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(54) **A heat-insulating paper cup**

(57) The present invention provides a heat-insulating paper cup, which comprising: a cup body, which consists of a conical cylindrical wall, a cup bottom and a cup rim; a glued heat-insulating tube, with its inner wall sleeved onto the exterior of the conical cylindrical wall of the cup body; and the heat-insulating tube and the conical cylindrical wall of the cup body are adhered securely by glue; the heat-insulating tube is of conical cylindrical shape and mated with the conical cylindrical wall; moreover, the external wall of the heat-insulating tube is designed with a smooth surface; multiple raised lines, protruded at interval onto the inner wall of the heat-insulating tube, and mated with the conical cylindrical wall of the cup body; multiple hollow ducts, set into the heat-insulating tube at interval in tune with the raised lines; with this design, the novel heat-insulating paper cup can facilitate the advertisement printing and fabrication with better applicability; the raised lines on the inner wall of the heat-insulating tube can support the ribs, thus enhancing the structural strength and robustness of the heat-insulating tube and avoiding squashing during manual holding.

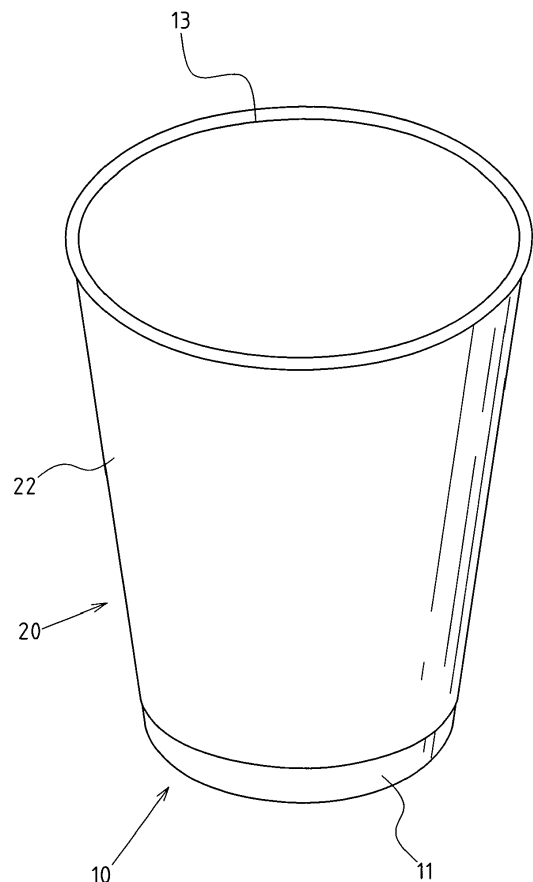


FIG.1

Description

BACKGROUND OF INVENTION

1. Field of the Invention

[0001] The present invention relates generally to a heat-insulating paper cup, and more particularly to an innovative one which allows raised lines to be set on the inner wall of the heat-insulating tube and mated closely with the cup body.

2. Description of Related Art

[0002] Since conventional single-layer paper cup filled with hot drink or water makes it difficult to hold manually, a heat-insulating paper cup has been developed in the industry.

[0003] Said heat-insulating paper cup is structurally designed in such a manner that an external paper tube is generally sleeved onto exterior of original cup body, so a two-layer wall is employed for heat insulation; yet, there still exist the following shortcomings against conventional heat-insulating paper cup:

As for the typical structure that spaced ribs are set on the external wall of the external paper tube, the heat-insulating effect can be enhanced by the bigger thickness of the external paper tube with spaced ribs, but the irregular surface formed by the spaced ribs leads to difficult advertisement printing and fabrication on the surface of the heat-insulating paper cup.

[0004] Moreover, upper and lower flanges of the external paper tube are designed into incurved shape to form an annular space of better insulation effect between the external paper tube and cup body of conventional heat-insulating paper cup; yet, it is observed during actual application that, only incurved portions of the upper and lower flanges of external paper tube are used as a support, a vacant shell is formed between the intermediate region of the external paper tube and the cup body, so the external paper tube is easily squashed when it is held manually.

[0005] Thus, to overcome the aforementioned problems of the prior art, it would be an advancement if the art to provide an improved structure that can significantly improve the efficacy.

[0006] Therefore, the inventor has provided the present invention of practicability after deliberate design and evaluation based on years of experience in the production, development and design of related products.

SUMMARY OF THE INVENTION

[0007] The enhanced efficacy of the present invention is as follows:

Based on the unique design of the present invention that the "heat-insulating paper cup" allows the glued external wall of heat-insulating tube to be designed with a smooth surface, and the raised lines on the inner wall of the heat-insulating tube are mated closely with the conical cylindrical wall of the cup body, this can facilitate advertisement printing and fabrication on the surface of heat-insulating paper cup; moreover, the raised lines on the inner wall of the heat-insulating tube can support the ribs, thus enhancing the structural strength and robustness of the heat-insulating tube and avoiding squashing during manual holding.

[0008] The improvements brought about by this invention are as follow:

1. Based on the structural design that the raised line is designed into an oblique angle, the flow speed of glue can be delayed to prevent dripping of the glue.
2. Based on the structural design that the raised lines and hollow ducts of the heat-insulating tube are staggered in relation to the curvature and extension direction of the heat-insulating tube, it is possible to support more strongly the heat-insulating tube due to the torsional resistance of the raised lines and hollow ducts.

3. When said hollow duct penetrates the top and bottom of the heat-insulating tube, the heat-insulating paper cups are overlapped, then the hollow duct will be ventilated to avoid vacuum suction due to tight sleeving between annular space of heat-insulating paper cup, and enable easier removal of the closely overlapped heat-insulating paper cups.

[0009] Although the invention has been explained in relation to its preferred embodiment, it is to be understood that many other possible modifications and variations can be made without departing from the spirit and scope of the invention as hereinafter claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010]

FIG. 1 shows an assembled perspective view of a preferred embodiment of the present invention.

FIG. 2 shows an exploded perspective view of a preferred embodiment of the present invention.

FIG. 3 shows an unfolded view of the heat-insulating tube of the present invention.

FIG. 4 shows a plane top view of a preferred embodiment of the present invention.

FIG. 5 shows a flow process diagram of the present invention.

FIG. 6 shows a schematic view of the present invention that the raised line is of a wavy pattern.

DETAILED DESCRIPTION OF THE INVENTION

[0011] FIGS. 1~4 depict preferred embodiments of a heat-insulating paper cup of the present invention, which, however, are provided for only explanatory objective for patent claims. Said heat-insulating paper cup comprising:

a cup body 10, which consists of a conical cylindrical wall 11, a cup bottom 12 and a cup rim 13;
a glued heat-insulating tube 20 made of paper material; the inner wall 21 of the heat-insulating tube 20 is sleeved onto the exterior of the conical cylindrical wall 11 of the cup body 10, and the heat-insulating tube 20 and the conical cylindrical wall 11 of the cup body 10 are adhered securely by glue W (shown in FIG. 4); the heat-insulating tube 20 is of conical cylindrical shape and mated with the conical cylindrical wall 11; moreover, the external wall 22 of the heat-insulating tube 20 is designed with a smooth surface, so this can facilitate advertisement printing and fabrication on the surface of heat-insulating paper cup, thus increasing the visibility of the business performance and improving the value of the products; meanwhile, the users are allowed to hold stably the heat-insulating tube 20 which can prevent efficiently heat transfer and avoid the scalding of hot liquid stored in the cup body 10 to ensure the safety of utilization; multiple raised lines 23, protruded at interval onto the inner wall 21 of the heat-insulating tube 20 at an oblique angle, and mated with the conical cylindrical wall 11 of the cup body 10; said raised line 23 permits to reduce the contact area with the cup body 10, helping to cut down efficiently the heat transfer; multiple hollow ducts 24, set into the heat-insulating tube 20 at interval and at an oblique angle in tune with the raised lines 23.

[0012] Of which, the heat-insulating tube 20 is made of corrugated paper, so the corrugated inner layer of the corrugated paper is defined to form said raised line 23 and hollow duct 24; said hollow duct 24 will then be ventilated to avoid vacuum suction due to tight sleeving between annular space of heat-insulating paper cup, and enable easier removal of the closely overlapped heat-insulating paper cups.

[0013] Of which, said raised line 23 is available with multiple patterns, referring to FIGS. 2, 3, said raised line 23 is extended obliquely from the top to the bottom of the heat-insulating tube 20, or referring to FIG. 6, said raised line 23 is extended transversely into a wavy pattern between the top and bottom of the heat-insulating tube 20.

[0014] Based on above-specified structural design, said heat-insulating paper cup is formed by the steps in FIG. 5, wherein the unfolded heat-insulating tube 20 is folded into a conical cylindrical pattern in tune with the cup body 10, and the inner wall 21 of the conical cylindrical heat-insulating tube 20 is coated with glue W; next,

the cup body 10 is sleeved onto it such that the heat-insulating tube 20 and the conical cylindrical wall 11 of the cup body 10 are adhered by glue W (in conjunction with FIG. 4).

Claims

1. A heat-insulating paper cup, which comprising:

a cup body, which consists of a conical cylindrical wall, a cup bottom and a cup rim;
a glued heat-insulating tube made of paper material; the inner wall of the heat-insulating tube is sleeved onto the exterior of the conical cylindrical wall of the cup body, and the heat-insulating tube and the conical cylindrical wall of the cup body are adhered securely by glue W; the heat-insulating tube is of conical cylindrical shape and mated with the conical cylindrical wall; moreover,
the external wall of the heat-insulating tube is designed with a smooth surface;
multiple raised lines, protruded at interval onto the inner wall of the heat-insulating tube at an oblique angle, and mated with the conical cylindrical wall of the cup body;
multiple hollow ducts, set into the heat-insulating tube at interval and at an oblique angle in tune with the raised lines;

2. The device defined in Claim 1, wherein the heat-insulating tube is made of corrugated paper, so the corrugated inner layer of the corrugated paper is defined to form said raised line and hollow duct.

3. The device defined in Claim 1, wherein the raised lines are protruded at interval onto the inner wall of the heat-insulating tube at an oblique angle, and said hollow ducts are also designed with an oblique angle in tune with the raised lines.

4. The device defined in Claim 3, wherein said raised line is extended obliquely from the top to the bottom of the heat-insulating tube.

5. The device defined in Claim 3, wherein said raised line is extended transversely into a wavy pattern between the top and bottom of the heat-insulating tube.

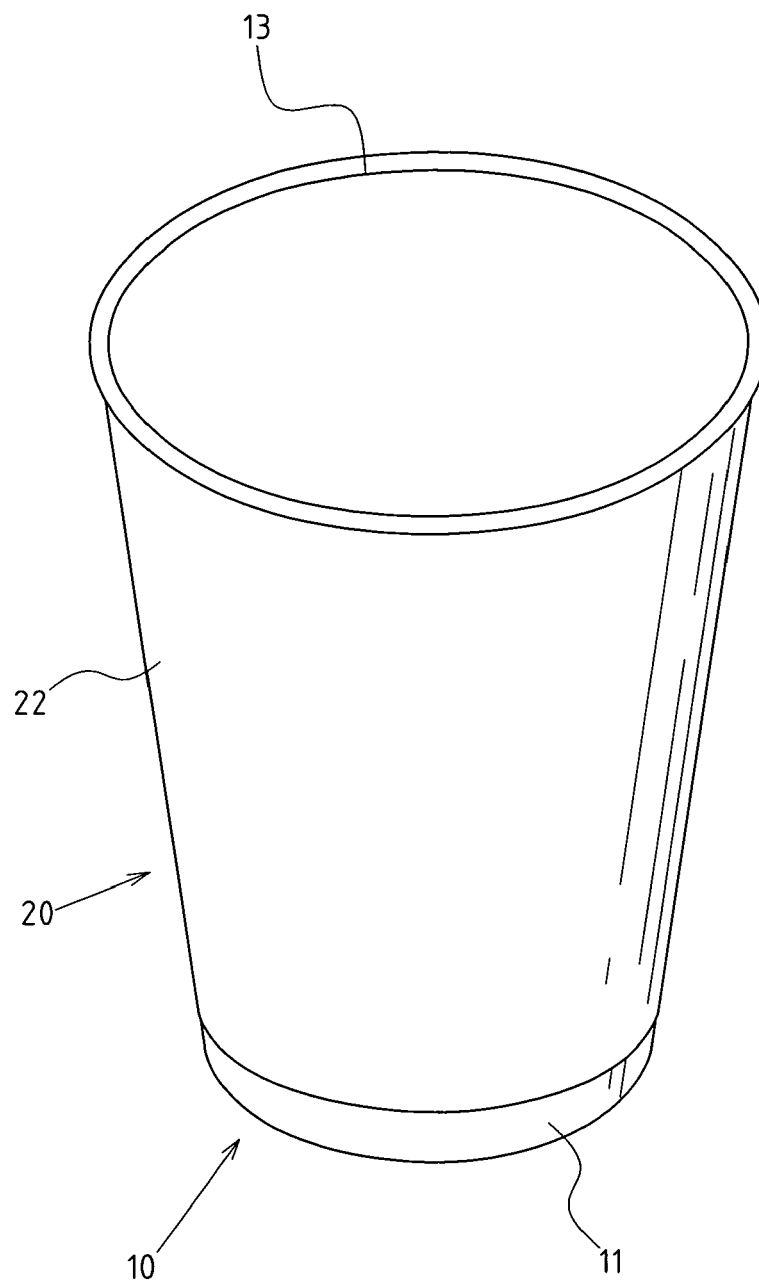


FIG.1

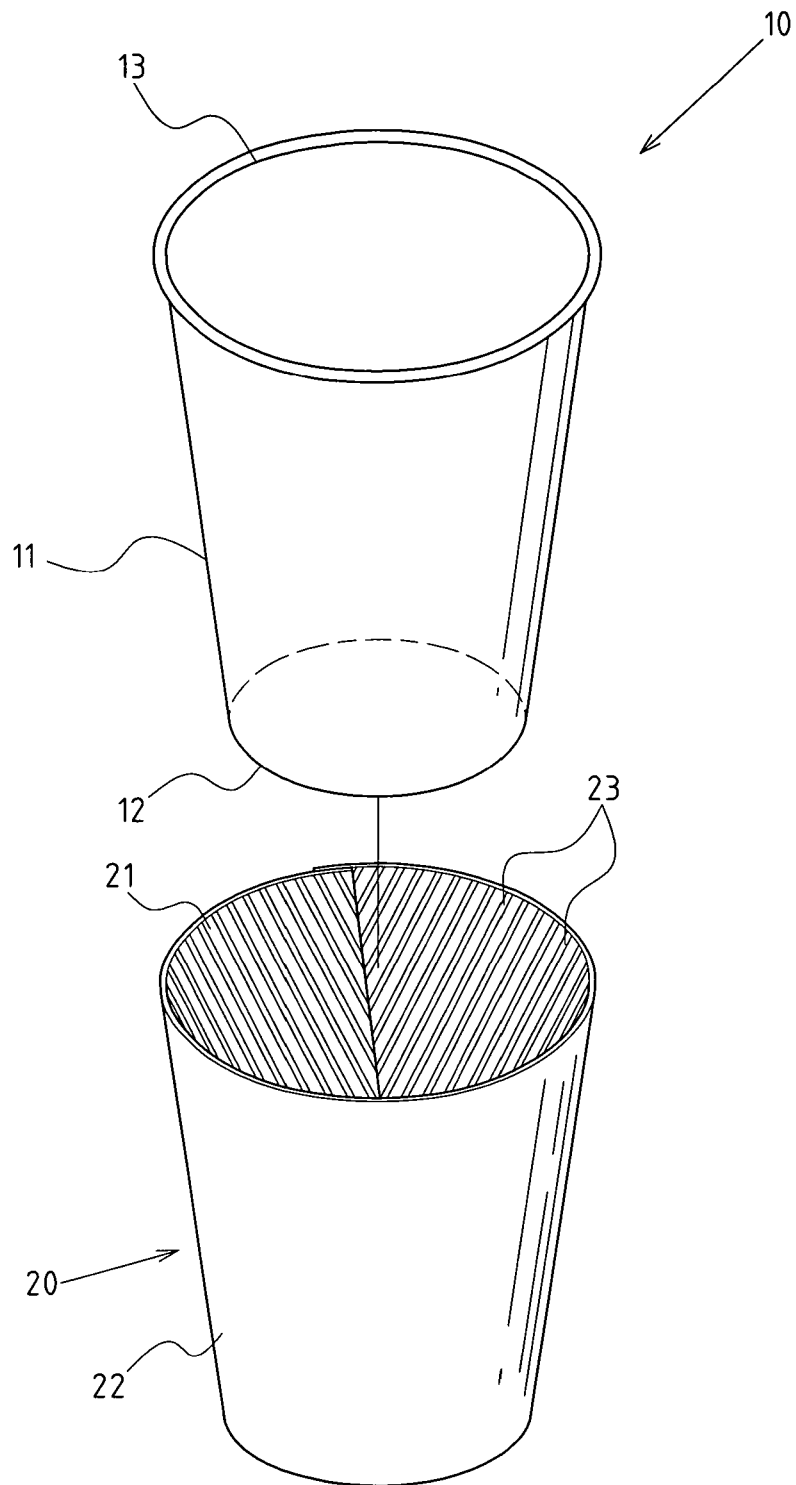


FIG.2

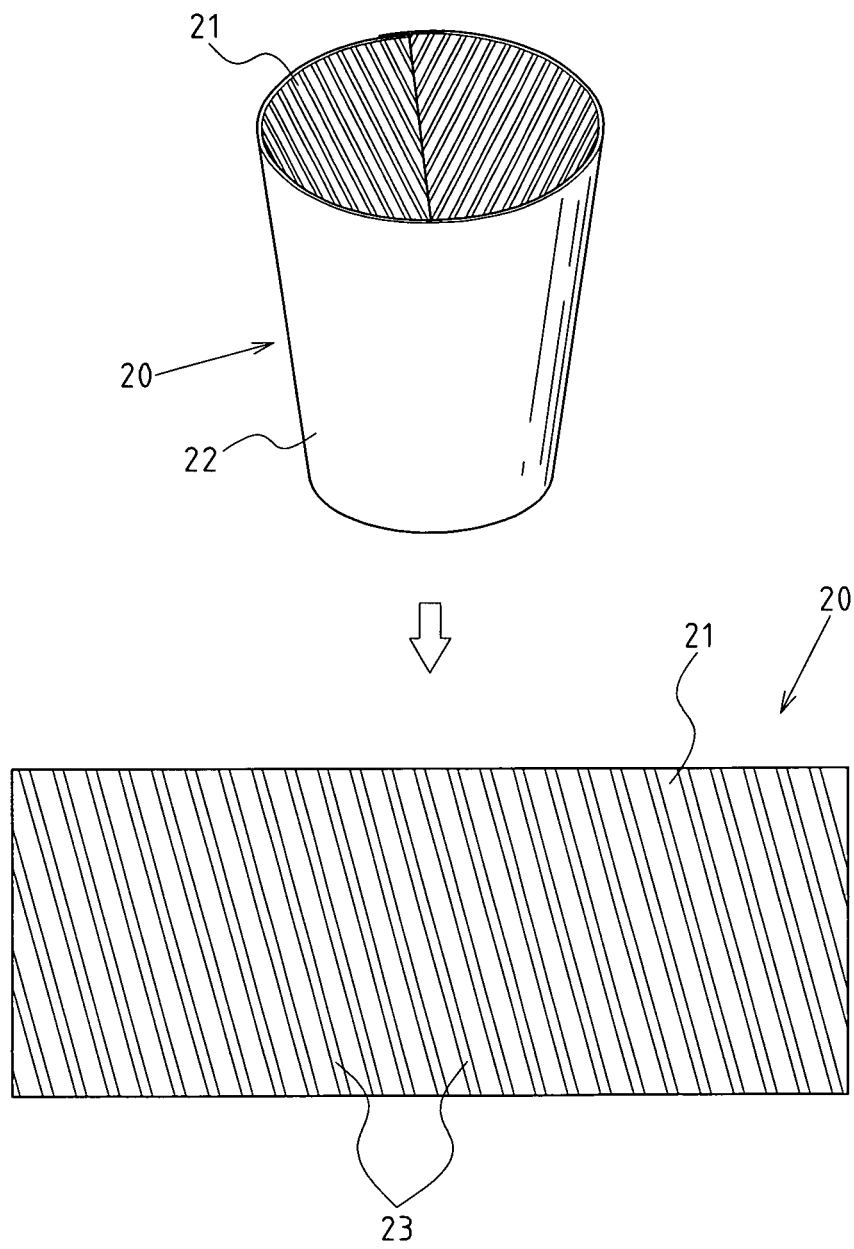


FIG.3

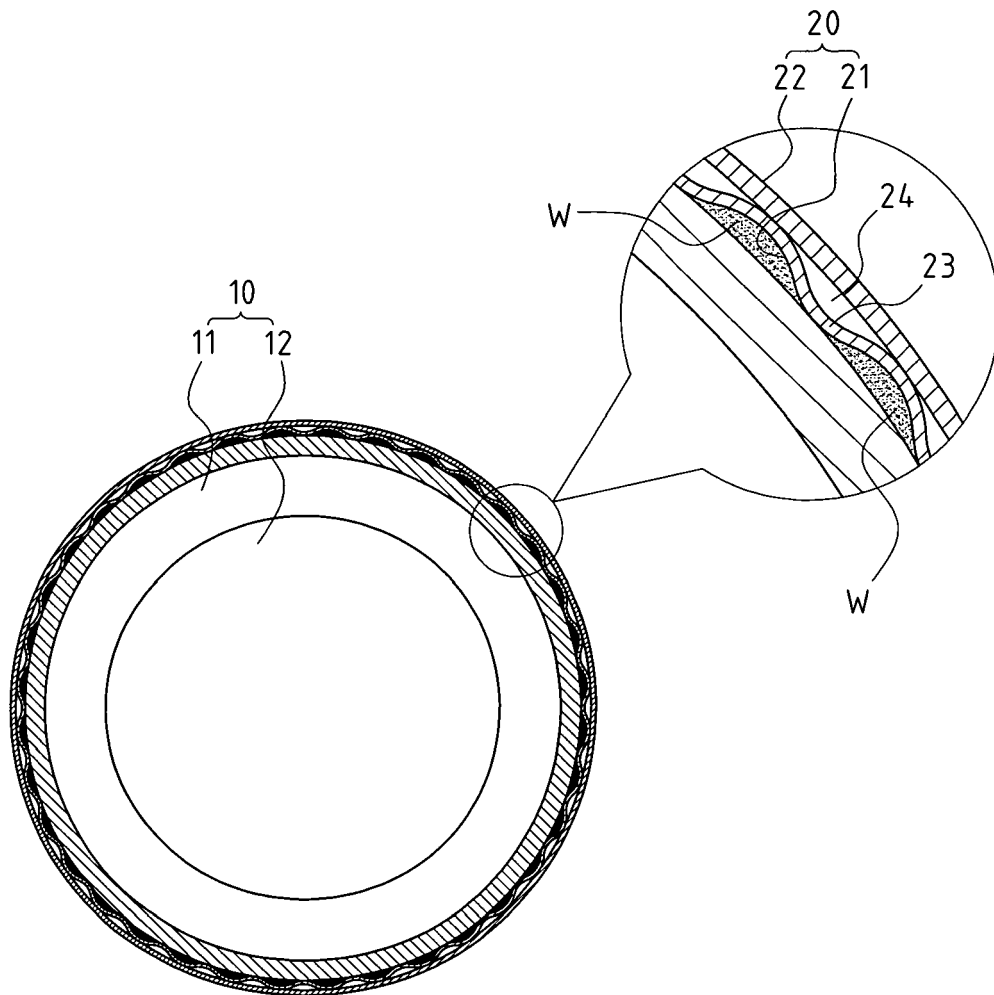
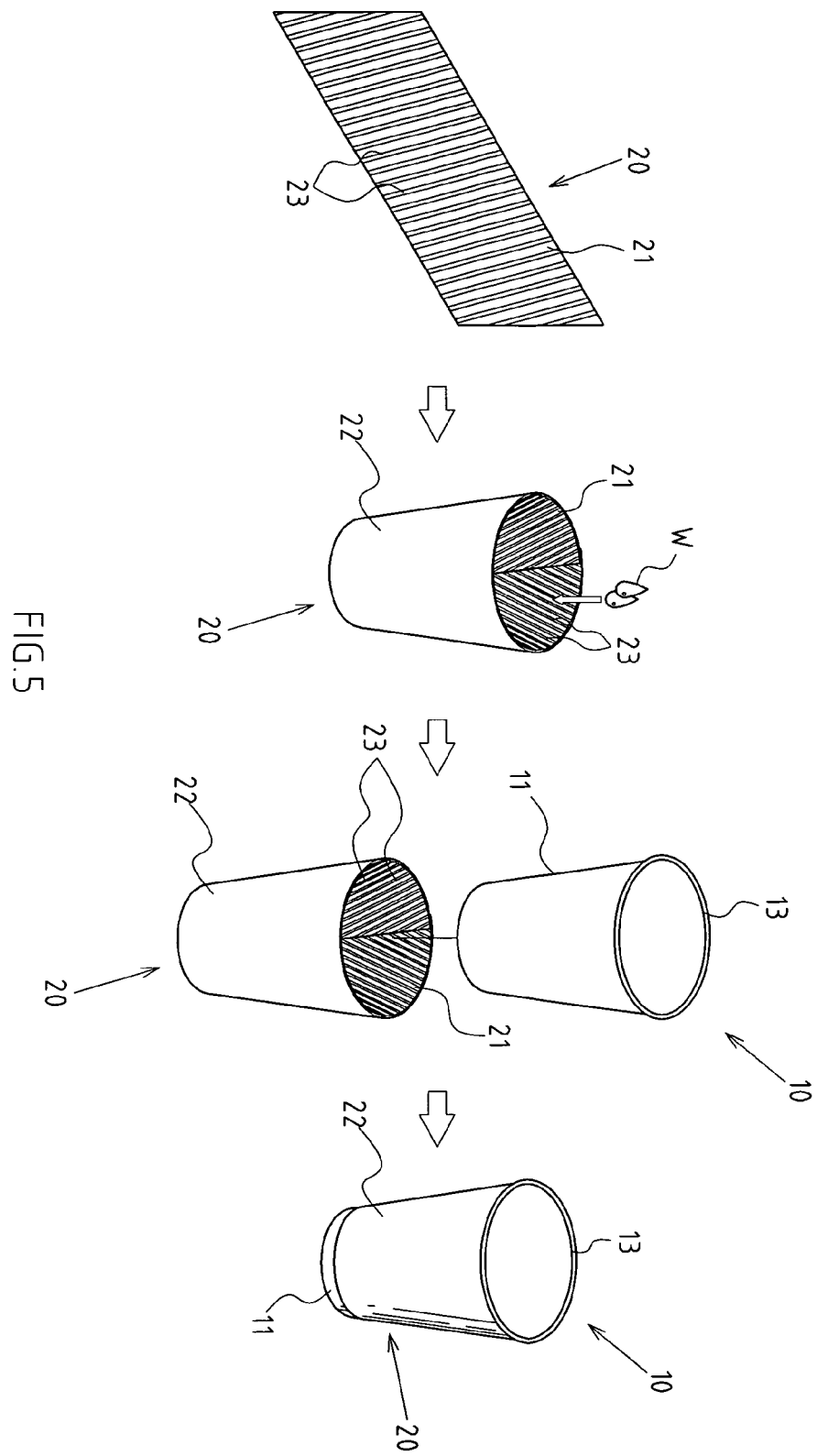


FIG.4



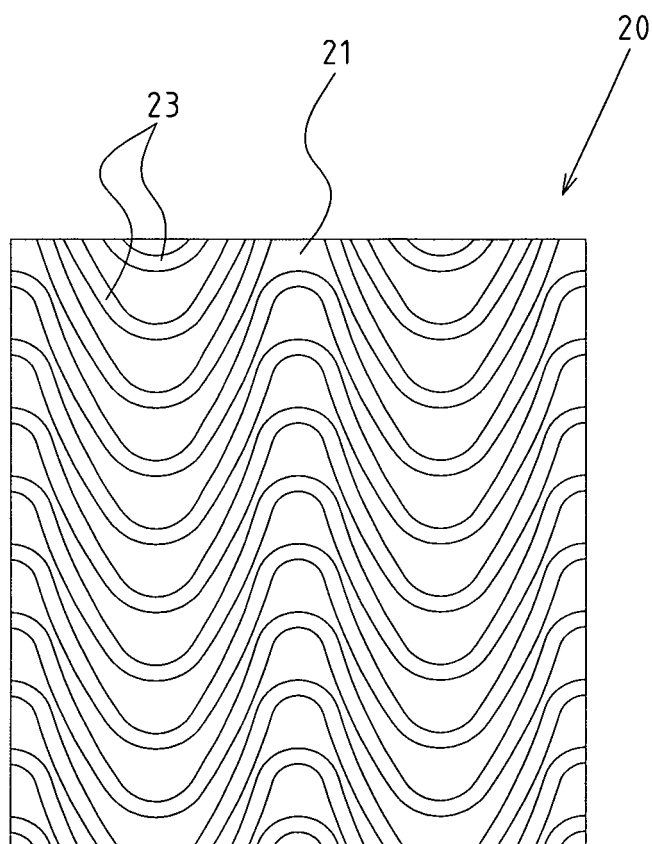


FIG.6



EUROPEAN SEARCH REPORT

Application Number
EP 10 00 8946

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	US 5 772 111 A (KIRSCH JOHN M [US]) 30 June 1998 (1998-06-30) * column 3, line 12 - column 7, line 24 * -----	1-5	INV. B65D81/38
X	DE 100 54 727 A1 (WEYHMUELLER VERPACKUNGSTECHNIK [DE]) 8 May 2002 (2002-05-08) * paragraph [0030] - paragraph [0048] * -----	1-5	
X	US 5 205 473 A (COFFIN SR DAVID W [US]) 27 April 1993 (1993-04-27) * column 3, line 42 - column 4, line 23; figure 13 * -----	1-4	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			B65D
Place of search		Date of completion of the search	Examiner
Munich		27 April 2011	Jervelund, Niels
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 10 00 8946

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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27-04-2011

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