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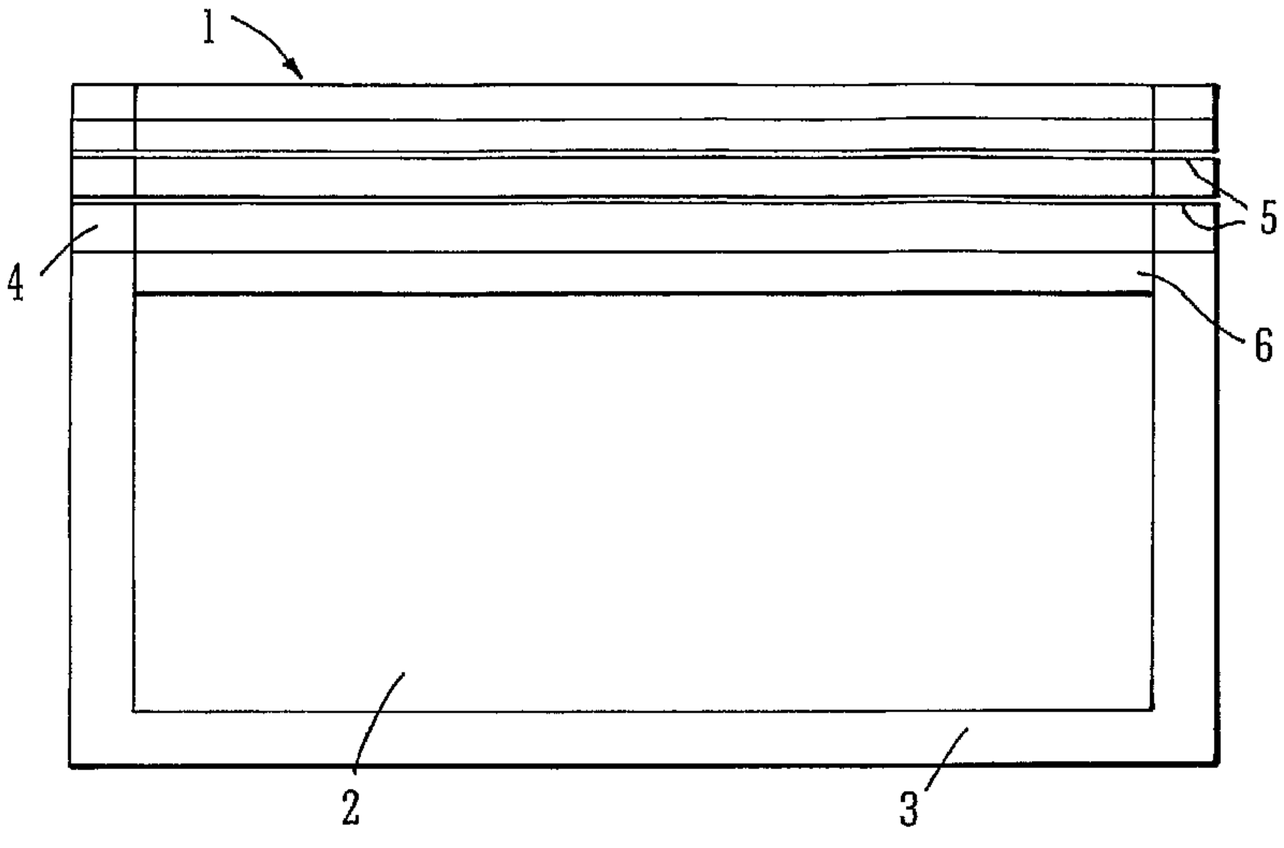

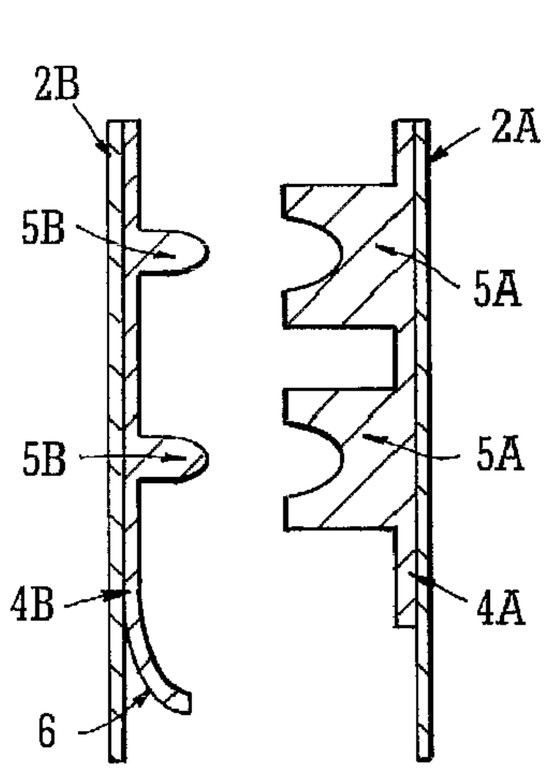

(57) Abrégé/Abstract:
A pouch or bag (1) flexible plastics material for enabling food to be cooked therein under pressure having an access opening or mouth closable by means of releasable sealing or closure means in the form of a press-fit bead-and-groove or rib-and-channel closure means (4,5) wherein the projection portion is on a first strip of plastics material secured along its length to an inner surface of one side of the bag wall (2a, 2b) , and the groove or channel forming portion is formed on a second strip of plastics material secured along its length to an inner surface of a second and opposite side of a bag wall (2a, 2b) , one strip portion being secured so as to leave a freely extending flap portion (6) carrying the bead or the groove presenting when the closure is closed a surface remote from that where the bead or groove is formed such as to present said surface exposed to steam and other pressure during cooking the contents of the bag as to cover the bead and groove portions and/or to urge the press fitter bead and groove portions together to maintain the seal .

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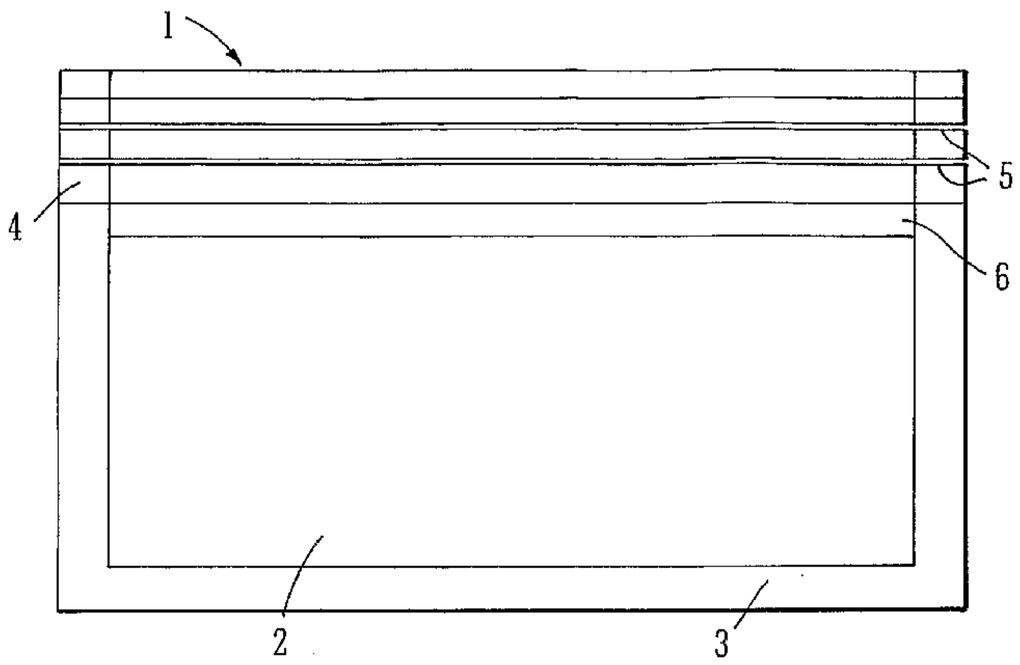
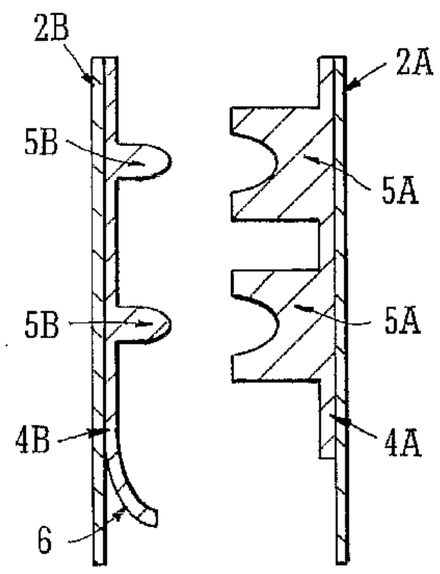
(54) Title: IMPROVEMENTS IN OR RELATING TO CONTAINERS FOR COOKING FOODSTUFFS





(57) Abstract: A pouch or bag (1) flexible plastics material for enabling food to be cooked therein under pressure having an access opening or mouth closable by means of releasable sealing or closure means in the form of a press-fit bead-and-groove or rib-and-channel closure means (4,5) wherein the projection portion is on a first strip of plastics material secured along its length to an inner surface of one side of the bag wall (2a, 2b) , and the groove or channel forming portion is formed on a second strip of plastics material secured along its length to an inner surface of a second and opposite side of a bag wall (2a, 2b) , one strip portion being secured so as to leave a freely extending flap portion (6) carrying the bead or the groove presenting when the closure is closed a surface remote from that where the bead or groove is formed such as to present said surface exposed to steam and other pressure during cooking the contents of the bag as to cover the bead and groove portions and/or to urge the press fitter bead and groove portions together to maintain the seal .

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IMPROVEMENTS IN OR RELATING TO CONTAINERS FOR COOKING FOODSTUFFS

The present invention concerns improvements in or relating to cooking containers for use in cooking foodstuffs, particularly microwave cooking of foodstuffs.

There are several cooking containers in the market place which are usually in the form of bags or pouches, and contain foodstuffs sealed therewithin. Such containers are usually rectangular in shape and are formed of plastics film material, suitably laminated.

A problem associated with such containers is that when the container is heated in a microwave oven, vapour generated from the foodstuffs in association with the heating increases the gas pressure inside the container and this increased gas pressure may burst open the container so that the product may be destroyed and scattered inside the microwave oven. In order to alleviate such gas pressure increase the container may be partially broken open or an opening be cut therein so as to communicate the inside of the container with the ambience to allow escape of the vapour generated from the foodstuff during its heating. However, such method can make the heat cooking more problematic. In addition, if the user forgets to form such opening procedure prior to heating and the foodstuff remains sealed in the container when same is heated, then such may well result in the bursting of the container body.

Further devices are available which are provided with means whereby, when the container is being heated and the pressure builds up, the pressure is allowed to be removed by suitable venting means which become operational when the pressure within the container reaches a selected level.

Currently, the majority of cooking containers, in the form of bags or pouches, are prepared in a ready sealed manner with the foodstuff therein. Such containers are purchased from a retail outlet and the user then places same in the microwave oven and cooks same with the pressure being relieved by the venting means referred to above.

The present invention is concerned with flexible cooking containers which the user can fill with selected foodstuff and then seal same prior to inserting in the microwave oven for preferably cooking the contents at greater than atmospheric pressure for improved health/hygiene reasons and for improved taste and flavour. The user can thus select the nature of the foodstuffs which are to be cooked.

According to the present invention there is provided a cooking container, suitably in the form of a bag or pouch, and preferably of substantially rectangular form, such container being formed of plastics film or sheet material with the bottom and sides of the container being sealed together and the top portion thereof being provided with sealing means for sealing the container after foodstuffs have been inserted into the container body, such sealing means being such as to remain sealed when the product is cooked, such container containing venting means to enable the pressure within the container to be controlled when cooking takes place.

The upper portion of the container can be sealed by the user after inserting foodstuffs into the container body. A suitable sealing means comprises a zip-like or press-fit arrangement wherein on the inner side of each of the opposite portions of the plastics laminate film in the region of the top portion thereof, a pair of plastics material strips are secured to respective inside portions of the plastics material film forming said side portions of the container. When the two sides of the container are pressed together in the top portion region, the two strips cooperate and form a sealing means.

It is possible to select material for such sealing means which will ensure that, when sealed, the container will not burst open in such top portion when the container is placed in a microwave oven and cooking therein takes place.

In an embodiment of the invention, the sealing means is in the form of two strips of plastics material, one strip secured to each inner side of the plastics film material in the region of the top portion thereof having press-fit means associated therewith whereby when such strips are pressed together a seal is formed and wherein the lower portion of one of the strips is not secured to the inside of the plastics material in the top portion of the container to leave a flap member which, when the pressure increases inside the cooking container when cooking takes place, is forced up into the region of the press-fitting seal between the two plastic strip members and thereby prevents such press-fitted sealing means from being breached.

Various modifications can be made to the cooking container referred to above in accordance with particular requirements for each type of cooking which is to take place.

In a further embodiment, the sealing means can be reusable so that once cooking has taken place of foodstuffs then same can be removed from the cooking container which can then be internally cleaned and thereafter used for further foodstuffs.

Also according to the present invention there is provided a pouch or bag of flexible plastics material for cooking food therein under pressure having an access opening or mouth closable by means of a releasable sealing or closure means in the form of a press-fit bead-and- groove or rib-and-channel closure means wherein the projection portion is on a first strip of plastics material secured along its length to an inner surface of one side of the bag wall, and the groove or channel forming portion is formed on a second strip of

plastics material secured along its length to an inner surface of a second and opposite side of the bag wall, the strip portion is secured so as to leave a freely extending portion carrying the bead or the groove presenting when the closure is closed, a surface opposite to that where the bead or groove is formed such as to present said surface exposed to steam and other pressure during cooking the contents of the bag as to urge the bead and groove portions together to maintain the seal.

Further according to the present invention there is provided a bag in which one of said strips is secured along its length to the bag material at least along upper and lower regions thereof either side of the respective bead or groove closure portion whilst the other said strip is only secured along its length on that side of the respective groove or bead respectively which is most adjacent the mouth of the bag.

Still further according to the present invention there is provided a bag wherein the strips are less flexible than the walls of the bag to expose the unsecured face to steam action.

The pouch or bag material will normally be formed of laminated sheet material of polyester and polypropylene or polyester and polyethylene with the polyester being on the outside, and for the closure means such are preferably polypropylene or polyethylene (depending on the inner layer of the laminated sheet). The outer layer of the laminated sheet may also be polypropylene or polyamide or any plastic film which provides strength and/or temperature resistance.

The present invention will be further illustrated, by way of example, with reference to the accompanying drawings, in which:

Fig. 1 is a schematic elevational view of an upstanding cooking container in accordance with an embodiment of the present invention;

Fig. 2 is a section through the top portion of the container of Fig. 1 showing the press-fit sealing arrangement in an unengaged position;

Fig. 3 is a similar cross-section as in Fig. 2 with the press-fit arrangement shown in the engaged position;

Fig. 4 is a schematic fragmentary cross-sectional detail on enlarged scale of a second embodiment of the invention;

Fig. 5 is a view similar to that of Fig. 4 of a third embodiment of the invention similar to that of Fig. 4 but an opposite arrangement;

Fig. 6 is a view of the embodiment of Fig. 5 showing the press-fit closure closed; and

Fig. 7 is a view similar to those of Figs. 4 to 6 of a fifth embodiment of the invention where the flap extends from the strip and carries the projection portion.

As illustrated, a cooking container in accordance with an embodiment of the invention comprises a substantially rectangular cooking bag formed of plastics material film generally identified as 1. Such bag 1 has side portions 2 within which foodstuffs can be located for cooking in a microwave oven. The bag 1 is sealed at its bottom and side regions as indicated by reference numeral 3. The top portion of bag 1 has a sealing arrangement 4 provided in the top portion thereof having press-fit attachment means 5 associated therewith.

As illustrated in Fig. 2, the sealing arrangement 4 comprises two sealing means or strips 4a and 4b respectively attached to the inside of the plastics material film material 2a and 2b. The sealing means 4a is provided with press-fit attachment means 5a which, in use, will engage with press-fit attachment means 5b.

The sealing means 4b is not secured at its underside or lower portion to plastics film material 2b which thereby in effect provides a flap 6 which is

urged by pressure against sealing means 4a to maintain the sealing effect under pressure.

As illustrated in Fig. 3 the bag is represented in its sealed condition with press-fit portions 5a and 5b interengaged. As the container 1 as illustrated in Fig. 3 is subjected to cooking, pressure A will build up in the container and such pressure will cause the sealing means flap 6 to move in the manner illustrated in Fig. 3 which thereby provides an additional means of sealing the device and which will prevent or minimise the escape of the vapour having pressure A via the sealing means 5a and 5b.

The cooking bag 1 will normally be provided with appropriate venting means in order to enable vapour to escape from the bag when the pressure builds up during cooking and allow for the control of the pressure.

When cooking has been completed, the interengaged press-fitting sealing arrangement can be disengaged and the cooked foodstuffs can then be removed therefrom.

If desired the embodiment of Fig. 1 to 3 may have simply one press-fit attachment or closure means i.e. a single elongate bead 5b and a single elongate groove or channel 5a. Two distinct said closure means may be provided.

In Figs. 4 to 6, the similar reference numerals are used for the similar parts as Figs. 1 to 3. Thus walls 2A and 2B form portions of side walls defining the mouth of a plastics pouch bag (not shown) in full but which may be similar to that of Fig. 1 for receiving foodstuff to be cooked in a microwave oven under pressure. The bag will normally be provided with a pressure relief means or valve (not shown) such as described in EP 0661219.

Releasable sealing or closure means in the form of press-fit bead and groove closure means 5A, 5B are illustrated in Fig. 4 comprising two elongate strips of plastics material with that carrying the projection or bead 5C being heat or ultrasonically welded at 7 and 8 along the length of upper and lower regions to the inner side wall 2B of the bag to seal therewith. The strip 5A carrying the channel or groove 5D is only welded at an upper region 9 along the length thereof that when the closure is closed, and as pressure of steam within the bag builds up during cooking, steam will act against the surface 5E of the strip 5A which is exposed to the steam which urges such against the bead 5C to maintain the closure means in the closing condition.

In the embodiment of Fig. 5, the arrangement that if Fig. 4 is reversed in that strip 5B is only welded along its length at its upper region 7 and strip 5A is welded at upper end have regions 9, 10 so that when the closure 5A, 5B is closed it is the strip 5B which flexes under steam pressure and is urged against strip 5A to maintain projection 5C in channel 5D when cooked under pressure.

The arrangement of Fig. 6 is very similar to that of Fig. 5 wherein strip 5B with bead 5C is only sealed at an upper region along its length and bead 5C is urged to be maintained in groove 5D when cooked under pressure.

An alternative embodiment is illustrated in Fig. 7 wherein strips 5A and 5B are each welded along upper and lower regions 9, 10, 78 and strip 5B has an elongate flexible extension portion 11 extending along its length and carrying projection 5C which sealingly engages by press-fit in channel 5D. Thus steam during cooking acts against surface 12 to urge the closure portions 5C, 5D together during cooking to maintain the seal under pressure.

It is to be noted that the relative stiffness or less flexible nature of the material of the strips 5A and 5B relative to the much more flexible nature of the sheet material from which the bag is formed results in the closed position

of the closure means of the facing portions of the strips 5A, 5B being juxtaposed and over most of their surface in abutting relationship and when the bag is expanded on cooking the contents, the exposed surface 5E or 5F of the unattached lower portion lies along the opposite bag wall 2B or 2A and is exposed to the main volume of the bag interior and steam action influences.

CLAIMS

1. A cooking container (1) in the form of a bag or pouch, formed of plastics film material with the bottom and sides (2) of the container (1) being sealed together or closed (3) and the top or upper portion thereof forming an initially-provided access opening and being provided with releasable sealing closure means (4) for enabling sealing of the container (1) after foodstuffs have been inserted into the container body through the access opening, with said sealing closure means (4) being in the form of two strips (4A, 4B) of plastics material, one strip secured to each inner side of the plastics film material (2A, 2B) in the region of the top portion of the film material of the container and having press-fit means (5A, 5B; 5C, 5D) associated therewith whereby when such strips (5A, 5B) are pressed together, a seal is formed, the container including venting means to enable the pressure within the container to be controlled to be above atmospheric when cooking takes place under pressure; said sealing closure means being adapted to or is such as to remain sealed when the product is cooked, by that portion remote from the access opening of one of the strips being not secured to the inside of the plastics material in the top portion of the container defining the access opening, so as to leave a free portion of strip portion (5A, 5B) wherein that one of the strips with the unsecured remote free portion is secured to the bag wall closer to the access opening than the press-fit means so as to leave an unsecured portion of said unsecured free potion of the unsecured strip closer to said opening than the press-fit means most adjacent the access opening or wherein both strips are secured at opposite sides and ends to the bag wall and one has a flexible extension strip or flap (12) extending therefrom with a free end and carrying the bead/rib of the closure means with at least a portion of the flexible extension strip or flap extending closer to the access opening than the bead/rib, such that when the pressure increases inside the cooking container when cooking takes place, such acts to urge together the press-fitting seal between the two plastics strip members, and thereby prevents such

press-fitted sealing means from being breached or forced open or prevents steam escaping or minimises the possibility of such.

2. A cooking container as claimed in claim 1, of substantially rectangular form.

3. A cooking container as claimed in claim 1 or 2, in which the plastics film material is a laminate film and in which the sealing closure means comprises a zip-like or press-fit arrangement wherein on the inner side of each of the plastics laminate film in the region of the top or upper portion thereof, two plastics material strips are secured to respective inside portions of the plastics material film forming the side portions of the container, which strips, when the two sides are pressed together in the top or upper portion region, cooperate and form a sealing means.

4. The cooking container as claimed in any one of claims 1 to 3, in which the material of the sealing closure means is polypropylene such that, when sealed, it will not open when the container is placed in a microwave oven and cooking therein takes place.

5. A cooking container as claimed in any one of the claims 1 to 4, in which the sealing means is reusable or releasably resealable so that once cooking has taken place of foodstuffs then same can be removed from the cooking container which can then be cleaned internally and thereafter used for further foodstuffs.

6. A cooking container as claimed in any one of claims 1 to 5, in which the bag is formed of laminated sheet material of polyester and polypropylene or polyester and polyethylene (with the polyester being on the outside), and for the closure means such are polypropylene or polyethylene (depending on the inner layer of the laminated sheet).

7. A pouch or bag (1) of flexible plastics material for enabling food to be cooked therein under pressure having an initially-provided access opening or mouth closable by means of a releasable sealing or closure means (5A, 5B) in the form of a press-fit bead-and-groove (5C, 5D Figs 4 to 7) or rib-and-channel closure means wherein the projection portion (5C) is on a first strip of plastics material secured along its length to an inner surface of one side (2B) of the bag wall, and the groove or channel, respectively, forming portion (5D) is formed on a second strip of plastics material secured along its length to an inner surface of a second and opposite side of the bag wall, one said strip portion being secured (at 9, Fig 4, 7, Figs 5 and 6; 7, 8 Fig 7) so as to leave a freely extending portion (5A Fig 4, 5B Figs 5 and 6; 11 Fig 7) carrying the bead or the groove, and presenting, when the closure is closed, a surface opposite to that where the bead or groove is formed such as to present said surface exposed to steam and other pressure during cooking the contents of the bag as to enable the bead and groove portions to be urged together to maintain the seal, the container including venting means to enable the pressure within the container to be controlled when the cooking takes place under pressure; and wherein one of said strips is secured along its length to the bag material at least along upper and lower regions thereof and either side of the respective bead or groove closure portion whilst the other said strip is only secured along its length on that side of the respective groove or bead which is most adjacent the mouth of the bag so as to leave an unsecured portion of the unsecured free portion of the unsecured strip closer to the opening than the press-fit means or wherein both strips are secured at opposite ends to the bag wall and one has a flexible extension strip or flap (12) extending therefrom with a free end and carrying the bead/rib of the closure means.

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8. A bag as claimed in claim 7, wherein the strips are less flexible than the walls of the bag to expose the unsecured face to steam action.

9. A bag or pouch for enabling food to be cooked therein, formed of film or sheet plastics material and having an initially-provided access opening provided with releasable and re-sealable closure or sealing means for enabling sealing of the container after foodstuffs have been inserted, said closure or sealing means being adapted to or being such as to enable steam and/or other pressure within the bag to act to urge the two parts of the closure/sealing means together to assist in the bag remaining sealed when the product is cooked, such container containing venting means to enable the pressure within the container to be controlled when cooking takes place under pressure; such sealing means being in the form of two strips of plastics material, one strip secured to each inner side of the plastics film material in the region of the top portion thereof having press-fit means associated therewith whereby when such strips are pressed together, a seal is formed and wherein the lower portion of one of the strips is not secured to the inside of the plastics material in the top portion of the container and that one of the strips with the unsecured remote free portion is secured to the bag wall closer to the access opening than the press-fit means so as to leave an unsecured portion of said unsecured free portion of the unsecured strip closer to said opening than the press-fit means most adjacent the access opening so as to leave a free portion which, when the pressure increases inside the cooking container when cooking takes place, acts to urge together the press-fitting seal between the two plastic strip members or enable such and thereby prevents such press-fitted sealing means from being breached or steam escaping or minimises the possibility of such.

10. A pouch or bag of flexible plastics material for enabling food to be cooked therein under pressure having an initially-provided access opening or mouth closable by means of a releasable sealing or closure means in the form

of a press-fit bead-and-groove or rib-and-channel closure means wherein the projection portion is on a first strip of plastics material secured along its length to an inner surface of one side of the bag wall, and the groove or channel forming portion is formed on a second strip of plastics material secured along its length to an inner surface of a second and opposite side of the bag wall, one strip portion being secured so as to leave a freely extending; unsecured free portion carrying the bead or the groove presenting when the closure is closed a surface remote from that surface where the bead or groove is formed such as to present said remote surface exposed to steam and other pressure during cooking the contents of the bag under pressure as to cover the bead and groove portions and/or to urge the press fitted bead and groove portion together to maintain the seal; the container including venting means to enable the pressure within the container to be controlled when cooking takes place under pressure; and wherein the whole of the releasable sealing or closure means is on the unsecured portion of the strip and has unsecured strip portions on both sides.

11. A bag as claimed in claim 10, in which one of said strips is secured along its length to the bag material at least along upper and lower regions thereof and either side of the respective bead or groove closure portion and the other said strip is only secured along its length and on that side of the respective groove or bead which is most adjacent the mouth or access opening of the bag.

12. A bag or pouch as claimed in any one of claims 1 to 11, in pouch wall material is laminated and formed of polyester and polypropylene with the polypropylene on the inside and wherein the strips of the closure means are formed of polypropylene.

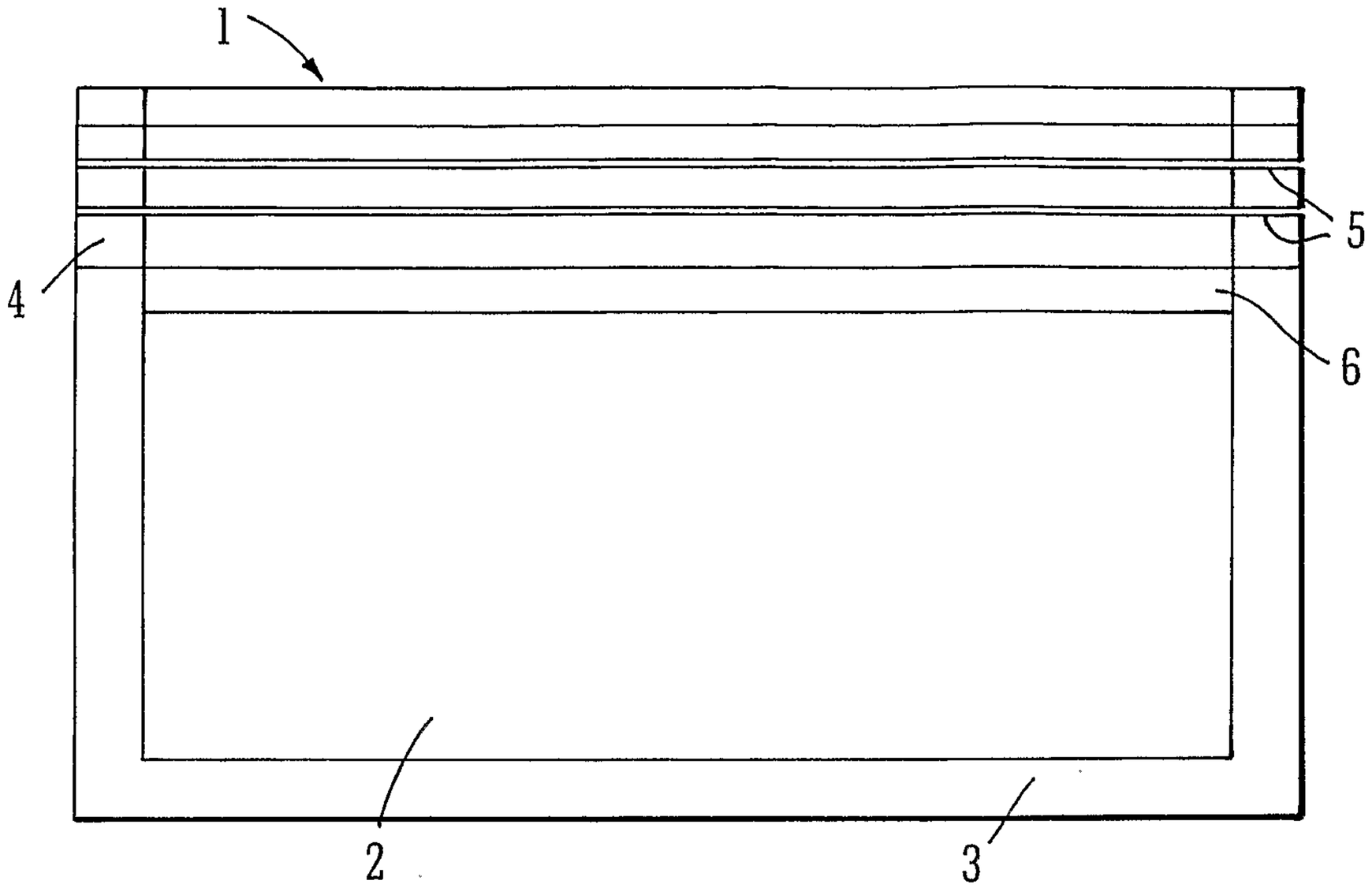


FIG. 1

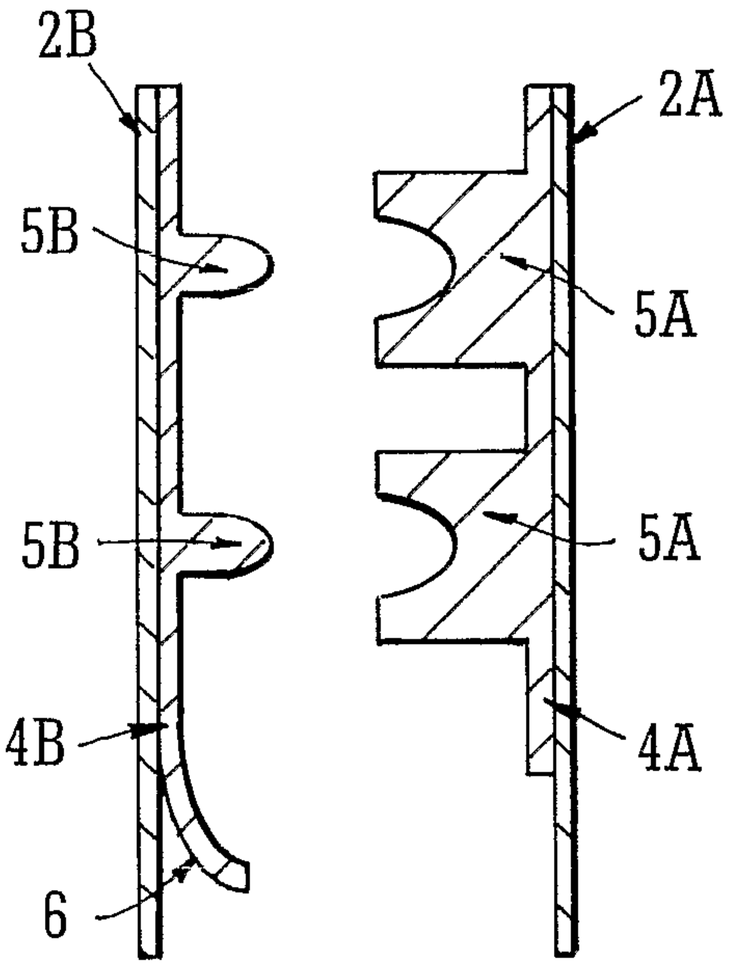


FIG. 2

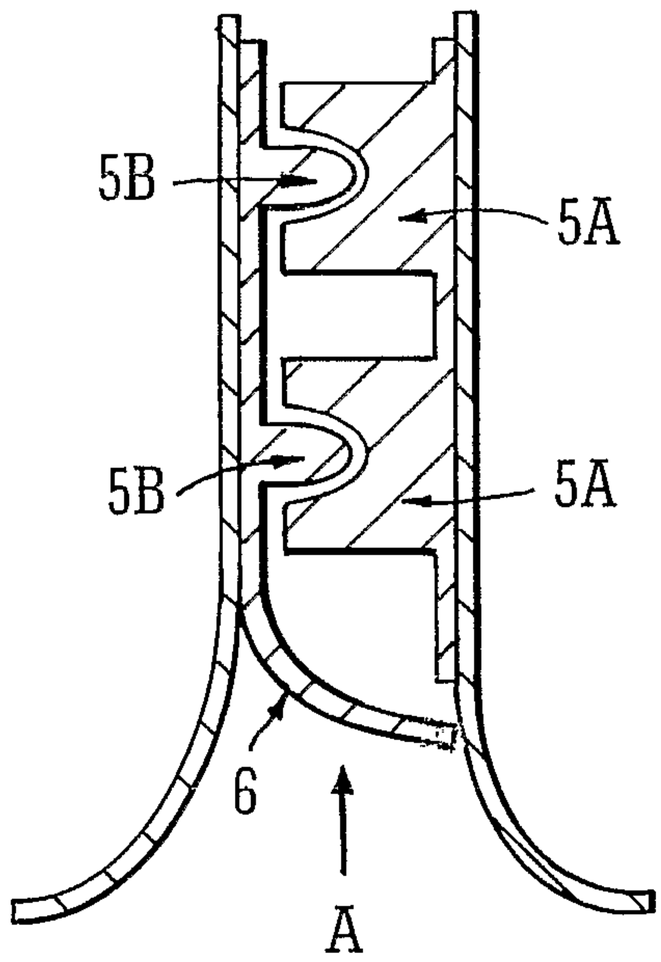


FIG. 3

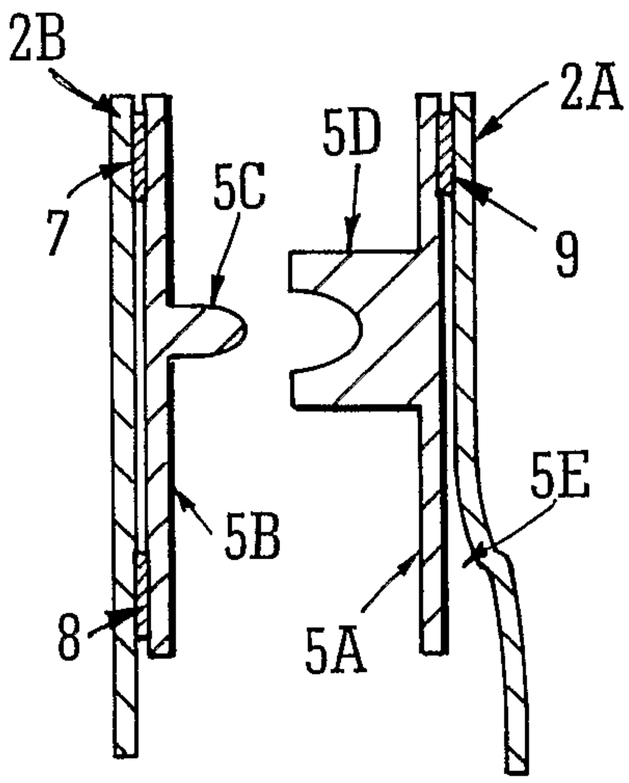


FIG. 4

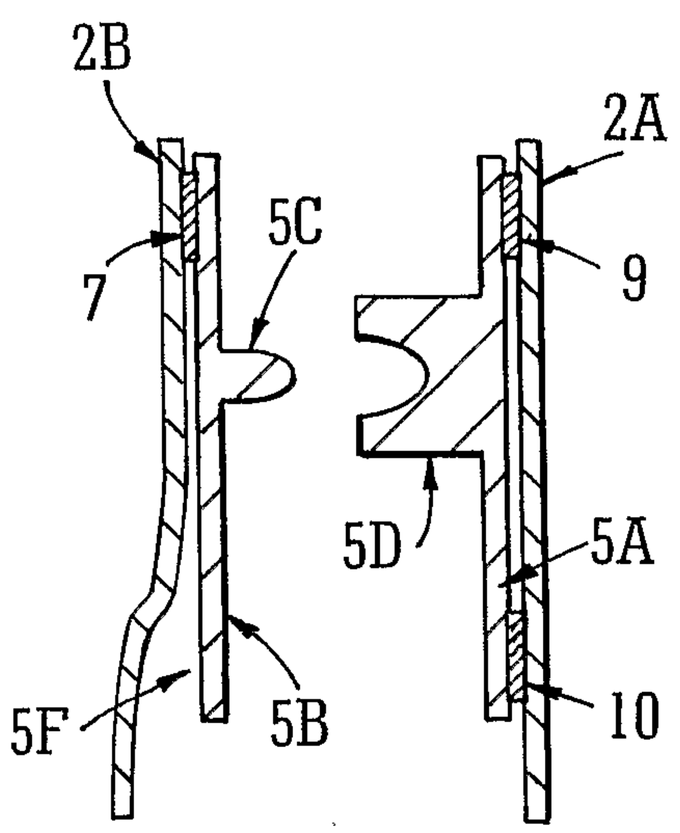


FIG. 5

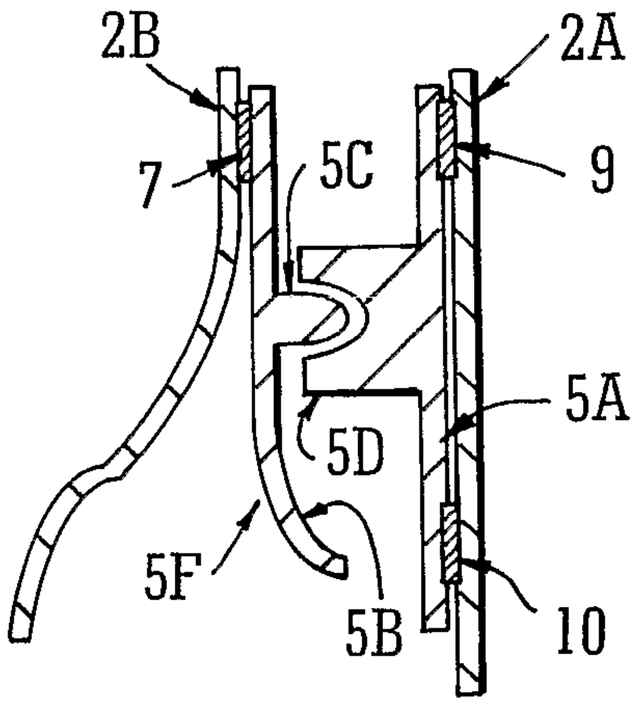


FIG. 6

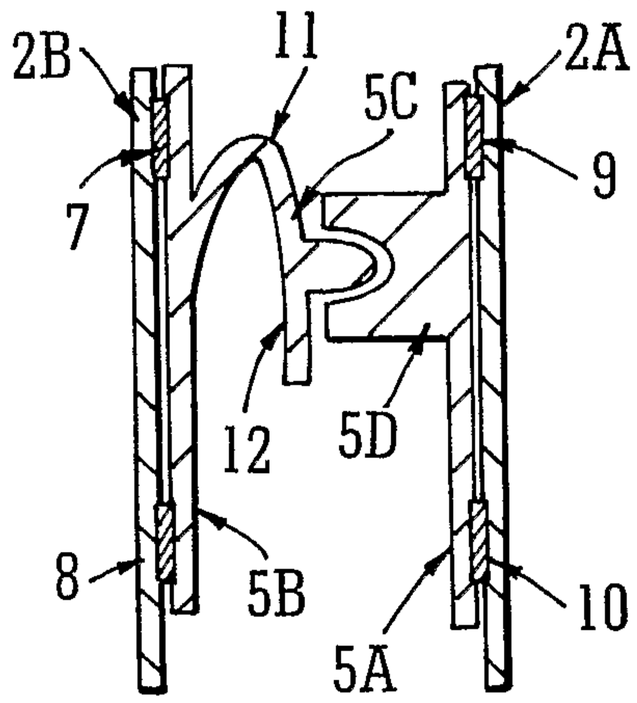
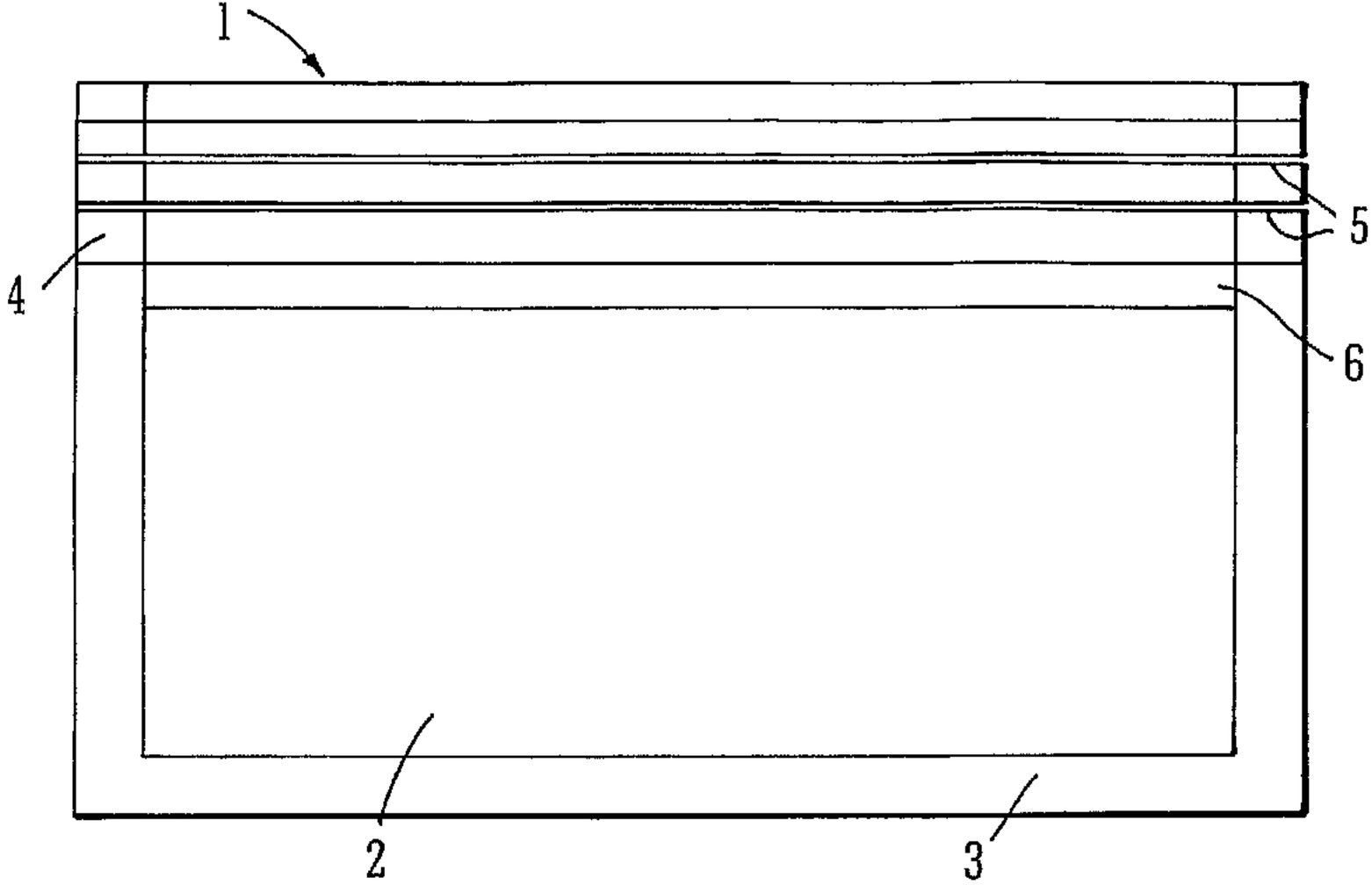


FIG. 7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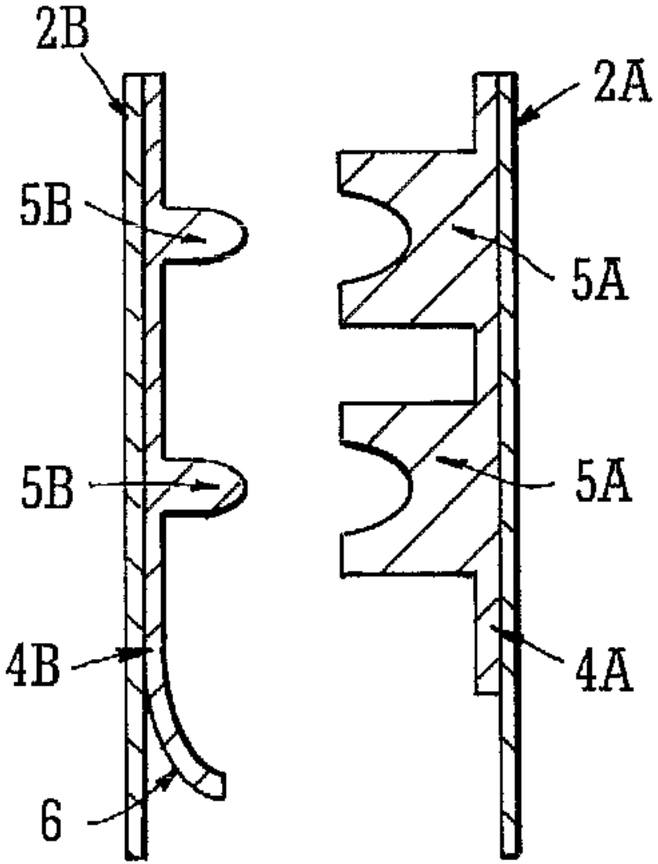
2B
2A
5B
5A
5B
5A
4B
4A
6