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(54) METHOD FOR PRODUCING AN ELONGATED PROTECTIVE LAYER FOR THE SHAPE-FORMING MATERIAL OF A BLANK

(57) The present invention is a method for producing an elongated protective layer for the shape-forming material of a blank, in which a protective layer is applied onto a web fed base material or sheet base material. The protective layer is applied beyond the edges of the web fed base material or sheet base material on one side or two sides in order to form a free edge that is not fastened to the base material. The multi-layer material is then cut or punched along the outline of a blank. In the places where an elongated protective layer is produced, the cutting or punching is done directly along the free edge, taking into account a margin for the elongated portion of the protective layer of the blank. The invention protects the end faces of a material for a shapeable container.

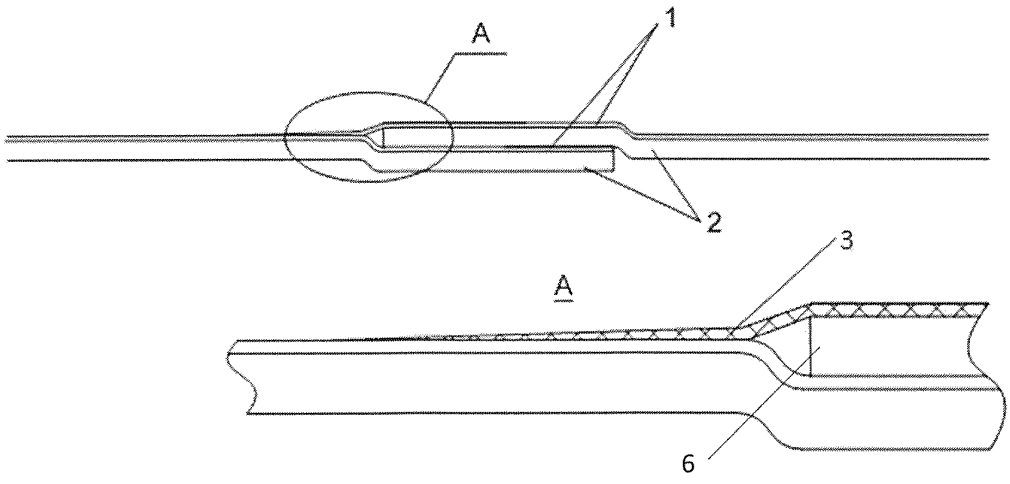

Fig. 1

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Description

FIELD OF THE INVENTION

[0001] The invention relates to the manufacture of workpieces for the production of packaging for mainly liquid, fatty and frozen foodstuffs or products containing or discharging fat and moisture.

BACKGROUD OF THE INVENTION

[0002] The most known types of packaging in which the invention may be applied are paper cups, various containers with round or other bases, packages of various shapes for dairy products, juices and other products in which the main forming/frame element is mainly pulp and paper material or any other material requiring protection of the end-face from contact with the contents of the container.

[0003] When forming a container, where laminated pulp and paper material used as the frame material, as well as any other material, that requires protection of the end-face from contact with the contents of the container, there is a problem when the material overlaps at the seam. The end face at the inner surface without the use of additional methods of protection is unprotected from contact with the contents of the container.

[0004] A similar problem can also occur on the outer surface of the container at the seam with overlapping material. In the case of damp or aggressive environments, it may be necessary to protect the end-face of the material on the outer surface of the container.

[0005] One of the options for sealing the seam end-face is to lengthen the protective layer beyond the frame material and then solder it to the protective layer of the mating surface during the formation of the finished package so that the protected end-face of the frame material remains isolated from contact with the contents of the package. Lengthening of the protective layer beyond the frame material does not cause thickening of the material at the place of heat sealing with the mating surfaces, as in the case with the imposition of additional polymeric tapes or changes in technical and mechanical properties, as in the case of trimming, bending or turning under of the material.

[0006] The following main methods of applying the protective layer are known:

1. Method of gluing the finished protective material, e.g. various polymeric films or multilayer materials.
2. A method of direct extrusion of a protective material (polymeric materials, the main element of which is polyethylene, polypropylene, polyethylene terephthalate, polylactide etc.) onto the surface of the frame material.

[0007] In both ways, to obtain an extension of the protective material before its application to the frame material, special windows are produced in the frame material to obtain a loose protective layer, not attached to the frame material. Further, a protective layer is applied to the surface of the frame material with windows and cutting of workpieces along the necessary contour with allowance for the extension of the protective layer at the places of future interface of the package surfaces during its assembly. When cutting out the contour in the places of obtaining the elongation of the protective layer, the cut is made in the places of windows on the freely lying protective layer, not attached to the frame material.

[0008] The disadvantage of the above methods is the increased consumption of material, as it is required to cut windows from the frame material.

SUMMARY OF THE INVENTION

[0009] This invention solves the problem of creating a method of obtaining a shape-forming material with an elongated protective layer with the elimination of the above mentioned drawback.

[0010] The technical result is the expansion of the arsenal of technical means and the creation of a method of obtaining a shape-forming material with an elongated protective layer.

[0011] The technical result is achieved due to the fact that in the method of obtaining an elongated protective layer of the shape-forming material of a workpiece, in which to obtain the shape-forming material a protective layer is applied to the frame roll or sheet material, a protective layer is applied outside the frame roll or sheet material on one side or both sides to form a loose edge, not attached to the frame material, carry out the die-cutting or cutting of multilayer material on the contour of the workpiece, in the places where the elongated protective layer is obtained, die-cutting or cutting is carried out directly along the freely lying edge, taking into account the allowance for elongation of the protective layer of the workpiece.

[0012] When the packaging is produced with the correct positioning of the contour geometry on the frame material so that an elongated protective layer is always placed outside on the edge of the frame material, a loose protective layer, not glued to the frame material, can be obtained by attaching a protective layer outside the frame material. Next, the workpieces are cut down along the required contour with an allowance for the elongation of the protective layer in the places of the future interface of the packaging surfaces during its assembly. When cutting out the contour in the places of obtaining the elongation of the protective layer, the cut is made in the places of allowance on the freely lying protective layer, not attached to the frame material.

[0013] Further assembly of the packaging is carried out with soldering of the loose protective layer to the mating surface to isolate the end-face of the frame material. When assembling the packaging, the melting of the protective layer to bind it to the mating surface is done in the

usual way by means of thermal or ultrasonic treatment.

[0014] The method described does not require any additional end-face protective operations, such as the application of additional materials in the form of polymeric tapes, or additional trimming, bending or turning under of the material.

[0015] This method is perfectly suited for the production of cups and containers with a round base. Without a thickening at the point of heat sealing, the described method is perfectly suited for further rolling of the outer edge of the cups and formation of the packaging at the point where a large number of surfaces, e.g. the bottom and the seam of the side wall of the cup, meet.

DRAWINGS OF THE INVENTION

[0016] The proposed method of obtaining an extended protective layer is explained by the attached drawings where:

1 - protective layer;
2 - frame material;
3 - elongated protective layer;
4 - workpiece contour;
5 - loose edge (freely lying outside the edges of frame material)
6 - isolated protected end-face of the frame material.

Fig. 1 shows a scheme of the inventive method for protecting the end-face 6 of the frame material 2 by lengthening the protective layer 1 and its soldering to the mating to isolate the end-face 6.

Fig. 2 shows the scheme of the claimed method for obtaining an elongated protective layer 3 by applying the protective layer 1 outside the edges the frame material 2 to form a loose edge 5, freely lying outside the edges of frame material 2. Then the die cutting of the workpiece contour 4 of the frame material 2 is carried out. In the places of formation of the elongated protective layer 3, die-cutting is made directly on the loose edge 5.

DESCRIPTION OF PREFERRED EMBODIMENT OF THE INVENTION

[0017] According to a preferred embodiment of the invention, the method for applying the protective layer 1 envisages that the applying is carried out outside the edges of the frame material 2, which comes in the form of web fed or sheet material, to form a loose (freely lying) edge 5, not attached to the frame material 2. Then the die cutting of the workpiece contour 4 of the frame material 2 is performed. In places of formation of the elongated protective layer 3, die-cutting is made directly on the loose edge 5 taking into account the allowance on prolongation of the protective layer 3.

[0018] A limiting feature of the production of workpieces when using the method of applying a protective layer outside the edges of the web fed or sheet material is the need for a special arrangement of the contour of the workpieces with the orientation of their allowance only to the outer edge of the source material due to the possibility to form a loose edge of the protective layer only outside the source material.

[0019] When designing the arrangement of the contour of the workpieces for the correct placement of the extended protective layer, the location and overlap of the workpiece material should be taken into account during future welding in order to ensure the correct formation of the container (packaging) and to protect the end-face of the frame material on the correct side of the packaging (note: as a rule, the inside of the future container).

[0020] It should be noted that this invention does not limit the protection of the end-face of the frame material in the formation of containers (packaging) only from the inner surface of the container (packaging), but can also be used to protect the end-face of the frame material from the outer side of the container (packaging).

[0021] It should also be noted that a protective layer can be applied to one side of the frame material, and, if necessary, to protect the end-face of the frame material on both sides of the container, on both sides, forming in the place of formation of a loose protective layer at its soldering (gluing) among themselves self-sufficient protection of the end-frame of frame material on both sides of the container.

[0022] Further production of containers (packaging) is carried out in a conventional way with the selection of appropriate tools and welding modes of the material. Welding of the frame material to the mating surface of an elongated protective layer protecting the welding site from contact with the environment (e.g. the contents of a container) is also ensured together with welding of the frame material.

[0023] It should be noted that the present invention, which was described above with reference specifically to the attached drawings, is not limited to those embodiments described and shown for illustrative purposes only, and that changes and modifications, which are obvious to a person qualified in this area, and not beyond the scope of the invention as disclosed in the enclosed claims are possible.

Claims

1. A method of production of a package workpiece, in which a protective layer is applied to a frame roll or sheet material to obtain a shape-forming material, **characterized in that** the protective layer is applied outside the frame roll or sheet material on one side or both sides to form a loose edge not attached to the frame material, carry out die-cutting or cutting of multilayer material along the contour of the workpiece, in places of obtaining an elongated protective

layer die-cutting or cutting is carried out directly at the freely lying edge, taking into account the allowance for elongation of the protective layer of the workpiece.

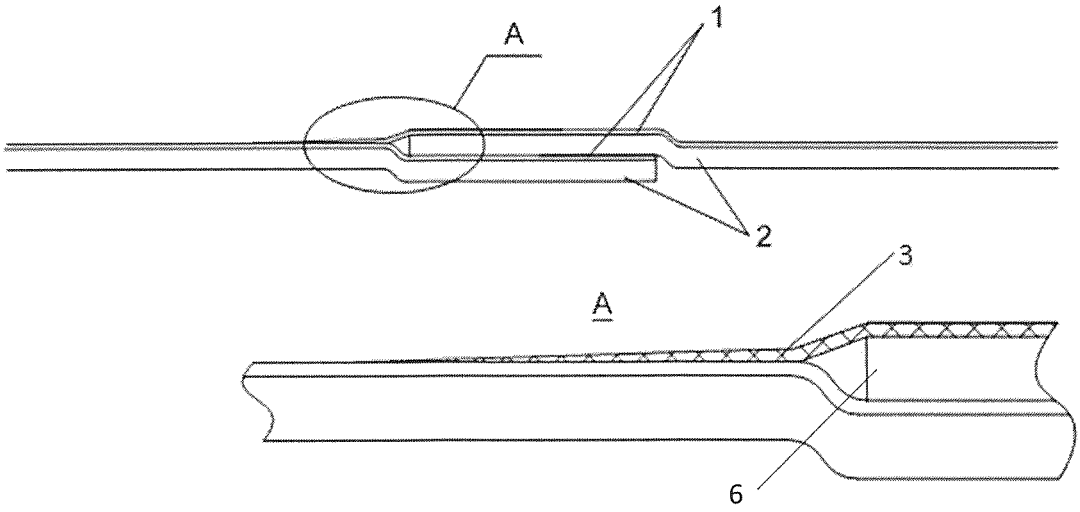

Fig. 1

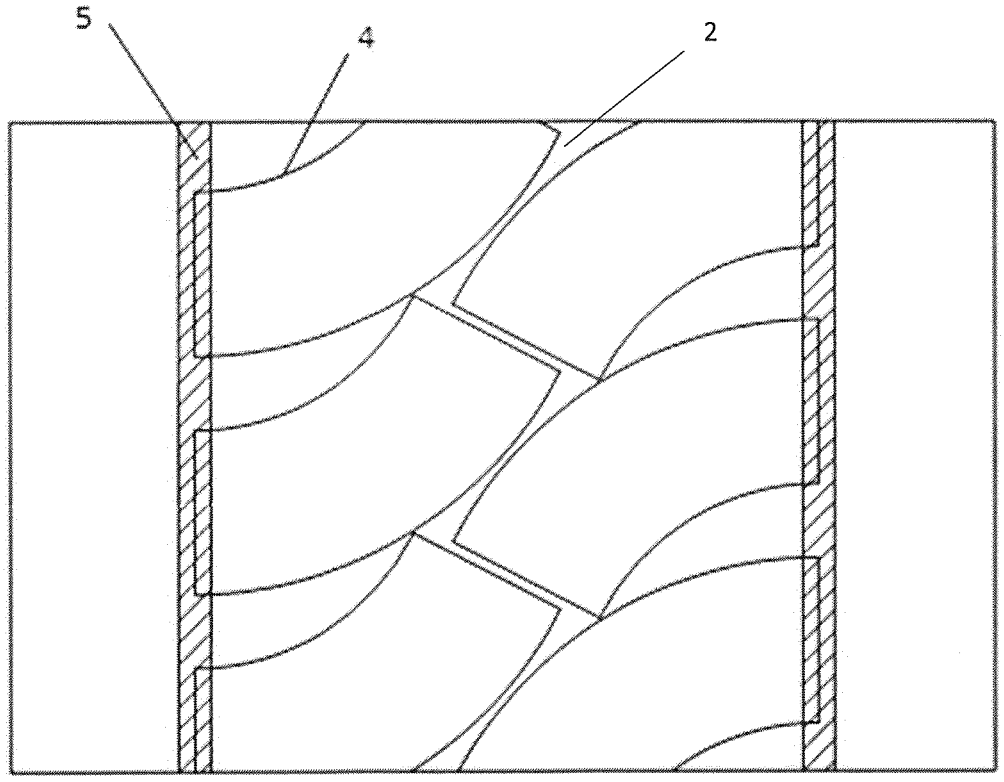

Fig. 2

INTERNATIONAL SEARCH REPORT

International application No.
PCT/RU 2019/000568

A. CLASSIFICATION OF SUBJECT MATTER

B65D 3/22 *(2006.01)*
B65D 30/00 *(2006.01)*
B65D 65/40 *(2006.01)*

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B65D 3/00, 3/22, 30/00, 65/40, B32B 1/02, 23/08, 27/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2005014975 A (TOPPAN PRINTING SO FTD) 20.01.2005, fig. 3A-B, paragraphs [0015] - [0016], [0018], [0026] - [0031]	1
A	WO 2010/50500 Al (TOPPAN PRINTING SO FTD) 29.12.2010	1
A	WO 2010/095171 A1 (NISSIN FOODS HOFDINGS SO FTD et al.) 26.08.2010	1

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* 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

Date of the actual completion of the international search	Date of mailing of the international search report
14 November 2019 (14.11.2019)	21 November 2019 (21.11.2019)
Name and mailing address of the ISA/ RU	Authorized officer
Facsimile No.	Telephone No.

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