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(54) **A RELOCKABLE CLOSURE FOR A CONTAINER**

WIEDERVERSCHLIESSBARER DECKEL FÜR EINEN BEHÄLTER

DISPOSITIF DE FERMETURE POUVANT ETRE REVERROUILLE POUR UN CONTENEUR

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(56) References cited:
EP-A- 1 127 808
EP-A- 1 127 809
WO-A-01/44069
DE-A- 4 429 057
DE-U- 29 920 915
DK-A- 145 194
FR-A- 2 801 873
US-A- 2 901 140
US-B1- 6 196 451

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Description

[0001] The present invention relates to a relockable closure for a container, in particular for metal containers for storage of e.g. chemicals/solvents.

Background of the invention

[0002] Storing of chemicals or other liquids comprising solvents requires a non-plastic container so as to avoid leakage due to the solvents dissolving of the material of the container. In particular, oil-based paint needs to be stored in a non-plastic container, such as a metal container. Opening of a metal container is very difficult, as it often requires a sharp-pointed article (e.g. a screwdriver) that can be stuck in between the cover and container so as to lift the cover. Further, the closing of such container requires a relative high pressure on the cover (or even use of a hammer) in order to press the cover tightly into the opening of the container.

[0003] From prior art it is known to provide a bendable skirt portion on a cover and which extends downwards along the outer surface of the container, and which has a rib that engages with an edge of the container so as to lock the cover to the container. However, the known covers with such a skirt only relate to plastic containers and plastic covers, which are not applicable for oil-based paints, solvent-based paints, solvents, etc. These covers are described in e.g. DK 145 194, US 3,688,942, SE 507 510, SE 469 794, WO 88/03901, EP 0 245 894 and EP 0 412 231.

[0004] WO 01/44069 describes a resealable closure for an open topped container. The closure includes a metal lid for closing the container opening and a plastic ring secured to the metal lid. The plastic ring includes at least one element for engaging a radially outward formation of a container to retain the metal lid in sealed engagement with the container. The plastic ring further includes a depending portion extending exteriorly of the container and wherein manual manipulation of the depending portion facilitate removal of the closure from the container.

Description of the invention

[0005] It is an object of the present invention to provide a relockable non-plastic closure for a container and which is easy to fit and refit without the need of any kind of tool.

[0006] According to a first aspect, the present invention relates to a relockable closure according to claim 1.

[0007] The container and cover may be cylindrical, oval or elliptical, or it may be a polygonal container, such as quadrangular or rectangular.

[0008] The skirt may extend along an outer surface of the curt portion and engage an edge of the curl portion and/or the projections, which may be outwardly extending beads/corrugations in the sidewall of the container.

[0009] The dosure may comprise one non-metallic skirt. In some embodiments the closure may comprise a plurality of non-metallic skirts such as two or three or four or five or six or seven or eight or nine or ten. The non-metallic skirts may be attached to each other or may be detachable from each other e.g. by means of a weakning line in the skirt.

[0010] Preferably, the skirt comprises a first part attached to the cover and a second part being foldable between a locking position where said locking means engages said curl portion and/or projections and an unlocking position where said locking means is out of engagement with said curl portion and/or projections. Preferably, the skirt comprises a fold line around which the second part may be swung outwards and upwardly when going from the locking to the unlocking position. In the unlocking position, the second part may abut the first part.

[0011] Said curl portion may define contact surfaces for said cover and locking means.

[0012] In a preferred embodiment, the locking means comprises a peripherally extending rib engageable with a part of said curl portion and/or projections. The rib may be formed with a curved portion having a radius, which corresponds to the radius of a curved part of said curl portion and/or projection.

[0013] The skirt may comprise a resilient rib, e.g. made of rubber, which engages the part of the curl portion and/projections.

[0014] Preferably, the skirt extends continuously along the entire circumference of the container (if the container is cylindrical, oval, elliptical or polygonal), but as an alternative the skirt may consist of two or three or four or more individual skirts, so that the cover is locked to the container by individual non-connected skirts.

[0015] At least a part of the locking means may be detachable. E.g. a part of the engaging rib may be detachable. The detachable part of the locking means/engaging rib may be adapted to provide an enhanced engagement with the curl portion or the one or more projections of the container compared to the non-detachable part of the locking means/engaging rib. Thus after removal of the detachable part of the locking means/engaging rib, it may be easier to remove the closure. After the removal of the detachable part it may still be necessary to twist or flip the non-detachable part of the locking means/engaging rib during removal of the closure.

[0016] In an embodiment the locking means/engaging rib may comprise a first part and a second part, wherein the engaging surface of a cross-section of the first part is bigger than the engaging surface of a cross-section of the second part. In an embodiment the thickness of a cross-section of the first part may be thicker than a cross-section of the second part. Due to the thicker part, the engaging surface may be bigger or it may be harder to twist the engaging rib past the curl portion or the one or more projections. Said first part may be detachable.

[0017] In an embodiment the closure may comprise gripping means adapted to make it easier for the user to remove the closure. The gripping means may serve as a handgrip and the position of the hand grip may result in enhanced or reduced engagement between the closure and the container. The gripping means may also be adapted to make et easier to attach the closure to the container. The closure may comprise one or two or more gripping means. The gripping means may be adapted to be used as handles during transportation of the container.

[0018] In order to make it easier to fold the skirt between its locking and unlocking position said skirt may comprise one or more peelable perforations extending transverse to the circumferential direction of the skirt. Thus, the forces required to fold the second part of the skirt become less, when the perforations are peeled off.

[0019] The skirt may also comprise one or more slits (not perforated) extending transverse to the circumferential direction of the skirt.

[0020] Preferably, the slits and/or perforations extend in the second part of the skirt only, but they may extend in both the first and second part of the skirt.

[0021] The skirt is seamed to the cover, so that the skirt is seamed in between two oppositely arranged flanges.

[0022] The cover may comprise a wall portion engageable with an internal surface of the container defined by its sidewall, said wall portion and skirt defining a cavity for said curl portion of the container. The wall portion may be outwardly inclined, so that the wall portion and the internal surface of the container may frictionally engage each other so that the cover is maintained in its position in the opening of the container even if the skirt is not in its locking position.

[0023] In another embodiment, the cover may comprise a plane cover surface extending substantially perpendicular to the sidewall of the container and without extending into the container, so that the above-mentioned wall portion may be dispensed with. In that case the cover may be locked to the container by means of the skirt only.

[0024] The internal surface of the container may comprise corrugations, which prevents a capillary rise of the content in the container so as to avoid the contents to run out of the container.

[0025] In order to provide a tight closure for the container, a compound (a material for providing a sealed/tight closure) may be placed between the cover and the container. The compound may e.g. be a rubber band or a band of silicone sprayed on or an elastomer or a soft polymer or a synthetic rubber composite.

[0026] The compound may be placed between the sidewall of the container and said wall portion of the cover, such as inside a corrugation in the sidewall of the container or the wall portion.

[0027] Alternatively or additionally, the compound may be placed between the skirt and the sidewall of the container, such as inside a corrugation in the sidewall of the container or on the second part of the skirt. The compound may e.g. constitute the above-mentioned rib, or the compound may just be attached to said cover or skirt.

[0028] Preferably, the cover is made of metal, but it can be made of cardboard or composites or glass or wood. The skirt is preferably made of a resilient/flexible plastic, such as PELD or PP or PEHD or PET or PMMA or PA or elastomers or rubber.

[0029] It may be an advantage of closures with a metal cover that they are inflexible compared to plastic covers. Thus solidified material on an internal surface may not come off in flakes when the closure is detached or re-attached, as metal covers may not be twist or bent to the same extend as plastic covers. At the same time a skirt made of a flexible material may provide the foldable properties of the present application. As the skirt is foldable it may be possible to provide an enhanced engagement between a rib portion of the skirt and an edge of the can. This is due to the fact, that the closure need not to be adapted to be pulled off the can when the rib portion of the skirt and the edge of the can are engaged.

[0030] The container may contain foodstuff, solvents, chemicals, paints as the cover provides a tight and lockable closure, but the container and cover may of course also be used for other goods, such as cookies. The container may be made of metal, plastic, composites, cardboard glass or wood.

[0031] When taking off the closure from the container, the second part of the skirt may be folded/swung into the unlocking position and subsequently the closure can be lifted away from the container. When fitting/refitting the closure, the second part of the skirt may firstly be swung/folded into alignment with the first part of the skirt and subsequently the closure is slid downwards until the locking means engage the curl portion and/or projection. The method of fitting/refitting the closure to the container may comprise the conventional method of pressing the closure downwards e.g. by the person filling the container.

[0032] The closure is applicable for a lot of known containers having a curl portion, and as the closure can be fitted to such containers by use of conventional production equipment, the closure can be sold separately (not in combination with a container) to manufactures of containers. As the closure can be sold separately, the packing volume for exportation is reduced to a minimum because the closure can be stacked very close.

[0033] Instead of aligning the second part with the first part before fitting the closure to the container, the closure may be placed on the opening of the container and subsequently the second part of the skirt is swung/folded into the locking position.

[0034] According to a second aspect, the present invention relates to a method according to claim 24.

[0035] The step of providing the skirt may comprise extruding or injection moulding the skirt.

Brief description of the figures

[0036] Preferred embodiments of the invention will be described in detail below with reference to the accompanying figures, wherein

figs.1, 2 and 5 show a cross-sectional view of the closure and container according to the invention,
figs. 7-8 show 3D-views of container and closure according to the invention, and
figs. 9-18 show embodiments wherein a part of the skirt may be detached or changed between two positions.

Detailed description of the figures

[0037] Fig. 1 shows a cross-sectional view of the closure 1 and container 2 according to the invention. The closure comprises a metal cover 3 and a skirt 4, which together defines the closure for the container. The container comprises a curt portion with a lower edge 5, a neck portion 6 and an upper edge 7.

[0038] The lower edge 5 has a curved portion with a radius substantially equal to the radius of the curved rib portion 8 of the skirt. The skirt comprises a first part 9 attached to the cover and a second part 10, the second part being outwardly foldable (in the direction 11) between a locking position, where the curved rib portion 8 engages the lower edge 5, and an unlocking position where the second part is folded outwards. The second part is foldable around the point 15.

[0039] The cover comprises a compound 12 that fits tightly to the upper edge 7 of the container so as to provide a sealed closure.

[0040] The cover comprises an outwardly inclined wall portion 13 engageable with the internal surface 14 of the container defined by its sidewall, said wall portion and skirt defining a cavity for said curl portion of the container.

[0041] Fig. 2 shows a skirt with a bulb portion 16 in the upper part that is attached to the cover. The bulb ensures that the skirt stays attached to the cover.

[0042] Fig. 5 shows the same embodiment of the invention as shown in fig. 1, but wherein the second part 10 of the skirt is swung up into an unlocking position. In this position it is possible to lift the closure off the container.

[0043] When refitting the closure to the container, the second part is firstly swung back into alignment with the first part, and the closure is then placed above the container and slid downwards until the curved rib portion 8 goes into engagement with the lower edge 5.

[0044] Figs. 7-8 show 3D-views of container 2 and closure 1 comprising a metal cover 3 and a skirt 4. The skirt in fig. 7 comprises silts 17 extending transverse to the circumferential direction of the skirt. The slits allow for an easier folding of the second part of the skirt.

[0045] The form of the closure provides that the containers with the closure attached thereto can be stacked on each other.

[0046] Figs. 9a, 9b, 10a and 10b show a dosure 1 and container 2 according to the invention. The dosure comprises a metal cover 3 and a skirt 4, which together defines the closure for the container. The skirt 4 comprises a detachable part 18 and a non-detachable part 19. A weakening line 20 separates the detachable part 18 and the non-detachable part 19. The parts 18 and 19 may be moulded in one piece. In figs. 10a and 10b the detachable part 18 is detached from the non-detachable part 19. The curved rib portion 8 (not shown) is thicker on the detachable part 18 than on the non-detachable part 19.

[0047] A container 2 and a closure 1, comprising a cover 3 and a skirt 4 are shown in figs. 11a, 11b, 12a and 12b. The skirt 4 comprises a detachable part 18 and a non-detachable part 19. A weakening line 20 separates the parts 18 and 19. A strip 21 may be pulled in the direction 22 resulting in detachment of the detachable part 18. After said removal the non-detachable part of the skirt comprises a hole 23. A handle 24 may be used to remove the closure form the container.

[0048] Analogously in figs. 13a, 13b, 14a and 14b a strip may be used to remove the detachable part 18 from the non-detachable part 19. When the detachable part 18 is removed the handle 24 may be used to remove the closure. The handle is shaped so as to fit hands of the user.

[0049] Figs. 15a, 15b, 16a and 16b show a container 2 and a closure 1, comprising a cover 3 and a skirt 4. The skirt comprises a detachable part 18 and a non-detachable part 19. The detachable part is interconnected with a strip 21 by means of a connecting member 25. When the strip has been detached a handle 24 may be used to remove the closure 1 from the container 2.

[0050] Figs. 17a and 17b show a container 2 and a closure 1. The closure comprises a skirt 4 and a handle 24 which may be changed between two positions. In Fig. 17a the handle is in the first position and in fig. 17b the handle is in the second position. When the handle is in the first position a curved rib portion 8 engages the lower edge 5 of the curled edge portion. Thus the first position is a locking position wherein the closure may not be removed from the container and the second position is an unlocked position wherein the closure may be removed form the container. The closure may be manufactured such that the handle 24 and the skirt 4 are made in to one piece and such that a weakening line 26 is provided between the sides of the handle 24 and the skirt 4. Prior to breaking of the weakening line 26 the handle is retained in the locking position as shown in fig. 17a. When the handle is moved to the second position as shown in fig. 17b the weakning line 26 is broken and the handle 24 may be used to removed the closure.

[0051] Figs. 18a and 18b show a container 2 and a closure 1 comprising a skirt 4. The lower edge 27 of the skirt is wave-shaped. By forming the lower edge as a

wave it may be easier for the user to open the can as it may be easier to get a good grip of the skirt when the skirt is to be folded between the locking position and the un-locked position. There may be any number of waves e.g. the distance between each wave may be substantially equal to the distance between fingers of a person. In other embodiments there may be four, five, six, seven, eight, nine or ten waves.

Claims

1. A relockable closure (1) for a container (2) having a sidewall with one or more peripherally outwardly extending projections and terminating in a peripherally extending curl portion encircling an opening to be closed, the closure (1) comprising;

- a non-plastic cover (3) covering at least said opening and having a circumferentially extending sealing area adapted to form a seal with an upper edge of the container (7), the cover having a peripherally extending edge portion having two oppositely arranged flanges,
- at least one non-metallic skirt (4) attached to at least a part of said peripheral edge portion of the cover (3), the skirt (4) extending along said sidewall of said container (2) and having locking means (8) to be engaged with at least a part of said curl portion of the container (2) and/or said one or more projections, so as to lock the closure (1) to the container (2), and

wherein the skirt (4) comprises a first part (9) seamed to the cover (3) between said two oppositely arranged flanges and a second part (10) being foldable between a locking position where said locking means (8) engages said curl portion and/or projections and an unlocking position where said locking means (8) is out of engagement with said curl portion and/or projections.

2. A closure according to claim 1, wherein the second part (10) is adapted to be retained in the unlocking position and/or the locking position.

3. A closure according to claim 1 or 2, wherein the second part (10) in some positions is adapted to be biased towards the unlocking position.

4. A closure according to any claims 1-3, wherein the skirt (4) extends along an outer surface of the curl portion.

5. A closure according to any of claims 1-4, wherein the cover (3) comprises a wall portion (13) engageable with an internal surface (14) of the container defined by its sidewall, said wall portion (13) and skirt (4) defining a cavity for said curl portion of the container.

6. A closure according to any of the preceding claims, wherein the locking means (8) comprises a peripherally extending rib (8) engageable with a part (5) of said curl portion and/or projections, so as to define an engaging surface.

7. A closure according to any of the preceding claims, wherein said curl portion defines contact surfaces (5,7) for said cover (3) and locking means (8).

8. A closure according to any of the preceding claims, wherein a compound (12) is placed between the cover (3) and said curl portion so as to provide a tight closure.

9. A closure according to any of claims 5-8, wherein a compound is placed between the sidewall of the container and said wall portion of the cover (3) so as to provide a tight closure.

10. A closure according to any of the preceding claims, wherein a compound is placed between the skirt (4) and the sidewall of the container (2) so as to provide a tight closure.

11. A closure according to any of claims 8-10, wherein the compound (12) is attached to said cover or skirt.

12. A closure according to any of the preceding claims, wherein the cover (2) comprises metal and/or cardboard and/or composites and/or glass and/or wood.

13. A closure according to any of the preceding claims, wherein the skirt (4) is made of a resilient plastic, such as PELD, PP, PEHD, PET, PMMA, PA, elastomers or rubber.

14. A closure according to any of the preceding claims, wherein the closure (1) and container (2) is substantially cylindrical.

15. A closure according to any of the preceding claims, wherein at least a part of the locking means (8) is detachable.

16. A closure according to any of claims 6-15, wherein the engaging rib comprises a first part and a second part, and wherein the engaging surface of a cross-section of the first part is bigger than the engaging surface of a cross-section of the second part.

17. A closure according to claim 15 and 16, wherein the first part of the rib is detachable.

18. A closure according to any of the preceding claims, wherein the closure (2) comprises gripping means.

19. A closure according to any of the preceding claims, wherein the skirt (4) consists of two or three or four or more individual skirts.

20. A closure according to any of claims 1-19, wherein the skirt (4) extends continuously along the entire circumference of the container (2).

21. A closure according to claim 20, wherein said skirt (4) comprises one or more peelable perforations (26) extending transverse to the circumferential direction of the skirt.

22. A closure according to any of the preceding claims, wherein said skirt (4) comprises one or more slits (17) extending transverse to the circumferential direction of the skirt.

23. A closure according to any of the preceding claims, wherein at least a part of the skirt (4) is detachable from the cover.

24. A method for manufacturing a closure (1) for a container (2) having a sidewall terminating in a peripherally extending curl portion encircling an opening to be closed, said method comprising the steps of:

- providing a non-plastic cover (3) having a peripherally extending edge portion having two oppositely arranged flanges defining attachment part(s) for a skirt (4), the cover (3) having a circumferentially extending sealing area adapted to form a seal with an upper edge (7) of the container,
- providing a non-metallic skirt (4), and
- seaming the skirt (4) between said two flanges.

25. A method according to claim 24, wherein the step of providing the skirt (4) comprises extruding the skirt (4).

Patentansprüche

1. Wiederverschließbarer Verschluß (1) für einen Behälter (2), der eine Seitenwand mit einem oder mehreren peripher nach außen sich erstreckenden Vorsprüngen hat und in einen peripher sich erstreckenden, gekräuselten Abschnitt endet, der eine zu schließende Öffnung umgibt, wobei der Verschluß (1) umfaßt:

- einen Deckel (3) nicht aus Kunststoff, der wenigstens die Öffnung abdeckt und einen umfangsmäßig verlaufenden Abdichtbereich hat, der ausgelegt ist, um eine Dichtung mit einem oberen Rand des Behälters (7) auszubilden, wobei der Deckel einen peripher verlaufenden Randabschnitt hat, mit zwei gegenüberliegend angeordneten Flanschen,
- wenigstens einen Rand (4) nicht aus Metall, der an wenigstens einem Teil des peripheren Randabschnitts des Deckels (3) angebracht ist, wobei der Rand (4) entlang der Seitenwand des Behälters (2) verläuft und ein Verschließmittel (8) hat, um in Eingriff zu gelangen mit wenigstens einem Teil des gekräuselten Abschnitts des Behälters (2) und/oder dem einen oder den mehreren Vorsprüngen, um den Verschluß (1) an dem Behälter (2) festzuhalten; und
- wobei der Rand (4) einen ersten Teil (9) umfaßt, der an dem Deckel (3) angesäumt ist zwischen den beiden gegenüberliegend angeordneten Flanschen und einen zweiten Teil (10), der klappbar ist zwischen einer Verschlußstellung, in welcher das Verschließmittel (8) in Eingriff steht mit dem gekräuselten Abschnitt und/oder Vorsprüngen und einer nicht-verschließenden Stellung, in welcher das Verschließmittel (8) außer Eingriff steht mit dem gekräuselten Abschnitt und/oder den Vorsprüngen.

2. Verschluß nach Anspruch 1, bei welchem der zweite Teil (10) ausgelegt ist, um in der nicht-verschließenden Stellung und/oder der Verschlußstellung gehalten zu sein.

3. Verschluß nach Anspruch 1 oder 2, bei welchem der zweite Teil (10) in einigen Stellungen ausgelegt ist, um in Richtung der nicht-verschließenden Stellung vorgespannt zu sein.

4. Verschluß nach einem der Ansprüche 1-3, bei welchem der Rand (4) entlang einer Außenoberfläche des gekräuselten Abschnitts verläuft.

5. Verschluß nach einem der Ansprüche 1-4, bei welchem der Deckel (3) einen Randabschnitt (13) umfaßt, der in Eingriff bringbar ist mit einer Innenoberfläche (14) des Behälters, die durch seine Seitenwand definiert ist, wobei der Wandabschnitt (13) und der Rand (4) einen Hohlraum für den gekräuselten Abschnitt des Behälters definieren.

6. Verschluß nach einem der vorstehenden Ansprüche, bei welchem das Verschließmittel (8) eine peripher verlaufende Rippe (8) umfaßt, die in Eingriff bringbar ist mit einem Teil (5) des gekräuselten Abschnitts und/oder den Vorsprüngen, um eine Eingriffsoberfläche zu definieren.

7. Verschluß nach einem der vorstehenden Ansprüche, bei welchem der gekräuselte Abschnitt Kontaktoberflächen (5, 7) für den Deckel (3) und das Verschließmittel (8) definiert.

8. Verschluß nach einem der vorstehenden Ansprüche, bei welchem eine Verbindung (12) zwischen dem Deckel (3) und dem gekräuselten Abschnitt angeordnet ist, um einen dichten Verschluß vorzusehen.

9. Verschluß nach einem der Ansprüche 5-8, bei welchem eine Verbindung zwischen der Seitenwand des Behälters und dem Seitenwandabschnitt des Deckels (3) angeordnet ist, um einen dichten Verschluß vorzusehen.

10. Verschluß nach einem der vorstehenden Ansprüche, bei welchem eine Verbindung zwischen dem Rand (4) und der Seitenwand des Behälters (2) angeordnet ist, um einen dichten Verschluß vorzusehen.

11. Verschluß nach einem der Ansprüche 8-10, bei welchem die Verbindung (12) an dem Deckel oder dem Rand angebracht ist.

12. Verschluß nach einem der vorstehenden Ansprüche, bei welchem der Deckel (2) Metall und/oder Pappe und/oder Verbundwerkstoffe und/oder Glas und/oder Holz umfaßt.

13. Verschluß nach einem der vorstehenden Ansprüche, bei welchem der Rand (4) aus elastischem Kunststoff wie beispielsweise PELD, PP, PEHD, PET, PMMA, PA, Elastomeren oder Gummi hergestellt ist.

14. Verschluß nach einem der vorstehenden Ansprüche, bei welchem der Verschluß (1) und der Behälter (2) im wesentlichen zylindrisch sind.

15. Verschluß nach einem der vorstehenden Ansprüche, bei welchem wenigstens ein Teil des Verschließmittels (8) lösbar ist.

16. Verschluß nach einem der Ansprüche 6-15, bei welchem die Eingriffsrippe wenigstens einen ersten Teil und einen zweiten Teil umfaßt und wobei die Eingriffsoberfläche eines Querschnitts des ersten Teils größer ist als die Eingriffsoberfläche eines Querschnitts des zweiten Teils.

17. Verschluß nach Anspruch 15 und 16, bei welchem der erste Teil der Rippe lösbar ist.

18. Verschluß nach einem der vorstehenden Ansprüche, bei welchem der Verschluß (2) Greifmittel umfaßt.

19. Verschluß nach einem der vorstehenden Ansprüche, bei welchem der Rand (4) aus zwei oder drei oder vier oder mehr individuellen Rändern besteht.

20. Verschluß nach einem der Ansprüche 1-19, bei welchem der Rand (4) durchgehend entlang des gesamten Umfangs des Behälters (2) verläuft.

21. Verschluß nach Anspruch 20, bei welchem der Rand (4) eine oder mehrere ablösbare Perforationen (26) umfaßt, die transversal zu der Umfangsrichtung des Randes verlaufen.

22. Verschluß nach einem der vorstehenden Ansprüche, bei welchem der Rand (4) einen oder mehrere Schlitze (17) umfaßt, die transversal zu der Umfangsrichtung des Randes verlaufen.

23. Verschluß nach einem der vorstehenden Ansprüche, bei welchem wenigstens ein Teil des Randes (4) von dem Deckel lösbar ist.

24. Verfahren zur Herstellung eines Verschlusses (1) für einen Behälter (2), der eine Seitenwand hat, die in einen peripher verlaufenden, gekräuselten Abschnitt endet, der eine zu verschließende Öffnung umgibt, wobei das Verfahren die Schritte umfaßt:

- Vorsehen eines Deckels (3) nicht aus Kunststoff, der einen peripher verlaufenden Randabschnitt hat, der zwei gegenüberliegend angeordnete Flansche hat, die ein Befestigungsteil (e) für einen Rand (4) definieren, wobei der Deckel (3) einen umfangsmäßig verlaufenden Abdichtbereich hat, der ausgelegt ist, um eine Dichtung mit einem oberen Rand (7) des Behälters zu bilden,
- Vorsehen eines Randes (4) nicht aus Metall, und
- Ansäumen des Randes (4) zwischen den beiden Flanschen.

25. Verfahren nach Anspruch 24, bei welchem der Schritt des Vorsehens des Randes (4) das Extrudieren des Randes (4) umfaßt.

Revendications

1. Dispositif de fermeture (1) pouvant être reverrouillé pour un conteneur (2) ayant une paroi latérale avec une ou plusieurs projections s'étendant vers l'extérieur de façon périphérique et se terminant dans une partie de courbe s'étendant de façon périphérique encerclant une ouverture à fermer, le dispositif de fermeture (1) comprenant :

- un couvercle non plastique (3) couvrant au moins ladite ouverture et ayant une zone d'étanchéité s'étendant circonférentiellement adaptée pour former un joint avec un bord supérieur du conteneur (7), le couvercle ayant une partie de bord s'étendant de façon périphérique ayant deux brides agencées de manière opposée,

- au moins une collerette non métallique (4) attachée à au moins une partie de ladite partie de bord périphérique du couvercle (3), la collerette (4) s'étendant le long de ladite paroi latérale dudit conteneur (2) et comportant un moyen de verrouillage (8) à engager avec au moins une partie de ladite partie de courbe du conteneur (2) et/ou ladite ou lesdites projections, de manière à verrouiller le dispositif de fermeture (1) sur le conteneur (2), et

dans lequel la collerette (4) comprend une première partie (9) sertie sur le couvercle (3) entre lesdites deux brides agencées de manière opposée et une seconde partie (10) pouvant se plier entre une position de verrouillage où ledit moyen de verrouillage (8) engage ladite partie de courbe et/ou lesdites projections et une position de déverrouillage où ledit moyen de verrouillage (8) est hors d'engagement avec ladite partie de courbe et/ou lesdites projections.

2. Dispositif de fermeture selon la revendication 1, dans lequel la seconde partie (10) est adaptée pour être retenue dans la position de déverrouillage et/ou la position de verrouillage.

3. Dispositif de fermeture selon la revendication 1 ou 2, dans lequel la seconde partie (10), dans certaines positions, est adaptée pour être poussée vers la position de déverrouillage.

4. Dispositif de fermeture selon l'une quelconque des revendications 1 à 3, dans lequel la collerette (4) s'étend le long d'une surface extérieure de la partie de courbe.

5. Dispositif de fermeture selon l'une quelconque des revendications 1 à 4, dans lequel le couvercle (3) comprend une partie de paroi (13) pouvant s'engager avec une surface interne (14) du conteneur définie par sa paroi latérale, ladite partie de paroi (13) et ladite collerette (4) définissant une cavité pour ladite partie de courbe du conteneur.

6. Dispositif de fermeture selon l'une quelconque des revendications précédentes, dans lequel le moyen de verrouillage (8) comprend une nervure (8) s'étendant de façon périphérique pouvant s'engager avec une partie (5) de ladite partie de courbe et/ou les projections, de manière à définir une surface d'engagement.

7. Dispositif de fermeture selon l'une quelconque des revendications précédentes, dans lequel ladite partie de courbe définit des surfaces de contact (5, 7) pour ledit couvercle (3) et ledit moyen de verrouillage (8).

8. Dispositif de fermeture selon l'une quelconque des revendications précédentes, dans lequel un composé (12) est placé entre le couvercle (3) et ladite partie de courbe, de manière à créer une fermeture étanche.

9. Dispositif de fermeture selon l'une quelconque des revendications 5 à 8, dans lequel un composé est placé entre la paroi latérale du conteneur et ladite partie de paroi du couvercle (3), de manière à créer une fermeture étanche.

10. Dispositif de fermeture selon l'une quelconque des revendications précédentes, dans lequel un composé est placé entre la collerette (4) et la paroi latérale du conteneur (2), de manière à créer une fermeture étanche.

11. Dispositif de fermeture selon l'une quelconque des revendications 8 à 10, dans lequel le composé (12) est attaché audit couvercle ou à ladite collerette.

12. Dispositif de fermeture selon l'une quelconque des revendications précédentes, dans lequel le couvercle (3) comprend du métal et/ou du carton et/ou des composites et/ou du verre et/ou du bois.

13. Dispositif de fermeture selon l'une quelconque des revendications précédentes, dans lequel la collerette (4) est composée d'un plastique élastique, tel que du PELD, du PP, du PEHD, du PET, du PMMA, du PA, des élastomères ou du caoutchouc.

14. Dispositif de fermeture selon l'une quelconque des revendications précédentes, dans lequel le dispositif de fermeture (1) et le conteneur (2) sont sensiblement cylindriques.

15. Dispositif de fermeture selon l'une quelconque des revendications précédentes, dans lequel au moins une partie du moyen de verrouillage (8) est détachable.

16. Dispositif de fermeture selon l'une quelconque des revendications 6 à 15, dans lequel la nervure d'engagement comprend une première partie et une seconde partie, et dans lequel la surface d'engagement d'une coupe transversale de la première par-

tie est plus grande que la surface d'engagement d'une coupe transversale de la seconde partie.

17. Dispositif de fermeture selon la revendication 15 et 16, dans lequel la première partie de la nervure est détachable.

18. Dispositif de fermeture selon l'une quelconque des revendications précédentes, dans lequel le dispositif de fermeture (1) comprend un moyen de préhension.

19. Dispositif de fermeture selon l'une quelconque des revendications précédentes, dans lequel la collerette (4) se compose de deux ou trois ou quatre ou plus collerettes individuelles.

20. Dispositif de fermeture selon l'une quelconque des revendications 1 à 19, dans lequel la collerette (4) s'étend en continu le long de toute la circonférence du conteneur (2).

21. Dispositif de fermeture selon la revendication 20, dans lequel ladite collerette (4) comprend une ou plusieurs perforations pelables (26) s'étendant de manière transversale à la direction circonférentielle de la collerette.

22. Dispositif de fermeture selon l'une quelconque des revendications précédentes, dans lequel ladite collerette (4) comprend une ou plusieurs fentes (17) s'étendant de manière transversale à la direction circonférentielle de la collerette.

23. Dispositif de fermeture selon l'une quelconque des revendications précédentes, dans lequel au moins une partie de la collerette (4) est détachable du couvercle.

24. Procédé de fabrication d'un dispositif de fermeture (1) pour un conteneur (2) ayant une paroi latérale se terminant dans une partie de courbe s'étendant de façon périphérique encerclant une ouverture à fermer, ledit procédé comprenant les étapes consistant à :

- fournir un couvercle non plastique (3) ayant une partie de bord s'étendant de façon périphérique ayant deux brides agencées de manière opposée définissant une(des) partie(s) d'attache pour une collerette (4), le couvercle (3) ayant une zone d'étanchéité s'étendant circonférentiellement adaptée pour former un joint avec un bord supérieur (7) du conteneur,
- fournir une collerette non métallique (4), et
- sertir la collerette (4) entre lesdites deux brides.

25. Procédé selon la revendication 24, dans lequel l'étape consistant à prévoir la collerette (4) comprend l'extrusion de la collerette (4).

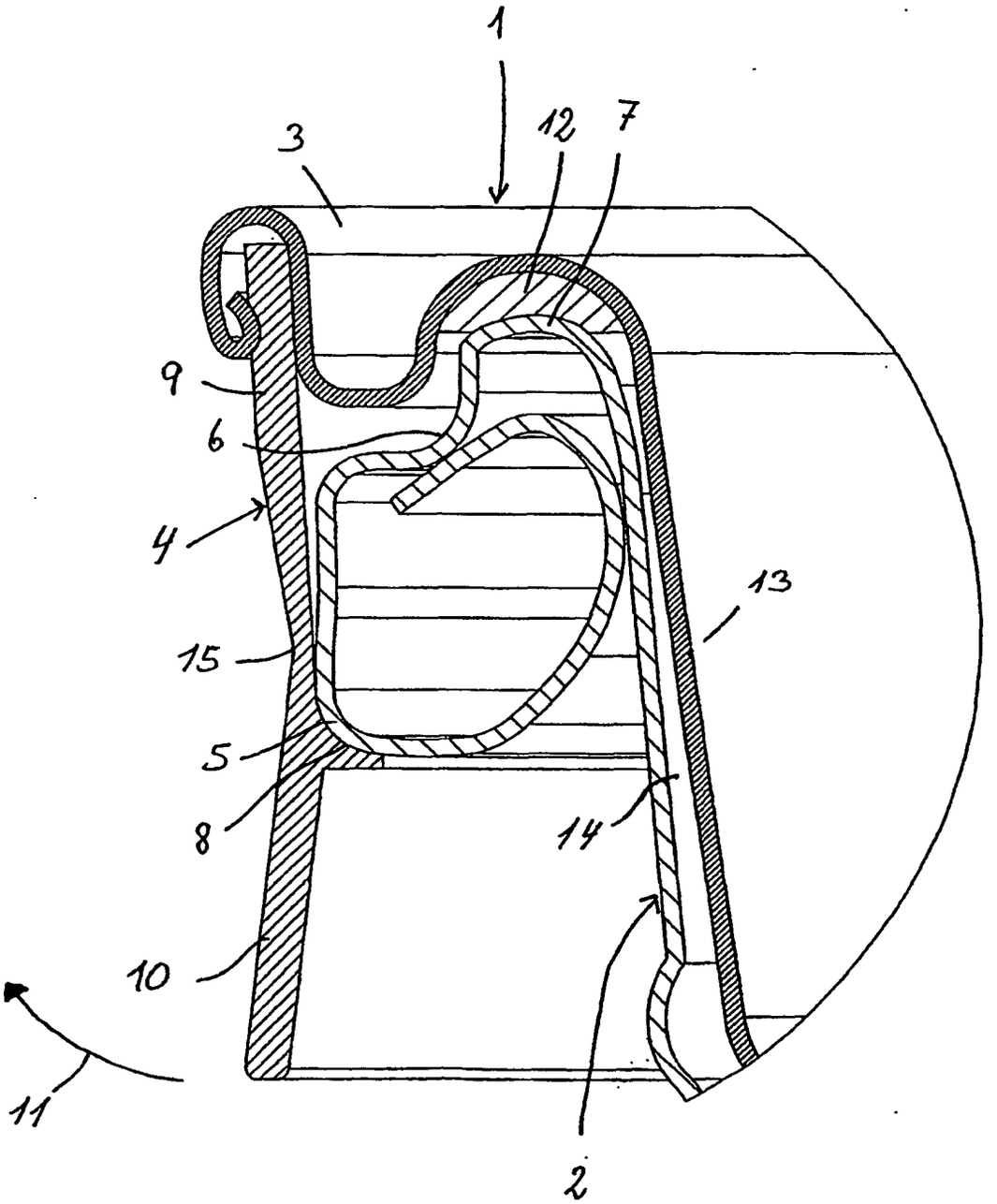


Fig. 1

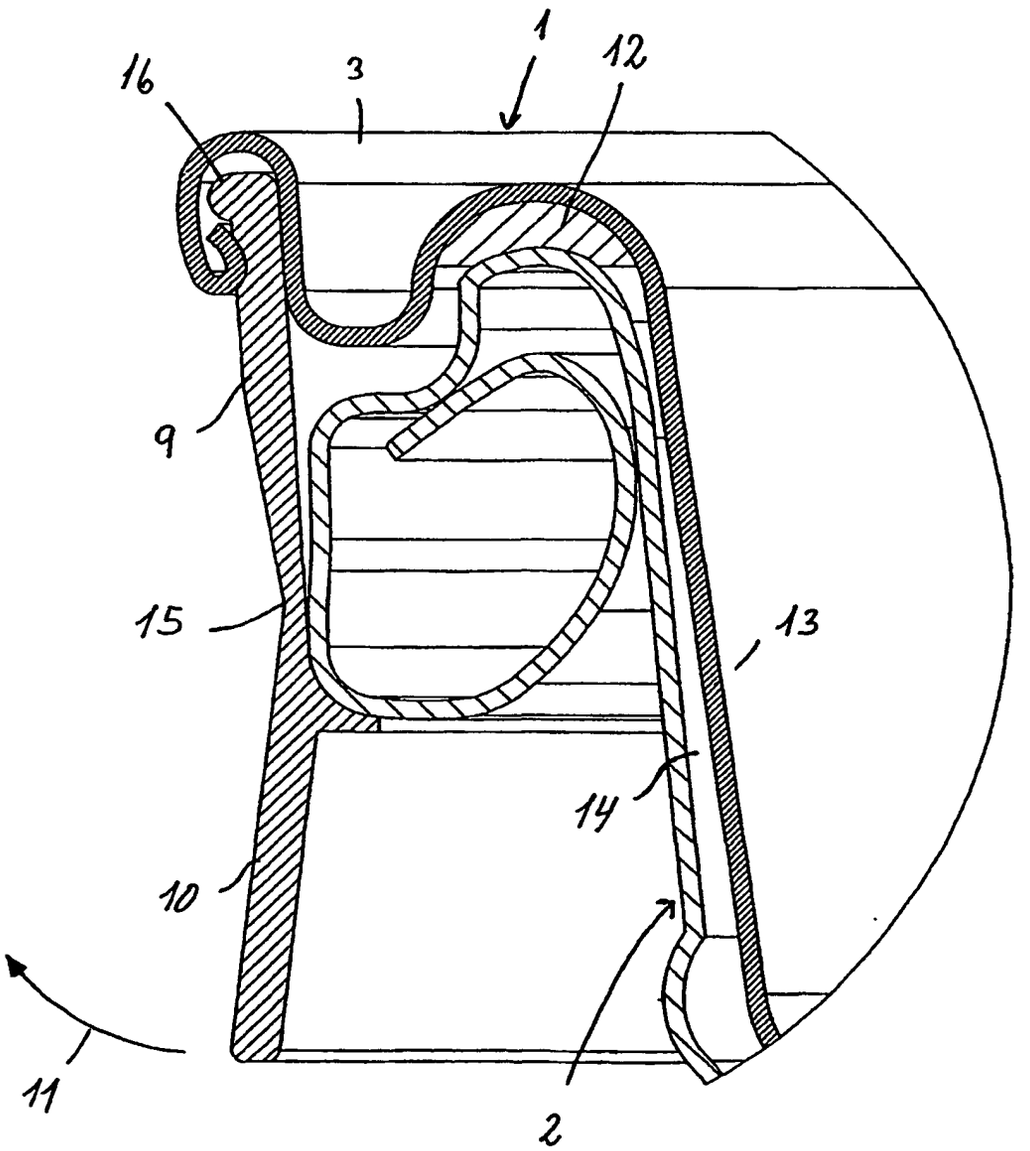


Fig. 2

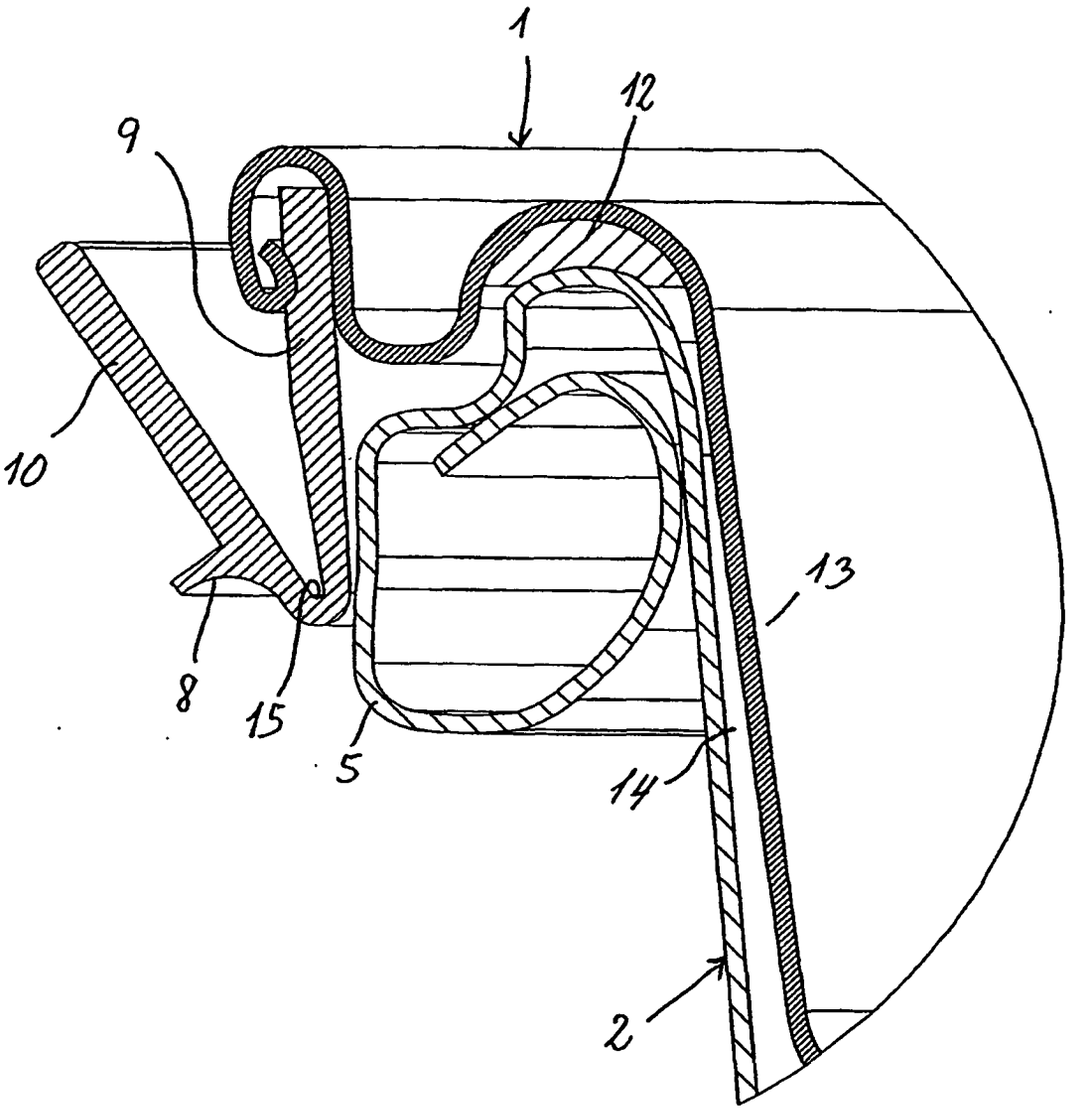


Fig. 5

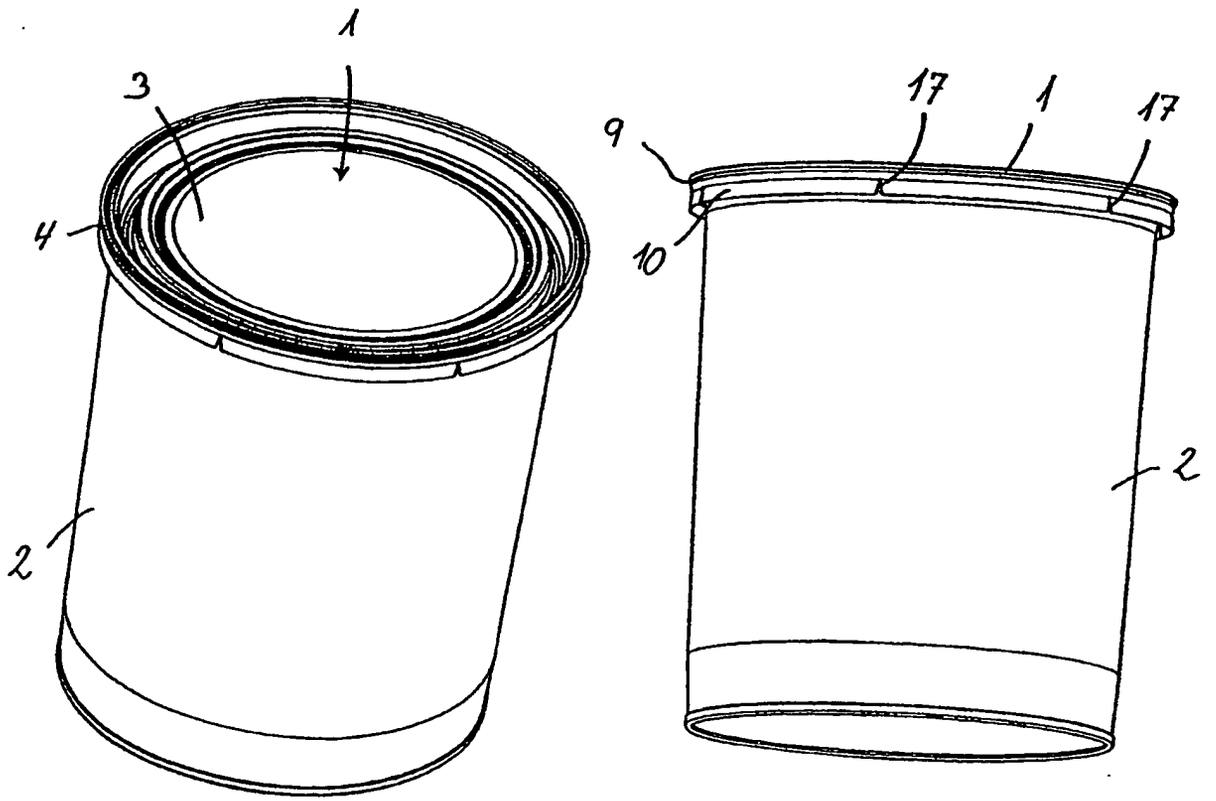


Fig. 7

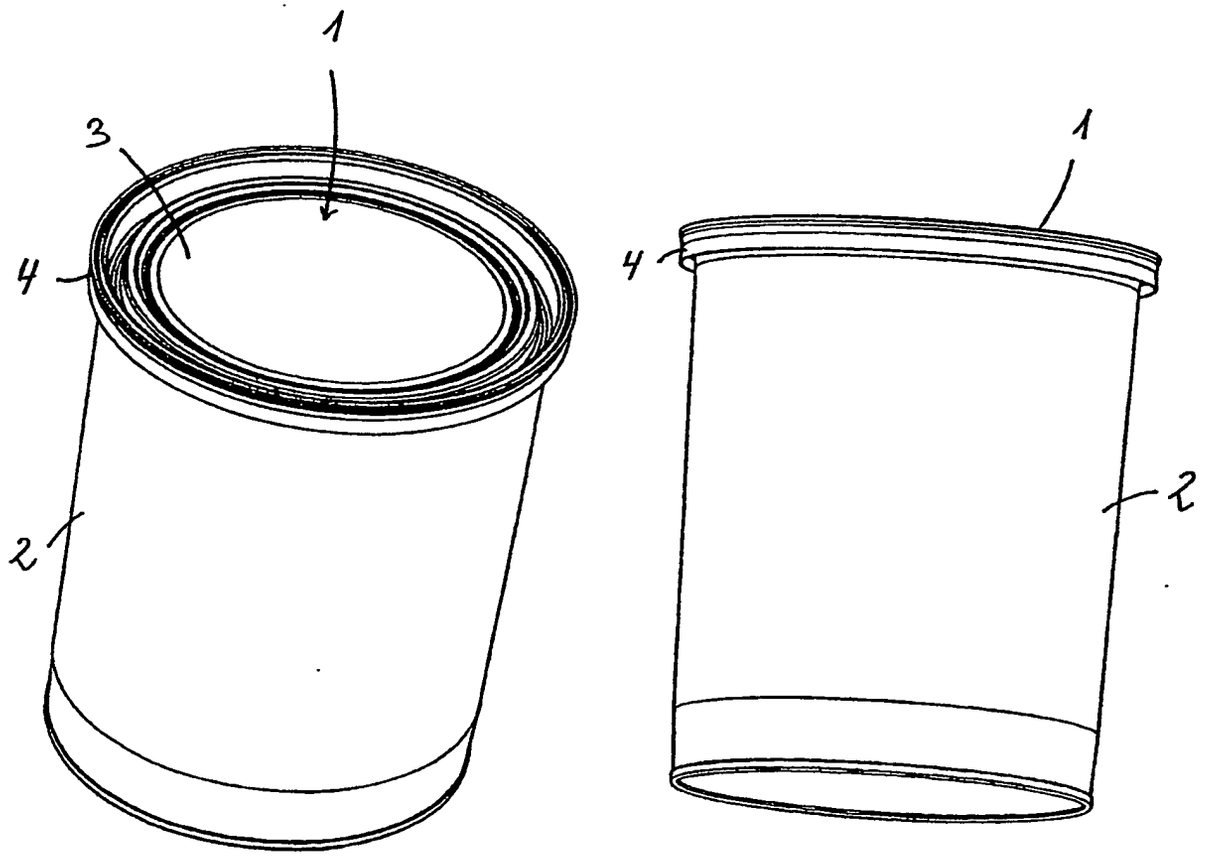


Fig. 8

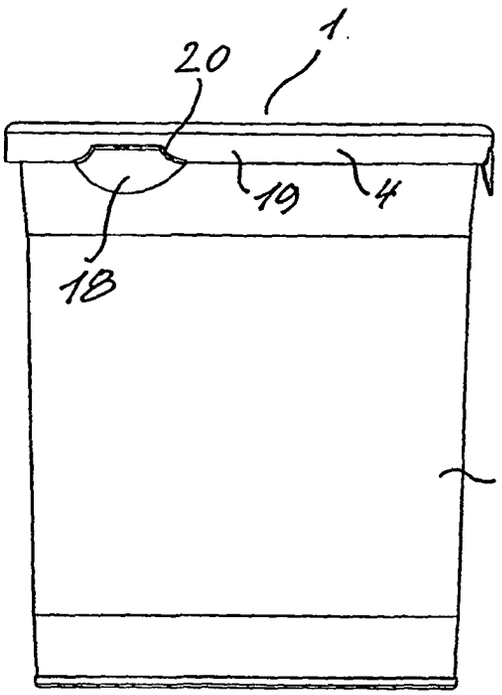


Fig. 9a

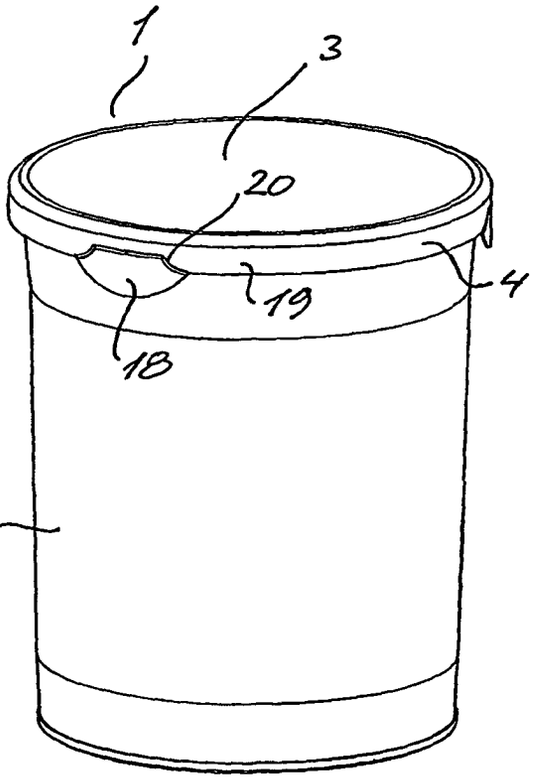


Fig. 9b

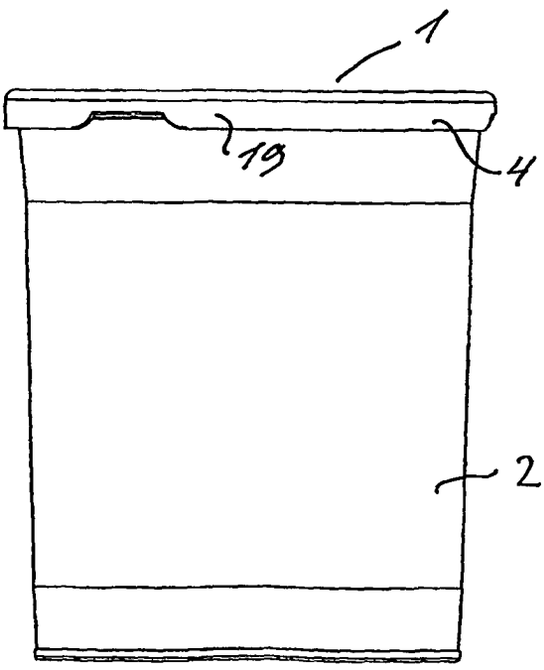


Fig. 10a

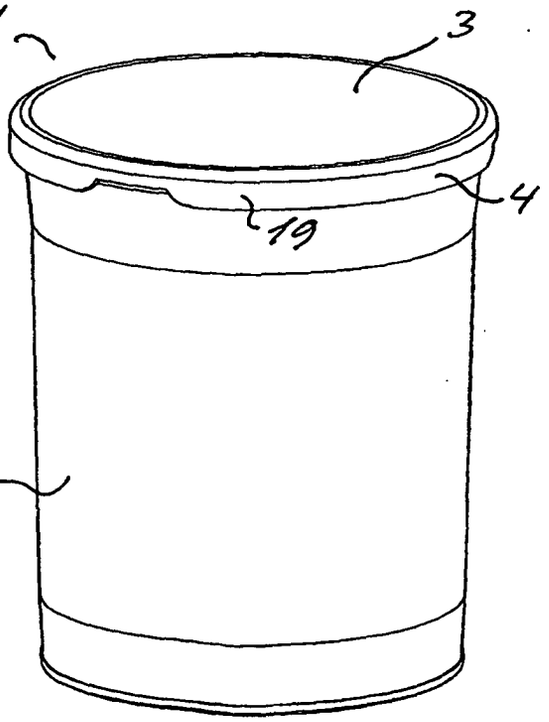


Fig. 10b

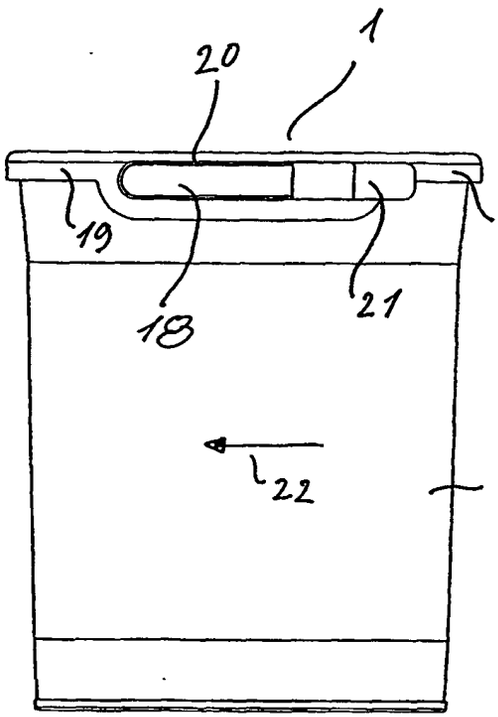


Fig. 11a

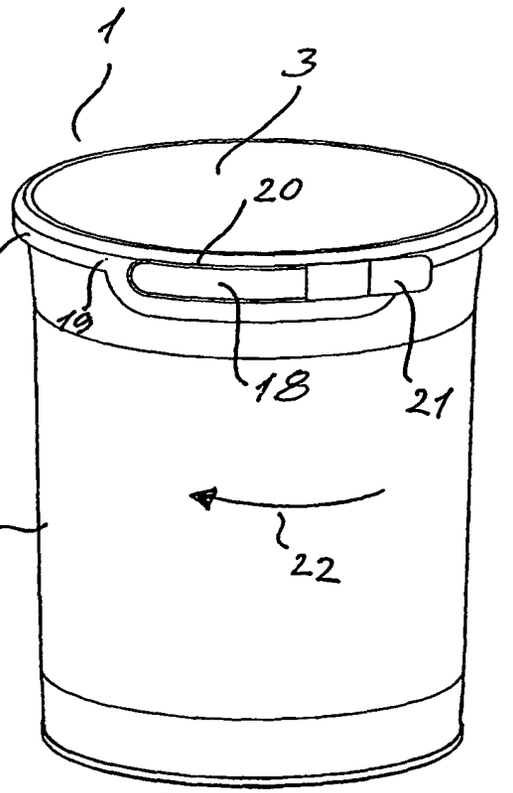


Fig. 11b

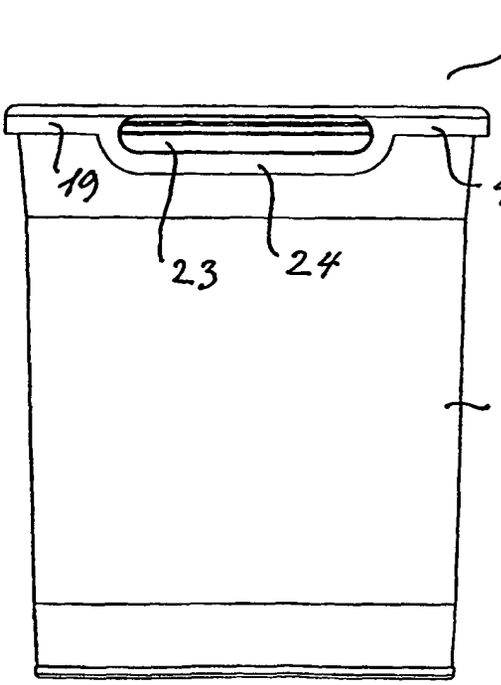


Fig. 12a

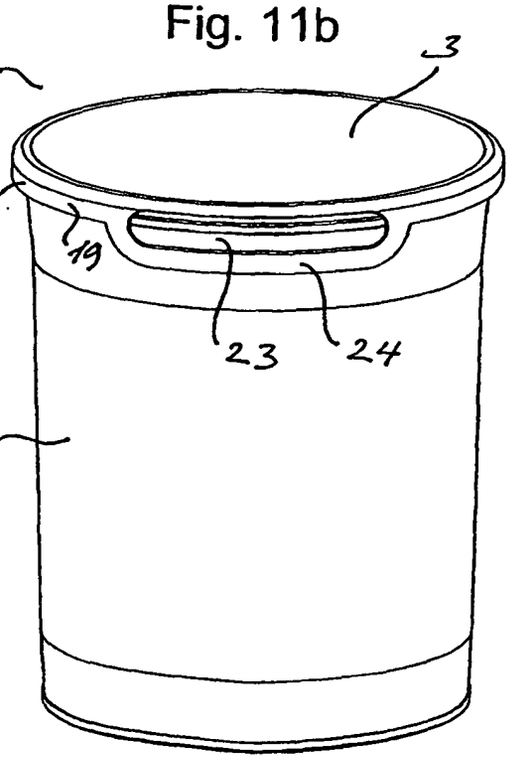


Fig. 12b

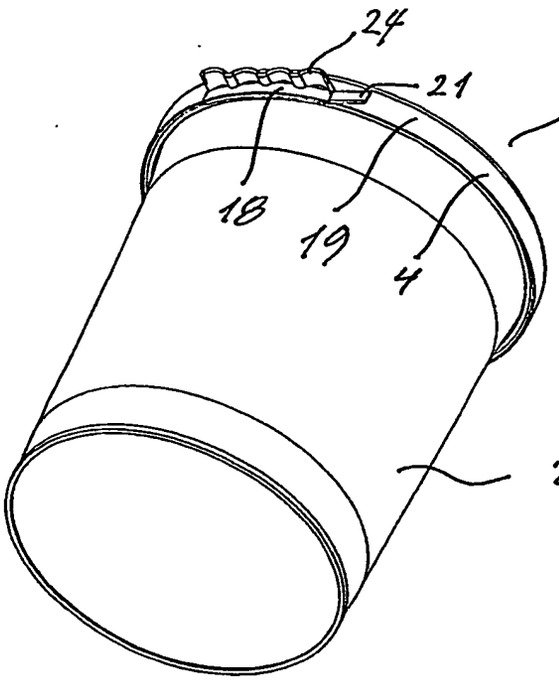


Fig. 13a

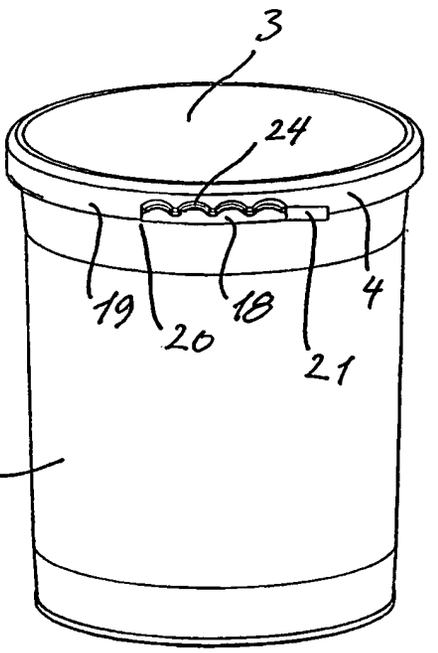


Fig. 13b

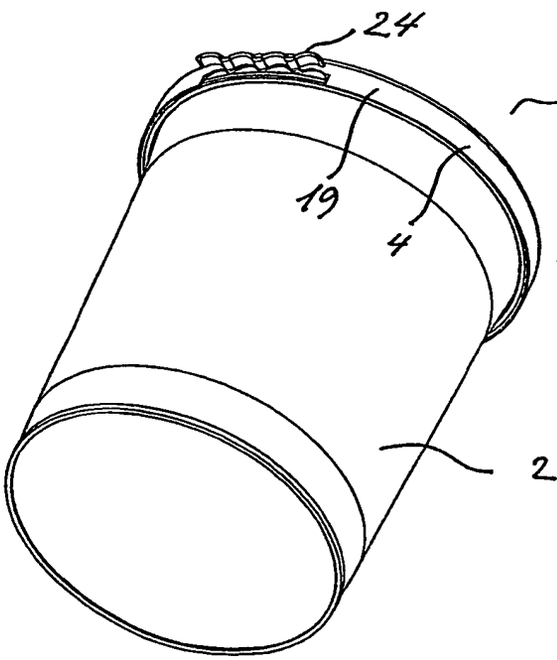


Fig. 14a

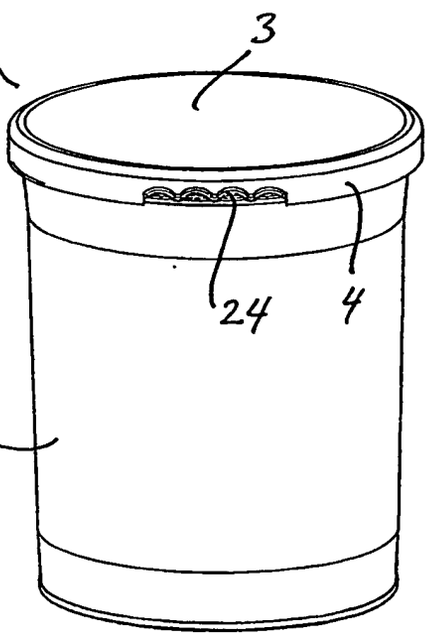


Fig. 14b

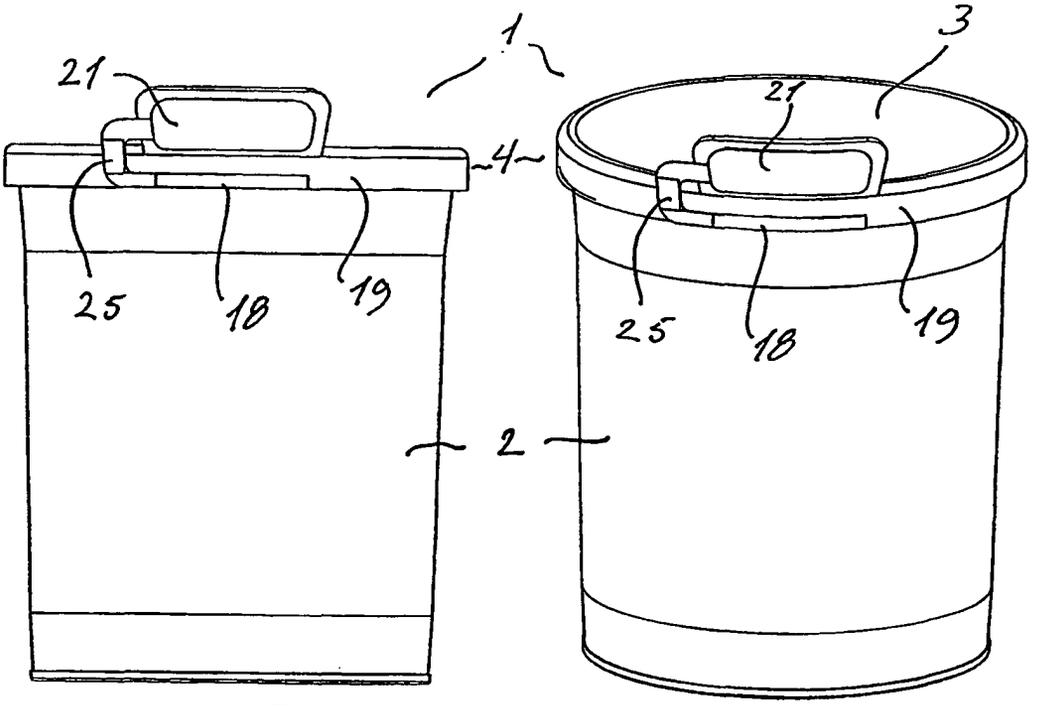


Fig. 15a

Fig. 15b

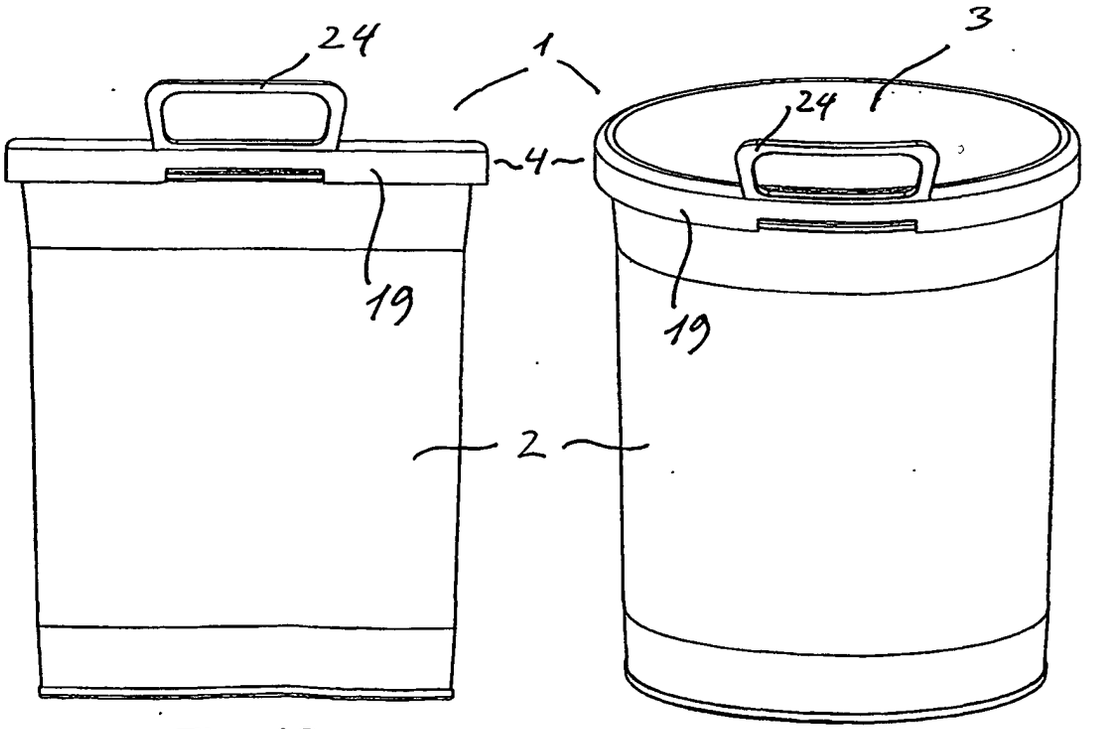


Fig. 16a

Fig. 16b

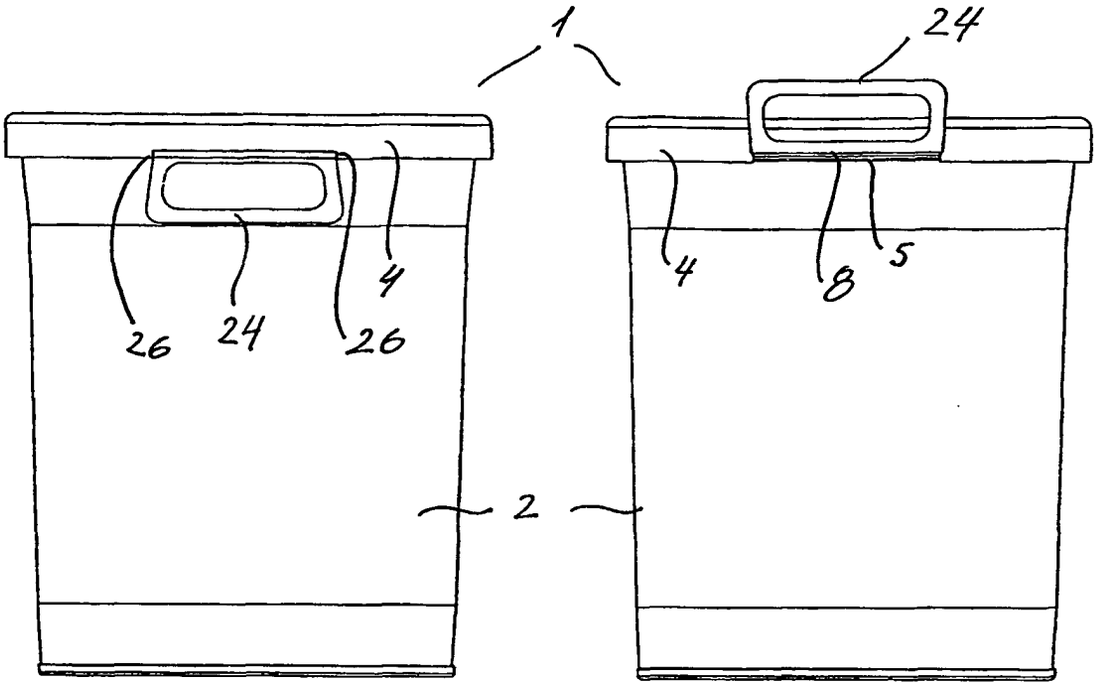


Fig. 17a

Fig. 17b

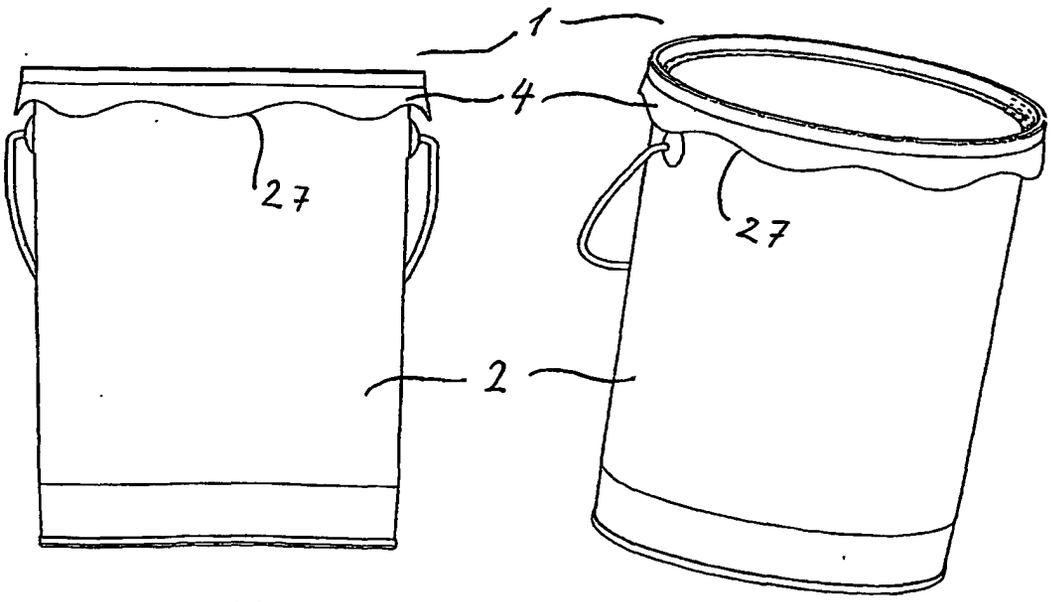


Fig. 18a

Fig. 18b