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(54) **JAR**

(57) A jar (15) is provided and comprises two or more components (20, 25) which are formed separately and assembled together. Each of the components is formed from PET and each of the components has a maximum wall thickness of less than 5mm.

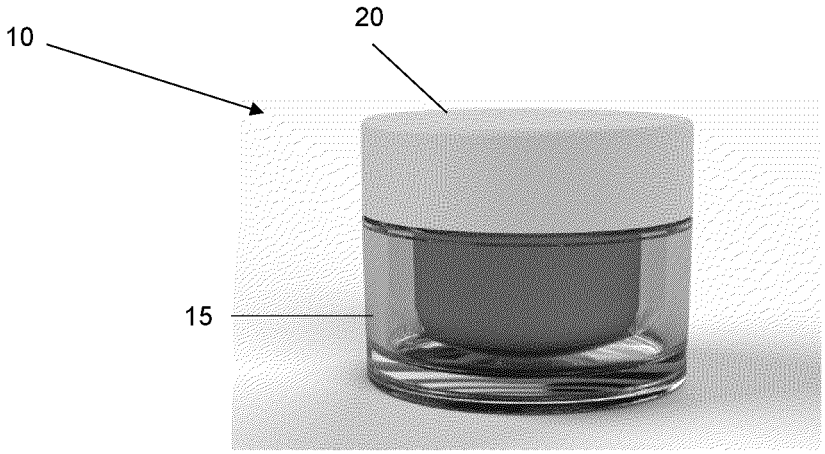

Figure 1

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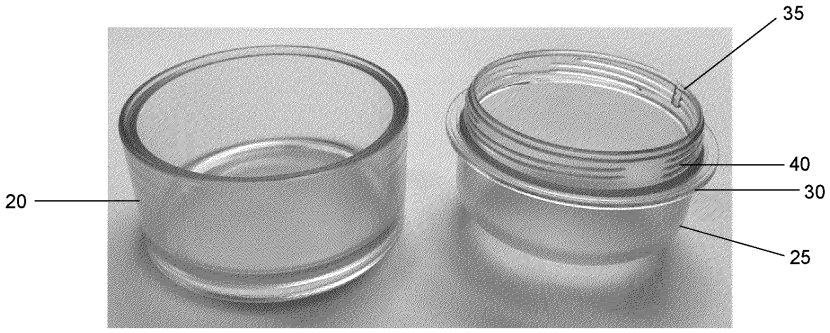


Figure 3

Description

[0001] The present invention relates generally to a container and particularly, although not exclusively, to a jar, pot or the like.

[0002] A jar can be described as a wide-mouthed cylindrical container often made of glass or pottery and typically having a lid.

[0003] In the personal care market it is well known to use glass jars (e.g. for cosmetics such as creams and ointments). Such jars are perceived as having a premium feel.

[0004] The present invention seeks to provide improvements in or relating to jars.

[0005] An aspect of the present invention provides a jar comprising two or more components which are formed separately and assembled together, each of the components is formed from PET and each of the components has a maximum wall thickness of less than 5mm.

[0006] In this aspect no part of the component exceeds 5mm in thickness.

[0007] Aspects and embodiments of the present invention may relates generally to the field of personal care. This market is, for example, looking for a recyclable, refillable and reusable jar, integrating less plastic, circular economy and CO_2 reduction.

[0008] Some products formed in accordance with present invention will be compatible with circular economy and will be 100% recyclable taking advantage of the PET stream ready.

[0009] The two components may have less than 5 mm of thickness to avoid the crystallization in order to get maximum transparency.

[0010] In some embodiments there may be optimization of wall thickness to avoid crystallization.

[0011] To answers sustainability trends in the personal care market, the present invention provides a jar formed in PET which is completely recyclable and yet maintains a premium appearance and/or feel.

[0012] Polyethylene terephthalate (PET or PETE) is a thermoplastic polymer which belongs to the polyester family of polymers. It can be fully recycled, in which case it becomes recycled polyethylene terephthalate (rPET).

[0013] PET in its natural state is a colourless, semi-crystalline resin. Clear products can be produced by rapidly cooling molten polymer below its glass transition temperature to form an amorphous, uncrystallised solid.

[0014] The jar may be refillable and reusable.

[0015] The components may comprise an external jar and an internal jar.

[0016] The inner jar and the outer jar together may provide an increased thickness sidewall.

[0017] The internal jar may include a neck portion which may, for example, include a screw thread formation, snap bead or the like for receiving a lid or cap.

[0018] In some embodiments the components are welded together, for example ultrasonically welded together.

[0019] The assembly of the components may be by ultrasonic welding machine, which may be installed in line with the component formation (e.g. injection) in a continuous process to optimize the manufacturing efficiency.

[0020] In some embodiments the components are formed by injection moulding.

[0021] In some embodiments the idea may be to inject on the same mould the two different parts in PET.

[0022] Some embodiments provide or relate to a jar comprising two parts injected in PET and welded by ultrasonic.

[0023] The jar may further comprise an inner cup. For example, additionally a refill inner cup will be able in PP to re-use the external jar.

[0024] The inner cup may be removable.

[0025] The inner cup may be formed from polypropylene, for example.

[0026] The jar may further comprise a lid, cap, top or the like. For example the jar may be combinable with current caps.

[0027] The jar may, for example, be formed as a cosmetics container.

[0028] A further aspect provides a jar comprising outer and inner jar components, each of the components being clear, substantially uncrystallised PET.

[0029] The present invention also provides a jar as described herein and being filled with product.

[0030] The present invention also provides a jar as described herein and being filled with a cosmetic.

[0031] Jars may, for example, be provided in different sizes/capacities, such as 50ml or 15ml.

[0032] In some embodiments there are two components of the jar: an external body jar and an internal body jar.

[0033] External body jar: e.g. 38gr in PET for 50ml; e. g. 16gr in PET for 15ml.

[0034] Internal and neck jar: e.g. 36gr in PET for 50ml; e.g. 16gr in PET for 15ml.

[0035] Cup: PP.

[0036] In aspects and embodiments of the present invention the PET may be rPET.

[0037] A further aspect provides a cosmetics container comprising a jar, the jar comprises a jar body, the jar body consists of an inner and an outer jar body part which are formed separately and secured together.

[0038] Each of the components may be formed from PET.

[0039] Each of the components may have a maximum wall thickness of less than 5mm. Once assembled together the two components effectively become one, with a cumulative wall thickness providing a premium appearance and feel. This could in some ways be described or thought of as a duo jar.

[0040] Different aspects and embodiments of the invention may be used separately or together.

[0041] Further particular and preferred aspects of the present invention are set out in the accompanying inde-

pendent and dependent claims. Features of the dependent claims may be combined with the features of the independent claims as appropriate, and in combination other than those explicitly set out in the claims. Each aspect can be carried out independently of the other aspects or in combination with one or more of the other aspects.

[0042] The present invention will now be more particularly described, by way of example, with reference to the accompanying drawings.

[0043] The example embodiments are described in sufficient detail to enable those of ordinary skill in the art to embody and implement the systems and processes herein described. It is important to understand that embodiments can be provided in many alternative forms and should not be construed as limited to the examples set forth herein.

[0044] Accordingly, while embodiments can be modified in various ways and take on various alternative forms, specific embodiments thereof are shown in the drawings and described in detail below as examples. There is no intent to limit to the particular forms disclosed. On the contrary, all modifications, equivalents, and alternatives falling within the scope of the appended claims should be included. Elements of the example embodiments are consistently denoted by the same reference numerals throughout the drawings and detailed description where appropriate.

[0045] Unless otherwise defined, all terms (including technical and scientific terms) used herein are to be interpreted as is customary in the art. It will be further understood that terms in common usage should also be interpreted as is customary in the relevant art and not in an idealised or overly formal sense unless expressly so defined herein.

[0046] In the following description, all orientational terms, such as upper, lower, radially and axially, are used in relation to the drawings and should not be interpreted as limiting on the invention.

[0047] Figure I shows a cosmetics container generally indicated 10.

[0048] The container 10 comprises a jar 15 and a lid 20. The jar 15 is shown with the lid remove in Figure 2.

[0049] Figure 3 shows two components of the jar: an external body jar 20 and an internal body jar 25. The internal body jar 25 includes a neck ring 30 and a finish 35 which includes an external screw thread 40.

[0050] Figure 4 shows a removable, refillable, reusable inner cup 45.

[0051] Two jar components formed from PET is a new packaging concept fulfilling sustainability and circular economy requirements.

[0052] This embodiment of the present invention is based on a principle of optimisation of wall thickness to avoid crystallization. The inner jar and the outer jar together provide a thick sidewall and a premium appearance results. In addition this creates a sustainable advantage: the combination of PET material with a refillable inner cup in PP gives a complete solution to the make the packaging sustainable.

[0053] Figures 5A to 5C show plan, underplan and sectional views of an external jar body component 120.

[0054] The external component 120 comprises a sidewall 121 and a dished base 122. The sidewall extends axially beyond the periphery of the base to provide an annular foot 123. At the end of the sidewall opposite the foot an annular ledge 124 is formed.

[0055] Figures 6A to 6C show plan, sectional, and magnified sectional views of an internal jar body component 125.

[0056] The internal component 125 is generally cup-shaped and comprises a sidewall 126 and a floor 127. Towards a free end of the sidewall an annular neck ring 130 is provided. Beyond the neck ring a neck finish 135 extends.

[0057] Figure 6C shows the neck finish in more detail. The exterior of the finish is provided with an external screw thread formation 140 (single- or multi-start). The rim of the finish is formed with a retention bead 142.

[0058] Figures 7A to 7F show side, top perspective, bottom perspective, underplan, sectional and magnified sectional views of an inner cup 145.

[0059] The cup 145 comprises a sidewall 146 and a bottom wall 147.

[0060] As shown best on Figure 7F, the rim of the sidewall is generally L-shape in section. A first leg 148 extends radially outwards and a second leg 149 which depends from the first leg. The interior face of the leg 149 is provided with an annular bead 150.

[0061] Figures 8A to 8F illustrate assembly of the internal and external jar body components 125, 120.

[0062] The internal component 125 nests in the external component 120. The floor 127 sits above the base 122 (see Figures 8C and 8E). The internal component neck ring 130 seats on the external component ledge 124.

[0063] In this embodiment the two parts 120, 125 are injected in PET and welded together by ultrasonic between the ring 130 and the ledge 124 (see Figure 8D). In some respects the two parts then effectively become one cumulative part.

[0064] The cup (not shown) can be introduced to the assembled parts 120, 125. The sidewall rim of the cup fits onto the internal component neck finish. The annular bead 150 of the cup clips/snaps over the retention bead 142 of the internal jar part. In this embodiment this releasably secures the cup into the jar.

[0065] Although illustrative embodiments of the invention have been disclosed in detail herein, with reference to the accompanying drawings, it is understood that the invention is not limited to the precise embodiments shown and that various changes and modifications can be effected therein by one skilled in the art without departing from the scope of the invention as defined by the appended claims and their equivalents.

Claims

1. A jar comprising two or more components which are formed separately and assembled together, each of the components is formed from PET and each of the components has a maximum wall thickness of less than 5mm.

2. A jar as claimed in claim 1, in which the components comprise an external jar and an internal jar.

3. A jar as claimed in claim 2, in which the inner jar and the outer jar together provide an increased thickness sidewall.

4. A jar as claimed in claim 2 or claim 3, in which the internal jar includes a neck portion.

5. A jar as claimed in any preceding claim, in which the components are welded together.

6. A jar as claimed in any preceding claim, in which the components are ultrasonically welded together.

7. A jar as claimed in any preceding claim, in which the components are formed by injection moulding.

8. A jar as claimed in any preceding claim and further comprising an inner cup.

9. A jar as claimed in claim 8, in which the inner cup is removable.

10. A jar as claimed in claim 8 or claim 9, in which the inner cup is formed from polypropylene.

11. A jar as claimed in any preceding claim and further comprising a lid.

12. A jar as claimed in any preceding claim and being formed as a cosmetics container.

13. A jar comprising outer and inner jar components, each of the components being clear, substantially uncrystallised PET.

14. A jar as claimed in any preceding claim and being filled with product.

15. A jar as claimed in any preceding claim and being filled with a cosmetic.

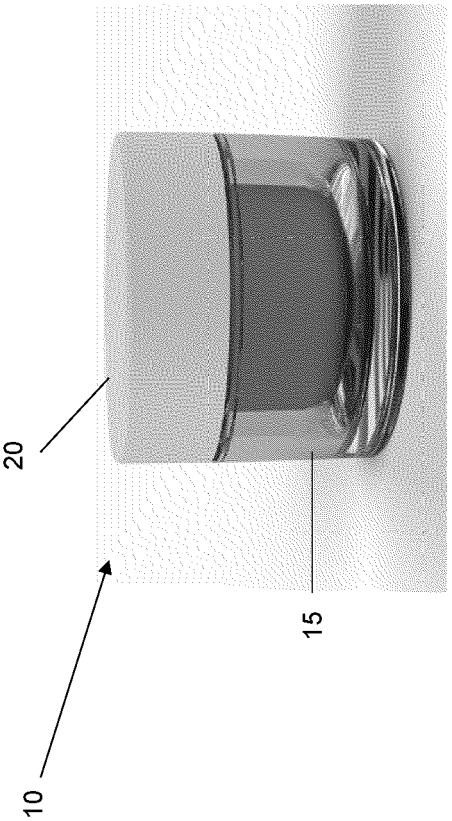


Figure 1

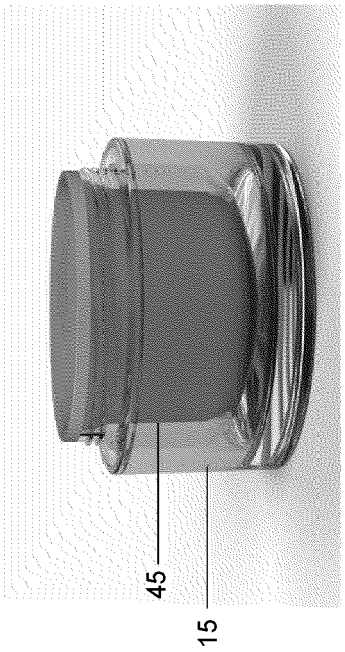


Figure 2

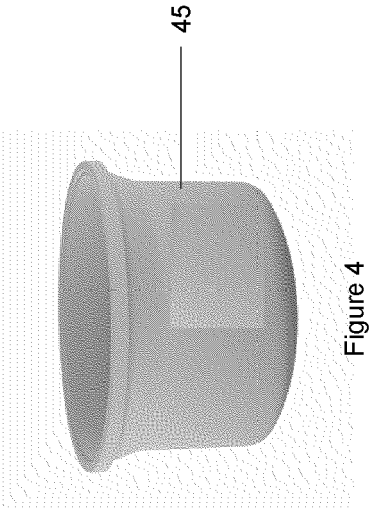


Figure 4

Figure 3

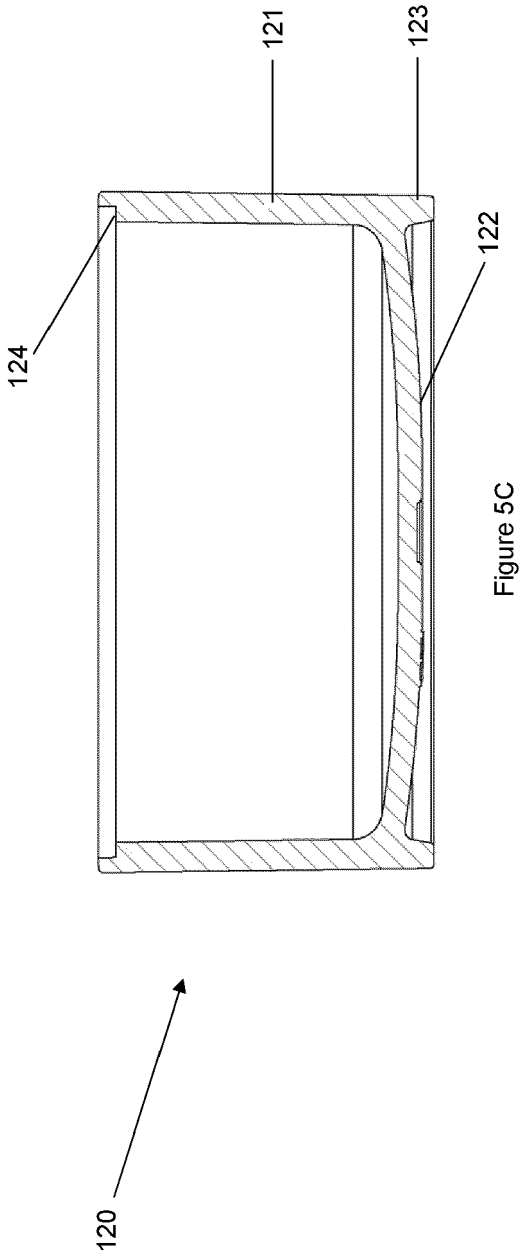


Figure 5C

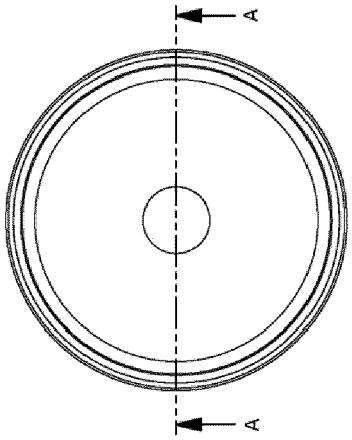


Figure 5A

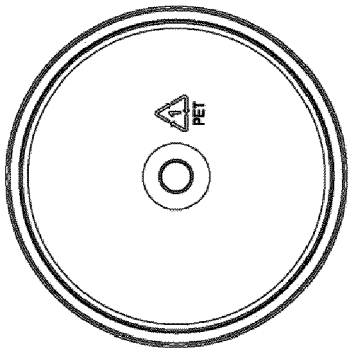


Figure 5B

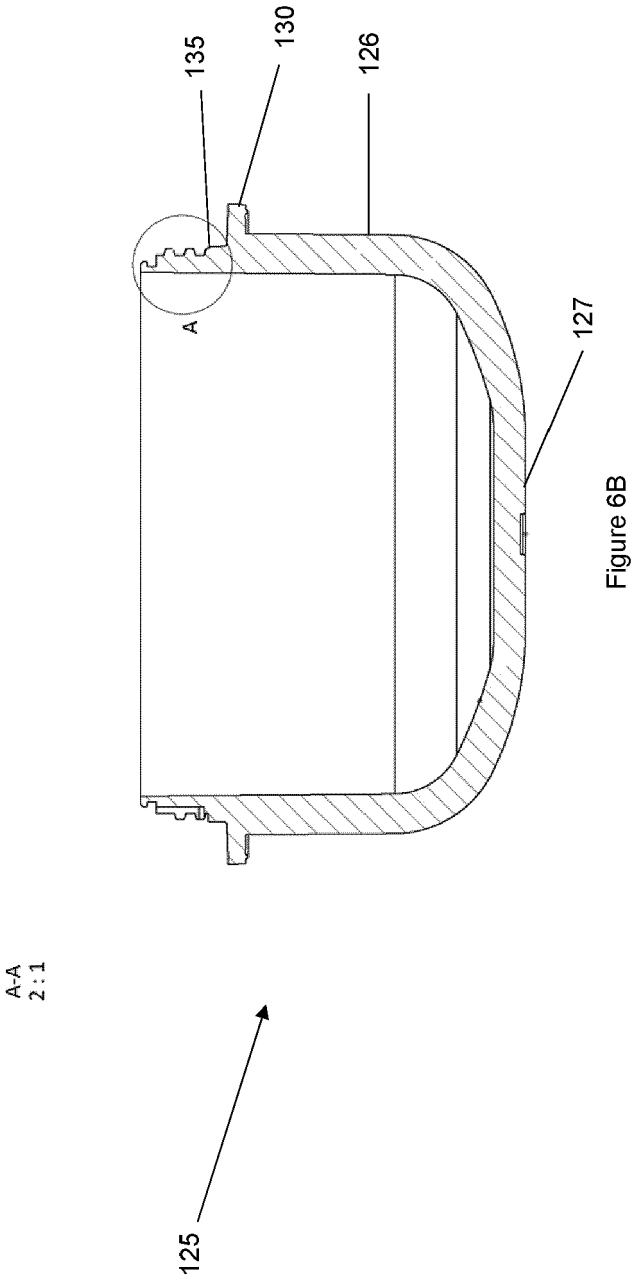


Figure 6B

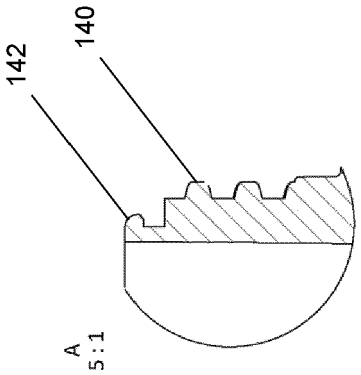


Figure 6C

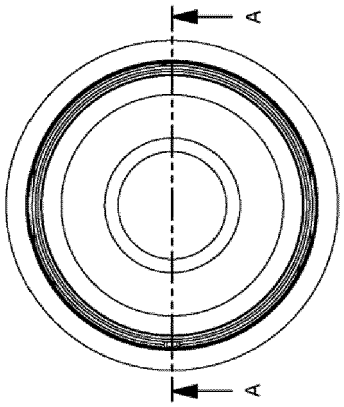


Figure 6A

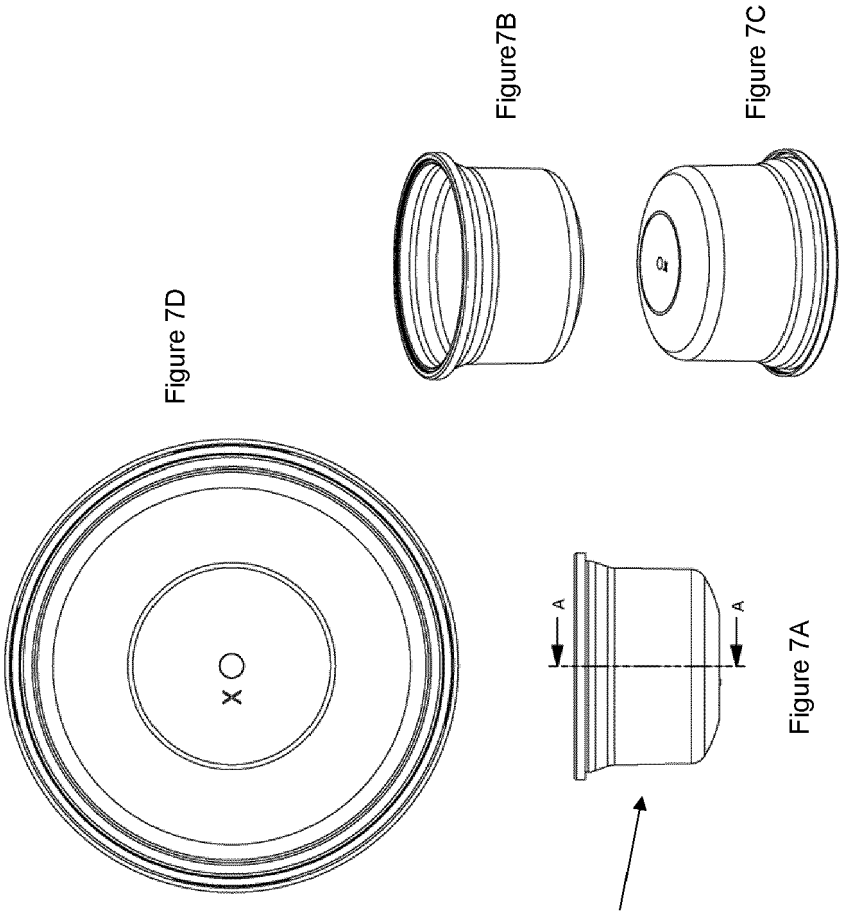
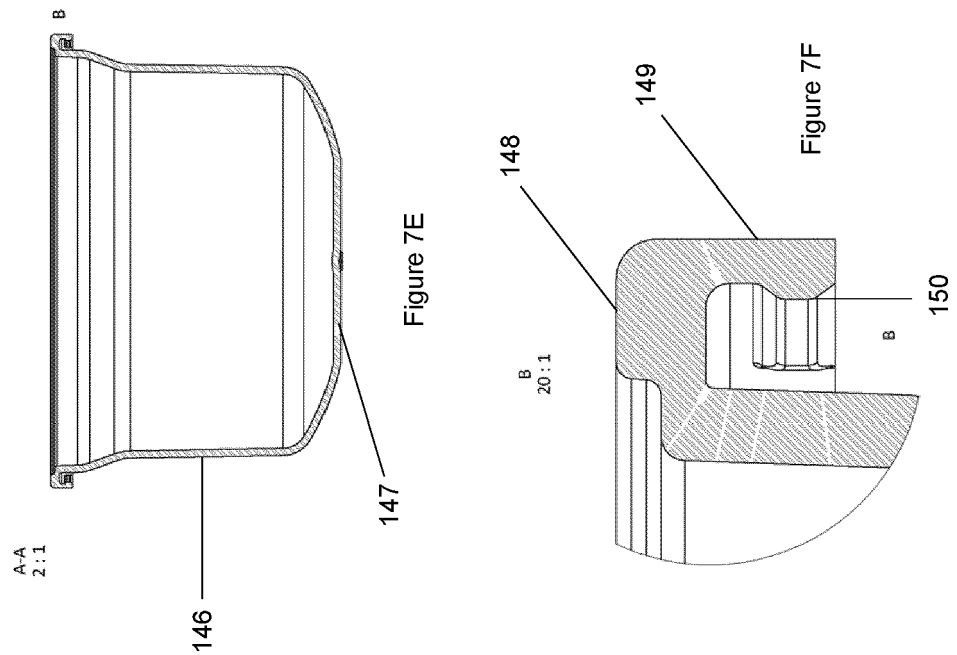


Figure7B
Figure 7C
Figure 7D
Figure 7A
A
A
145


B
A-A
2 : 1
146
147
Figure 7E
148
149
150
B
B
20 : 1
Figure 7F

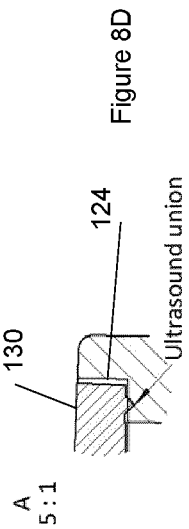


Figure 8D

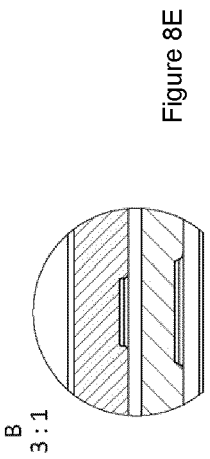


Figure 8E

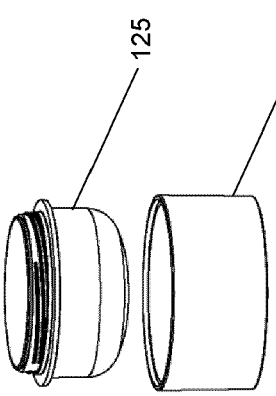


Figure 8A

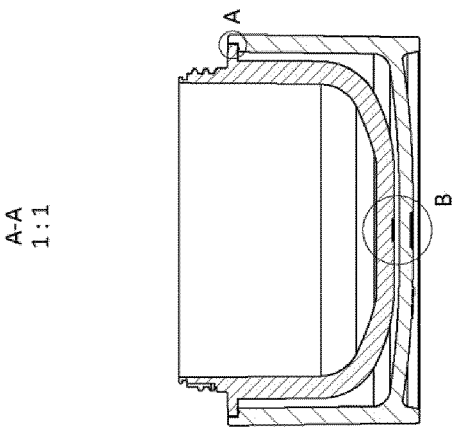


Figure 8C

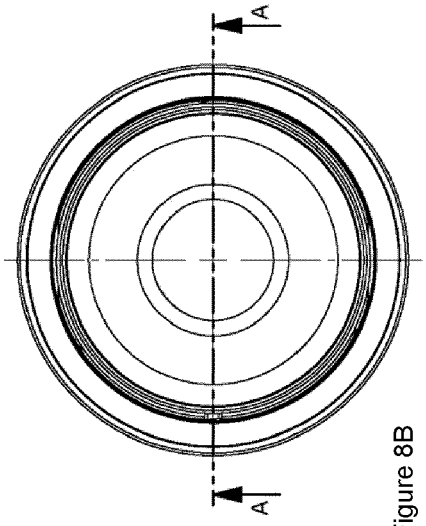


Figure 8B

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EUROPEAN SEARCH REPORT

Application Number
EP 21 20 1938

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	JP 2006 082864 A (YAITA SEISAKUSHO KK) 30 March 2006 (2006-03-30) * paragraphs [0001], [0006] - [0017] * * figures 1,2 *	1-12,14,15	INV. A45D40/00 B65D1/10 B65D6/10 B65D77/04
A	KR 2011 0138926 A (MINJIN CO LTD [KR]) 28 December 2011 (2011-12-28) * paragraphs [0013] - [0023] * * figures 1-4 *	8-10	
X	US 2008/023491 A1 (ROUSSELET GUILHEM [FR]) 31 January 2008 (2008-01-31) * paragraphs [0002], [0003], [0009], [0010], [0018] - [0024], [0032] - [0034], [0038] - [0064] * * figures 1-4 *	1-15	

TECHNICAL FIELDS SEARCHED (IPC)
A45D
B65D

1 The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	21 February 2022	Witkowska-Piela, A

CATEGORY OF CITED DOCUMENTS

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21-02-2022

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