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(54) **STACKABLE BOTTLE WITH HANDLE**

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Description

[0001] The invention relates to a set comprising at least one first and one second stackable bottle, wherein each bottle is made of a material such that the bottle can be formed by blow-moulding, and wherein each bottle has a top piece which is mounted around the bottle neck and extends to a peripheral part of the bottle, wherein the top piece is dimensioned such that in a stacked position of the first and second bottle, the top piece of the first bottle lies against a peripheral base part of the second bottle, wherein a handle is connected with said top piece within said peripheral part of the bottle and at a distance from this peripheral part of the bottle, said top piece comprising an annular element with fixing means on an inside of said annular element such that the top piece is able, from a bottle opening, to be pushed with the annular element over the bottle neck in order to attach the top piece to the bottle, and is able to offer resistance to movement in the opposite direction. The invention furthermore relates to a stackable bottle from this set. Throughout the entire patent specification a bottle or a stackable bottle is to be construed as a bottle comprising a top piece.

[0002] Such bottles are known from WO2009/095109, which is regarded as the closest prior art. This document describes a stackable bottle with a top piece. This document describes how the top piece facilitates the handling and stacking of the bottle.

[0003] One disadvantage of the known bottle is that on lifting a full bottle, a deformation of the top piece occurs.

[0004] The object of the invention is to obtain a bottle wherein the bottle is easier to handle.

[0005] For this a bottle according to the invention is characterised in that the handle is connected directly to said annular element. Because the handle is connected with the top piece, the bottle can easily be lifted via this handle and also be handled by this on a non-flat floor. By connecting this handle to the base part within the peripheral part and at a distance from this peripheral part, the handle has no disadvantageous effect on the rollable nature of the bottle. Also the bottle remains stackable, namely the handle does not protrude at any point because it is placed within the peripheral part of the bottle. Thus a bottle is obtained which is both stackable and easy to handle. Thus the handle is attached to the top piece as close as possible to the bottle neck, namely the annular element comprises fixing means on the inside and is attached to the bottle neck by these. By attaching the handle directly to the annular element, the distance between firstly the fixing point of the handle to the top piece and secondly the fixing point of the top piece to the bottle, is as small as possible. This avoids that, on lifting the bottle via the handle, great moment forces occur in the top piece. If namely the handle were attached to the peripheral part of the top piece, on lifting a moment force would occur in the bottle neck which would have to be absorbed by the top piece. By attaching the handle to the annular element, the top piece need only absorb forc-

es which occur from stacking, namely downwardly directed pressure. No moment forces need be absorbed by the top piece, whereby the top piece need not be dimensioned extra strong.

[0006] Preferably the top piece is attached to said bottle neck by clipping. Assembly of two parts by clipping them together is simple to automate. As a result a bottle and top piece are obtained which can be assembled in a simple manner by an assembly machine. Furthermore, in contrast to screwing for example, clipping does not require the bottle and top piece to be rotatable in relation to each other. Thus even non-round bottles can easily be fitted with a top piece. For example, a bottle largely rectangular in cross-section can easily be fitted with a correspondingly rectangular top piece by clipping.

[0007] Preferably said top piece and said handle are made of one piece of plastic by injection moulding. By making the top piece and handle of one piece, no assembly step is required to attach the top piece and handle together. Furthermore such injection-moulded parts can have widely varying shapes and material properties. Further advantages are the low cost price and simplicity of mass production.

[0008] Preferably said handle extends in a plane which lies substantially perpendicular in relation to a longitudinal axis of the bottle. Thus the handle extends inside the top piece, which consequently facilitates stacking. Namely a handle which does not extend inside the top piece therefore protrudes outside this top piece, which makes stacking the bottle more difficult. The handle protrudes perpendicular to the longitudinal axis of the bottle only if no external force is applied to the handle. When an external force is applied, for example when lifting the bottle via the handle, due to internal stresses the handle can deform and thus extend in another direction, for example upward.

[0009] Preferably said top piece extends toward said peripheral part of the bottle, at least partly making contact with a shoulder part of the bottle. Because the top piece lies in contact with the shoulder part of the bottle, the force exerted on the top piece can be transferred to this shoulder part of the bottle. In particular when stacking the bottles, a bottle lying on the top by its own weight exerts a downward force on the bottle lying below. This downward force is applied to the top piece, namely the bottle on top stands on this, and the top piece transfers this force to the bottle. By bringing the top piece into contact with the shoulder part of the bottle, such downward forces can easily be transferred through the stack.

[0010] Said top piece comprises an annular element with fixing means on the inside of the annular element such that the top piece is able, from a bottle opening, to be pushed with the annular element over the bottle neck in order to attach the top piece to the bottle, and is able to offer resistance to movement in the opposite direction. Such a fixing of the top piece to the bottle is very simple and hence cheap. Furthermore pushing a ring form with fixing means over the bottle neck is very easy to auto-

mate, which is an advantage in the production process of such bottles with top piece.

[0011] Preferably said handle comprises two legs and a gripper part, wherein the two legs are connected each with a first end to the respective end of the gripper part and each with a second end to said annular element. By providing two legs, the handle can be attached with the annular element on both sides. Thus the gripping point of the bottle, on lifting, lies closer to the centre of gravity of the bottle, which in symmetrical bottles lies on the longitudinal centre axis. This simplifies lifting and leads to an even distribution of force in the annular element.

[0012] Preferably said legs are connected to said annular element such that a first distance, measured between the longitudinal axis of the bottle and the point lying furthest away from this longitudinal axis on said gripper part, is smaller than a second distance measured between said second end of a leg and said point lying furthest away from the longitudinal axis on said gripper part. On lifting of the bottle, an upward force is applied to the gripper part. Thus the legs of the handle, the gripper part of which lies eccentric in relation to the longitudinal axis of the bottle, bend up in the direction of the longitudinal axis. As a result, the gripper part, in particular the part of the gripper where the fingers are located during lifting, comes closer to the bottle neck and the bottle cap. This shift of the gripper part can have the consequence that the fingers become trapped between the gripper part and the bottle neck or bottle cap in this new position. This problem is solved in that each of the legs at their ends extends into a ring part which brings the legs towards each other and has a diameter largely equal to the outer diameter of the annular element, and in that both legs are attached to the annular element by one end of this ring part. As a result the distance increases between firstly the fixing points of the legs with the annular element and secondly the part of the gripper part where the fingers hook behind, whereby the radius over which the legs can bend under load is also increased. This increase in distance keeps the gripper part away from the bottle neck and bottle cap on lifting of the bottle, preferably even causes it to bend over the bottle cap.

[0013] Preferably a bottle according to the invention has a capacity of greater than 5 litres, preferably greater than 10 litres, more preferably greater than 15 litres, and a capacity of less than 35 litres, preferably less than 30 litres, more preferably less than 25 litres. Bottles with such capacity have external dimensions which make handling without handle difficult.

[0014] The invention will now be described in more detail with reference to the embodiment examples shown in the drawings.

[0015] The drawings show:

Figure 1 a cross-section of a set of stackable bottles according to the invention in stacked position;

Figure 2 a cross-section of a stackable bottle accord-

ing to the invention;

Figure 3 a top piece viewed in perspective;

Figure 4 a top view of a top piece;

Figure 5 a cross section of an annular fixing means of a top piece on a stackable bottle according to the invention; and

Figure 6 an effect of different embodiments of a handle in the top piece on a bottle according to the invention.

[0016] In the drawings the same or similar elements have the same reference numerals.

[0017] Figure 2 shows a bottle 1 which is produced linearly symmetrical about a longitudinal axis 2. The bottle 1, viewed from top to bottom along longitudinal axis 2, comprises an optional bottle top 3 (shown in figures 5 and 6), a bottle neck 4, a shoulder part 5, a body part 6 and a base part 7. Preferably the bottle 1 is produced by means of blow moulding from a material which can be blow moulded, preferably polyethylene terephthalate (PET). An alternative material which allows the bottle 1 to be produced by means of blow moulding is polylactic acid (PLA). The bottle 1 according to the invention furthermore comprises a top piece 12 attached to the bottle neck 4.

[0018] The bottle cap 3 is preferably attached to the bottle neck 4 by means of a screw connection, wherein the bottle cap 3 and bottle neck 4 have corresponding screw threads. However other systems such as clip systems can also be used to attach the bottle cap 3 to the neck. The bottle neck 4 furthermore preferably comprises a collar 8 which makes it possible to grip the bottle 1 in a simple manner, in particular during blow moulding of the bottle 1.

[0019] The shoulder part 5 of the bottle 1 joins the bottle neck 4 to the body part 6 of the bottle 1. For this the shoulder part 5 extends mainly in a radial direction and downward out from the bottle neck 4 which has a first diameter, to transform into the body part 6 of the bottle 1 which has a larger diameter than said first diameter. This gives a slightly curved top surface which extends largely perpendicular to the longitudinal axis 2 of the bottle at said shoulder part 5.

[0020] The base part 7 of the bottle 1 closes the body part 6 at the underside so that the bottle 1 is suitable for containing a fluid. Preferably the underside of the bottle is largely flat. Due to the largely flat underside, the bottle can be placed directly on its underside on a floor without using aids. Furthermore for blow moulding a flat underside, in contrast to an underside with a recess, less material is required. As a result the bottle, in comparison with a bottle with a recessed underside, is lighter and cheaper.

[0021] According to a further embodiment of the stackable bottle according to the invention, the underside of the bottle is convex (not shown) and the bottle furthermore contains a bottom piece (not shown) which is attached to the underside of the bottle to make the bottle

with a convex underside stackable. For blow moulding a bottle with a convex underside, less material is required at least on the underside of the bottle than for a bottle with a flat underside. This makes such a bottle lighter and cheaper. The bottom piece must however be produced, which entails an additional cost, but this bottom piece can be re-used for the next stackable bottle without intensive cleaning treatment. Preferably the bottom piece has a form which is complementary to the form of the top piece 12, which makes such bottles stackable.

[0022] Figure 1 shows a set of a first bottle and a second bottle in a stacked position in cross section. Figure 1 shows how the bottle neck 4 and bottle cap 3 (shown in figures 5 and 6) extend centrally and higher than the shoulder part 5 of the bottle 1. The underside of the bottle is largely flat. To make it possible, in a stacked position with a top bottle on a bottom bottle, for the top bottle to lie stably against the bottom bottle, a top piece 12 is provided. Without a top piece, the bottle neck 4 and bottle cap 3 of the bottom bottle would prevent a top bottle with a largely flat underside 7 from being placed stably on the bottom bottle. The top piece 12 is attached on at least the bottom bottle and provides this bottle with a raised shoulder part 30. In relation to the raised shoulder part 30, the bottle neck and bottle cap do not protrude upward or at least protrude less. As a result, a bottle 1 with a largely flat underside 7 can be supported on this raised shoulder part 30 without the bottle neck 4 and bottle cap 3 preventing this. The dimensions of the top piece 12 are such that the bottle neck 4 and bottle cap 3 of the bottle in the stacked position are bridged in the height direction, with the result that the top bottle can be placed stably on the top piece of the bottom bottle.

[0023] Figures 3 and 4 show a top piece 12 with handle 31 of the bottle 1 according to the invention. According to the invention the top piece 12 is attached to the bottle neck 4. For this the top piece preferably has annular fixing means 15 which are preferably provided centrally in the top piece 12 and on an inside thereof are fitted with counter-hook means 16. The annular fixing means 15 with counter-hook means 16 allow the top piece 12 to be pushed over the bottle neck 4 in the direction of the shoulder part 5 while preventing the top piece 12 from being able to move over the bottle neck 4 in a direction away from the shoulder part 5. Preferably the annular fixing means 15 with counter-hook means 16 and the collar 8 on the bottle neck 4 are complementary in the sense that the counter-hook means 16 can be pushed over the collar 8 in the direction of the shoulder part 5 and prevent an opposite movement back over the collar 8. For this the counter-hook means 16 can comprise hinged lips 16 which, as shown in figure 5 viewed in the mounted position of the top piece 12, form an acute angle α with the longitudinal axis 2 towards the base part 7 of the bottle 1.

[0024] Within the peripheral edge of the top piece 12 is attached a handle 31. Thus the handle 31 does not protrude outside the top piece 12, whereby both the sides and the top side of the bottle 1 with top piece 12 are not

influenced by the handle. Thus the bottle 1 remains rollable and stackable. Preferably the handle 31 extends in said top piece 12 in a plane perpendicular to the longitudinal axis 2 of the bottle 1.

[0025] The handle 12 furthermore has a gripper part 17 which at each end is fitted with a leg 18 and 19, so as to form a U-shaped whole of the handle and two legs. Preferably the two legs 18 and 19 of the U shape have a mutual distance largely equal to the outer diameter of the annular fixing means 15. Preferably the legs 18 and 19 are both joined to the annular fixing means 15. If the legs 18 and 19 of the U shape are short, little space 20 is left between the gripper part 17 and the annular fixing means 15 to insert the fingers in space 20 and grip the gripper part 17, whereby the handle 12 is difficult to handle. If the legs 18 and 19 of the U shape are long, a lot of space 20 must be left between the gripper part 17 and the annular fixing means 15 and it will be easy to grip the gripper part 17 with the fingers. However if the legs 18 and 19 are too long, the gripper part 17 will protrude outside the top piece 12. Furthermore space must be provided in the top piece 12 for a handle 31, which requires structural adaptations and whereby the top piece 12 will deviate from an ideal symmetrical form. The longer the legs 18 and 19, the more extensive the structural adaptations. For the above reasons the length of the U-shaped legs 18 and 19 of the gripper part 17 is optimally selected in the sense that they are as small as possible yet sufficiently large for fingers to easily be inserted in the space 20 between the gripper part 17 and the annular fixing means 15. Preferably the distance with reference numeral 20 between the gripper part 17 and the annular fixing means 15 is at least 2.5 cm, more preferably at least 3 cm. Preferably the distance with reference numeral 20 between the gripper part 17 and the annular fixing means 15 is maximum 4 cm, more preferably maximum 3.5 cm.

[0026] It will be clear that the gripper part 17 and the legs 18 and 19 of the handle 12 can deviate in form from a pure U shape as is the case in figures 3 and 4. In a further embodiment as shown in figures 3 and 4, the gripper part 17 of the handle 12 is formed as an arc of a circle.

[0027] A further problem arises in lifting a full bottle 1 according to the invention with a handle 12 in which the length of the U-shaped legs 18 and 19 of the gripper part 17 is selected optimally. This problem is illustrated in figure 6. By applying an upward force F to the gripper part 17 which stands eccentric in relation to the longitudinal axis 2 of a bottle 1, the U-shaped legs 18 and 19 of the gripper part 17 will bend up in the direction of the longitudinal axis 2 as illustrated by dotted line 21. As a result the gripper part 17, or in particular the part of the gripper part 17 in which the fingers are placed for lifting, will be closer to the bottle neck 4 and the bottle cap 3. This shift of the gripper part 17 can lead to the fingers becoming trapped between the gripper part 17 and the bottle neck 4 or bottle cap 3 in this new position, as illustrated in figure 6a by distance 24. This problem can be solved by making the U-shaped legs 18 and 19 longer, whereby

the gripper part 17 lies further from the annular fixing means 15 and hence also further from the bottle neck 4 and bottle cap 3, which is disadvantageous as described above. However this problem can also be solved by allowing the U-shaped legs 18 and 19 at their ends to extend into a ring part 22 (figure 4) which brings the legs 18 and 19 towards each other and has a diameter largely equal to the outer diameter of the annular fixing means 15, and by both legs 18 and 19 being attached at one end of the ring part 22 to the annular fixing means 15. As a result the distance is increased between firstly the fixing points of the U-shaped legs 18 and 19 at the annular fixing means 15 and secondly the part of the gripper part 17 where the fingers are hooked, whereby the radius over which the legs 18 and 19 can bend under load is increased. Due to this increase in distance, on lifting the bottle 1 the gripper part 17 will remain further away from the bottle neck 4 and the bottle cap 3, preferably can bend over the bottle cap 3 as shown in figure 6b.

[0028] A handle 12 with circular gripper part 17 in the above solution will have the further positive effect because the legs 8 and 19 of the gripper part 17 will have a springing effect on application of force F. The circular gripper part 7 will deform under the force F into an ellipse form whereby the distance between the fixing point of the gripper part 17 and the place where the force F is applied is further enlarged and hence more space is released for the fingers.

[0029] Preferably the top piece 12 has ribs 32 (shown in figures 4 and 5) which extend from said annular fixing means 15 to a peripheral edge of the top piece. Preferably this peripheral edge of the top piece, when attached to a bottle, lies in the extension of the body of the bottle. The ribs 32 are preferably planar, whereby the plane is parallel to the longitudinal axis 2 of the bottle, and extend radially out in relation to this axis 2. These planar ribs, at an underside of the top piece, preferably have a form such that in the attached position of the top piece, the ribs 32 lie against the shoulder part 5 of the bottle. The planar ribs 32 preferably have, on the top of the top piece, a form such that the ribs 32 in stacked position lie against the underside of the top bottle. The ribs 32 support and partly form the raised shoulder part 30. The top piece with the ribs shows a structure similar to a bicycle wheel, where the outermost edge of the wheel, the peripheral part of the top piece, is joined by means of spokes, the ribs, to the innermost element, the annular fixing means.

[0030] The handle 31 is preferably placed between two successive ribs 43. However it is also possible for a rib 32 to be provided below the handle 31, where the form of this rib 32 on the top of the top piece deviates from the form of the other ribs.

[0031] The top piece 12 can prevent evacuation by pouring from the stackable bottle according to the invention. Preferably the bottle according to the invention contains evacuation means, preferably a pump, to evacuate the bottle without this having to be tilted. In a further embodiment the top piece comprises a pouring spout 33.

The pouring spout 33 is shaped as a tubular segment which extends between the annular fixing means 15 and the peripheral edge of the top piece 12. The pouring spout 33 is provided at the top of the top piece 12, preferably opposite the handle 31. By tilting the bottle 1, the substance, preferably fluid, inside the bottle moves to the outside through the bottle opening. This substance enters the pouring spout 33. This pouring spout 33 ensures a controlled movement of this substance towards the peripheral edge of the top piece 12. Thus a controlled pouring can be achieved from the stackable bottle 1 according to the invention.

[0032] Preferably a bottle 1 according to the invention has a capacity of more than 5 litres, more preferably more than 10 litres, most preferably more than 15 litres. Preferably a bottle 1 according to the invention has a capacity of less than 35 litres, more preferably less than 30 litres, most preferably less than 25 litres.

Claims

1. Set comprising at least a first and a second stackable bottle (1), wherein each bottle (1) is made of a material such that the bottle (1) can be made by blow moulding, and wherein each bottle (1) comprises a top piece (12) which is mounted around a bottle neck (4) and which extends to a peripheral part of the bottle (1), wherein the top piece (12) is dimensioned such that in a stacked position of the first and second bottles, the top piece (12) of the first bottle lies against a peripheral base part (7) of the second bottle, wherein a handle (31) is connected with said top piece (12) within said peripheral part of the bottle (1) and at a distance from this peripheral part of the bottle (1), wherein said top piece (12) comprises an annular element (15) with fixing means (16) on the inside of the annular element such that the top piece (12) is able, from a bottle opening, to be pushed with the annular element (15) over the bottle neck (4) in order to attach the top piece (12) to the bottle, and is able to offer resistance to a movement in the opposite direction, **characterised in that** said handle (31) is connected directly with said annular element (15).
2. Set according to claim 1, wherein said top piece (12) is attached to said bottle neck (4) by clipping.
3. Set according to any of the preceding claims, wherein said top piece (12) and said handle (31) are made of one piece of plastic by injection moulding.
4. Set according to any of the preceding claims, wherein said handle (31) extends in a plane that lies largely perpendicular in relation to the longitudinal axis (2) of the bottle (1).

5. Set according to any of the preceding claims, wherein said top piece (12) extends to said peripheral part of the bottle (1), at least partly lying in contact with a shoulder part (5) of the bottle.
6. Set according to any of the preceding claims, wherein said handle (31) comprises two legs (18 and 19) and a gripper part (17), wherein the two legs (18 and 19) are connected each with a first end to a respective end of the gripper part (17) and each with a second end to said annular element (15).
7. Set according to claim 6, wherein said legs (18 and 19) are connected to said annular element (15) such that a first distance measured between the longitudinal axis (2) of the bottle (1) and the point furthest away from this longitudinal axis (2) on said gripper part (17) is smaller than a second distance measured between said second end of a leg and said point furthest away from the longitudinal axis (2) on said gripper part (17).
8. Set according to any of the preceding claims, wherein said handle (31) is connected with said top piece (12) such that fingers of a human hand can grip said handle (31).
9. Set according to any of the preceding claims, wherein said handle (31) is formed largely as the arc of a circle.
10. Set according to any of the preceding claims, wherein each bottle (1) has a capacity greater than 5 litres, preferably greater than 10 litres, more preferably greater than 15 litres, and a capacity of less than 35 litres, preferably less than 30 litres, more preferably less than 25 litres.
11. Set according to any of the preceding claims, wherein said material is polyethylene terephthalate.
12. Stackable bottle (1) from the set according to any of the preceding claims.

Patentansprüche

1. Satz zumindest bestehend aus einer ersten und einer zweiten stapelbaren Flasche (1), wobei jede Flasche (1) aus einem derartigen Material besteht, dass die Flasche (1) durch Blasgießen geschaffen werden kann, und wobei jede Flasche (1) einen oberen Teil (12) aufweist, der um einen Flaschenhals (4) herum angebracht ist und der sich zu einem Umfangsabschnitt der Flasche (1) erstreckt, wobei der obere Teil (12) derart dimensioniert ist, dass der obere Teil (12) der ersten Flasche an einem Umfangsbasisabschnitt (7) der zweiten Flasche an einer ge-

stapelten Position der ersten und zweiten Flaschen anliegt, wobei eine Handhabe (31) mit dem oberen Teil (12) innerhalb des Umfangsabschnitts der Flasche (1) und in einem Abstand von diesem Umfangsabschnitt der Flasche (1) verbunden ist, wobei der obere Teil (12) ein ringartiges Element (15) mit einer Befestigungseinrichtung (16) an der Innenseite des ringartigen Elements derart aufweist, dass der obere Teil (12) von einer Flaschenöffnung mit dem ringartigen Element (15) über den Flaschenhals (4) gedrückt werden kann, um den oberen Teil (12) an der Flasche anzubringen, und dass er einen Widerstand gegen eine Bewegung in der entgegengesetzten Richtung bereitstellen kann, **dadurch gekennzeichnet, dass** die Handhabe (31) direkt mit dem ringartigen Element (15) verbunden ist.

2. Satz gemäß Anspruch 1, wobei der obere Teil (12) an dem Flaschenhals (4) durch Einklinken angebracht ist.
3. Satz gemäß einem der vorherigen Ansprüche, wobei der obere Teil (12) und die Handhabe (31) aus einem einzigen Kunststoffteil durch Spritzgießen gebildet sind.
4. Satz gemäß einem der vorherigen Ansprüche, wobei sich die Handhabe (31) in einer Ebene erstreckt, die im Wesentlichen senkrecht bezüglich der Längsachse (2) der Flasche (1) liegt.
5. Satz gemäß einem der vorherigen Ansprüche, wobei sich der obere Teil (12) zu dem Umfangsabschnitt der Flasche (1) erstreckt und zumindest teilweise in einem Kontakt mit einem Absatzabschnitt (5) der Flasche liegt.
6. Satz gemäß einem der vorherigen Ansprüche, wobei die Handhabe (31) zwei Schenkel (18 und 19) und einen Greifabschnitt (17) aufweist, wobei die beiden Schenkel (18 und 19) jeweils an einem ersten Ende mit einem jeweiligen Ende des Greifteils (17) und jeweils an einem zweiten Ende mit dem ringartigen Element (15) verbunden sind.
7. Satz gemäß Anspruch 6, wobei die Schenkel (18 und 19) mit dem ringartigen Element (15) derart verbunden sind, dass ein erster Abstand, der zwischen der Längsachse (2) der Flasche (1) und jenem Punkt gemessen wird, der von dieser Längsachse (2) an dem Greifabschnitt (17) am weitesten entfernt ist, kleiner ist als ein zweiter Abstand, der zwischen dem zweiten Ende eines Schenkels und jenem Punkt gemessen wird, der von der Längsachse (2) an dem Greifabschnitt (17) am weitesten entfernt ist.
8. Satz gemäß einem der vorherigen Ansprüche, wobei die Handhabe (31) mit dem oberen Teil (12) derart

verbunden ist, dass Finger einer menschlichen Hand die Handhabe (31) greifen können.

9. Satz gemäß einem der vorherigen Ansprüche, wobei die Handhabe (31) im Wesentlichen als ein Kreisbogen ausgebildet ist. 5
10. Satz gemäß einem der vorherigen Ansprüche, wobei jede Flasche (1) eine Kapazität hat, die größer als 5 Liter, vorzugsweise größer als 10 Liter, weiter bevorzugt größer als 15 Liter ist, und eine Kapazität von weniger als 35 Liter, vorzugsweise weniger als 30 Liter und weiter bevorzugt weniger als 25 Liter. 10
11. Satz gemäß einem der vorherigen Ansprüche, wobei das Material Polyethylenterephthalat ist. 15
12. Stapelbare Flasche (1) aus dem Satz gemäß einem der vorherigen Ansprüche. 20

Revendications

1. Ensemble comprenant au moins une première et une deuxième bouteilles pouvant être empilées (1), dans lequel chaque bouteille (1) est réalisée en un matériau tel que la bouteille (1) peut être réalisée par moulage par extrusion-soufflage, et dans lequel chaque bouteille (1) comprend une pièce supérieure (12) qui est montée autour d'un goulot de bouteille (4) et qui s'étend vers une partie périphérique de la bouteille (1), dans lequel la pièce supérieure (12) est dimensionnée de telle sorte qu'en position empilée des première et deuxième bouteilles, la pièce supérieure (12) de la première bouteille se trouve contre une partie de base périphérique (7) de la deuxième bouteille, dans lequel une poignée (31) est reliée à ladite pièce supérieure (12) à l'intérieur de ladite partie périphérique de la bouteille (1) et à une certaine distance par rapport à cette partie périphérique de la bouteille (1), dans lequel ladite pièce supérieure (12) comprend un élément annulaire (15) avec des moyens de fixation (16) sur l'intérieur de l'élément annulaire de telle sorte que la pièce supérieure (12) peut, à partir d'une ouverture de bouteille, être poussée avec l'élément annulaire (15) au-dessus du goulot de bouteille (4) dans le but de fixer la pièce supérieure (12) sur la bouteille, et peut assurer une certaine résistance à un mouvement suivant la direction opposée, **caractérisé en ce que** ladite poignée (31) est reliée directement audit élément annulaire (15). 25 30 35 40 45 50
2. Ensemble selon la revendication 1, dans lequel ladite pièce supérieure (12) est fixée sur ledit goulot de la bouteille (4) par serrage. 55
3. Ensemble selon l'une quelconque des revendications précédentes, dans lequel ladite pièce supérieure (12) et ladite poignée (31) sont réalisées en une seule pièce de matière plastique par moulage par injection.
4. Ensemble selon l'une quelconque des revendications précédentes, dans lequel ladite poignée (31) s'étend dans un plan qui se trouve largement perpendiculaire par rapport à l'axe longitudinal (2) de la bouteille (1).
5. Ensemble selon l'une quelconque des revendications précédentes, dans lequel ladite pièce supérieure (12) s'étend vers ladite partie périphérique de la bouteille (1), se trouvant au moins partiellement en contact avec une partie d'épaulement (5) de la bouteille. 5
6. Ensemble selon l'une quelconque des revendications précédentes, dans lequel ladite poignée (31) comprend deux pattes (18 et 19) et une partie de saisie (17), dans lequel les deux pattes (18 et 19) sont reliées chacune par une première extrémité à une extrémité respective de la partie de saisie (17) et chacune par une seconde extrémité audit élément annulaire (15). 10
7. Ensemble selon la revendication 6, dans lequel lesdites pattes (18 et 9) sont reliées audit élément annulaire (15) de telle sorte qu'une première distance mesurée entre l'axe longitudinal (2) de la bouteille (1) et le point le plus éloigné de cet axe longitudinal (2) sur ladite partie de saisie (17) est inférieure à une seconde distance mesurée entre ladite seconde extrémité d'une patte et ledit point le plus éloigné de l'axe longitudinal (2) sur ladite partie de saisie (17). 15
8. Ensemble selon l'une quelconque des revendications précédentes, dans lequel ladite poignée (31) est reliée à ladite pièce supérieure (12) de telle sorte que les doigts d'une main humaine peuvent saisir ladite poignée (31). 20
9. Ensemble selon l'une quelconque des revendications précédentes, dans lequel ladite poignée (31) est sensiblement en forme d'arc de cercle. 25
10. Ensemble selon l'une quelconque des revendications précédentes, dans lequel chaque bouteille (1) présente une capacité supérieure à 5 litres, de préférence, supérieure à 10 litres, plus préférablement, supérieure à 15 litres, et une capacité inférieure à 35 litres, de préférence, inférieure à 30 litres, plus préférablement, inférieure à 25 litres. 30 35 40 45 50
11. Ensemble selon l'une quelconque des revendications précédentes, dans lequel ledit matériau est du polyéthylène-téréphthalate. 55

12. Bouteille pouvant être empilée (1) provenant de l'ensemble selon l'une quelconque des revendications précédentes.

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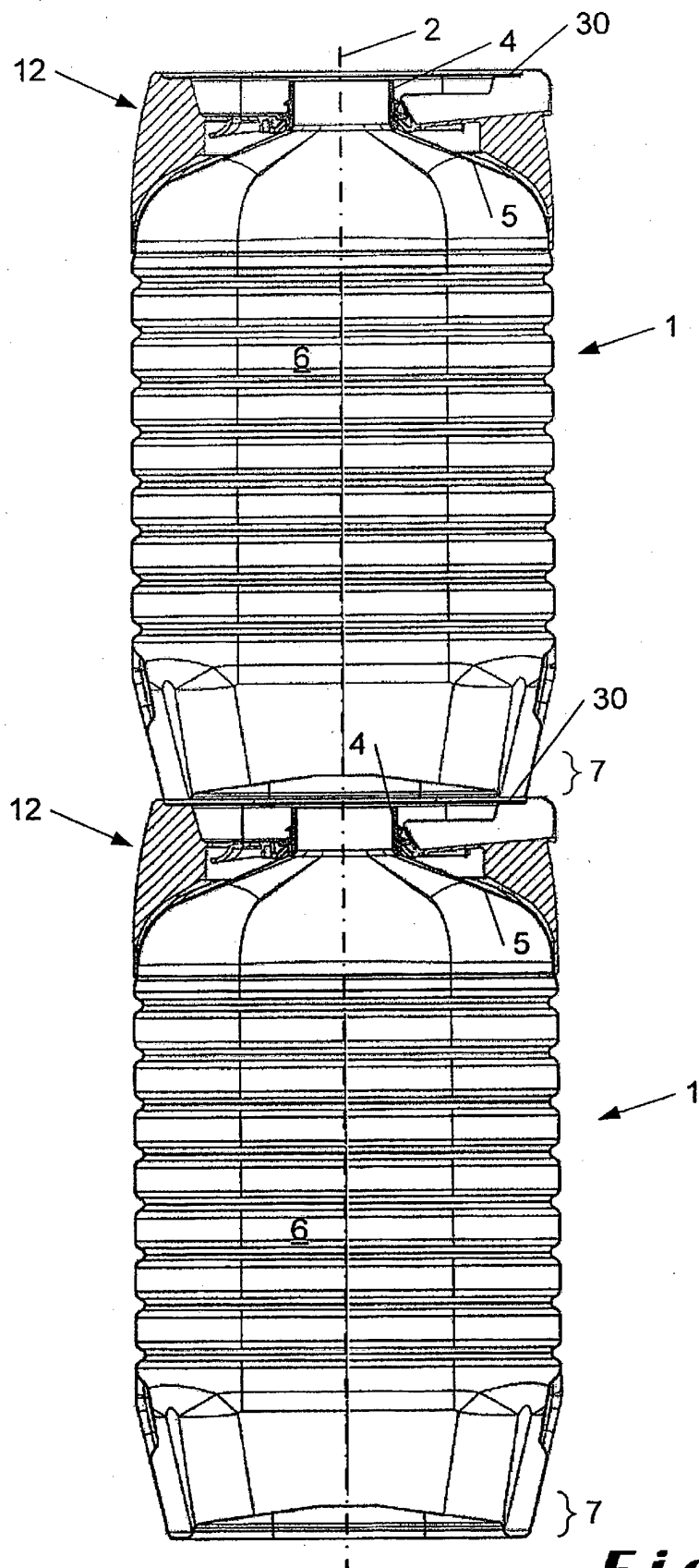
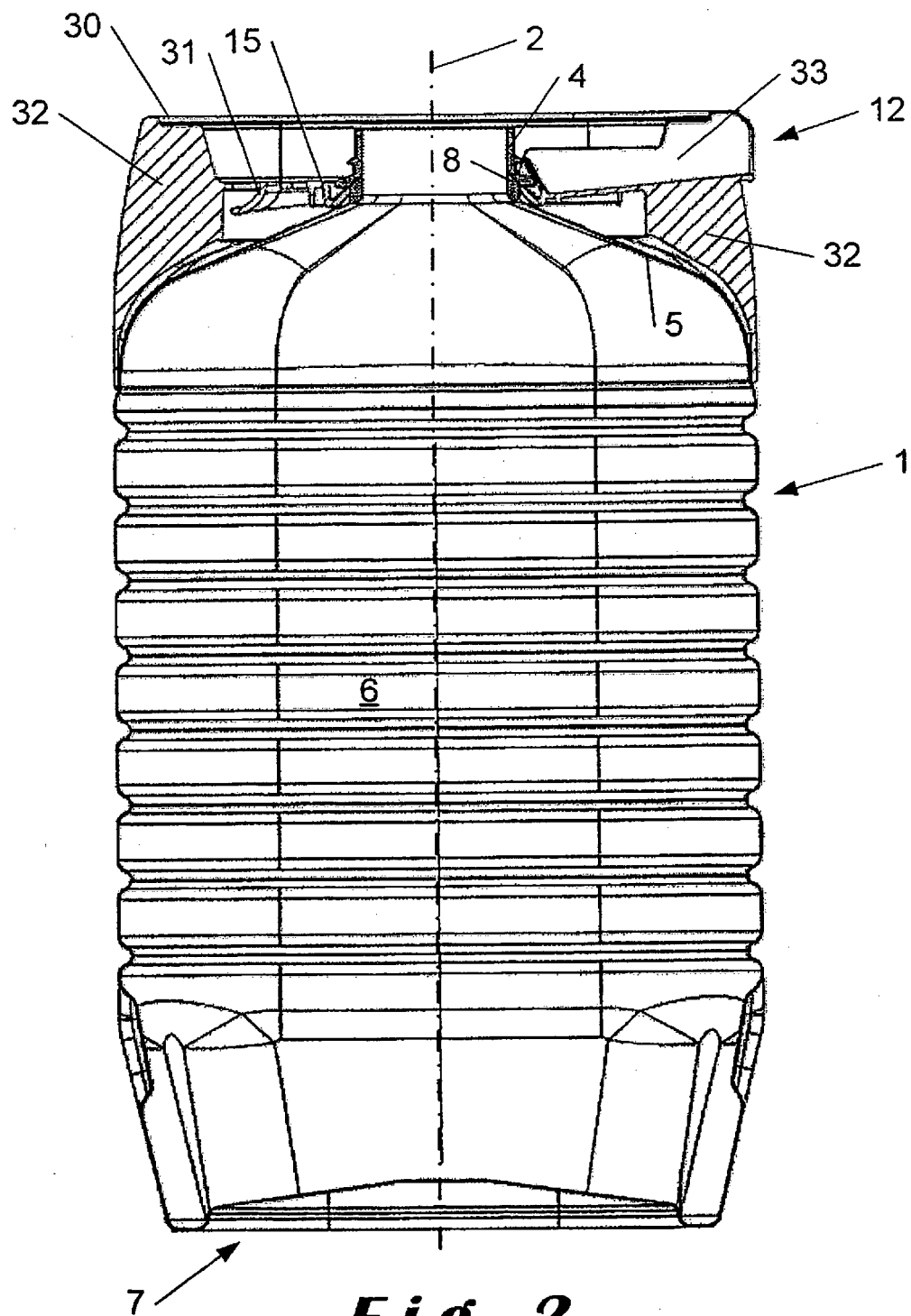


Fig. 1



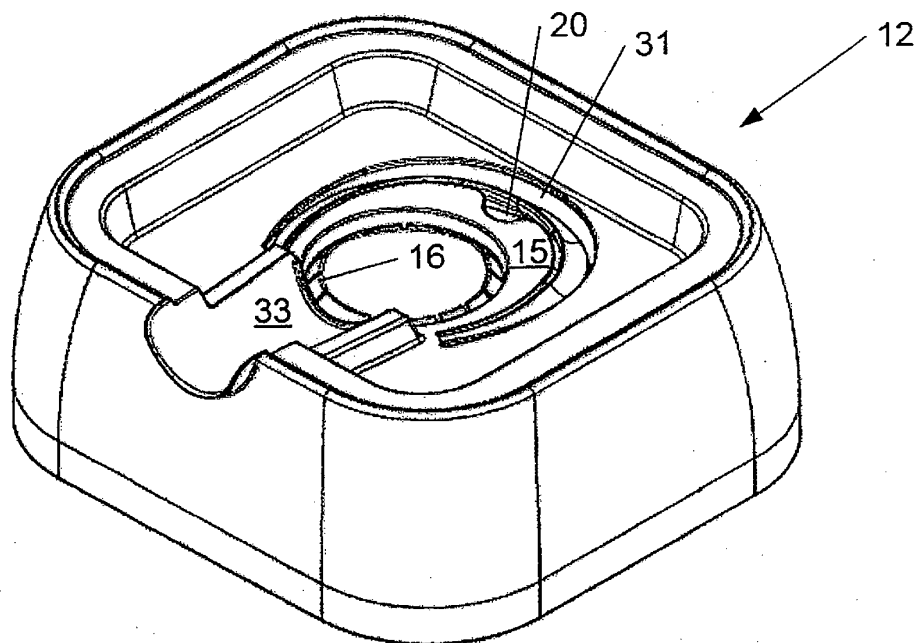


Fig. 3

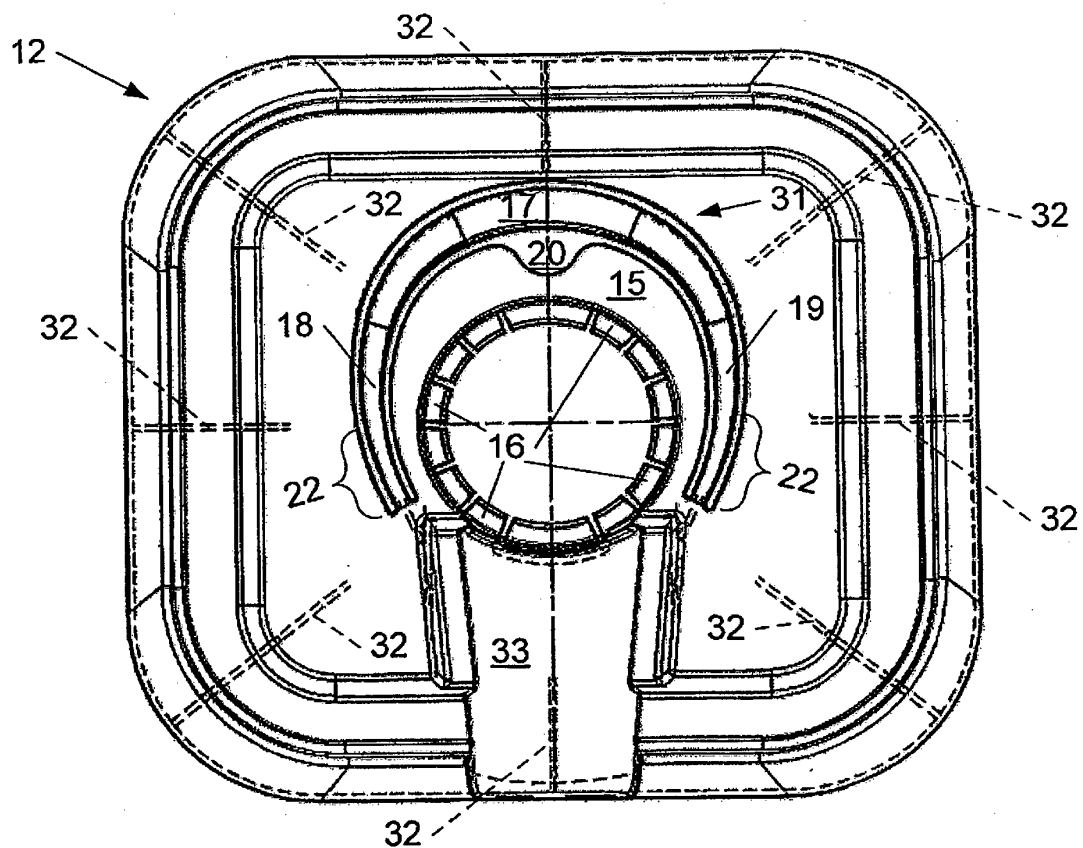


Fig. 4

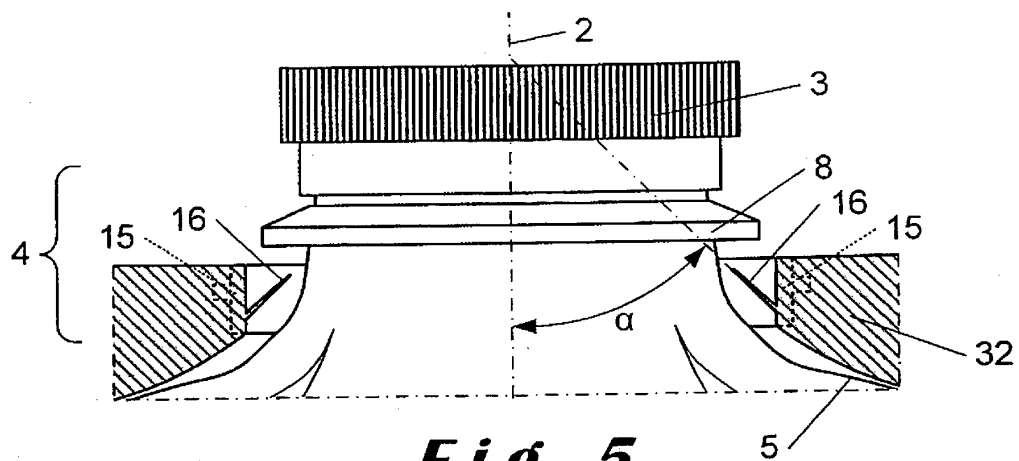


Fig. 5

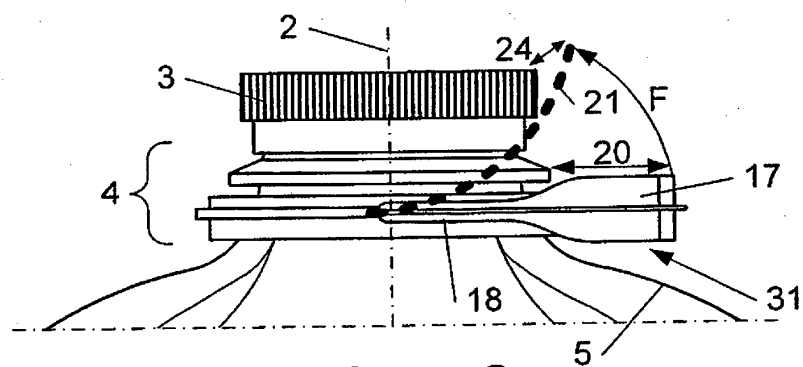


Fig. 6a

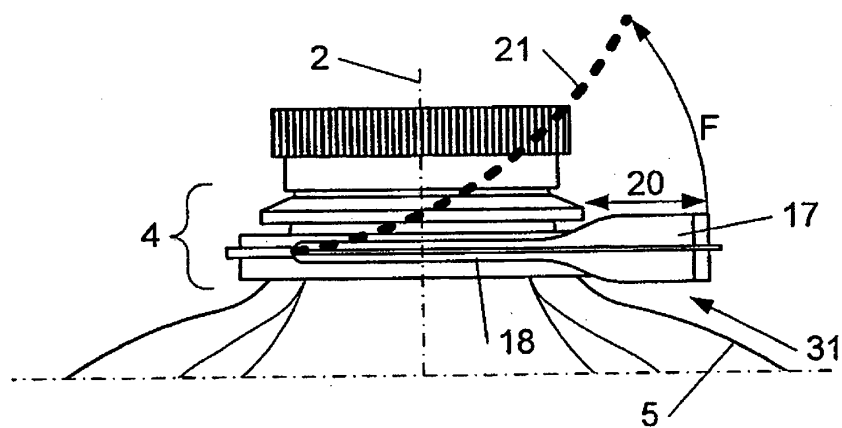


Fig. 6b

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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