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(54) **IMPROVED CONTAINER WITH TWO SIDE WALLS**

(57) The present invention relates to a container comprising a bottom (2) at the lower end of an inner sidewall (3) and an outer sidewall (4), which is attached to the outer circumference of the inner sidewall (3), wherein the inner- and/or the outer sidewall comprises an embossed shaping (5,7), wherein an adhesive connection (9.1,9.2) is provided between the inner sidewall (3) and the outer sidewall (4).

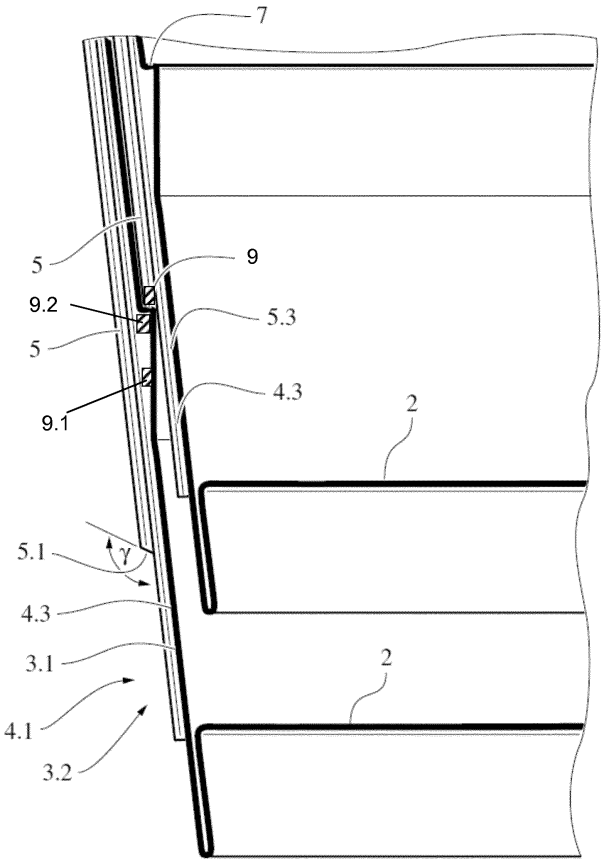

Fig. 3

EP 3 287 380 A1

Description

[0001] The present invention relates to a container comprising a bottom at the lower end of an inner sidewall and an outer sidewall, which is attached to the outer circumference of the inner sidewall, wherein the inner- and/or the outer sidewall comprises an embossed shaping, wherein an adhesive connection is provided between the inner sidewall and the outer sidewall.

[0002] Such containers are for example known from the state of the art for example WO 2011/023401 A1 or WO 2011/023400 A1, EP 237 1723 A1, EP 2540635 A1 or EP 2540643 A1 . The containers described in these publications have however the deficiency that there is a gap between the outer sidewall and the inner sidewall and/or that additional means is needed to stack the containers properly and/or that the staking means can be improved.

[0003] It is therefore the objective of the present invention to provide a container which does not comprise the deficiencies according to the state of the art.

[0004] The problem is attained by a container comprising a bottom at the lower end of an inner sidewall and an outer sidewall, which is attached to the outer circumference of the inner sidewall, wherein the inner- and/or the outer sidewall comprises an embossed shaping, wherein an adhesive connection is provided between the inner sidewall and the outer sidewall, wherein the adhesive connection is provided on the outer circumference of the inner sidewall and in the vicinity of the shaping.

[0005] The inventive container has the advantage that it is has an increased stability and the destacking of two containers is improved.

[0006] The present invention relates to a container. Particularly the container is a cup, in which beverages, especially hot beverages such as coffee or tea or food, especially soup, mash or the like can be served. The container is preferably made from paper, thick paper, cardboard, fiber material, plastic material, PLA materials and/or made from renewable and/or biodegradable raw materials or a combination thereof. More preferably, the material, particularly the material from which the side walls are made, is plastically deformable, for example embossable. All parts of the inventive containers are made from this material, whereas the individual parts of the container can be made from different materials. Especially the surface of the parts of the container that are subjected to a liquid and/or vapour are preferably provided with means, especially a coating, an impregnation, a firm or the like, which makes these parts at least temporarily resistant against for example humidity, water, aqueous solutions, oil and/or fat or a combination thereof. Preferably the above-mentioned means are also heat-sealable.

[0007] The container according to the present invention comprises an inner side wall, which is preferably conically shaped and which more preferably has at its upper end a bended or rolled rim. The sidewall is preferably made from a flat segment, which is subsequently formed, preferably rolled, more preferably around a mandrel, into its, for example conical, shape. Preferably at its lower end, the sidewall comprises a bottom in order to close the container at the base. The bottom is preferably a separate part which is attached, more preferably glued and/or heat-sealed to the lower end of the sidewall of the container. The sidewall and the base define the filling volume which can be filled with a product. According to the present invention, the inner sidewall may comprise an embossed shaping, preferably a stacking means to assure that the containers are easily separated from each other when being stacked, i.e. destacked. Preferably, this stacking means extends around the entire inner circumference of the inner sidewall and/or extends into the container.

[0008] According to the present invention, the container comprises an outer side wall, which is attached to the outer circumference of the inner side wall. This outer sidewall preferably extends around the entire circumference of the inner sidewall and more preferably extends essentially along the entire height of the inner side wall, particularly from the upper rim until the bottom. The second sidewall may comprise one or more embossed shaping(s). The shaping can be of any shape. Preferably, the shaping, together with the inner side wall confines a volume, preferably a closed volume. Preferably, the shaping in the outer side wall is a channel. According to another prefererd embodiment, the shaping in the outer side wall has a round, rectangular, square, triangular, elipsoide, polygonal cross- section. In case, there are a multitude of shapings, the shape of the shapings may be different. Preferably, the shapings are provided such, that they form knob-like surface, that is easy to hold by the hand of a user and/or for a machine. According to a different embodiment, the shaping may have the form of a pictogram.

[0009] The first and second sidewall are connected to each other by an adhesive connection, which is, according to the present invention provided in the vicinity of an embossed shaping in the first and/or second sidewall. The embossed shaping in the first sidewall is preferably a stacking shoulder which preferably extends radially inward into the filling volume. The lower end of the shaping in the second side wall cooperates with the stacking shoulder in the first side wall. Preferably, the adhesive connection is provided in the vicinity of the lower end of the shaping in the second sidewall. The adhesive connection is preferably provided by a glue between the first and the second sidewall.

[0010] The adhesive connection has the advantage that it provides additional rigidity to the first and/or second sidewall in the vicinity of the embossment(s).

[0011] According to a preferred embodiment of the present invention, the adhesive connection is aligned with the embossed shaping, wherein the extension of the adhesive connection parallel to the first sidewall can be equal or different, preferably smaller than the extension

of the stacking means in this direction. The adhesive connection can be provided in to parallel strips which extend at least partially along the circumference of the inner sidewall.

[0012] Preferably, the adhesive connection is provided around the entire circumference of the inner sidewall or in one or more circumferential section(s). In case there are two or more circumferential sections, these sections are preferably provided equidistantly and/or at the same height on the outer circumference of the first sidewall.

[0013] Preferably, the outer sidewall, the second sidewall, comprises a multitude of embossed shapings, which extend radially out of the outer surface of the second side walls. These embossments, together with the outer circumference of the inner side wall, each define a channel which is closed, preferably hermetically closed. Thus, no debris or the like can accumulate in the channels. The entrapped air in the channels is an insulation, so that the surface of the container that comes into contact with the hand of a user is neither too hot nor too cold.

[0014] Furthermore, the outer sidewall can be designed such that the lower end of the shaping does not extend until the lower end of the outer side wall, but is distant from the lower end of the outer side wall. Thus, at its lower end, the outer sidewall comprises a flat portion, preferably a flat ring, which extends around the entire circumference of the inner sidewall and which can be partially or entirely attached to the outer surface of the inner side wall.

[0015] Preferably, the lower end of the shaping is utilized as a stacking means, which, when two cups are stacked together, rests on the stacking means at the inner sidewall of another cup.

[0016] Preferably, the adhesive connection is provided in the lower end of this shaping.

[0017] Due to the utilization of the lower end of the embossments as stacking means, no additional stacking means have to be provided. Thus, the cup according to this preferred embodiment is easily produced.

[0018] Preferably, the upper end of the shaping is also distant from the upper end of the outer side wall. Consequently, preferably a flat ring, which extends around the entire outer surface of the inner sidewall, is also provided at the upper end of the outer side wall. This flat ring can be connected, for example glued and/or sealed to the outer circumference of the inner side wall.

[0019] The lower end of the shaping, particularly the surface that is in contact with the stacking means at the inner sidewall of a second container is preferably provided in an angle of less than 120° and preferably more than 80°. This assures that the cups can be denested easily.

[0020] The invention is now explained according to figures 1-4. These explanations do not limit the scope of protection.

Figure 1 shows two cups stacked together.

Figure 2 shows a cut through the cups according to figure 1.

Figures 3 and 4 show details of the shapings and the stacking means and the adhesive connection.

Figures 4 and 5 show yet another embodiment of the present invention, respectively

[0021] Figures 1 and show a container, here a paper- or cardboard-cup. This container 1 comprises a conical inner sidewall 3, which has at its lower end a bottom 2. This bottom 2 is preferably attached, particularly glued or sealed to the inner sidewall 3 of container 1. The inner sidewall and the bottom define the filling volume of the container. The inner sidewall further comprises a shaping 7, here an embossment 7, which extends out of the inner surface of the inner sidewall 1 into the filling volume and which is a stacking means. The embossment 7 preferably extends around the entire inner circumference of the inner sidewall 2. At its upper end 3.3, the inner sidewall preferably comprises a rim 8, which is more preferably bended or rolled.

[0022] The cup furthermore comprises a second sidewall 4, the outer side wall 4, which is also conical and which extends around the entire circumference of the outer circumference 3.1 of the inner side wall 3. The length L of the outer sidewall is preferably chosen such that it extends from the upper end 3.3 of the inner side wall, preferably from rim 8, until essentially the bottom 2 of the container 1. The outer sidewall may comprise a multitude of shapings, which each extend radially away from the inner sidewall 3 of container 1 and/or away from the inner surface 4.3 of the outer sidewall 4. Preferably, the shapings 5 each do not extend over the entire length L of the outer side wall. Particularly, the lower end 5.1 of the shaping 5 is distant from the lower end 4.1 of the outer side wall. Thus, the outer sidewall preferably comprises at its lower end a flat ring, which extends around the entire circumference of the inner side wall 3. This ring is preferably used to connect, preferably glue and/or seal the outer sidewall 4 to the inner sidewall 3. The embossments 5 together with the outer circumference of the inner sidewall 3 each define a separate channel 6, in which a gas, preferably air, is entrapped. Preferably, these channels are closed, more preferably hermetically closed. The gas inside the channels 6 is a heat/cold-insulation. Preferably, the lower end 5.1 of each embossment 5 serves as a stacking means, which cooperates with stacking means 7 of another container, when two containers are stacked. This assures that the stacked cups can be denested easily. Since the flat lower end 4.1 of the outer sidewall extends below the lower end 5.1 of each shaping 5, the lower end 4.1 is also a guidance for the cup during the stacking. The upper end 5.2 of each shaping is preferably also distant from the upper end 4.2. The flat ring of the outer sidewall can be attached to the inner sidewall.

[0023] As can be seen from Figures 3 and 4, an adhesive connection 9, 9.1, 9.2 is provided between the outer

circumference of the inner sidewall 3 and the inner circumference of the outer sidewall 4. The adhesive connection 9, 9.1, 9.2 can be provided as an entire ring or as one or more segments of a ring. The adhesive connection 9, 9.1, 9.2 is aligned with the shaping 7, here the stacking shoulder. However, in the present case, the height l of the shaping 7 is larger than the extension of the adhesive connection 9, 9.1, 9.2. in this direction. The person skilled in the art understands that the height of the adhesive connection can also be equal or greater than the height of the shaping. As can be seen from Figure 3, there can be more than one adhesive connection 9.1 and 9.2.

[0024] As can be seen from Figure 4, the adhesive connection 9 can also be provided at the lower end 5.1 of the shaping 5. The adhesive connection (9) has the advantage that it provides additional rigidity to the first and/or second sidewall in the vicinity of the embossment(s).

[0025] Figure 5 shows yet another embodiment of the present invention. In this case, the embossments/shapings in the second sidewall is a multitude of nope-like-struktures 5.1. An adhesive 9 is porivded in the vicinity and/or in at least one of the shapings. Preferably, a multitude of shapings along one horizontal plane are provided with an adhesive. In the present case, the adhesive is provided in the plane of the shapings, which is provided closest to the bottom. In the present case only one adhesive is shown. However, the person skilled in the art understands, that more than one of the shapings in this horizontal plane may be provided with an adhesive. The adhesive can be, for example, provided by cutting one or more shapings, for example in half or almost in half and then provide an adhesive into the shaping. Alternatively, the adhesive can be provided to the inner side of the outher side wall and/or the outer circumference of the innersidewall, before the two sidewalls are attached to each other. Preferably all or some shapings next to the bottom are partially filled an adhesive. The adhesive can also be provided as a ring, which extends around the entire circumference of the inner side wall, preferably in and/or in the vicinity of shapings next to the bottom.

[0026] Regarding the embodiment according to Figure 6, reference can be made to the descrition of one or more of the previous Firugres. In the present case, the shapings 5.1 are not straight but curved. At least one, preferably a multitude of shapings comprise an adhesive at the lower, preferably the lowst end of this shaping as depicted in the drawing. In the present example the shapings 5.1 extend until the bottom edge of the second sidewall

[0027] Particularly regarding the embodiments shown in Figures 5 and 6, the outer sidewall may have a flat non embossed area, particularly at the lower end adjacent to the shapings 5.1.

List of reference signs:

[0028]

1	container
2	bottom
3	inner sidewall
3.1	outer circumference of the inner sidewall
3.2	lower end of the inner sidewall
3.3	upper end of the inner sidewall
4	outer sidewall
4.1	lower end of the outer sidewall, flat lower end of the sidewall
4.2	upper end of the outer sidewall, flat upper end of the sidewall
4.3	inner surface of outer sidewall
4.4	outer surface of outer sidewall
5	shaping in the outer sidewall
5.1	lower end of the shaping
5.2	upper end of the shaping
5.3	inner surface of the shaping
6	channel
7	stacking means
8	rim
9	adhesive connection
9.1	adhesive connection
9.2	adhesive connection
L	Length/height of the outer sidewall
L	height of the shaping 7

Claims

1. Container (1) comprising a bottom (2) at the lower end (3.2) of an inner sidewall (3) and an outer sidewall (4), which is attached to the outer circumference (3.1) of the inner sidewall (3), wherein the inner- and/or the outer sidewall comprises an embossed shaping (7, 5), wherein an adhesive connection (9) is provided between the inner sidewall (3) and the outer sidewall (4), **characterized in, that** the adhesive connection (9) is provided on the outer circumference of the inner sidewall (3) and in the vicinity of the shaping (7, 5).

2. Container (1) according to claim 1, **characterized in, that** embossed shaping (7) is a stacking means.

3. Container (1) according to claim 2, **characterized in, that** the adhesive connection (9) is aligned with the lower end of shaping (5).

4. Container (1) according to claims 1 or 2, **characterized in, that** the adhesive connection (9) is provided around the entire circumference or as one or more circumferential section(s).

5. Container (1) according to one of the preceding claims, **characterized in, that** the outer sidewall (4) comprises a multitude of embossed shapings (5), which extend radially out of the outer surface (4.4) of the second sidewall 4) and whereas the lower end

(5.1) of the shaping (5) is distant from the lower end (4.1) of the outer sidewall (4) and that lower end (5.1) of the shaping (5) is utilized as a stacking means.

6. Container (1) according to claim 5, **characterized in that** the adhesive connection is provided in the vicinity of the lower end (5.1)

7. Container (1) according to one of the preceding claims, **characterized in, that** the upper end (5.2) of the shaping (5) is distant from the upper end (4.1) of the outer sidewall (4).

8. Container (1) according to one of the preceding claims, **characterized in** a tight, two dimensional connection between the flat lower end (4.1) of the outer sidewall and the outer circumference (3.1) of inner sidewall (3).

9. Container (1) according to one of the preceding claims, **characterized in, that** the flat lower end (4.1) and/or the flat upper end (4.2) of the outer sidewall (4) are glued or sealed to the inner sidewall (3).

10. Container (1) according to one of the preceding claims, **characterized in, that** the channels (6) are closed.

11. Container (1) according to one of the preceding claims, **characterized in, that** there is a tight connection between the flat upper end (4.2) of the outer sidewall and the outer circumference (3.1) of inner sidewall (3).

12. Container (1) according to one of the preceding claims, **characterized in, that** the lower end (5.1) of each shaping (5) is at least partially, provided in an angle (α) of less than 120° and preferably more than 80°.

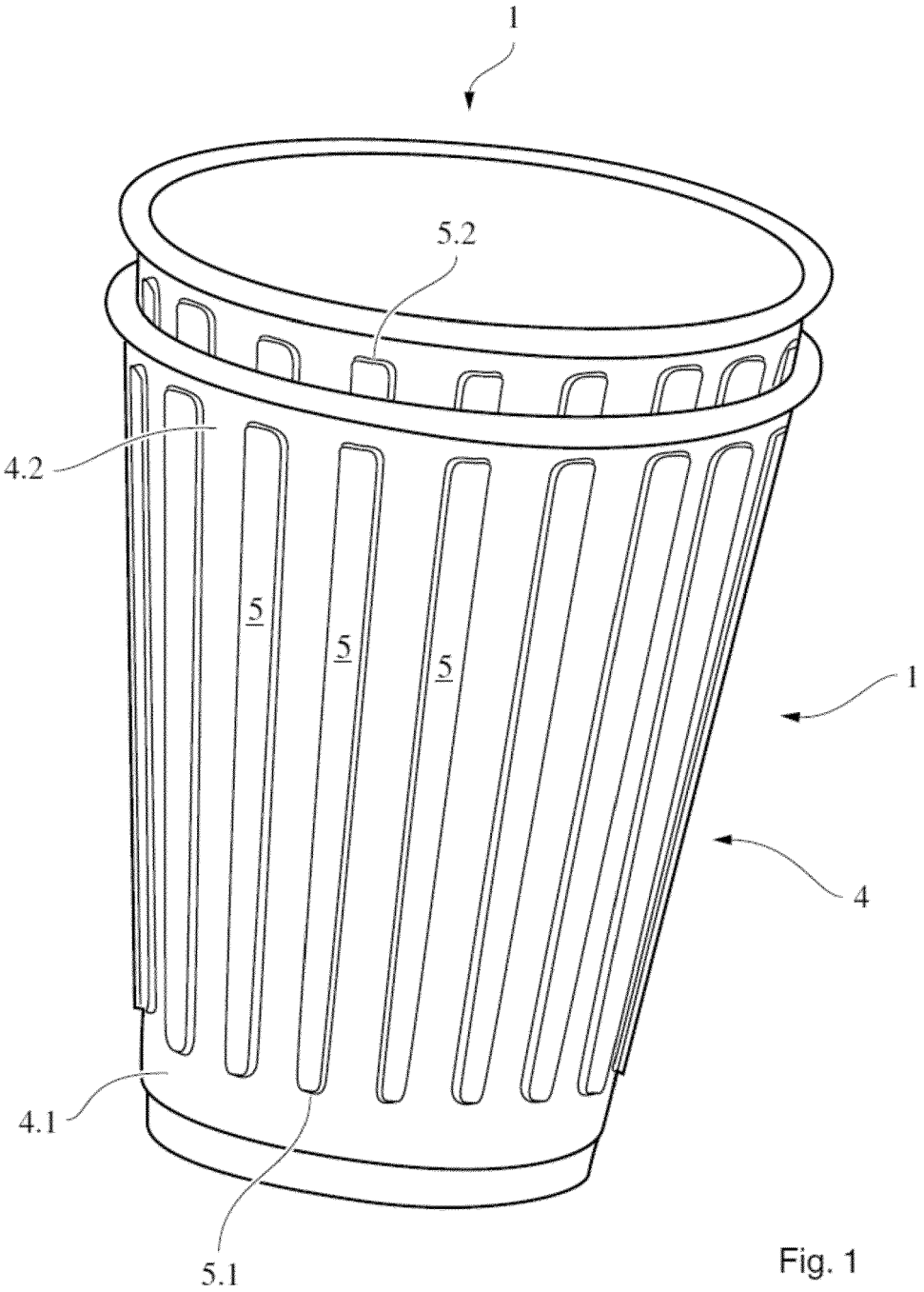

Fig. 1

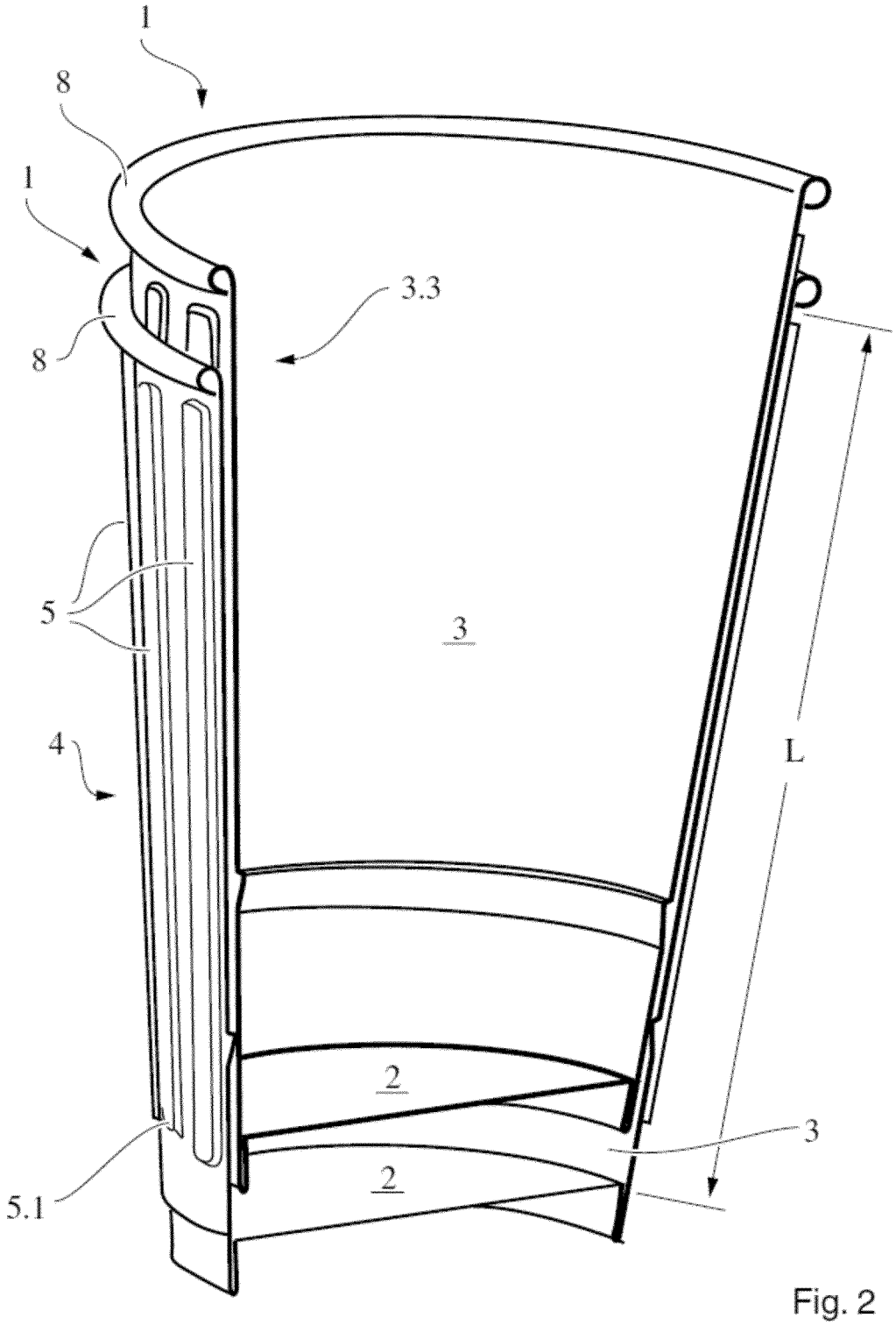

Fig. 2

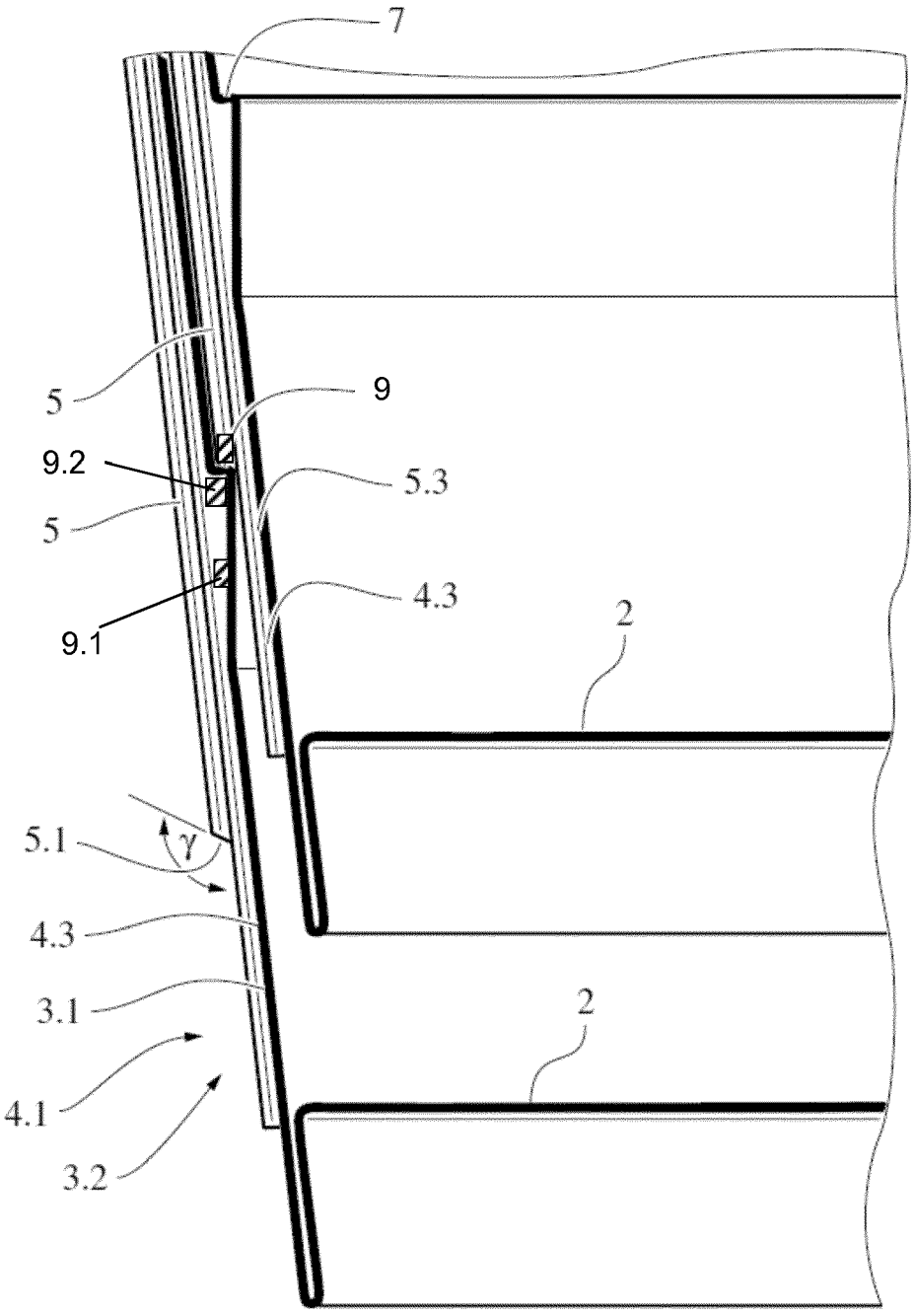

Fig. 3

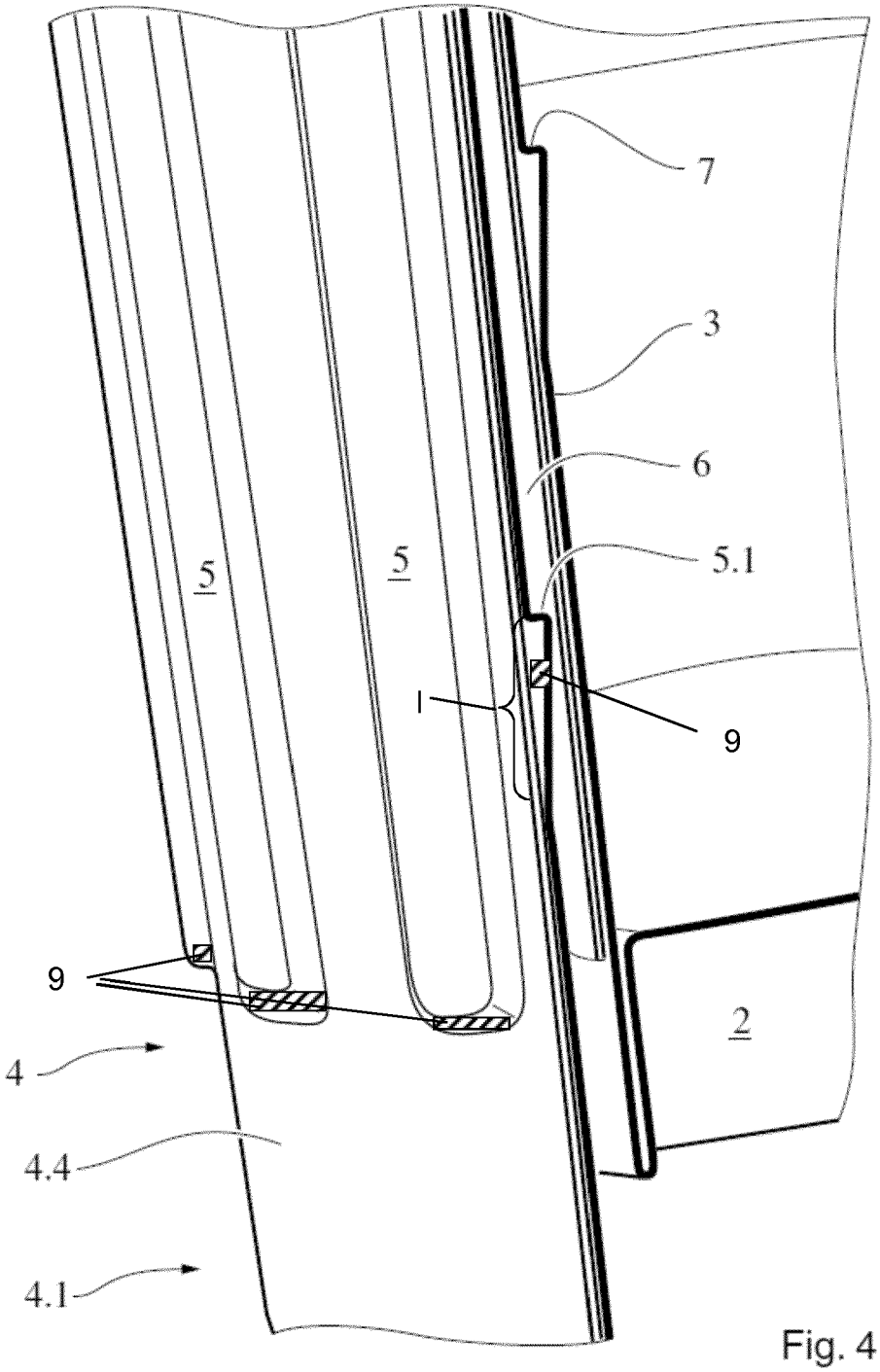

Fig. 4

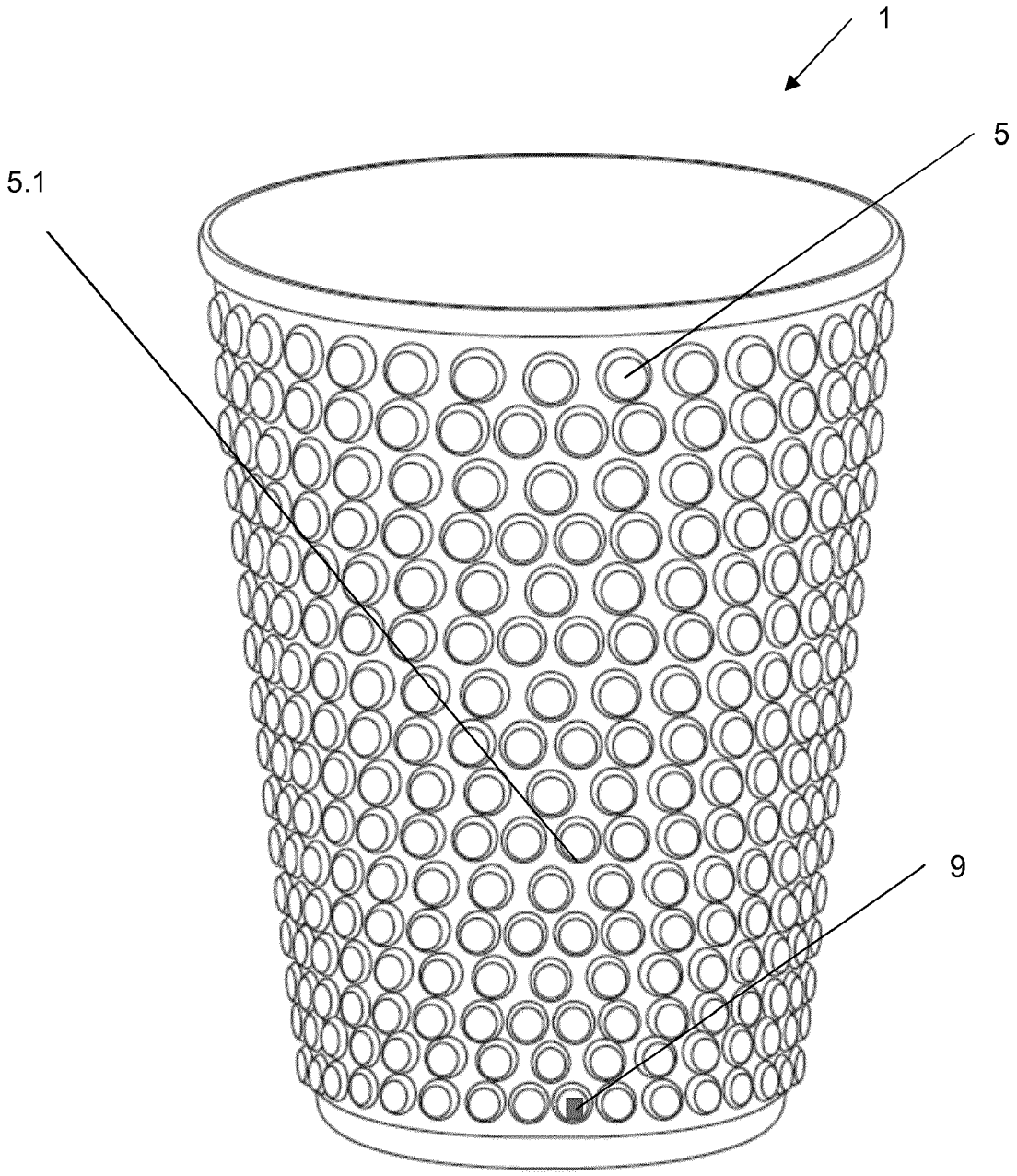

Fig. 5

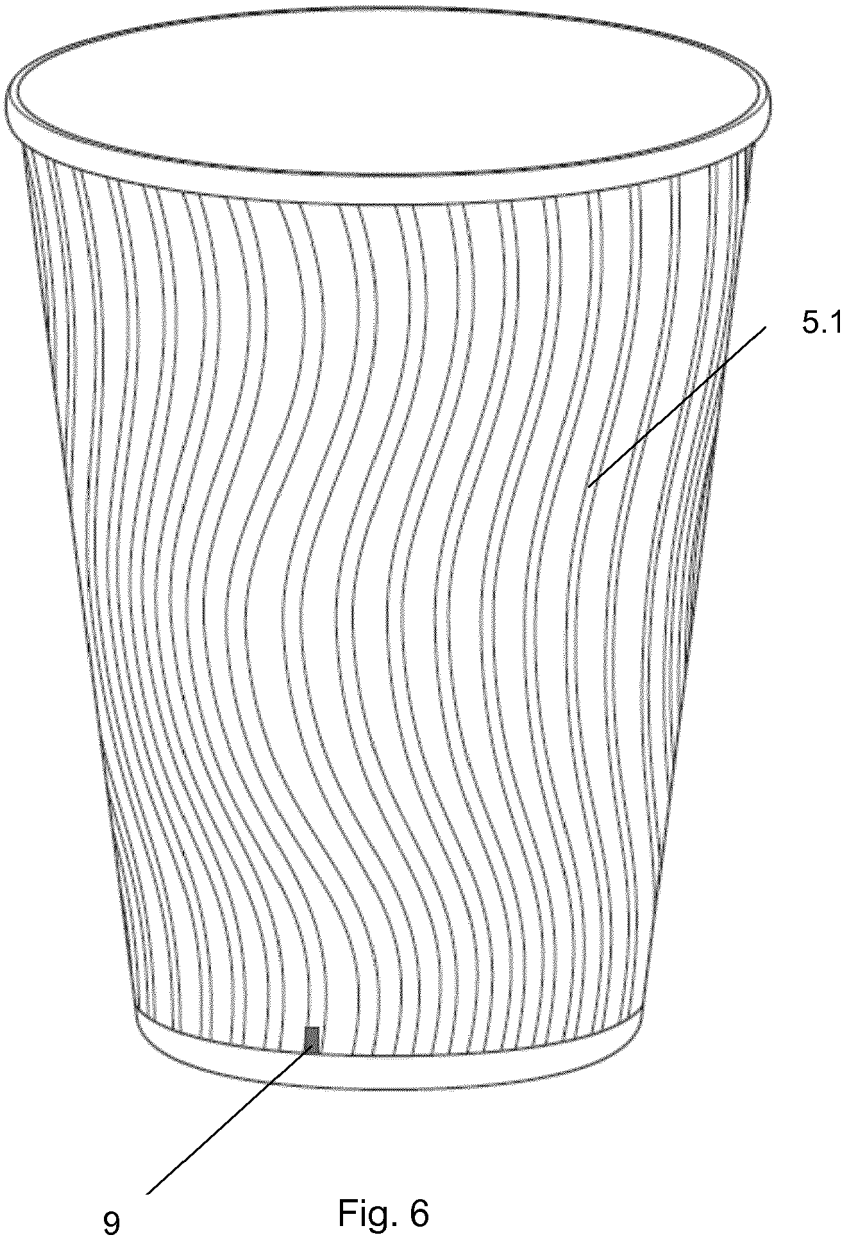

Fig. 6

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EUROPEAN SEARCH REPORT

Application Number
EP 17 18 3218

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TECHNICAL FIELDS SEARCHED (IPC)

B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	15 December 2017	Ngo Si Xuyen, G

CATEGORY OF CITED DOCUMENTS

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