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(54) PAPER PACKAGING FOR PLANTS, DEVICE FOR MANUFACTURE AND A MANUFACTURING METHOD OF SAID PACKAGING

(57) The present invention belongs to the field of products made of paper, more precisely to the field of paper packaging. The invention also belongs to the field of devices for cutting, shaping and gluing paper with the aim of manufacturing paper packaging. The invention relates to a paper packaging for plants, to devices for manufacturing said packaging and a manufacturing method of said packaging for plants.

The essence of the paper packaging is in that it is designed as a right-angled trapezoid having two base sides (a1, a2) with different lengths and two side legs (b1, b2,) having the same length, wherein the base sides are perpendicular to one of both legs. The packaging with said shape is made from an unfolded paper basis, which is folded so that the bottom side is wider and consequently has a narrow edge intended for gluing onto the other side of the trapezoid. The upper part of the so folded basis is cut into a triangular shape. Then the upper part of the narrow band, which is folded after gluing, is cut; wherein the cut part is triangularly shaped. After that the packaging approximately shaped as a truncated cone is obtained, into which a plant with or without a pot can be inserted. Dimensions of individual base sides and legs are arbitrary and can be in different combinations, so that various sizes of packaging are obtained in order to pack plants or potted plants of different sizes. The material used for the said packaging may be any suitable for floral industry, preferably waxed paper.

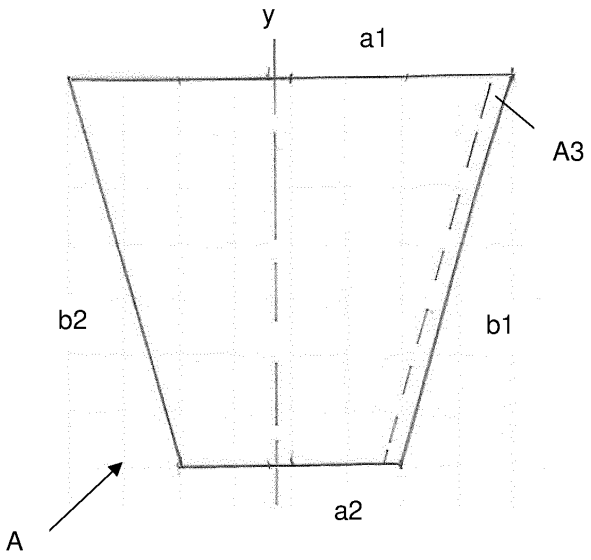

Figure 6a

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Description

Field of the invention

[0001] The present invention belongs to the field of products made of paper, more precisely to the field of packaging for flowers and plants. The invention also belongs to the field of manufacturing processes, especially to the field of devices for cutting, shaping and gluing paper with the aim of manufacturing paper packaging.

Background of the invention and the technical problem

[0002] Floriculture has from its beginnings in the 19th century developed into a dynamic, global and fast growing industry. It includes growers, distributers and sellers, which whom the buyers are mostly in contact. When a plant or flowers are purchased, they often have to be wrapped, either to protect the plants from environmental conditions, either to make them look as a gift. As florists sell a wide variety of plants, namely individual cut flowers, boquets, potted plants and plants without pots, packaging has to be adjusted accordingly. Typically, a larger sheet of paper is used in order to wrap any kind of purchased plants. Such solutions are described in documents US5666784 and US2008264552. Document US2005082353 for example discloses pre-prepared sheets for packing flower boquets, wherein the sheet is folded and glued in a particular way. This solution is useful for wrapping cut flowers and boquets, while it is less appropriate for potted plants. Recently different versions of packaging have been developed, mostly in the shape of bags or sheats of varous sizes with regards to potted plants and cut flowers. The problem of these types of packaging is in their manufacture, as they are made from several parts of paper or the material is non-economically used, thereby creating lots of waste.

[0003] The technical problem, which is solved by the present invention, is thus the design of a simple paper packaging into which a plant in a pot can be insterted and consequently protected against environmental conditions, while the packaging itself may also function as decoration. The aim of the invention is also the design of a suitable device for manufacturing said packaging, as known solutions differ significantly in their design. The invention has to be suitable for different sizes of potted plants and for different types of paper.

State of the art

[0004] Document US6796104 discloses a packaging system for plants, which comprises a protective and decorative part that can be separated after the protective part has done its role. Patent application US2005000158 describes a method of plant packaging, which includes tubularly shaped packaging attached with sticky material. Document DE2514093 describes a method for manufacturing conical packaging for flowers, which are open on both ends, wherein the packaging is made from two parts of translucent plastic foil heat-welded together. The shape of this packaging differs from the present invention.

[0005] Document KR20170057475 discloses a device for manufacturing a sheet for flower packaging. A mesh sheet is taken from a feeder and transferred to a binding device with a net made by a special device. When the sheet moves in the binding device, the reinforcement fibers and mesh are joined into a structure, which is then fixed and dried. After that the sheet may be cut to the desired dimensions.

[0006] Utility design CN203623034 disloses equipment for manufacturing paper for wrapping fresh flowers. The equipment comprises an expansion device, a frame and shape cutter below the paper, whereas the frame is located above the paper. Obtained products have the shape of an upside-down turned umbrella, while its bottom part is in the shape of a cup. The equipment enables reliable and fast manufacturing of packaging for fresh cut flowers.

[0007] Patent application KR101471812 describes a solution for packaging flowers, according to which a two-part packaging from synthetic materials is placed in a manner to receive a flower boquet or a plant pot. After that both parts of the packaging are joined using a device for packaging, so that they tightly enclose the flowers or the plant.

[0008] All described solutions are despite their usefulness very complex, which increases the costs of the packaging. As flower industry is widespread and lots of packaging is needed, its price has to be reduced as much as possible. The present invention differs from the known documents in that it ensures simple single-piece packaging produced with less steps and less complex equipment.

Description of the solution of the technical problem

[0009] The essence of the paper packaging according to the invention is in that it is designed as a right-angled trapezoid having two base sides with different lengths, wherein the base sides are perpendicular to one of both legs. The packaging with said shape is made from an unfolded paper basis, which is folded so that the bottom side is wider and consequently has a narrow edge intended for gluing onto the other side of the trapezoid. The upper part of the so folded basis is cut

into a triangular shape. Then the upper part of the narrow band, which is folded after gluing, is cut; wherein the cut part is triangularly shaped. After that the packaging approximately shaped as a truncated cone is obtained, into which a plant with or without a pot can be inserted. Dimensions of individual base sides and legs are arbitrary and can be in different combinations, so that various sizes of packaging is obtained in order to pack plants or potted plants of different sizes. The material used for the said packaging may be any suitable for floral industry, wherein paper from pure cellulose resistant to moisture is particularly useful.

[0010] The unfolded base of the packaging is prepared by cutting a larger sheet of material, preferably with a device that enables cutting under different angles. The cut shape is then folded along the middle and cut into a right-angled trapezoid. In case the shape is unfolded, the basis has a shape of an equilateral trapezoid (isosceles). Glue is applied to one of the trapezoid legs and then both legs are glued to each other. Thereby a packaging is created, into which a plant or a potted plant can be inserted. Cutting into the right-angled trapezoid as well as gluing may be performed manually, but the preferred option is to use suitable devices, which allow cutting into desired shapes and automatic application of glue on appropriate surfaces.

[0011] The manufacturing method of the said paper packaging thus includes the following steps:

a) cutting several layers of paper or any other suitable material;
b) cutting with a bar with knife in the selected groove in the upper part of the table to obtain paper basis attached with said bar, which covers the edge of the equilateral trapezoid on the left and right side of the bar;
c) manual folding of the free edge of the first trapezoid and pressing with a regular ruler;
d) manual folding of the free edge of the second trapezoid and presing with a regular ruler;
e) releasing the bar to obtain two groups of trapezoid shaped sheets having the edge equal to the half of the bar;
f) transfer of the first group of sheets into the cutting table, where the upper part of the sheet is obliquely cut;
g) moving the equipment and cutting the part with a free straight edge;
h) transfer of the cut group of papers to the table with a gluing mechanism;
i) application of glue to the pre-prepared bottom straight edge of the paper sheet with trapezoid shape;
j) folding the sheet in a manner that covers the glue applied in step i);
k) opening the upper aperture of the packaging obtained after gluing, the packaging being stacked onto the previously prepared packaging;
l) stacking manufactured packagings one onto another by opening the upper aperture as described in step k).

[0012] The paper packaging for plants according to the invention enables simplified packaging of potted plants, wherein the manufaturing process for obtaining the packaging is simpler and more economical (efficient) than already known processes, which are complicated and multi-step methods. Obtained packaging is used so that it is opened and a potted plant or a plant is insterted into the packaging. The dimension of the packaging depends on the diameter of the pot and on the height of the plant. In case the packaging is too high, it can be cut and thus shortened. This is particularly useful for short plants with wide pots.

[0013] In the scope of the invention as described herein and defined in the claims different embodiments of the packaging for plants and devices for making said packaging are possible, which are obvious to a person skilled in the art, which does not limit the essence of the invention as described here and defined in the claims.

[0014] The paper packaging for plants, devices for manufacturing and a manufacturing method of the said packaging according to the invention will be described in further detail based on possible exemplary embodiments and figures, which show:

Figure 1	Holder for rolls of paper with a table for cutting according to the invention
Figure 1a	Pushing bar with wheels for straightening multiple layers of paper
Figure 2	Ground plan of the holder for rolls of paper with the table for cutting
Figure 2a	Ruler with the cutting knife
Figure 3	Schematic view of the holder for rolls of paper with the table for cutting
Figure 4a	Table for cutting the base paper sheet A in the shape of a trapezoid
Figure 4b	Side view of the table for cutting the base paper sheet A in the shape of a trapezoid
Figure 4c	Elevation view of the table for cutting the base paper sheet A in the shape of a trapezoid
Figure 5a	Mechanism for gluing edges of the paper basis into the packaging
Figure 5b	Ground plan of the mechanism for gluing edges of the paper basis into the packaging
Figure 5c	Side view of the mechanism for gluing edges of the paper basis into the packaging
Figure 6a	Shape of the paper basis for the packaging according to the invention
Figure 6b	Folded paper packaging
Sliko 6c	Paper packaging after the first cut
Sliko 6d	Paper packaging after the second cut

[0015] The device for manufacturing the paper packaging for plants in addition to drive units for individual electronically controlled mechanic drives comprises:

- a holder (1) for rolls of paper with a cutting table;
- a table (3) for cutting the paper sheet basis; and
- a mechanism (6) for gluing edges of the paper basis into the packaging with an outlet handle for sorting finished packaging.

The holder 1 has two rows of side carriers 11 mountings 111 for two pairs of six tubes 10 for rolls of papers 10a, the latter can be manually spread onto the table 2. The upper plate 20 of the table 2 is divided into two equally sized parts 20a and 20b with grooves for cutting preferably twelve layers of paper 10a. Between the parts 20a and 20b is a narrow part 20c. As shown in figure 2 the upper plate 20 of the table 2 has oblique grooves D4, D3, D2 and D1 on the part 20a and oblique grooves D4', D3', D2' and D1' on the second part 20b of the table 2. The paper 10a on the tubes 10 is mounted into the moutings on the side carriers 11, so that the paper 10a is rolled downwards and lead to the table 2 on the bottom part of the tube 10. This ensures equal spreading and flattening the paper on its way to table 2, where a pair of wheels 211a is mounted via a handle 211, fixed into a carrier 21. The bottom part 211b of the carrier 21 is screwed in the corner of the table 2 (Figure 1a).

[0016] On the part 20a of the upper plate 20 of the table 2 a bar 23 is provided, the bar being installed via a first hinge 23a and wherein the bar 23 has a longitudinal carrier 23b with a groove for moving a handle 23d with a blade. At the end of the bar 23 is the handle 23c for raising the bar 23 upwards and/or left or right, wherein this movement is enabled by the hinge 23a. The first bar with the blade enables cutting the papers along grooves D1, D2, D3 and D4. On the part 20b of the upper part 20 of the table 2 a second bar 23' is fixed using a second hinge 23c', the said second bar having a longitudinal holder with a groove for moving the bar with the blade. At the end of the bar 23 is a handle 23c, with which the bar 23 can be lifted upwards and/or left or right, which is enabled with the hinge 23a. The second bar 23' with the blade enables cutting papers along grooves D1', D2', D3' and D4'. On the right edge of the table 2 a restrictor 24 is attached, wherein the said restrictor 24 may be moved along the groove 24a and may be attached at a required place with a screw 24b (Figure 2b).

[0017] The table 3 for cutting the basic paper sheet A has on a carrier 31a fixed upper plate 31. Perpendicularly to the plate 31 is a restrictor 32, which is in the vicinity of a knife 34. The knife 34 with the blade 34a is fixed into a hinge 341, which enables raising and lowering the blade 34a along the edge of the upper plate 31 of the table 3. The end of the blade 34a is provided with a handle 34b for easier manipulation with the knife 34. Through the legs 31a and 31b two distancing legs 33a are mounted, which are via a mechanism 33c movable left and/or right from the edge of the table 3. The legs 33a are perpendicularly fixed into the rectangular plate 31. The first restrictor 32 is parallel to the plate 33b of the second restrictor 33, both of which form an opening, through which the cut-off parts of the sheet A fall into a reservoir. The upper plate 31 of the table is equipped with a longer rod 35a attached with screws 35a' and a cross-like part 35b of the accessory 35, the cross-like part is attached with a screw 35b'. The cross-like part 35b is placed and attached to the plate 31 so that one leg is parallel to one side of the plate 31, while the other leg is parallel to the adjoining side, which is perpendicular to the first side. The longer rod 35a is rectangularly shaped with a rectangular cutout and is with regards to the cross-like part indented for an angle α, which may be from 110° and 120°, preferably 115°. The accessory 35 enables cutting of the first triangle A' and then the second triangle A" from the paper sheet A.

[0018] The gluing mechanism for gluing the edges of the paper basis into the packaging is shown in figures 5a, 5b and 5c. The table 4 is a regular table placed in proximity of the table 5, where the main part of the gluing mechanism 6 is installed. The end of the table 5 is equipped with an inclined table 8, where all finished products are accumulated. The table 5 has on its upper part uniformly distributed five transport belts 5a. On the outer edge of the table 5 is a mechanism comprising a bottom transporter 61 of sheets A2, wherein the right part of the transport is provided with a cylinder 61a below the mechanism and cylinder 61c above the mechanism. On the other side the transporter 61 has a cylinder 61 b and above it a cylinder 61d. A drive band 62a is installed on the cylinder 61b, wherein the said drive band is rotated with the drive motor axle 62. The first part of the table 5 comprises the mechanism for applying glue along the upper part of the sheet A2. Approximately in the middle of the table 5 is a mechanism 9 for folding the lower band to the upper part of the sheet A2 provided with glue. This is a phase of gluing the sheet A2 into a cone-line shape, which is also the final product or the packaging. At the end of the table 5 is a simple mechanism 7 of two blades with a common front flat side. The blades 7a and 7b are made of a spring element and designed so that the blade 7a is turned upwards and the blade 7b downwards. The finished product is freely led along the inclined table 8 to a simple carrier 8a so that the blades 7a and 7b open the product and place the product on the carrier. Next products are one by one opened with the blades 7a and 7b and placed on the previous product on the carrier. In this way the set of sheets A2 is stacked into a set of products. This enables easy counting of produced packages and packaging into boxes for delivery.

[0019] As shown in figure 6a the paper packaging for plants is designed as a basic sheet A shaped as a right-angled trapezoid with base sides a1 and a2 having different lengths and two side legs b1 and b2 having the same length. The

basic sheet A is cut on the table 2 along the oblique grooves marked with D and D'. During cutting of the twelve layers of paper to sets of basic sheets are obtained, wherein one set is in the position of a large letter A, while the second set is in the position of a large letter A rotated for 180°. Common sides are on the line of the cut made by the bar 23. This creates an edge A3 with a width of approximately two centimetres. The width of the edge A3 depends on the width of the bar edge and knife in the middle of the bar. The axis Y is moved for the width of the edge A3, into the left for the left set and into the right for the right set. When the bar 23 is still fixed, the outer edge with the leg b1 is manually folded to the edge of the bar 23. The same is performed for the second set of basic sheets A, wherein both sets are pushed with a ruler along the fold line from one end to another, in order to create the fold d1. Thus prepared sets of sheets A are moved to table 3. Lengths of base sides and legs are arbitrary and based on the required dimensions of the packaging. Preferred dimensions of sides of the packaging are shown in Table 1 below.

Table 1

Dimension of the basic sheet	d1 in cm	b2' in cm	a4 in cm	a5 in cm
1. A cut along D1, D1'	60	42	13	2
2. A cut along D2, D2'	70	50	15	2
3. A cut along D3, D3'	86	65	24	2
4. A cut along D4, D4'	86	70	30	2

[0020] On the table 3 the fold d1 of the set of sheets A is put on the longer bar 35a of an accessory 35, wherein the beginning of the fold d1 is moved to the edge of the table 3. Because the accessory 35 is inclined at an angle α, the beginning of the fold d1 is placed on the edge of the restrictor 32, while the remaining part is pushed under the restrictor 32. By raising the handle 34b and lowering the blade 34a of the knife 34, the first triangle A' is cut, thus creating sheet A1 as shown in figure 6c. The whole set of the sheets A1 is moved so that the second triangle A" may be cut, thus creating set of sheets A2. The sheet A2 has a fold d1, bottom double side a4 and bottom single side a5, which is the width of the edge A3'. The set of sheets A2 is moved to the table 4 with the mechanism for gluing the edges of the paper base into the packaging.

[0021] The paper packaging for plants is designed as a basic sheet A shaped as a right-angled trapezoid with base sides a1 and a2 having different lengths and two side legs b1 and b2 having the same length. The basic sheet A is folded from the beginning fo the edge A3, wherein the folded edge is the side d1; that for the width of the edge A3 the Y-axis is moved to the left or the right; that a first triangle A' is cut in order to obtain sheet A1; that the second triangle A" is cut in order to obtain sheet A2, witht the side d1, bottom double side a4 and bottom single side a5, which is the width of the edge A3'; that the sheet A2 after application of glue onto the edge A3', folding the said edge onto the other side and gluing becomes the final packaging.

[0022] The glue for gluing may be any suitable glue, preferably starch-based glue suitable for paper and which is environmentally friendly. This glue is also used in food industry.

[0023] The material for the packaging may be any material suitable for floral industry and it may also have any pattern or perforation for easier removal after use.

Claims

1. Paper packaging for plants **characterized in that** it is shaped as a right-angled trapezoid having two base sides of different lengths, wherein the base sides are perpendicular to one of both legs; wherein the packaging with said shape is made from an unfolded paper basis with a wider bottom side for gluing onto the other side of the trapezoid; that a smaller triangle is cut from the upper part of the narrow edge; that the final glued packaging has a shape of a truncated cone, into which a plant with or without a pot can be inserted.

2. Paper packaging for plants according to claim 1, **characterized in that** it is shaped as a basic sheet (A) in the shape of a right-angled trapezoid with base sides (a1 and a2) of different lengths and two legs (b1 and b2) of same lengths; that the basic sheet (A) is folded to the beginning of the edge (A3), wherein the folded edge is a side (d1); that for the width of the edge (A3) an axis (Y) is moved left or right; that a first triangle (A') is cut to obtain a second sheet (A1); that a second triangle (A") is cut to obtain a third sheet (A2) having the side (d1), a bottom double side (a4) and a bottom single side (a5), which is the width of the edge (A3'); that the third sheet (A2) is provided with glue on the edge (A3'), the latter is folded to the opposite side and glued together to form the packaging.

3. Paper packaging for plants according to claim 1 or claim 2, **characterized in that** it is made in different dimensions.

4. Paper packaging for plants according to any of the preceding claims, **characterized in that** the packaging is made from any natural material suitable for floral industry, preferably of waxed paper.

5. Paper packaging for plants according to any of the preceding claims, **characterized in that** the glue is any suitable glue, preferably starch-based glue.

6. A method for manufacturing the paper packaging according to any of the preceding claims, **characterized in that** the unfolded basis of the packaging is prepared by cutting a larger sheet of material, preferably with a device, which enables cutting at different angles; the cut shape is then folded along the half (middle) and cut into a right-angled trapezoid, wherein the unfolded basis has the shape of a equilateral trapezoid; along the oblique side glue is applied so that the oblique legs are glued to form the final packaging arranged to receive a plant.

7. The method for manufacturing paper packaging according to the preceding claim, **characterized in that** the method comprises the following steps:

a) cutting several layers of paper or any other suitable material;
b) cutting with a bar with knife in the selected groove in the upper part of the table to obtain paper basis attached with said bar, which covers the edge of the equilateral trapezoid on the left and right side of the bar;
c) manual folding of the free edge of the first trapezoid and pressing with a regular ruler;
d) manual folding of the free edge of the second trapezoid and presing with a regular ruler;
e) releasing the bar to obtain two groups of trapezoid shaped sheets having the edge equal to the half of the bar;
f) transfer of the first group of sheets into the cutting table, where the upper part of the sheet is obliquely cut;
g) moving the equipment and cutting the part with a free straight edge;
h) transfer of the cut group of papers to the table with a gluing mechanism;
i) application of glue to the pre-prepared bottom straight edge of the paper sheet with trapezoid shape;
j) folding the sheet in a manner that covers the glue applied in step i);
k) opening the upper aperture of the packaging obtained after gluing, the packaging being stacked onto the previously prepared packaging;
l) stacking manufactured packagings one onto another by opening the upper aperture as described in step k).

8. The method for manufacturing paper packaging according to claim 6 or claim 7, **characterized in that** the basic sheet (A) is cut on a table (2) along oblique grooves (D and D'), wherein preferably twelve layers of paper are cut into two sets of basic sheets and one of the sets is in a position of a large letter A and the other is in a position of a large letter A rotated for 180°; common sides are on the line where the knife in the middle of the bar (23) cuts, thus creating the edge (A3) with a width depending on the width of the bar edge and knife in the middle of the bar; axis (Y) is moved for the width of the edge (A3) left for the left set and right for the right set; when the bar (23) is still fixed, the outer edge with leg (b1) is manually folded to the edge of the bar (23), wherein this is performed for both sets of basic sheets (A) and wherein both seth are pressed with a ruler along the fold line from one end to another, thus forming a fold (d1); thus prepared sets of sheets A are ready for cutting.

9. The method for manufacturing paper packaging according to claim 8, **characterized in that** on the table (3) for cutting the basic sheets, the fold (d1) of sheets (A) is leaned against a longer bar (35a) of an accessory (35) and beginning of the fold (d1) is lined with the edge of the table (3); because the accessory (35) is slanted the beginning of the fold (d1) is placed on the edge of a restrictor (32), while the remaining part is pushed under the restrictor (32); by raising a handle (34b) and lowering the blade (34a) of the knife (34) a first triangle (A') is cut to obtain a sheet (A1); the whole set of sheets (A1) is moved to allow cutting of a second triangle (A") to obtain a set of sheets (A2), wherein the sheet (A2) has a fold (d1), a lower double side (a4) and a lower single side (a5), which is the width of the edge (A3').

10. A device for manufacturing paper packaging for plants according to any of claims from 1 to 5, **characterized in that** in addition to drive units for each electronically controlled mechanic drives also comprises:

- a holder (1) for rolls of paper with a cutting table;
- a table (3) for cutting the paper sheet basis; and
- a mechanism (6) for gluing edges of the paper basis into the packaging with an outlet handle for sorting finished packaging.

11. The device for manufacturing paper packaging for plants according to claim 10, **characterized in that** the holder (1) for rolls of paper with the table for cutting comprises: two rows of side carriers (11) with mountings (111) for two pairs of six tubes (10) for rolls of papers (10a), the rolls arranged be manually spread onto the table (2); **in that** the upper plate (20) of the table (2) is divided into two equally sized parts (20a and 20b) with grooves for cutting preferably twelve layers of paper (10a); **in that** between the parts (20a and 20b) is a narrow part (20c), the upper plate (20) of the table (2) has oblique grooves (D4, D3, D2 and D1) on the first part (20a) and second oblique grooves (D4', D3', D2' and D1') on the second part (20b) of the table (2); and **in that** the paper (10a) on the tubes (10) is mounted into the moutings on the side carriers (11), so that the paper (10a) is rolled downwards and lead to the table (2) on the bottom part of the tube (10).

12. The device for manufacturing paper packaging for plants according to claim 11, **characterized in that** on the first part (20a) of the upper part (20) of the table (2) a bar (23) is fixed with a first hinge (23a), the bar (23) having a longitudinal holder (23b) with a groove for movement of a handle (23d) with a blade; the end of the bar (23) is provided with a handle (23c) for raising the bar (23) upwards and/or left and right via the hinge (23a); the first bar with the blade enables cutting the papers along the first grooves (D1, D2, D3 and D4); on the second part (20b) of the upper part (20) of the table (2) is a second bar installed via a second hinge (23c'), the second bar having a longitudinal holder with a groove for movement of the handle with the blade; that the second bar (23') with the blade enables cutting of papers along second grooves (D1', D2', D3' and D4'); that on the right edge of the table (2) a restrictor (24) is provided, which is arranged to be moved along a groove (24a) and fixed at a required location with a screw (24b).

13. The device for manufacturing paper packaging for plants according to claim 10, **characterized in that** the table (3) for cutting the basic paper sheet (A) has a upper plate (31) fixed on a carrier (31a); perpendicularly to the plate (31) a restrictor (32) is provided, the restrictor being located in proximity of a knife (34), which is with its blade (34a) mounted in a hinge (341) that allows lifting and lowering of the blade (34a) on the edge of the upper plate (31) of the table (3); the end of the blade (34a) is provided with a handle (34b) for easier manipulation with the knife (34); through the legs (31a and 31b) two distancing legs (33a) are mounted, the distancing legs are via a mechanism (33c) movable left and/or right from the edge of the table (3); the legs (33a) are perpendicularly mounted in the plate (31); the first restrictor (32) is parallel to the table (33a) of the second restrictor (33), thus forming an opening, through which cut part of the sheet A may fall into the reservoir below; that on the upper part (31) of the table a longer rod (35a) is provided fixed with three screws (35a') and a cross-like section (35b) of the accessory (35) is provided and fixed with a screw (35b'); the cross-like part (35b) is placed and fixed onto the plate (31) so that one leg is parallel to one side of the plate (31), while the other is parallel to the adjoining side, which is perpendicular to the first side; the longer rod (35a) is rectangularly shaped with a rectangular cross-section and is with regards to the cross-like part inclined for an angle α, which may be between 110° and 120°, preferably 115°; the accessory (35) enables cutting of the first triangle (A') and subsequently the second triangle (A") from the paper basis (A).

14. The device for manufacturing paper packaging for plants according to claim 10, **characterized in that** the mechanism (6) for gluing edge of the paper basis into the packaging is installed in proximity of the table (5); on the table (5) at its outer edge is a mechanism comprising a bottom transporter (61) of sheets (A2), which has on its right side a bottom cylinder (61a) and an upper cylinder (61c) above the bottom one; on the other side the transporter (61) has a second bottom cylinder (61b) and above it second upper cylinder (61d); to the second bottom cylinder (61b) a drive belt (62a) is fixed, which is rotated with the axle of a drive motor (62); on the first part of the table (5) is a mechanism for applying glue along the upper part of the sheet (A2); approximately in the middle of the table (5) a mechanism (9) for folding the upper band to the glued part of the sheet (A2) is provided; at the end of the table (5) a simple mechanism (7) comprising two blades is provided, wherein the blades have a common flat side; the blades (7a and 7b) are made of spring material and are arranged in a manner that the first blade (7a) is turned upwards and the second blade (7b) is turned downwards; the finished product is freely guided along the inclined table (8) to a simple holder (8a) so that the blades (7a and 7b) open the product and place the product on the holder; following products are opened with the blades (7a and 7b) and placed on the upper part of the previous product.

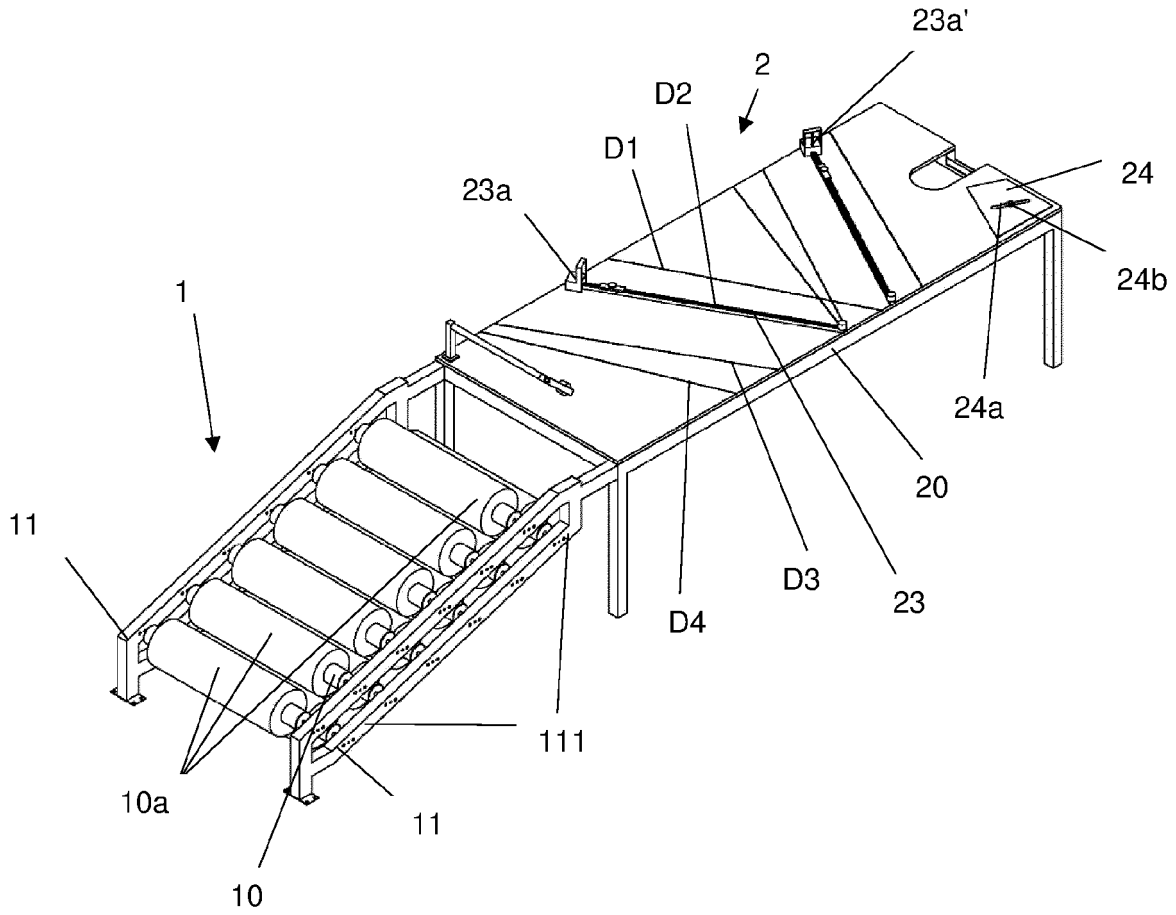

Figure 1

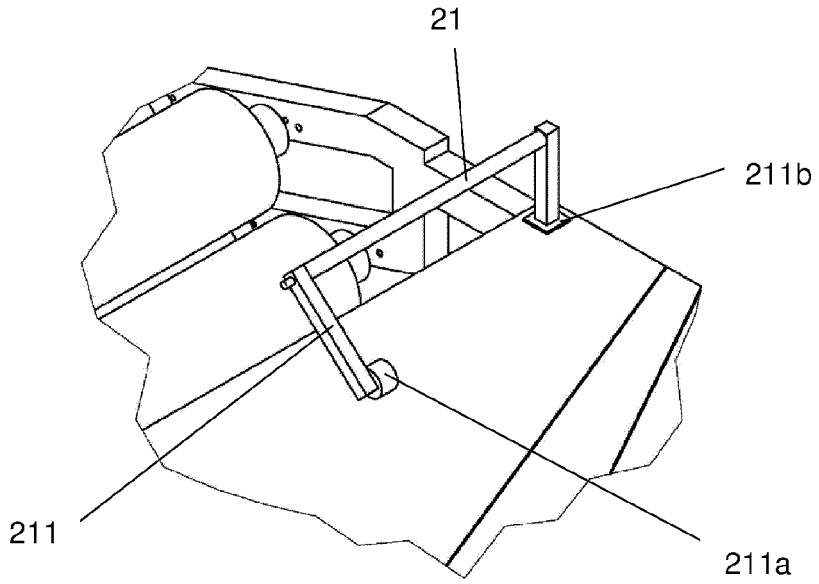

Figure 1a

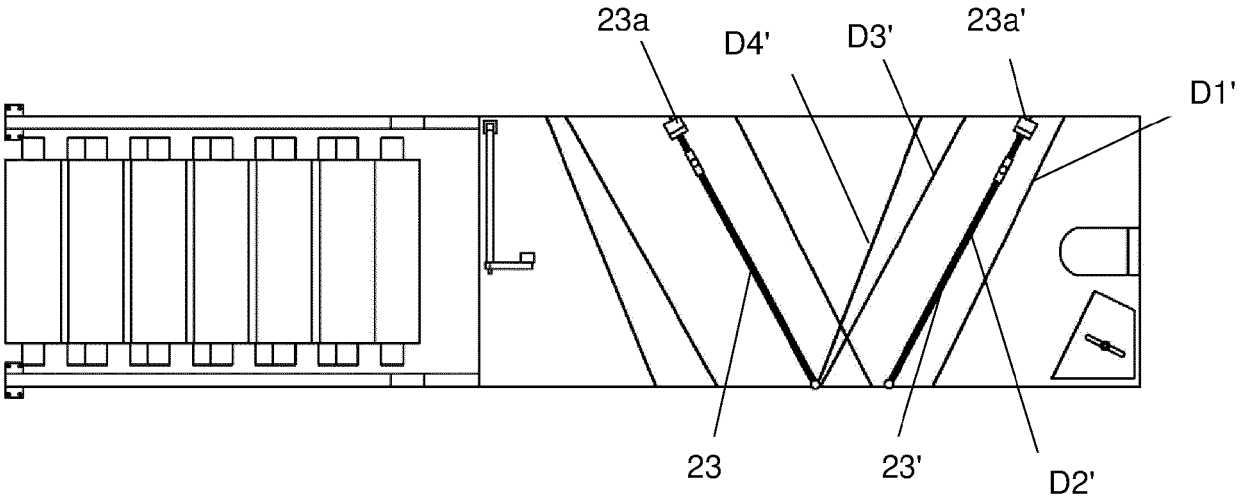

Figure 2

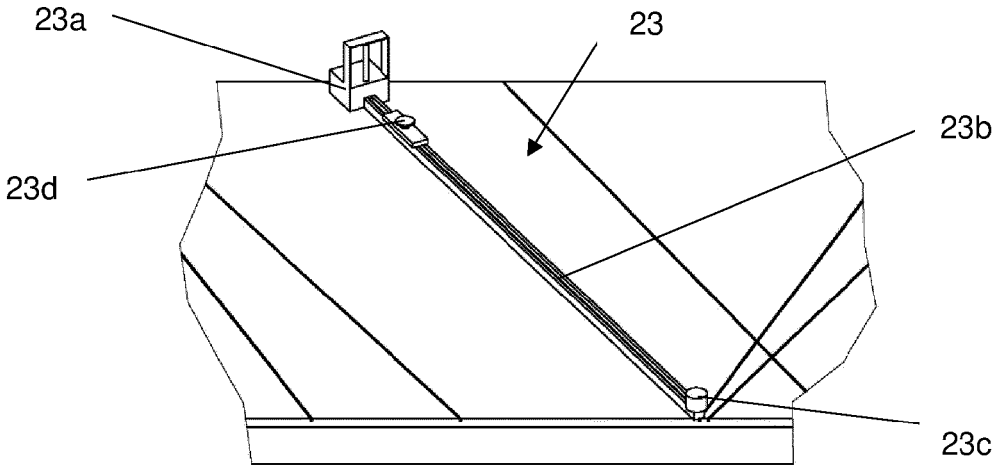

Figure 2a

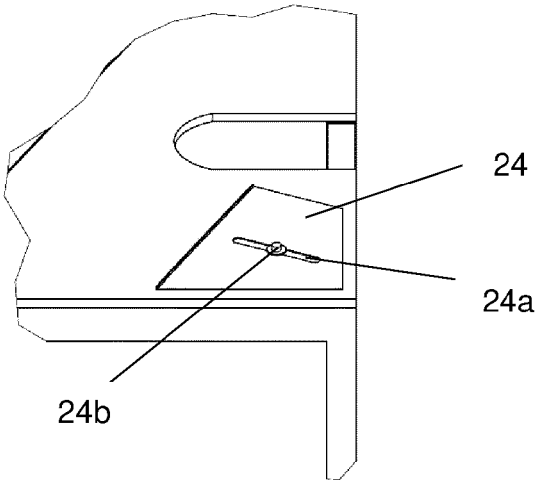

Figure 2b

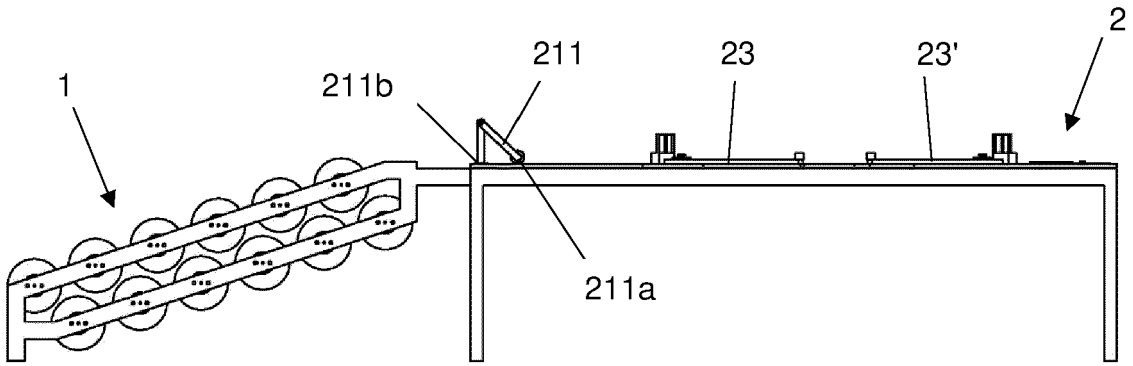

Figure 3

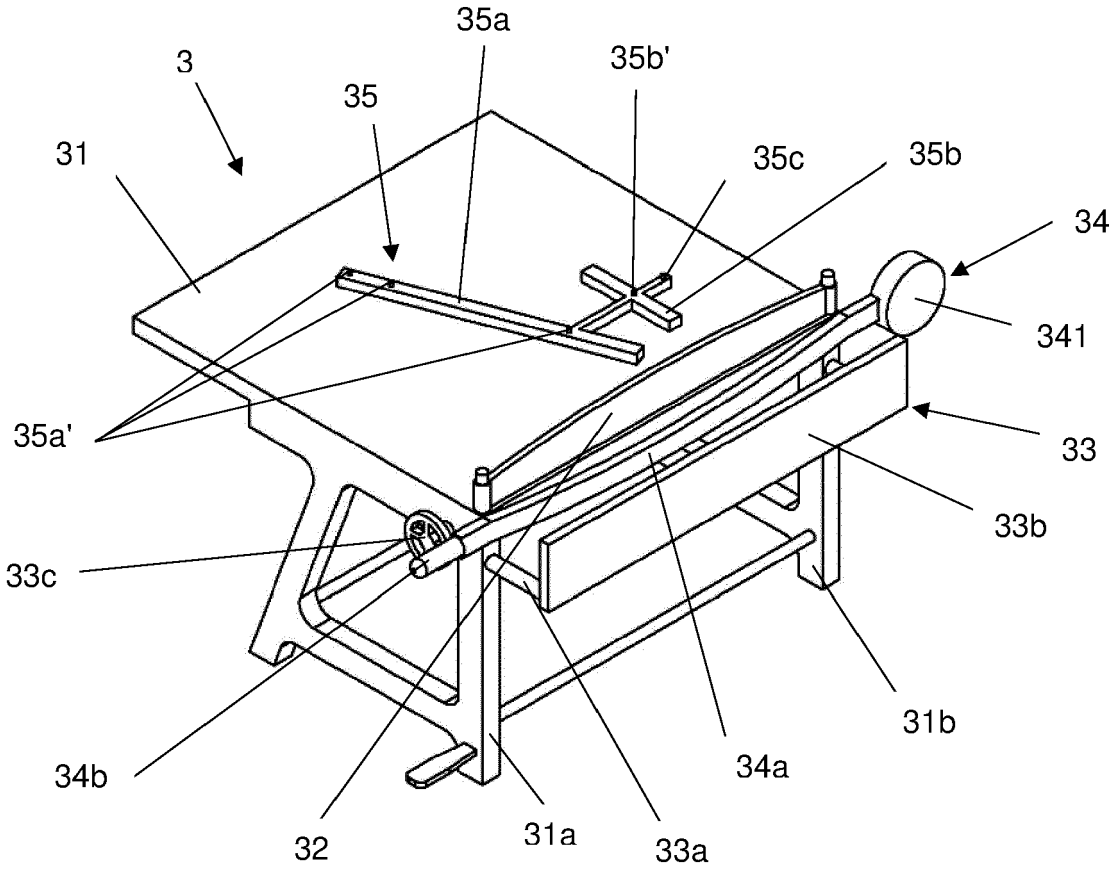

Figure 4a

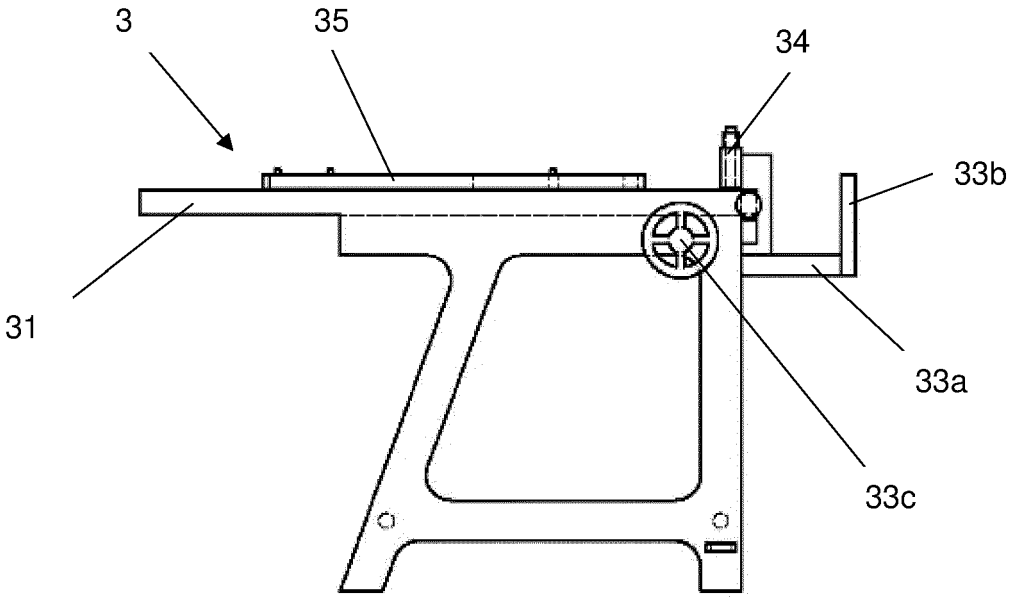

Figure 4b

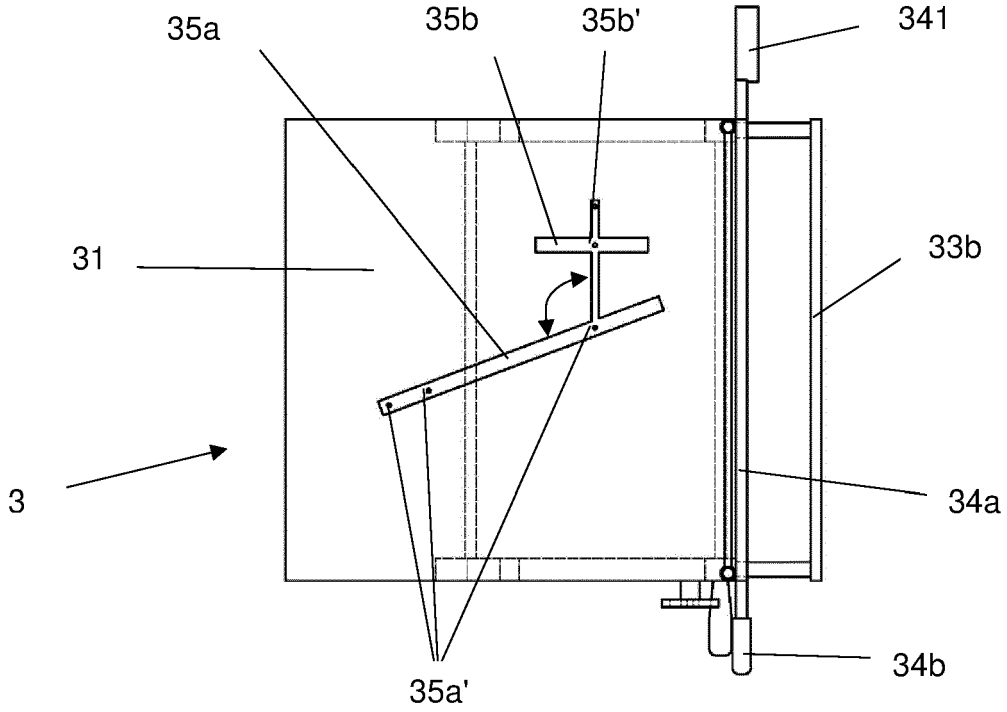

Figure 4c

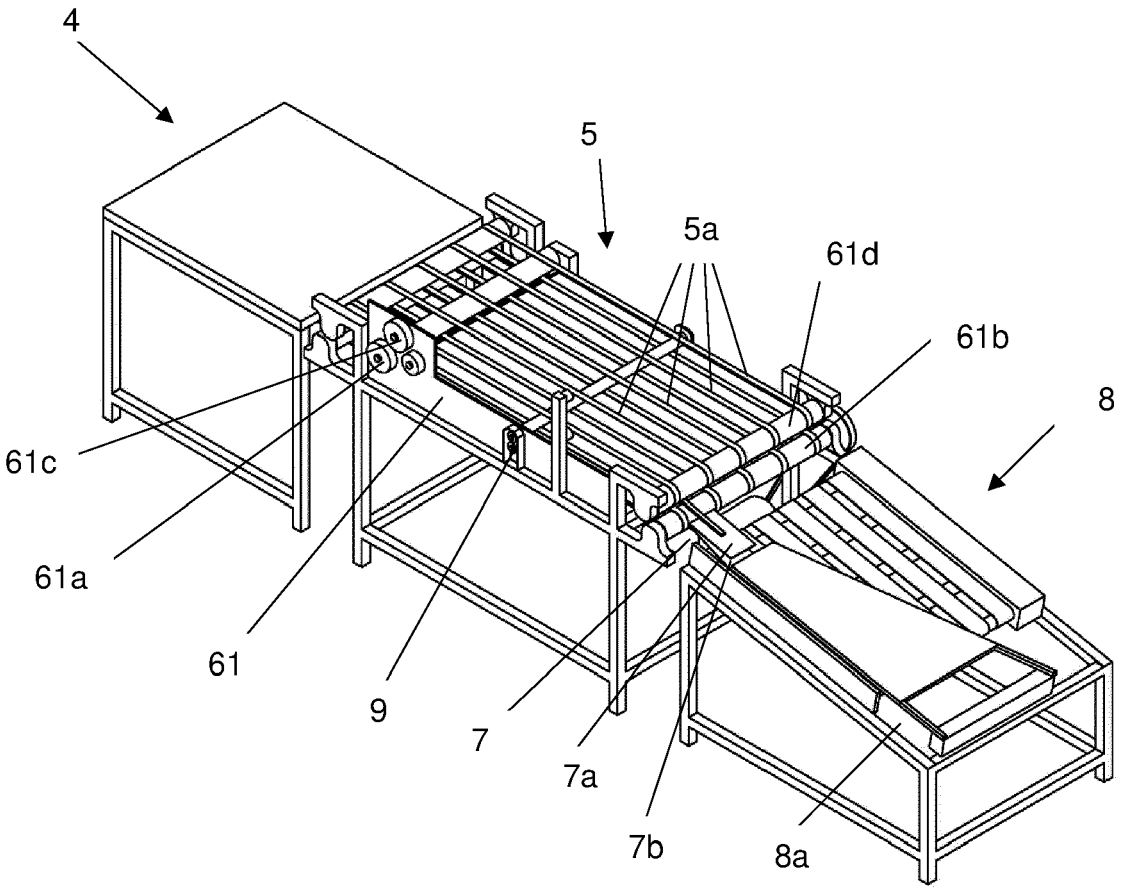

Figure 5a

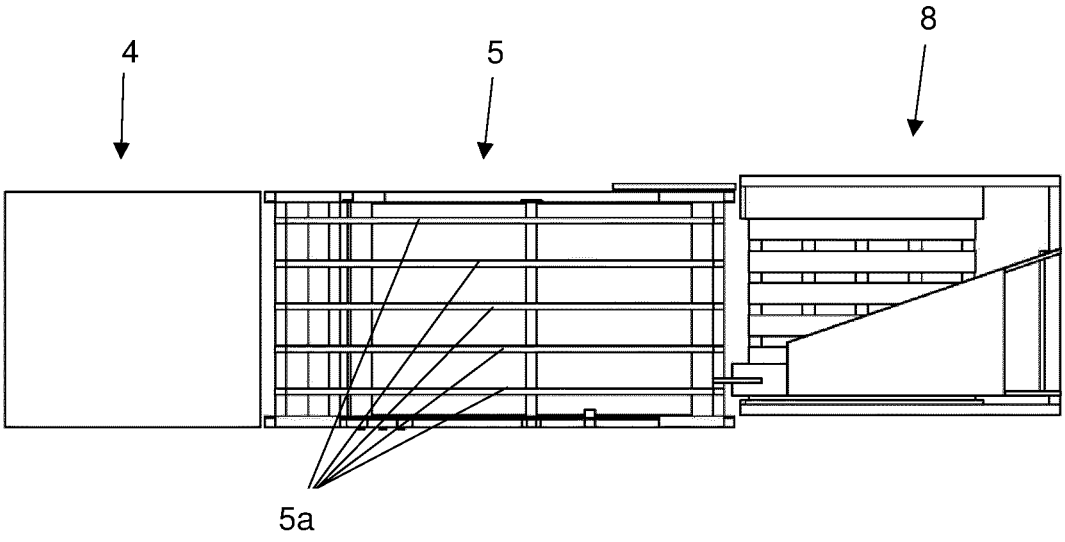

Figure 5b

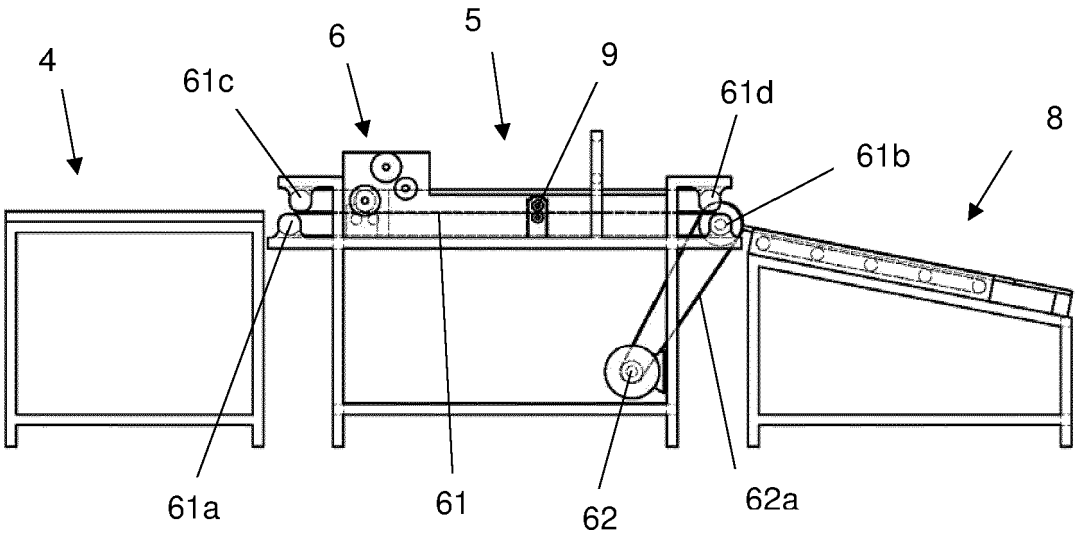

Figure 5c

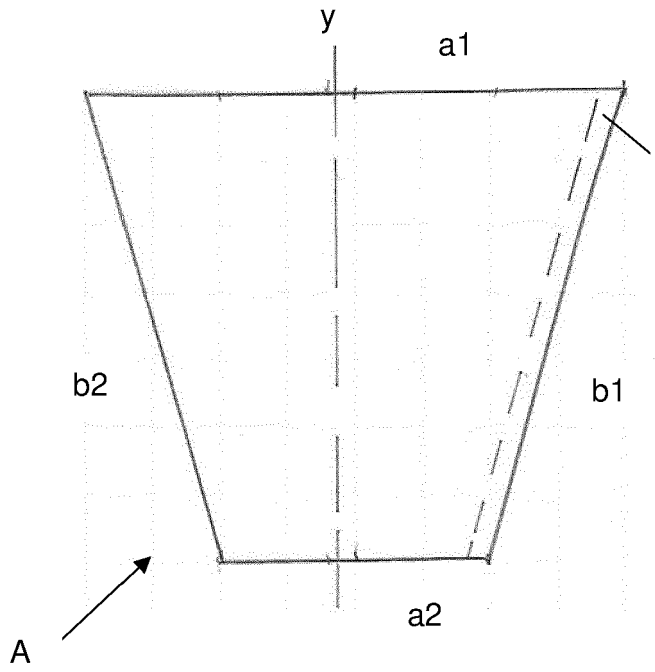

Figure 6a

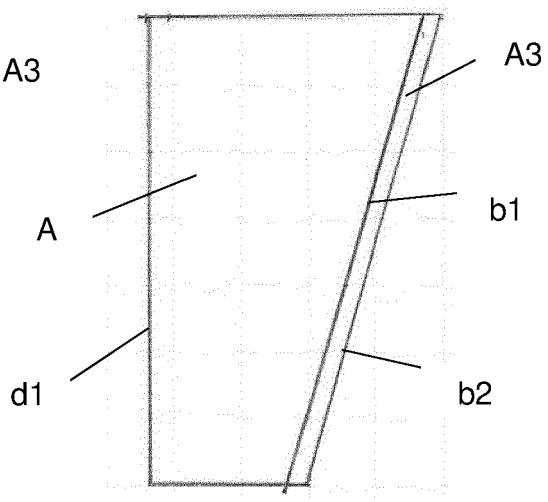

Figure 6b

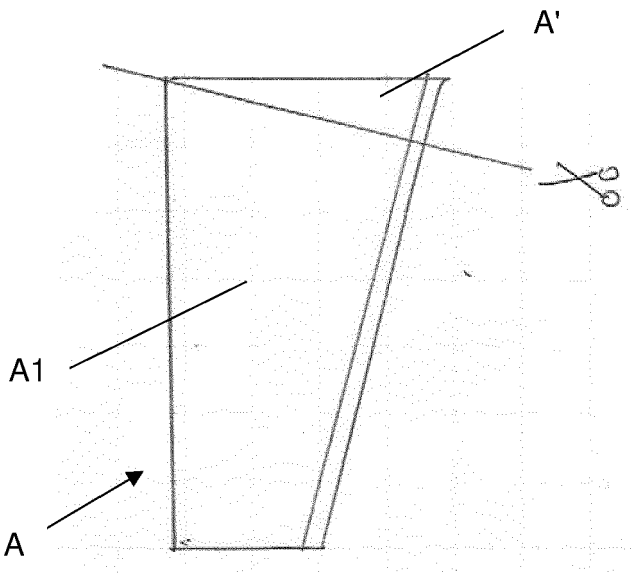

Figure 6c

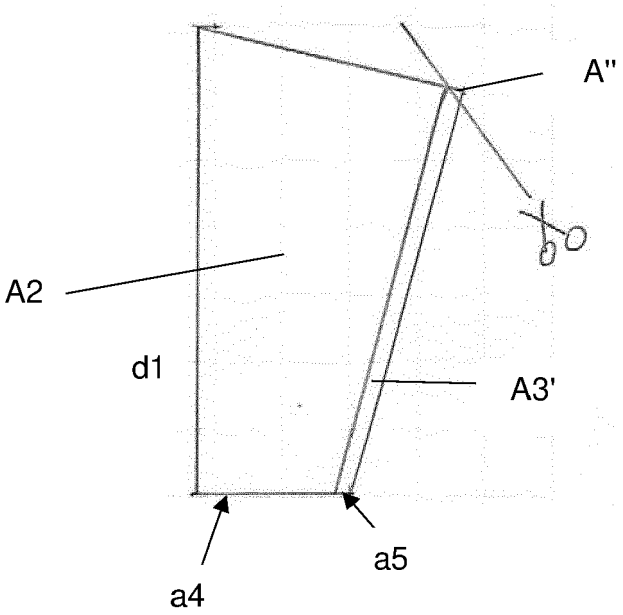

Figure 6d

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EUROPEAN SEARCH REPORT

Application Number
EP 20 16 9808

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A	DE 100 34 798 A1 (BEHNISCH PETER [DE]) 7 February 2002 (2002-02-07) * abstract; figures *	1-14	B31B70/62 B31B70/99 B65D65/04 B26D1/04
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	16 September 2020	Zanghi, Amedeo

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