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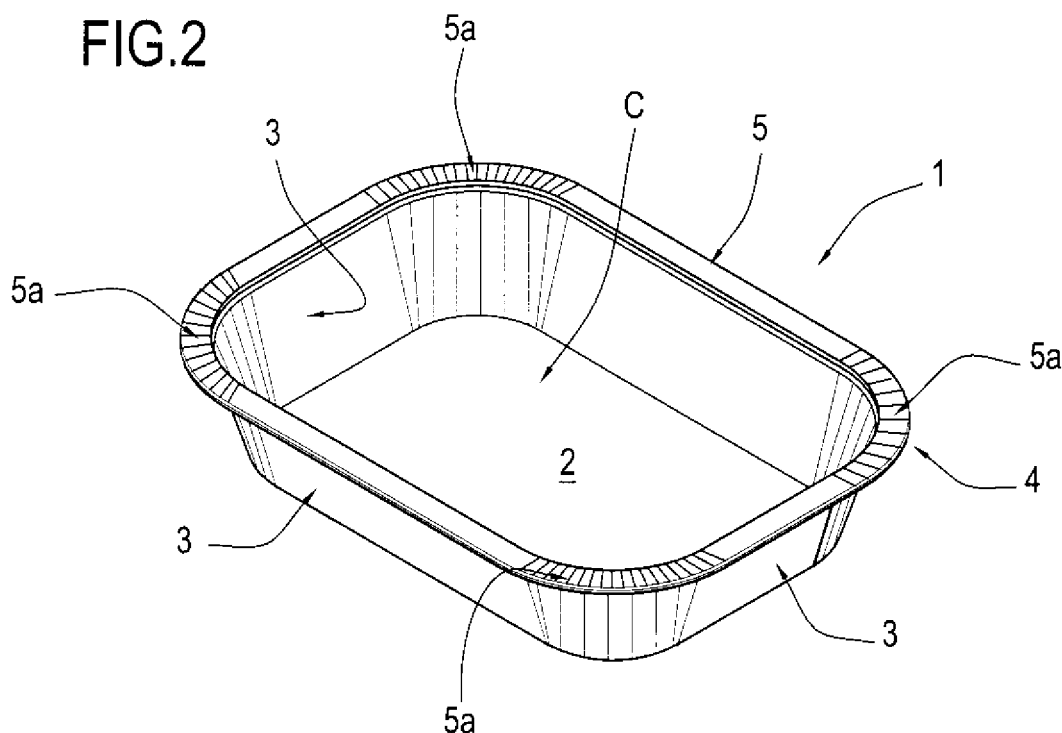
(54) **Method for making a display container for foodstuffs and a display container made using this method**

(57) A method for making a display container (1) for foodstuffs, in particular made of cellulose, consisting of a casing delimited by:

- a flat base (2); a set of lateral walls (3) which, in combination with one another and with the base (2), surround a cavity (C) for receiving products; an upper edge (4) of the lateral walls (3) extending continuously along the contour of the container (1), involves the following steps:

forming, using suitable mould means (6), of the flat base (2), the set of walls (3) and of the edge (4) of the container (1) and simultaneous forming, at the outer end of the edge (4), of a free projection (5) on the entire perimeter of the edge (4); bending of the projection (5) towards a surface (4a, 4c) of the edge (4); stably joining the projection (5) on the edge (4) to give the edge (4) additional thickness and so obtain a ring-shaped edge (4) strengthening element.

FIG.2



Description

[0001] The present invention relates to a method for making a display container for foodstuffs and the display container made using this method.

[0002] At present, widespread use is made of containers (also acting as display trays) for displaying and selling foodstuffs such as meat, vegetables, fruit, desserts, etc., in shops and shopping centres.

[0003] These containers allow the formation of a pack in which in most cases the product is contained in a protected environment (usually thanks to the use of a plastic covering film), if necessary pre-weighed and with the price applied.

[0004] Until now such containers have been made in two different ways:

- the first consists in making the container as a single body and using a plastic material, normally impact resistant polystyrene or foam polystyrene, using an injection moulding process;
- the second method consists in making the container from paper material, preferably pure cellulose, obtaining it from sheets of card, paper or cardboard with different basic weights - thickness and with single or multiple layers depending on the requirements of the product to be inserted in the container.

[0005] In a single-layer container, the inner surface of the container may have an additional coating made of plastic (for example PET or PE), which acts as a barrier protecting the product from greases, liquids and, partly, from gases, so that the underlying cellulose structure is not affected.

[0006] However, such containers have an inherent lack of overall rigidity due to the material used to make them and the production process. This lack of rigidity is accentuated when large quantities of product are placed in the containers and they are picked up and transported or handled in any way.

[0007] Such a disadvantage is generated, in particular, by the join zones or corners of the containers, which are often made by "curling" the material around that zone. This means that when the full container made in this latter way is picked up it tends to open outwards at the corners, or in any case has difficulty maintaining its configuration intact, due to a lack of mechanical strength concentrated in particular at the upper edge of the container.

[0008] To overcome said disadvantage, the Applicant has created (see patent EP 1.365.964) a foodstuffs container comprising, among other things, an edge extending continuously to constitute a closed surface forming the upper perimeter of the container; on this edge it is possible to associate a strengthening element divided into a first part which can be stably associated with a portion of the edge close to its connection with the walls, and a second part which can be associated with a portion of the walls close to the edge. These two parts of the

strengthening element extend in such a way as to partly cover the edge and the walls, forming an additional surface or layer designed to allow stiffening of the edge - walls zone.

[0009] Therefore, said solution allows a definite increase in the rigidity of the cellulose container with excellent results for containing products of various types, and in particular for products protected in a controlled environment.

[0010] However, because of its construction features, such a solution may have a disadvantage caused by its relatively high unit cost above all related to mass consumer and rapidly perishable goods, usually produced in large numbers for the unit of time.

[0011] This high cost is caused both by the presence of an additional cellulose element compared with the conventional container, and the method and equipment used for production: the steps and relative operating stations usually require a mould to create the basic container, a mould to obtain the strengthening ring and a station for joining the two elements.

[0012] Therefore, for this reason, this type of container is normally used to contain products of a certain quality and type whose production can absorb or justify its cost.

[0013] The aim of the present invention is therefore to overcome these disadvantages by providing a method for making a foodstuffs container with excellent mechanical features and reduced unit costs, and the relative container made using this method.

[0014] Accordingly, the present invention provides a method for making a container which is very rigid and has low unit costs and the relative container made using this method and comprising the technical features described in one or more of the claims herein.

[0015] The technical features of the invention, in accordance with the afore-mentioned aims, are clearly indicated in the claims herein and the advantages of the invention are more apparent in the detailed description which follows, with reference to the accompanying drawings, which illustrate a preferred embodiment without limiting the scope of the invention, in which:

- Figure 1 is a perspective view of a display container for foodstuffs made in accordance with the present invention, in an intermediate configuration;
- Figure 2 is a perspective view of a display container for foodstuffs made in accordance with the present invention;
- Figures 3 to 5 are all partial lateral sections of a succession of steps for making the container of Figures 1 and 2;
- Figures 6 to 8 are all partial lateral sections of respective and different configurations of the edge of the container obtained using the method in accordance with the present invention;
- Figure 9 is a perspective view of an alternative configuration of the container of the previous figures;
- Figure 10 is a lateral section of a schematic detail of

another alternative embodiment of the edge of the container made in accordance with the present invention.

[0016] With reference to the accompanying drawings, and in particular with reference to Figures 1 and 2, the method disclosed allows a cellulose foodstuffs container to be made.

[0017] Said container, labelled 1 as a whole, consists of a casing basically comprising a flat base 2 and a set of walls 3 substantially perpendicular to the flat base 2, the bottom of the walls being connected to the base 2 to form a cavity C for holding the product.

[0018] The shape of the container 1, of the quadrangular type here, may be any shape without that limiting the solution disclosed.

[0019] The tops of the walls 3 form an upper edge 4, extending continuously along the contour of the container 1.

[0020] The method for obtaining this type of container 1 comprises the following steps (see Figures 3 to 5):

- forming, using suitable mould means 6 (illustrated with a dashed line), of the flat base 2, the set of walls 3 and of the edge 4 of the container 1 and simultaneous forming, at the outer end of the edge 4, of a free projection 5 on at least part of the perimeter of the edge 4 (see Figure 3);
- bending of the projection 5 towards a surface 4a, 4c of the edge 4 (see Figures 5 and 10);
- stably joining the projection 5 on the edge 4 to give the edge 4 additional thickness and so obtain a ring-shaped edge 4 strengthening element.

[0021] As is clearly visible in Figures 1 and 2, the projection 5 preferably, but without limiting the scope of the invention, extends around the entire perimeter of the edge 4.

[0022] Observation of Figures 5 to 8 shows how the bending step may cause the projection 5 to be placed over the upper surface 4a of the edge 4.

[0023] Alternatively, this bending step may cause the projection 5 to be placed over the lower surface 4c of the edge 4 (see Figure 10).

[0024] Figure 3 shows how, during the container 1 forming step, the projection 5 may be positioned transversally (or perpendicularly) to the edge 4.

[0025] Alternatively, (see also Figure 10), again during the container 1 forming step, the projection 5 may be positioned at an angle to or coplanar with the edge 4.

[0026] Preferably, but without limiting the scope of the invention, before the bending step a pre-bending line L may be made (clearly visible in Figure 10) between the projection 5 and the outer end of the edge 4, to facilitate the step of bending the projection 5 towards the edge 4 (see arrows F5 and F5a).

[0027] This step of bending the projection 5 on the edge 4 may be carried out mechanically by pusher means

7 schematically illustrated in Figure 5.

[0028] The above-mentioned step of joining the projection 5 on the edge 4 may be carried out using heat-sealing (see Figure 5 with sealer 50), or with suitable adhesive dispensed by relative means 8 (see Figure 4), before the bending step.

[0029] As Figures 6 and 7 show, the step of bending the projection 5 may generate a perimetral bulge 9, at the pre-bending line L between the edge 4 and the projection 5. In this way, it is possible to obtain considerable strengthening on the outside combined with the formation of a zone for gripping the container 1.

[0030] In addition to this, it is possible to carry out an additional step of deforming the shared outer zone ZE of the edge 4 and the projection 5 so that the edge and the projection 4, 5 form a protrusion which points downwards (see dashed line in Figure 8). This outer perimetral deformation allows an increase in container 1 rigidity and a zone with which any plastic film used to cover the container 1 can engage.

[0031] Figures 6, 7 and 8 show three different final configurations of the projection 5 placed over the edge, for example, on the upper surface 4a, but this also applies if the projection 5 is bent and placed over the lower surface 4c.

[0032] In Figure 6 the length S3 of the projection 5 may be equal to the length S of the edge 4, and consequently it is bent over the entire upper surface 4a of the edge 4.

[0033] In Figure 7 the length S1 of the projection 5 may be greater than the length S of the edge 4, and consequently it is bent both over the upper surface 4a of the edge 4 and over an upper portion of the walls 3.

[0034] In Figure 8 the length S2 of the projection 5 may be less than the length of the edge 4, and consequently it is bent over a portion of the upper surface 4a of the edge 4, in such a way as to leave the other portion of the upper surface 4a of the edge 4, connected to the upper part of the walls 3, without the projection placed over it (for example for any positioning of covering elements which may be used).

[0035] As already indicated, the projection 5 may be positioned on part or all of the perimeter of the edge 4.

[0036] For example, Figure 9 shows two different solutions in which the projection 5 only partly extends: in the first the projection 5, shown with a continuous line, is present for example on straight stretches of the edge 4, whilst a dashed line shows another solution in which the projection 5 is interrupted close to the edge 4 joining corner.

[0037] Moreover, Figures 1 and 2 show pre-bent zones 5a of the projection 5 (which can be created for example during the moulding step) to allow more rapid and secure bending of the projection.

[0038] Therefore, the display container 1 for foodstuffs which can be made using this method comprises the edge 4 consisting of two stretches 4b and 5 of a single element and formed by a first stretch 4b and a projection or second stretch 5 joined together, and with the second

stretch 5 bent over the first stretch 4b, to thicken the edge 4 so as to provide a ring-shaped strengthening element for the edge 4.

[0039] In terms of the layout, the first stretch 4b is inserted between the walls 3 and the second stretch 5.

[0040] As already described in the method, the second stretch 5 may be bent, that is to say placed over the upper surface 4a or the lower surface 4c of the first stretch 4b.

[0041] In addition, the edge 4 of the container may have an outer zone, formed by bending the second stretch 5, forming a perimetral bulge 9 shared by both 4b and 5.

[0042] This shared outer zone ZE of the first and second stretches 4b and 5 may form perimetral protrusion which is angled downwards.

[0043] Again with reference to Figures 6, 7 and 8, the edge 4 may have three different configurations depending on the length of the projection 5.

[0044] In Figure 6 the length S3 of the projection 5 may be equal to the length S of the edge 4, and consequently it is bent over the entire upper or lower surface 4a or 4c of the edge 4.

[0045] In Figure 7 the length S1 of the projection 5 may be greater than the length S of the edge 4, and consequently it is bent both over the upper or lower surface 4a or 4c of the edge 4 and over an upper portion of the walls 3.

[0046] In Figure 8 the length S2 of the projection 5 may be less than the length of the edge 4, and consequently it is bent over a portion of the upper or lower surface 4a or 4c of the edge 4, in such a way as to leave the other portion of the upper surface 4a of the edge 4, connected to the upper part of the walls 3, without the projection placed over it (for example for any positioning of covering elements which may be used if affecting the upper surface 4a).

[0047] Therefore, such a method allows a container which achieves the preset aims to be made.

[0048] It does this by reducing the costs of the production line thanks to the fact that, compared with the production of foodstuffs containers having the same strength, this method requires fewer operating stations and, above all less cellulose material to obtain similar mechanical features.

[0049] The invention described herein is susceptible of industrial application and may be modified and adapted in several ways without thereby departing from the scope of the inventive concept. Moreover, all details of the invention may be substituted by technically equivalent elements.

Claims

1. A method for making a display container (1) for foodstuffs, in particular made of cellulose, consisting of a casing delimited by:

- a flat base (2);
- a set of lateral walls (3) which, in combination with one another and with the base (2), surround a cavity (C) for receiving products;
- an upper edge (4) of the lateral walls (3) extending continuously along the contour of the container (1), the method being **characterised in that** it comprises the following steps:
 - forming, using suitable mould means (6), of the flat base (2), the set of walls (3) and of the edge (4) of the container (1) and simultaneous forming, at the outer end of the edge (4), of a free projection (5) on at least a portion of the perimeter of the edge (4);
 - bending of the projection (5) towards a surface (4a, 4c) of the edge (4);
 - stably joining the projection (5) on the edge (4) to give the edge (4) additional thickness and so obtain a ring-shaped edge (4) strengthening element.

2. The method according to claim 1, **characterised in that** the free projection (5) extends around the entire perimeter of the edge (4).
3. The method according to claim 1, **characterised in that** during the bending step, the free projection (5) is placed over an upper surface (4a) of the edge (4).
4. The method according to claim 1, **characterised in that** during the bending step, the free projection (5) is placed over the lower surface (4c) of the edge (4).
5. The method according to claim 1, **characterised in that** during the container (1) forming step, the projection (5) is positioned transversally to the edge (4).
6. The method according to claim 1, **characterised in that** during the container (1) forming step, the projection (5) is positioned at an angle to the edge (4).
7. The method according to claim 1, **characterised in that** during the container (1) forming step, the projection (5) is positioned coplanar with the edge (4).
8. The method according to claims 1 to 4, **characterised in that** the length (S1) of the projection (5) is greater than the length (S) of the edge (4), and the projection (5) is bent over the surface (4a, 4c) of the edge (4) and over a portion of the walls (3).
9. The method according to claims 1 to 4, **characterised in that** the length (S2) of the projection (5) is less than the length of the edge (4), and the projection (5) is bent over a portion of the surface (4a, 4c) of the edge (4), so as to leave free the other portion of the surface (4a, 4c) of the edge (4), connected to the upper part of the walls (3).

10. The method according to claims 1 to 4, **characterised in that** the length (S3) of the projection (5) is equal to the length (S) of the edge (4), and the projection (5) is bent over the entire surface (4a, 4c) of the edge (4). 5
11. The method according to claim 1, **characterised in that** before the bending step a pre-bending line (L) is made between the projection (5) and the outer end of the edge (4), allowing the step of bending the projection (5) towards the edge (4). 10
12. The method according to claim 1, **characterised in that** the step of bending the projection (5) over the edge (4) is carried out mechanically using pusher means (7). 15
13. The method according to claim 1, **characterised in that** the step of joining the projection (5) on the edge (4) is carried out by means of heat-sealing. 20
14. The method according to claim 1, **characterised in that** the step of joining the projection (5) on the edge (4) is carried out using suitable adhesive dispensed by relative means (8), before the bending step. 25
15. The method according to claim 1, **characterised in that** the step of bending the projection (5) generates a perimetral bulge (9), at a pre-bending line (L) between the edge (4) and the projection (5). 30
16. The method according to claim 1, **characterised in that** it comprises a step of deforming the shared outer zone (ZE) of the edge (4) and the projection (5) to generate a protrusion of the elements (4, 5) which points downwards. 35
17. A display container (1) for foodstuffs, in particular made of cellulose, consisting of a casing delimited by: 40
- a flat base (2);
 - a set of lateral walls (3) which, in combination with one another and with the base (2), surround a cavity (C) for receiving products; 45
 - an upper edge (4) of the lateral walls (3) extending continuously along the contour of the container (1), **characterised in that** the edge (4) consists of two stretches (4b, 5) of a single element formed by a first stretch (4b) and a second stretch (5) joined together and with the second stretch (5) bent over the first stretch (4b) to thicken the edge (4) and obtain a ring-shaped edge (4) strengthening element. 50
18. The container according to claim 17, **characterised in that** the first stretch (4b) is inserted between the walls (3) and the second stretch (5). 55
19. The container according to claim 17, **characterised in that** the second stretch (5) is bent, that is to say placed over the upper surface (4a) of the first stretch (4b).
20. The container according to claim 17, **characterised in that** the second stretch (5) is bent, that is to say placed over the lower surface (4c) of the first stretch (4b).
21. The container according to claim 17, **characterised in that** an outer zone of the edge (4), formed by bending the second stretch (5), forms a perimetral bulge (9) shared by both of the stretches (4b, 5).
22. The container according to claim 17, **characterised in that** the length (S1) of the second, bent stretch (5) of the edge (4) is greater than the length (S) of the first stretch (4b) so that it is placed over an upper portion of the walls (3).
23. The container according to claim 17, **characterised in that** the length (S2) of the second, bent stretch (5) of the edge (4) is less than the length (S) of the first stretch (4), leaving free a portion of the surface of the edge (4) connected to the upper part of the walls (3).
24. The container according to claim 17, **characterised in that** the length (S3) of the second, bent stretch (5) of the edge (4) is equal to the first stretch (4b), so that the former covers the entire surface (4a) of the latter.
25. The container according to claim 17, **characterised in that** the first and second stretches (4b, 5) have a shared outer zone (ZE) forming a protrusion of the elements (4, 5) which is angled downwards.

FIG.1

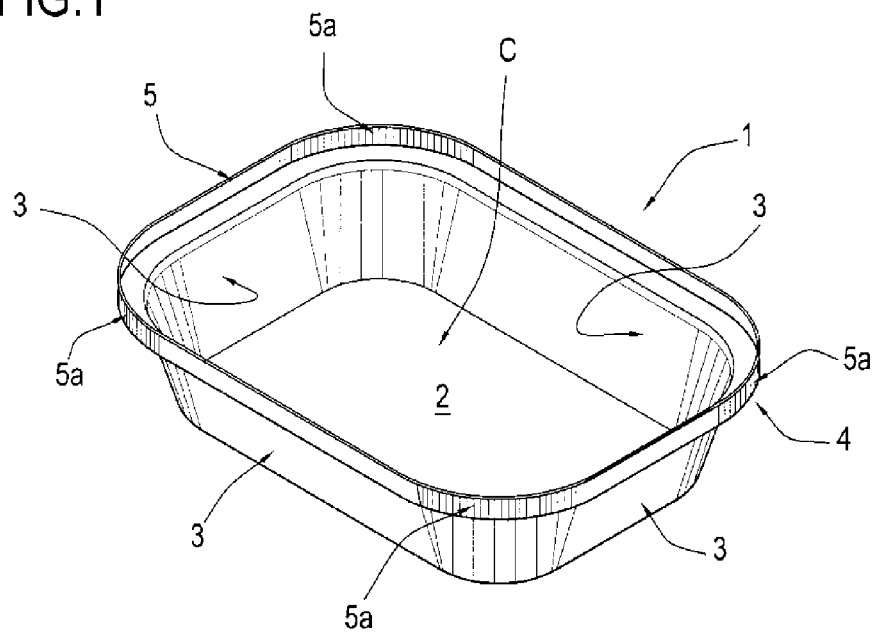


FIG.2

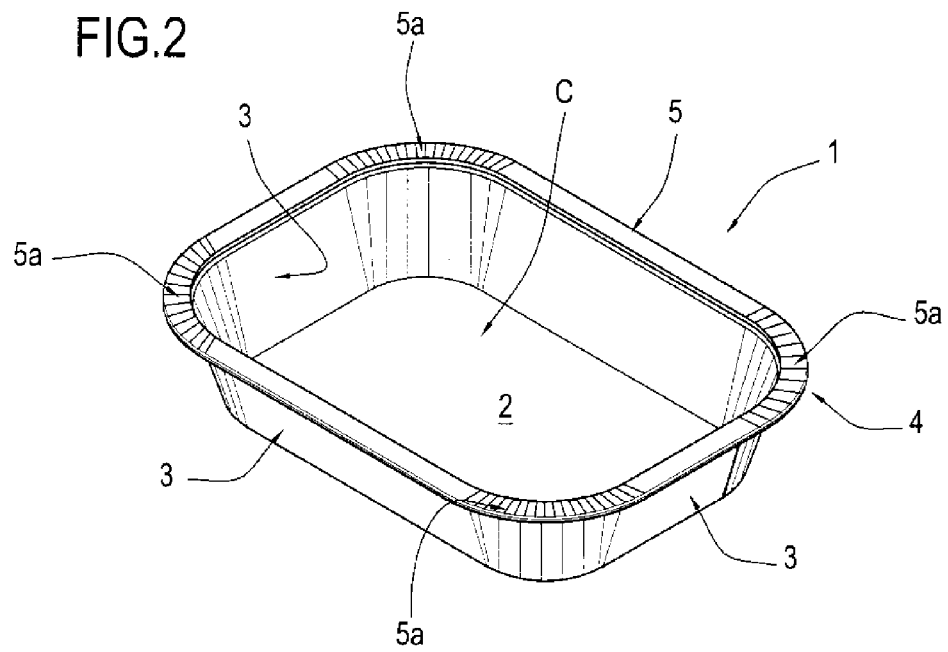


FIG.3

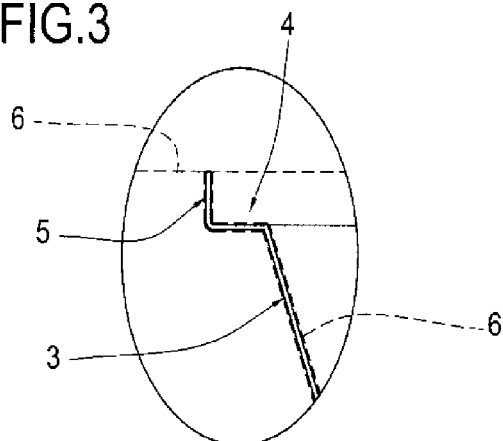


FIG.4

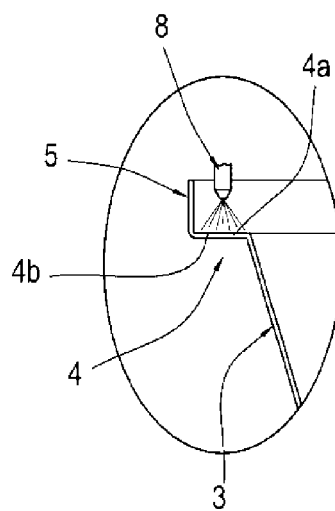
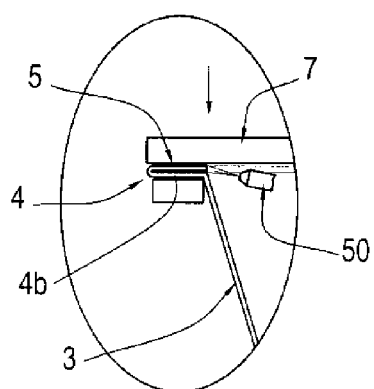


FIG.5



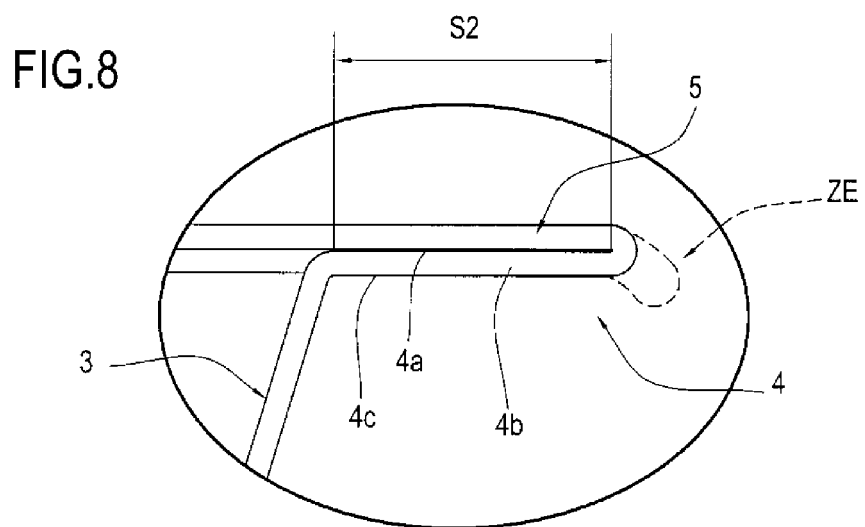
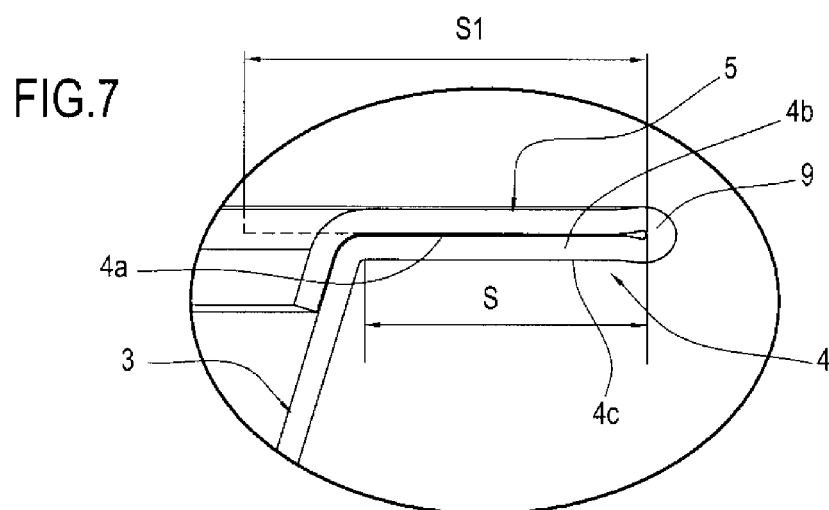
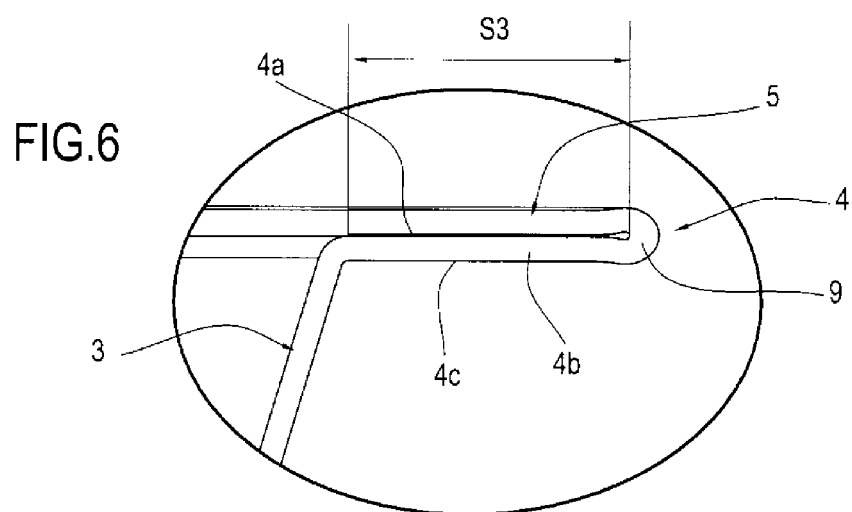


FIG.9

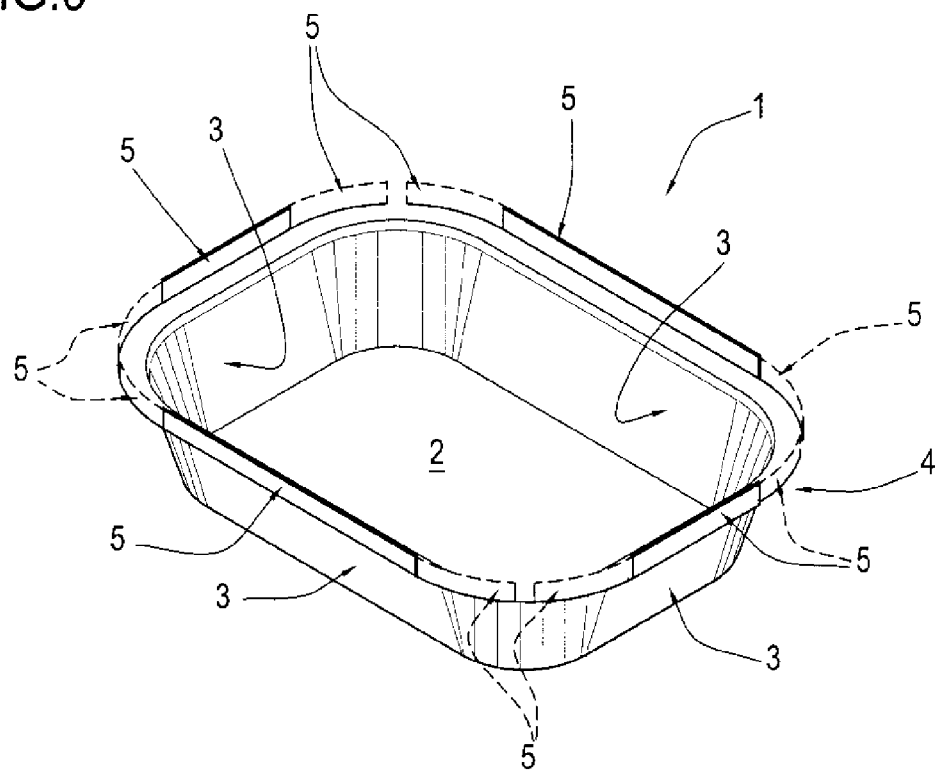
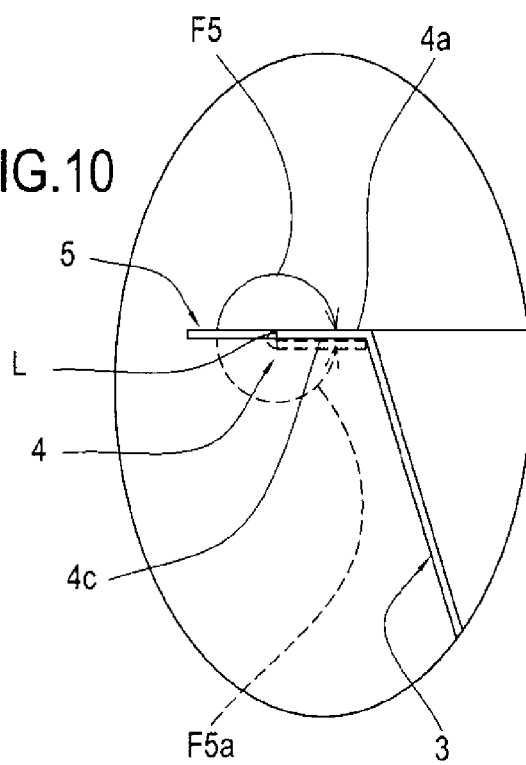


FIG.10





European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 07 10 6399

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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 12 July 2007	Examiner Grondin, David
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EP 07 10 6399

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12-07-2007

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