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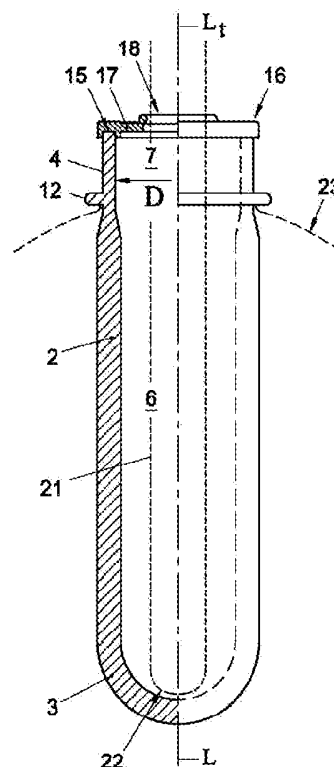
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(54)

Preform and method for forming a container.

(57)

Preform or preform assembly for blow moulding a container, wherein the preform of preform assembly has a neck portion, a lid element being provided at the neck portion, an opening extending into the neck portion, providing access to an internal space of the preform or preform assembly. Method for blow moulding a container. Container blown from a preform or preform assembly.



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Dit octrooi is verleend ongeacht het bijgevoegde resultaat van het onderzoek naar de stand van de techniek en schriftelijke opinie. Het octrooischrift komt overeen met de oorspronkelijk ingediende stukken.

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Title: Preform and method for forming a container.

5 This disclosure is directed to a preform and to a method for blow moulding a container.

 Blow moulding is a well know technique for manufacturing containers, such as but not limited to bottles for beverages. In this technique a plastic preform is moulded, for example by injection moulding. The preform is
10 heated to a temperature below the melting temperature of the plastic. A blow moulding tool is inserted into the preform, which is placed inside a blow moulding mould, having the shape of the desired container. With the blow moulding tool the preform is stretched and then the preform is blown to the desired shape against the inner surface of the mould.

15 In some cases it is desirable to have a lid element attached to such blow moulded container.

 In WO 2008083782 a container is shown having a valve assembly provided in a neck portion by using a welding method, such as ultrasonic welding or laser welding. This valve assembly is welded into the neck region
20 after blow moulding the container.

 In WO 2008098937 a container is shown having a valve assembly provided in a neck portion by using a laser welding method. This valve assembly is welded into the neck region after blow moulding the container, by directing a laser beam though a wall of the neck portion onto an annular part of
25 the valve assembly.

 It is desirable to provide an alternative method and preform for manufacturing blow moulded containers having a lid element attached thereto.

 In a first aspect the present description is related to a preform for blow moulding a container, wherein a lid element is attached to the preform
30 before blow moulding a container from the preform.

In another aspect the present description is directed to a method for blow moulding a container from a preform. The method can comprise the step of first attaching a lid element to the preform and then blow moulding the container from the preform.

5 In still another aspect the description is directed to a container, blow moulded from a preform of this description or using method steps according to the description.

Other aspects of preforms and methods are further disclosed in the dependent claims. In order to further clarify the subject of this disclosure,
10 embodiments of a preform, method and container are discussed hereafter, with reference to the drawings, which are only schematically representations. In these drawings:

Fig. 1 schematically shows a first embodiment of a preform;

Fig. 2 schematically shows a lid element, in cross section and
15 partially in bottom view;

Fig. 3 schematically shows the preform of fig. 1 with a lid element attached at the neck portion;

Fig. 4 schematically shows a second embodiment of a preform;

Fig. 5 schematically shows a third embodiment of a preform;

20 Fig. 6 schematically shows a preform assembly;

Fig. 7 schematically shows a further preform assembly;

Fig. 8 schematically shows a container manufactured according to the description; and

Fig. 9 schematically shows an alternative embodiment of a container
25 manufactured according to the description, with connecting means.

In this description embodiments are described with respect to plastic containers, blow moulded, such as stretch blow moulded, from a preform, wherein a preform can for example be manufactured by injection moulding or extrusion. These containers can be used for example but not limited to storage
30 of beverages, such as but not limited to carbonated beverages. Obviously the

containers can be made of other materials, such as blends of plastics, combinations of plastics and metals, such as metal foils, scavengers and the like. The embodiments are disclosed only as exemplary embodiments and are not to be considered as limiting the disclosure in any way.

5 In this description blow moulding has to be understood as at least comprising but not limited to stretch blow moulding, wherein a preform is heated, stretch lengthwise and blown into a desired shape. During lengthwise stretching the preform can already be blown to some extend.

10 In this description a preform, which can also be a parison, has to be understood as at least including but not limited to an element injection moulded from plastic, to be blown into a blow moulded container. In this description preforms shall be described for blow moulding containers which basically have a bottle shape, including a neck portion, a body portion and a bottom portion, but it will be obvious to any skilled person that different
15 shapes of containers can be made using different shapes of preforms falling within the same inventive concept. A preform can be single or multi layer. A multi layer preform can be manufactured using well known techniques, such as but not limited to co-injection, co-extrusion or over moulding. A multi layer preform can have a delaminating layer or layers.

20 In this description wording like about and substantially should be understood as meaning that variations of a given value it refers to are allowable within the given definition, which variations can at least be 5%, preferably at least 10% and more preferably at least 15% of the given value.

25 In this description preforms and containers will be discussed made of PET or PET blends. However, preforms and containers according to the present disclosure could also be made of different materials, blends or combinations of materials, such as but not limited to polypropylene or polystyrene, PEN, polyethylene, Polycarbonate, PBT, blends of the forgoing or combinations thereof. In case of PET or PET blends, standard PET has to be
30 understood in this respect as at least including PET without added additives

for preventing crystallisation of the PET during forming such as injection moulding of a preform.

In this description reference shall be made to containers for holding and dispensing beverages, especially carbonated beverages such as beer and soft drinks. However other contents can be stored and dispensed using a container according to this description.

In the present disclosure preforms can be formed of a plastic material that can be stretch blow moulded into a container having a relatively thin wall or combination of walls, wherein the preform is substantially amorphous, whereas the bottle is at least partly crystalline. Preferably the preform is formed of a material substantially free of crystallisation preventing additives, such as glycol. It has been recognised that such additives can be favourable in injection moulding a preform substantially amorphous, but these additives remain in the blown container, which is detrimental to the strength and/or stiffness of the container. The preforms are preferably injection moulded having a wall thickness sufficiently small to substantially prevent crystallisation of the plastic material.

For containers stretch blow moulded from a preform, having an internal volume, especially a volume of more than 3 litres, the opening of a preform is to be relatively large, for example 2 cm or more. Providing a flange element with a smaller opening; enables easy placement of a valve or valve assembly with smaller dimensions. For example, when standard aerosol type valves, spray can type valves or the like are used, for example to be clinched, such is advantageous.

In fig. 1 a preform 1 is shown, injection moulded in a commonly known method. The left side of fig. 1 shows the preform 1 in cross section, the right side in side view. The preform 1 can have a substantially cylindrical wall 2 with a closed first end 3 and a neck portion 4 at the opposite second end 5. An inner volume 6 extends from a neck opening 7 into an inner space 8. The inner space 8 is largely defined by an inner surface 9. The wall 2 surrounding

the inner space 8 can have a thickness T_w which can be for example the same or larger than the thickness T_n of the neck portion 4. On an outside 10 of the neck portion 4 grip elements 11 can be provided, for example one or two flanges 12, and/or screw threads 13. The or each flange 12 can extend

5 substantially perpendicular to a longitudinal axis L of the preform 1. If there is more than one such flange 12, they can extend substantially parallel to each other. In the embodiment of fig. 1 one such flange 12 is shown. Flanges 12 are common and can be used for handling the preform 1 and/or a container 23 blown from it. Moreover these can be used for rigidifying the neck portion 4, in

10 order to maintain its shape and dimensions as good as possible. Another aspect can be that these flanges allow other elements to be attached to the neck portion, such as but not limited to lids, dispense mechanisms, top ring structures and the like. Embodiments can be comprised having flanges that are of different diameters.

15 In the embodiment of fig. 1 the inner surface 9 extends directly and continuously into the neck portion 4. Apart from the part 14 at the first end 3, which can be substantially spherical or shaped for forming a petal shaped bottom, the inner surface 9 can be substantially cylindrical. The neck portion 4 can have, at the first end 3, a substantially flat, circular end surface 15. In

20 another embodiment the neck portion can have a differently shaped end surface 15, for example but not limited to partly or completely conical, recessed or toothed. In another embodiment the end surface can have a shape different from circular, such as but not limited to oblong, oval, square, rectangular or multi angled.

25 In fig. 2 a lid element 16 is shown, partially in cross section. In this embodiment the lid element 16 is substantially ring shaped, having a peripheral ring 17 and a central opening 18. The central opening 18 can be provided in a tubular portion 19 extending from or through the ring 17. An outer surface of the tubular portion 19 can in such an embodiment be useful in

30 attaching elements to the lid element 16, such as but not limited to a valve 20,

schematically shown in fig 2 in broken lines, clinched to the portion 19, a lid, an aeration device or the like. A lid element 16 can be made of a plastic material similar to that of the preform 1. In another embodiment the lid element 16 can be made of a material different from the material of the preform. In an embodiment the lid element 16 can be made partly or entirely of metal. In an exemplary embodiment the preform and the lid element can both be made of PET or PEN or a blend containing at least PET or PEN. In an embodiment such blend can comprise at least 50 weight% of PET and/or PEN. In a further embodiment the blend can comprise at least 75 weight% of PET and/or PEN. In an embodiment the preform 1 and/or the lid element 16 can be made of a plastic material having CO₂ and/or O₂ barrier properties. The preform 1 can have multiple layers, one of which, especially an inner layer, can be at least partly detachable from the further layer(s) of the preform 1. In an embodiment the preform 1 and the lid element 16 can be made of materials that can be welded or glued.

In fig. 3 a preform 1 is shown, with a lid element 16 attached at the neck portion 4. In this embodiment the lid element 16 is placed with the ring 17 on the end surface 15 permanently. In an embodiment the lid element 16 can be attached to the surface 15 by welding. In an embodiment the welding can be achieved by ultrasonic welding. In still another embodiment the welding can be achieved by a welding technique chosen from the group of ultrasonic welding, laser welding, friction welding, spin welding or pressure welding. In still another embodiment the lid element 16 can be connected to the preform 1 by gluing. In another embodiment the lid element 16 can be permanently or releasably connected to the preform 1 by other means, such as but not limited to a snap connection, press fit, friction locking, screw thread, bayonet locking or other such means known in the art for connecting two elements.

As can be seen in fig. 3 the lid element 16 allows access into the inner space 6 of the preform 1. In an embodiment the access to the inner space

6 can be through the lid element 16, especially through the opening 18 therein. The access can be available for a blow moulding tool 21, schematically shown in fig. 3 in broken lines. Such blow moulding tool 21 can for example be an element having a longitudinal axis L_t , substantially coinciding during use with the longitudinal axis L of the preform 1. A forward end 22 can be pushed against the first end 3 of the preform 1, which can be heated to a temperature below the melting temperature of the plastic material of the preform 1, but sufficiently high to make the material pliable, such that the preform 1 can be stretched in the longitudinal direction. Then gas such as air can be forced through the tool 22 and into the inner space 6 of the preform, blowing up the preform 1 to a container 23 of a desired shape and dimension. In an embodiment the outer surface of the tool 21 can lie against the inner wall of the preform before blowing. In another embodiment the outer surface of the tool 21 can lie at least partly spaced apart from the inner wall of the preform 1.

In an embodiment of the present description first a preform 1 is injection moulded. A lid element 16 can be manufactured separately, for example by machining, pressing or injection moulding. In a different embodiment the lid element 16 can be formed together with the preform, for example injection moulded with a collapsible core or in a two or more component (2K) injection moulding process. In still another embodiment the lid element 16 can be hinged to the preform, for example to a neck portion 4 thereof, and/or a valve 20 can be hinged to the ring portion 17, as shown in fig 4, and forced over the opening of the neck portion after injection moulding and cooling. In a further embodiment the lid element 16 can be mounted on the neck portion 4 in a different way, for example by welding, such as spin welding, ultrasonic or laser welding, conventional welding, screwing, bayonet locks, snap elements such as a snap ring or snap hooks or a press fit. In another embodiment the lid element can be glued to the preform. The lid element 16 can be mounted or provided for within the apparatus in which the preform 1 and/or the lid 16 is or are made.

After or directly prior to mounting the lid element 16 to the preform 1 the preform 1 can be moved to a blow moulding station, where the preform 1 can be blown into the desired container 23, as for example shown in fig. 8.

Then the container 23 can be moved to a filling station, where a beverage can be injected into the container in a known and suitable manner. The preform 1 is preferably provided with the lid element 16 before blow moulding, especially before shipment from the one or more injection moulding apparatus. This may make the manufacturing easier and prevents shipping of fully or even partly blown but, apart from air, empty containers such as bottles or kegs, which would be environmentally unfriendly. Moreover, by providing the lid 16 on the preform prior to filling, especially prior to shipment thereof to a bottler, the lid elements 16 do not have to be stored and shipped separately and the providing of the lid elements 16 does not have to be done in a wet or otherwise possibly hostile environment.

After filling the container 23 with the beverage in a further station other elements can be added to the container 23, such as a closure, closing the container 23, or a valve or valve assembly 20, such as for example but not limited to a combination of a beverage valve and a gas valve. Such valve assembly can be a known type valve assembly such as a Sankey type or a flat head type assembly. In another embodiment a dispensing device, such as a riser pipe 26 and connector 27 can be provided in the lid 16, as for example shown in fig. 7 and 8, for allowing the container 23 to be connected to a dispensing device 30, as for example shown in fig. 8, for dispensing the beverage. Such dispensing devices are for example known from EP 1003686 or WO2004/050539 or EP 1626925. Other dispensing devices can be for example regular devices having a tapping head to be connected to the neck 4 of the container 23, for introducing a pressure gas such as CO₂ into the container and allowing beverage to be dispensed from the container, for example to a beverage engine, a tapping cock 30A or the like. In still another embodiment a valve 20 such as an aerosol type valve can be provided in the lid 16, for

dispensing the beverage and in an alternative embodiment also for introducing a pressure gas into the container 23. Such valve is for example known from WO 2008/048098.

In an embodiment the preform 1 can be designed for blow moulding a container 23 having a content of between 1 and 10 litres, for example
5 between 2 and 6 litres. In an embodiment the container 23 can have a content of about 5 litres. In an embodiment the preform 1 can be designed for stretch blow moulding a container 23 having a content of over 10 litres, for example between 10 and 50 litres. In an embodiment the container can have a content
10 of between 15 and 30 litres, for example about 17 to 20 litres. A preform 1 according to the disclosure can be made of a single material, such as but not limited to PET, PEN, PP, PS, PC or another thermoplastic material and/or crystallizing and/or stretch blow mouldable plastic material or combinations of such materials. In another embodiment the preform can be multi layered,
15 comprising layers of a similar or different materials such as plastics or plastic blends. Multi layer bottles are known in the art and shall not be discussed here extensively. An example of a multi layer bottle and a dispensing device for such bottle are disclosed in WO 92/012926. The content of this application is incorporated herein by reference, at least for the dispensing devices, bottles
20 and materials disclosed therein.

The preform 1 can have a neck portion 4 with a internal cross section perpendicular to a longitudinal axis A – A, which cross section has a surface area formed by or comparable to a circular area having a diameter D of more than 2 cm, for example a diameter between 2 and 10 cm, more
25 specifically between 3 and 6 cm, such as for example about 49 mm. The lid element 16 can have a central opening 18 with an inner surface area formed by or comparable to a circular surface having a diameter D_1 for example between 0.5 and 6 cm, for example between 0.5 and 4 cm, the area being smaller than the area of the opening 7 of the neck portion 4. The opening 18 can be circular
30 and can be designed to have a valve such as an aerosol valve 20 fitted in or

over it. In another embodiment the lid element 16 can have different openings 18, for example two, side by side, such that for example in one of the openings 18 a dispensing element can be fitted, such as a valve 20 with or without a riser pipe 26 for dispensing the content of the container 1, such as a beverage, for example beer, whereas in the other opening 18A a gas inlet can be attached, such as for example a CO₂ source or an air pump 31.

In an embodiment the preform can be injection moulded, after which the lid element 16 is provided on and/or in the preform 1 or one of the preforms in a preform assembly. Then the preform(s) can be transferred to a bottling line, in which preforms are in line blow moulded and filled with for example a beverage such as but not limited to beer. In an embodiment then a valve assembly 20 or a dispensing assembly 30 or part thereof can be placed in and/or on the opening 18.

In fig. 4 a preform 1 is shown, schematically in cross section, a lid element 16 in the form of a ring 17 with a valve 20 attached to it via for example an integrated hinge 32 is shown. In this embodiment the ring 17 is mounted on the preform 1, for example welded to it, wherein the valve 20 is folded away from the central opening 18, such that the container 23 can be blow moulded from it and a filling pipe 21 can be introduced into the container 23 through said opening 18, where after the valve 20 can be folded into the opening 18, closing off the container 23. In the embodiment shown the valve 20 is enclosed in a clamping tube that can be clamped into the opening 18, as is schematically shown in fig. 4 on the right hand side. The valve 20 is preferably pushed into the opening 18 after blow moulding a container 23 from the preform and filling the container 23. In fig. 4 schematically a shoulder part 23A of a container is shown.

In fig. 5 – 7 preform assemblies 31 are shown, comprising a first preform 1A and a second preform 1B. The first preform 1A can have been inserted into the second preform 1B or vice versa. In an alternative

embodiment one of the first and second preforms 1A, B can have been injected in or on the other of the two preforms 1A, B. The preforms 1A, B can have been injection moulded or otherwise formed separately, from the same or different materials. The preforms 1A, B can have some or all of the properties of preforms described before.

In the embodiment of fig. 5 the first preform 1A can have a substantially cylindrical wall 2A with a closed first end 3A and a neck portion 4A at the opposite second end 5A. An inner volume 6 extends from a neck opening 7 into an inner space 8. The inner space 8 is largely defined by an inner surface 9. A lid element 16 such as a ring 17 has been mounted on the neck portion 4A, having a central opening 18 with a diameter D_i smaller than the diameter D_{ni} of the neck portion 4A and/or has an outer diameter D_o larger than the outer diameter D_{no} of the neck portion 4A. The lid element 16 can again have been mounted in any suitable way, for example as disclosed here above. The second preform 1B can have a substantially cylindrical wall 2B with a closed first end 3B and a neck portion 4B at the opposite second end 5B. The neck portion 4B can be wider than a body forming portion thereof, defined by the wall 2B. A shoulder 32 is provided between the neck portion 4B and the wall 2B, on which the lid element 16 or a flange or partial flange extending from the neck portion 4B can rest, when the first preform 1A is inserted into the second preform 1B. This way the first preform 1A can for example be suspended in the second preform 1B. In fig. 5 the outer surface of the first preform 1A is spaced apart over at least part of the surface from the inner surface 9B of the second preform 1B. A space 33, for example filled with a gas such as air can be provided between said two surfaces. This space 33 can be closed off to the environment by the ring 17. Upon blow moulding the container from the preform assembly 31 the space 33 can be maintained, such that the container may become more rigid and light. In another embodiment the space 33 may be in communication with the environment, for example through one or more openings 18A (fig. 9) in the ring 17 and/or by leaving some

space between at least part of the ring 17 and the surrounding wall of the neck 4B of the second preform 1B. This way pressure can be relieved from the space 33 and/or in the container 23 a pressure fluid such as but not limited to gas, for example air, can be brought into the space 33, for compression off the container part 23A blow moulded from the first preform 1A. In still another embodiment the space 33 can be filled with a curable fluid or with a coating, such as but not limited to a coating providing a barrier against migration of gas such as O₂ into and/or out of the container, a scavenger for such gas, for example for O₂, and/or a colouring. The coating can be provided as a layer on or in a preform, can be a foil such as an in mould label, and can for example extend over all of the space or only part thereof.

In fig. 6 the preform assembly 31 comprises a first preform 1A that fits relatively snugly into the second preform 1B, the ends 5A, B thereof lying substantially in the same plane. A lid element 16 comprising an opening 18 is provided on at least one of the two preforms 1A, B. In the embodiment shown the lid element 16 has an outer peripheral portion 17 extending outside the outer surface 9C of the neck portion 4B. Preferably the lid element 17 is at least connected to the second preform 1B, thus enclosing the first preform 1A within the second preform 1B.

In fig. 7 the preform assembly 31 comprises a first preform 1A that fits into the second preform 1B, the end 5A of the first preform 1A lying below the end 5B of the second preform 1B. A lid element 16 comprising an opening 18 is provided on at least one of the two preforms 1A, B, preferably the first preform 1A. In the embodiment shown the lid element 16 has an outer peripheral portion 17 extending to or preferably slightly outside the outer surface 9C of the neck portion 4A. The peripheral portion 17 can be slightly flexible or compressible, such that the lid element 16 can be press fitted into the opening 7 within the neck 4B of the second preform 1B. Thus the first preform 1A can be easily fixated inside the second preform 1B, for example storage and transport and during (stretch) blow moulding.

The wall thickness of at least a body forming portion of the preform or preforms is preferably such that the preform is substantially amorphous. The container blow moulded there from is preferably stretched such that the plastic material is substantially crystalline. The plastic material preferably is substantially free of crystallisation preventing additives, such as but not limited to glycol or similar additives. Preferably the preform or preforms have a maximum wall thickness of less than 8 mm, preferably less than 6 mm, especially but not exclusively when the plastic material is substantially PET or a PET blend.

In fig. 8 a container is shown, blow moulded, such as but not limited to stretch blow moulded from a preform 1 or preform assembly 31. A lid element 16 is provided on the neck 4. A valve 20 is provided in the opening 18, which can be an aerosol type valve. The valve 20 can be clinched or clamped on the lid element 16, for example in the tube or ring 19, using a locking element 27, for example a clinch plate. A riser pipe 26 is connected to the valve 20 for dispensing the beverage from the inner volume 6 of the container 23. In fig. 8 a pressure regulator 34 is provided in the inner volume 6 of the container, from which gas such as CO₂ can be introduced into said volume 6, in order to keep the pressure within the container 23 at a desired level or within desired limits, for example at or near an equilibrium level of gas in the beverage. In such embodiment the container can be self regulating. In another embodiment the pressure regulator can be omitted and gas can be introduced via for example the valve 20 or another opening or valve into the space 6.

Fig. 9 shows schematically part of a container 23 blow moulded, such as stretch blow moulded from a preform 1 or preform assembly 31 such as discussed before. In this embodiment an inner container part 23A is provided, blow moulded from a first preform 1A, and an outer, second container part 23B blow moulded from the second preform 1B. At least a part of the container parts 23A, B are not interconnected or at least releasable from each other. A lid element 16 is provided on the neck 4A of the inner container part 23A,

resting on a shoulder 32 of the second container part 23B. The inner container part 23A is at least partly flexible. The container 23 preferably has been blow moulded integrally from the first and second preforms 1A, B. At least one opening 18A is provided in the lid element, opening into a space 33 between the inner and outer container parts 23A, B. A lid 40 is provided over the neck 4, clamped under the flange 12 with a peripheral portion 41. A valve 20 is provided in the lid 40, surrounded at least partly by a skirting 42. A first seal 43 is provided between the end 5B of the neck 4B of the outer container part 23B, whereas a second seal 44 is provided between the lid element 16 and the lower end of the skirting 42. Thus a space 45 is provided around the skirting 42, in fluid connection with the or each opening 18A.

In the embodiment of fig. 9 a pump 31 is connected to a second opening 18B in the lid 40, opening into the space 45. Through this pump pressurised fluid, such as air can be introduced into the space 45 and from said space 45 through the opening 18A into the space 33 between the container parts 23A, B, as indicated by the arrows A, compressing the inner container part 23A at least partly, for forcing the beverage from the inner volume 6 into the dispensing device 30 through the valve 20.

The present disclosure is not limited to the embodiments disclosed or discussed herein by way of examples only. Other embodiments can fall within the inventive concept as defined by the claims. For example any combination of parts and features of the embodiments disclosed are considered to have been disclosed in this description. In another embodiment the preform can have an opening at two opposite ends, wherein a lid element 16 is provided at at least one of the openings. For example one end can have a neck portion 4 and the opposite end a foot portion with an opening in which a valve element is provided as a lid element 16. Another example can be a lid element 16 including a valve element or at least part thereof, wherein a blow moulding tool can be introduced through the valve element or part thereof or can be connected to it for blowing the preform into a container. In an embodiment the

lid element 16 can close off only part of the neck portion 4, such that the opening 18 is at least partly defined by the lid element and partly by the neck portion. These and other embodiments such as variations are considered to have been disclosed herein.

Conclusies

1. Voorvorm of voorvormsamenstel voor het extrusieblazen van een houder, waarbij de voorvorm of het voorvormsamenstel een halsgedeelte heeft, een dekselelement, dat verschaft is bij het halsgedeelte, een opening, die zich uitstrekt tot in het halsgedeelte, die toegang verschaft tot een inwendige ruimte
5 van de voorvorm of het voorvormsamenstel.
2. Voorvorm of voorvormsamenstel volgens conclusie 1, waarbij het dekselelement verschaft is met de opening.
- 10 3. Voorvorm of voorvormsamenstel volgens conclusie 1 of 2, waarbij het dekselelement permanent verbonden is aan het halsgedeelte.
4. Voorvorm of voorvormsamenstel volgens conclusie 3, waarbij het dekselelement verbonden is met het halsgedeelte door lassen.
15
5. Voorvorm of voorvormsamenstel volgens conclusie 3 of 4, waarbij het dekselelement verbonden is met het halsgedeelte door ultrasoon lassen, laserlassen, wrijvinglassen, rotatielassen of druklassen.
- 20 6. Voorvorm of voorvormsamenstel volgens conclusie 3, waarbij het dekselelement verbonden is met het halsgedeelte door lijmen.
7. Voorvorm of voorvormsamenstel volgens één van de conclusies 1 - 6, waarbij het dekselelement verschaft is aan het halsgedeelte en de opening een
25 afmeting heeft voor het inbrengen van een werktuig voor extrusieblazen in de voorvorm of het voorvormsamenstel.
8. Voorvorm of voorvormsamenstel volgens één van de conclusies 1 - 7, waarbij het dekselelement bevestigd is aan de voorvorm of het
30 voorvormsamenstel met gebruik van een perspassing.

9. Werkwijze voor het extrusieblazen van een houder, omvattend de stappen van het bevestigen van een dekselelement aan een voorvorm of voorvormsamenstel, en het uitstrekken van een werktuig voor extrusieblazen tot
5 in de voorvorm of het voorvormsamenstel na het bevestigen van het dekselelement.
10. Werkwijze volgens conclusie 9, waarbij het dekselelement verbonden is met de voorvorm of het voorvormsamenstel door lassen of lijmen.
10
11. Werkwijze volgens conclusie 10, waarbij het dekselelement gelast is aan de voorvorm of het voorvormsamenstel met gebruik van een lastechniek, gekozen uit de groep van ultrasoon lassen, rotatielassen, laserlassen en druklassen.
15
12. Werkwijze volgens conclusie 9, waarbij het dekselelement verbonden is met de voorvorm of het voorvormsamenstel door perspassen.
13. Werkwijze volgens conclusie 9, waarbij het dekselelement verbonden is met de voorvorm of het voorvormsamenstel door lijmen.
20
14. Werkwijze volgens één van de conclusies 9 - 13, waarbij een houder geblazen wordt uit de voorvorm of het voorvormsamenstel, met het dekselelement verbonden met de voorvorm of het voorvormsamenstel, waarbij
25 een drank in de houder ingebracht wordt dóórheen het dekselelement.
15. Houder, geblazen uit een voorvorm of een voorvormsamenstel volgens één van de conclusies 1 - 7, of gemaakt met gebruik van een werkwijze volgens één van de conclusies 9 - 14.

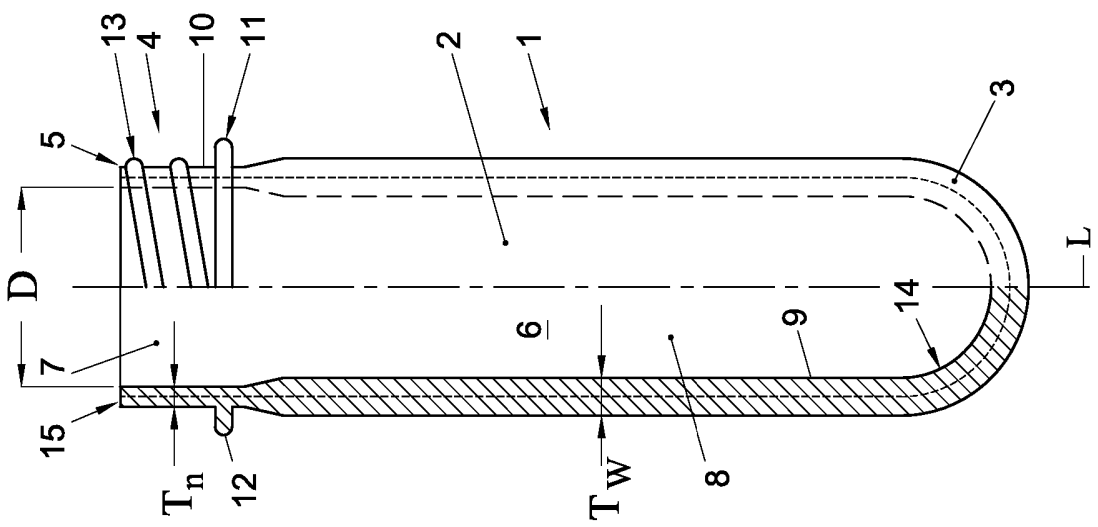


Fig. 1

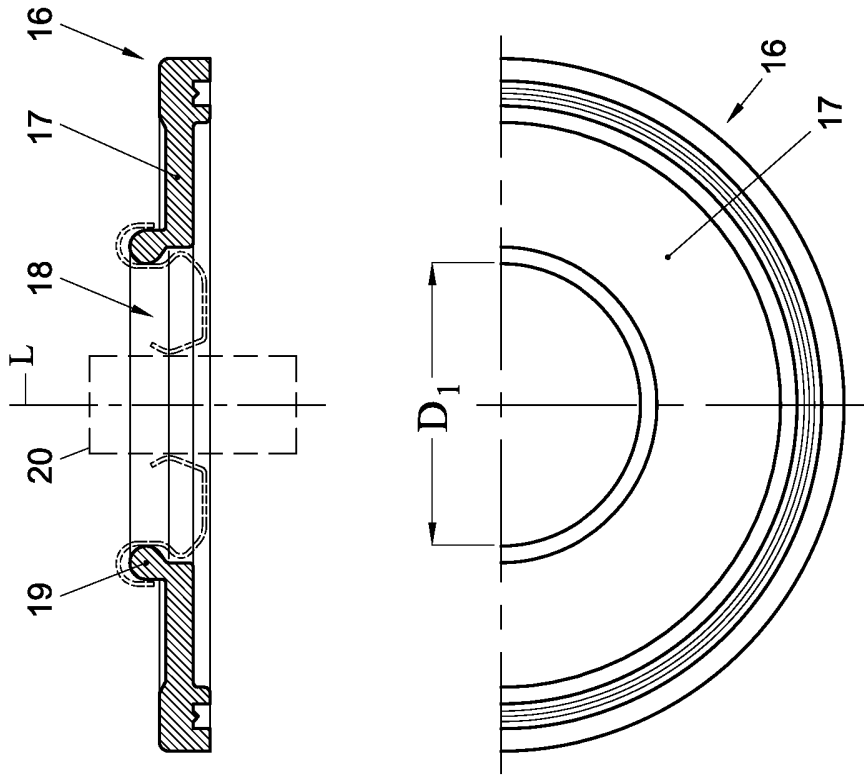
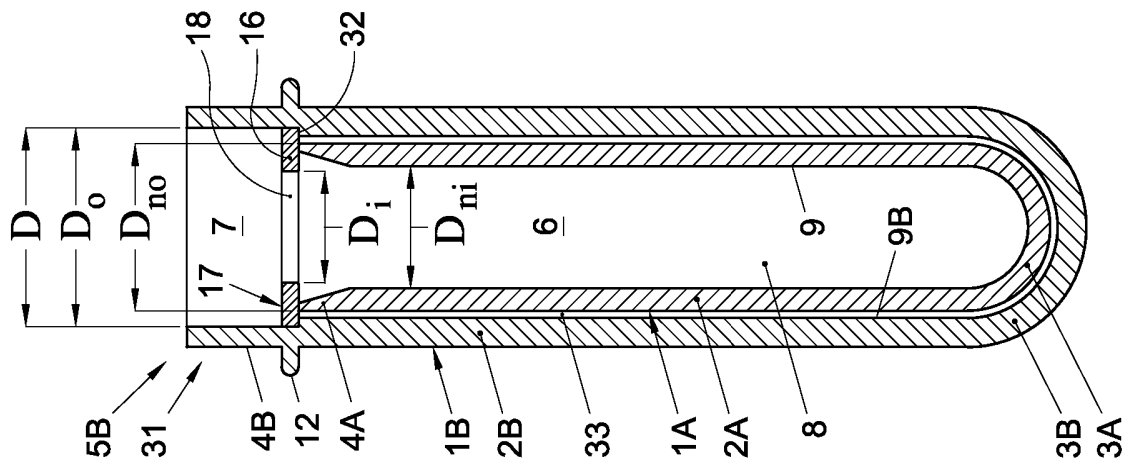
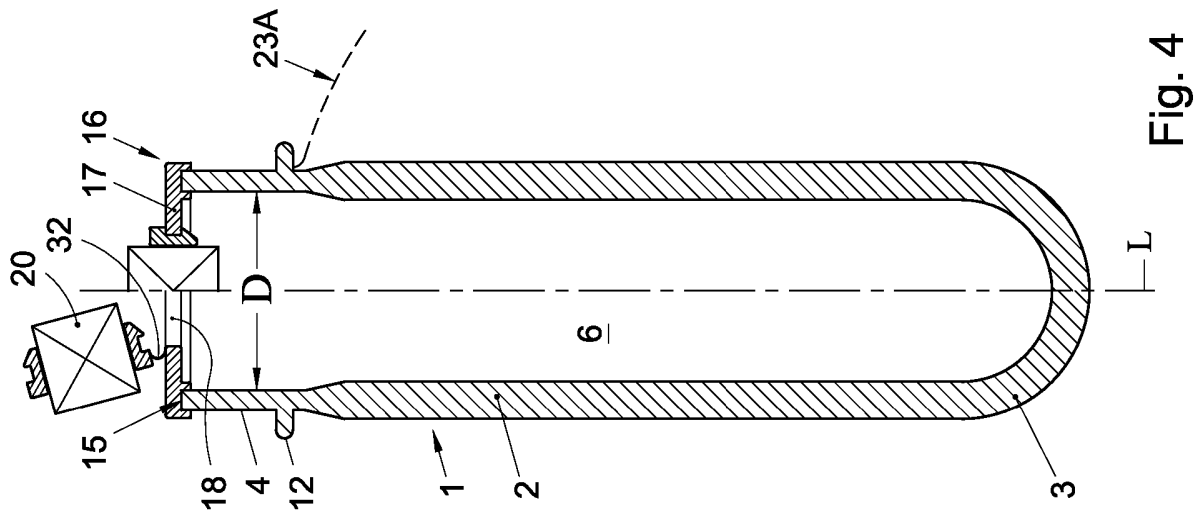
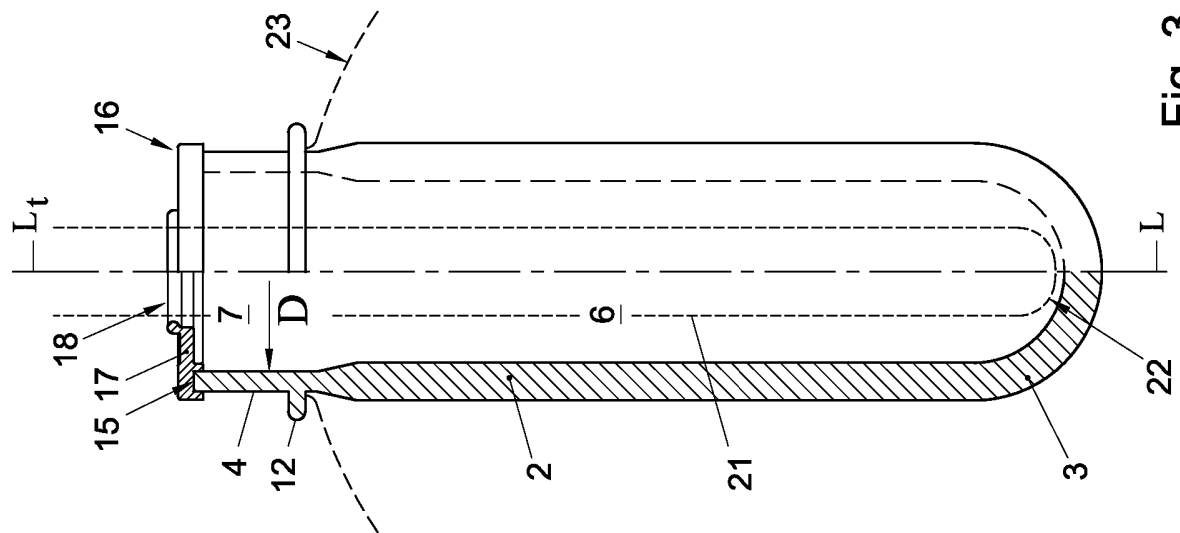


Fig. 2



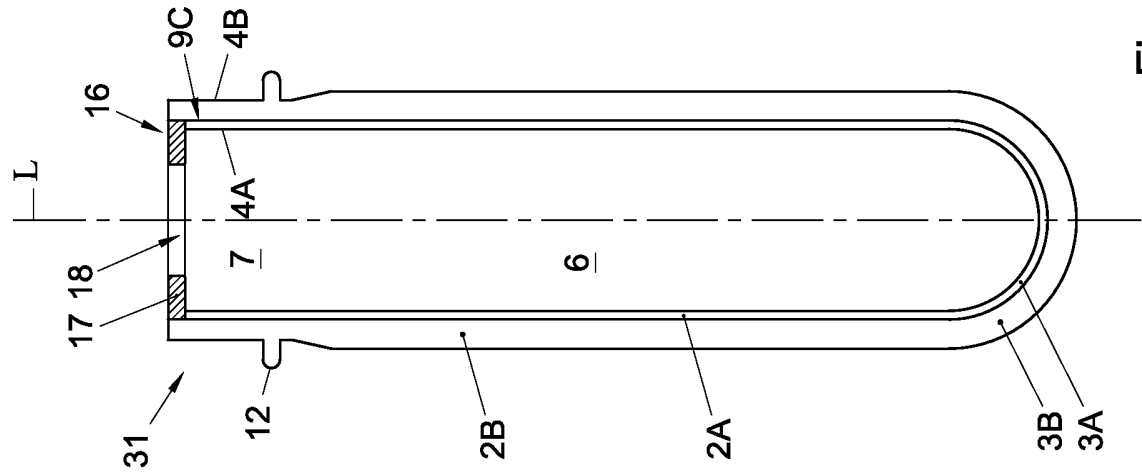


Fig. 7

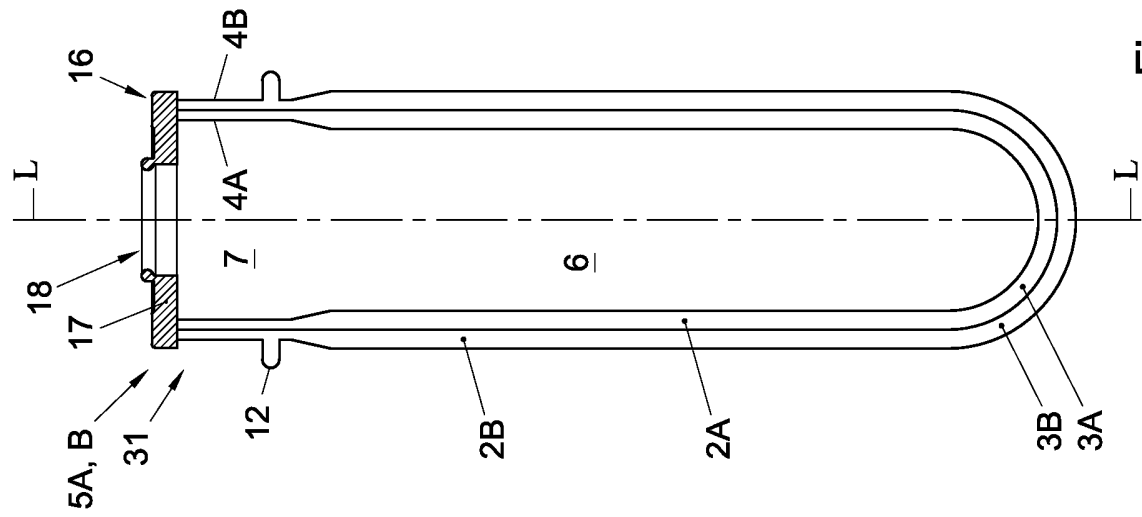


Fig. 6

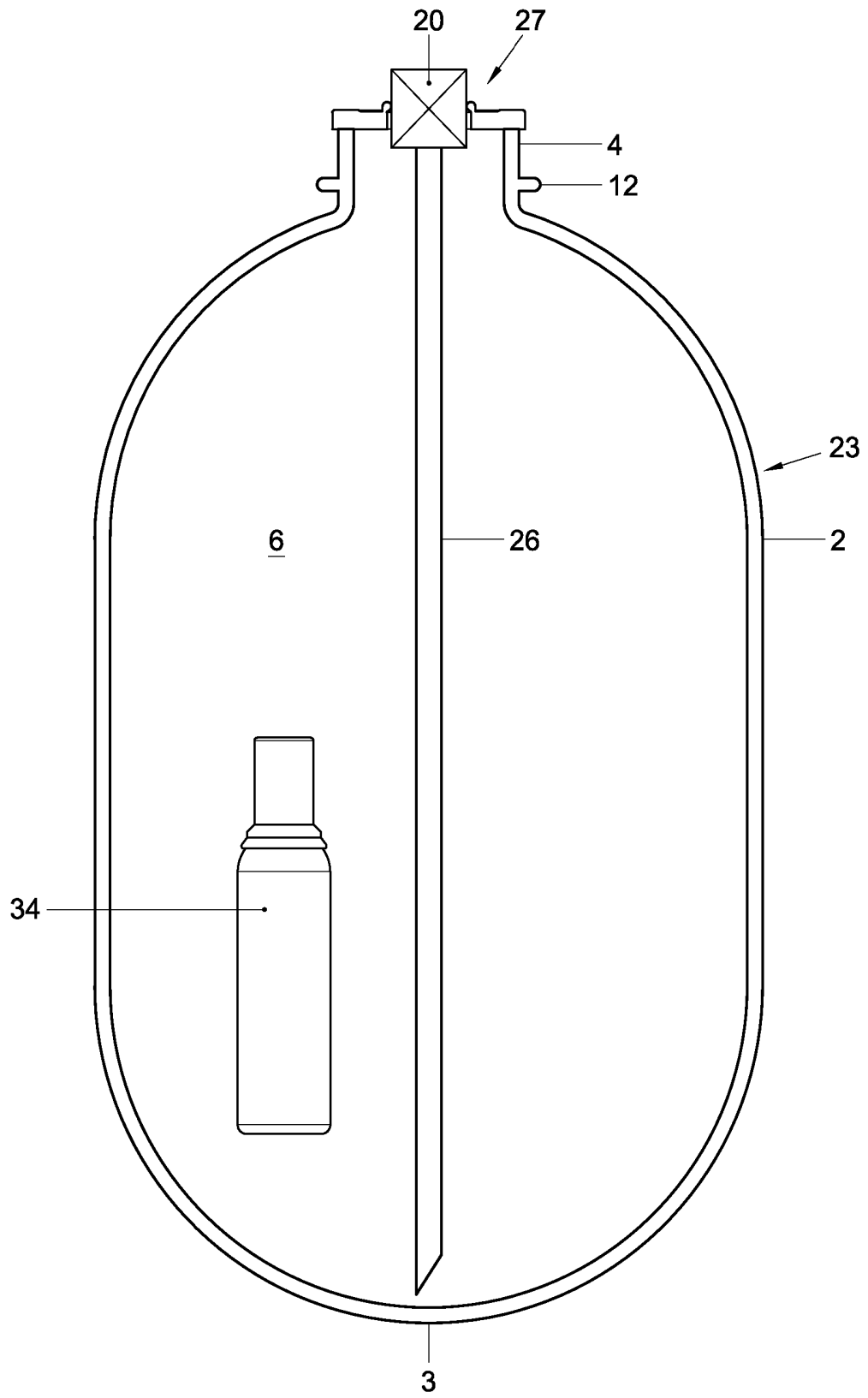


Fig. 8

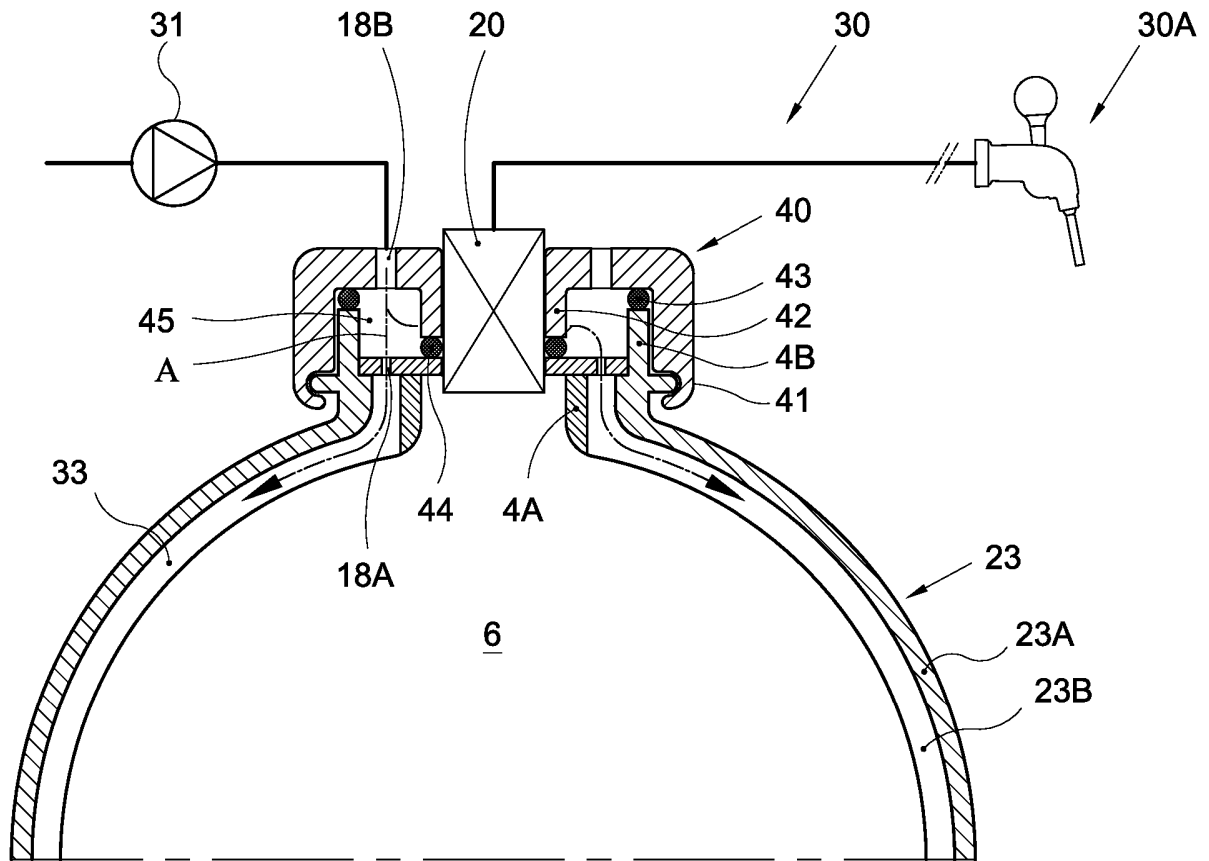


Fig. 9

SAMENWERKINGSVERDRAG (PCT)

RAPPORT BETREFFENDE NIEUWHEIDSONDERZOEK VAN INTERNATIONAAL TYPE

IDENTIFICATIE VAN DE NATIONALE AANVRAGE	KENMERK VAN DE AANVRAGER OF VAN DE GEMACHTIGDE
	P88913NL00
Nederlands aanvraag nr.	Indieningsdatum
2003131	03-07-2009
	Ingeroepen voorrangsdatum
Aanvrager (Naam)	
Heineken Supply Chain B.V.	
Datum van het verzoek voor een onderzoek van internationaal type	Door de Instantie voor Internationaal Onderzoek aan het verzoek voor een onderzoek van internationaal type toegekend nr.
26-11-2009	SN 53277
I. CLASSIFICATIE VAN HET ONDERWERP (bij toepassing van verschillende classificaties, alle classificatiesymbolen opgeven)	
Volgens de internationale classificatie (IPC)	
B29B11/14 B29C49/12 B65D47/36	
II. ONDERZOCHE GEBIEDEN VAN DE TECHNIEK	
Onderzochte minimumdocumentatie	
Classificatiesysteem	Classificatiesymbolen
IPC8	B29B B29C B65D
Onderzochte andere documentatie dan de minimum documentatie, voor zover dergelijke documenten in de onderzochte gebieden zijn opgenomen	
III. <input type="checkbox"/>	GEEN ONDERZOEK MOGELIJK VOOR BEPAALDE CONCLUSIES (opmerkingen op aanvullingsblad)
IV. <input type="checkbox"/>	GEBREK AAN EENHEID VAN UITVINDING (opmerkingen op aanvullingsblad)

**ONDERZOEKSRAPPORT BETREFFENDE HET
RESULTAAT VAN HET ONDERZOEK NAAR DE STAND
VAN DE TECHNIEK VAN HET INTERNATIONALE TYPE**

Nummer van het verzoek om een onderzoek naar
de stand van de techniek
NL 2003131

A. CLASSIFICATIE VAN HET ONDERWERP INV. B29B11/14 B29C49/12 B65D47/36 ADD. B29C49/06 B29B11/10 B29B11/08 B29C65/06 B29C65/08 B29C65/16 B29C65/48 B29C65/58		
Volgens de Internationale Classificatie van octrooien (IPC) of zowel volgens de nationale classificatie als volgens de IPC.		
B. ONDERZOCHETE GEBIEDEN VAN DE TECHNIEK Onderzochte minimum documentatie (classificatie gevolgd door classificatiesymbolen) B29B B29C B65D		
Onderzochte andere documentatie dan de minimum documentatie, voor dergelijke documenten, voor zover dergelijke documenten in de onderzochte gebieden zijn opgenomen		
Tijdens het onderzoek geraadpleegde elektronische gegevensbestanden (naam van de gegevensbestanden en, waar uitvoerbaar, gebruikte trefwoorden) EPO-Internal		
C. VAN BELANG GEACHTE DOCUMENTEN		
Categorie °	Geciteerde documenten, eventueel met aanduiding van speciaal van belang zijnde passages	Van belang voor conclusie nr.
X	DE 195 47 425 A1 (TETRA LAVAL HOLDINGS & FINANCE [CH]) 3 juli 1997 (1997-07-03) * kolom 6, regel 32 - kolom 7, regel 42; figuren 1-11 *	1-15
A	----- US 5 662 245 A (GRANT CHRIS J [GB]) 2 september 1997 (1997-09-02) * kolom 10, regel 7 - kolom 10, regel 24 *	1-15
A,D	----- WO 2008/098937 A1 (INBEV SA [BE]; WAUTERS ALBERT [BE]; MCDERMONT IAIN [GB]) 21 augustus 2008 (2008-08-21) in de aanvraag genoemd * conclusie 1 * -----	1-15
----- -/--		
<div style="display: flex; justify-content: space-between;"> <input checked="" type="checkbox"/> Verdere documenten worden vermeld in het vervolg van vak C. <input checked="" type="checkbox"/> Leden van dezelfde octrooifamilie zijn vermeld in een bijlage </div>		
<div style="display: flex;"> <div style="flex: 1;"> ° Speciale categorieën van aangehaalde documenten *A* niet tot de categorie X of Y behorende literatuur die de stand van de techniek beschrijft *D* in de octrooiaanvraag vermeld *E* eerdere octrooi(aanvraag), gepubliceerd op of na de indieningsdatum, waarin dezelfde uitvinding wordt beschreven *L* om andere redenen vermelde literatuur *O* niet-schriftelijke stand van de techniek *P* tussen de voorrangsdatum en de indieningsdatum gepubliceerde literatuur </div> <div style="flex: 1;"> *T* na de indieningsdatum of de voorrangsdatum gepubliceerde literatuur die niet bezwarend is voor de octrooiaanvraag, maar wordt vermeld ter verheldering van de theorie of het principe dat ten grondslag ligt aan de uitvinding *X* de conclusie wordt als niet nieuw of niet inventief beschouwd ten opzichte van deze literatuur *Y* de conclusie wordt als niet inventief beschouwd ten opzichte van de combinatie van deze literatuur met andere geciteerde literatuur van dezelfde categorie, waarbij de combinatie voor de vakman voor de hand liggend wordt geacht *Z* lid van dezelfde octrooifamilie of overeenkomstige octrooipublicatie </div> </div>		
Datum waarop het onderzoek naar de stand van de techniek van internationaal type werd voltooid <div style="text-align: center; font-weight: bold;">6 april 2010</div>		Verzenddatum van het rapport van het onderzoek naar de stand van de techniek van internationaal type
Naam en adres van de instantie European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		De bevoegde ambtenaar <div style="text-align: center; font-weight: bold;">Lorente Muñoz, N</div>

**ONDERZOEKSRAPPORT BETREFFENDE HET
RESULTAAT VAN HET ONDERZOEK NAAR DE STAND
VAN DE TECHNIEK VAN HET INTERNATIONALE TYPE**

Nummer van het verzoek om een onderzoek naar
de stand van de techniek
NL 2003131

C.(Vervolg). VAN BELANG GEACHTE DOCUMENTEN

Categorie *	Geciteerde documenten, eventueel met aanduiding van speciaal van belang zijnde passages	Van belang voor conclusie nr.
A,D	<p>WO 2008/083782 A2 (KHS AG [DE]; BERGER THOMAS [DE]; KUNZ GERHARD [DE]; BOELSCHER CHRISTIA) 17 juli 2008 (2008-07-17) in de aanvraag genoemd * bladzijde 1, laatste alinea - bladzijde 2, alinea 1 *</p> <p style="text-align: center;">-----</p>	1-15

**ONDERZOEKSRAPPORT BETREFFENDE HET
RESULTAAT VAN HET ONDERZOEK NAAR DE STAND
VAN DE TECHNIEK VAN HET INTERNATIONALE TYPE**

Informatie over leden van dezelfde octrooifamilie

Nummer van het verzoek om een onderzoek naar
de stand van de techniek

NL 2003131

In het rapport genoemd octrooigeschrift	Datum van publicatie	Overeenkomend(e) geschrift(en)	Datum van publicatie
DE 19547425	A1	03-07-1997	AU 1094697 A 14-07-1997
			WO 9722520 A1 26-06-1997
			EP 0868347 A1 07-10-1998
			JP 2000502019 T 22-02-2000
US 5662245	A	02-09-1997	GEEN
WO 2008098937	A1	21-08-2008	EP 2121446 A1 25-11-2009
WO 2008083782	A2	17-07-2008	CN 101622191 A 06-01-2010
			DE 102006061120 A1 26-06-2008
			EP 2114816 A2 11-11-2009
			US 2009320264 A1 31-12-2009



OCTROOICENTRUM NEDERLAND

WRITTEN OPINION

File No. SN53277	Filing date (day/month/year) 03.07.2009	Priority date (day/month/year)	Application No. NL2003131
International Patent Classification (IPC) INV. B29B11/14 B29C49/12 B65D47/36 ADD. B29C49/06 B29B11/10 B29B11/08 B29C65/06 B29C65/08 B29C65/16 B29C65/48 B29C65/58			
Applicant Heineken Supply Chain B.V. te Amsterdam			

This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the application
- ☒ Box No. VIII Certain observations on the application

	Examiner Lorente Muñoz, N
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WRITTEN OPINION

Application number

NL2003131

Box No. I Basis of this opinion

1. This opinion has been established on the basis of the latest set of claims filed before the start of the search.
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ on paper
 - ☐ in electronic form
 - c. time of filing/furnishing:
 - ☐ contained in the application as filed.
 - ☐ filed together with the application in electronic form.
 - ☐ furnished subsequently for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Box No. V Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty	Yes: Claims	4-6, 8, 10-13
	No: Claims	1-3, 7, 9, 14, 15
Inventive step	Yes: Claims	
	No: Claims	1-15
Industrial applicability	Yes: Claims	1-15
	No: Claims	

2. Citations and explanations

see separate sheet

WRITTEN OPINION

Application number

NL2003131

Box No. VII Certain defects in the application

see separate sheet

Box No. VIII Certain observations on the application

see separate sheet

Reference is made to the following documents:

D1: DE 195 47 425 A1

D2: US 5 662 245 A

D3: WO 2008/098937 A1, cited by the Applicant

D4: WO 2008/083782 A2, cited by the Applicant

Re Item V

- 1 The document D1 is regarded as being the closest prior art to the subject-matter of claims 1 to 15. This document shows the following features thereof (the references in parentheses applying to this document):

- Preform 1 or preform assembly for blow moulding a container 14, wherein the preform 1 or preform assembly has a neck portion 3, a lid element 5 being provided at the neck portion 3, an opening extending into the neck portion 3, providing access to an internal space of the preform 1 or preform assembly (see figure 1-3, 5: element 8 is considered to be a lid element in view of figures 8 to 10).

- Method for blow moulding a container 14, comprising the steps of attaching a lid element 8 to a preform 1 or preform assembly and extending a blow moulding tool into the preform 1 or preform assembly after attaching the lid element 8 (see column 7, line 16: "*Streckblasverfahren*"; figures 3-6: element 8 is considered to be a lid element in view of figures 8 to 10).

- A container 14 blown from a preform 1 or preform assembly or made using a method as described above (see figures 3, 5-7).

- 1.1 The subject-matter of claim 1 is therefore not novel.

- 1.2 The features set out in dependent claims 2, 3 and 7 are also known in view of document D1 (see for example figure 11; column 6, line 68: "*Siegelnaht 13*"). The subject-matter of claims 2, 3 and 7 is therefore not novel.
- 1.3 The features of claims 4 to 6 and 8 are described in documents D2 (see column 10, lines 7 to 24: "*ultrasonic welding*" in neck portion), D3 (see claim 1: "*laser welding*" in neck portion) and D4 (see page 1, last paragraph - page 2, first paragraph: "*Klebeteknik*", "*Verschweissen*") as providing the same advantages as in the present application. The skilled person would therefore regard it as a normal option to include these features in the preform or preform assembly described in claim 3 in order to solve the problem posed.

Thus, the subject-matter of claims 4 to 6 and 8 can not be considered as involving an inventive step.

- 1.4 The subject-matter of claim 9 is not novel (see above).
- 1.5 The features of claims 10 to 13 are described in documents D2 (see column 10, lines 7 to 24: "*ultrasonic welding*" in neck portion), D3 (see claim 1: "*laser welding*" in neck portion) and D4 (see page 1, last paragraph - page 2, first paragraph: "*Klebeteknik*", "*Verschweissen*") as providing the same advantages as in the present application. The skilled person would therefore regard it as a normal option to include these features in the method described in claim 9 in order to solve the problem posed.

Thus, the subject-matter of claims 10 to 13 can not be considered as involving an inventive step.

- 1.6 The features set out in dependent claim 14 are also known in view of document D1. The subject-matter of claim 14 is therefore not novel.
- 1.7 The subject-matter of claim 15 is not novel (see above).

- 2 Claims 1 to 15 meet the requirements with respect to the industrial applicability.

Re Item VII

- 1 Independent claims are not in the two-part form, which in the present case would be appropriate, with those features known in combination from the prior art (document D1) being placed in the preamble and with the remaining features being included in the characterising part.
- 2 The features of the claims are not provided with reference signs placed in parentheses.
- 3 The relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.

Re Item VIII

- 1 Claim 1 is not clear because it is not clear whether the "*opening extending into the neck portion*" relates to the neck portion or to the lid element.