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(54) **PACKAGING LID**

VERPACKUNGSDECKEL

COUVERCLE D'EMBALLAGE

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Description

[0001] The present invention relates to a packaging lid for mounting over an (access) opening of a packaging container, said container being adapted in particular for packaging a powdered or granular food product and comprising a bottom and a circumferential wall which has an upper rim remote from the bottom, said upper rim defining the opening of the container. The lid comprises a top side that in a mounted state extends over the opening of the container and a skirt extending from the top side towards a lower end, wherein the skirt has on an inner side thereof resilient members adapted to cooperate with an outwardly projecting ridge on an outer side of the circumferential wall of the container so as to secure the lid to the container.

[0002] Containers combined with lids for packaging powdered or granular food products are well known in the art. Typical powdered food product for which these kind of packagings are used are infant formula or dietary supplements. Often these kinds of packagings are provided with a scoop by which a metered dose of powdered product can be taken from the container. The containers may have a cylindrical shape or may have a box-like shape with a substantially rectangular cross-section.

[0003] US 2015/0129597 discloses an example of such a packaging. This known packaging includes a lid comprising an annular base which is attached to an upper end of the packaging container. A covering lid in hingedly attached to the base and is movable between a closed position in which the packaging is sealed and an open position in which the user has access to the content of the container. A latching assembly is present between the base and the covering lid to maintain the covering lid in a closed position when no powdered food product has to be taken from the container. The annular base has a series of flexible lips distributed over its inner circumference. The flexible lips each have a hook member at a lower end thereof to hook behind an edge of a series of indentations formed on circumference of the container. During mounting of the lid on the container, the hook members slide over the surface of the upper portion of the container. Thereby the flexible lips are flexed outwards. When the hook members reach the indentations, the hook members snap into the indentations due to the resilience of the lips. This known packaging requires an accurate match between the dimensions of the lid and of the container. In general, the lid can be mounted only on a container with accurately matching peripheral dimensions. In practise, different tolerances in manufacturing the lid and the container may lead to problems in the compatibility between the lid and the container. A packaging lid according to the preamble of claim 1 is also known from the patent DE651344C.

[0004] The present invention has for an object to provide a lid in which the lid may be mounted on containers having different peripheral dimensions within a predefined range (thereby mitigating the problem induced by manufacturing tolerances).

[0005] This object is achieved by a packaging lid according to the preamble of claim 1, wherein the resilient members are formed as resilient elongate strips having two ends attached to the inner side of the skirt and formed as an arch which, in an unloaded state, has a rise with respect to the inner side of the skirt.

[0006] The packaging lid according to the invention is mounted on the packaging container by placing the skirt with the lower end around the upper end of the container and then pushing it downwards. The arch formed strips are flattened when they contact the outwardly projecting ridge of the container and move beyond it. When the arch formed strips are beyond the outwardly projecting ridge they snap under said ridge so as to block removal of the lid from the container. The arch formed strips extend radially inward as far as the outer side of the circumferential wall of the container allows. Thus depending on the outer dimension of the container, the arch will return to its original shape or to a partially flattened shape. This provides a flexibility in the construction which allows compensation for dimensional variations in container and lid due to manufacturing tolerances.

[0007] The packaging lid according to the invention is preferably made of plastics material by injection molding. Suitable plastics material could be a PP or PE resin. It is also possible to make the lid of a combination of materials, like for example a combination of PP and TPE. The arch formed strips are preferably arranged in a circumferentially distributed fashion over the inner surface of the skirt.

[0008] In a preferred embodiment of the packaging lid the strips extend in a substantial tangential direction of the inner wall of the skirt.

[0009] In a further embodiment the strips have a lead-in edge to facilitate compression of the arch of the strip while moving the strip past said outwardly projecting ridge during mounting of the lid on the container. The lead-in edge guides the strip onto the projecting ridge and induces compression of the arch of the strip. Thereby the movement of the strip on and beyond the ridge is made easier. Thus the capping of the container is made easier.

In a possible embodiment said lead-in edge has a slanting surface. This facilitates the guiding effect of the edge onto the ridge.

[0010] In a further embodiment the lead-in edge may have a curved or pointed shape, wherein, seen in a radial direction of the lid, the lead-in edge at the ends of the strip is located closer to the lower end of the skirt than at the centre of the strip. This shape has the effect that the strip is gradually compressed towards the centre of the strip by the outwardly projecting ridge of the container. This gradual compression reduces resistance caused by the strips during the mounting of the lid on the container.

[0011] In a further embodiment the strips have a retaining edge opposite the lead in edge to engage an underside of said outwardly projecting ridge to retain the lid

on the container. When the lid is mounted on the container, the strips formed as arches are first compressed when they move along the projecting ridge of the container. When the strips have moved beyond said projecting ridge they expand again and the retaining edge of the strip hooks behind the projecting ridge. The retaining edge forms an abutment for said ridge which prevents that the lid can be withdrawn from the container.

[0012] Preferably the retaining edge is straight between the ends of the strip, which provides a tight fix of the lid on the container.

[0013] The retaining edge is preferably perpendicular to a front side of the strip. Also an acute angle between the retaining edge and a front side of the strip may be possible. In this way it is nearly impossible to remove the lid from the container without the use of undue force.

[0014] In a possible advantageous embodiment the strips are adapted to rupture if the lid is removed from the container. In this way the strips constitute a tamper-evident feature that indicates that the lid has been removed from the container.

[0015] In a preferred embodiment of the packaging lid according to the invention, the arch is formed as a pointed segmental arch which comprises two segments which extend from the respective strip ends towards a join where the two segments join under an obtuse angle with respect to each other. In one possible specific embodiment the segments are substantially linear. In another possible specific embodiment the segments are substantially curved.

In an alternative embodiment the arch has a continuous curve shape.

[0016] In another possible alternative embodiment the arch has substantially a "W" shape.

In a practical embodiment of the lid according to the invention the lid is of the type having a hingable cover. The lid comprises an annular base including said skirt attachable to the container and defining an access opening, and the lid furthermore comprises a cover that is hingedly connected to the annular base and which is moveable between an open position in which the access opening is free and a closed position in which the access opening is covered. This embodiment is in practise a convenient lid to use with containers containing infant formula or other powdered food product. The lid can be readily opened everytime the product has to be taken from the container, for example with a scoop, and then be readily reclosed. The lid according to this practical embodiment can be formed in one piece, such that the annular base and the cover are formed with an integral living hinge which connects them. Another option is that the lid is an assembled piece in which the base and the cover are formed separately and are assembled and connected by a hinge structure.

[0017] In another conceivable embodiment of a lid according to the invention the skirt comprises a lower skirt portion and an upper skirt portion. The upper skirt portion is integrally connected to the top side of the lid. The lower skirt portion contains the arch formed strips. The lower skirt portion and upper skirt portion are connected by one or more frangible connections. The frangible connection may for example be constituted by frangible connection members or for example by a continuous weakening line (tearing line) provided in the skirt. The lid of this type can be mounted as is described in the above. To open the lid for the first time, the lower skirt portion and the upper skirt portion must be separated by rupturing the frangible connection. The lid with the upper skirt portion can be replaced after first time opening and will be retained by some snap or clamp connection between the upper skirt portion and the container or the lower skirt portion.

[0018] The invention also relates to a method to manufacture a lid as described in the above.

[0019] In particular the invention also relates to a method for manufacturing a packaging lid, wherein the lid comprises a top side and a skirt extending from the the top side, and wherein the skirt has on an inner side thereof resilient elongate strips having two ends attached to the inner side of the skirt and formed as an arch which, in an unloaded state, has a rise with respect to the inner side of the skirt. In the method an injection mold is provided defining a cavity to mold the packaging lid, said injection mold comprising two mold halves, movable core parts to define at least a part of the inner surface of the skirt and the upper edge of the strips, core parts to define the back side of the strips, and a movable ejector. A melt of plastic resin is injected in the mold cavity defined by the mold halves and the core parts. After the melt has been injected and sufficiently cured the movable core parts are moved inwards so as to release the strips, and the ejector pushes the formed lid away from the mold half and beyond the movable core parts so as to release the formed packaging lid from the mold.

[0020] The invention will be elucidated in the following description with reference to the drawing, in which:

Fig. 1 shows a view in perspective of a packaging lid according to the invention;

Fig. 2 shows a detail of the lid of Fig. 1 seen from below, with a resilient member in an expanded state;

Fig. 3 shows the same detail as Fig. 2, but with the resilient member in a compressed state;

Fig. 4 shows a part of a cross section perpendicular to the central axis of the container of the lid of Fig. 1 mounted on a container with a certain diameter;

Fig. 5 shows the same detail as Fig. 4, but with the lid mounted on a container with a smaller diameter;

Fig. 6 shows a cross section according to the line II-II indicated in Fig. 5 of a detail of the lid of Fig. 1 mounted on a packaging container;

Fig. 7 shows in perpsective another embodiment of a packaging lid according to the invention;

Fig. 8 shows in a cross section a part of a mold in which the lid of Fig. 1 is formed;

Fig. 9 shows in a cross section the opened mold of Fig. 8 during a first ejection step;

Fig. 10 shows in a cross section the opened mold of Fig. 8 during a second ejection step;

Fig. 11 shows a part of a lid from below with a resilient member having another shape as is shown in Figs 1 - 6; and

Fig. 12 shows a part of a lid from below with a resilient member having yet another shape.

[0021] In Fig. 1 is shown a packaging lid 1 for mounting on a container for for example baby formula, or another powdered or granular food product. The lid comprises a top side 2 and a skirt 3 that extends from the top side 2 toward a lower end 30 of the skirt. In the shown embodiment the top side is a closed plate.

[0022] In another embodiment of a lid according to the invention, which by way of example is shown in Fig. 7, the lid comprises an annular base 4 including a skirt 3 attachable to the container and defining an access opening. In this embodiment the lid furthermore comprises a cover 5 that is hingedly connected to the annular base 4 by a hinge 6 and which is moveable between an open position in which the access opening is free and a closed position (shown in Fig. 7) in which the access opening is covered.

[0023] Either of the lid types is an injection molded product made of a plastic resin, such as a PP or a PE resin. The entire lid, including the resilient strips, is then formed of the same material.

[0024] It is is also possible that the lid is made by a 2K injection molding process. An example could be a lid formed of the components polypropylene (PP) and a thermoplastic elastomere (TPE).
A 2K injection molding process could also allow to make the strips from a different material as the skirt.

[0025] For a further explanation of the invention reference is made to Fig. 1, but it is to be understood that the features are also applied in a lid of the type as is shown in Fig. 7.

[0026] The skirt 3 has an inner side 31. Distributed over the circumference there are formed ribs 32 on the inner side 31 of the skirt 3. The ribs 32 extend in an axial direction. The ribs 32 have a lower end 33 that abuts an upper rim of the container when the lid 1 is mounted on the container. The ribs 32 have an upper end that may adjoin the top side 2 as is shown in Fig.1, but in another embodiment the upper end of the rib 32 may also be spaced apart from the top side 2. The ribs 32 have a reinforcing effect, and make the lid 1 stiffer.

[0027] It is noted here that the ribs 32 are practical but not essential. Also a narrowing in the skirt or a circumferential rim on the inner side of the skirt can provide an abutment for the upper rim of the container and provide a reinforcing effect.

[0028] On the inner side 31 of the skirt 3, near a lower end thereof, are formed resilient strips 35 which are formed as an arch. The resilient strips 35 are distributed over the circumference of the skirt 3.

[0029] Each strip 35 has two ends 36 attached to the inner side 31 of the skirt 3. The strips 35 extend substantially in the tangential direction of the skirt 3 as can be seen in Fig. 1. In an unloaded state, which is shown in Fig. 1 and in more detail in Fig. 2, the arch has a rise h with respect to the inner side 31 of the skirt 3.

[0030] The arch is in the specific embodiment shown in the figures 1 - 6 a pointed segmental arch which comprises two substantially linear segments 37 which extend from the respective strip ends 36 towards a join 38 in the centre, where the two segments 37 join under an obtuse angle with respect to each other as is best seen in Fig. 2.

[0031] It is noted that the arch shape can also be differently shaped as is shown in Figs. 1 - 6. In Fig. 11 is shown an example wherein a resilient strip 35' is formed that has a continuously curved arch shape. In Fig. 12 is shown another example wherein a resilient strip 35" is formed that generally has a "W" shape. The given examples should not be interpreted as limiting for the invention; also other arch shapes are conceivable within the scope of the invention.

[0032] Fig. 6 shows a detail of the lid 1 mounted on a container 40. The container 40 has at its upper end an outwardly projecting ridge 42. Each of the strips 35 has a lower edge 35A which is slanting. This is best seen in the cross sectional view of Fig. 6. The slanting edge 35A works as lead in edge that facilitates compression of the arch of the strip 35 while moving the strip 35 past the outwardly projecting ridge 42 during mounting of the lid 1 on the container. A compressed strip 35 is shown from above in Fig. 3.

[0033] Opposite the lead-in edge each of the strips 35 has a straight upper edge 35B. This straight upper edge 35B functions as a retaining edge which engages an underside of said outwardly projecting ridge 42 to retain the lid 1 on the container 40. This is best seen in the cross sectional view of Fig. 6.

[0034] The arched strips 35 provide a flexibility in the construction which allows compensation for variations in the outer diameter of the container wall 41 and/or variations in the inner diameter of the lid due to manufacturing tolerances. The packaging lid 1 is mounted on the packaging container by placing the skirt 3 around the upper end of the container 40 and then pushing it downwards. The arch formed strips 35 are flattened when they contact the outwardly projecting ridge 42 of the container 40 and move beyond it. When the arch formed strips 35 are beyond the outwardly projecting ridge 42 they snap under

said ridge 42 so as to block removal of the lid 1 from the container 40. The arch formed strips 35 extend radially inward as far as the outer side of the circumferential wall 41 of the container 40 allows. Depending on the outer dimension of the container 40, the arch will return to its original shape as is shown in Fig. 5 or to a partially flattened shape as is shown in Fig. 4. Hence, the problem of varying dimensions, for example due to manufacturing tolerances of the different parts, is resolved.

[0035] In the examples given in the figures the container and the lid have a circular cross section. It is noted however that also other cross sectional shapes of the container and the corresponding lid are conceivable. One can think of for example an essentially rectangular cross section with rounded corners, which is a quite common shape for packagings for infant formula.

[0036] In Figs 8 - 10 a possible working of a mold for the production of a lid of Fig. 1 is shown. Only a part of the cross section of the mold and the lid 1 is shown.

[0037] In Fig. 8 the mold 50 is shown in a closed state just after the lid 1 is formed out of a suitable plastic resin, such as a polypropylene (PP) resin. The mold 50 has mold halves 51 and 52. Furthermore the mold has core parts 53 and 56, movable core parts 54 each operable by a pin 55. The mold also includes an ejector comprising a movable ejector ring 58 operable by one or more pins 57.

[0038] In the embodiment shown the core 53 and the movable core 54 have a slanting interface 59. When the core 54 is moved it slides along the slanting interface 59. When the movable core 54 is moved away from the mold half 52, it simultaneously moves radially inwards and vice versa.

[0039] The mold half 52 defines the front side and the slanting edge 35A of the strips 35. The core part 56 forms the back side of the strips 35 as can be clearly seen in Fig. 8. Furthermore the straight retaining edge 35B of the strips 35 is defined by the movable core 54.

[0040] Fig. 9 shows a first ejection step in which the mold half 51 is moved apart from the mold half 52. The movable core part 54 and the ejector ring 58 are moved away from the mold half 52 whereby the lid 1 is ejected from the mold half 52. The movable core part 54 also moves radially inward whereby the strips 35 formed on the inner side of the skirt 3 can pass beyond the core part.

[0041] Fig. 10 shows that the movable core part 54 has stopped and that the ejector ring 58 is moved on in a second ejection step so as to raise the upper side 2 of the lid 1 of the movable core part 54 and to move the resilient strips 35 beyond the movable core 54. In this way the skirt 3 of the lid 1 is ejected entirely from the mold half 52 and the core parts 56.

Claims

1. Packaging lid (1) for mounting over an access opening of a packaging container (40), said container being adapted in particular for packaging a powdered or granular food product and comprising a bottom and a circumferential wall which has an upper rim remote from the bottom, said upper rim defining the opening of the container,
wherein the lid (1) comprises a top side (2) that in a mounted state extends over the opening of the container (40) and a skirt (3) extending from the the top side (2) towards a lower end (30), wherein the skirt (3) has on an inner side (31) thereof resilient members (35) adapted to cooperate with an outwardly projecting ridge (42) on an outer side of the circumferential wall of the container (40) so as to secure the lid (1) to the container (40),
characterized in that the resilient members are formed as resilient elongate strips (35) having two ends (36) attached to the inner side (31) of the skirt (3) and formed as an arch which, in an unloaded state, has a rise with respect to the inner side (31) of the skirt (3).

2. Packaging lid according to claim 1, wherein the strips (35) extend in a substantial tangential direction of the inner side (31) of the skirt (3).

3. Packaging lid according to claim 1 or 2, wherein the strips (35) have a lead-in edge (35A) to facilitate compression of the arch of the strip (35) while moving the strip (35) past said outwardly projecting ridge (42) during mounting of the lid (1) on the container (40).

4. Packaging lid according to claim 3, wherein the lead-in edge (35A) has a slanting surface.

5. Packaging lid according to claim 3 or 4, wherein the lead-in edge (35A) has a curved or pointed shape, wherein, seen in a radial direction of the lid (1), the lead-in edge (35A) at the ends (36) of the strip (35) is located closer to the lower end (30) of the skirt (3) than at a centre (38A) of the strip (35).

6. Packaging lid according to any of the preceding claims, wherein the strips (35) have a retaining edge (35B) opposite the lead-in edge (35A) to engage an underside of said outwardly projecting ridge (42) to retain the lid (1) on the container (40).

7. Packaging lid according to claim 6, wherein the retaining edge (35B) is straight between the ends (36) of the strip (35).

8. Packaging lid according to any of the preceding claims, wherein the arch is formed as a pointed segmental arch which comprises two segments (37) which extend from the respective strip ends (36) towards a join (38) where the two segments (37) join under an obtuse angle with respect to each other.

9. Packaging lid according to claim 8, wherein said segments (37) are substantially linear or substantially curved.

10. Packaging lid according to any of the claims 1 - 7, wherein the arch has a continuous curve shape.

11. Packaging lid according to any of the preceding claims, wherein the lid (1) comprises an annular base (4) including said skirt (3) attachable to the container and defining an access opening, and wherein the lid furthermore comprises a cover (5) that is hingedly connected to the annular base (4) and which is moveable between an open position in which the access opening is free and a closed position in which the access opening is covered.

12. Packaging lid according to any of the claims 1 - 10, wherein the skirt comprises an upper skirt portion and a lower skirt portion, the upper skirt portion being integrally connected to the top side of the lid and the lower skirt portion containing the arch formed strips, wherein the lower skirt portion and upper skirt portion are connected by one or more frangible connections.

13. Packaging lid according to any of the preceding claims, wherein the lid (1) is made of plastics material.

14. Packaging lid according to any of the preceding claims, wherein the lid (1) is injection molded, preferably is formed by 2K injection molding, wherein the strips (35) are formed of a different material than the skirt (3).

15. Method for manufacturing a packaging lid, wherein the lid (1) comprises a top side (2) and a skirt (3) extending from the the top side (2), and wherein the skirt (3) has on an inner side (31) thereof resilient elongate strips (35) having two ends (36) attached to the inner side (31) of the skirt (3) and formed as an arch which, in an unloaded state, has a rise with respect to the inner side (31) of the skirt (3),
in which method an injection mold (50) is provided defining a cavity to mold the packaging lid (1), said injection mold comprising two mold halves (51, 52), movable core parts (54) to define at least a part of the inner surface of the skirt (3) and the upper edge of the strips, core parts (56) to define the back side of the strips (35), and a movable ejector (57, 58),
in which a melt of plastic resin is injected in the mold cavity defined by the mold halves and the core parts, and wherein
after the melt has been injected and sufficiently cured the movable core parts (54) are moved inwards so as to release the strips (35), and
the ejector (57, 58) pushes the formed lid (1) away from the mold half (52) and beyond the movable core parts (54) so as to release the formed packaging lid (1) from the mold (50).

Patentansprüche

1. Verpackungsdeckel (1) zur Anordnung über einer Zugangsöffnung eines Verpackungsbehälters (40), wobei dieser Behälter insbesondere zum Verpacken eines pulverförmigen oder granulierten Lebensmittelprodukts geeignet ist und einen Boden und eine Umfangswand umfasst, die einen vom Boden abgewandten, oberen Rand aufweist, wobei der obere Rand die Öffnung des Behälters definiert,

wobei der Deckel (1) eine Oberseite (2), die sich in einem montierten Zustand über die Öffnung des Behälters (40) erstreckt, und eine Schürze (3) hat, die sich von der Oberseite (2) zu einem unteren Ende (30) erstreckt, wobei die Schürze (3) auf einer Innenseite (31) elastische Elemente (35) aufweist, die geeignet sind, mit einem nach außen vorstehenden Grat (42) auf einer Außenseite der Umfangswand des Behälters (40) zusammenzuwirken, um den Deckel (1) an dem Behälter (40) zu sichern,
dadurch gekennzeichnet, dass die elastischen Elemente als elastische längliche Streifen (35) mit zwei Enden (36) ausgebildet sind, die an der Innenseite (31) der Schürze (3) befestigt und als ein Bogen ausgebildet sind, der im unbelasteten Zustand einen Anstieg gegenüber der Innenseite (31) der Schürze (3) aufweist.

2. Verpackungsdeckel nach Anspruch 1, wobei sich die Streifen (35) in einer im wesentlichen tangentialen Richtung der Innenseite (31) der Schürze (3) erstrecken.

3. Verpackungsdeckel nach Anspruch 1 oder 2, wobei die Streifen (35) eine Einführkante (35A) aufweisen, um das Zusammendrücken des Bogens des Streifens (35) zu erleichtern, wenn der Streifen (35) während der Montage des Deckels (1) auf den Behälter (40) an dem nach außen vorstehenden Grat (42) vorbeibewegt wird.

4. Verpackungsdeckel nach Anspruch 3, wobei die Einführkante (35A) eine schräge Oberfläche aufweist.

5. Verpackungsdeckel nach Anspruch 3 oder 4, wobei die Einführkante (35A) eine gekrümmte oder spitze Form aufweist, wobei, in radialer Richtung des Deckels (1) gesehen, die Einführkante (35A) an den Enden (36) des Streifens (35) näher am unteren Ende (30) der Schürze (3) als in einer Mitte (38A) des Streifens (35) angeordnet ist.

6. Verpackungsdeckel nach einem beliebigen der vorhergehenden Ansprüche, wobei die Streifen (35) eine Haltekante (35B) gegenüber der Einführkante (35A) aufweisen, um in eine Unterseite des nach außen vorstehenden Grates (42) einzugreifen, um den Deckel (1) auf dem Behälter (40) zu halten.

7. Verpackungsdeckel nach Anspruch 6, wobei die Haltekante (35B) gerade zwischen den Enden (36) des Streifens (35) liegt.

8. Verpackungsdeckel nach einem beliebigen der vorhergehenden Ansprüche, wobei der Bogen als spitzer Segmentbogen ausgebildet ist, der zwei Segmente (37) umfasst, die sich von den jeweiligen Streifendenden (36) zu einer Verbindung (38) erstrecken, wo sich die beiden Segmente (37) unter einem stumpfen Winkel zueinander verbinden.

9. Verpackungsdeckel nach Anspruch 8, wobei die Segmente (37) im Wesentlichen linear oder im Wesentlichen gekrümmt sind.

10. Verpackungsdeckel nach einem der Ansprüche 1 - 7, wobei der Bogen eine kontinuierliche Kurvenform aufweist.

11. Verpackungsdeckel nach einem beliebigen der vorstehenden Ansprüche, wobei der Deckel (1) einen ringförmigen Boden (4) umfasst, der die Schürze (3) beinhaltet, die am Behälter befestigbar ist und eine Zugangsöffnung definiert, und wobei der Deckel ferner eine Abdeckung (5) umfasst, die schwenkbar mit dem ringförmigen Boden (4) verbunden ist und die zwischen einer offenen Position, in der die Zugangsöffnung frei ist, und einer geschlossenen Position, in der die Zugangsöffnung bedeckt ist, beweglich ist.

12. Verpackungsdeckel nach einem beliebigen der Ansprüche 1 - 10, wobei die Schürze einen oberen Schürzenabschnitt und einen unteren Schürzenabschnitt umfasst, wobei der obere Schürzenabschnitt integral mit der Oberseite des Deckels verbunden ist und der untere Schürzenabschnitt die bogenförmigen Streifen enthält, wobei der untere Schürzenabschnitt und der obere Schürzenabschnitt durch eine oder mehrere zerbrechliche Verbindungen verbunden sind.

13. Verpackungsdeckel nach einem beliebigen der vorstehenden Ansprüche, wobei der Deckel (1) aus Kunststoff hergestellt ist.

14. Verpackungsdeckel nach einem beliebigen der vorstehenden Ansprüche, wobei der Deckel (1) spritzgegossen ist, vorzugsweise durch 2K-Spritzgießen gebildet ist, wobei die Streifen (35) aus einem anderen Material als die Schürze (3) gebildet sind.

15. Verfahren zur Herstellung eines Verpackungsdeckels, wobei der Deckel (1) eine Oberseite (2) und eine Schürze (3), die sich von der Oberseite (2) erstreckt, umfasst, und wobei die Schürze (3) auf einer Innenseite (31) elastische längliche Streifen (35) mit zwei Enden (36) aufweist, die an der Innenseite (31) der Schürze (3) befestigt und als Bogen ausgebildet sind, der im unbelasteten Zustand einen Anstieg gegenüber der Innenseite (31) der Schürze (3) aufweist,

in welchem Verfahren eine Spritzgussform (50) vorgesehen ist, die einen Hohlraum zum Formen des Verpackungsdeckels (1) definiert, wobei die Spritzgussform zwei Formhälften (51, 52), bewegliche Kernteile (54) zum Definieren mindestens eines Teils der Innenfläche der Schürze (3) und der Oberkante der Streifen, Kernteile (56) zum Definieren der Rückseite der Streifen (35) und einen beweglichen Auswerfer (57, 58) umfasst,
wobei eine Schmelze aus Kunststoffharz in den durch die Formhälften und die Kernteile definierten Formhohlraum eingespritzt wird, und wobei nachdem die Schmelze eingespritzt und ausreichend ausgehärtet ist, die beweglichen Kernteile (54) nach innen bewegt werden, um die Streifen (35) zu lösen, und
der Auswerfer (57, 58) den gebildeten Deckel (1) von der Formhälfte (52) weg und über die beweglichen Kernteile (54) hinausschiebt, um den gebildeten Verpackungsdeckel (1) von der Form (50) zu lösen.

Revendications

1. Couvercle d'emballage (1) destiné à être monté sur une ouverture d'accès d'un récipient d'emballage (40), ledit récipient étant adapté en particulier au conditionnement d'un produit alimentaire en poudre ou en granules et comprenant un fond et une paroi circonférentielle ayant un rebord supérieur éloigné du fond, ledit rebord supérieur définissant l'ouverture du récipient,
dans lequel le couvercle (1) comprend une face supérieur (2) qui, dans un état monté, s'étend sur l'ouverture du récipient (40), et une jupe (3) qui s'étend depuis la face supérieure (2) vers une extrémité inférieure (30), dans lequel la jupe (3) présente sur sa face interne (31) des éléments élastiques (35) adaptés pour coopérer avec une arête (42) faisant saillie vers l'extérieur située sur une face externe de la paroi circonférentielle du récipient (40) de manière à fixer le couvercle (1) au récipient (40),
caractérisée en ce que les éléments élastiques sont formés comme des bandes élastiques allongées (35) ayant deux extrémités (36) fixées à la face

interne (31) de la jupe (3) et formées en une arche qui, à l'état non chargé, présente une élévation par rapport à la face interne (31) de la jupe (3).

2. Couvercle d'emballage selon la revendication 1, dans lequel les bandes (35) s'étendent dans une direction sensiblement tangentielle à la face interne (31) de la jupe (3) .

3. Couvercle d'emballage selon la revendication 1 ou 2, dans lequel les bandes (35) ont un bord d'entrée (35A) pour faciliter la compression de l'arche de la bande (35) au moment du déplacement de la bande (35) au-delà de ladite arête (42) faisant saillie vers l'extérieur lors du montage du couvercle (1) sur le récipient (40).

4. Couvercle d'emballage selon la revendication 3, dans lequel le bord d'entrée (35A) a une surface inclinée.

5. Couvercle d'emballage selon la revendication 3 ou 4, dans lequel le bord d'entrée (35A) a une forme incurvée ou pointue, dans lequel, lorsque vu dans une direction radiale du couvercle (1), le bord d'entrée (35A) aux extrémités (36) de la bande (35) est situé plus près de l'extrémité inférieure (30) de la jupe (3) que d'un centre (38A) de la bande (35).

6. Couvercle d'emballage selon l'une quelconque des revendications précédentes, dans lequel les bandes (35) ont un bord de retenue (35B) opposé au bord d'entrée (35A) pour venir en prise avec une face inférieure de ladite arête (42) faisant saillie vers l'extérieur pour retenir le couvercle (1) sur le récipient (40).

7. Couvercle d'emballage selon la revendication 6, dans lequel le bord de retenue (35B) est droit entre les extrémités (36) de la bande (35) .

8. Couvercle d'emballage selon l'une quelconque des revendications précédentes, dans lequel l'arche est formée comme une arche segmentale en pointe qui comprend deux segments (37) qui s'étendent depuis les extrémités (36) respectives de bande vers une jointure (38) où les deux segments (37) se joignent selon un angle obtus l'un par rapport à l'autre.

9. Couvercle d'emballage selon la revendication 8, dans lequel lesdits segments (37) sont sensiblement linéaires ou sensiblement incurvés.

10. Couvercle d'emballage selon l'une quelconque des revendications 1 à 7, dans lequel l'arche a une forme incurvée continue.

11. Couvercle d'emballage selon l'une quelconque des revendications précédentes, dans lequel le couvercle (1) comprend une base annulaire (4) incluant ladite jupe (3) pouvant être fixée au récipient et définissant une ouverture d'accès, et dans lequel le couvercle comprend en outre une protection (5) qui est reliée de manière articulée à la base annulaire (4) et qui est mobile entre une position ouverte dans laquelle l'ouverture d'accès est libre et une position fermée dans laquelle l'ouverture d'accès est recouverte.

12. Couvercle d'emballage selon l'une quelconque des revendications 1 à 10, dans lequel la jupe comprend une portion de jupe supérieure et une portion de jupe inférieure, la portion de jupe supérieure étant complètement liée au côté supérieur du couvercle et la portion de jupe inférieure contenant les bandes formées en arche, dans lequel la portion de jupe inférieure et la portion de jupe supérieure sont reliées par une ou plusieurs connexions sécables.

13. Couvercle d'emballage selon l'une quelconque des revendications précédentes, dans lequel le couvercle (1) est fabriqué en matière plastique.

14. Couvercle d'emballage selon l'une quelconque des revendications précédentes, dans lequel le couvercle (1) est moulé par injection, préférablement par moulage par injection 2K, dans lequel les bandes (35) sont formées d'un matériau différent de celui de la jupe (3).

15. Procédé de fabrication d'un couvercle d'emballage, dans lequel le couvercle (1) comprend une face supérieure (2) et une jupe (3) s'étendant de la face supérieure (2), et dans lequel la jupe (3) présente sur sa face interne (31) des bandes élastiques allongées (35) ayant deux extrémités (36) fixées à la face interne (31) de la jupe (3) et formées en une arche qui, à l'état non chargé, présente une élévation par rapport à la face interne (31) de la jupe (3),
procédé dans lequel un moule à injection (50) est prévu, définissant une cavité pour mouler le couvercle d'emballage (1), ledit moule à injection comprenant deux moitiés de moule (51, 52), des parties de noyau mobiles (54) pour définir au moins une partie de la surface interne de la jupe (3) et le bord supérieur des bandes, des parties centrales (56) pour définir le côté arrière des bandes (35) et un éjecteur mobile (57, 58),
dans lequel une masse fondue de résine plastique est injectée dans la cavité du moule définie par les moitiés de moule et les parties centrales, et dans lequel,
après que la masse fondue a été injectée et suffisamment durcie, les parties de noyau mobiles (54) sont déplacées vers l'intérieur de manière à libérer les bandes (35), et

l'éjecteur (57, 58) pousse le couvercle (1) formé à distance de la moitié de moule (52) et au-delà des parties de noyau mobiles (54) de manière à libérer le couvercle d'emballage (1) formé du moule (50).

Fig. 1

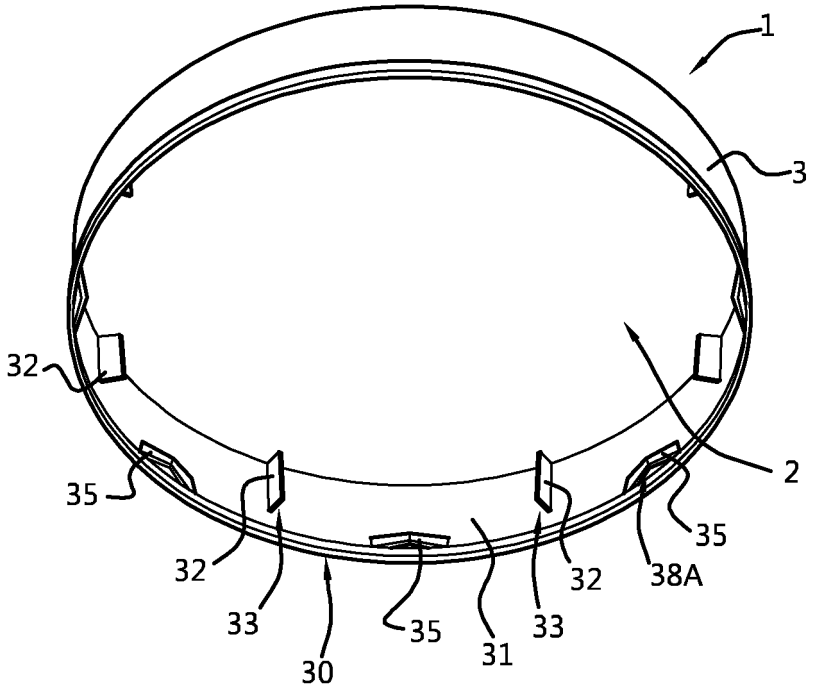


Fig. 2

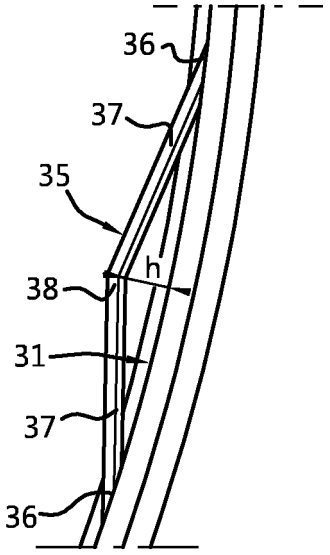


Fig. 3

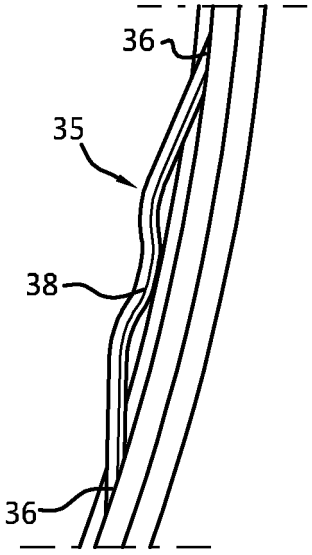


Fig. 4

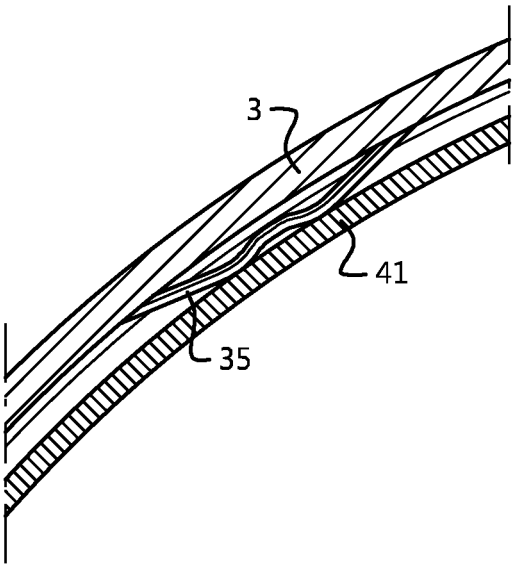


Fig. 5

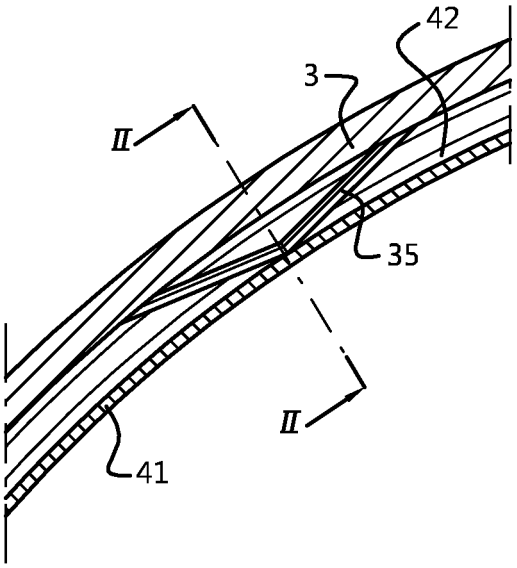


Fig. 6

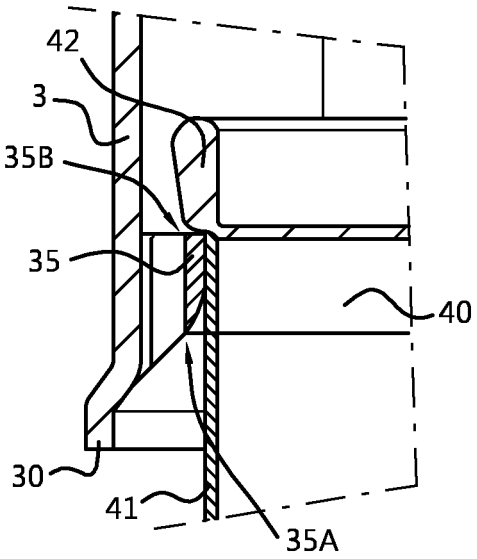


Fig. 7

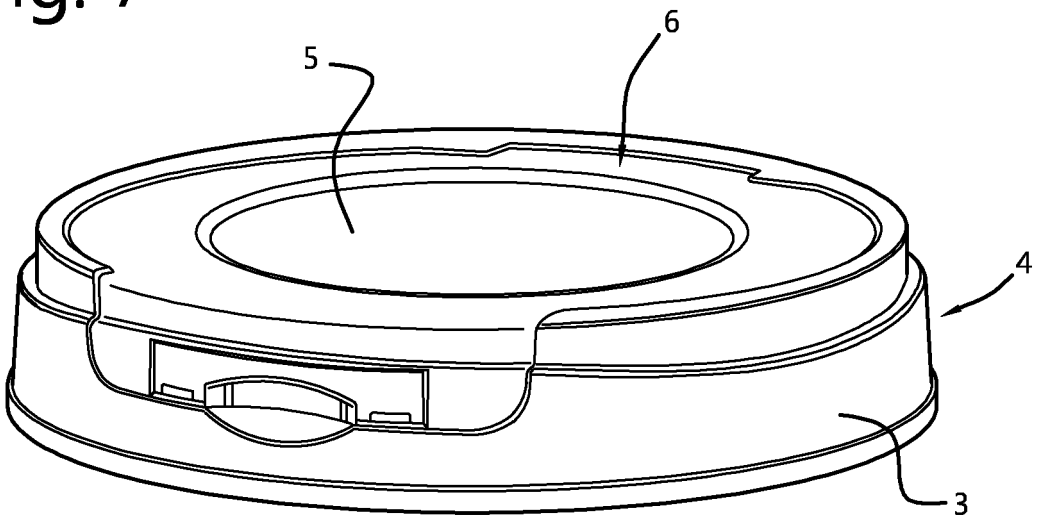


Fig. 8

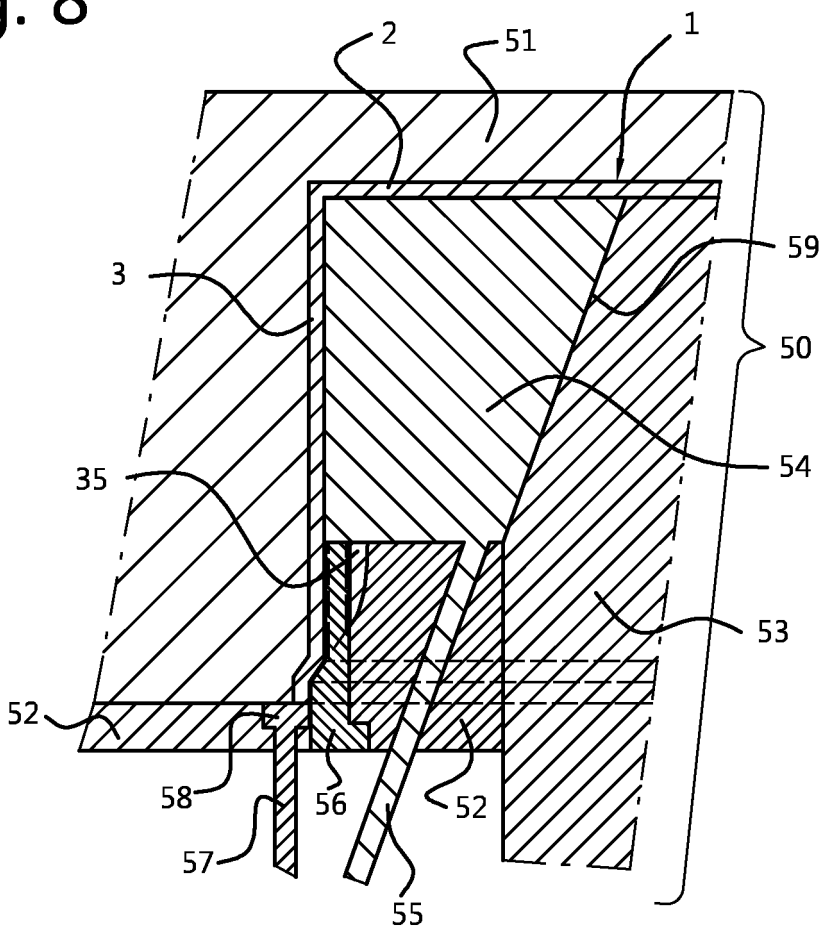


Fig. 10

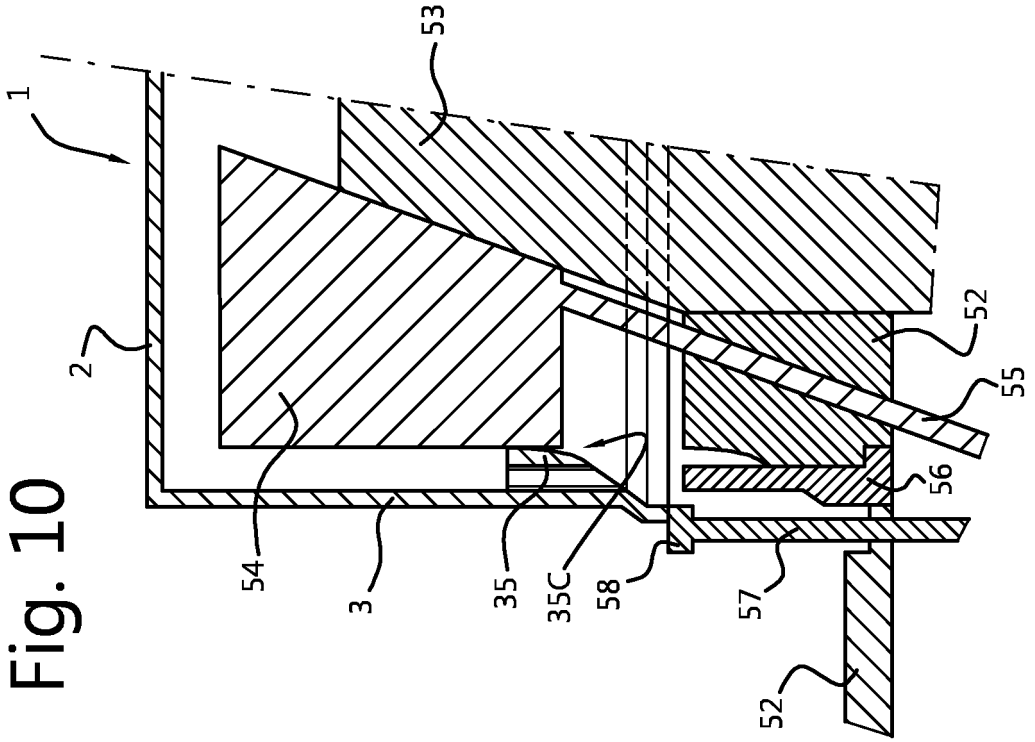


Fig. 9

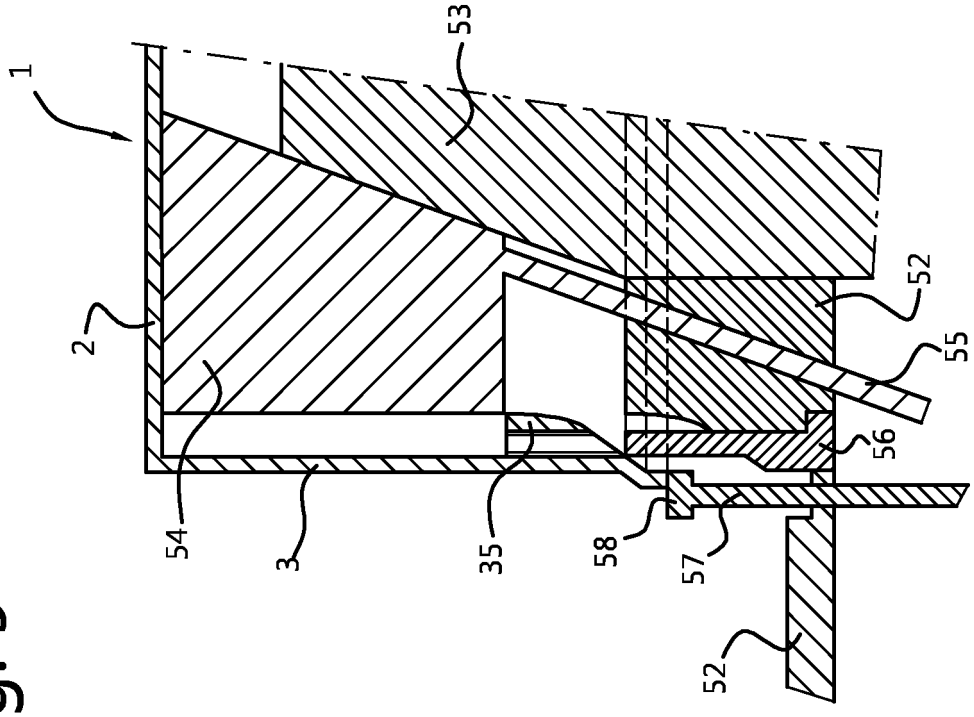


Fig. 11

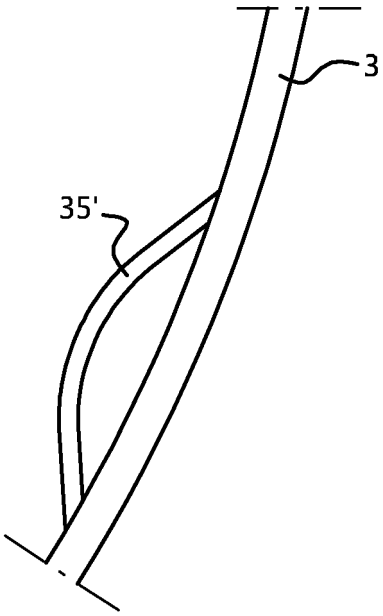
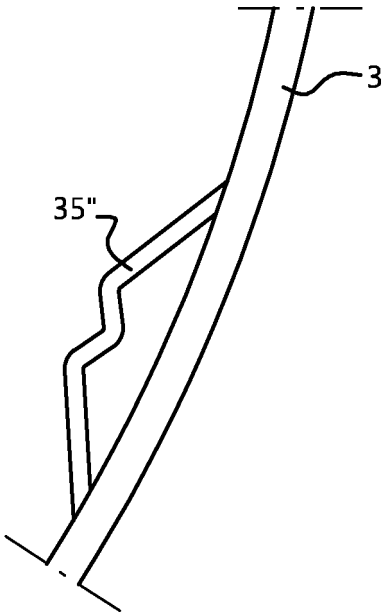


Fig. 12



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