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(54) **CONTAINER**

(57) The invention relates to the field of manufacturing packaging primarily for food products and products that contain or exude grease and moisture. A container consists of a lid and a receptacle that widens towards the top and is made of a paper and cellulose construction material, said receptacle having a rectangular upper flange formed during the production thereof for the purpose of retaining the lid, said flange being continuous about the entire perimeter of the receptacle and being

fixed at an angle to the horizontal by means of upper flaps of the lateral walls being overlapped and fastened to one another in adjoining corner parts of the flange. The technical result consists in increasing the rigidity of the entire structure, as well as obviating the need to manually bend the flaps during assembly and to set the necessary angle of incline to the horizontal or to monitor the correct positioning of the upper flaps when reclosing the lid.

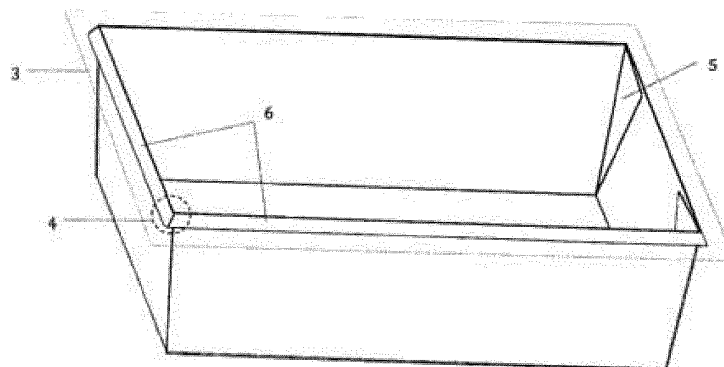


Fig. 1

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Description

[0001] The invention relates to the field of manufacturing packaging primarily for food products and products that contain or exude grease and moisture.

[0002] The most well-known types of packaging, where the claimed invention can be used, are a container, the base of which is a receptacle with a rectangular base widening upwards, the main construction material of which is a flat paper and cellulose material with a protective water and fat repellent coating in the form of lamination, special impregnation or varnish. Moreover, the angles of such a receptacle should not be rounded, but obtained by conjugating two lateral planes of the vertical wall. The receptacle is closed with a transparent lid; a lid comprising a sight window or a blind lid without a window. In this case, the lid can be made both of a material similar to the base and of a polymer material.

[0003] The lid is attached to the upper flange of the container, which is produced by folding upper flaps outward and fastening them together in the corner parts of the rectangular receptacle, forming a rigid rectangular flange without a gap along the perimeter of the receptacle and positioned at an angle to the horizontal plane, which creates a locking around the perimeter of the rectangular container.

Known state of the art:

[0004] A known prior art under patent RU 190177 U1, characterized in that the fold-out flaps are not fastened together in the adjoining corner parts of the container.

[0005] A known prior art under European patent 001186456 (ISG/HRD/50528ED), which is also characterized in that the flaps are not fastened together in the adjoining corner parts of the container.

[0006] The main problem of the lid fixture by turning the flaps outward on a rectangular container that does not have rounded corners, but corners obtained by adjoining the lateral rectilinear planes of the vertical wall, in the prior art, as a rule, is the need to manually fold the flaps outward before such lid can be locked in position. In addition, each fold-out flap is independent, not fastened to another, which makes it possible to have an excessive mobility of individual flaps on each side of the container independent of each other, which is functionally and operationally unnecessary for the container and reduces the rigidity of the structure, ease of operation and closing speed, which is a significant factor limiting the wide use of the container. In addition, in the absence of a correctly designed mechanism of the fold-out flaps to lock them in the right position for the mating with the lid, there is always a risk of incorrect or careless lid fitting to the container by an inexperienced consumer both during the initial closing of the container and during a possible re-closure. Moreover, the lack of fastening of the fold-out flaps to each other significantly reduces the rigidity of the container, especially with the lid removed.

[0007] The claimed invention solves the main problem of ease of operation of the container when using the lid, eliminating the above disadvantages, due to an upper flange pre-formed along the perimeter of the container immediately during the manufacture and the fastening of the fold-out upper flaps of the container to each other in adjoining corner parts of the flange, fixing the correct position of the flange, which does not have a gap in the angular parts of the receptacle, with the correct preset angle of inclination to the horizontal plane from 20 to 90 degrees, meeting the lid functioning conditions.

[0008] The technical result consists in a considerable improvement of the prior art of the use of paper and cellulose packaging with a rectangular body shape and a separate matching lid.

[0009] The technical result is expressed in the following advantages:

due to the fixed rigid flange initially formed during the receptacle manufacture, at an angle to the horizontal plane, continuous along the entire perimeter of the receptacle, and the avoidance of the mobility of individual upper flaps on each of its sides, the time of the container assembly and lid fitting is significantly reduced, both during the initial closing and at re-closure, which is expressed in the economic benefit, such as the reduction of the assembly time and the ease of use;

due to the formation of a rigid flange fastened in the adjoining corner parts of the fold-out elements of the side walls - the upper flaps, the structural rigidity of the container significantly increases, which allows using thinner materials in the manufacture. This advantage is expressed in the economic benefit expressed in the cost of the materials used both for the manufacture of the bottom part of the container, the receptacle, and the lid;

the avoidance of the need to manually bend the flaps during assembly and set the required angle of inclination to the horizontal plane or checking the correct position of the upper flaps at reclosure, due to their independent mobility on containers compared in the prior art, as well as the avoidance of the need to have knowledge of the principles of closing such containers for an inexperienced consumer, creates a separate advantage and ease of use;

the increased rigidity of the container due to the rigid flange formed initially during the manufacture of the container, fastened in the adjoining corner parts of the side walls, the fold-out upper flaps, significantly improves the operational characteristics, reliability of the container and tightness of the lid closure, which has a positive effect during transportation and storage of food products.

Description of the manufacturing method.

[0010] The manufacturing process of the container

base consists of several stages.

[0011] At the first stage, printing and embossing can be applied to paper and cellulose material in order to obtain the necessary artistic finish of the formed container and apply various markings. A protective coating is also applied to the paper and cellulose material to grease-proof and ensure hydrophobic properties of the material surface. The protective layer can be applied both before and after printing and embossing.

[0012] At the second stage, a blank is cut-out. Also, simultaneously with the die-cutting, the necessary creasing channels are formed, perforation lines and grooving channels can also be formed.

[0013] At the third stage, the base of the container is formed. Lateral triangular flaps are formed, fastened by thermal soldering or with an adhesive compound. The upper flaps are folded out and fastened to each other in the corner parts of the container base, forming the upper flange of the receptacle continuous along the rectangular perimeter and fixed at an angle to the horizontal plane.

[0014] Also, for the purposes of dividing the internal volume of the container into sections, it is necessary to design the layout of the blank so that, when cutting, an internal partition is formed. Further on, at the stage of forming the base of the container, the internal partition is formed, as a rule, by thermal soldering with a punch of a special shape and a matrix with a preset shape of the partition.

[0015] It should be noted that the mutually fastened upper flaps forming a continuous rectangular flange should be designed so as to be elongated towards the mating upper flap of the adjacent side face relative to the size of the faces on which they are located. This is done to enable reliable fastening of the upper flaps with mutual overlap, with thermal soldering or with an adhesive composition. This method of fastening results in an upper flange that has one layer of shape-giving material over the bigger length of the container side, and a double layer at the place of fastening and overlap of adjacent upper flaps forming such continuous flange.

[0016] It should be noted that for greater reliability of the fastening and even greater rigidity of the rectangular flange, the number of layers of the forming material may be more than one or two, if an additional fold of the upper flap is provided when forming a continuous flange.

[0017] It should be noted that the lateral triangular flaps can be attached both from the inside and from the outside of the container.

[0018] The lid is produced independent of the previous stages. The lid can be manufactured in various ways.

[0019] The main methods of the lid manufacturing may be

in the case a polymer lid, the method of vacuum thermofforming or injection molding can be used;
in the case of a lid made of paper and cellulose material, same as for the manufacture of the base, the method of die-cutting and further assembly using an

adhesive composition or thermal molding may be used. In this case, protective coatings can be applied to the paper and cellulose material of the lid, as well as to the base material of the container, to give the product the necessary grease-proof and hydrophobic properties.

[0020] Then, during the use of the container and the lid, the lid, which has fixation locks on the upper flange of the receptacle, easily mates with the receptacle on the upper flange, which is initially rigidly fixed during the manufacture of the receptacle, fastened in the corner mating parts, having a fixed angle of inclination to the horizontal plane preset at manufacture, which is comparable to the angle of inclination of the lower mating part of the lid. At the same time, considering that the formation of the upper flange and its rigid fixation in a strictly specified position is carried out during the production of the container, the lid fitting is performed without the preparatory operations on the receptacle, without checking the correct position of the upper flaps of the container and can be performed by an unprepared inexperienced consumer. It should be noted that the rectangular upper flange of the container, by avoiding the unnecessary mobility of individual flaps, which are glued in its corner parts, fixed in one preset position, which provides additional rigidity to the entire structure due to corner fastening at an angle to the horizontal plane, allows opening and re-closing the lid repeatedly.

[0021] Thus, the technical result is achieved due to the initial formation of the upper flange of the receptacle at an angle to the horizontal plane, due to the mutual fastening of the fold-out upper flaps of the receptacle at the 90 degree angle in the adjoining corner parts, fixing the correct position of the flange, so that the flange is continuous along the perimeter, and is formed with a preset angle of inclination to the horizontal plane along the entire perimeter of the container immediately during its production, which, in addition to ease of operation, increases the speed of both initial closing and subsequent re-closing, significantly increases the rigidity of the entire structure, especially with the lid removed. The resulting positive technical, mechanical and operational characteristics significantly impact the economic performance of the application during wide use in food product turnover, by reducing the time of container assembly, as well as ease of operation, both for manufacturers and distributors of food products, and for the end user.

[0022] An additional feature is that the protective layer can be made of a compound based on biodegradable polymer materials.

[0023] The proposed invention is explained by drawings, where:

- 1 - container base, or a receptacle;
- 2 - lid;
- 3 - upper flange;
- 4 - corner parts of the flange;

- 5 - triangular flaps;
- 6 - upper flaps;
- 7 - internal partition.

[0024] Fig. 1 shows a general view of a receptacle having a rectangular base, widening towards the upper part, without a fitted lid, with an upper flange 3 formed immediately during manufacture, continuous in its corner parts 4, having an angle to the horizontal plane preset immediately during its manufacture, which is unable to change due to the absence of mobility, due to the overlapping of the individual upper flaps 6.

[0025] Also shown, are lateral triangular flaps attached during the production of the base of the container to the inner compartment of the container from the side of the short side faces.

[0026] Fig. 2 shows the sectional view of the side walls of the container in the middle of the side wall and on the corner part of the container. The essence of the invention is shown, which consists in the angle T of inclination of the upper flange relative to the horizontal plane, which is preset during the manufacture of the base of the container, in the range from 20 to 90 degrees, in a single value along the entire perimeter of the flange, and fastening the flange in its corner parts by overlapping and fastening the individual upper flaps together.

[0027] Thus, immediately during the manufacture of the base of the container, a rigid upper flange without gaps along the receptacle perimeter, with a preset angle of inclination to the horizontal plane, if formed, which does not have the mobility of individual upper flaps unnecessary for effective and fast fastening of the lid.

[0028] Fig. 3 shows two versions of a transparent flat lid that is fitted to the receptacle and locks located at the bottom of the lid and positioned so that when the lid is tightly closed, they are fixed under the flange of the receptacle. The lid is made of a transparent polymer material and is fitted to the receptacle without the need to bend the upper flaps or check their position before fitting, since the upper flaps are initially fastened together during the manufacture of the receptacle, forming an upper flange with a preset angle to the horizontal plane corresponding to the geometry of the lower part of the lid.

[0029] Fig. 4 also shows two versions of a tall transparent lid, connected to the receptacle and locks located at the lower part of the lid and positioned so that when the lid is tightly closed, they are fixed under the flange of the receptacle. The lid is made of a transparent polymer material and fits without the need to bend the upper flaps of the receptacle or check their position before fitting, since the upper flaps are initially fastened together during the manufacture of the base of the container, forming an upper flange with a preset angle to the horizontal plane corresponding to the geometry of the lower part of the lid.

[0030] Fig. 5 shows versions of the geometry of the elements of the upper flaps of the base of the container that ensure overlap and their mutual fastening at an angle to the horizontal plane to form a continuous upper flange,

also formed at an angle to the horizontal plane, in the range from 20 to 90 degrees.

[0031] Fig. 6 shows a version of the receptacle with an inner partition 7. The presence of a partition does not affect the final design and the function of the lid in any way; therefore, the lid is not shown in Fig. 6 for clear illustration of the partition design.

[0032] A groove provided at the bottom of the receptacle, corresponding to the geometry of the inner partition of the container, is necessary for the convenience of transportation of the bottom parts of the container when placing them in bundles, one in one.

[0033] The partition can be of different height, with different geometry and attachment points, placed in different parts of the container and more than one partition can be present.

[0034] Fig. 7 shows an example of a blank for assembling, connecting and fastening the flange elements to each other in the case of manufacturing the inner partition of the container.

[0035] Fig. 8 also shows an example of the blank in its corner part to ensure the assembly and fastening of the top flaps to each other in the corner parts of the container at an angle to the horizontal surface.

[0036] It should be noted that this invention, which is disclosed with a description of the specific attached drawings, is not limited to these embodiments described and shown solely for example, and that changes and modifications are possible, which are obvious to a specialist in the relevant field and do not exceed the scope of the invention as disclosed in the attached Claims.

Claims

1. A container consisting of the lid and the receptacle that widens towards the top and is made of a paper and cellulose forming material, said receptacle having a rectangular upper flange formed during the production thereof for the purpose of retaining the lid, said flange being continuous about the entire perimeter of the receptacle and being fixed at an angle to the horizontal by means of upper flaps of the lateral walls being overlapped and fastened to one another in adjoining corner parts of the flange.
2. Container of claim 1, **characterized in that** the container is made of paper and cellulose forming material with a protective coating.
3. Container of claim 2, **characterized in that** an internal partition is provided inside the receptacle, made of the same material as the receptacle.
4. Container of claim 2, **characterized in that** inside the container there are internal partitions in the amount of more than one, made of the same material as the container.

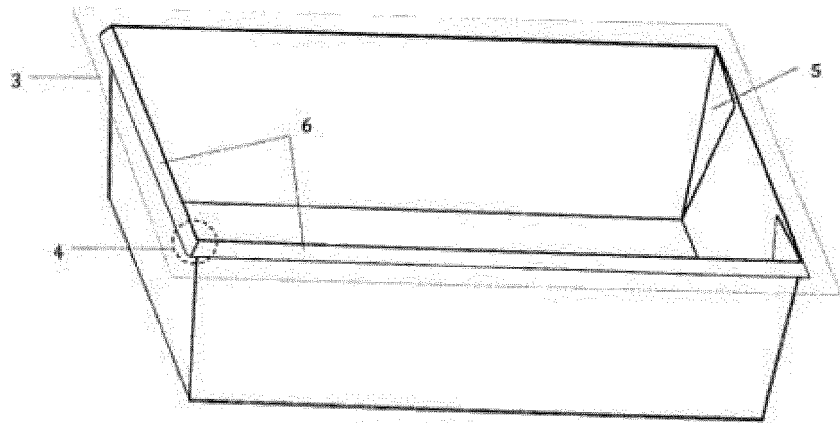
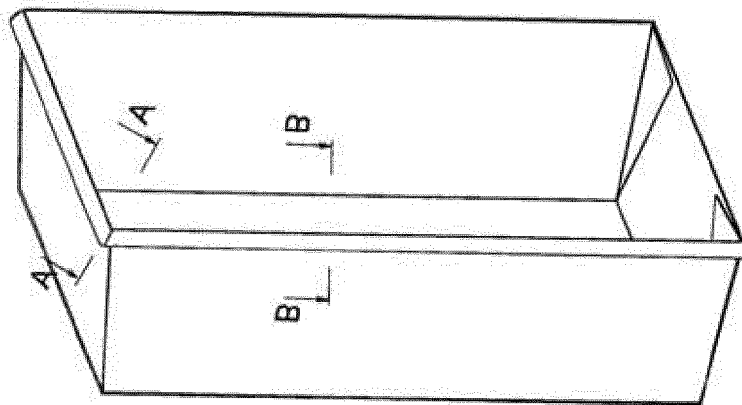


Fig. 1



A - A



B - B

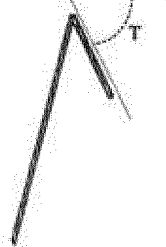


Fig. 2

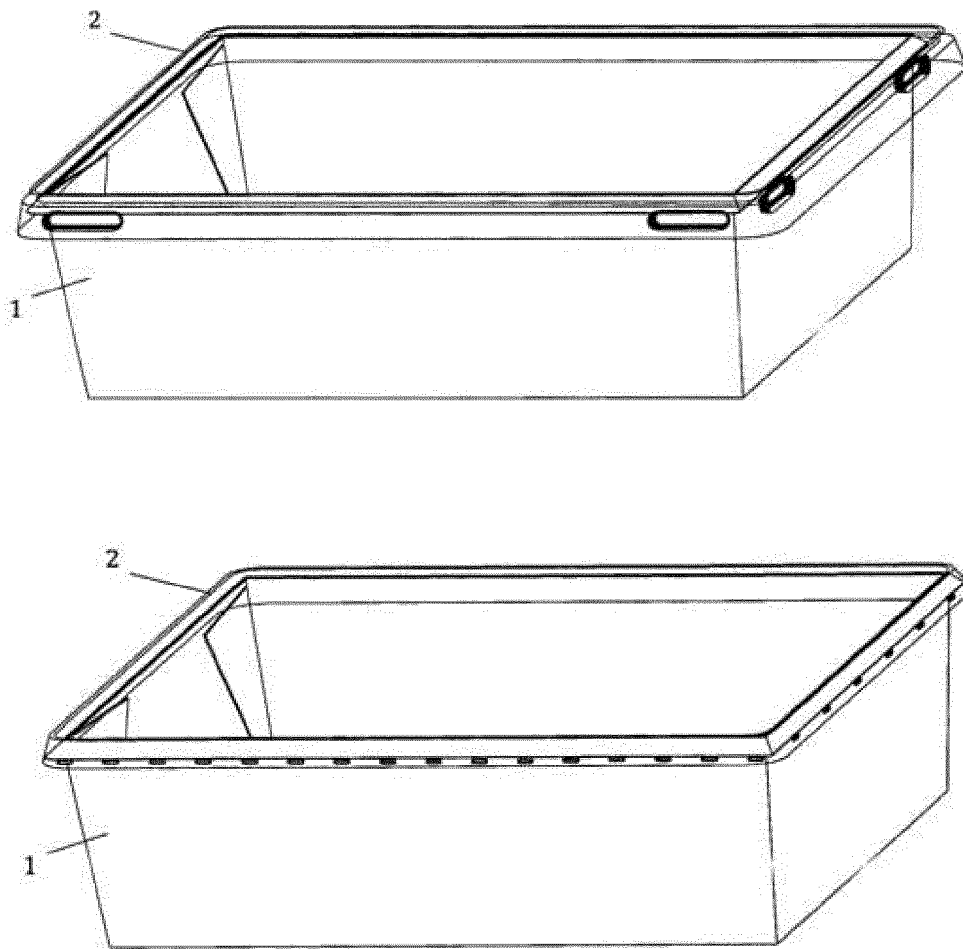


Fig. 3

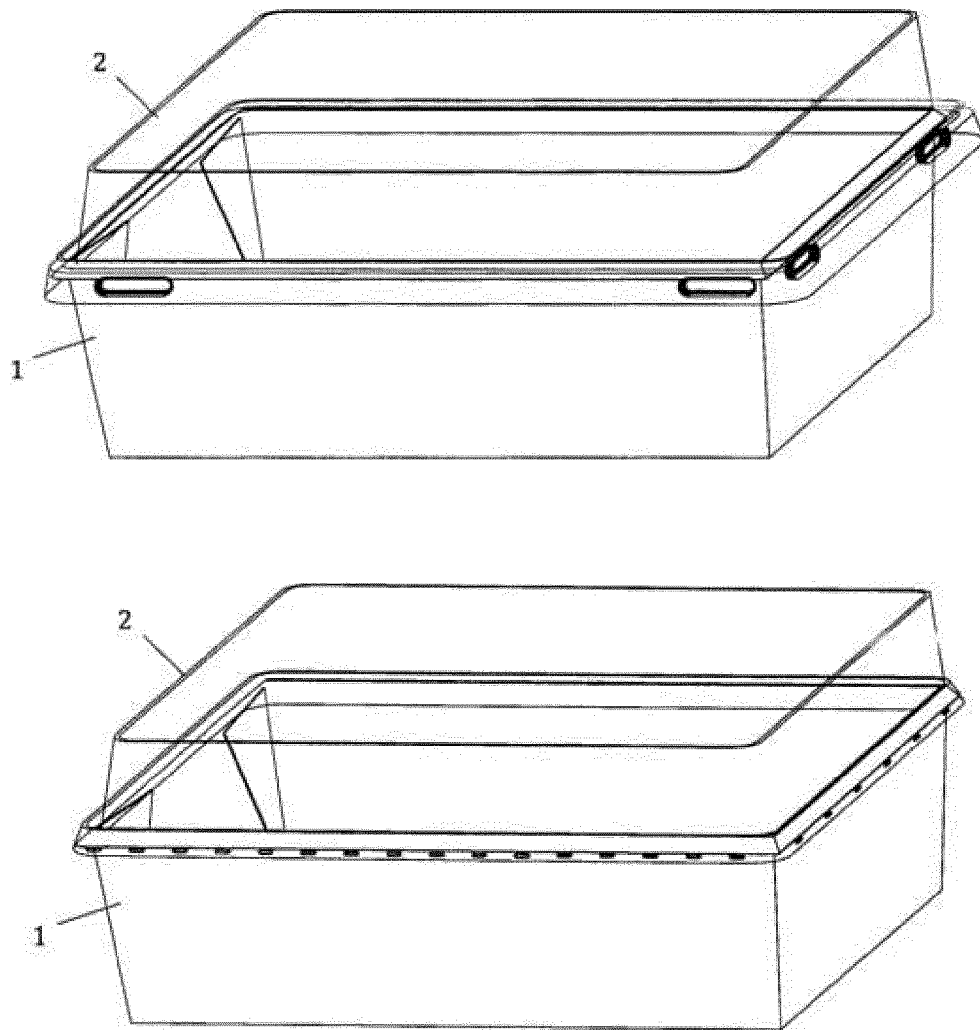


Fig. 4

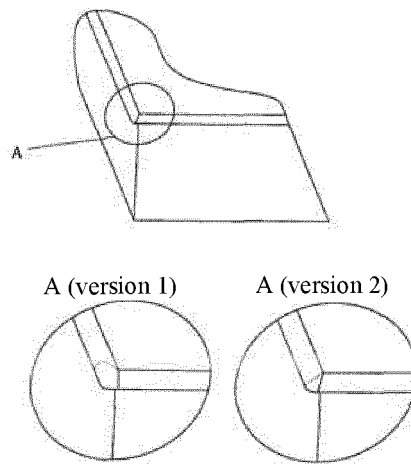


Fig. 5

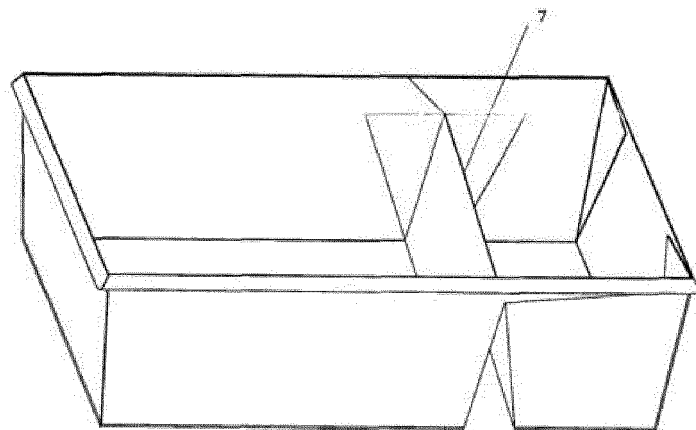


Fig. 6

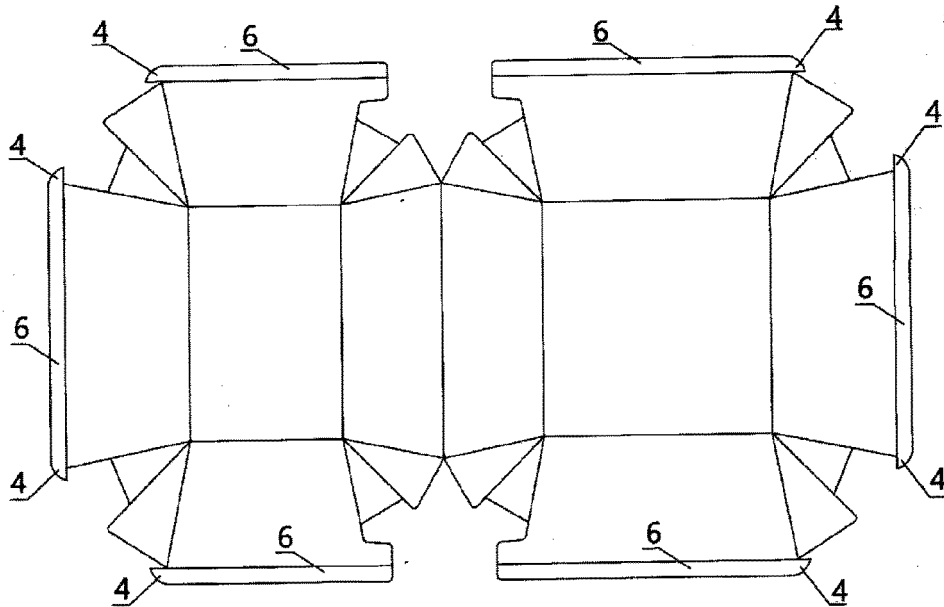


Fig. 7

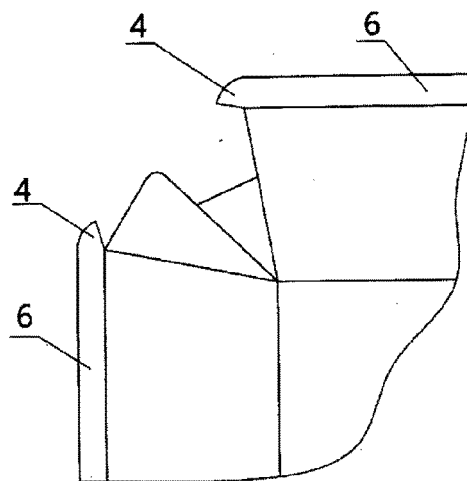


Fig. 8

INTERNATIONAL SEARCH REPORT

International application No.

PCT/RU 2021/000340

5	A. CLASSIFICATION OF SUBJECT MATTER		B65D 5/02 (2006.01) B65D 43/10 (2006.01)
According to International Patent Classification (IPC) or to both national classification and IPC			
B. FIELDS SEARCHED			
10	Minimum documentation searched (classification system followed by classification symbols)		
B65D 5/02-5/04, 5/42, 5/48-5/4805, 43/00-43/10			
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched			
15	Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
PatSearch (RUPTO Internal), USPTO, PAJ, Espacenet, Information Retrieval System of FIPS			
C. DOCUMENTS CONSIDERED TO BE RELEVANT			
20	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	Y	JP N1095419 A (TOYAMA YOUSEISHIYA KK) 14.04.1998, paragraphs [0002], [0012] -[0022], figures 1-7	1-4
25	Y	JP S53-50716 U (FURUBAYASHI SHIKO CO., LTD.) 28.04.1978, the claims, figures 1-4	1-4
	Y	RU 2263055 C1 (ORLOV EVGENII EVGENEVICH) 27.10.2005, p. 6, lines 20-53, figures 2-5	1-4
	Y	KR 20110002381 U (LEE YONG-JAE) 09.03.2011, paragraphs [0001]-[0030], figures 1-4	3-4
30	A	US 5201828 A (CONTAINER CORPORATION OF AMERICA) 13.04.1993, abstract, figures 1-6	1-4
	D, A	RU 190177 U1 (BELOSOKHOVA OLGA IVANOVNA) 24.06.2019, abstract, figures 1-12	1-4
35	A	US 2014/0291337 A1 (GRAPHIC PACKAGING INTERNATIONAL, INC.) 02.10.2014, figures 1-17	1-4
	A	CN 208360727 U (NINGBO FUTU INT TRADE CO LTD) 11.01.2019, abstract, figures 1-4	1-4
40	☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.		
45	* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
50	Date of the actual completion of the international search		Date of mailing of the international search report
	08 November 2021 (08.11.2021)		
	Name and mailing address of the ISA/ RU		Authorized officer
55	Facsimile No.		Telephone No.

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- RU 190177 U1 [0004]
- EP 001186456 A [0005]