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(54) **Flexible sachet having a triangular shape**

(57) The present invention relates to a sachet 1 having a triangular shape and comprising an interior space 6 enclosed by one sheet of flexible blank material, the sheet being folded upon itself to form a front layer 2 and a rear layer 3 of the sachet 1. The front layer 2 and the rear layer 3 are joined by sealing 4 located along two edges 5 of the sachet 1 to define the interior space 6. The sachet 1 comprises means 7 for starting opening of the sachet 1 as well as a tear strip 11 arranged between

the front layer 2 and the rear layer 3 of the sachet 1 in proximity to and running at least partially along the sealing 4 at one of the two edges 5 joined by sealing 4. The shape of the sachet 1 and the arrangement of the tear strip 11 are so that the sachet 1 obtains a cone-like shape after opening so that it is easy both to hold by hand and to reach into to take out content from the sachet 1. The invention further relates to a method of manufacturing such a sachet 1. The sachet 1 may e.g. be manufactured in a chain of sachets.

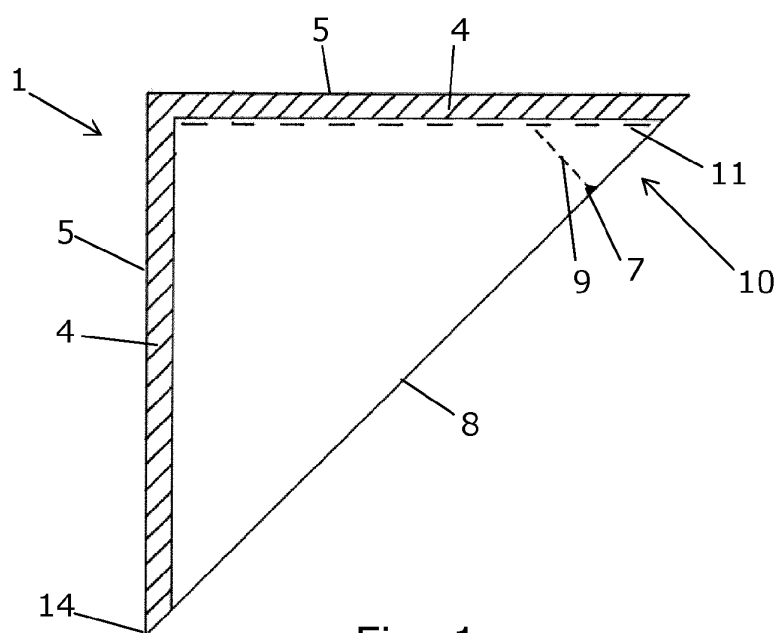


Fig. 1

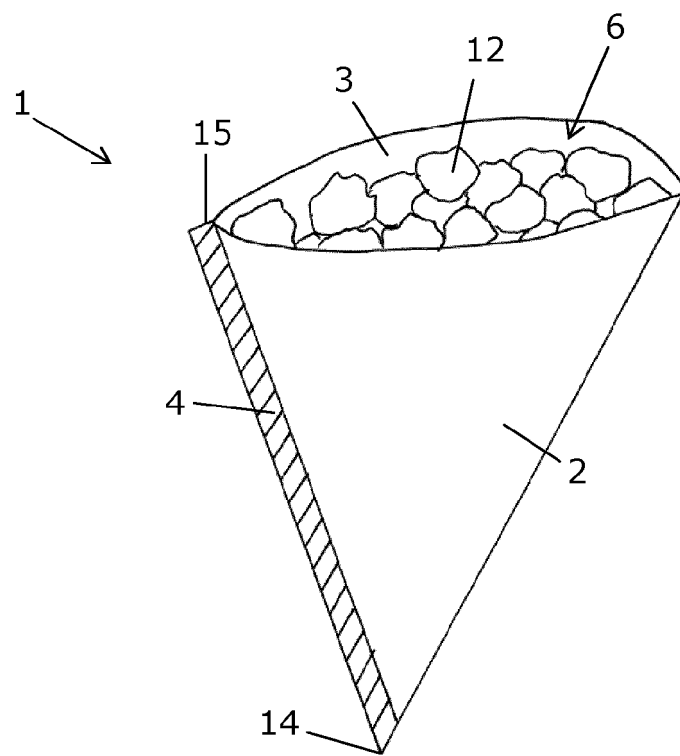


Fig. 2

Description

Field of the invention

[0001] The present invention concerns a flexible, triangular sachet that can be opened into a cone-like open shape and to a method of manufacturing such a sachet.

Background of the invention

[0002] Flexible packaging prefilled with a smaller amount of an eatable product is often referred to as a sachet. It comes in different shapes, but an often used one is as a rectangular bag which has the advantage of easy storage in a flat condition, but which on the other hand is not particularly well suited for easy holding by one hand and possibly sharing with others.

[0003] Another often used shape is a conical packaging which is used in a number of variations. The conical shape of the wrapping or packaging is often used for eatable products that are eaten directly from the packaging while carrying it along, such as sweets, nuts, chips or freshly baked cakes, e.g. sold at market places. The packaging is typically delivered to the shop or boot as cone shaped, or it is made by rolling a piece of paper into a cone shape. In both cases it may be filled with the product as a part of the sales process.

[0004] The cone shape is thus used partly to give the product a freshly-made look and partly due to the easy-to-carry-along characteristics of that shape. The latter is also a reason for delivering pre-packed products in that shape of packaging. However, it is a disadvantage of the conical shape that the packaging has a shape from the beginning which cannot easily be transported in a flat condition without damaging it — especially if it is made from cardboard or another relatively stiff plastic or laminate material.

[0005] A cone-shaped packaging is e.g. known from sweets where the bag is typically closed by a piece of tape which makes them hard to open. They are alternatively often closed by some kind of sealing in a way that makes it hard to open the sachet without ripping the sachet whereby so much damage is easily applied to the package that part of the content is dropped on the ground. Furthermore, it is often necessary to put the package with its remaining content into a separate bag, if it is decided to store some of the content for later.

[0006] It is therefore an objective of the present invention to provide a sachet which can be transported in a flat condition.

[0007] It is another objective of the present invention to provide a sachet which is easily opened into a shape that is easy to hold by hand and easy to serve from to a group of people sharing the content of the sachet.

[0008] It is another object of the present invention to provide a sachet which is easy to open in a controlled way.

[0009] It is an object of some embodiments of the

present invention to provide a sachet which can easily be re-sealed if it is desired to save some of the content for later.

Summary of the invention

[0010] At least some of the objectives mentioned above are fulfilled in a first aspect of the invention by providing a sachet having a triangular shape and comprising:

- an interior space enclosed by one sheet of flexible blank material, the sheet being folded upon itself to form a front layer and a rear layer of the sachet, and
- means for starting opening of the sachet,

wherein the front layer and the rear layer are joined by sealing located along two edges of the sachet to define the interior space, characterized in that a tear strip is arranged between the front layer and the rear layer of the sachet in proximity to and runs at least partially along the sealing at one of the two edges joined by sealing.

[0011] The shape of the sachet and the arrangement of the tear strip advantageously provide that the sachet obtains a cone-like shape after opening. This cone like shape makes it easy both to hold by the open sachet in one hand and provides a convenient large opening for a hand to reach into to take out content from the sachet. Advantageously the sachet can take a relatively flat form when closed, convenient for storage and transport of the sachet, particularly for storage and transport of multiple sachets, whilst when opened the cone-like shape of the open sachet permits easy holding of the sachet in an open position, without risk of spilling/dropping contents from the open sachet, and easy access to the contents of the sachet

[0012] By cone-like is preferably meant that the shape resembles a geometrical cone to such an extent that it obtains the same properties with respect to ease of holding the sachet by hand. It does not need to be an exact cone in geometrical terms.

[0013] The interior space is preferably fully closed, but sachets having interruptions in the sealing are also covered by the present invention.

[0014] In presently preferred embodiments of the invention, the tear strip is arranged along one sealing only, since the sachet is intended to be opened along one sealing only.

[0015] If desired, the sachet may comprise a row of split lines in the sheet material along the tear strip to facilitate opening. This would be particularly relevant when the sheet is made from a material having relatively high tear strength.

[0016] The tear strip may e.g. be made from a polymer material, such as polypropylene, comprising a self-adhesive treatment so that it is fastened to the sheet material as part of the manufacturing process. The adhesive may also have been applied to the tear strip as a part of

the manufacturing of the sachet.

[0017] In some embodiments of the invention, the sachet is shaped as a right triangle having the tear strip arranged along one of the catheti. The sachet may be shaped as an isosceles right triangle. The advantages of such a shape will be elucidated in the below description of the manufacturing method.

[0018] The means for starting opening of the sachet may be a pre-score or split extending from an edge of the sachet where the sheet is folded. The pre-score or split may extend towards a row of split lines located to so that a designated corner of the sachet can be manually torn off by starting at the pre-score or split. The row of split lines may extend to the tear-strip so that the tearing off of the designated corner can continue into a tearing along the tear strip. The combination of a torn-off corner and a torn-off edge results in an open sachet having a shape close to a truncated cone; i.e. having approximately a constant height as measured from the vertex. Such a shape may be easier to reach into e.g. if a group of people is sharing a food product located in the sachet.

[0019] In some embodiments of the invention, the tear strip does not run all the way along an edge of the sachet. E.g. it does not need to run into a corner that is torn-off. In other embodiments it does not run all the way to the opposite corner, i.e. the corner where two sealed edges meet. Hereby it can be obtained that the almost torn-off part stays attached to the sachet to avoid a small piece of rubbish that is likely to be thrown away by the consumer when opening the sachet. This means that only one piece of waste is created which increases the chance that it is thrown in a bin instead of on the ground. If, on the other hand it is desired to have a sachet where it is easy to fully remove one of the sealings, the tear strip should preferably run all the way to the corner where two sealed edges meet.

[0020] The front layer and the rear layer of a sachet according to the invention may be joined by welding, e.g. by ultrasonic means, whereby a strong sealing which can withstand rough handling is ensured. It could also be joined by other suitable techniques, such as gluing, cold sealing, or other conventional sealing methods, depending on the properties of the material from which the sachet is made.

[0021] In some embodiments the front layer and the rear layer may be joined by cold sealing. Hereby it will be possible to design the sachet so that only one layer of the sachet is removed along the tear strip leaving a portion the second layer, e.g. the rear layer, exposed with cold sealing intact. In this way the exposed portion of the second layer can form a flap, whereby the sachet can then be re-sealed by folding the flap formed by the exposed portion of the second layer over the opening. The cold-sealing strip on the second layer can thereby form a seal with the outside surface of first layer of the packaging material. This function may be improved by providing the layer to be torn-off with a row of split lines along and adjacent to the position of the tear strip.

[0022] The sachet may be made from a sheet material which is impermeable to oxygen and/or to water vapour. Hereby the content of the sachet may be better preserved. The actual requirements to be met by the material depend on the actual content and expected environmental conditions during transportation and storage. The sheet material may e.g. be made of aluminium, polyester, polypropylene, polyamide, polystyrene, paper, copolymer of ethylene and vinyl alcohol, polyvinylidene chloride, polyvinyl acetate, bio-plastic or mixtures thereof.

[0023] In presently preferred embodiments of the invention, an eatable product is located inside the interior space. Such a product is preferably discrete food pieces which may e.g. have an average size in the range of 5 to 50 mm, such as 5 to 20 mm or 20 to 50 mm. In some embodiments the discrete food pieces have an average size in the range of from about 15 mm to about 50 mm, for instance from 20 to 40 mm 20 to 30 mm, or 30 to 40 mm, or for instance from 40 to 50 mm. The size of the product is defined as the maximum dimension of the product. The products could e.g. be a snack product, such as nuts, dried fruit pieces, crisps, chocolate, sweets or other confectionery. The product may also be pet food so that the sachet can easily be brought along e.g. when walking a dog.

[0024] A second aspect of the invention relates to a chain of sachets being formed by a plurality of interconnected sachets according to any of the preceding claims. Such a chain is directly obtained by at least some of the manufacturing processes according to a third aspect of the invention as will be described in the following. Leaving the sachets in the chain may be advantageous e.g. with respect to display in a sales store.

[0025] A third aspect of the invention relates to a method of manufacturing a triangular closed flexible sachet holding a product, the method comprising:

- folding upon itself a sheet of flexible blank material to form a triangular interior space comprising a front layer and a rear layer;
- filling the interior space with the product;
- sealing the sheet along two edges of the sachet so as to capture the product in the interior space;
- applying means for starting opening of the sachet, characterised in that it further comprises
- applying a tear strip to the sheet along and at a pre-defined distance from an edge of the sheet before it is folded upon itself so that after folding, the tear strip is arranged between the front layer and the rear layer in proximity to and running at least partially along the sealing at one of the two edges joined by sealing.

[0026] The third aspect of the invention also relates to a method of manufacturing a chain of interconnected triangular closed flexible sachets holding a product, comprising:

- folding upon itself a sheet of flexible blank material

to form a triangular interior space comprising a front layer and a rear layer;

- filling the interior space with the product;
 - sealing the sheet along two edges of the sachet so as to capture the product in the interior space;
 - applying means for starting opening of the sachet,
 - repeating the steps above and below one or more time,
- characterised in that it further comprises

applying a row of tear strips to the sheet along and at a predefined distance from an edge of the sheet and with a predefined spacing between the tear strips before the sheet is folded upon itself so that after folding, one tear strip is arranged between the front layer and the rear layer in proximity to and running at least partially along the sealing at one of the two edges joined by sealing.

[0027] In an embodiment of the invention, the method of manufacturing a chain of triangular closed flexible sachet holding a product, comprises:

- rolling a sheet of flexible blank material around itself or around a tube until a margin of the sheet is united with the sheet itself enclosing a cylindrical volume and creating an overlap of the sheet with itself along the margin;
- joining the two layers of the sheet at the overlap by sealing to create a tubular structure;
- dispensing the product into the tubular structure; and
- flattening the tubular structure and joining the already formed sealing to the opposite surface of the flattened tube creating a sealing of three layers enclosing triangular interior spaces enclosing the product;
- applying means for starting opening of the sachet, characterised in that it further comprises
- applying a row of tear strips to the sheet along and at a predefined distance from an edge of the sheet and with a predefined spacing between the tear strips before the sheet is folded upon itself so that after folding, one tear strip is arranged between the front layer and the rear layer in proximity to and running at least partially along the sealing at one of the two edges joined by sealing.

[0028] The tear strip may be pre-treated with self-adhesive before being applied to the sheet. Hereby it may be easy to ensure that the adhesive properties fulfil the necessary conditions to ensure a good fastening. Alternatively, the tear strip may be passed through a liquid adhesive before being applied to the sheet.

[0029] The means for starting opening of the sachet may be a pre-score or split extending from an edge of the sachet where the sheet is folded.

[0030] A better adhesion of the tear strip to the sheet may be ensured by application of pressure so that the tear strip is pressed against the sheet.

[0031] In presently preferred embodiments of the in-

vention, the sheet is folded upon itself at a 45 degrees angle relative to the length to form a right angle triangular shaped interior space. The front layer and the rear layer are preferably sealed along one edge before filling the interior space with the product and sealed along another edge after filling the interior space with the product. Hereby a partly closed interior space can be made before filling, so that it is easier to keep the product in the desired location.

[0032] The method of providing the sealing may be selected from: welding, adhesive bonding, cold sealing,

[0033] A method according to the invention may further comprise providing a row of split lines extending between the means for starting opening the sachet and the tear strip. Hereby a controlled opening of the sachet is ensured.

[0034] Any of the embodiments of a method according to the invention may further comprise dissociating the chain of triangular sachets to form a plurality of individual triangular sachets.

[0035] The first, second and third aspects of the present invention may be combined. These and other aspects of the invention will be apparent from and elucidated with reference to the embodiments described hereinafter.

Brief description of the drawings

[0036] Additional features and advantages of the present invention are described in, and will be apparent from, the description of the presently preferred embodiments which are set out below with reference to the drawings in which:

Figure 1 shows schematically a sachet in a closed condition.

Figure 2 shows schematically a sachet in an opened condition.

Figure 3 shows schematically the steps in the use of a sachet according to the present invention.

Figure 4 shows schematically a sachet in an alternative opened condition, where the almost torn-off part stays attached to the sachet.

Figure 5 shows a sachet having a cold sealing and where only the part of the front layer comprising sealing has been removed, whereas the rear layer with the cold sealing on has been left intact.

Figure 6 shows schematically an overall folding procedure which may be used to obtain a chain of sachets shaped as isosceles right triangles.

Figure 7 shows schematically a manufacturing method according to the present invention.

Figure 8 is a further representation of the steps in a manufacturing method in which the sheet is rolled around itself before being sealed.

Detailed description of the invention

[0037] Figure 1 shows schematically a triangularly shaped sachet 1 in a closed condition. The sachet 1 looks flat in the figure for illustrative purposes only. An un-opened sachet 1 will normally look more bulky to an extent depending on the amount and type of product located inside it. Such a product will typically be an eatable product intended for human, particularly discrete pieces of a food product of a size convenient to be picked up by hand. The sachet according to the invention is particularly suitable for snack products such as savory or sweet snack products in discrete "bite-size" pieces, for example such as crisps, nuts, sweets, dried fruits, chocolate pieces, wafer or extruded cereal snack pieces, crackers, biscuits, or other snack food items. However, the sachet 1 may also contain e.g. pet food.

[0038] The sachet 1 is formed by one sheet of flexible blank material, which has been folded upon itself to form a front layer 2 and a rear layer 3 of the sachet 1; the front layer 2 and the rear layer 3 are more clearly seen in figure 2. The front layer 2 and the rear layer 3 are joined by sealing 4 located along two edges 5 of the sachet 1 to define an interior space 6 (see figure 2) enclosed by the sheet material. The sachet 1 comprises means 7 for starting opening of the sachet 1. Such means 7 is typically a pre-score or split extending from the edge 8 of the sachet 1 where the sheet is folded. In the embodiment in figure 1, a pre-score 7 extends towards a row of split lines 9 located to so that a designated corner 10 of the sachet 1 can be manually torn off by starting at the pre-score 7. A tear strip 11 is arranged between the front layer 2 and the rear layer 3 of the sachet 1 in close proximity to and along the sealing 4 at one of the two edges 5. In figure 1, the tear strip 11 is shown schematically with a broken line to indicate that it is arranged inside the sachet 1 and therefore not visible from the outside of an un-opened sachet 1. The tear strip 11 is fastened to one or both of the front and rear layers 2,3 e.g. by adhesive. The sachet 1 illustrated in the figures is an isosceles right triangle having the tear strip 11 arranged along one of the catheti. However, other triangular shapes are also covered by the scope of the present invention. In figure 1, the row of split lines 9 extends to the tear-strip 11 so that the tearing off of the designated corner 10 can continue into a tearing along the tear strip 11. This will result in an opened sachet 1 as shown schematically in figure 2. The shape of the sachet 1 and the arrangement of the tear strip 11 provide that the sachet 1 obtains a cone-like shape after opening. Hereby it is easy to hold by one hand and also to share the product 12 contained in the sachet 1 with others. Figure 3 summarizes schematically the steps in the use of a sachet 1 according to the present invention. The opening is initiated at the pre-score 7 on the folded side 8, continues towards the edge 5 having the tear strip 11 arranged along the sealing 4, and is finished by tearing off that sealed edge 5. In figure 3, the pre-score 7 is arranged at a position along the folded side 8 so that a

relatively large designated corner 10 is torn off. Hereby an opened sachet 1 having a shape close to truncated cone is obtained. The pre-score 7 may also be arranged at other positions, such as the same distance from the edge 5 to be torn off as the tear strip 11.

[0039] In the embodiments shown in figure 2, a minor part of the tear strip 11 has been arranged within the sealing 4, and a major part of the tear strip 11 has been arranged in the interior space 6 resulting in the torn-off part being completely removed from the sachet 1. Figure 4 shows schematically a sachet 1 in an alternative opened condition, where the almost torn-off part 13 stays attached to the sachet 1. This may be further ensured by incorporating some kind of reinforcement so that it is harder to tear the part 13 fully off. This situation can be facilitated by an embodiment in which the tear strip 11 does not run all the way along an edge 5 of the sachet 1. As described above, this may be desired to ensure that only one piece of waste is obtained, thereby increasing the chance of the consumer throwing all waste in a bin and not on the ground.

[0040] In a sachet 1 as described above, the front layer 2 and the rear layer 3 are typically joined by welding, but any appropriate joining process for a given sheet material is covered by the scope of the present invention. In some embodiments of the invention, the front layer 2 and the rear layer 3 are joined by cold sealing. As described above, it will hereby be possible to remove only one layer of the sachet 1 along the tear strip 11 while a portion of the other layer is left exposed with cold sealing left intact, or at least intact over a major part of its length. Figure 5 shows schematically such a sachet 1 where only the part of the front layer 2 comprising sealing 4 has been removed, whereas the rear layer 3 with the cold sealing 4a on has been left intact. In this way the exposed portion of the rear layer 3 can form a flap 3a. The sachet 1 can then be re-sealed by folding the flap 3a over the opening and fastening the cold sealing 4a on the flap 3a to the outside surface of the front layer 2, so that some of the content 12 can be saved for later.

[0041] The invention can in principle be applied to sachets of any size. However, the intention is to obtain a sachet which is easy to hold in one hand, and typical dimensions and geometries will therefore be some resulting in a height of the sachet measured from a closed corner 14 to the opened corner at the other end 15 of the un-broken sealing 4 in the order of 50 to 200 mm, such as 80 to 150 mm, and preferably 100 to 130 mm. The width of a sealing 4 measured perpendicular to the edge 5 along which it runs is typically in the order of 3 to 15 mm, such as 3 to 8 mm or 8 to 15 mm. It should be wide enough to ensure a joining which stays intact before and during use of the sachet and on the other hand not significantly wider than necessary to keep manufacturing cost down.

[0042] The tear strip will typically have a width in the order of 0.5 to 2 mm. The actual dimensions and strength depends on the strength of the sheet material from which

the sachet 1 is made. This material may be any material which is suitable for storage of the content of the sachet. Possible materials are mentioned above. The position of the tear strip will typically be between just at the edge of the sealing 4 facing towards the interior space 6 and up to about 2 mm from the sealing 4.

[0043] A sachet 1 as described above may be made by folding a single sheet at 45 degrees over itself, sealing and folding again, and so on. A possible manufacturing method will be described in the following.

[0044] The method comprises folding upon itself a flexible sheet to form a triangular interior space 6; filling said triangular interior space 6 with the product 12; and sealing said at least one folded sheet along a plurality of sealing lines 4 so as to capture the product 12 in said interior space 6; and repeating the steps above one or more times.

[0045] Figure 6 shows plan views of the sheet at different stages of manufacturing the sachet 1 according to a method of the present invention. The figure is intended to illustrate the overall folding principle only, and details such as the pre-score 7 and the split lines 9 are omitted from this figure. The tear strip 11 may be a string of polymer material which is applied from a spool 16. It may be pre-treated with self-adhesive so that it sticks to the sheet material. A good adhesion may be ensured by applying a pressure P e.g. by means of one or more rollers (not shown).

[0046] The sheet is foldable along the folding line 202 in the folding direction 204 so as to create in it an interior space 6 that may receive the product 12 to be stored therein. Assuming that what is meant to be manufactured is the closed flexible right isosceles triangle sachet 1 as described above, the length of the folding line is equal with the hypotenuse 104 of said triangle. In this case, the width 206 of sheet 200 is conveniently elected at the beginning of the manufacturing process so as to accommodate diagonally across a folding line 202 of length equal with the hypotenuse of the desired size of the sachet 1. The flexible sheet is then folded around itself along the lines 202 disposed at 45 degrees angle in the folding direction 204. Once one side of the triangle has aligned with the margin 208 of the blank 200 and the other side is perpendicular on said margin 208, the folding is accomplished and the desired enclosed right angle triangular shaped interior space 6 is formed.

[0047] Figure 7 shows the same process as in figure 6 except that now an intermittent tear strip 11 is applied to the sheet 200. The length of each piece of tear strip 11 as well as the spacing between two subsequent pieces of tear strip 11 is determined so that the finished sachets 1 have tear strip 11 along one sealing 4 only. The actual length of the pieces of tear strip 11 as well as the size of the spacings depend on whether a tear strip 11 is to run along the full length of a sealing 4, or whether it has to be shorter. These options and the advantages thereof have been described above.

[0048] As illustrated in figure 6, the interior space 6

once filled with a product 12 is sealed along lines 402 and 403 to trap its contents inside. The sealing along line 402 may conveniently be performed before filling of the interior space 6.

[0049] In the subsequent step, the flexible sheet is again folded upon itself at 45 degrees angle to form the next enclosed interior space 6. The operation is repeated one or more times, as many times as desired, until the desired number of triangular sachets 1 in the chain has been formed, or alternatively the length of the sheet has been exhausted.

[0050] Figures 7 and 8 illustrate further embodiments of the manufacturing method of the present invention, wherein a chain of triangular closed flexible sachets 1 holding a product 12, is manufactured by a method comprising: rolling a sheet of flexible material around itself or around a tube until the margin of the sheet is united with the sheet itself enclosing a cylindrical volume and creating an overlap of the sheet with itself along the margin; joining the two layers of the sheet at the overlap by sealing to create a tubular structure; dispensing said product 12 into the tubular structure; and flattening the tubular structure and joining the already formed sealing to the opposite surface of the flattened tube creating a sealing of three layers enclosing triangular interior spaces 6 enclosing said product 12.

[0051] In these embodiments a sheet of material is rolled upon itself as in figure 8 or around a tube as in figure 7 until the margin of the sheet is united with the sheet itself enclosing therefore a cylindrical volume of a predetermined circumference. Said rolling of the sheet may e.g. be continued until a second complete roll is realized. Between the first roll and the second roll there is a small overlap of material, overlap where the two layers may be joined by sealing, welding or the like thereby creating a tubular structure. As it may be observed in section view along section line A-A', an area of two blanks overlap is present along the section line, it is in this area that is sealed, e.g. by a melted sealing layer. As it may be observed in section view 808 in figure 7, the blank sheet 200 ingresses into the sachet welding machine under a 45 degree angle and is rolled, e.g. around the filling tube 800 in the direction indicated by the arrow (806). Upon rolling a sealing of the sheet material is created at the overlap (812) creating the tubular structure, e.g. around the filling tube 800. In the embodiment of figure 7, the filling tube 800 ingresses into said tubular structure at a depth conveniently elected so that the product 12 intended to be packaged in the sachets 1 may be dispensed.

[0052] In one embodiment for application of the tear strip to the sheet material in an intermittent manner in order to provide a tear strip along only one sealed edge of each sachet, the tear strip material's movement is registered by electronic means in the tear-strip applying apparatus and is synchronised with the movement of the sheet material, in order to place the tear strip correctly. The tear strip is cut at the end of the desired application

length and reapplied in the next appropriate position as dictated by the movement of the sheet material on the tube.

[0053] As it may further be observed in section view 810 in figure 7, the filling tube 800 may dispense in the direction indicated by the arrows the product intended to be packaged in the sachet 1, in a space 6' that is delimited by a secondary sealing 802 closing the end of the tube. This sealing 802 corresponds to the ones shown with reference number 4 in the above description of the sachet 1. The secondary sealing is formed by flattening the tubular structure and joining the already formed primary sealing to the opposite surface of the flattened tube creating a sealing of three layers. Following dispensing said product 12, the tubular structure comprising the product will be moved further in the direction of the arrows and a secondarily seal (802) will be formed again, to form a triangular closed sachet. The operation is repeated as many times as desired. As it may be observed in section view along section line B-B', the secondary seal forms an area of three blanks overlap joined, e.g. by melted sealing layers. As shown in figure 7, the individually formed triangular sachets are filled by a vertical tube through which the product intended to be comprised by the individual triangular sachets are dispensed, progressively as each of the sachets 1 is formed using the steps described above. The result is a chain of right angle isosceles triangular sachets that are sealed on two sides, with the third side, the hypotenuse of said triangle, constituting the folding line of the flexible sheet, and connected together at the sealed sides.

[0054] In the course of forming the right angle isosceles triangle, the sachet 1 may be provided with pre-scores 7 and/or split lines 9 as described above in relation to figures 1 to 5 to facilitate manual opening of the sachet. This may e.g. be done by laser cutting according to procedures which will be well known to a person skilled in the art.

[0055] The described manufacturing process results in a chain of sachets which may be kept interconnected or separated, e.g. by cutting as a part of the manufacturing process. If the sachets are kept in a chain, the areas where they are to be separated later may be weakened, e.g. by perforation, to facilitate the separation.

[0056] It should be understood that various changes and modifications to the presently preferred embodiments described herein will be apparent to those skilled in the art. Such changes and modifications can be made without departing from the spirit and scope of the present invention and without diminishing its attendant advantages. It is therefore intended that such changes and modifications be covered by the appended claims.

Claims

1. Sachet having a triangular shape and comprising:

- an interior space enclosed by one sheet of flexible blank material, the sheet being folded upon itself to form a front layer and a rear layer of the sachet, and

- means for starting opening of the sachet, wherein the front layer and the rear layer are joined by sealing located along two edges of the sachet to define the interior space, and a tear strip is arranged between the front layer and the rear layer of the sachet in proximity to and runs at least partially along the sealing at one of the two edges joined by sealing, for opening of the sachet, whereby the sachet obtains a cone-like shape after opening.

2. Sachet according to claim 1, wherein the sachet is shaped as a right triangle having the tear strip arranged along one of the catheti.

3. Sachet according to claim 2, wherein the sachet is shaped as an isosceles right triangle.

4. Sachet according to any of the preceding claims, wherein the means for starting opening of the sachet is a pre-score or split extending from an edge of the sachet where the sheet is folded.

5. Sachet according to any of the preceding claims, wherein the means for starting opening of the sachet extends towards a row of split lines located to so that a designated corner of the sachet can be manually torn off by starting at the pre-score or split.

6. Sachet according to claim 5, wherein the row of split lines extends to the tear-strip so that the tearing off of the designated corner can continue into a tearing along the tear strip.

7. Sachet according to any of the preceding claims, wherein the front layer and the rear layer are joined by welding.

8. Sachet according to any of claims 1 to 6, wherein the front layer and the rear layer are joined by cold sealing.

9. Sachet according to any of the preceding claims, wherein an eatable product is located inside the interior space.

10. Chain of sachets being formed by a plurality of interconnected sachets according to any of the preceding claims.

11. Method of manufacturing a triangular closed flexible sachet holding a product, the method comprising:

- folding upon itself a sheet of flexible blank material to form a triangular interior space comprising a front layer and a rear layer;
- filling the interior space with the product;
- sealing the sheet along two edges of the sachet so as to capture the product in the interior space;
- applying means for starting opening of the sachet,

characterised in that it further comprises

- applying a tear strip to the sheet along and at a predefined distance from an edge of the sheet before it is folded upon itself so that after folding, the tear strip is arranged between the front layer and the rear layer in proximity to and running at least partially along the sealing at one of the two edges joined by sealing.

12. Method of manufacturing a chain of interconnected triangular closed flexible sachets holding a product, comprising:

- folding upon itself a sheet of flexible blank material to form a triangular interior space comprising a front layer and a rear layer;
- filling the interior space with the product;
- sealing the sheet along two edges of the sachet so as to capture the product in the interior space;
- applying means for starting opening of the sachet,

- repeating the steps above and below one or more time,

characterised in that it further comprises

- applying a row of tear strips to the sheet along and at a predefined distance from an edge of the sheet and with a predefined spacing between the tear strips before the sheet is folded upon itself so that after folding, one tear strip is arranged between the front layer and the rear layer in proximity to and running at least partially along the sealing at one of the two edges joined by sealing.

13. Method of manufacturing a chain of triangular closed flexible sachet holding a product, comprising:

- rolling a sheet of flexible blank material around itself or around a tube until a margin of the sheet is united with the sheet itself enclosing a cylindrical volume and creating an overlap of the sheet with itself along the margin;

- joining the two layers of the sheet at the overlap by sealing to create a tubular structure;

- dispensing the product into the tubular structure; and

- flattening the tubular structure and joining the already formed sealing to the opposite surface of the flattened tube creating a sealing of three layers enclosing triangular interior spaces en-

closing the product;

- applying means for starting opening of the sachet,

characterised in that it further comprises

- applying a row of tear strips to the sheet along and at a predefined distance from an edge of the sheet and with a predefined spacing between the tear strips before the sheet is folded upon itself so that after folding, one tear strip is arranged between the front layer and the rear layer in proximity to and running at least partially along the sealing at one of the two edges joined by sealing.

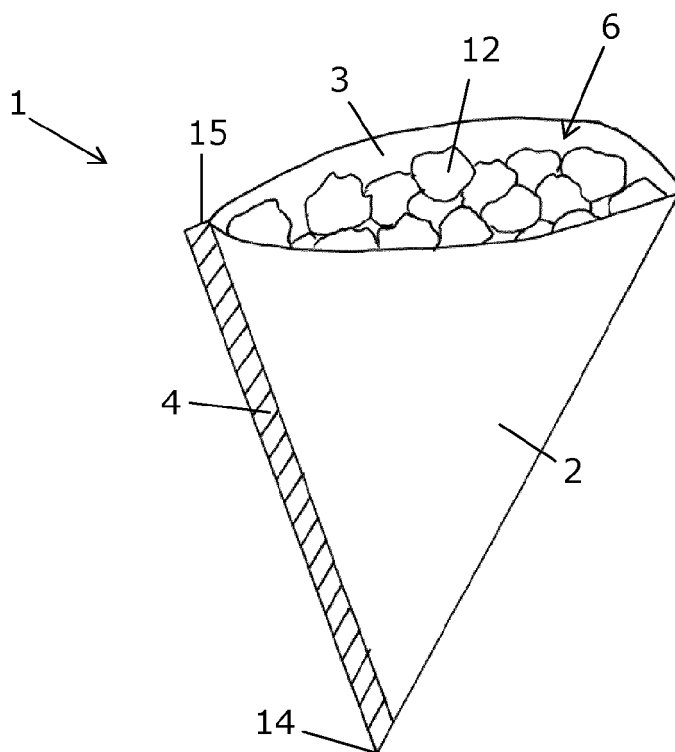
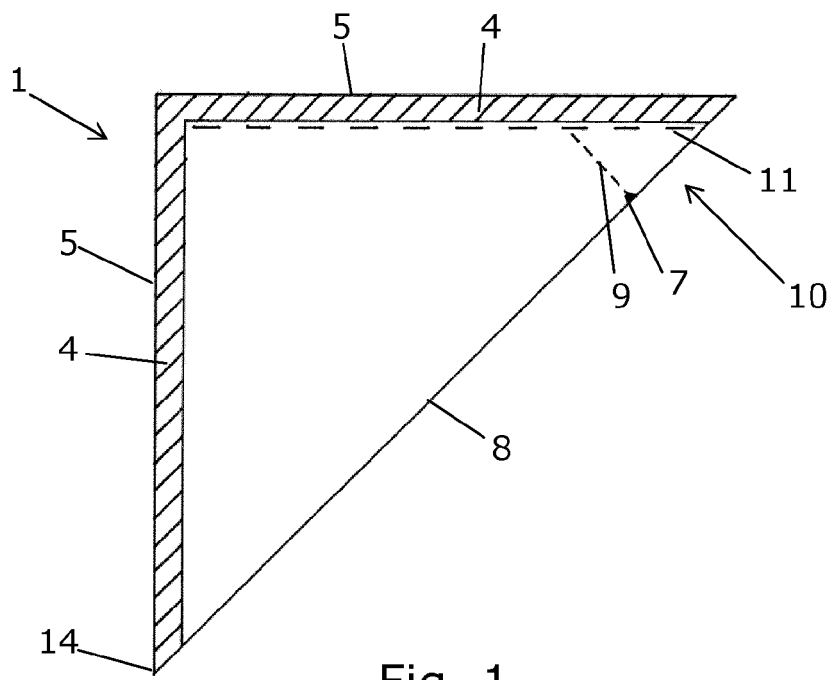
14. Method according to any of claims 11 to 13, wherein the means for starting opening of the sachet is a pre-score or split extending from an edge of the sachet where the sheet is folded.

15. Method according to any of claims 11 to 14, wherein the sheet is folded upon itself at a 45 degrees angle relative to the length to form a right angle triangular shaped interior space.

16. Method according to any of claims 11 to 15, wherein the sealing is selected from: welding, adhesive bonding, cold sealing and/or ultrasonic sealing

17. Method according to any of claims 11 to 16, further comprising providing a row of split lines extending between the means for starting opening the sachet and the tear strip.

18. Method according to any of claims 11 to 17, further comprising dissociating the chain of triangular sachets to form a plurality of individual triangular sachets.



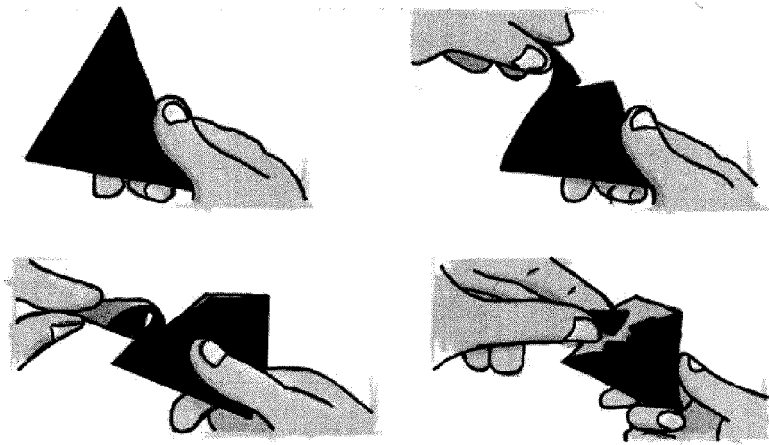


Fig. 3

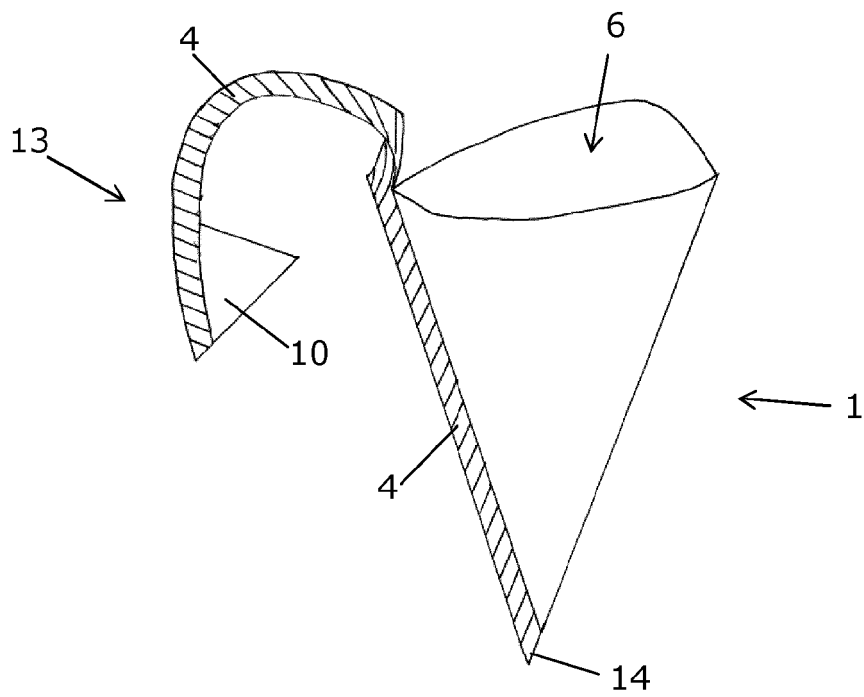


Fig. 4

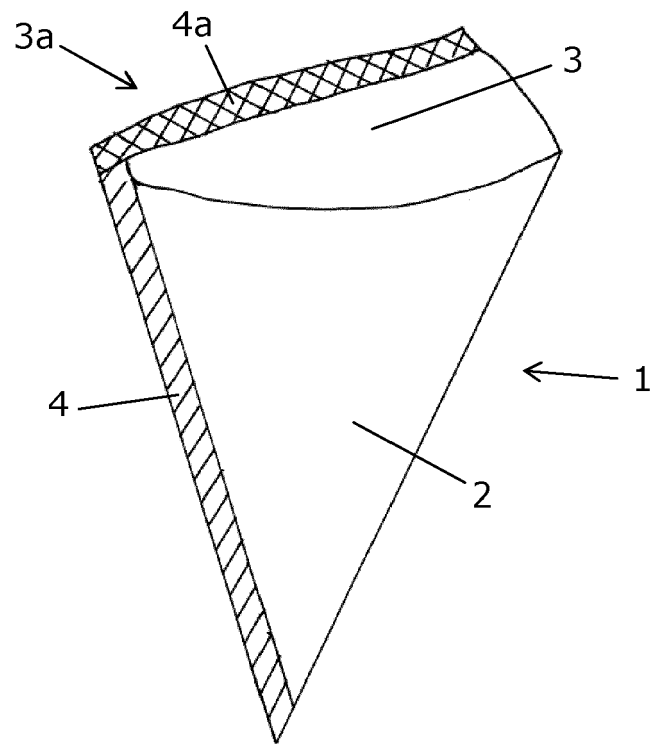


Fig. 5

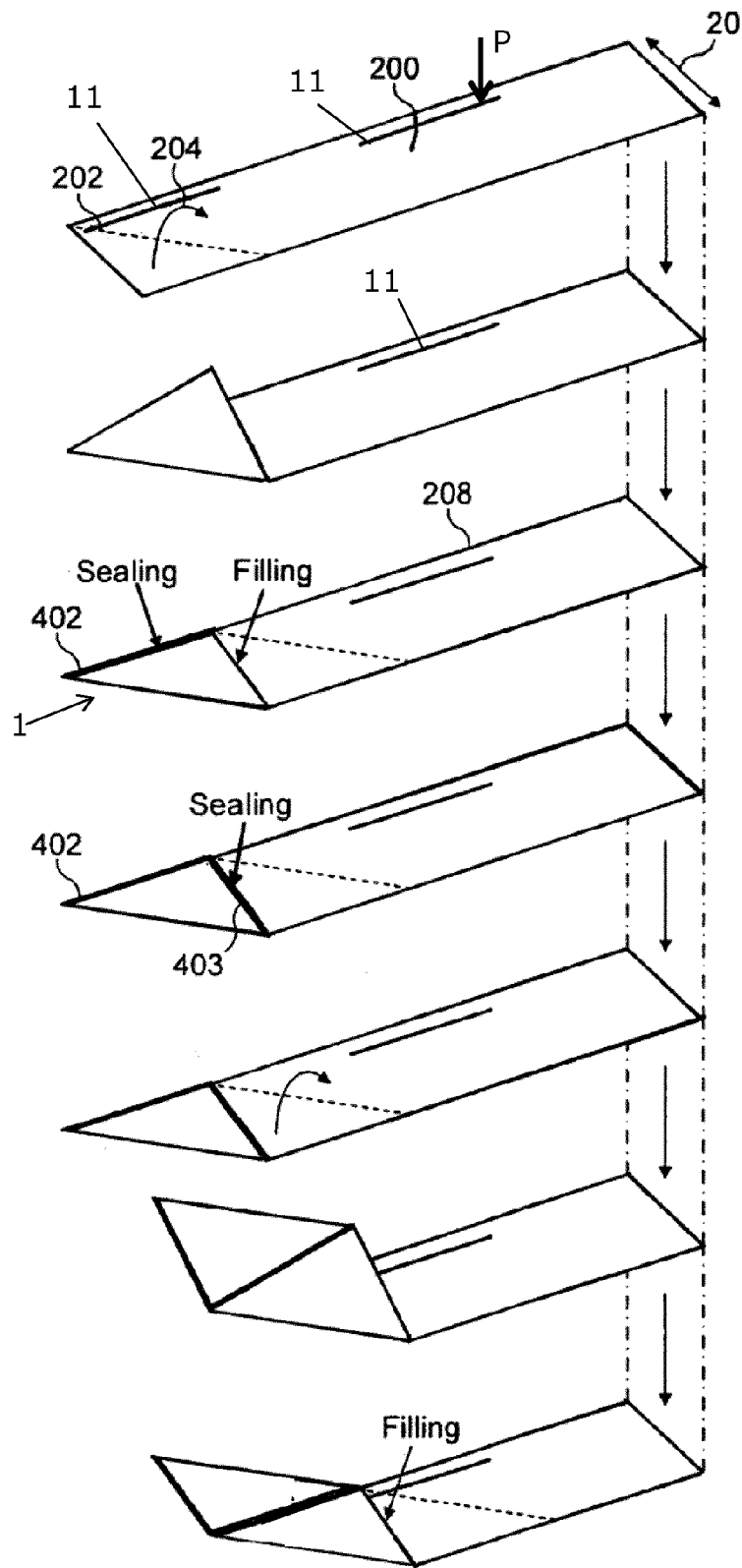


Fig. 6

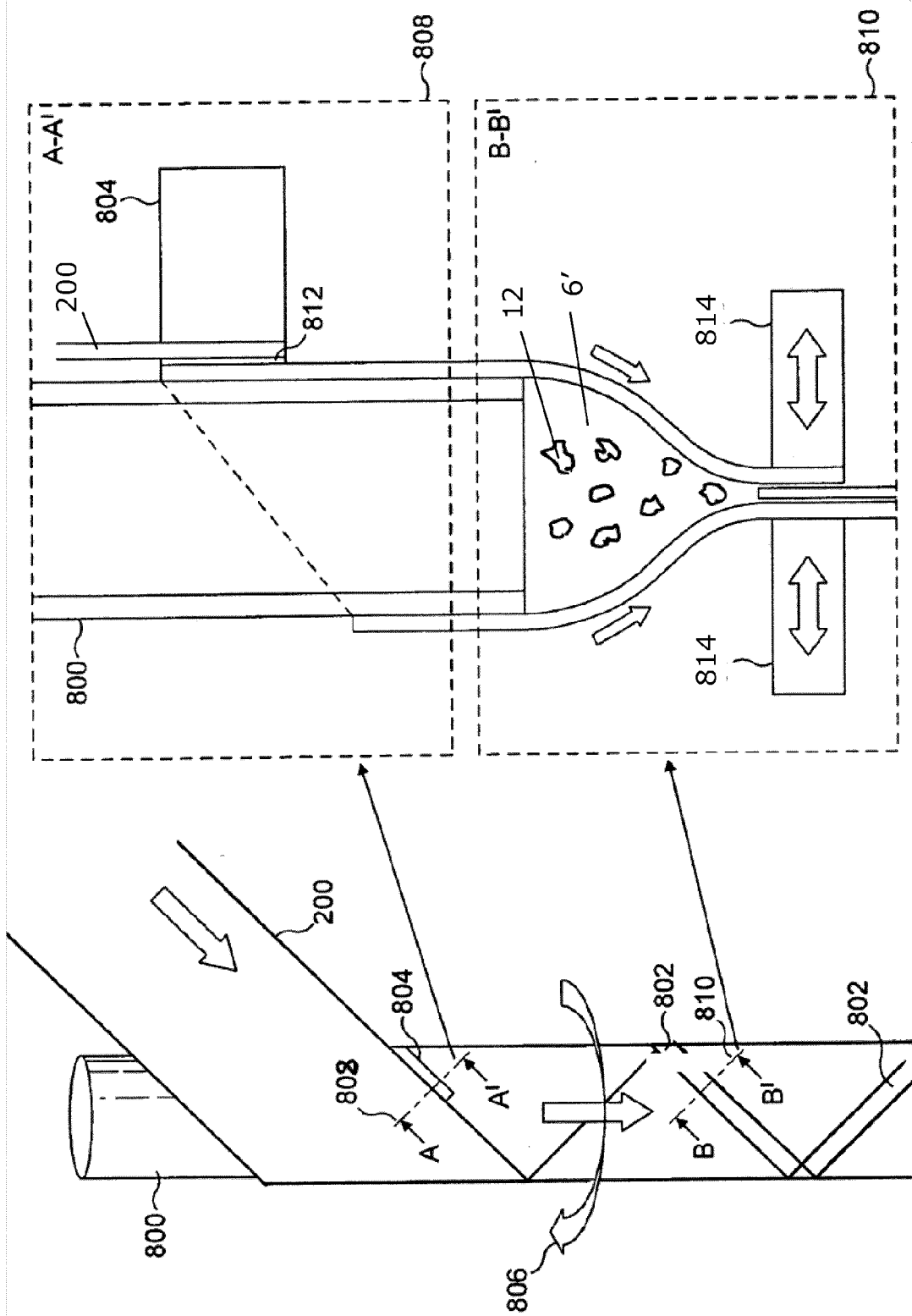


Fig. 7

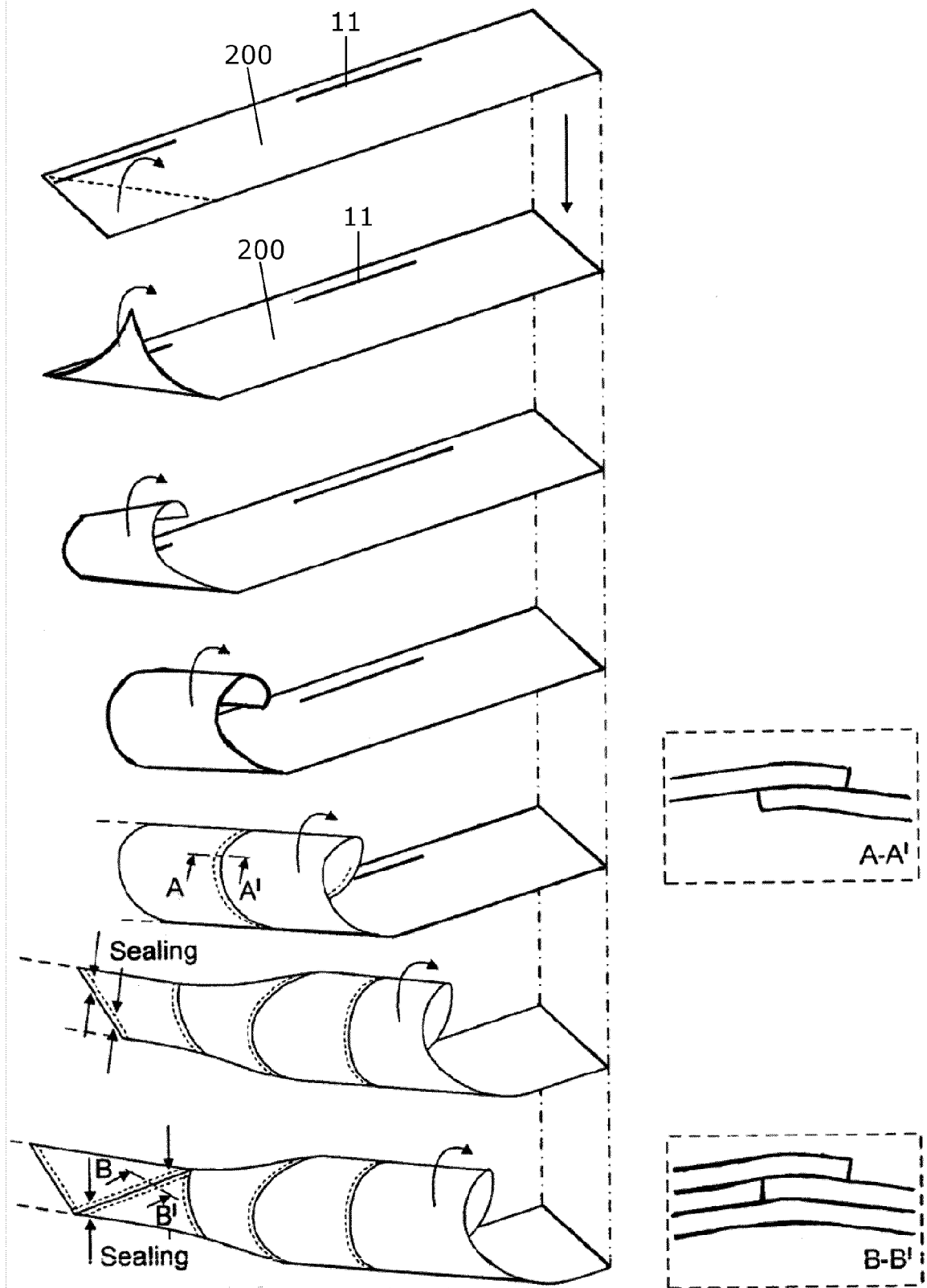


Fig. 8



EUROPEAN SEARCH REPORT

Application Number
EP 11 19 5673

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 2011/003757 A1 (NESTEC SA [CH]; DEMAUREX GILLES [CH]) 13 January 2011 (2011-01-13) * abstract; figures 1B,1C,2-5 * * page 10, paragraph 2 - page 21, paragraph 2 *	1-18	INV. B65D75/20 B65D75/42 B65D75/46 B65D75/58 B65D75/68 B65B9/00
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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 21 May 2012	Examiner Segerer, Heiko
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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