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(54) **Two-lobed filter bag for products for infusion and method for making the same**

Doppelkammer-Filterbeutel für Aufgussprodukte und Verfahren zur Herstellung desselben

Sachet filtre à deux compartiments pour produits obtenus par infusion et son procédé de fabrication

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Description

[0001] The present invention relates to a two-lobed filter bag for products for infusion, such as tea, camomile and similar products and to a method for making such a bag.

[0002] In the production of said filter bags, one of the main requirements felt by manufacturers, in addition to commercial requirements, is to simplify the machines for the manufacture of such two-lobed filter bags as far as possible, since this type of product is not one of the most simple to obtain.

[0003] In their constant efforts to reduce the cost of the individual products, manufacturers employed solutions which could increase the productivity of the machines, or other solutions which could use diverse basic products. For example, the use of heat-sealable filter paper, or elements which seal the bags using a metal staple, gluing or "additional blobs" of heat-sealable material and the use of adhesive or non-adhesive labels.

[0004] The present text does not refer to the sector of the classic two-lobed bag sealed and attached to the thread and label using metal staples. Amongst the solutions which envisage the use of heat-sealable filter paper, the technique illustrated, for example, in patent IT - 1.187.308 is known, in which the two-lobed bags are obtained from a continuous web of filter paper, upon which a succession of doses are placed, at equal distances from one another then, for each bag, a tubular section of filter paper is defined during a tube forming stage in which it is closed by folding and/or longitudinal sealing.

[0005] The two pockets of the bag are defined by a series of transversal seals, creating separate pockets or lobes, each with a base and free end. A continuously fed thread is then positioned centrally and longitudinally on the tubular web, labels already being attached to the thread, at regular intervals, by a blob of heat-sealable material.

[0006] Positioning of the thread is followed by a stage in which the tubular web is cut to define a tubular section comprising two pockets or lobes and a length of thread, the ends of which are attached to the free ends of the pockets by the above-mentioned blob of heat-sealable material. In the centre of the section thus obtained a characteristic "W"-shaped fold is then made, allowing separation of the two opposite lobes or chambers. The two lobes are then rotated about the fold, until they are alongside one another, then they are stably joined by heat-sealing to form the filter bag as a whole, that is to say, with a thread extending longitudinally and wrapped around the package.

[0007] In a different thread - bag connection solution, see patent EP - 448.325, the filter bag comprises two chambers or lobes obtained from a pair of webs, fed one above the other, following the depositing of product doses, and heat-sealed at the edges, then folded one towards the other with the characteristic "W"-shaped fold. As in the previous case, the thread to which the label is attached may be wound longitudinally around the filter bag with its ends heat-sealed to the relative surfaces, or may be positioned on a single surface of the filter bag and gathered there under the pick-up label, which also serves to hold the thread in place.

[0008] WO-A-97/19005 illustrates an infusion packet according to the preamble of claim 1, which comprises a pair of sealed compartments (12a, 12b) containing infusion material and joined together at opposite ends of the packet. A drawstring (14) attached intermediate its length to a connecting region (8) between the two compartments at one said ends has pull portions extending between the compartments from said attachment and held movably at the opposite end of the packet, whereby said pull portions can be drawn apart to contract the packet.

[0009] Over time, such types of filter bags have displayed disadvantages due, in particular, to the complexity of the solution which uses the blob of heat-sealable material (in addition to the increased cost, due to an extra element - the blob of heat-sealable material), and to the fragility of the zone at which the surface of the filter bag and the end of the thread are joined (normally by heat-sealing or blobs of glue - in a concentrated zone).

[0010] The fragility of the join may cause the thread to be detached from the filter bag during packaging and handing of the package - bag, as well as during preparation of the infusion or as it is removed from the container. Moreover, the structure of the bag as it has been made until now is not ideal for fast handling both during packaging (on the machine) and during final use.

[0011] The aim of the present invention is, therefore, to overcome the above-mentioned disadvantages by providing a two-lobed filter bag which is extremely simple to make, very practical to use and safe for making infusions, with a good appearance.

[0012] The technical features of the present invention, in accordance with the above-mentioned aims, are set out in the claims herein and the advantages more clearly illustrated in the detailed description which follows, with reference to the accompanying drawings, which illustrate a preferred embodiment without limiting the scope of application, and in which:

- Figure 1 is a top plan view of a section of filter paper used to make the filter bag in accordance with the present invention;
- Figure 1a is a top plan view of the section of filter paper illustrated in Figure 1, with a thread deposited on the section;
- Figures 1b and 1c are top plan views of two other sections of filter paper used to make the filter bag, with the thread arranged on the surface in two different configurations;
- Figures 2, 2a and 2b are perspective views with some parts cut away to better illustrate others, of a succession of stages for folding and joining the

ends of the filter bag, in accordance with the present invention;

- Figures 3, 3a and 4 are perspective views with some parts cut away to better illustrate others, of another succession of stages for obtaining the filter bag packaging configuration disclosed;
- Figure 5 is a side view of the filter bag made in accordance with the present invention, in a packaging configuration;
- Figure 6 is a front view of the filter bag made in accordance with the present invention, in a packaging configuration;
- Figures 7 to 11 are perspective views with some parts cut away to better illustrate others, of a succession of stages for bringing the filter bag from a packaging configuration to a handling configuration for infusion of the bag;
- Figure 12 is a front view of the filter bag in the infusion configuration.

[0013] With reference to the accompanying drawings and in particular Figures 5, 6 and 12, the filter bag disclosed, defined as being of the two-lobed type, is used for containing and using products for infusion, such as tea, camomile and similar products.

[0014] Such a filter bag, labelled as a whole with the numeral 1, comprises two pockets or lobes 2 and 3, made of filter paper, each holding a dose 4 of the product for infusion (the product is illustrated with a dashed line). The lobes 2 and 3 are positioned in such a way that one surface 2a and 3a of each is opposite and/or in contact with the other and they are joined together at one end 2b and 3b, defining the base 5 of the filter bag 1.

[0015] One end 6a of a bag support thread 6 is attached to one lobe, in this case labelled 3, of the filter bag 1, defining a connection point A. The other end 6b of the thread 6 is attached to a pick-up label 7 for manipulating the filter bag 1 during infusion (clearly illustrated in Figure 12).

[0016] The end 6a of the thread 6 defining the connecting point A with the filter bag 1, see in particular Figures 1a to 4 and the relative letters, is attached to the free end 3c of the lobe 3, whilst the other end 6b of the thread, attached to the pick-up label 7, is attached to the free end 2c of the other lobe 2. In this way, the portion P of thread 6 between the two ends 6a and 6b is arranged in a packaging configuration, on the surfaces 2a and 3a of the lobes 2 and 3 which make contact with one another and on the base 5, that is to say, it is completely protected by the filter bag 1.

[0017] More specifically, the end 6b of the thread 6 attached to the pick-up label 7 is attached to an additional end portion 8 of the free end 2c of the lobe 2 together with the pick-up element 7, again in a filter bag packaging configuration.

[0018] The connections described until now are made on the two lobes 2 and 3 closed by a heat-sealed zone or section 9 and 10 at the corresponding free end 2c and 3c. The two ends 6a and 6b of the thread 6 are attached to the free ends 3c and 2c at the above-mentioned heat-sealed zones 10 and 9, one of which (labelled 9) comprises the additional end section 8 on the lobe 2.

[0019] In order to obtain the additional end section 8, the length S of the transversal heat-sealed zone 9, along the lobe 2, is preferably longer than the length S1 of the opposite heat-sealed zone 10. As is clearly illustrated in Figure 1, the additional end portion 8 is defined and delimited by a transversal weakening line L made in the heat-sealed zone 9 of the corresponding lobe 2.

[0020] As can also be seen in Figures 3 to 6, this weakness L allows the additional end portion 8 to be folded, in the packaging configuration and together with the end 6b of the thread 6, towards the outer surface 3d of the lobe 3 (wrapping around the upper part of the filter bag, see also arrow F1 in Figure 3a). In this way, the pick-up label 7 is positioned on said surface in such a way that it occupies the minimum amount of space possible.

[0021] Moreover, the weakness L allows detachment of the additional end portion 8, together with the end 6b of the thread 6 attached to the end portion and the pick-up label 7, so that during use of the bag 1, it allows the portion P of thread 6 to exit the bag as the pick-up label 7 is moved away from the bag 1 (see Figures 7 to 12).

[0022] Observation of the end 6a of the thread 6 which defines the point of connection A with the bag 1 reveals, in particular in Figures 1a, 1b and 1c, that the end 6a consists of a section P1 of thread, attached to the end 3c of the lobe 3, defining a loop, that is to say, a stable, extensive contact surface between the thread 6 and the lobe 3.

[0023] More specifically, the loop of the section P1 of thread has the shape of a "U" lying on its side and is positioned completely within the heat-sealed zone 10.

[0024] As illustrated in Figure 4, the structure of the filter bag 1 is completed by the fact that along a zone coinciding with the heat-sealed zones 9 and 10, the free ends 2c and 3c of the lobes 2 and 3, attached to one another in a packaging configuration, have corners 11 and 12 which are symmetrically tapered, relative to the ends, at an angle α.

[0025] Another improvement in the filter bag described until now is illustrated in Figures 1b and 1c, which show how the thread 6 may be deposited on the web in two different configurations on the tubular section of filter paper which will be used to form the bag disclosed.

[0026] In Figure 1b the thread 6 is positioned with a surplus portion 6pm, designed to increase the length of the portion P of thread present in the bag 1. The portion 6pm is placed on a central sealed section 13 which separates the two lobes 2 and 3. The central portion 6pm is substantially another additional section of thread 6, positioned transversally to the longitudinal axis X of the tubular section of filter paper, that is to say, parallel with

the central seal 13 defined, for example, by "weak" heat-sealing points T1 and T2 designed to allow the subsequent detachment of the portion 6pm of thread as the thread exits the bag 1. In the packaging configuration, the surplus portion 6pm is housed on the base 5 of the bag 1.

[0027] In an alternative configuration, illustrated in Figure 1c, the surplus portion 6pm is arranged in a zig-zag pattern (to further increase the length of the portion P of thread 6) defined, for example, by another configuration of weak heat-sealed points labelled T3, T4, T5 and T6. This configuration allows the portion 6pm to occupy the minimum amount of space in the bag 1 packaging configuration, and allows the ends 6a and 6b of the thread 6 to be held along the above-mentioned longitudinal axis X.

[0028] Obviously, the position of the ends 6a and 6b of the thread 6 on the axis X is maintained in both the above case and in the more simple case, when the thread is completely straight.

[0029] A filter bag 1 thus composed is made according to a succession of stages comprising: placing doses 4 of the product for infusion at equal distances from one another on a web of heat-sealable filter paper; folding the web along a longitudinal axis X; longitudinal LS and transversal heat-sealing of the web in such a way as to define a continuous tubular web which is closed and divided into individual portions, defining the lobes 2 and 3, at equal distances from one another (see Figure 1).

[0030] The pairs of portions or lobes 2 and 3 then define the individual filter bag 1 delimited by two different transversal half seals 9 and 10, constituting the respective free ends 2c and 3c of the filter bag, and a complete intermediate seal 13 between the first two 9 and 10, designed to define the base 5 of the filter bag 1. Obviously, as already indicated, the length S of the seal 9 is greater than that of the seal 10, to allow the subsequent definition of the additional end portion 8.

[0031] When the tubular web has been heat-sealed, the thread 6 is placed on the web, which is still continuous, in one of the above-mentioned configurations (see Figures 1a, 1b and 1c), with at least one section P1, coinciding with one end 6a of the thread, defining a loop and positioned on the transversal seal 10 opposite the end 2c on which the other end 6b of the thread 6 is placed.

[0032] The thread positioning stage is followed by a stage in which the ends 6a and 6b of the thread 6 are heat-sealed to the transversal seals 9 and 10. In particular, the end 6b of the thread 6 positioned on the end 2c is sealed only along a section equal to the length of the additional end portion 8. The sealing stage is followed by a stage in which the web is cut, at the end transversal seals, defining the two halves 9 and 10, to obtain an individual filter bag 1 (this configuration is clearly illustrated in Figures 1, 1a, 1b and 1c).

[0033] At this point, the lobes 2 and 3 are folded towards one another and the seal 13 is folded into a "W" shape, defining the base 5 of the filter bag 1 and positioning the portion P of thread 6 between the two ends 6a and 6b on the surfaces 2a and 3a of the lobes 2 and 3 in contact with the base 5 (see Figure 2 and the arrows F). This folding allows the consequent attachment of the free ends 2c and 3c of the lobes 2 and 3, by another heat-sealing operation, keeping the additional end portion 8 outside the dimensions of the filter bag 1 thus obtained (see Figure 2a).

[0034] The heat-sealing stage is followed by a stage for definition of the additional end portion 8 on the transversal seal (which will become the half 9 and, consequently, the end 2c of the bag 1), by means of a transversal weakening line L (see Figure 2b).

[0035] At this point, the pick-up label 7 is attached to the additional end portion 8 and the side of the lobe 2 coinciding with the length of the portion 8, by another heat-sealing operation on the latter (see Figure 3).

[0036] The end portion 8 is then folded, together with the end 6b of the thread 6 attached to it, towards the outer surface 3d of the lobe 3 (see Figure 3a and arrow F1) to "close" the zone at which the original ends 2c and 3c of the bag 1 are connected.

[0037] The final stage in the manufacture of the filter bag 1 envisages cutting of the free ends 2c and 3c of the lobes 2 and 3 and the additional end portion 8, symmetrically relative to the ends, and where the corners 11 and 12 thus defined are tapered at an angle α (see Figures 4, 5 and 6).

[0038] As already indicated, during the stage for definition of the transversal seals 9 and 10 on the web, a first half 9 is preferably made, with the length S of the seal greater than the length S1 of the other half of the seal 10, so as to define an excess portion coinciding with the additional end portion 8. This simplifies the operations for folding the lobes 2 and 3 relative to the transversal centre line of the central seal 13.

[0039] A filter bag 1 made in this way is prepared for infusion by the user as follows: gripping and rotating the pick-up label 7 away from the surface 3d (see arrow F2 in Figure 7); detaching the pick-up label 7, together with the additional end portion 8 and the end 6b of the thread 6 from the joined free ends 2c and 3c of the filter bag 1 (see arrow F3 in Figures 8 and 9) then pulling the pick-up label 7 away from the filter bag 1 (see arrow F4 in Figures 10 and 11) consequently pulling the portion P of thread out of the bag (see also Figure 12).

[0040] The filter bag thus obtained fulfils the stated aims thanks to the special configuration of the thread, protected between the two lobes and attached to the bag in a zone which is protected by the lobes and with a looped configuration which strengthens the connection between the thread and the bag. Similarly, the end at which the thread and pick-up label are attached is further strengthened by the reciprocal fixing and, at the same time, protected by the additional end portion which is detached, for the bag infusion stage, together with the end of the thread and the pick-up label.

[0041] All of these elements make the filter bag extremely compact, reducing the risks involved in its handling during the final packaging stages of the bag.

[0042] The invention described can be subject to modifications and variations without thereby departing from the scope of the invention as illustrated in the appended claims.

[0043] Moreover, all the details of the invention may be substituted by technically equivalent elements.

Claims

1. A two-lobed filter bag for products for infusion, such as tea, camomile and similar products, the filter bag (1) being of the type comprising two pockets or lobes (2, 3), made of filter paper, each holding a dose (4) of the product for infusion; the lobes (2, 3) being positioned in such a way that one surface (2a, 3a) of each is opposite and/or in contact with the other and they are joined together at one end (2b, 3b), defining the base (5) of the filter bag (1); one end (6a) of a bag support thread (6) being attached to at least one lobe (2, 3) of the filter bag (1), defining a connection point (A), the other end (6b) of the thread (6) being attached to a pick-up label (7) for manipulating the filter bag (1) during infusion, the end (6a) of the thread (6) defining the point of connection (A) with the filter bag (1) ***being*** attached to the free end (3c) of said at least one lobe (3), the other end (6b) of the thread, attached to the pick-up label (7), being attached to the free end (2c) of the other lobe (2), so that the portion (P) of thread (6) between the two ends (6a, 6b), in a packaging configuration, is on the surfaces (2a, 3a) of the lobes (2, 3) which make contact with one another and/or on the base (5), ***the filter bag being characterised in that***
   the end (6b) of the thread (6) attached to the pick-up label (7) is attached to an additional end portion (8) of the free end (2c) of the other lobe (2) together with the pick-up label (7).

2. The filter bag according to claim 1, **characterised in that** the additional end portion (8) is defined by a transversal weakening line (L) made on the lobe (2), being designed to allow detachment of the portion, together with the end (6b) of the thread (6) and the pick-up label (7), so that during use of the bag (1), the portion (P) of thread (6) exits the bag when the pick-up label (7) is moved away from the bag (1).

3. The filter bag according to claim 1, **characterised in that** the end (6a) of the thread (6) defining the point of connection (A) with the bag (1) consists of a section (P1) of thread, attached to the end (3c) of the lobe (3), defining a loop, that is to say, a stable, extensive contact surface between the thread (6) and the lobe (3).

4. The filter bag according to claim 3, **characterised in that** the loop in the section (P1) of thread is in the shape of a "U" lying on its side.

5. The filter bag according to any of the foregoing claims, in which the lobes (2,3) have a heat-sealed zone or section (9, 10) closing the corresponding free end (2c, 3c), the filter bag being **characterised in that** the ends (6a, 6b) of the thread (6) are attached to the free ends (3c, 2c) of the lobes (3, 2) at the heat-sealed zones (10, 9), one of which comprises the additional end section (8) of the lobe (2), to which one end (6b) of the thread is attached; both ends (6a, 6b) being arranged along a longitudinal axis (X) of the filter bag (1).

6. The filter bag according to claims 1 and 5, **characterised in that** the free ends (2c, 3c) of the lobes (2, 3) which are attached to one another, in a packaging configuration, along a zone coinciding with the heat-sealed zones (9, 10), have corners (11, 12) which are tapered symmetrically, relative to the ends, at a preset angle (α).

7. The filter bag according to claims 1 to 5, **characterised in that** the additional end portion (8) on the lobe (2) is defined by a transversal heat-sealed zone (9) whose length "(S) along the lobe (2) is greater than the length (S1) of the opposite heat-sealed zone (10), the portion (8) being delimited by a transversal weakening line (L) made on the heat-sealed zone (9).

8. The filter bag according to claims 1 and 2, **characterised in that** the additional end portion (8) can be folded, in a packaging configuration and together with the end (6b) of the thread (6), towards the outer surface (3d) of the lobe (3), allowing the pick-up label (7) to be positioned on said surface and "close" the free ends (2c, 3c).

9. The filter bag according to claim 1, **characterised in that** the portion (P) of thread (6) between the ends (6a, 6b) has a surplus portion (6pm) designed to increase the length of the portion (P) of thread (6) for infusion.

10. The filter bag according to claim 9, **characterised in that**, in a packaging configuration, the surplus portion (6pm) is arranged on the base (5) of the filter bag (1).

11. The filter bag according to claims 9 and 10, **characterised in that** the surplus portion (6pm) of the thread (6) consists of another additional section of the thread (6), extending in a zigzag pattern defined

by a plurality of "weak" heat-sealed point (T1, T2; T3, T4, T5, T6), being designed to allow subsequent detachment of the surplus portion (6pm) of the thread (6) when the thread (6) exits the bag (1).

12. A method for making a filter bag according to claim 1, the method comprising at least the following stages:

- placing the doses (4) of the product for infusion at equal distances from one another on a web of heat-sealable filter paper;
- folding the web along a longitudinal axis (X);
- heat-sealing the web lengthways (LS) and crossways (9, 10, 13), so as to define a continuous tubular web, being closed and divided into individual portions defining the lobes (2, 3) at equal distances from one another, the pairs of lobes subsequently defining a single filter bag (1), being delimited by two transversal seals, the relative halves (9, 10) constituting the free ends(2c, 3c) of the filter bag and a complete seal (13), between the first two (9, 10), being designed to define the base (5) of the filter bag (1),
- placing a continuous thread (6) on the tubular web (N), the thread having at least one section (P1) coinciding with one of its ends (6a) which is arranged on the transversal seal (10) opposite the end (2c) of the bag on which the other end (6b) of the thread (6) is placed; both ends (6a, 6b) of the thread being arranged along the longitudinal axis (X);
- heat-sealing at least the ends (6a, 6b) of the thread (6) on the transversal seals (10, 9);
- cutting the web (N), at the end seals defining the halves (9, 10), so as to obtain an individual filter bag (1);

folding the lobes (2, 3) towards one another so as to position the portion (P) of the thread between the two ends (6a, 6b) on the surfaces (2a, 3a) of the lobes (2, 3) which are in contact with one another, consequently connecting the free ends (2c, 3c) of the lobes (2, 3), ***the method being characterised in that it comprises the following stages:***

- ***defining an additional end portion (8) resulting from the transversal seal (9);***
- ***placing the end (6b) of the thread (6) on the additional end portion (8) which is arranged on the end (2c) of the bag;***
- keeping the additional end portion (8) outside the dimensions of the filter bag (1) obtained ***as above*;**
- attaching the pick-up label (7) to the additional end portion (8);
- folding the additional end portion (8), together with the end (6b) of the thread (6) attached to it, towards the outer surface (3d) of the lobe (3).

13. The method according to claim 12 **characterised in that** the section (P1) coinciding with one of the ends (6a) of the thread (6) defines a loop placed on the end (3c) of the bag arranged on the transversal seal (10).

14. The method according to claim 12, **characterised in that** in the stage for defining the transversal seals (9, 10) on the web, a first half of the seal (9) has a length (S) greater than the length (S1) of the other half of the seal (10), defining an excess portion and coinciding with the additional end portion (8).

15. The method according to claim 12, **characterised in that** the folding stage is preceded by a stage for defining the end portion (8) with a transversal weakening line (L) designed to separate the end portion (8) from the half (9).

16. The method according to claim 12, **characterised in that** the end (6b) of the thread (6) which can be attached to the pick-up label (7) is heat-sealed to the web over a length equal to the length (L) of the additional end portion (8).

17. The method according to claim 12, **characterised in that** the stage for attaching the pick-up label (7) is followed by a stage for cutting the free ends (2c, 3c) of the lobes (2, 3) and the additional end portion (8), symmetrically relative to the ends, the corners (11, 12) being tapered at an angle (α).

18. The method according to claim 12, **characterised in that** the stage for attaching the pick-up label (7) is implemented by means of heat-sealing.

19. The method according to claim 12, **characterised in that** the stage for heat-sealing the ends (6a, 6b) of the thread (6) envisages the simultaneous weak heat-sealing of an additional surplus portion (6pm) of the thread on the complete intermediate seal (13), said portion being in a zigzag pattern defined by a plurality of heat-sealed points (T1, T2; T3, T4, T5, T6).

Patentansprüche

1. Doppelkammer-Filterbeutel für Aufgussprodukte, wie Tee, Kamillentee und ähnliche Substanzen, wobei der Filterbeutel (1) vom Typ mit zwei Säckchen (2, 3) aus Filterpapier ist, jede enthaltend eine Dosis (4) eines Aufgussproduktes; wobei die Säckchen (2, 3) auf solche Weise positioniert sind, dass eine Oberfläche (2a, 3a) eines jeden der anderen ge-

genüberliegt und/oder mit dieser im Kontakt angeordnet ist, und diese an einem, den Boden (5) des Filterbeutels (1) bildenden Ende (2b, 3b) miteinander verbunden sind; wobei ein Ende (6a) von einem Haltefaden (6) des Beutels an wenigstens einem Säckchen (2, 3) des Filterbeutels (1) befestigt ist und einen Verbindungspunkt (A) beschreibt, während das andere Ende (6b) des Fadens (6) an einem Anhänger (7) zum Aufnehmen des Filterbeutels (1) beim Aufgiessen befestigt ist, wobei das Ende (6a) des Fadens (6), welches den Verbindungspunkt (A) mit dem Filterbeutel (1) beschreibt, an dem freien Ende (3c) von dem genannten wenigstens einen Säckchen (3) und das andere Ende (6b) des Fadens, angebracht an dem Anhänger (7), an dem freien Ende (2c) des anderen Säckchens (2) befestigt ist, so dass in einer verpackten Darstellung der Abschnitt (P) des Fadens (6) zwischen den beiden Enden (6a, 6b) an den Oberflächen (2a, 3a) der Säckchen (2, 3), welche sich im Kontakt miteinander befinden, und/oder an dem Boden (5) liegt, **dadurch gekennzeichnet, dass** das an dem Anhänger (7) befestigte Ende (6b) des Fadens (6) an einem zusätzlichen Endabschnitt (8) des freien Endes (2c) des anderen Säckchens (2) zusammen mit dem Anhänger (7) angebracht ist.

2. Filterbeutel nach Patentanspruch 1, **dadurch gekennzeichnet, dass** der zusätzliche Endabschnitt (8) durch eine querverlaufende, an dem Säckchen (2) angebrachte Abschwächungslinie (L) beschrieben ist, dazu bestimmt, das Lösen des Abschnittes zusammen mit dem Ende (6b) des Fadens (6) und dem Anhänger (7) zu erlauben, so dass während der Benutzung des Beutels (1) der Abschnitt (P) des Fadens (6) aus dem Beutel heraus kommt, wenn der Anhänger (7) von dem Beutel (1) entfernt wird.

3. Filterbeutel nach Patentanspruch 1, **dadurch gekennzeichnet, dass** das den Verbindungspunkt (A) mit dem Beutel (1) beschreibende Ende (6a) des Fadens (6) aus einem Abschnitt (P1) des Fadens (6) besteht, angebracht an dem Ende (3c) des Säckchens (3) und eine Schlaufe beschreibend, das heisst ein stabile, ausgedehnte Kontaktfläche zwischen dem Faden (6) und dem Säckchen (3).

4. Filterbeutel nach Patentanspruch 3, **dadurch gekennzeichnet, dass** die Schlaufe in dem Abschnitt (P1) des Fadens die Form eines auf seiner Seite liegenden "U" hat.

5. Filterbeutel nach einem beliebigen der vorstehenden Patentansprüche, bei welchem die Säckchen (2, 3) einen heissversiegelten Bereich oder Abschnitt (9, 10) haben, welcher das entsprechende freie Ende (2c, 3c) verschliesst, wobei der Filterbeutel **dadurch gekennzeichnet ist, dass** die Enden (6a, 6b) des Fadens (6) an den freien Enden (3c, 2c) der Säckchen (3, 2) an den heissversiegelten Bereichen (10, 9) befestigt sind, von welchen einer den zusätzlichen Endabschnitt (8) des Säckchens (2) enthält, an dem ein Ende (6b) des Fadens befestigt ist; wobei beide Enden (6a, 6b) entlang einer längsverlaufenden Achse (X) des Filterbeutels (1) angeordnet sind.

6. Filterbeutel nach den Patentansprüchen 1 und 5, **dadurch gekennzeichnet, dass** die freien Enden (2c, 3c) der Säckchen (2, 3), die miteinander verbunden sind, in einer verpackten Darstellung entlang einem Bereich, der mit den heissversiegelten Bereichen (9, 10) übereinstimmt, Ecken (11, 12) aufweist, die im Verhältnis zu den Enden in einem vorgegebenen Winkel (α) symmetrisch abgeschrägt sind.

7. Filterbeutel nach den Patentansprüchen von 1 bis 5, **dadurch gekennzeichnet, dass** der zusätzliche Endabschnitt (8) an dem Säckchen (2) durch einen querverlaufenden, heissversiegelten Bereich (9) beschrieben wird, dessen Abmessung (S) entlang dem Säckchen (2) grösser ist als die Abmessung (S1) des gegenüberliegenden heissversiegelten Bereiches (10), wobei der Abschnitt (8) durch eine, an dem heissversiegelten Bereich (9) hergestellte Abschwächungslinie (L) beschrieben wird.

8. Filterbeutel nach den Patentansprüchen 1 und 2, **dadurch gekennzeichnet, dass** der zusätzliche Endabschnitt (8) in einer verpackten Darstellung zusammen mit dem Ende (6b) des Fadens (6) zu der äusseren Oberfläche (3d) des Säckchens (3) hin umgefaltet werden kann, was es dem Anhänger (7) erlaubt, an der genannten Oberfläche positioniert zu werden und die freien Enden (2c, 3c) zu "verschliessen".

9. Filterbeutel nach Patentanspruch 1, **dadurch gekennzeichnet, dass** der Abschnitt (P) des Fadens (6) zwischen den Enden (6a, 6b) eine Zusatzlänge (6pm) enthält, dazu bestimmt, die Länge des Abschnittes (P) des Fadens (6) für den Aufguss zu verlängern.

10. Filterbeutel nach Patentanspruch 9, **dadurch gekennzeichnet, dass** in einer verpackten Darstellung die Zusatzlänge (6pm) am Boden (5) des Filterbeutels (1) angeordnet ist.

11. Filterbeutel nach den Patentansprüchen 9 und 10, **dadurch gekennzeichnet, dass** die Zusatzlänge (6pm) des Fadens (6) aus einem anderen zusätzlichen Abschnitt des Fadens (6) besteht, der sich in zickzackförmig erstreckt, bestimmt durch eine Anzahl von "schwachen" Heissversiegelungspunkten

(T1, T2; T3, T4, T5, T6), die dazu dienen, dass anschliessende Lösen der Zusatzlänge (6pm) des Fadens (6) zu erlauben, wenn der Faden (6) aus dem Beutel (1) heraus kommt.

12. Verfahren zur Herstellung eines Filterbeutels nach Patentanspruch 1, wobei das Verfahren wenigstens die folgenden Phasen enthält:

- Anordnen der Dosen (4) des Aufgussproduktes in gleichmässigen Abständen voneinander auf der Bahn aus heissversiegelbarem Filterpapier;
- Umfalten der Bahn entlang einer Längsachse (X);
- Heissversiegeln der Bahn in Längsrichtung (LS) und Querrichtung (9, 10, 13), um eine kontinuierliche, schlauchförmige Bahn zu bilden, die geschlossen und in einzelne Abschnitte unterteilt ist, welche in einem gleichen Abstand voneinander die Säckchen (2, 3) bilden, wobei die aufeinanderfolgenden Paare von Säckchen jeweils einen einzelnen Filterbeutel (1) beschreiben, die durch zwei querverlaufende Siegelnähte abgegrenzt sind, wobei die entsprechenden Hälften (9, 10) die freien Enden (2c, 3c) des Filterbeutels bilden und eine vollständige Siegelnaht (13) zwischen den ersten beiden (9, 10) dazu bestimmt ist, den Boden (5) des Filterbeutels (1) zu beschreiben;
- Anordnen eines kontinuierlichen Fadens (6) an der schlauchförmigen Bahn (N), wobei der Faden wenigstens einen Abschnitt (P1) hat, der mit einem seiner Enden (6a) übereinstimmt, das an der querverlaufenden Siegelnaht (10) entgegengesetzt zu dem Ende (2c) des Beutels angeordnet ist, an welcher sich das andere Ende (6b) des Fadens (6) befindet; wobei beide Enden (6a, 6b) des Fadens entlang einer Längsachse (X) angeordnet sind;
- Heissversiegeln wenigstens der Enden (6a, 6b) des Fadens (6) an den querverlaufenden Siegelnähten (10, 9);
- Zerschneiden der Bahn (N) an den Siegelnähten am Ende, welche die Hälften (9, 10) bilden, um die einzelnen Filterbeutel (1) zu erhalten;
- Umfalten der Säckchen (2, 3) eins zum anderen hin, so dass der Abschnitt (P) zwischen den beiden Enden (6a, 6b) des Fadens an den Oberflächen (2a, 3a) der Säckchen (2, 3) zu liegen kommt, die sich im Kontakt miteinander befinden, und anschliessendes Verbinden der freien Enden (2c, 3c) der Säckchen (2, 3) miteinander;

wobei das Verfahren **dadurch gekennzeichnet ist, dass** es die folgenden Phasen enthält:

- Bilden eines zusätzlichen Endabschnittes (8), der sich aus der querverlaufenden Siegelnaht (9) ergibt;
- Anordnen des Endes (6b) des Fadens (6) an dem zusätzlichen Endabschnitt (8), welcher sich an dem Ende (2c) des Beutels befindet;
- Halten des zusätzlichen Endabschnittes (8) ausserhalb der Abmessungen des wie oben erhaltenen Filterbeutels (1);
- Anbringen des Anhängers (7) an dem zusätzlichen Endabschnitt (8);
- Umfalten des zusätzlichen Endabschnittes (8) zusammen mit dem an diesem befestigten Ende (6b) des Fadens (6) gegen die äussere Oberfläche (3d) des Säckchens (3).

13. Verfahren nach Patentanspruch 12, **dadurch gekennzeichnet, dass** der Abschnitt (P1), der mit einem der Enden (6a) des Fadens (6) übereinstimmt, eine Schlaufe beschreibt, die an dem Ende (3c) des Beutels an der querverlaufenden Siegelnaht (10) angeordnet ist.

14. Verfahren nach Patentanspruch 12, **dadurch gekennzeichnet, dass** in der Herstellungsphase der querverlaufenden Siegelnähte (9, 10) an der Bahn eine erste Hälfte der Siegelnaht (9) eine grössere Abmessung (S) aufweist als die Abmessung (S1) der anderen Hälfte der Siegelnaht (10), wobei ein überstehender und mit dem zusätzlichen Abschnitt (8) übereinstimmender Abschnitt gebildet wird.

15. Verfahren nach Patentanspruch 12, **dadurch gekennzeichnet, dass** der Phase des Umfaltens eine Phase zum Bilden des Endabschnittes (8) durch eine querverlaufende Abschwächungslinie (L) vorausgeht, dazu bestimmt, den Endabschnitt (8) von der Hälfte (9) zu trennen.

16. Verfahren nach Patentanspruch 12, **dadurch gekennzeichnet, dass** das Ende (6b) des Fadens (6), welches an dem Anhänger (7) befestigt werden kann, an der Bahn über eine Länge versiegelt wird, die der Länge (L) des zusätzlichen Endabschnittes (8) entspricht.

17. Verfahren nach Patentanspruch 12, **dadurch gekennzeichnet, dass** der Phase des Anbringens des Anhängers (7) eine Phase des Schneidens der freien Enden (2c, 3c) der Säckchen (2, 3) und des zusätzlichen Endabschnittes (8) folgt, und zwar symmetrisch im Verhältnis zu den Enden, wobei die Ecken (11, 12) um einen Winkel (α) abgeschrägt sind.

18. Verfahren nach Patentanspruch 12, **dadurch gekennzeichnet, dass** die Phase des Anbringens des Anhängers (7) durch Heissversiegeln ausge-

führt wird.

19. Verfahren nach Patentanspruch 12, **dadurch gekennzeichnet, dass** die Phase des Heissversiegelns der Enden (6a, 6b) des Fadens (6) das gleichzeitige schwache Heissversiegeln einer Zusatzlänge (6pm) des Fadens an der vollständigen mittleren Siegelnaht (13) vorsieht, wobei die genannte Zusatzlänge zickzackförmig angeordnet wird, bestimmt durch eine Anzahl von Heissversiegelungspunkten (T1, T2; T3, T4, T5, T6).

Revendications

1. Un sachet-filtre à deux compartiments pour produits à infuser, tels que du thé, de la camomille et autres produits similaires, le sachet-filtre (1) comprenant deux poches ou compartiments (2, 3) en papier filtre, contenant chacun une dose (4) de produit pour infusion ; les compartiments (2, 3) étant placés de telle sorte qu'une surface (2a) du premier compartiment se trouve en face et/ou au contact d'une surface (3a) du second compartiment et que lesdits compartiments (2, 3) soient unis l'un à l'autre à une extrémité (2b, 3b), formant la base (5) dudit sachet-filtre (1) ; un fil de maintien (6) du sachet-filtre (1) étant attaché par une extrémité (6a) en un point d'union (A) à au moins l'un desdits compartiments (2, 3) et présentant une étiquette de prise (7) attachée à son autre extrémité (6b) pour permettre la manipulation dudit sachet-filtre (1) pendant l'infusion ; l'extrémité (6a) correspondant au point d'union (A) du fil (6) avec le sachet-filtre (1) étant attachée à l'extrémité libre (3c) d'au moins un compartiment (3) et l'autre extrémité (6b) du fil (6), où est fixée l'étiquette de prise (7), étant attachée à l'extrémité libre (2c) de l'autre compartiment (2), de telle sorte que la portion (P) du fil (6), entre les deux extrémités (6a, 6b), dans une configuration de conditionnement, se trouve sur les surfaces (2a, 3a) de contact entre les deux compartiments (2, 3) et/ou sur la base (5), le sachet-filtre étant **caractérisé en ce que** l'extrémité (6b) du fil (6) portant l'étiquette de prise (7) est attachée, avec ladite étiquette de prise (7), à une portion terminale additionnelle (8) de l'extrémité libre (2c) de l'autre compartiment (2).

2. Le sachet-filtre selon la revendication 1, **caractérisé en ce que** la portion terminale additionnelle (8) est définie par une ligne d'affaiblissement transversale (L) réalisée sur le compartiment (2) et destinée à permettre le détachement de ladite portion conjointement à l'extrémité (6b) du fil (6) et à l'étiquette de prise (7), de manière à ce que la portion (P) du fil (6) sorte du sachet lorsqu'on éloigne l'étiquette de prise (7) dudit sachet (1) durant l'utilisation de ce même sachet (1).

3. Le sachet-filtre selon la revendication 1, **caractérisé en ce que** l'extrémité (6a) du fil (6), correspondant au point d'union (A) avec le sachet (1), consiste en une portion (P1) de fil, attachée à l'extrémité (3c) du compartiment (3) et formant une boucle, c'est-à-dire une surface de contact stable de grandes dimensions entre le fil (6) et le compartiment (3).

4. Le sachet-filtre selon la revendication 3, **caractérisé en ce que** la boucle dans la portion (P1) de fil est en forme de "U" couché sur un côté.

5. Le sachet-filtre selon l'une quelconque des revendications précédentes, où les compartiments (2, 3) présentent une zone ou portion thermoscellée (9, 10) fermant les extrémités libres correspondantes (2c, 3c), et **caractérisé en ce que** les extrémités (6a, 6b) du fil (6) sont attachées aux extrémités libres (3c, 2c) des compartiments (3, 2) dans les zones thermoscellées (10, 9), dont l'une comprend la portion terminale additionnelle (8) du compartiment (2), à laquelle une extrémité (6b) du fil est attachée ; les deux extrémités (6a, 6b) étant disposées le long d'un axe longitudinal (X) du sachet-filtre (1).

6. Le sachet-filtre selon les revendications 1 et 5, **caractérisé en ce que** les coins (11, 12) des extrémités libres (2c, 3c) des compartiments (2, 3) attachées ensemble, dans une configuration de conditionnement, le long d'une zone coïncidant avec les zones thermoscellées (9, 10), sont coupés en biais symétriquement par rapport auxdites extrémités suivant un angle prédéfini (α).

7. Le sachet-filtre selon les revendications de 1 à 5, **caractérisé en ce que** la portion terminale additionnelle (8) sur le compartiment (2) est définie par une zone transversale thermoscellée (9) dont la longueur (S) le long du compartiment (2) est supérieure à la longueur (S1) de la zone thermoscellée opposée (10), et **en ce que** la portion (8) est délimitée par une ligne d'affaiblissement transversale (L) située sur la zone thermoscellée (9).

8. Le sachet-filtre selon les revendications 1 et 2, **caractérisé en ce que** la portion terminale additionnelle (8) peut être pliée vers la surface externe (3d) du compartiment (3) conjointement à l'extrémité (6b) du fil (6), dans une configuration de conditionnement, de telle sorte que l'étiquette de prise (7) puisse être placée sur ladite surface et "fermer" lesdites extrémités libres (2c, 3c).

9. Le sachet-filtre selon la revendication 1, **caractérisé en ce que** la portion (P) du fil (6) entre les extrémités (6a, 6b) présente une portion en surplus (6pm) destinée à augmenter la longueur de la portion (P) du fil (6) pour l'infusion.

10. Le sachet-filtre selon la revendication 9, **caractérisé en ce que**, dans une configuration de conditionnement, la portion en surplus (6pm) est disposée sur la base (5) du sachet-filtre (1).

11. Le sachet-filtre selon les revendications 9 et 10, **caractérisé en ce que** la portion en surplus (6pm) du fil (6) consiste en une autre portion additionnelle du fil (6), formant une ligne en zigzag définie par une pluralité de points de thermoscellage "faibles" (T1, T2; T3, T4, T5, T6), destinés à permettre le détachement de la portion en surplus (6pm) du fil (6) lorsque le fil (6) sort du sachet (1).

12. Un procédé de fabrication d'un sachet-filtre selon la revendication 1, comprenant au moins les phases suivantes :

- une phase de placement des doses (4) du produit pour infusion à égales distances les unes des autres sur une bande de papier filtre thermoscellable ;
- une phase de pliage de la bande le long d'un axe longitudinal (X) ;
- une phase de thermoscellage longitudinal (LS) et transversal (9, 10, 13) de la bande, afin d'obtenir une bande tubulaire continue, fermée et subdivisée en portions individuelles régulièrement espacées correspondant aux compartiments (2, 3), lesquels définissent, deux à deux, un seul sachet-filtre (1) délimité par deux soudures transversales, dont les moitiés correspondantes (9, 10) forment les extrémités libres (2c, 3c) du sachet-filtre, et par une soudure complète (13) entre les deux premières moitiés (9, 10), qui définit la base (5) du sachet-filtre (1) ;
- une phase de pose d'un fil continu (6) sur la bande tubulaire (N), ledit fil ayant au moins une portion (P1) coïncidant avec l'une de ses extrémités (6a) qui est placée sur la soudure transversale (10) opposée à l'extrémité (2c) du sachet sur lequel est placée l'autre extrémité (6b) du fil (6) ; les deux extrémités (6a, 6b) du fil étant placées le long de l'axe longitudinal (X) ;
- une phase de thermoscellage d'au moins les extrémités (6a, 6b) du fil (6) sur les soudures transversales (10, 9) ;
- une phase de coupe de la bande (N), au niveau des soudures terminales définissant les moitiés (9, 10), afin d'obtenir un sachet-filtre individuel (1) ;
- une phase de repliement l'un vers l'autre des compartiments (2, 3) de manière à placer la portion (P) du fil entre les deux extrémités (6a, 6b) sur les surfaces (2a, 3a) des compartiments (2, 3), qui sont au contact l'un de l'autre, et de relier ainsi les extrémités libres (2c, 3c) des compartiments (2, 3), le procédé étant **caractérisé en ce qu'**il comporte les phases suivantes :
  - définition d'une portion terminale additionnelle (8) résultant de la soudure transversale (9) ;
  - placement de l'extrémité (6b) du fil (6) sur la portion terminale additionnelle (8) qui est située sur l'extrémité (2c) du sachet ;
  - maintien de la portion terminale additionnelle (8) en dehors de l'encombrement du sachet-filtre (1) obtenu comme décrit ci-dessus ;
  - attachement de l'étiquette de prise (7) à la portion terminale additionnelle (8) ;
  - repliement de la portion terminale additionnelle (8), conjointement avec l'extrémité (6b) du fil (6) attaché à cette portion, vers la surface externe (3d) du compartiment (3).

13. Le procédé de fabrication selon la revendication 12, **caractérisé en ce que** la portion (P1) coïncidant avec l'une des extrémités (6a) du fil (6) forme une boucle sur l'extrémité (3c) du sachet placée sur la soudure transversale (10).

14. Le procédé de fabrication selon la revendication 12, **caractérisé en ce que** pendant la phase de définition des soudures transversales (9, 10) sur la bande, la longueur (S) d'une première moitié de la soudure (9) est supérieure à la longueur (S1) de l'autre moitié de la soudure (10), définissant une portion en surplus et coïncidant avec la portion terminale additionnelle (8).

15. Le procédé de fabrication selon la revendication 12, **caractérisé en ce que** la phase de repliement est précédée d'une phase de définition de la portion terminale (8) à l'aide d'un ligne d'affaiblissement (L) destinée à permettre la séparation de la portion terminale (8) de la moitié (9).

16. Le procédé de fabrication selon la revendication 12, **caractérisé en ce que** l'extrémité (6b) du fil (6), qui peut être attachée à l'étiquette de prise (7), est thermoscellée à la bande sur une longueur égale à la longueur (L) de la portion terminale additionnelle (8).

17. Le procédé de fabrication selon la revendication 12, **caractérisé en ce que** la phase d'attachement de l'étiquette de prise (7) est suivie d'une phase de coupe des extrémités libres (2c, 3c) des compartiments (2, 3) et de la portion terminale additionnelle (8), symétriquement par rapport aux extrémités, les coins (11, 12) étant coupés en biais suivant une angle (α).

18. Le procédé de fabrication selon la revendication 12, **caractérisé en ce que** la phase d'attachement de

l'étiquette de prise (7) est réalisée par thermoscellage.

19. Le procédé de fabrication selon la revendication 12, **caractérisé en ce que** la phase de thermoscellage des extrémités (6a, 6b) du fil (6) prévoit simultanément le thermoscellage "faible" d'une portion supplémentaire en surplus (6pm) du fil sur la soudure intermédiaire complète (13), ladite portion formant une ligne en zigzag définie par une pluralité de points thermoscellés (T1, T2; T3, T4, T5, T6).

FIG.1

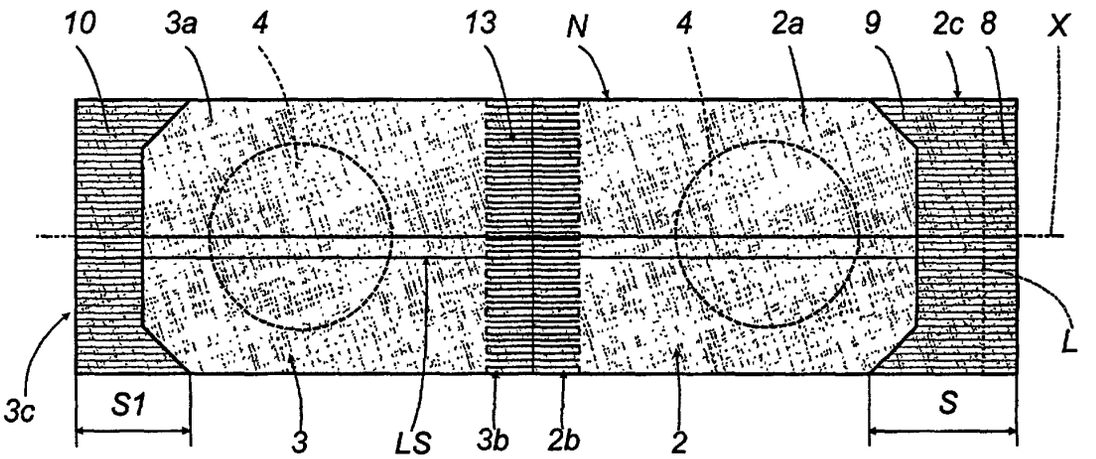


FIG.1a

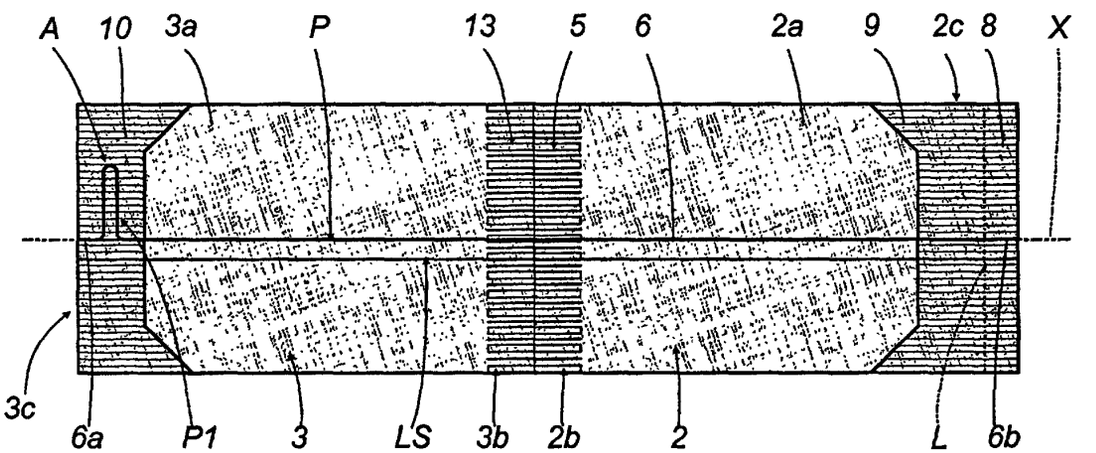


FIG.1b

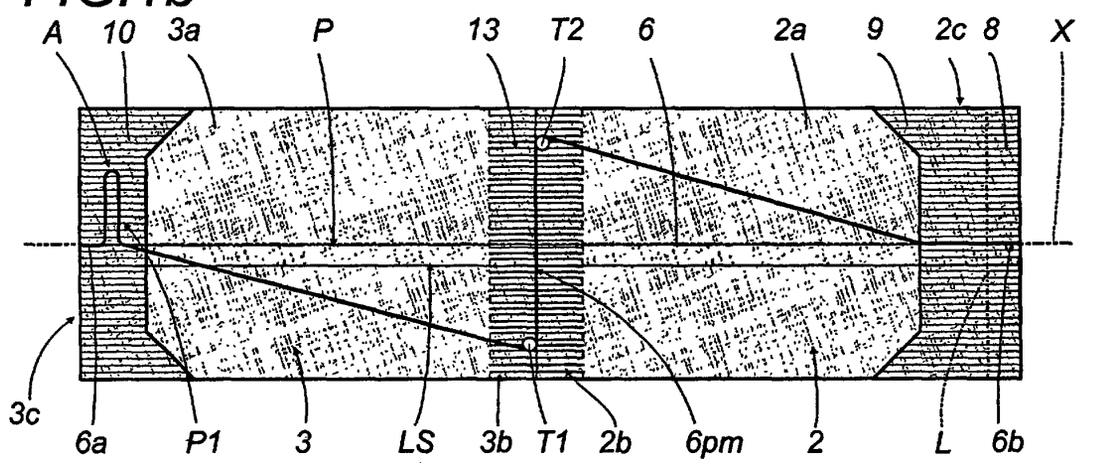


FIG.1c

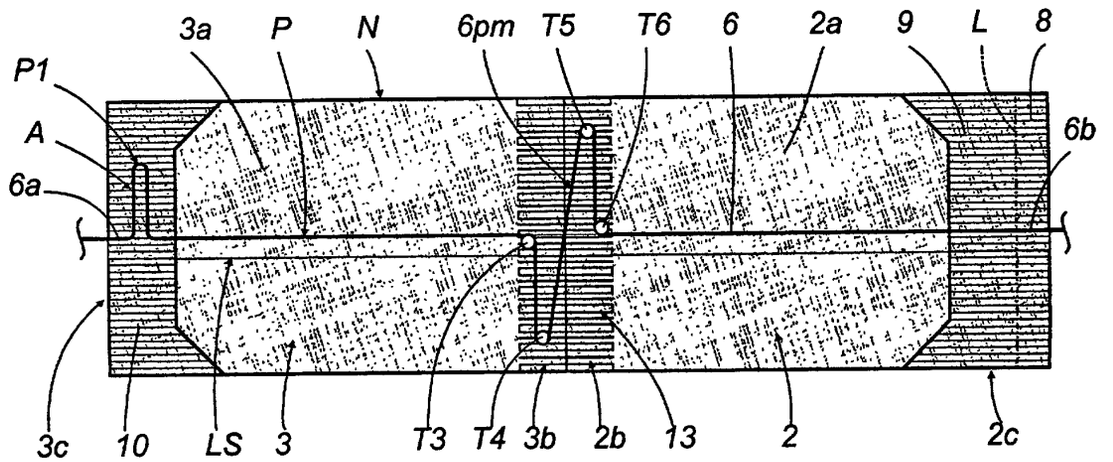


FIG.2

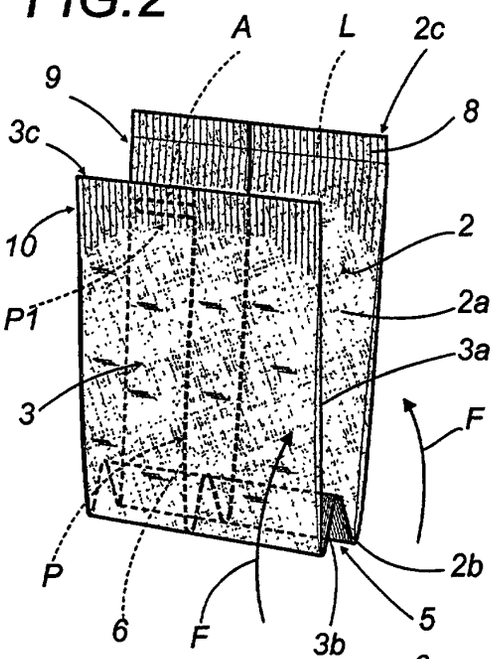


FIG.2a

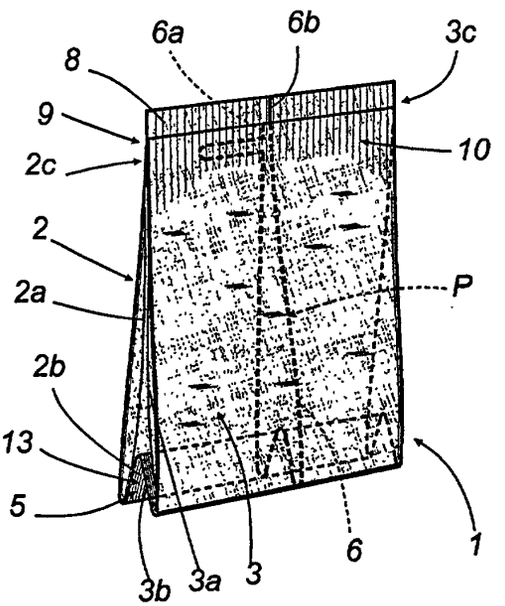


FIG.2b

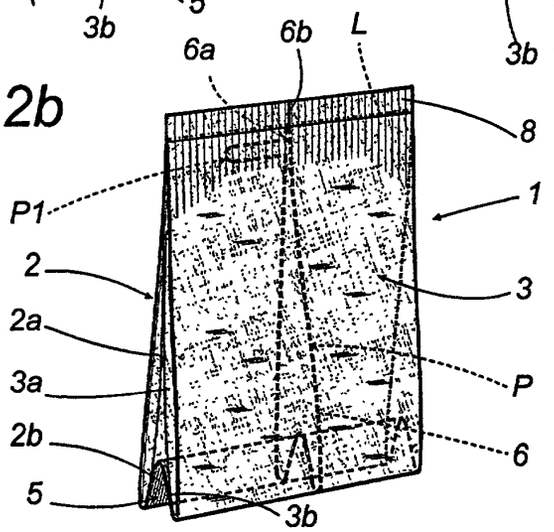


FIG.3

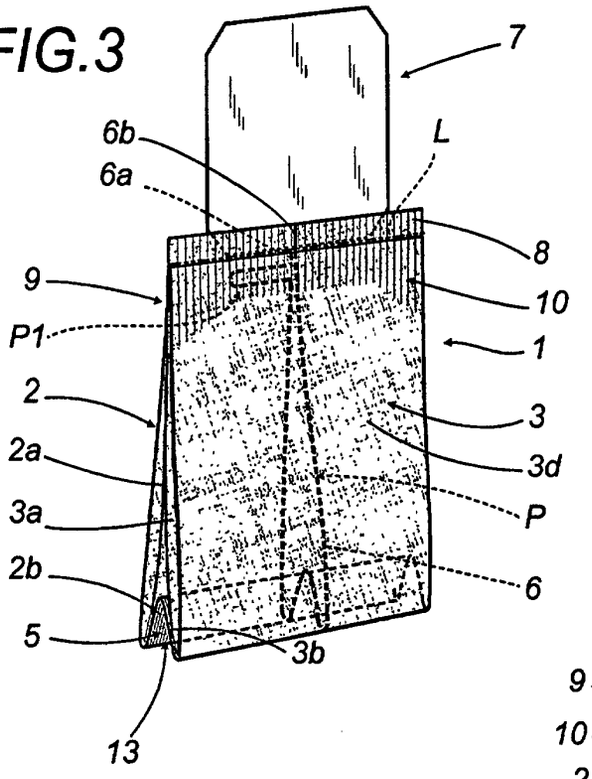


FIG.3a

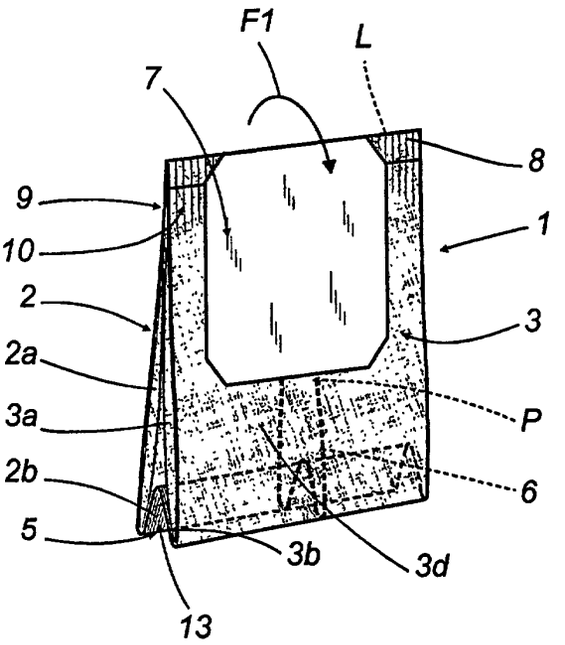


FIG.4

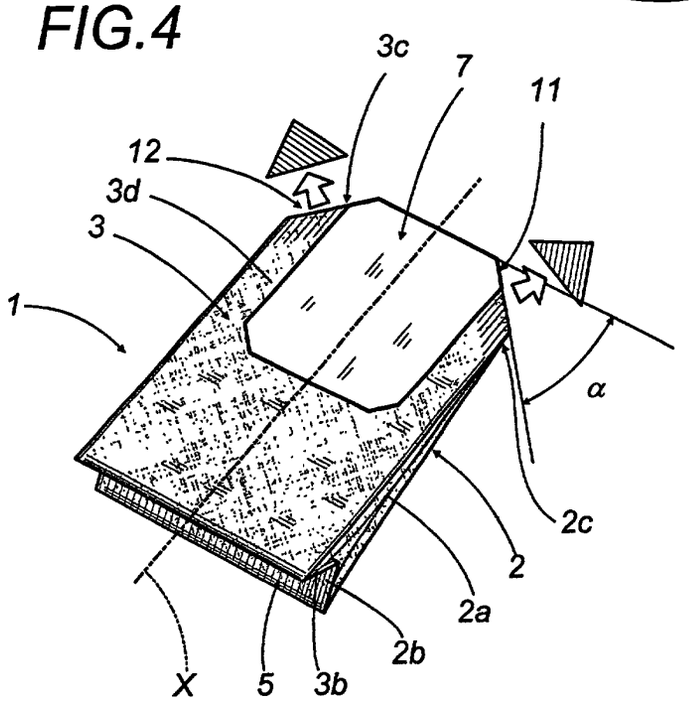


FIG.5

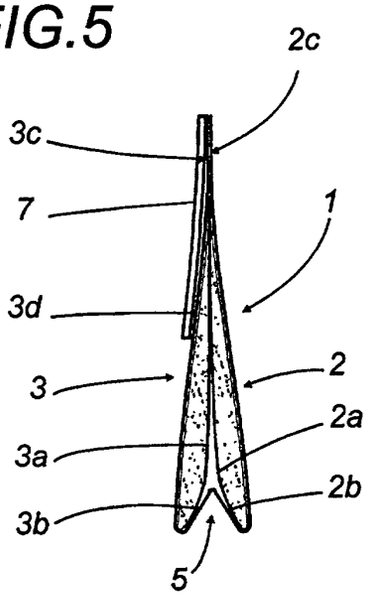


FIG.6

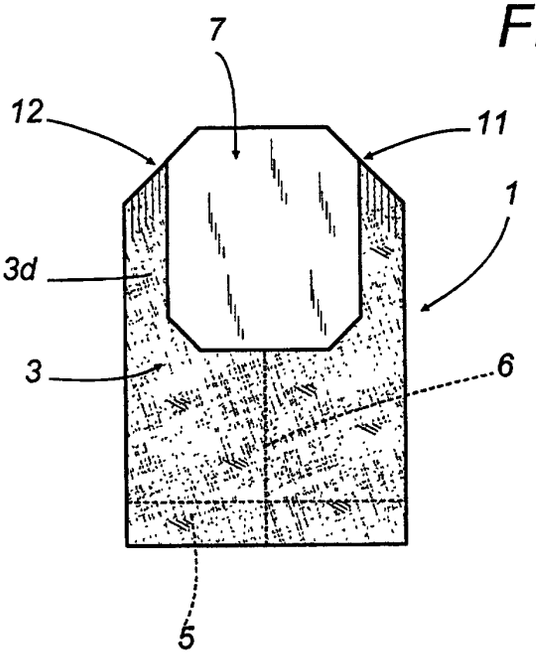


FIG.7

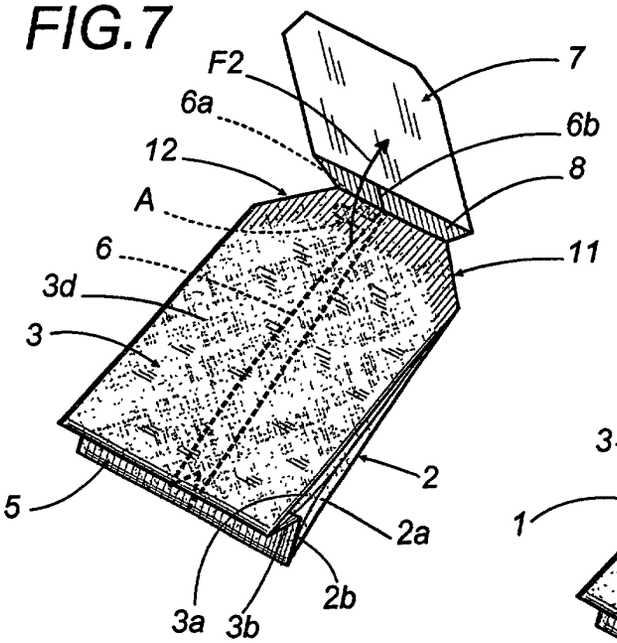


FIG.8

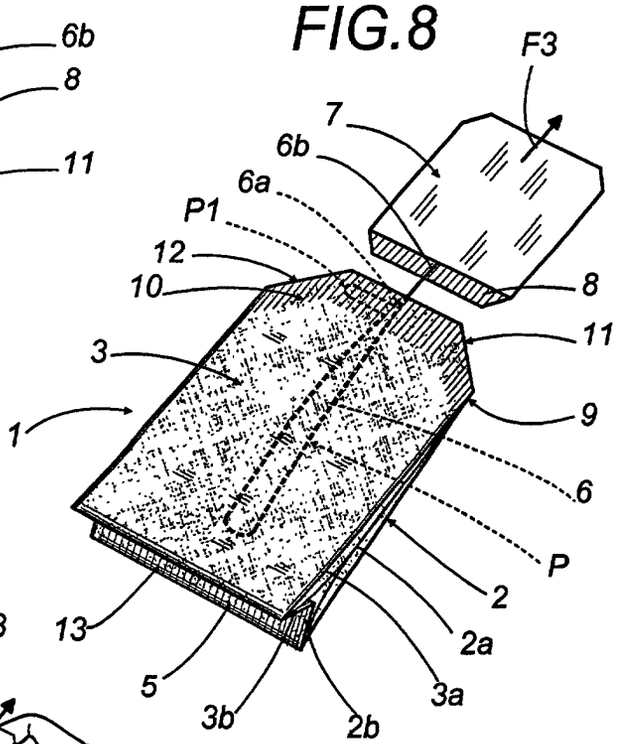


FIG.9

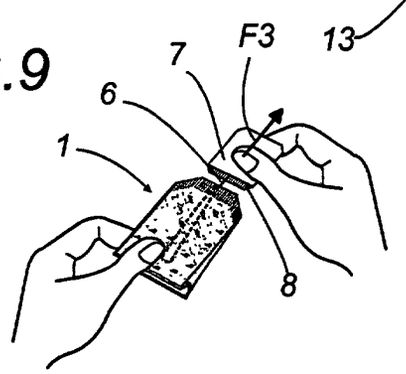


FIG.10

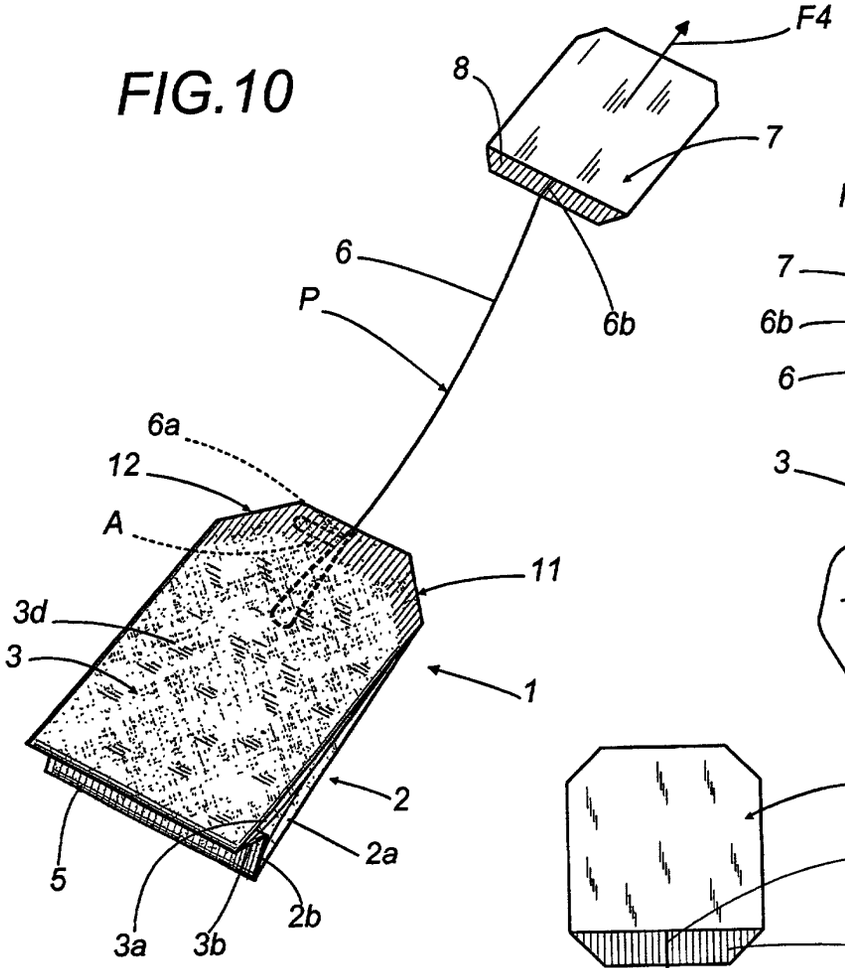
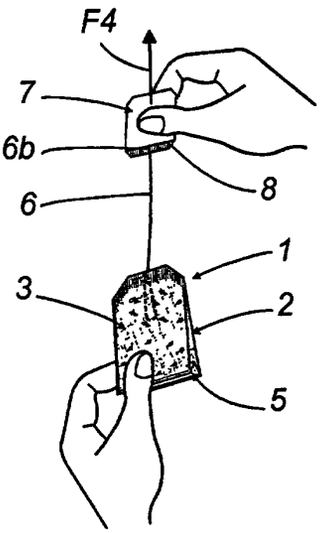


FIG.11



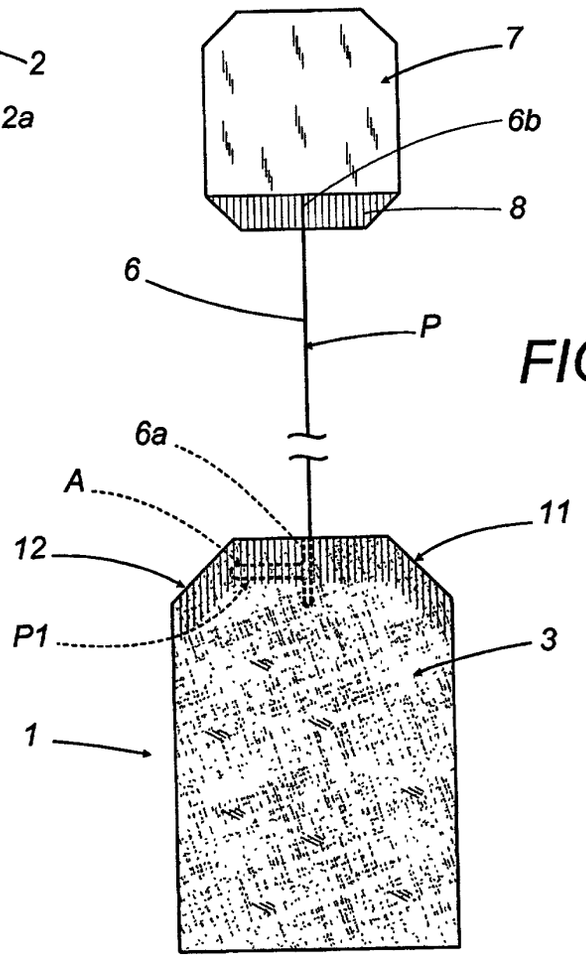


FIG.12