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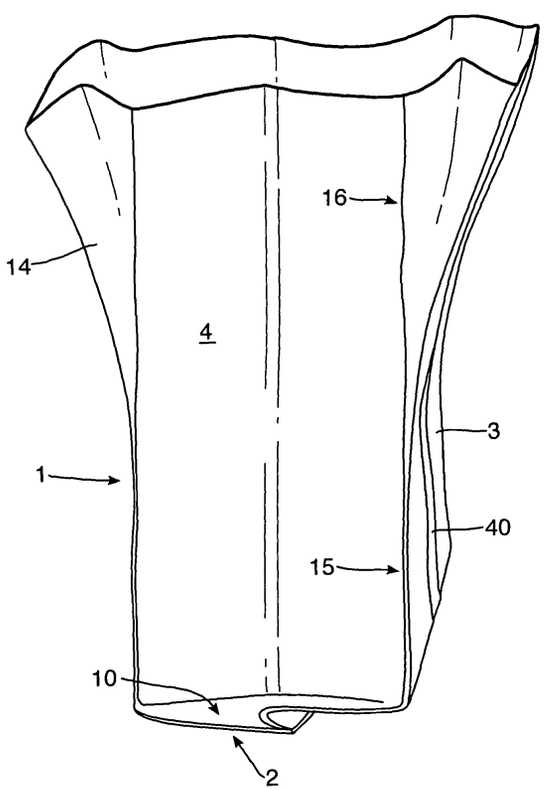
(54) Package for multiple food items

(57) A food pack comprising a multiplicity of individual food items is formed of a sheet material and has a base (2) and a circumferential wall (3,4) extending upwardly from the base. The wall comprises a pleat (14) extending upwardly from said base (2) and having at least first and second pleat layers, wherein the pleat comprises a first pleat length (15) in which at least first and second layers of said pleat are sealed together and a second pleat length (16) in which said first and second layers of said pleat are not sealed together or are sealed together in a manner such that they are more easily unsealed than in said first pleat length. The pack can be made using a form-fill method. When opened, the pack has an upper access opening which is of greater cross-section than a lower region of the pack.

Fig.2.



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Description

[0001] The present invention relates to packages for food. In particular, the invention relates to packs for food items of the kind which are sold in batches of a multiplicity of the items, for example, snacks and biscuits, and to methods of making the packs.

[0002] It is known to package small biscuits or snack products, for example, potato crisps, other vegetable crisps, fabricated snack products, or nuts, in packs which are formed of a flexible film material. The packs are formed contemporaneously with the filling operation in a process known as a form-fill process, and have a bottom transverse seal, a top transverse seal parallel to the bottom seal, and a longitudinal seal which extends between the two transverse seals. Packs are formed continuously by delivering a sheet of heat-sealable film over a former to form the sheet into a tubular configuration. A transverse seal is formed across the film by clamping the tube of film between heated jaws, the film being cut as the seal is formed, so as to close the top of a preceding pack and form, separated therefrom, the bottom seal of the pack. The longitudinal seal is continuously formed by applying a heated roller to superimposed edges of the sheet or by an intermittent process using heated jaws. The receptacle, so formed, is filled and a further transverse seal is then formed by the heated jaws so as to close the top of the receptacle, the seal being cut as described above to form the top of the pack, and the bottom of the succeeding pack.

[0003] The packs do not have a well-defined base and, when placed on a surface such as a table, they tend to fall onto their sides. Also the packs have a substantially uniform internal cross-section and as a result when the portion of food products is relatively small, for example, 250g or less in the case of dense products such as nuts, or 100g or less in the case of lighter products such as crisps, the consumer is able to extract the products from the lower extremity of the pack only by inserting their hand right into the pack. The consumer can find it difficult to eat the product without their hand becoming greasy or otherwise contaminated by the product as a consequence of the hand contacting the interior surface of the pack.

[0004] It is known in the case of other food products, which are in the form of powders or granules, to make a form-fill pack in the above described manner whilst additionally forming four longitudinally extending folds which are subjected to heat so as to form a heat-seal extending along the folds. As a result of the fins so formed, the filled packs can more easily be formed into a "block" shape and, provided that the bottom transverse seal can be folded flat against the pack, it is possible for the pack to sit substantially unsupported on a flat surface.

[0005] There is a continuing need for improved packs for snacks and biscuits which will be more attractive to the consumer and facilitate eating in some circumstances.

[0006] The invention provides a pack comprising a multiplicity of individual food items, the pack being formed of a sheet material and having a base and a circumferential wall extending upwardly from said base, the wall comprising a pleat extending upwardly from said base and having at least first and second pleat layers, wherein the pleat comprises a first pleat length in which at least first and second layers of said pleat are sealed together and a second pleat length in which said first and second layers of said pleat are not sealed together or are sealed together in a manner such that they are more easily unsealed than in said first pleat length.

[0007] The pack of the invention allows the pack to be of neat and compact appearance when made and sold, whilst by means of the unsealed or less strongly sealed portions of the pleats permitting the consumer to open the pack such that the upper portion provides an access opening which is of greater cross-section than the bottom of the pack.

[0008] Advantageously, the pack has at least two pleats and each of the at least two pleats comprises a said first pleat length and a said second pleat length. Preferably there are four pleats, each being so constructed. If desired, however, there may be, for example, four pleats, with only one or only two or only three of the pleats being constructed as specified above. Pleats which are so constructed are referred to hereafter as "openable pleats". The first pleat length of the or each openable pleat advantageously extends upwardly from the bottom of the pack. Preferably, the or each openable pleat has a first pleat length that extends over up to 75% of the height of the pack, when open, advantageously up to 50%, preferably from 10 to 50% of the height of the pack when the pack is open. Advantageously, the or each openable pleat has a second pleat length that extend from the upper extremity of the pack downwardly over at least 20% of the height of the pack, preferably at least 30%, and more preferably at least 40% of the height of the pack, when the pack is open.

[0009] The pack may be of any suitable sheet material. The sheet material may itself be heat-sealable, for example by means of having a heat-sealable layer or coating. Suitable heat-sealable layers include, for example, heat-sealable olefin copolymers such as certain ethylene/propylene copolymers. In that case, the heat-sealable layer of the sheet material will be such that the heat-seals generated therefrom are relatively strong whilst there may be provided on the sheet material regions of seal-blocking agent, release coating or low-tack adhesive for forming the unsealed or weakly sealed pleat lengths. As seal-blocking agent there may be used, for example, a lacquer that is not sealable under the conditions that are used to seal the first pleat length.

[0010] Especially where the sheet material does not itself incorporate a heat-sealable layer or coating, a high tack adhesive may be applied to a first region of the sheet material and a region of low-tack adhesive may

be applied to a second region of the sheet material. Suitable sheet material may be made, for example, by applying sealing material of the appropriate level of tack to the regions of the sheet that will in the formed pack form the pleats. In one suitable arrangement, the sheet material may incorporate a layer or coating of an easy-peel adhesive, with a high strength adhesive applied over regions thereof which are required to have a high strength seal in the pack. In practice, sealable portions for formation of the pleats are preferably provided on the opposite face of the sheet material from sealable material which may be useful for forming the top and bottom transverse seals of the pack. Thus, it may be appropriate for the inner surface of the sheet material to be provided with a heat-sealable layer or coating for the purpose of generating the transverse top and bottom seals and the longitudinal seal, and to be provided on the opposed face with regions of high tack sealing material and, optionally, low tack sealing material for formation of the pleats.

[0011] Suitable sheet materials may include any that are suitable for use in the packaging of food products. Suitable sheet materials may comprise polyolefins, for example, polypropylene, metallised polypropylene, polyethylene, and olefin copolymers where those are suitable for use in packaging; polyester, especially polyethylene terephthalate; and paper. The sheet materials may consist of a single layer or may have two or more layers, which may be of different materials, for example, two or more of the materials previously mentioned. Bi- or multilayer sheet materials may be made by any suitable method, including coextrusion, lamination or coating. It is preferred that the pack be formed by a single sheet of material, that facilitating the use of a form-fill process.

[0012] Suitable adhesives for use as high tack adhesives are advantageously cold-seal adhesives, heat-seal adhesives adhesive coatings, and lacquers, with heat-seal adhesives being preferred.

[0013] Suitable adhesives for use as low tack adhesives, where present, are advantageously cold-seal adhesives, heat-seal adhesives, adhesive coatings, and adhesive lacquers, with heat-seal adhesives being preferred.

[0014] In relation to adhesives the terms "high tack" and "low tack" are both to be understood as referring to adhesives that have a sufficiently high tack to remain adhered in normal handling of the pack during manufacture, storage and sale. "Low tack" is further to be understood as implying a level of tack which is such that adhered surfaces tend to separate easily relative to other seals in the pack (in particular the end seals and longitudinal seals). "High tack" is to be understood as implying a level of tack which is such that adhered surfaces tend not to separate during normal opening of the pack and consumption by a consumer.

[0015] Advantageously, the packs are made by a form-fill method in which the pack is formed contemporaneously with filling.

[0016] The invention also provides a method of making a pack for a multiplicity of food items in which a sheet material is passed over a former element to form said sheet material into a substantially vertically extending tube with opposed edge portions of the sheet material in contact with another, a transverse seal is formed across said tube, a multiplicity of food items are delivered into the tube and a transverse seal is formed across said tube above said food items, wherein prior to passing said sheet material over said former element there is formed in the sheet material at least one pleat that is so oriented that, after the sheet passes over the former element, the pleat will extend substantially longitudinally along the tube, the pleat comprising first and second pleat layers that overlie, and are sealed to, one another in a first region of said pleat and, in a second region of said pleat, are unsealed or sealed to one another with a seal strength that is lower than the seal strength in said first region.

[0017] Advantageously, the method includes forming a longitudinal seal joining two lateral edges of the sheet material. The seal may be any suitable type of seal, for example, a lap-seal or, preferably, a fin-seal. The seal may be at a corner edge of the pack between adjacent side and end walls, but is advantageously on a side or end wall of the pack and is preferably in a central region of the wall. It is preferred for the first and second pleat layers to be adjacent elongate regions of a common piece of sheet material, the pleat having a fold line, which separates the first and second pleat layers. The elongate regions are provided with an adhesive or other sealing means along at least a part of their length, and preferably on the face of the sheet material that, in the pack, forms the outer surface. The pleat thus preferably comprises two continuous pleat layers which abut each other along most or substantially all of their length, but the surfaces of which are not uniformly attached to one another along their length, that is, they are attached to another along a first part of their length whilst being less securely attached or unattached along a second part of their length. The pleat thus includes a discontinuity in adhesion characteristics between the first pleat length and the second pleat length, such that in the second pleat length the layers can be separated by applying a relatively low separation force, whilst in the first pleat length the layers can be separated only by applying a relatively high separation force.

[0018] Certain embodiments of the invention will now be described in more details with reference to the accompanying drawings, of which:

Fig. 1 is a perspective view of a pack according to the invention;

Fig. 2 is an end view of the pack, after opening;

Fig. 3 is a view, from the side and above of the open pack;

Fig. 4 is a plan view of the pack, when open;

Fig.5 is a transverse section through a lower portion of the pack;

Fig. 6a is a plan view from above of a portion of sheet material for use in making the pack; and

Fig. 6b is a plan view from below of the sheet material of Fig. 6a.

[0019] With reference to Figs. 1 to 4, a pack 1 of the invention has a base 2, and side wall portions 3, extending upwardly from the base. Between the side wall portions 3 are two opposed end wall portions 4. With reference to Fig. 1, the pack 1 is closed at its upper end 5, with the closure comprising a transversely extending top seal 6 terminating at upper edge 7. In the closed pack the upper portions 8 of the side wall portions 3 are inclined inwardly towards the transversly extending top seal 6, causing a gusset 9 to be formed in each of the end wall portions 4. A corresponding gusset 10 is formed at the base of each wall portion 4, but in the upright pack the gussets 10 are flattened and form, with lower portions 11 of side wall portions 3, the flat base 2. The pack is closed at its lower end with the closure comprising a transversely extending bottom seal 12, along which the lower portions 11 of the side wall portions 3 meet. The side wall portions 5 have a substantially vertical central portion 13. A longitudinal seam 40 extends vertically along one of the side wall portions 3 from the bottom seal 12 to the top seal 6.

[0020] Extending upwardly from the base 2 are four parallel pleats 14, each located at a corner of the pack between each adjacent side wall and end wall. Each pleat has a first pleat length 15, extending generally from bottom seal 12 along, and upwardly from, base 2, and a second pleat length 16 extending from the top of first pleat length 15 to the top of the pack. The first pleat length 15 and second pleat length 16 are of essentially identical appearance but are different from one another in construction, length and function as will be explained further below. They are so constructed that, on opening the pack, the pleat length 16 opens as a result of being unsealed or sealed by a lower strength seal than pleat length 15.

[0021] Figs. 2 to 4 show a similar pack after opening. As a result of the pleat structure described, the upper portion of the pack is splayed open, providing easy access to the pack for the consumer. Fig. 5 is a transverse section through V-V in Fig. 1 and shows schematically the pleats 14 between each adjacent end wall portion 4 and side wall portion 3. Each pleat 14 is made up of three folds 17, 18, 19. Between each first and second fold 17, 18 there is defined a first pleat layer 20. Between each second and third fold 18, 19, there is defined a second pleat layer 21. Also shown are a pair of projecting fins 22 along the outside of each pleat 14. In Fig. 5 the width and separation of the fold layers 20 and 21, and the size of the projecting fins 22 are exaggerated for the purposes of explanation. The projecting fins 22 contribute to the rigidity of the pack of Fig. 5, but are not essential.

[0022] The layers 20 and 21 are sealed to one another by a sealant which gives a relatively high-strength bond, for example, a layer of heat-sealable polymer, or a high-tack adhesive. The sealed area extends from the central fold 18 of the pleat to each of the outer folds 17 and 19. The fins 22 extend parallel to the pleat and are made up of narrow elongate portions of the reverse face of pleat layer 20 or 21 sealed to respective elongate portions of, respectively, adjacent end wall portion 4 or side wall portion 3. The section in Fig. 5 is through the first pleat lengths 15, and the pleats 14 and fins 22 are in that region sealed with relatively high-tack seals. Longitudinal fin-seal 40 is formed in one of the side wall portions 3 by sealing inner surfaces 31a and 32a (see Fig. 6b), for example, by heat-sealing.

[0023] Fig. 6a is a plan view from above of a sheet of material from which the pack of Figs. 1 to 5 can be generated. The top face of the sheet is for forming the outer surfaces of the pack and comprises a wide panel portion 23 corresponding to a side wall 3, two narrower panel portions 24 and 27 corresponding to second side wall 3 incorporating the longitudinal seal 40, and two narrow panel portions 25 and 26 corresponding to end walls 4. At least the panel portions 23 to 27 are preferably printable, and will then generally have been pre-printed before the sheet is formed into a pack. Reference numeral 29 indicates the region of the sheet that, in the pack, will form the transverse top seal 6. Reference numeral 28 indicates the region of the sheet that, in the pack, will form the transverse bottom seal 12. The top face of the sheet is provided with four pleat-forming regions 30, which are identically constructed. Regions 31 and 32 represent seal-forming regions which enable the ends of the sheet of material to be joined together by sealing their reverse surfaces (31a and 32a in Fig. 6b) to one another to form fin-seal 40. Panel portions 24 and 27 when sealed at fin seal 40, form one of the side wall portions 3, panel portion 23 forming the other side wall 3 and panel portions 25 and 26 form the end wall portions 4 of the pack. Once formed, fin-seal 40 can be folded back against the side wall of the pack so that external surface 32 contacts the surface of panel portion 27. The pleat-forming regions 30 are each defined between fold lines 17 and 19, with a parallel fold line 18 being located between and equidistant from the lines 17 and 19. The regions between each fold line 17 and each fold line 19 are each divided into fold layers 20 and 21. Each fold layer is divided into a leading region 20a, 21a, which is provided with a coating of high-tack heat-seal adhesive and a trailing region 20b, 21b, which is provided with a coating of a low-tack heat-seal adhesive.

[0024] Fig. 6b is a plan view from below of the sheet of Fig. 6a, that is, showing what would be the inner faces of the pack when constructed. Wide panel portion 23a corresponds to side panel portion 23 of the outer face of the pack in Fig. 6a and narrow panel portions 25a and 26a correspond to end panel portions 25 and 26 in Fig. 6a. Panel portions 24a and 27a correspond to the panel

portions 24 and 27 in Fig. 6a, which form the other side panel when a seal 40 is generated between lateral end portions 31a and 32a. The sheet is of a plastics film material, which may, for example, be a metallised plastics film material, having a plurality of layers, with the bottom layer, that is, the visible layer in Fig. 6b, being of a heat-sealable polymeric material. That enables the transverse seals to be formed by heat-sealing wide panel portion 23a and panel portions 24a and 27a, which form the inside of the other side panel (corresponding to regions 23, 24, and 27 in Fig. 6a), at regions 28a and 29a (corresponding to the regions 28 and 29 in Fig. 6a) and for the longitudinal seal to be formed by heat-sealing of lateral edge regions 31a and 32a (corresponding to regions 31 and 32 in Fig. 6a) to form a longitudinal fin-seal 40. Superimposed on the heat-sealable layer are a number of fin-forming portions for forming a projecting fin 22 along the outside of each pleat. Two fin-forming portions are associated with each pleat-forming region 30. Each said fin-forming portion is defined between parallel fold lines 35, 36, equidistant from and parallel to pleat fold lines 17 or pleat fold line 19. The fold lines 35, 36 define between them a leading region 37, which is provided with a high-tack sealing lacquer, and a trailing region 38, which is provided with a low tack lacquer or sealing layer that enables sealing of the that region of the fin to take place during formation of the pack to form an easily-peelable seal in the region 38. (The trailing region 38 may instead be provided with low-tack adhesive).

[0025] In an alternative embodiment, a pack similar to that of Figs. 1 to 5 can be generated from a sheet of material (not shown) that has three identically constructed pleat-forming regions and a fourth pleat-forming region which is constructed differently. The fourth pleat-forming region is adjacent to a first lateral edge of the sheet and is formed with a first seal-forming region to enable it to be heat-sealed to a second seal-forming region on the second opposed lateral edge of the sheet to form a longitudinal seal which is in effect incorporated in the fourth pleat.

[0026] In a preferred method of manufacture of the pack, a continuous sheet of material has sequentially arranged sheets according to Figs. 6a and 6b, each attached to the preceding sheet through leading edge region 28 and to the succeeding sheet through trailing edge region 29. The sheet is advanced through a pleat-forming device in which it is subjected to pleat-forming steps in which the fold layers 20, 21 are superimposed and sealed together. The sheet portion incorporating the pleats, which extend longitudinally in the direction of travel of the sheet, is then advanced over a forming shoulder so as to form the sheet portion into a substantially tubular body. The tubular body is advanced vertically downwardly between a form-fill device and the bottom transverse seal 12 is formed by a pair of sealing jaws (simultaneously with cutting to remove the sheet portion from any previously completed pack). Whilst the tubular body advances downwardly, the longitudinal seal is formed by means of pressing together the regions 31a and 32a and the fins 22 are formed by pressing together the fin-forming regions. A batch of food items is delivered to the receptacle so formed. When the trailing edge region 29 reaches the sealing jaws and the food items have been delivered, the transverse sealing and cutting step is repeated to complete formation of the sealed pack.

[0027] In an alternative method of manufacture of the pack, a continuous sheet of material has sequentially arrange sheets of material with three identically constructed pleat-forming and a fourth differently constructed pleat-forming region across the width of the sheets (not shown) as described above. Each sheet is attached to the preceding sheet through a leading edge region and to the succeeding sheet through a trailing edge region. The sheet is advanced through a pleat-forming device to be formed into a pleated sheet and subsequently over a former to form a tubular body in the same manner as described above with reference to the preferred embodiment. However, whilst the tubular body advances downwards, the longitudinal seal is formed by means of pressing together the first, longitudinal, seal-forming region (formed in the fourth pleat-forming region) and the second, longitudinal, seal-forming region at the lateral edges of the sheet to form a fin seal.

[0028] The fins and fin-seals of the packs according to the invention can be generated using any means that form a relatively high strength seal, for example, a heat seal formed in a layer of heat-sealable polymer or a heat-sealable coating; or an adhesive seal formed by means of a high-tack layer of adhesive, suitable high-tack adhesives being cold-seal adhesives, heat-seal adhesives, adhesive coatings and adhesive lacquers. The high-tack and low-tack sealing regions of the pleats can be formed using any combination of sealing means that form a relatively high strength and a relatively low strength seal, the effect being that when the pack is opened by a consumer the lower pleat length remains substantially sealed together and the upper pleat length seal is substantially opened out. For example, in the embodiments shown in Figs. 1 to 5 a high-tack seal in the lower, first pleat lengths extending upwardly from the bottom of the pack is formed by means of a relatively high strength heat seal generated in a heat-sealable polymer layer in regions 20a and 21a in Fig. 6a. A relatively low-tack openable seal in the upper, second pleat lengths extending downwardly from the upper extremity of the pack is formed by means of using an applied lacquer on regions 20b and 21b in Fig. 6a. Under the conditions that are used to seal the first pleat lengths, the applied lacquer acts as a seal-blocking agent so that a relatively weak openable seal is generated in the second, upper, openable pleat lengths. By way of example, other suitable combinations include: using an applied high-tack cold-sealable coating in the first, lower pleat length to form a high-strength seal and an applied low-

tack heat-sealable coating in the second, upper openable pleat length to form a low-strength openable seal; using an applied high-tack heat-sealable adhesive in the first, lower pleat length to form a high-strength seal and an applied low-tack heat-sealable adhesive in the second, upper openable pleat length to form a low-strength openable seal; or using an applied high-tack cold-sealable coating in the first, lower pleat length to form a high-strength seal and an applied low-tack cold-sealable adhesive lacquer in the second, upper openable pleat length to form a low-strength openable seal.

[0029] In one form of pack according to the invention, the pack has a side wall width of about 125mm, and end wall width of about 70mm and a stand-up height of about 160mm. The projecting fins and the longitudinal fin-seal at the centre of one of the side walls have a width of about 7mm, and the pleats a width of about 15mm.

Claims

1. A food pack comprising a multiplicity of individual food items, the pack being formed of a sheet material and having a base and a circumferential wall extending upwardly from said base, the wall comprising a pleat extending upwardly from said base and having at least first and second pleat layers, wherein the pleat comprises a first pleat length in which at least first and second layers of said pleat are sealed together and a second pleat length in which said first and second layers of said pleat are not sealed together or are sealed together in a manner such that they are more easily unsealed than in said first pleat length.

2. A food pack as claimed in claim 1, in which the pack has at least two pleats and each of the at least two pleats comprises a said first pleat length and a said second pleat length.

3. A food pack as claimed in claim 1 or claim 2, in which the pack has at least four pleats and each of the at least four pleats comprises a said first pleat length and a said second pleat length.

4. A food pack as claimed in claim 1, comprising at least four upwardly extending pleats, not more than three of the pleats having a said first pleat length and a said second pleat length.

5. A food pack as claimed in any of the preceding claims, in which the or each first pleat length extends upwardly from the base of the pack.

6. A food pack as claimed in any of the above claims, in which the or each openable pleat has a first pleat length that extends over up to 75% of the height of the pack when the pack is open.

7. A food pack as claimed in any of the preceding claims, in which the or each openable pleat has a first pleat length that extends over up to 50% of the height of the pack when the pack is open.

8. A food pack as claimed in any of the above claims, in which the or each openable pleat has a first pleat length that extends over from 10 to 50% of the height of the pack when the pack is open.

9. A food pack as claimed in any of the preceding claims, in which the or each openable pleat has a second pleat length that extends from the upper extremity of the pack downwardly over at least 20% of the height of the pack when the pack is open.

10. A food pack as claimed in any of the preceding claims, in which the or each openable pleat has a second pleat length that extends from the upper extremity of the pack downwardly over at least 30% of the height of the pack when the pack is open.

11. A food pack as claimed in any of the above claims, in which the or each openable pleat has a second pleat portion that extends from the upper extremity of the pack downwardly over at least 40% of the height of the pack when the pack is open.

12. A food pack as claimed by any of the above claims, in which the sheet material is heat-sealable.

13. A food pack as claimed in any one of the preceding claims, in which the base and wall are formed from a single sheet of material.

14. A food pack as claimed in any one of the preceding claims, in which the sheet material comprises a polymer film.

15. A food pack as claimed in any of the preceding claims, in which the sheet material may comprise a polyolefin, for example, polypropylene, metallised polypropylene, polyethylene, an olefin copolymer or a polyester.

16. A food pack according to claim 15, in which the sheet material comprises a polyolefin selected from polyethylene, polypropylene, metallised polypropylene and copolymers of ethylene or propylene with one or more other C2-C6 olefins.

17. A food pack as claimed in any of the preceding claims, in which the sheet material comprises two or more layers.

18. A food pack according to any one of the preceding claims, in which the sheet material is sealable and a portion of the sheet forming said second pleat

length or lengths is rendered none sealable or less sealable by means of a seal-blocking agent.

19. A food pack according to claim 18, in which the seal-blocking agent is a non-sealable lacquer.

20. A method of making a pack for a multiplicity of food items in which a sheet material is passed over a former element to form said sheet material into a substantially vertically extending tube with opposed edge portions of the sheet material in contact with another, a transverse seal is formed across said tube, a multiplicity of food items are delivered into the tube and a transverse seal is formed across said tube above said food items, wherein prior to passing said sheet material over said former element there is formed in the sheet material at least one pleat that is so oriented that, after the sheet passes over the former element, the pleat will extend substantially longitudinally along the tube, the pleat comprising first and second pleat layers that overlie, and are sealed to, one another in a first region of said pleat and, in a second region of said pleat, are unsealed or sealed to one another with a seal strength that is lower than the seal strength in said first region.

21. A method according to claim 20, in which said longitudinal seal is formed substantially in coincidence with a said pleat.

Fig.1.

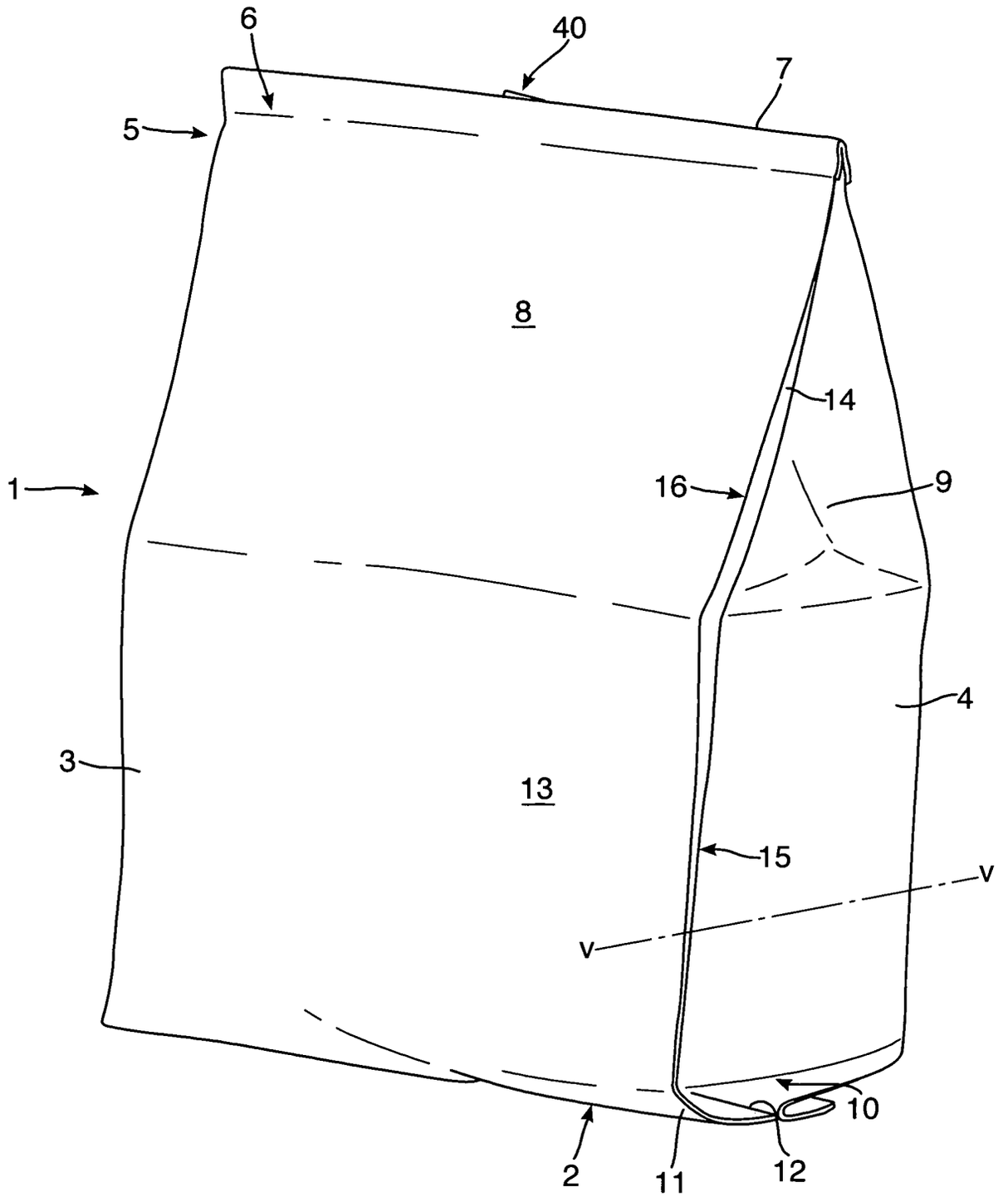

Fig.2.

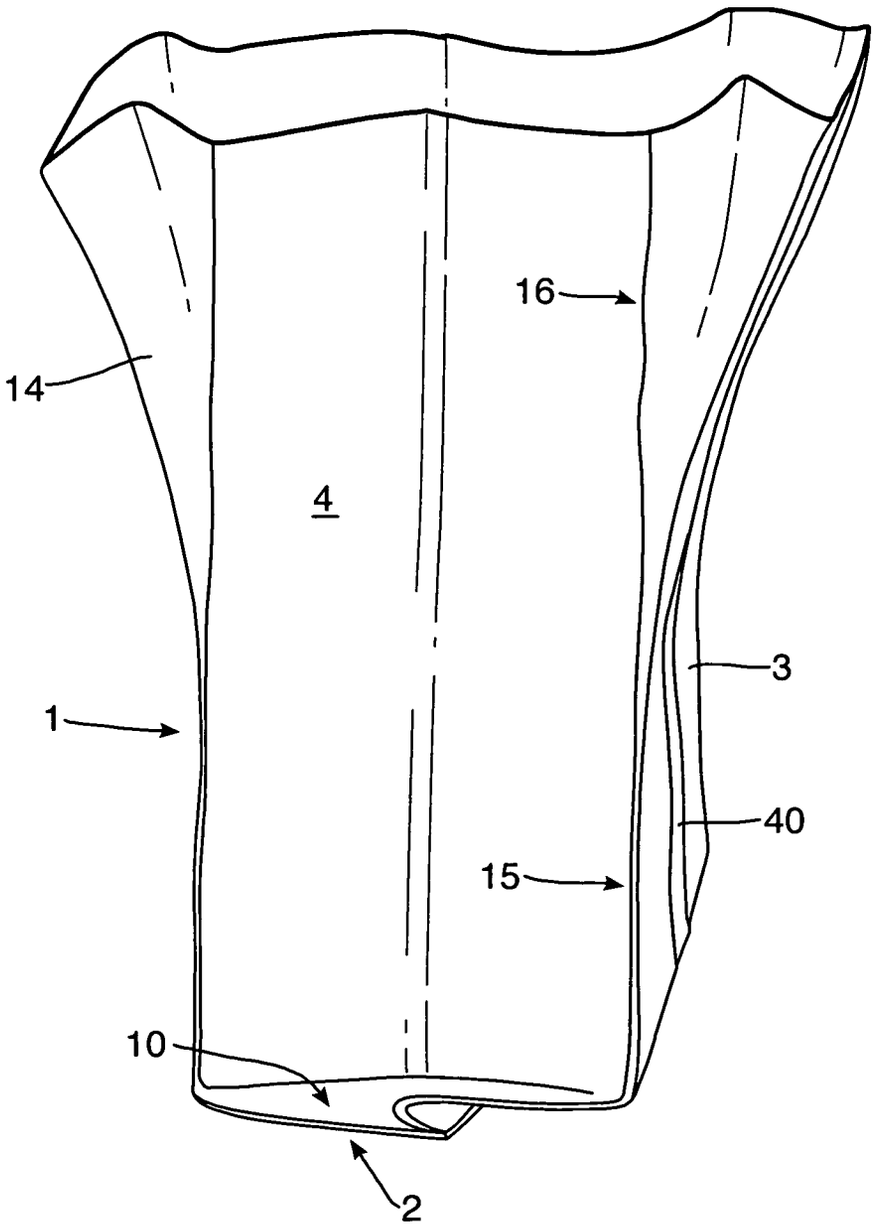

Fig.3.

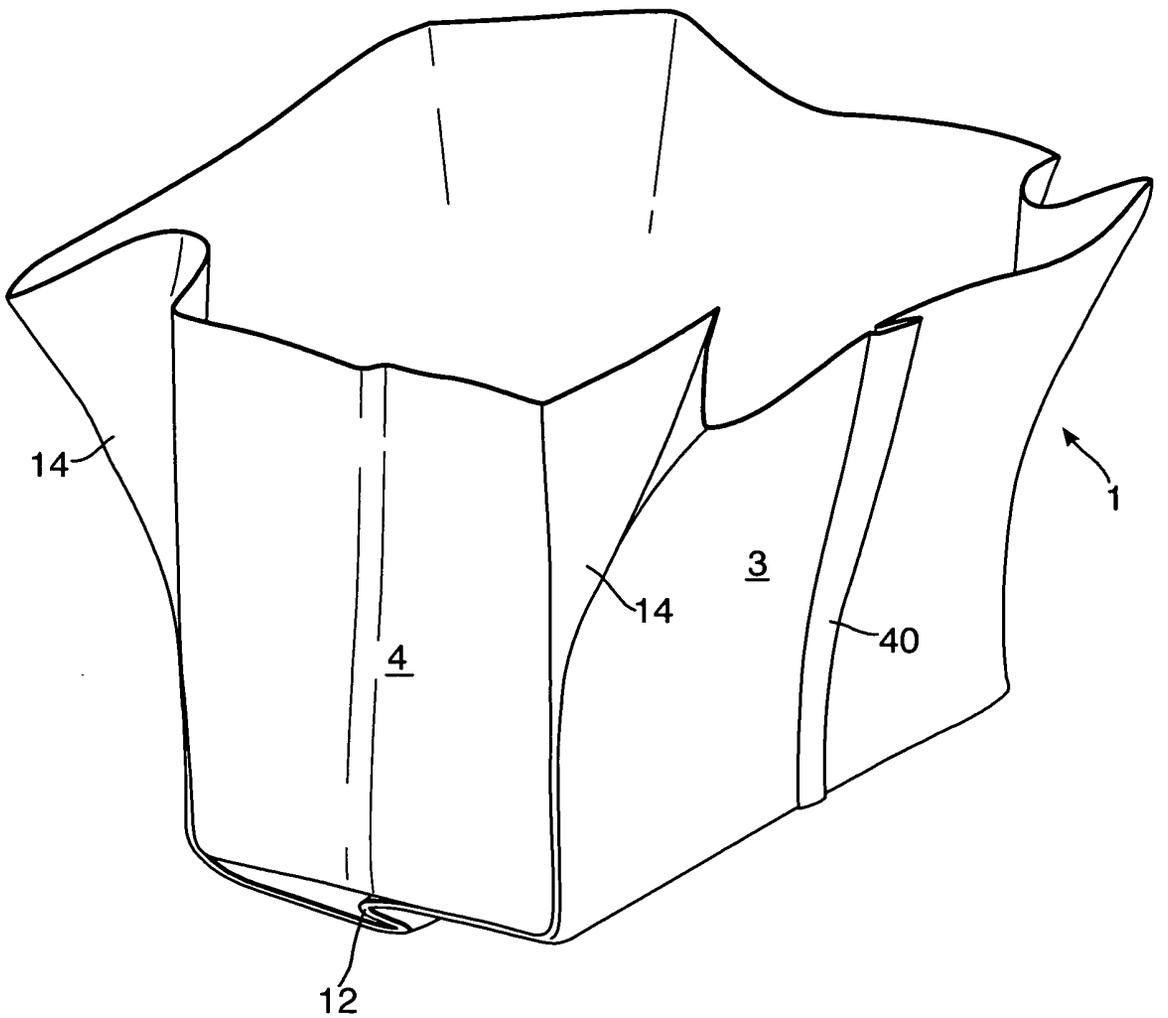

Fig.4.

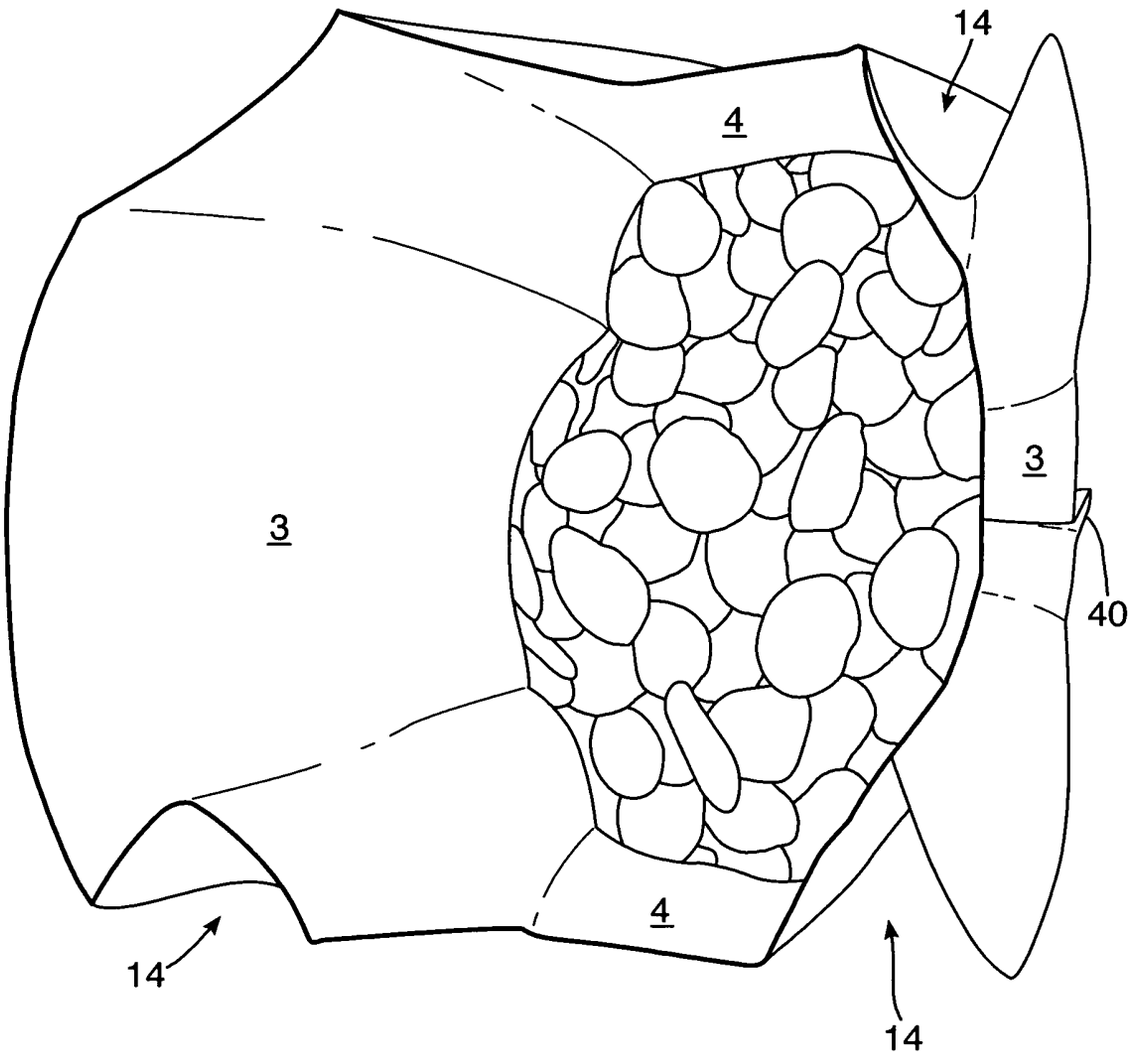

Fig.5.

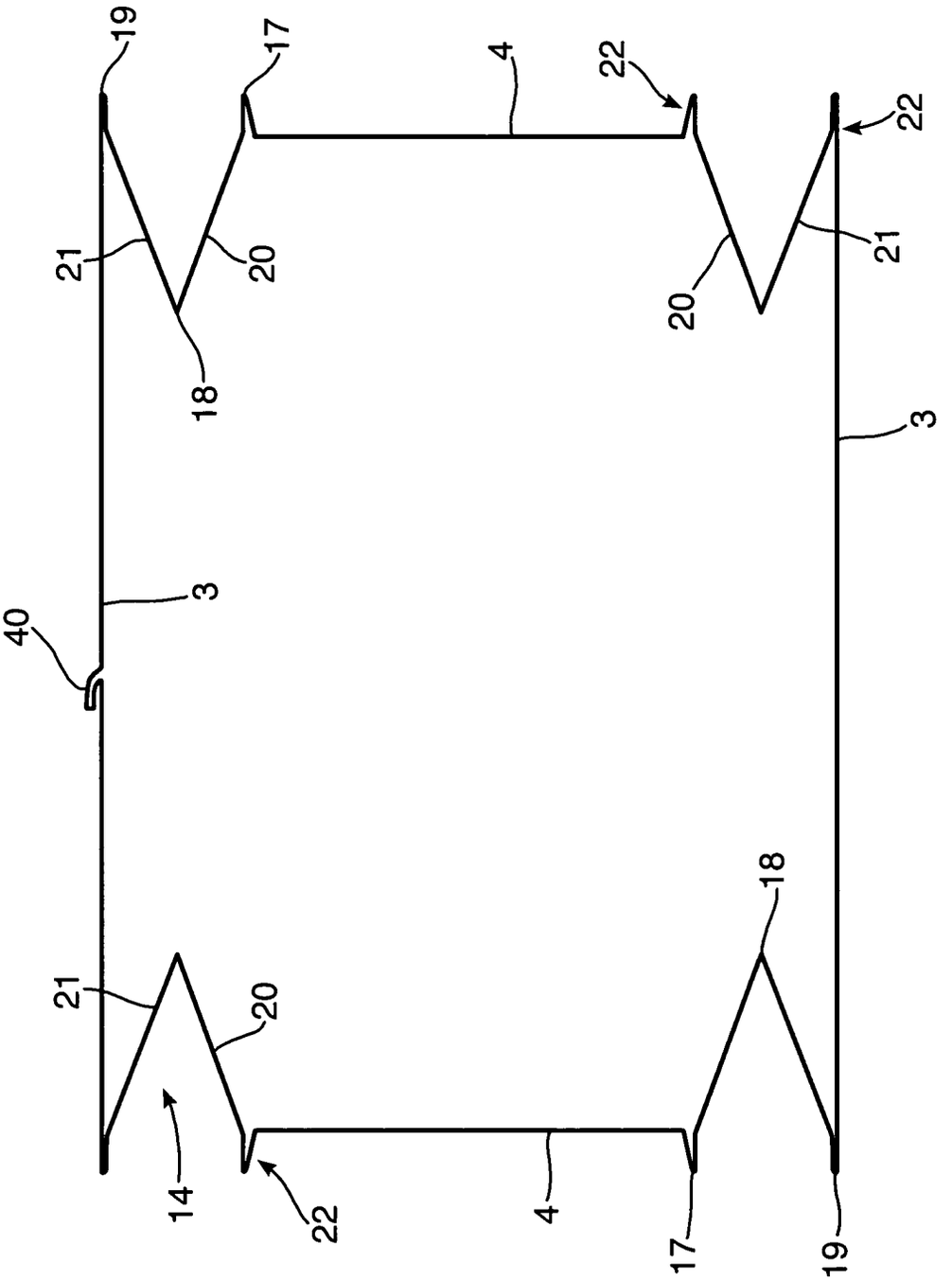

Fig.6a.

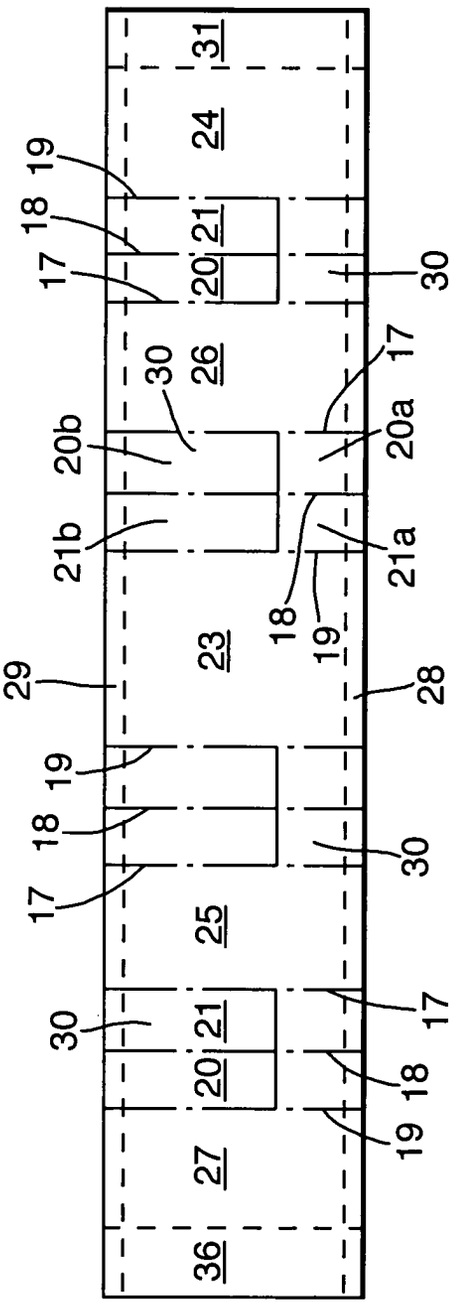
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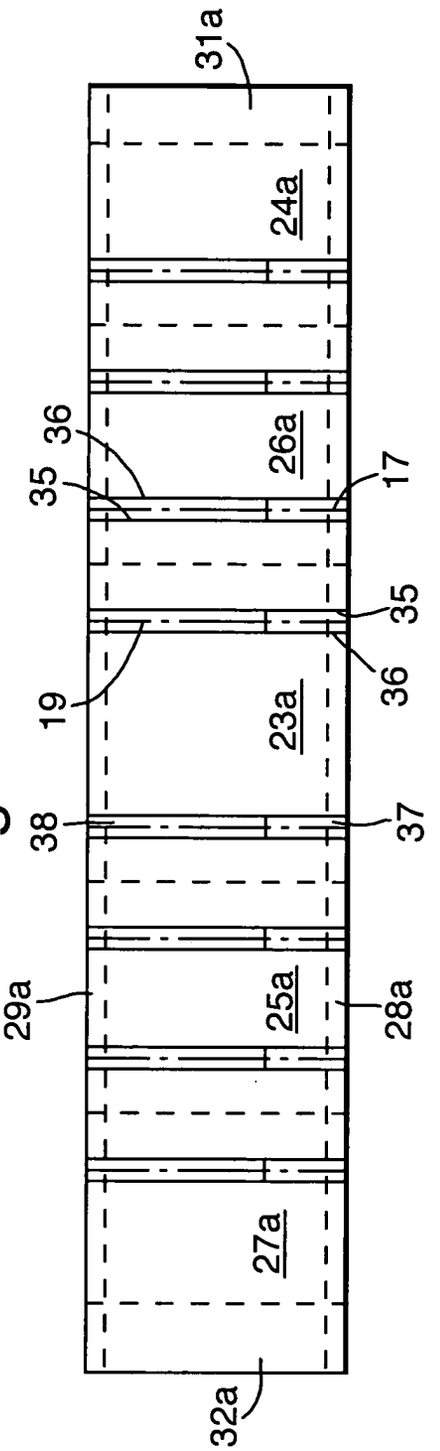
Fig.6b.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Application Number
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Place of search	Date of completion of the search	Examiner
Munich	19 August 2005	Galli, M

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