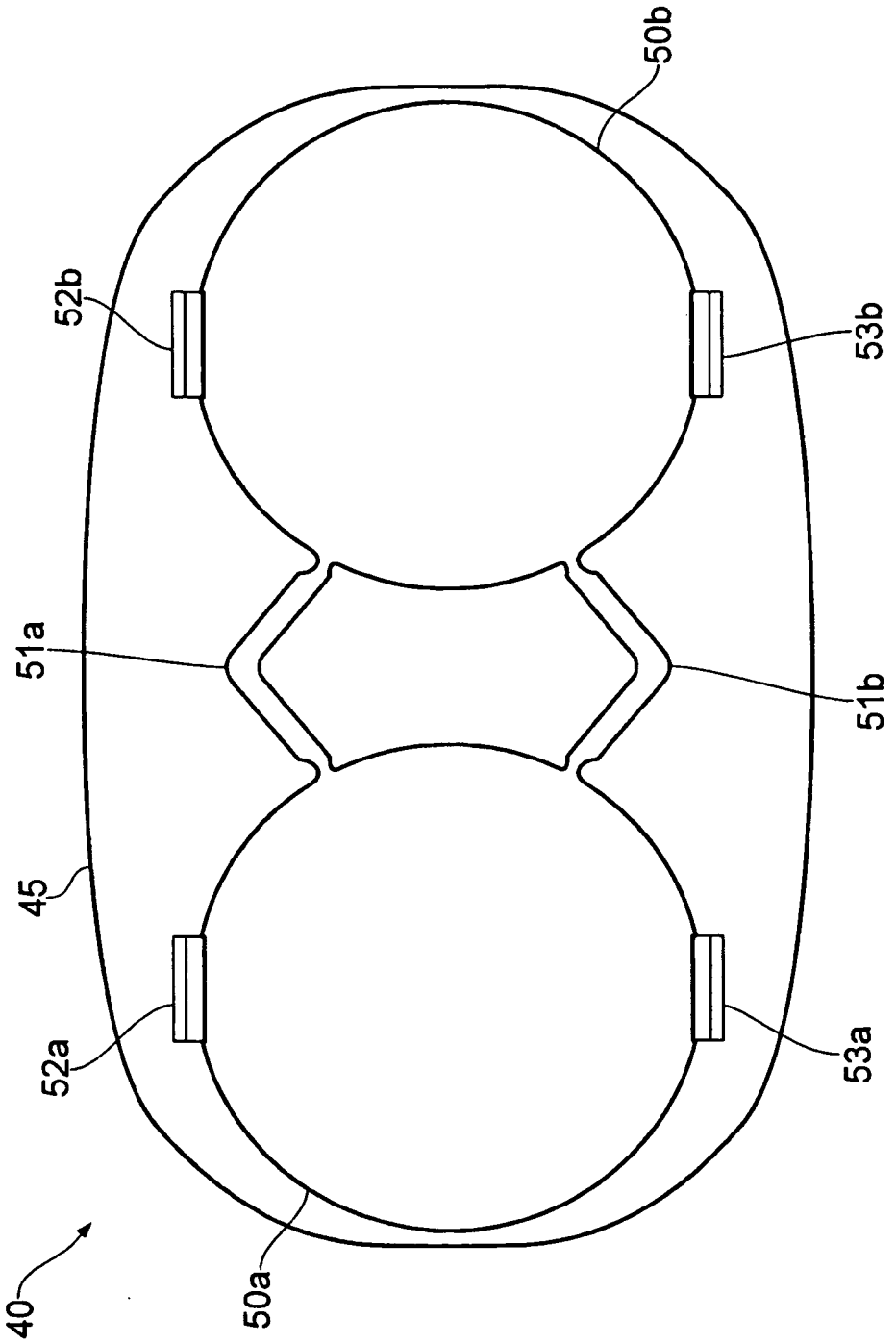


FIG. 5

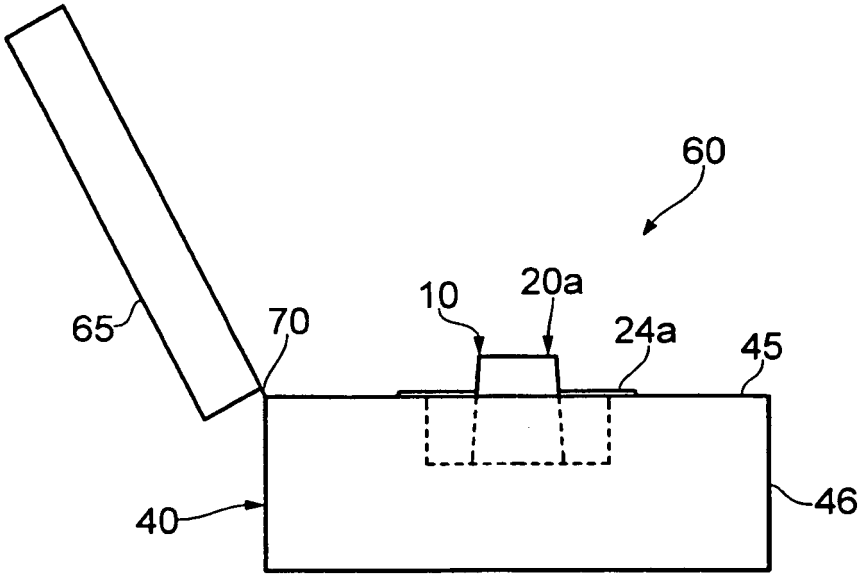


FIG. 6

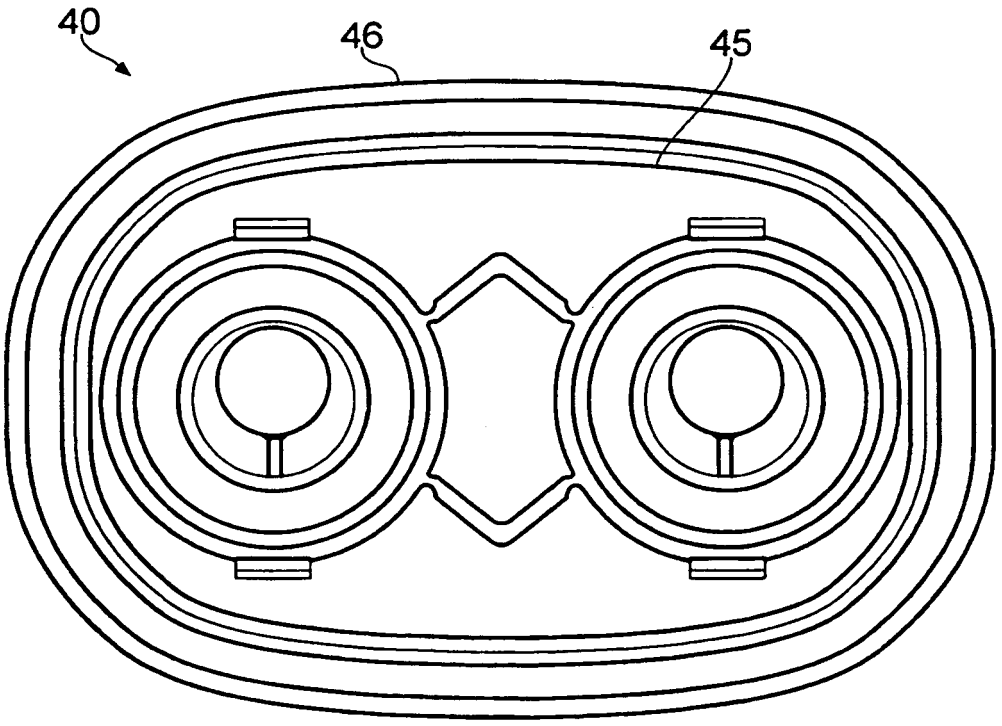


FIG. 7

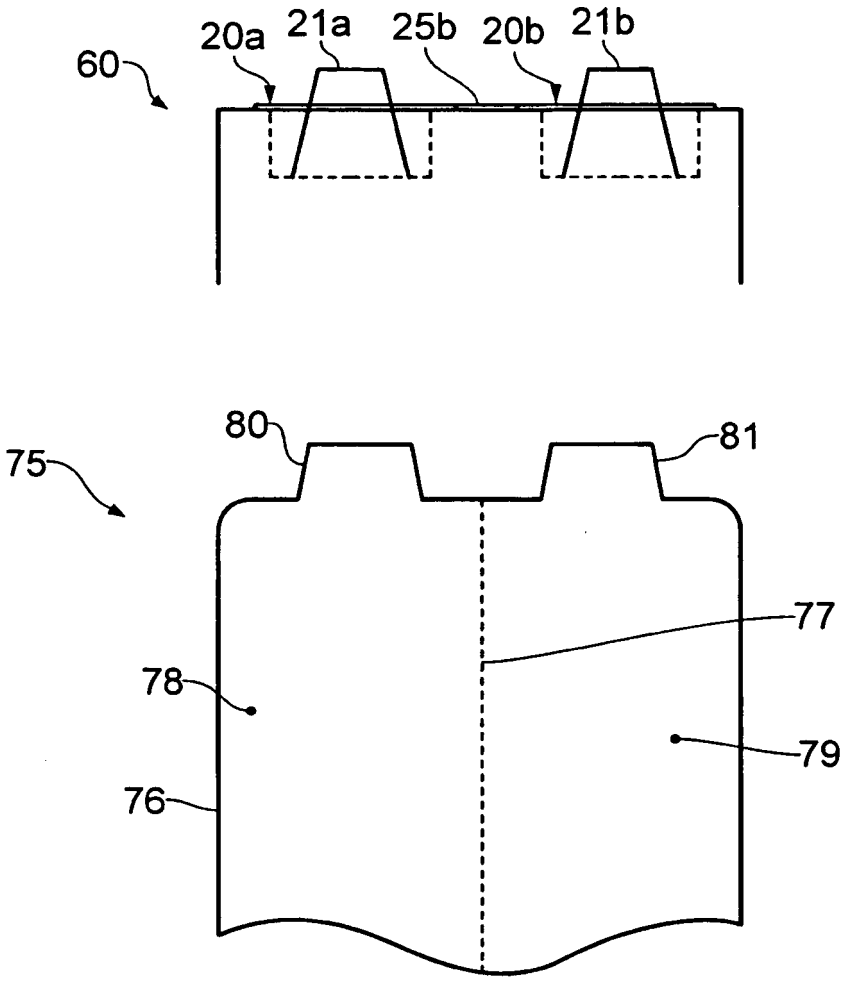


FIG. 8

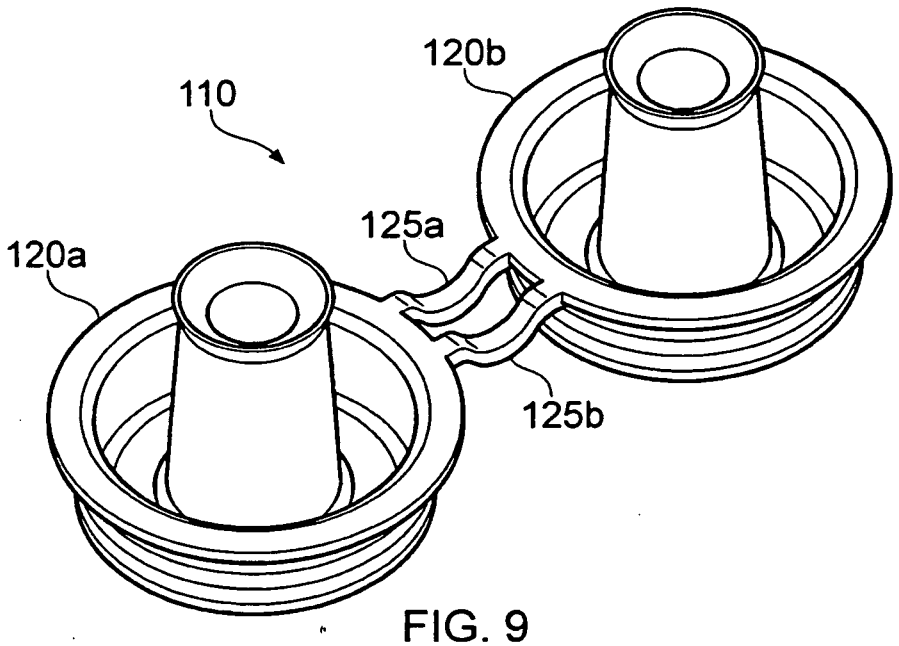


FIG. 9

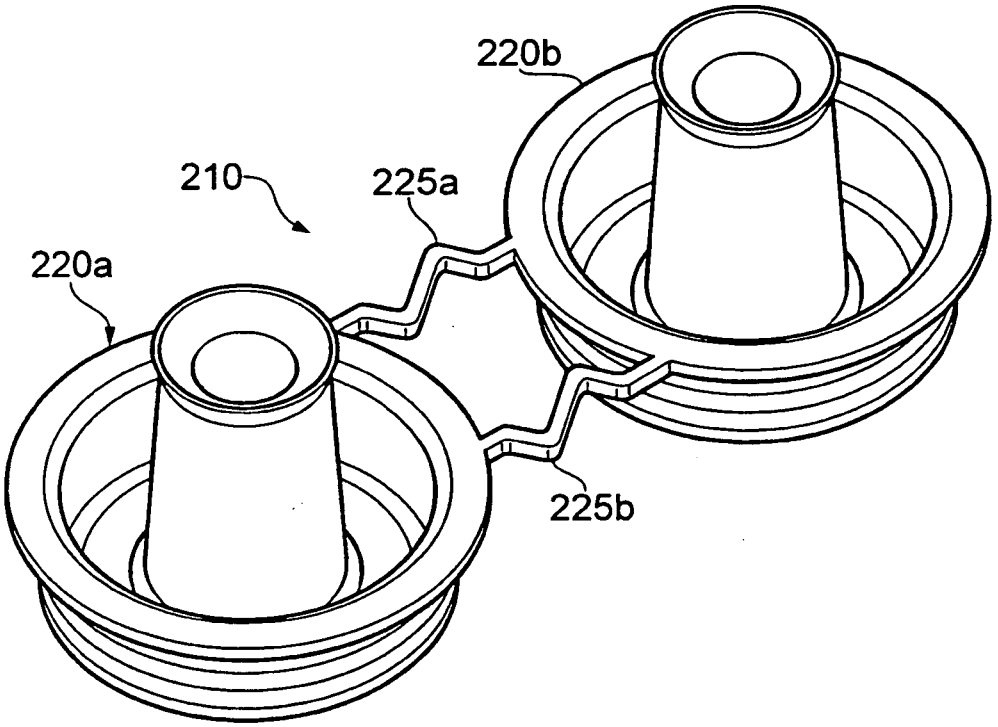


FIG. 10

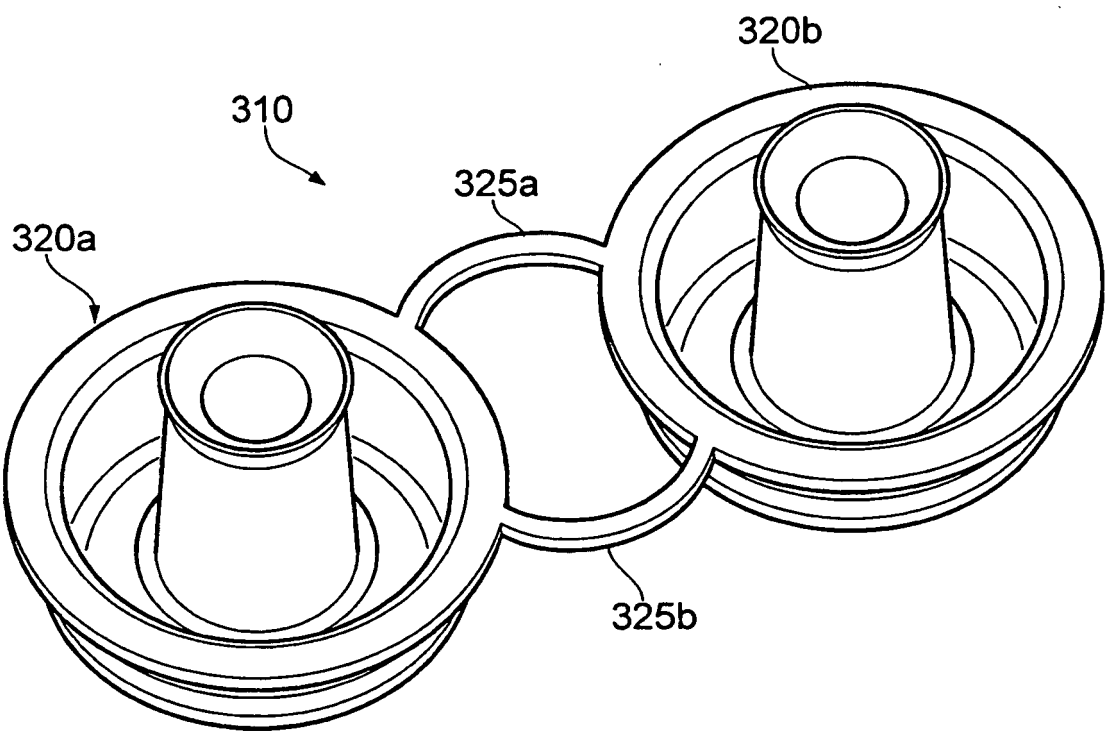


FIG. 11

REFERENCES CITED IN THE DESCRIPTION

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