



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
14.11.2012 Bulletin 2012/46

(51) Int Cl.:
B65D 85/808 (2006.01) B65D 85/812 (2006.01)

(21) Application number: **12179351.7**

(22) Date of filing: **11.06.2007**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR

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(30) Priority: **31.07.2006 IT BO20060581**

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(62) Document number(s) of the earlier application(s) in accordance with Art. 76 EPC:
07766534.7 / 2 046 666

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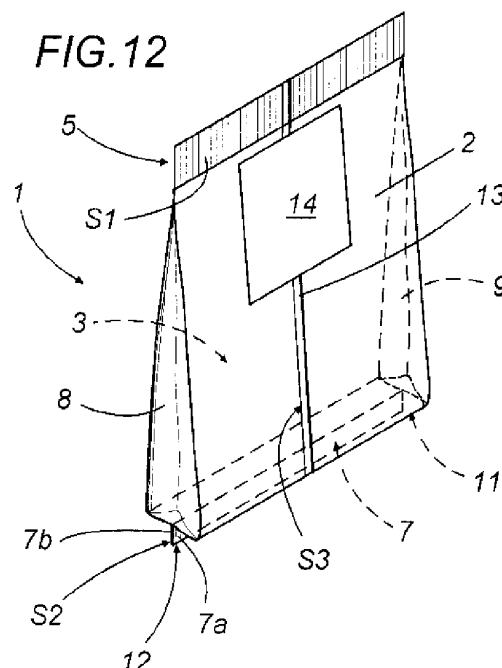
Remarks:

This application was filed on 06-08-2012 as a divisional application to the application mentioned under INID code 62.

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(54) **Single-lobe filter bag for infusion products.**

(57) A single-lobe filter bag for infusion products comprises a length (2) of filter material forming a chamber (3) containing a charge (4) of the infusion product. The length (2) comprises: a first closed top end (5) formed by a first join (S1) between two first end edges of the length (2); a second closed bottom end (7) and two sides (8, 9) connecting the two ends (5, 7) of the length (2); the two sides (8, 9) connecting the first and second edges (5, 7) are at least partly folded onto each other to form a fold towards the inside of the chamber (3) and the second bottom end (7) of the filter bag (1) is closed by a second join (S2) designed to form a rigid flat bottom surface (11) of the filter bag (1) such as to define a stable base, with a substantially triangular cross section, for supporting the filter bag (1).



Description

Technical Field

[0001] This invention relates to a single-lobe or single-chamber filter bag for infusion products, such as tea, coffee, camomile and the like.

Background Art

[0002] The current market offers many different kinds of filter bags (or tea bags) for infusing the above mentioned products in water.

[0003] The wide range of filter bags currently available is the result of the increasingly widespread use and popularity of filter bags among consumers, both in the home and in public places, which has led to a growing demand, especially from product distributors, for diversification of filter bag designs with a view to obtaining filter bags with improved properties in terms of product containment, ease of exchange with the liquid during infusion, shelf life, ease of final packaging, and so on.

[0004] The two main designs currently used are the traditional single-lobe bags (usually with tie string and tag) and the now well-established two-lobe bags (also with tie string and tag, with or without individual over-wrapper), whose characteristic feature is the larger surface area in contact with the liquid, which allows optimum extraction of the flavour from the infusion product).

[0005] Over the years, both these designs have been made from different types of filter paper, including, more recently, biodegradable products.

[0006] Similarly, the methods of closing the bag and simultaneously applying the string and tag (in designs where these are present) have been diversified according to production needs and, in some countries, legislative requirements: for example, the tie string, tag and filter bag may be closed and joined by a metal staple, by gluing, by a heat sealable "accessory stamp", by forming a stitch with the tie string itself or by using an adhesive tag.

[0007] All of these have improved the quality of filter bags, the processes used to manufacture them (filter bag making machines) and end user satisfaction.

[0008] Continuing its policy of product improvement, however, the Applicant has noticed that current filter bags, especially single-lobe bags (which this invention is concerned with in particular) have inherent shortcomings due to their shape which, precisely because they have a single chamber, tend to lack adequate three-dimensional, or volumetric, properties. The resulting disadvantages are that:

the product is more constrained within the bag, with less room to expand during infusion, which means poorer quality infusions and longer infusion times; flattening causes the surfaces of the filter bags to become misshapen; the filter bags are more difficult to pack on account

of possible movements during positioning.

[0009] Flattening and movement of the filter bags may damage and reduce the overall quality of the product contained. Moreover, it should also be noticed that a loose (that is, single) filter bag will not stand erect for display purposes (during presentation and selection), unlike other types of filter bag, such as tetrahedral or pyramidal bags which, however, are much more expensive than single-lobe bags. In order to improve the stability of the bags, document BE517130 shows a filter bag having a top end and a bottom end both defined by lateral wall inclined one towards the other in order to define respectively a convex and a concave vertex oriented in the same direction. In other words, the lateral wall of the bottom end defines a dihedral angle oriented towards the inner chamber of the bag. Moreover, the bottom end is provided with a central reinforcement rib which improves its solidity.

However, it is to be noted that the filter bag of BE517130 is made of metal and the bottom end can maintain its shape only thanks to the stiffness of the material. Therefore, a filter bag realized with a length of filter material cannot maintain such shape once filled with the charge of infusion product.

In this regard, it is also known document GB446791, which shows a filter bag having a flat bottom end obtained by the folding of the lateral edges of the bag in such a manner of leaving the bottom end without junction.

Disadvantageously, such known embodiment is very difficult to realize since the folding of the lateral edges needs to be carried out very carefully (i.e. slowly) in order to avoid unaesthetic gibbositities or curls.

Disclosure of the Invention

[0010] For this purpose, the Applicant has created a single-lobe filter bag that overcomes the above mentioned disadvantages and whose structure, besides having the well-known features of customary single-lobe filter bags, is such as to provide a "stiffer" configuration that meets market requirements and, at the same time, improves the overall quality of the infusion and of the filter bag itself.

[0011] Accordingly, the invention achieves this purpose by providing a single-lobe filter bag, in particular a single-lobe filter bag for infusion products comprising the technical characteristics described in one or more of the appended claims.

Brief Description of the Drawings

[0012] The technical characteristics of the invention, with reference to the above aims, are clearly described in the claims below and its advantages are apparent from the detailed description which follows, with reference to the accompanying drawings which illustrate a preferred embodiment of the invention provided merely by way of

example without restricting the scope of the inventive concept, and in which:

Figures 1 to 4 illustrate a first embodiment (not part of the present invention) of a single-lobe filter bag for infusion products in perspective, front, side, and bottom plan views, respectively;

Figure 5 is a front view of a variant (not part of the present invention) of the filter bag of Figures 1 to 4; Figures 6 to 10 illustrate a second embodiment (not part of the present invention) of a single-lobe filter bag for infusion products in perspective, front, right-hand side, left-hand side and bottom plan views, respectively;

Figure 11 is a perspective view showing a variant (not part of the present invention) of the filter bag of Figures 6 to 10;

Figures 12 to 16 illustrate a third embodiment of a single-lobe filter bag for infusion products according to the invention in perspective, front face, rear face, side, and bottom plan views, respectively;

Figures 17 to 20 are perspective, front, side, and bottom plan views, respectively, showing a detail of a variant of the third embodiment of the single-lobe filter bag of Figures 12 to 16;

Figure 21 is a perspective view illustrating a variant of the filter bag of Figures 12 to 16;

Figures 22 to 26 illustrate a fourth single-lobe bag in perspective, front face, side, rear face and top plan views, respectively;

Figures 27 to 31 are, respectively, perspective, front face, side, rear face and top plan views illustrating a variant of the embodiment of the filter bag of Figures 22 to 26.

Detailed Description of the Preferred Embodiments of the Invention

[0013] With reference to the accompanying drawings, in particular Figures 1, 6, 12 and 17, the single-lobe or single-chamber filter bag is used for infusion products, such as tea, coffee, camomile and the like.

[0014] The filter bag, labelled 1 in its entirety, essentially comprises a length 2 of filter material forming a chamber 3 containing a charge 4 of the infusion product. The length 2 of filter material has a quadrangular shape defined by:

- a first closed top end 5 formed by a first join S1 between two first end edges of the length 2;
- a second closed bottom end 7;
- two sides 8, 9 connecting the first and second ends 5 and 7 of the length 2.

[0015] In the filter bag 1, furthermore:

the two sides 8, 9 connecting the first and second edges 5 and 7 are at least partly folded onto each

other to form a fold towards the inside of the chamber 3; and

the second bottom end 7 of the filter bag 1 is closed by a second join S2 designed to form a stiff flat bottom surface 11 of the filter bag 1 such as to define a stable base, with a substantially triangular cross section, for supporting the filter bag 1.

[0016] Looking in more detail (with reference to Figures 1 to 4 and 12 to 21), in two embodiments of the filter bag 1 the second end 7 comprises two second edges 7a and 7b folded one over the other and joined along the second bottom end 7 to directly define the bottom supporting base 11.

[0017] In a second embodiment (not part of the present invention, see Figures 6 to 11), the second end 7 comprises two second edges 7a and 7b folded one over the other and joined at the bottom ends 8a, 8b and 9a, 9b of the sides 8 and 9 in such a way as to obtain a continuous bottom surface 11 defining the bottom supporting base.

[0018] More specifically, in the first embodiment illustrated in Figures 1 to 4 (not part of the present invention), the ends of each of the two second edges 7a and 7b closer to the sides 8 and 9 are partially folded towards the inside of the chamber 3 to form a bevelled shape and are flattened on the corresponding area of the other edge 7a or 7b in such a way as to create the stiff supporting base 11 at the second end 7.

[0019] In the third embodiment (see Figures 12 to 16), the second edges 7a and 7b define a central extension of the second bottom end 7. The second edges 7a and 7b are folded face to face onto each other and joined in such a way as to form a tab 12 protruding from the bottom supporting base 11 that is elastically compliant in such a way as to be folded onto the bottom base 11 to increase its stiffness.

[0020] Alternatively, the tab 12 may be folded and joined stably by a seal S4 to the bottom supporting base 11, thus forming a larger, stiff longitudinal area (see Figures 17 to 20).

[0021] In the second embodiment illustrated in Figures 6 to 10 (not part of the present invention), the two ends of each of the second edges 7a and 7b are folded towards the first end 5, which is placed over the respective end of the other edge 7a or 7b and at the respective bottom ends 8a, 8b and 9a, 9b of the connecting sides 8 and 9 (initially open) of the length 2 in such a way as to form a bevelled shape.

[0022] Each pair of ends of the second edges 7a and 7b is reciprocally joined by a seal S2 at the respective bottom areas of the connecting sides 8 and 9: this creates a stiff lateral area of the length 2 in order to form wide supporting shoulders for the closed bottom supporting base 11 of the filter bag 1.

[0023] In this specific case, the seal S2 is simultaneously made also on the substantially central area of each side 8, 9 in order to also join the latter which, as stated,

are initially open, in the configuration in which they are folded towards the inside of the chamber 3.

[0024] In addition to the above, the filter bag 1 may be equipped, on the length 2, with a string 13 joined by sealing one end of it to the length 2 itself and the other end to a tag 14 which is in turn removably associated with the length 2 of filter material: this allows correct handling of the filter bag 1 during infusion.

[0025] As regards other manufacturing aspects of the filter bag 1, the length 2 of filter material may consist of filter paper or biodegradable material (such as, by way of non limiting example, maize starch) or a non-biodegradable plastic material (such as polyethylene).

[0026] The joins on the length 2 of filter material may consist of a first and a second heat seal S1 and S2, that is to say, made by heat sealing.

[0027] Alternatively, the two joins may consist of a first and a second seal S1 and S2 made using a suitable glue.

[0028] In yet another alternative, the two joins on the length 2 may consist of a first and a second ultrasound seal S1 and S2.

[0029] According to one possible variant applicable to all three embodiments described above, the corners 5a and 5b of the first top end 5 of the length 2 are bevelled symmetrically according to an angle α (see Figures 5, 11 and 21).

[0030] The tubular length 2, having an initially open tubular shape, may, at least in the first two embodiments described above, have a central join for closing the tube and consisting of a third join or seal S3.

[0031] Figures 22 to 26 and 27 to 31 illustrate another two alternative embodiments of the filter bag 1 whose structural configuration is based on that of the embodiment illustrated in Figures 12 to 16.

[0032] In this case, the length 2 of filter material is provided with a string 13 joined, at one end, to the length 2 itself by a knot A1 and, at the other end, to the tag 14 by a knot A2, the string 13 being looped around the length 2 and also around the elastically compliant tab 12 protruding from the bottom supporting base 11.

[0033] The tag 14 may also be removably attached, for example by sealing, to the length 2 of filter material.

[0034] To keep the tag 14 in position on the length 2, the tag 14 may have a slit 14f made at the top of it for engaging an end portion P of the string 13 knotted to the length 2 of filter material in such a way as to hold it against the length 2.

[0035] In both solutions, that is to say, supported by the string 13 or attached to the length 2, the tag 14 is positioned at the top 5 of the length 2 (where the closing seal S1 is located) and protrudes partially from the length 2 itself.

[0036] The filter bag 1 illustrated in Figures 27 to 31 differs mainly in that corners 5a and 5b of the first, top end 5 of the length 2 are bevelled symmetrically according to an angle α .

[0037] A filter bag made as described above therefore achieves the above mentioned purposes thanks to the

special forms imparted to the connecting sides and to the bottom edges that close the length of filter material in such a way as to create a flat stiff base that provides: a chamber 3 with a constant volume not only before use, housing the product comfortably and stably, and allowing the filter bag to stand erect on a supporting surface, but also during infusion, allowing the product to move and expand optimally within the chamber, thus guaranteeing an infusion of excellent quality and reduced infusion times.

[0038] The invention described above 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 the details of the invention may be substituted by technically equivalent elements.

Claims

1. A single-lobe filter bag for infusion products, the filter bag (1) comprising a length (2) of filter material forming a chamber (3) containing a charge (4) of the infusion product; the length (2) comprising at least:

a first closed top end (5) formed by a first join (S1) between two first end edges of the length (2);

a second closed bottom end (7);

two sides (8, 9) connecting the first end (5) and the second end (7) of the length (2),

the two sides (8, 9) connecting the first and second ends (5, 7) being at least partly folded onto each other to form a fold towards the inside of the chamber (3); **characterised in that**

the second bottom end (7) of the filter bag (1) is closed by a second join (S2) designed to form a stiff flat bottom surface (11) of the filter bag (1) such as to define a stable base, with a substantially triangular cross section, for supporting the filter bag (1), the second end (7) having two second edges (7a, 7b) defining a central extension of the second bottom end (7), said second edges (7a, 7b) being positioned face to face with each other and being joined in such a way as to form a tab (12) that protrudes from the bottom supporting base (11) and that is elastically compliant in such a way as to be folded onto the bottom base (11) to increase its stiffness.

2. The filter bag according to claim 1, **characterised in that** the tab (12) is folded and joined stably by a seal (S4) to the bottom supporting base (11), thus forming a larger, stiff longitudinal area.
3. The filter bag according to claim 1, **characterised in that** it comprises, on the length (2), a string (13) joined by sealing one end of it to the length (2) itself

and the other end to a tag (14) which is in turn removably associated with the length (2) of filter material.

to the length (2) of filter material in such a way as to hold it against the length (2).

4. The filter bag according to claim 1, **characterised in that** the length (2) of filter material is made from filter paper. 5
5. The filter bag according to claim 1, **characterised in that** the length (2) of filter material is made from biodegradable material. 10
6. The filter bag according to claim 1, **characterised in that** the length (2) of filter material is made from non-biodegradable plastic material. 15
7. The filter bag according to claim 1, **characterised in that** the joins on the length (2) of filter material are defined by a first seal (S1) and a second seal (S2) made by heat sealing. 20
8. The filter bag according to claim 1, **characterised in that** the joins on the length (2) of filter material are defined by a first seal (S1) and a second seal (S2) made using glue. 25
9. The filter bag according to claim 1, **characterised in that** the joins on the length (2) of filter material are defined by a first seal (S1) and a second seal (S2) made by ultrasound sealing. 30
10. The filter bag according to claim 1, **characterised in that** the corners (5a, 5b) of the first, top end (5) of the length of filter paper are bevelled symmetrically according to an angle (α). 35
11. The filter bag according to claim 1, **characterised in that** the tubular length (2) has an initially open tubular shape, with a central join for closing the tube and defined by a third seal (S3). 40
12. The filter bag according to claim 1, **characterised in that** it comprises, on the length (2), a string (13) joined, at one end, by a knot (A1) to the length (2) itself and, at the other end, by a knot (A2) to a tag (14), the string (13) being looped around the length (2). 45
13. The filter bag according to claim 1, **characterised in that** it comprises, on the length (2), a string (13) joined, at one end, by a knot (A1) to the length (2) itself and, at the other end, by a knot (A2) to a tag (14), which is in turn removably attached to the length (2), the string (13) being looped around the length (2). 50
14. The filter bag according to claim 13, **characterised in that** the tag (14) has a slit (14f) at the top of it for engaging an end portion (P) of the string (13) knotted 55

FIG.1

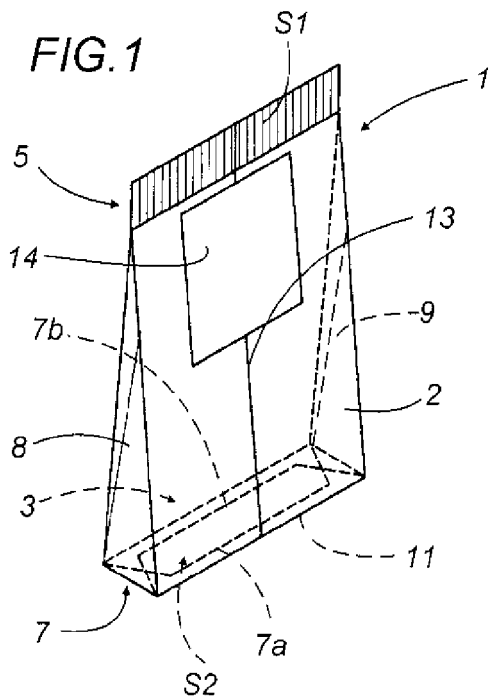


FIG.2

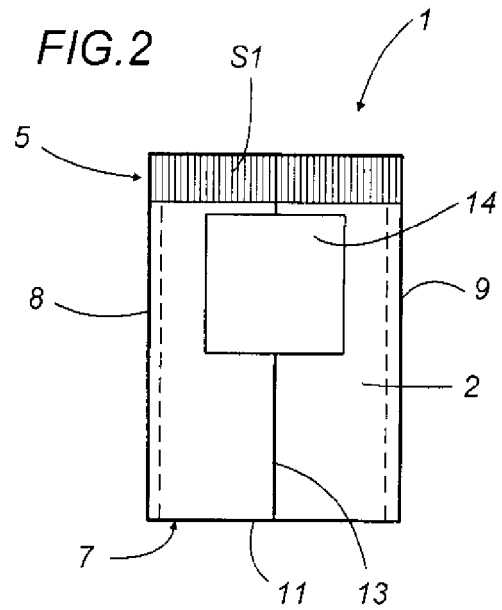


FIG.4

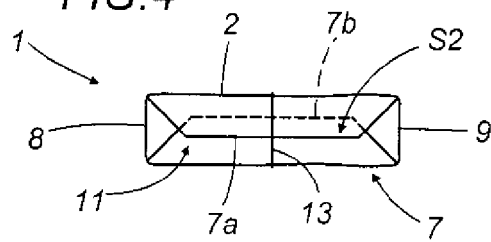


FIG.3

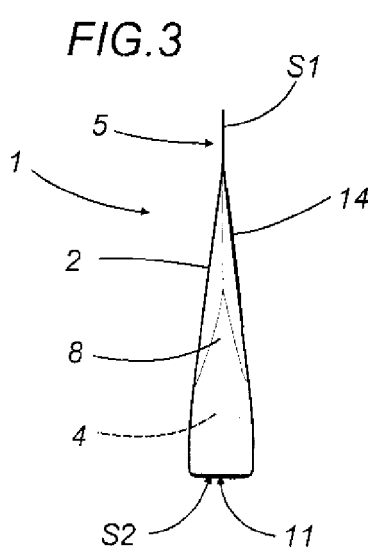
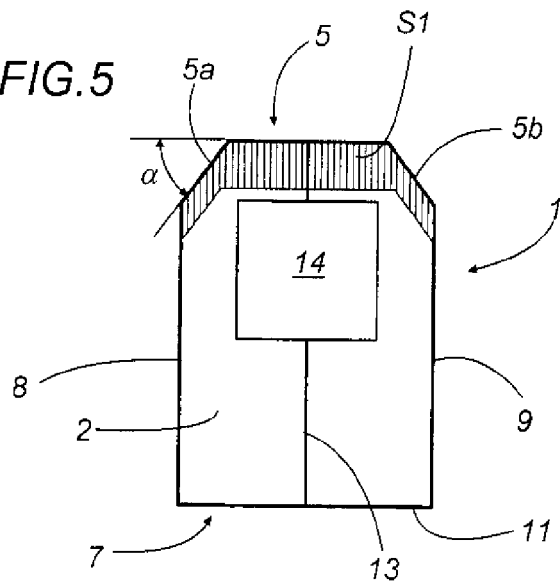
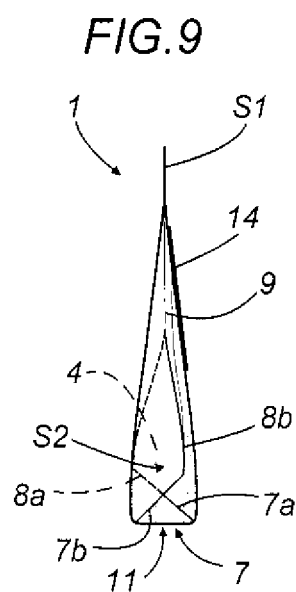
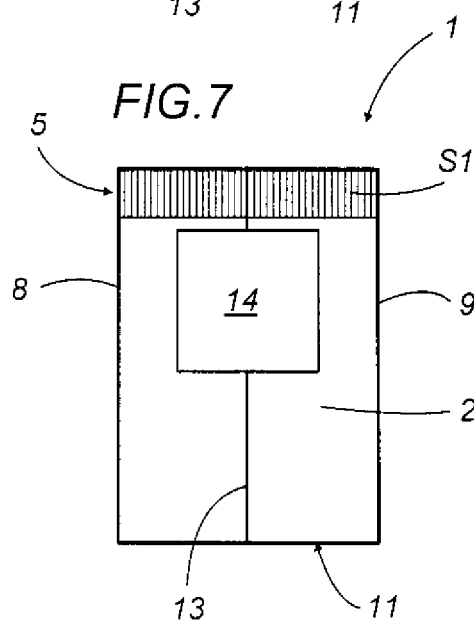
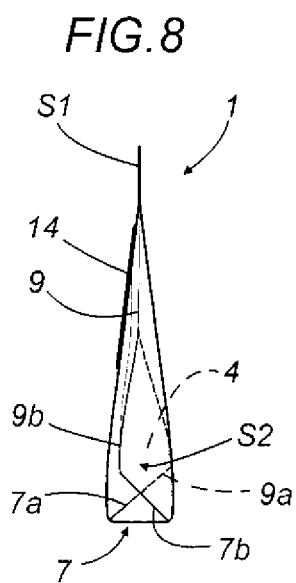
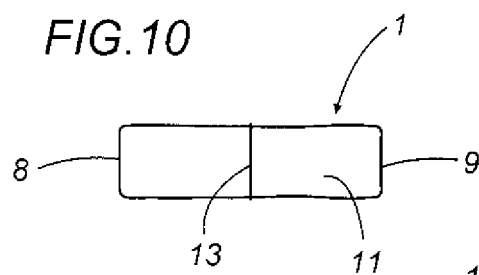
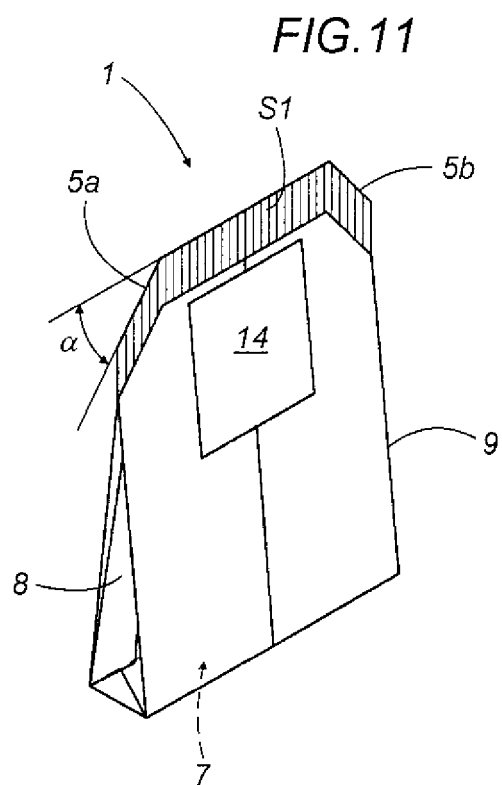
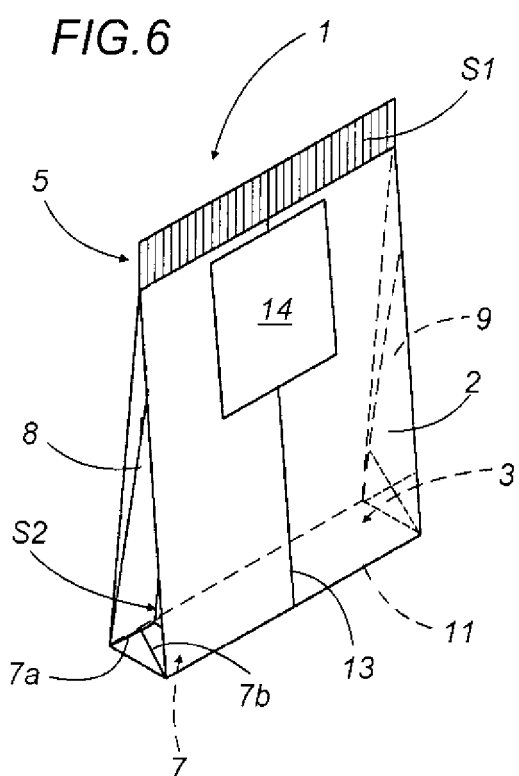


FIG.5





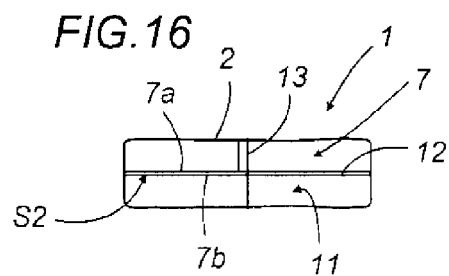
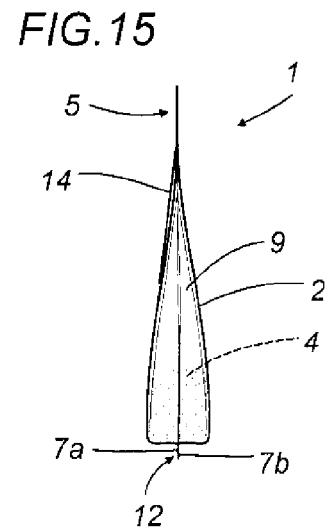
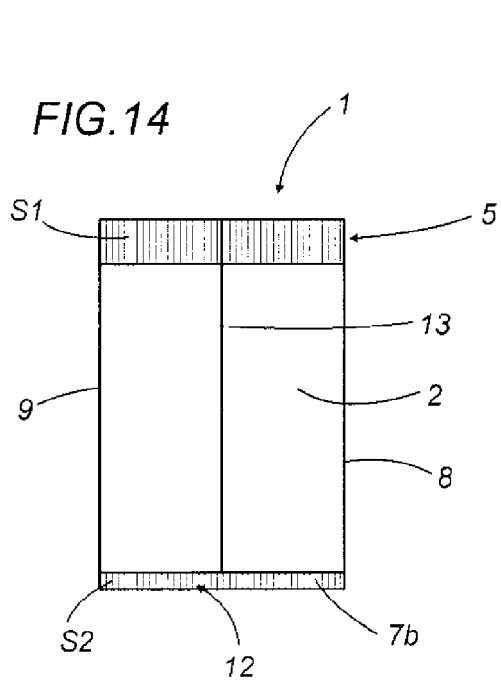
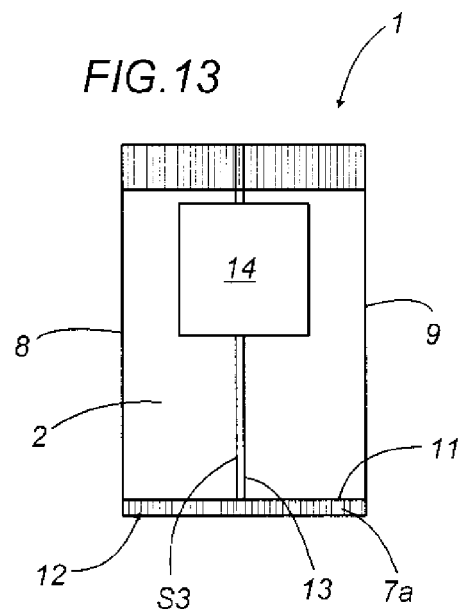
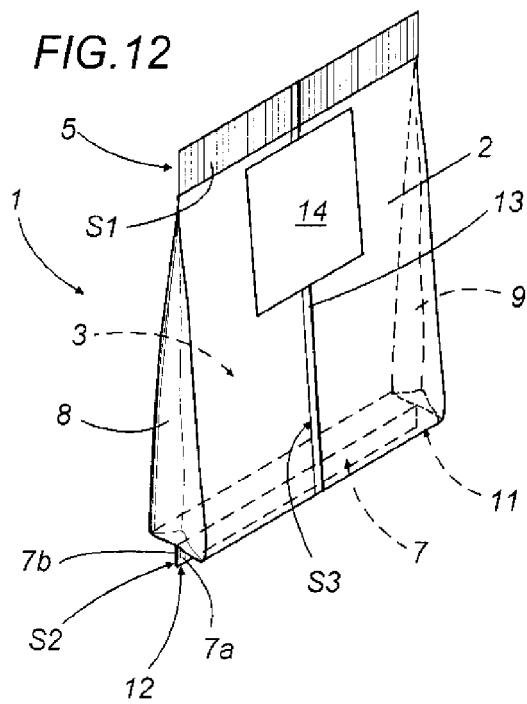


FIG. 17

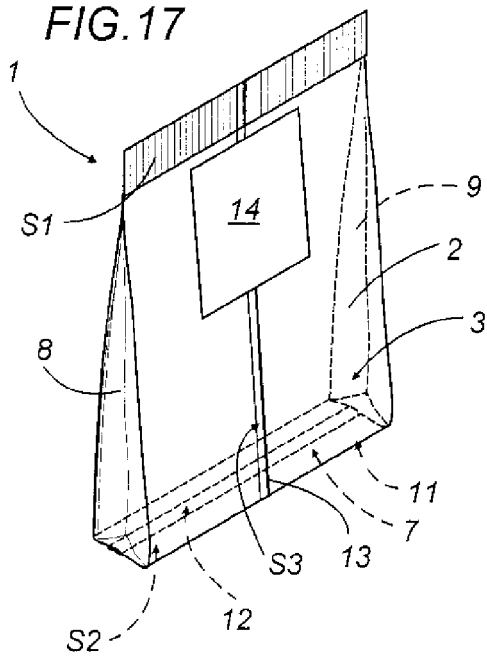


FIG. 18

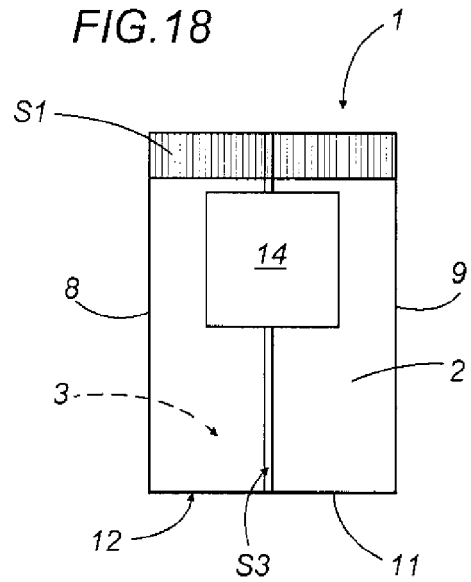


FIG. 19

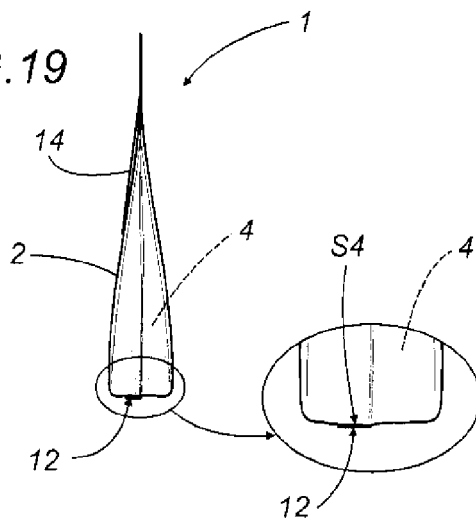


FIG. 20

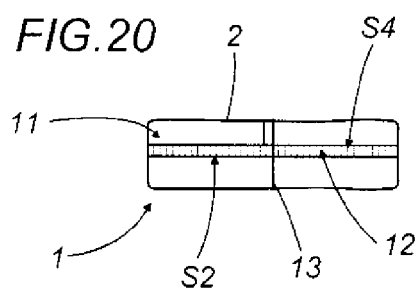


FIG. 21

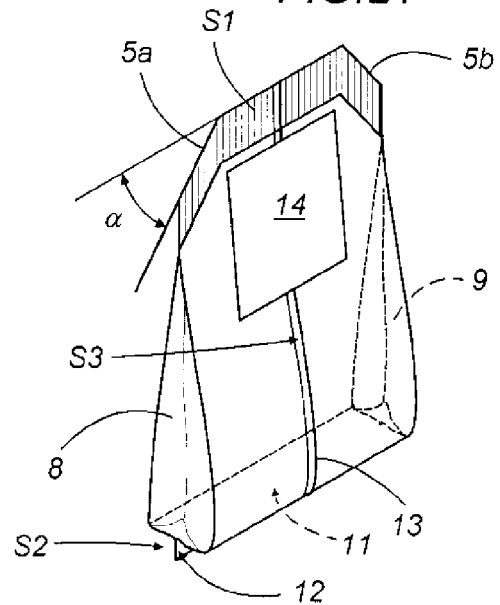


FIG.22

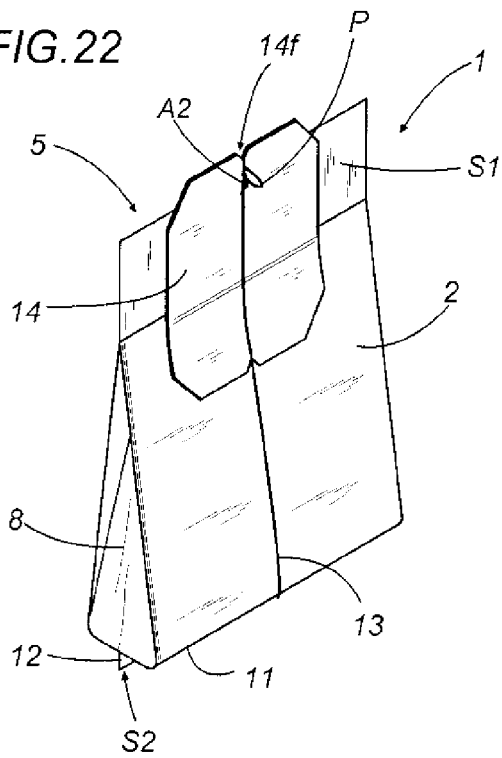


FIG.23

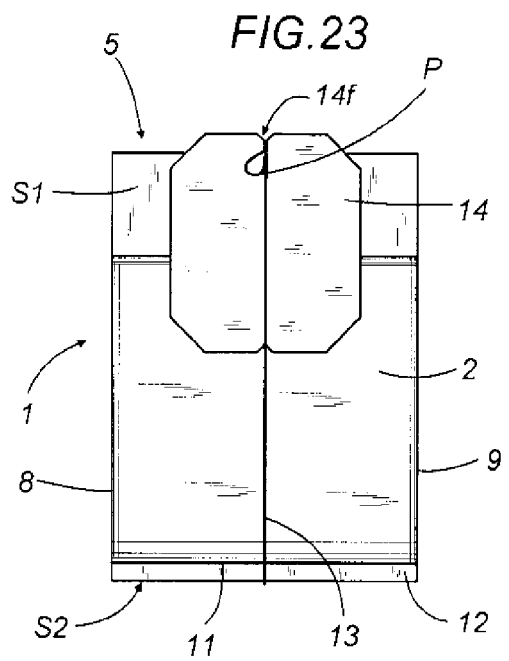


FIG.24

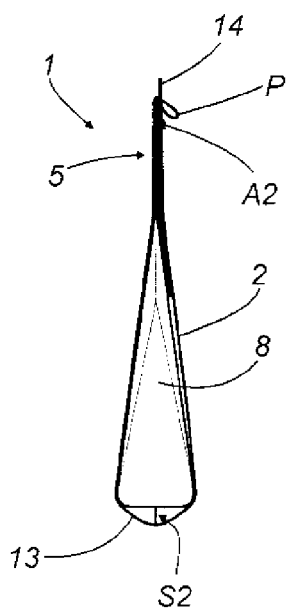


FIG.25

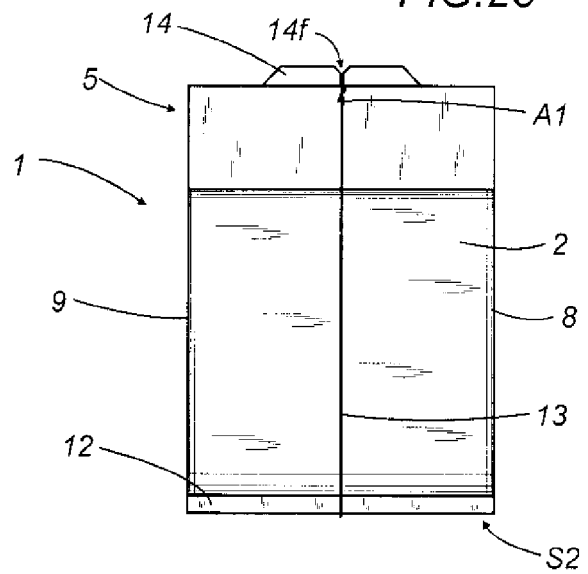


FIG.26

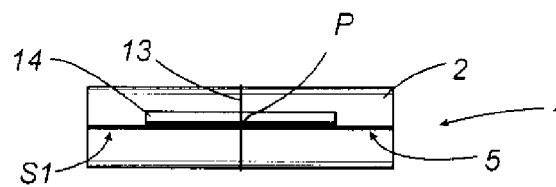


FIG.27

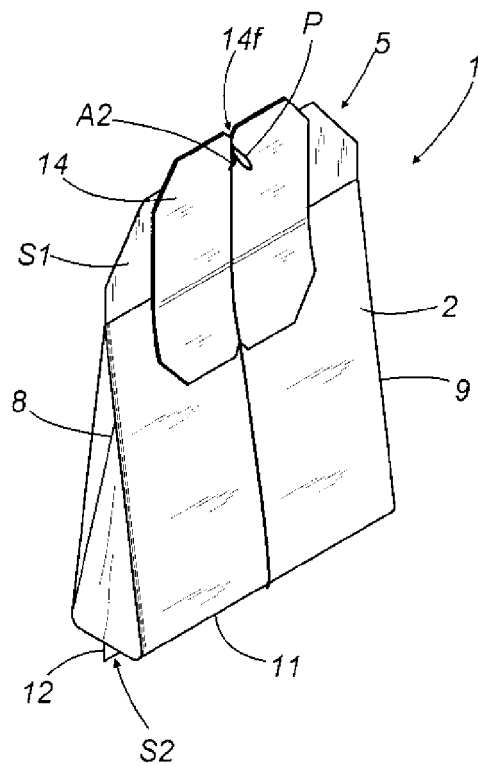


FIG.28

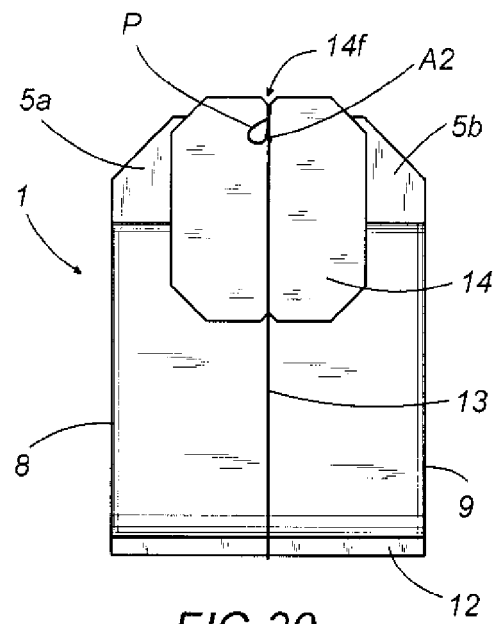


FIG.30

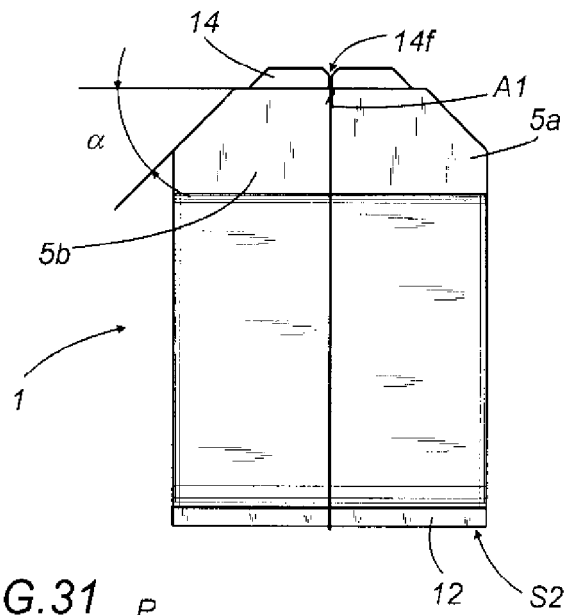


FIG.29

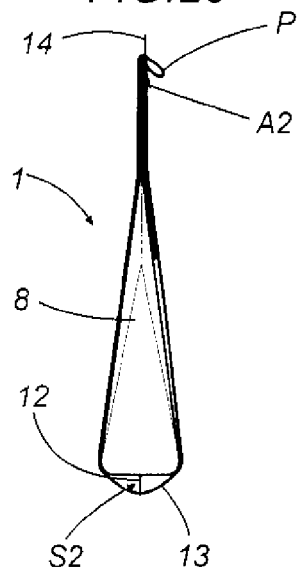
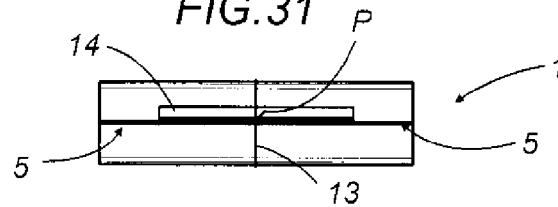


FIG.31





EUROPEAN SEARCH REPORT

Application Number
EP 12 17 9351

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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