



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
01.09.2021 Bulletin 2021/35

(51) Int Cl.:
B65D 77/20 (2006.01) B65D 85/10 (2006.01)

(21) Application number: **20159427.2**

(22) Date of filing: **25.02.2020**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

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(54) **CONTAINER WITH FLEXIBLE PACKAGING BAG**

(57) The present invention relates to a container (C) for accommodating consumer goods, like cigarettes, comprising an outer housing (OH). The outer housing (OH) comprises a box (B) having a front side (FS) and back side (BS); and a lid (L) hinged to the box (B) at the back side (BS) of the box (B) for opening and closing a box take-out opening (TO), wherein the box (B) and the lid (L) have an inner surface and an outer surface. The container C further comprises a flexible packaging bag (PB) for accommodating the consumer goods wherein the flexible packaging bag (PB) is provided inside the outer housing (OH) and has an access opening (AO) facing the box take-out opening (TO), wherein the flexible packaging bag (PB) is formed of at least one first film (102) forming the inner side of the flexible packaging bag (PB) and at least one second film (114) forming the outer side of the flexible packaging bag (PB) and being arranged on the first film (102) wherein at least one resealable adhesive layer (112) is provided between the first

film (102) and the second film (114), wherein the first film (102) has at least one access opening area (108) defined therein at least partially by at least one weakening line for providing the access opening (210), wherein the second film (114) comprises at least one opening support area (109) for uncovering and recovering the access opening (210) and at least one packaging reinforcing area (115), wherein the opening support area (109) is partially weakened along its periphery, wherein the area size of the opening support area (109) of the second film (114) is larger than the area size of the access opening area (108) of the first film (102) and covers at least substantially fully the access opening area (108) of the first film (102), and wherein an adhesion-reduced area (110) being arranged between the first film (102) and the second film (114) is provided between two facing borderlines of the access opening area (108) of the first film (102) and the opening support area (109) of the second film (114).

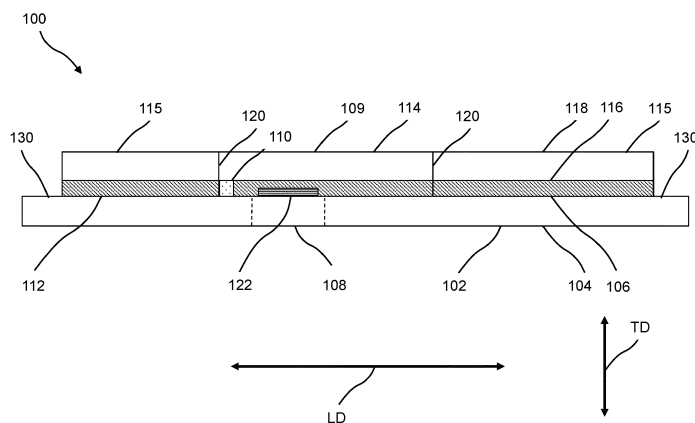


Fig. 9

Description

Technical field

[0001] The present invention relates to a container in which a flexible packaging bag formed of a flexible packaging sheet is accommodated. Furthermore, the present invention relates to a flexible packaging sheet. The present invention further relates to a method for manufacturing a flexible packaging sheet web. The present invention also relates to a supply roll on which said flexible packaging sheet web is wound up.

Background

[0002] In practice, it is known that consumer goods are distributed to customers in pre-fabricated containers. Commonly, it is necessary to preserve the quality of the consumer goods after the first opening of the container, for example, by maintaining the humidity level of consumer goods. Therefore, the consumer goods are additionally wrapped into an inner package made of web material and are accommodated within this inner package inside the container for the consumer goods. In order to individually remove consumer goods from the container, the inner package is provided with an access opening which is covered by a resealable adhesive element.

[0003] PCT patent application WO 2013/098109 and PCT patent application WO 2013/120915 disclose a container for which four different manufacturing steps are necessary to cover an access opening with a resealable adhesive label. Firstly, a first supply roll of a packaging web has to be produced and provided. Secondly, a second supply roll containing resealable adhesive elements has to be produced and provided, wherein the resealable adhesive label is arranged onto a release carrier liner. Thirdly, the access openings - preferably equidistantly spaced in a machine direction - have to be defined by weakening the packaging web along the periphery of the access openings. Fourthly, the defined access openings have to be covered by the resealable adhesive labels, wherein the fourth step comprises the separation and removal of the release carrier liner.

[0004] The third and fourth manufacturing step require that a packaging machine which assembles all components of said container for consumer goods is additionally provided with a cutting station and a labelling station up-front packaging the consumer goods.

[0005] Moreover, these manufacturing steps may generate a decisive drawback regarding the manufacturing quality, since three different manufacturing-related deviations may be cumulated. These would be, firstly, the deviation related to the manufacturing of the adhesive labels, i.e. size, shape, and their position on the release carrier liner. Secondly, the deviation related to the die-cutting of the access openings, i.e. size, shape, and their position within the packaging web. Thirdly, the deviation related to the labelling of the adhesive labels onto the

die-cut access openings, i.e. their position in relation to the access openings. Thus, the total deviation as the sum of all three deviations could lead to a malfunction of the container or at least to a visible manufacturing deviation.

[0006] Furthermore, the inner package made of a packaging web and which is to be accommodated inside a container for consumer goods is thin, flexible, and not very resistant, i.e. prone to damage.

Object

[0007] Therefore, it is an object of the invention to provide a container for accommodating consumer goods, a flexible packaging sheet, a method for manufacturing a flexible packaging sheet web and a supply roll on which the flexible packaging sheet web is wound up which overcome the disadvantages mentioned above, in particular which allow a simplified packaging of the consumer goods for the manufacturer of the consumer goods.

Summary

[0008] The aforesaid object with respect to the container is achieved by the features of claim 1. Advantageous configurations of the invention regarding the container are described in dependent claims 2 to 10 and also below.

[0009] According to the present invention, a container for accommodating consumer goods, like cigarettes, may comprise an outer housing. The outer housing may comprise a box having a front side and a back side and a lid hinged to the box at the back side of the box for opening and closing a box take-out opening. The box and the lid have an inner surface and an outer surface. Furthermore, the container may comprise a flexible packaging bag for accommodating the consumer goods. The flexible packaging bag may be provided inside the outer housing and may have an access opening facing at least substantially the box take-out opening of the outer housing, wherein the flexible packaging bag may be formed of at least one first film forming the inner side of the flexible packaging bag and at least one second film forming the outer side of the flexible packaging bag and being arranged on the first film wherein at least one resealable adhesive layer is provided between the first film and the second film. The first film may have at least one access opening area defined therein at least partially by at least one weakening line for providing the access opening. The second film may comprise at least one opening support area for uncovering and recovering the access opening and at least one packaging reinforcing area, wherein the opening support area may be partially weakened along its periphery. The area size of the opening support area of the second film may be larger than the area size of the access opening area of the first film and may cover at least substantially fully the access opening area of the first film. An adhesion-reduced area being arranged between the first film and the second film may be provided

between two facing borderlines of the access opening area of the first film and the opening support area of the second film.

[0010] This solution greatly simplifies the manufacturing process because the access opening area, which releases or forms the access opening when the container is opened for the first time, and the opening support area which separates the access opening area from the first film to form the access opening by adhering to the access opening area when the container is opened for the first time, are produced simultaneously with the films lying on top of each other, so that no alignment errors can occur. In addition, the overall quality of the container produced is increased.

[0011] First film is preferably the film, which forms the inner side of the flexible packaging bag. This first film may comprise three layers of which the two outer layers are of a plastic film and the inner layer is of an aluminium foil.

[0012] If the first film comprises more than one layer, then the layers may preferably be bonded to each other or laminated one upon another by means of an adhesive layer, e.g. an resealable adhesive layer reinforced by a primer or a permanent adhesive layer, or by means of a lamination adhesive, such as water-based adhesives, solvent-based adhesives, two-component adhesives based on polyurethane (PU), or hot melt adhesives. The adhesives may inter alia be based on acrylic or rubber.

[0013] In another preferred embodiment, the first film may comprise two layers which, when bonded together, form a sandwich print. Preferably, at least one of the two layers contains a metallization, e.g. an aluminium metallization.

[0014] In yet another preferred embodiment, the first film may be a monolayer which can be transparent, or preferably coloured, opaque or metallized.

[0015] In case of multi-layer first film, the inner sides of the layers may be printed forming a sandwich print. No additional heat seal lacquer is needed for a sandwich print, if both outer sides of the multi-layer film web have good sealing properties.

[0016] The printing may be performed by flexo printing, rotogravure, offset printing, etc. A variety of materials is usable for the at least one layer of the first film, such as for example polyethylene terephthalate (PET), polyolefin such as polypropylene (PP) or polyethylene (PE), cellophane, acetate, paper, composites of paper and plastic, or any combination of the materials mentioned. Preferably, the first film is made of a PP film, such as a biaxially oriented polypropylene (BOPP) with a thickness between 20 μm and 60 μm .

[0017] The printing can also be done by screen printing, letterpress printing or any other common printing technique.

[0018] The shape of the access opening area may be any shape allowing for a comfortable extraction of consumer goods, e.g. rectangular, circular, oval, etc. In case of a rectangular shape, the access opening area may be

prepared at least along three sides, i.e. along border lines or lines defining the periphery of the access opening area, so that it is possible to lift the material blanked part of the first film within the prepared periphery of the access opening area out of the plane of the first film; preferably, all four sides of the rectangular shape are weakened so that the material within the prepared periphery of the access opening area is fully removable of its position.

[0019] The periphery of the access opening area may be weakened by die-cutting, perforating, incomplete die-cutting, die cutting for providing catch points, laser cutting, etc. In the case of incomplete die-cutting, the film is not completely cut through, but a residual thickness of the film remains in order to preserve desired properties of the film, such as good sealing or barrier properties.

[0020] The area size of the resealable adhesive layer preferably corresponds to that of the second film and both are preferably arranged congruently to each other.

[0021] The resealable adhesive of the resealable adhesive layer may be a pressure sensitive adhesive or a viscoelastic adhesive which preserves its adhesive force at room temperature and under dry conditions. As a resealable adhesive a water-based adhesive, a solvent-based adhesive, or a hot melt adhesive, preferably a UV-cured hot melt adhesive, can be used. The resealable adhesive may comprise rubber, such as a synthetic rubber with styrene block copolymers (like styrene-isoprene/butadiene-styrene (SIBS) or styrene-butadiene-styrene (SBS)), polyurethane (PUR), or acrylates. Preferably, UV-cured acrylic hot melt adhesives compounded with resins, tackifiers, and further additives are used for the resealable adhesive of the first adhesive layer.

[0022] The coat weight of the first adhesive layer may be between 5 g/m^2 and 50 g/m^2 , preferably between 10 g/m^2 and 30 g/m^2 , and more preferably between 15 g/m^2 and 25 g/m^2 , wherein the latter corresponds to an adhesive layer thickness of 15 μm to 25 μm .

[0023] The second film is preferably the film, which forms the outer side of flexible packaging bag.

[0024] Preferably, the second film may comprise two layers, wherein both inner sides form a sandwich print, whereby the sandwich print is protected against abrasion or contamination.

[0025] However, the outer sides of the second film comprising at least one layer may be printed as well, wherein the printed outer sides may be protected by a lacquer sealing.

[0026] A variety of materials is usable for the at least one layer of the second film, such as PET, polyolefin such as PP or PE, cellophane, acetate, paper, composites of paper and plastic, or any combination of the materials mentioned. Preferably, the same material is used for the first and second film, i.e. preferably PP. The thickness of second film web may be between 40 μm and 200 μm , preferably between 40 μm and 80 μm , i.e. in case of a two-layer film web each PP layer may be between 10 μm and 60 μm .

[0027] The at least one material layer of the second

film may be translucent, transparent, coloured, or metalized.

[0028] The adhesion-reduced area which is arranged between the first film and the second film may be provided between two facing borderlines of the access opening area of the first film and the opening support area of the second film. Here, the borderline of the opening support area, where the adhesion-reduced area is located, is the one at which the opening support area is initially peeled off from the first film when the container is opened and the access opening is uncovered by lifting the opening support area. Thus, the adhesion-reduced area preferably extends at least approximately perpendicular to the movement direction for uncovering and recovering the access opening. The adhesion-reduced area allows the opening support area of the second film to be easily and conveniently peeled off from the first film when the access opening is to be uncovered, since the initial resistance exerted by the adhesive bonded joint caused by the resealable adhesive layer between the first and the second film is reduced.

[0029] In principle, the whole region between the two borderlines of the access opening area and the opening support area can form an adhesion-reduced area. If the adhesion-reduced area is smaller than the space available between the two borderlines, and if the adhesion-reduced area is closer to the borderline of the opening support area, there will be a region between the borderlines of the access opening area and the opening support area where the resealable adhesive layer is still fully present by what the first film and the opening support area of the second film adhere to each other in this region. This improves the sealing properties of the flexible packaging bag when the access opening is recovered by the second film, in particular by the opening support area of the second film, since the access opening is recovered all around.

[0030] The reduction in adhesion applies to the resealable adhesive layer, which is arranged between the first film and the second film. The reduction in adhesion may be gradual reduction, e.g. for creating a finger lift tab to peel off the second film from the first film, wherein a gradual reduction does also include a reduction in adhesion to zero, i.e. no adhesion. The adhesion-reduced area may also be adhesion-free, i.e. an area within which the first resealable adhesive layer has a gap. Preferably, the extension of the adhesion-reduced area in a width direction is larger than the extension in a longitudinal direction.

[0031] The reduction in adhesion may be caused by applying a deadening agent such as an ink, a lacquer or a powder to a predetermined area of the first resealable adhesive layer so that the adhesive force of this area is deadened to a desired degree. It is also possible to apply the deadening agent by pattern printing to obtain a gradient of an increasing or decreasing adhesive force in at least one direction of the adhesion-reduced area. Thus, the force required to peel off the second film from the first film can be adjusted.

[0032] The reduction in adhesion can also be achieved by applying an anti-adhesive agent to one of the two mutually facing sides of the first or second film in the desired area, i.e. between the two borderlines of the opening support area and the access opening area and in particular close to the borderline of the opening support area peeled off first when opening the container. The anti-adhesive agent can be formed of anti-adhesive lacquers, like lacquers with silicone additives, other dehesive agents or the like.

[0033] In a further preferred embodiment, the area size of the second film being arranged on the first film may be substantially as large as the area size of the first film and the second film may be at least substantially congruently arranged on the outer surface of the first film. This facilitates the manufacturing process considerably.

[0034] In another preferred embodiment, the area size of the second film being arranged on the first film may be at least substantially smaller than the area size of first film to provide a sealing seam area at the first film and the resealable adhesive layer may be substantially fully covered by the second film. In other words, there is no resealable adhesive layer in the sealing seam area, as the area covered by the resealable adhesive layer is at least approximately equal to the area of the second film. The sealing seam area may be used to form the flexible packaging bag by joining the outer edges, i.e. at least partially along the sealing seam area, by means of a thermal joining process such as thermos-welding or heat-sealing or induction sealing by a gluing process so as to form a flexible packaging bag that accommodates consumer goods.

[0035] In an advantageous embodiment, the opening support area of the second film may be at least partially surrounded by the packaging reinforcing area of the second film. This increases the strength of the access opening area, which is particularly stressed by the repeated opening and closing of the container and the repeated removal of the consumer goods.

[0036] It is further of advantage if anchor die-cuttings may be provided at a borderline of the access opening area opposite to the adhesion-reduced area to prevent a complete separation of the opening support area from the first film.

[0037] Preferably, for increasing the strength and stiffness of the flexible packaging bag by area, the opening support area of the second film and the packaging reinforcing area of the second film may be spaced apart preferably at the front side of the box to form a gap. The gap extends preferably at least substantially parallel to the adhesion-reduced area, i.e. at least substantially perpendicular to the movement direction for opening and closing the access opening.

[0038] It is further advantageous if two opposite sides of the access opening or access opening area of the first film, in particular those sides which extend at least approximately perpendicular to the adhesion-reduced area, are not provided with a packaging reinforcing area. In

addition or alternatively, a gap can also be provided on the back side of the box.

[0039] Further preferably, the packaging reinforcing area may be at least substantially fully covered by the front side of the box. Alternatively or in addition to this, the inner surface of the back side of the box can also be covered at least essentially completely by the packaging reinforcement area.

[0040] In a further preferred embodiment, a permanent adhesive area may be provided on the opening support area of the second film forming the outer side of the flexible packaging bag, the permanent adhesive area being aligned to the adhesion-reduced area, and wherein the permanent adhesive area may be attached to the inner surface of the lid so that the opening support area of the second film automatically uncovers the access opening of the flexible packaging bag to allow for extracting at least one of the consumer goods when the container is opened by pivoting the lid.

[0041] The permanent adhesive area may comprise a plurality of smaller sub-areas.

[0042] In yet another preferred embodiment, a finger lift tab may be formed at the opening support area of the second film to allow for manually uncovering and recovering the access opening of the flexible packaging bag.

[0043] The adhesion-reduced area can at least substantially be adhesion-free or the adhesive of the resealable adhesive layer in the adhesion-reduced area may be at least partially deadened. This can be achieved, for example, by briefly interrupting the application of the resealable adhesive layer or by applying a deadening agent.

[0044] It is further of advantage if the adhesion-reduced area is formed by an anti-adhesive agent, such as an anti-adhesive lacquer, being provided on one of the two mutually facing sides of the first or second film and/or being provided on the resealable adhesive layer which is applied to one of the mutually facing sides of the first or second film.

[0045] In a further preferred embodiment, at least one primer layer may be provided on the side of the first film facing to the second film within the region of the access opening area to increase the adhesion of the resealable adhesive layer. The primer is located between the side of the first film facing the second film and the resealable adhesive layer. The area size of the primer layer is at most substantially equal to the area size of the access opening area. Preferably, the area size of the primer layer is equal to the area size of the access opening area. A resealable area between the first film and the opening support area of the second film and surrounding the periphery of the access opening area of the first film is primer-free. Furthermore, a primer can also be provided at those locations between the first and the second film where a separation of the second film from the first film is not desired. A permanent adhesive can also be used instead of a primer.

[0046] The primer area can comprise a bonding agent

to increase the adhesive force of an adhesive. The primer area may be congruent to and directly located at the access opening area; preferably, the surface area of the prepared access opening area is at least larger than that of the primer area.

[0047] The object of the present invention can further be solved by a flexible packaging sheet for a flexible packaging bag particularly used for accommodating consumer goods, like cigarettes, having a width direction, a longitudinal direction and a thickness direction. The flexible packaging sheet may comprise at least one first film forming the inner side of the flexible packaging bag. Furthermore, the flexible packaging sheet may comprise at least one second film forming the outer side of the flexible packaging bag and being arranged on the first film wherein at least one resealable adhesive layer may be provided between the first film and the second film. The first film may have at least one access opening area defined therein at least partially by at least one weakening line for providing the access opening. The second film may comprise at least one opening support area for uncovering and recovering the access opening and at least one packaging reinforcing area, wherein the opening support area may be partially weakened along its periphery. The area size of the opening support area of the second film may be larger than the area size of the access opening area of the first film and may cover at least substantially fully the access opening area of the first film. An adhesion-reduced area being arranged between the first film and the second film may be provided between two facing borderlines of the access opening area of the first film and the opening support area of the second film.

[0048] The object of the present invention can further be solved by a method for manufacturing a flexible packaging sheet web, wherein the method comprises the steps of:

- feeding a first film web having a first and a second side in a feeding direction and comprising at least one layer;
- feeding a second film web having a first and a second side in the feeding direction and comprising at least one layer;
- coating at least the first side of the second film web and/or the second side of the first film web with at least one resealable adhesive layer;
- bonding the second side of the first film web and the first side of the second film web by means of the resealable adhesive layer to form a flexible packaging sheet web;
- defining access opening areas at least substantially equidistantly spaced in feeding direction into the first film web by weakening the first film web along the periphery of each access opening area to be defined;
- defining at least opening support areas and preferably packaging reinforcing areas, both at least substantially equidistantly spaced in feeding direction, into the second film web by weakening the second

film web, wherein the area size of the opening support areas is larger than the area size of the access opening areas, and wherein the opening support areas at least substantially fully cover the access opening areas;

- providing adhesion-reduced areas between the first film web and the second film web and between two facing borderlines of the access opening areas of the first film web and the opening support areas of the second film web; and
- winding up the packaging film web.

[0049] In principle, it is also possible to completely remove the packaging reinforcing areas so that only the opening support areas remain on the first film.

[0050] The feeding direction refers to the machine direction in which a manufacturing machine conveys the different feedstock webs for the sequent processing steps.

[0051] Both the first and the second film web may comprise at least one layer, i.e. each film web may comprise one or a plurality of material layers.

[0052] The bonding of the first and second film web by means of the resealable adhesive layer to form a flexible packaging sheet web has to be set or controlled so that the adhesion-reduced areas and the primer areas are spaced apart from each other in feeding direction or at least do not overlap each other.

[0053] Also the preparing of the access opening areas has to be controlled so that the prepared access opening areas are preferably centrally arranged at the primer areas and wherein the surface area of the prepared access openings preferably extends beyond the periphery of the primer areas.

[0054] The die-cutting of the second film web along the periphery of each defined flexible packaging sheet may preferably affect the adhesive layer as well.

[0055] The step of providing adhesion-reduced areas may further preferably comprise the step of:

- applying an anti-adhesive agent, such as an anti-adhesive lacquer, to one of the two mutually facing sides of the first or second film.

[0056] Advantageously, the method may further comprise the steps of:

- printing separating marks at least substantially equidistantly spaced in feeding direction on the flexible packaging sheet web to define individual and at least substantially equally long flexible packaging sheets, wherein each defined flexible packaging sheet at least comprises an adhesion-reduced area, a defined access opening area, and an opening support area; and
- printing at least one side of at least one of the layers of at least one of the film webs.

[0057] The separating marks may also be printed only on the first film web before joining the two webs. The separating marks may be applied with typical printing techniques such as flexo printing, offset printing, silk-screen printing, rotogravure printing, digital printing. The printing inks can be UV-inks, water-based inks or solvent-based inks.

[0058] It is further conceivable that the individual flexible packaging sheets are defined by means of a high-speed camera or the like which is adapted to the conveying speed of the flexible packaging sheet web.

[0059] It is of further advantage when the step of providing adhesion-reduced areas further comprises the step of at least approximately regularly interrupting the application of the resealable adhesive layer.

[0060] In a further preferred embodiment, the method may further comprise the steps of:

- feeding at least a third film web having a first and second side in feeding direction between the first film web and the second film web; and
- permanently bonding the second side of the third film web with the first side of the second film web.

[0061] Finally, the object of the present invention can be solved by a supply roll on which the flexible packaging sheet web manufactured as described above is wound up.

[0062] The advantages of the flexible packaging sheet and the method for manufacturing a flexible packaging sheet web are the same as those explained above for the container.

[0063] In the following, further advantages and embodiments of the present invention are described in conjunction with the attached drawings. Thereby, the expression "left", "right", "below", and "above" are referred to the drawings in an orientation of the drawings which allows the normal reading of the reference signs. The drawings should not necessarily represent the forms of execution to scale. Rather, the drawings, where useful for explanation, are executed in schematic and/or slightly distorted form. The invention's features revealed in the description, in the drawings, and in the claims may be essential for any continuation of the invention, either individually or in any combination. The general idea of the invention is not limited to the exact form or detail of the preferred embodiments shown and described below or to a subject-matter which would be limited in comparison to the subject-matter of the claims. For the sake of simplicity, identical or similar parts or parts with identical or similar functions are hereinafter referred to by the same reference signs.

[0064] In the drawings:

Fig. 1 shows a perspective partial view of a first embodiment of a container according to the present invention wherein an access opening of a flexible packaging bag is automatically un-

	covered and recovered by pivoting a lid of an outer housing accommodating the flexible packaging bag;		bodiment of the flexible packaging sheet according to the present invention having a two-layer first film;
Fig. 2	shows a perspective view of a second embodiment of a container according to the present invention wherein an access opening of a flexible packaging bag accommodated in an outer housing is manually uncovered and recovered by means of a finger lift tab;	5	Fig. 15 shows a longitudinal cross-sectional view of the fifth embodiment of a flexible packaging sheet according to the present invention having a two-layer second film;
Fig. 3	shows a longitudinal cross-sectional view of a first embodiment of a flexible packaging sheet according to the present invention;	10	Fig. 16 shows a top view of the fifth embodiment of the flexible packaging sheet according to the present invention;
Fig. 4	shows a top view of the first embodiment of the flexible packaging sheet according to the present invention;	15	Fig. 17 shows a cross-sectional view of the fifth embodiment of the flexible packaging sheet according to the present invention having a modified two-layer second film.
Fig. 5	shows a longitudinal cross-sectional view of a second embodiment of a flexible packaging sheet according to the present invention;	20	Fig. 18 shows a longitudinal cross-sectional view of a sixth embodiment of a flexible packaging sheet according to the present invention;
Fig. 6	shows a top view of the second embodiment of the flexible packaging sheet according to the present invention;	25	Fig. 19 shows a top view of the sixth embodiment of the flexible packaging sheet according to the present invention
Fig. 7	shows a top view of the second embodiment of the flexible packaging sheet according to the present invention without the opening support area;	30	Fig. 20 shows a first embodiment of a method for manufacturing a flexible packaging sheet web according to the present invention;
Fig. 8	shows a bottom view of an embodiment of a first film of flexible packaging sheet according to the present invention having anchor die-cuttings;	35	Fig. 21 shows a second embodiment of a method for manufacturing a flexible packaging sheet web according to the present invention; and
Fig. 9	shows a longitudinal cross-sectional view of a third embodiment of a flexible packaging sheet according to the present invention;	40	Fig. 22 shows a top view of a section of a flexible packaging sheet web according to the present invention.
Fig. 10	shows a top view of the third embodiment of the flexible packaging sheet according to the present invention;		Detailed description
Fig. 11	shows a longitudinal cross-sectional view of a fourth embodiment of a flexible packaging sheet according to the present invention;	45	[0065] In Fig. 1, a container C for accommodating consumer goods, like cigarettes (not depicted), is shown. Container C comprises an outer housing OH which, in turn, consists of a box B having a front side FS as well as a back side BS, and a lid L hinged to box B at back side BS of box B for opening and closing a box take-out opening TO. Box B and the lid L are preferably made of a relatively stiff material, such as cardboard.
Fig. 12	shows a top view of the fourth embodiment of the flexible packaging sheet according to the present invention;	50	[0066] Container C further comprises a flexible packaging bag PB being arranged inside outer housing OH. Flexible packaging bag PB, which envelopes or accommodates the consumer goods, is formed of a flexible packaging sheet 100. As it will be described in detail below, flexible packaging sheet 100 can be formed of at least one first film 102 forming the inner side of flexible packaging bag PB and at least one second film 114 forming the outer side of flexible packaging bag PB and being arranged on the first film 102 wherein at least one reseal-
Fig. 13	shows a longitudinal cross-sectional view of a fifth embodiment of a flexible packaging sheet according to the present invention;	55	
Fig. 14	shows a cross-sectional view of the fifth em-		

able adhesive layer 112 is provided between first film 102 and second film 114.

[0067] Flexible packaging bag PB comprises an access opening AO which faces box take-out opening TO of outer housing OH and which is fully covered by an opening support area 109 provided on second film 114 of flexible packaging bag PB in the closed state of container C. In said state, opening support area 109 resealably adheres to the outer surface of first film 102 of flexible packaging bag PB by means of resealable adhesive layer 112. Access opening AO of flexible packaging bag PB is automatically uncovered to allow for extracting at least one of the consumer goods when lid L is pivoted in opening direction to open container C as shown in Fig. 1. Therefore, a permanent adhesive area 136 applied on the outer surface of opening support area 109 is attached to the inner surface of lid L. The permanent adhesive bond between opening support area 109 and lid L, in turn, allows for automatically recover access opening AO when container C is closed by pivoting lid L in closing direction. Access opening AO is defined by lines of weakness along the periphery of an access opening area 108 prepared in first film 102 of flexible packaging bag PB. When container C is opened for the first time, a blanked part BP of first film 102 within access opening area 108 is removed out of its position and adheres to the inner surface of opening support area 109 by means of resealable adhesive layer 112. Opening support area 109 of second film 114 is cut along a cutting line 120 at its periphery.

[0068] In Fig. 2, another embodiment of container C is shown wherein access opening AO of flexible packaging bag PB has to be uncovered and recovered manually by grabbing opening support area 109 at a finger lift tab LT. Finger lift tab LT is preferably adhesive-free on its inner surface facing first film 102 of flexible packaging bag PB.

[0069] In Figs. 3 and 4, a first embodiment of flexible packaging sheet 100 according to the present invention is shown of which flexible packaging bag PB is formed. Hence, flexible packaging sheet 100 is preferably to be used for being wrapped around the consumer goods and forming a flexible packaging bag PB in which consumer goods are accommodated. However, it is also possible that flexible packaging bag PB is formed first and then the consumer goods are filled into it.

[0070] As already mentioned above, flexible packaging sheet 100, which has a width direction WD, a longitudinal direction LD, and a thickness direction TD, comprises first film 102. First film 102 comprises a first side 104 and a second side 106. In first film 102, an access opening area 108 is defined or prepared for providing access opening AO of flexible packaging bag PB. Access opening area 108 has a rectangular shape and is shown with a broken line in Fig. 4. The defining of access opening area 108 can be done by forming a weakening line via die-cutting, perforating or the like at least partially along the periphery of access opening area 108. For example, access opening area 108 may be completely pre-

pared along its periphery by the weakening line, or it may be U-shaped or the like so that it remains firmly attached to the rest of the material of first film 102.

[0071] As also already mentioned above, flexible packaging sheet 100 comprises second film 114 which has a first side 116 and a second side 118 and which is arranged on top of second side 106 of first film 102 so that second side 106 of first film 102 and first side 116 of second film 114 are bonded together by means of resealable adhesive layer 112 which is arranged between first and second film 102, 114. The area size of second film 114 and resealable adhesive layer 112 in longitudinal direction LD and width direction WD is as large as that of first film 102. Moreover, first film 102, second film 114 and resealable adhesive layer 112 are congruently arranged to each other.

[0072] Second film 114 comprises opening support area 109 and a packaging reinforcing area 115. In Fig. 4, opening support area 109 and packaging reinforcing area 115 have also a rectangular shape and are shown with full lines. Moreover, as can be seen in Fig. 4, the area size of opening support area 109 is larger than the area size of access opening AO. Packaging reinforcing area 115 completely surrounds opening support area 109. Opening support area 109 is defined or prepared in second film 114 by forming a weakening line 120 via cutting, die-cutting or the like along the periphery of opening support area, whereby opening support area 109 and packaging reinforcing area 115 are separated from each other. Thus, opening support area 109 of second film 114 may be peeled off from second side 106 of first film 102 independently of packaging reinforcing area 115 of second film 114.

[0073] Furthermore, an adhesion-reduced area 110 facilitating the initial lifting of opening support area 109 is provided between second side 106 of first film 102 and first side 116 of second film 114 adjacent to access opening area 108, wherein adhesion-reduced area 110 preferably extends completely across opening support area 109 in width direction WD.

[0074] Adhesion-reduced area 110 is either formed by deadening resealable adhesive layer 112 by means of a lacquer, powder or the like, or by leaving this area out of the coating procedure when the resealable adhesive for forming resealable adhesive layer 112 is applied to either second side 106 of first film 102 or first side 116 of second film 114.

[0075] Alternatively, adhesion-reduced area 110 may be formed by applying an anti-adhesive agent, such as an anti-adhesive lacquer, to either second side 106 of first film 102 or first side 116 of second film 114 by what resealable adhesive layer 112 in the region of adhesion-reduced area 110 substantially adheres to first side 116 of second film 114 or second side 106 of first film 102, respectively. As can particularly be seen from Fig. 3, adhesion-reduced area 110 is provided between two facing borderlines or periphery edges of access opening area 108 of first film 102 and opening support area 109 of

second film 114 (the periphery edges or borderlines of access opening area 109 and access opening area 108 to the left, referred to Fig. 3).

[0076] As can also be seen in Figs. 3 and 4, first film 102 and second film 114 have the same dimensions in length direction LD and width direction WD so that their outer edges coincide with regard to thickness direction TD. Moreover, both first film 102 and second film 114 comprise one layer, wherein at least one side of at least one layer may be printed or decorated.

[0077] Figs. 5 and 6 show a second embodiment of flexible packaging sheet 100, wherein the second embodiment is modified compared to the first embodiment of flexible packaging sheet 100 in that a primer area 122 is arranged between access opening area 108 and first side 116 of second film 114. Primer area 122 which has a rectangular shape and which is shown in Fig. 6 with broken lines, increases the adhesion or adhesive force of resealable adhesive layer 112 whereby the adhesive bond between blanked part BP within access opening area 108 is increased. Blanked part BP is removed from its position within access opening area 108 due to this adhesive bond when opening support area 109 is peeled off from second side 106 of first film 102. Primer area 122 comprises a bonding agent or coupling agent.

[0078] The area size of primer area 122 is at least smaller than the area size of access opening area 108, as presented in Fig. 6.

[0079] It is further conceivable that the area size of primer area 122 at least substantially corresponds to the area size of opening support area 109. However, a resealable area 126 shown in Fig. 7 with a hatching, has to be primer-free to ensure that opening support area 109 can be peeled off from second side 106 of first film 102. Resealable area 126 is indicated in Fig. 7 in which opening support area 109 is not shown.

[0080] Fig. 8 shows a bottom view of first film 102, i.e. first side 104 of first film 102 is presented. Access opening area 108 may be die-cut into first film 102 along three sides of its periphery forming the letter "U" and additionally, at the fourth side anchor die-cuttings 111 may be provided which prevent a complete separation of blanked part BP from first film 102.

[0081] In Figs. 9 and 10, a third embodiment of flexible packaging sheet 100 is shown, wherein the area size of second film 114 and resealable adhesive layer 112 is smaller in longitudinal direction LD and width direction WD than the area size of first film 102 to form a sealing seam area 130 at first film 102. Along sealing seam area 130, the outer edges of first film 102 can be sealed or welded together to form flexible packaging bag PB. Here, sealing seam area 130 can be used completely or only partially. The heat-sealing or heat-welding process to produce flexible packaging bag PB can generally be carried out before or after the consumer goods are placed on first side 104 of first film 102. Along sealing seam area 130, the outer edges of first film 102 can also be joined by a gluing process.

[0082] In Figs. 11 and 12, a fourth embodiment of flexible packaging sheet 100 is shown, wherein packaging reinforcing area 115 of second film 114 and opening support area 109 of second film 114 are arranged in longitudinal direction LD. No section of packaging reinforcing area 115 surrounds opening support area 109. Packaging reinforcing area 115 and opening support area 109 are separated from each other along cutting line 120.

[0083] In Figs. 13 to 16, a fifth embodiment of flexible packaging sheet 100 is shown, wherein the fifth embodiment is modified compared to the fourth embodiment in that a gap 134 is formed between packaging reinforcing area 115 of second film 114 and opening support area 109 of second film 114. Referring to a flexible packaging bag PB formed of the fifth embodiment of flexible packaging sheet 100, gap 134 ensures that packaging reinforcing area 115 is fully covered by front side FS of box B of container C shown in Figs. 1 and 2.

[0084] Figs. 13 to 16 also present permanent adhesive area 136 applied on opening support area aligned to adhesion-reduced area 110. By means of permanent adhesive area 136 is permanently affixed to lid L of container C, as shown in Fig. 1.

[0085] Fig. 14 shows first film 102 with two layers 102a, 102b permanently adhered to each other by means of a permanent adhesive layer 138 being arranged between both layers 102a, 102b. The area size of both layers 102a, 102b is at least substantially equal.

[0086] Fig. 15 shows second film 114 with two layers 114a, 114b permanently adhered to each other by means of a permanent adhesive layer 140 being arranged between both layers 114a, 114b. The area size of both layers 114a, 114b is also at least substantially equal.

[0087] In Fig. 17, a modification of the embodiment shown in Fig. 15 is presented. Second layer 114 comprises a lower, first layer 114b whose area size corresponds to the area size of first film 102 and an upper, second layer 114a permanently adhered to first layer 114b by means of a permanent adhesive layer 140, wherein the area size of second layer 114a and permanent adhesive layer 140 is smaller than the area size of the first layer 114b and first film 102, whereby a sealing seam area 130 is formed at first film 102 together with first layer 114b of second film 114.

[0088] In Figs. 18 and 19, a sixth embodiment of flexible packaging sheet 100 is shown, wherein packaging reinforcing area 115 of second film 114 has been completely removed.

[0089] In Fig. 20, a first embodiment of a method for manufacturing a flexible packaging sheet web is shown. From the flexible packaging sheet web, individual packaging sheets 100 can be produced.

[0090] According to that first embodiment, a first film web 302 is fed to the manufacturing process in feeding direction FD from a first supply roll 300. First film web 302 may be printed on at least one side by means of a first printing station 304.

[0091] A second film web 310 is fed to the manufac-

turing process in feeding direction FD from a second supply roll 308. Second film web 310 may also be printed on at least one of its sides in a second printing station 312.

[0092] Subsequently, second film web 310 is coated on its first side (lower side in Fig. 20) with a resealable adhesive in a coating station 314. Equidistantly spaced areas of the coated layer on the first side of second film web 310 are deadened in deadening station 316 to form adhesion-reduced areas 110. In primer station 306, equidistantly spaced primer areas 122 are coated onto the second side of first film web 302 (upper side in Fig. 20) in order to increase the adhesive force of the resealable adhesive coating in defined areas on the first side of second film web 310 after first film web 302 and second film web 310 have been joined together. In a bonding station 318, first film web 302 and second film web 310 are joined together by means of the resealable adhesive coating on the first side of second film web 310, whereby a two-layered packaging film web 320 is formed. In a third printing station 322, one of the sides of packaging web 320 is printed with separating marks 323 to define individual flexible packaging sheets 100. After third printing station 322, packaging film web 320 is further conveyed in feeding direction FD to a preparing station 324. In preparing station 324, equidistantly spaced access opening areas 108 are prepared into the first side of first film web 302, wherein the preparing of access opening areas 108 may be a weakening of first film web 302 along the periphery of each access opening area 108, such as perforating, laser cutting, die-cutting, incomplete die-cutting, die cutting for providing catch points, laser cutting, etc. Afterwards, in a die-cut station 326, second film web 310 is die-cut along its periphery so that the area size of each second film 114 within each defined flexible packaging sheet 100 is smaller than the area size of the corresponding first film 102 to form a sealing seam area 130 at first film 102. Moreover, equidistantly spaced opening support areas 109 are die-cut into second film web 310 within each defined flexible packaging sheet 100, whereby, within each defined flexible packaging sheet 100, packaging reinforcing area 115 of second film 114 and opening support area 109 of second film 114 are being separated from each other. The area size of opening support areas 109 is larger than that of access opening areas 108 and, within each defined flexible packaging sheet 100, access opening area 108 is fully covered by an opening support area 109. Cutting residues 328 resulting from the cutting process in die-cutting station 326 are separated from packaging film web 320 and are wound up onto a third supply roll 330. Finally, finished flexible packaging sheet web 332 having a plurality of flexible packaging sheets 100 is wound up onto a fourth supply roll 334.

[0093] In Fig. 21, a second embodiment of a method for manufacturing a flexible packaging sheet web is shown comprising three film webs.

[0094] According to that second embodiment, a first film web 424 is fed to the manufacturing process in feed-

ing direction FD from a first supply roll 422. First film web 424 may be printed on at least one side by means of a first printing station 426. In a first primer station 428, primer areas 122 are applied equidistantly spaced to the second side of first film web 424 (upper side in Fig. 21).

[0095] A second film web 408 is fed to the manufacturing process in feeding direction FD from a second supply roll 406. Second film web 408 may also be printed on at least one of its sides in a second printing station 410. In a second primer station 412, the second side of second film web 408 is coated with a primer layer (upper side in Fig. 21).

[0096] A third film web 402 is fed to the manufacturing process in feeding direction FD from a third supply roll 400. Third film web 402 is coated on its first side with an adhesive layer in a first coating station 404 (lower side in Fig. 21).

[0097] First side of third film web 402 and second side of second film web 408 are joined together by means of the adhesive layer in a first joining station 414, wherein the primer layer increases the adhesion or adhesive force of the adhesive layer. Subsequently, the first side of second film web 408 is coated with a resealable adhesive layer in a second coating station 418 (lower side in Fig. 21). Afterwards, equidistantly spaced areas of the resealable adhesive layer coated on the first side of second film web 408 are deadened in deadening station 420 to form adhesion-reduced areas 110.

[0098] In a second joining station 430, first side of second film web 408 and second side of first film web 424 are joined together by means of the resealable adhesive layer so that the primer areas 122 and the adhesion-reduced areas 110 are slightly spaced apart from each other in feeding direction FD.

[0099] In preparing station 434, equidistantly spaced access opening areas 108 are prepared into first film web 424, wherein the preparing of access opening areas 108 may be a weakening of first film web 424 along the periphery of each access opening area 108, such as perforating, laser cutting, die-cutting, creasing or the like.

[0100] Afterwards, in a die-cut station 436, second film web 408 and third film web 402 are die-cut along the periphery of individual flexible packaging sheets 100 to form sealing seam areas 130 at first film web 424. Moreover, equidistantly spaced opening support areas 109 are die-cut into second film web 408 and third film web 402, wherein the area size of opening support areas 109 is larger than that of access opening areas 108 and wherein each access opening area 108 is fully covered by one opening support area 109. Cutting residues 438 resulting from the cutting process in die-cutting station 436 are separated from flexible packaging sheet web 432 and are wound up onto a fourth supply roll 440.

[0101] Finally, finished flexible packaging sheet web 432 having a plurality of flexible packaging sheets 100 is wound up onto a fifth supply roll 444.

[0102] In Fig. 22, a top view of a finished flexible packaging sheet web 332 having several flexible packaging

sheets 100 (as shown in Fig. 16) is shown, wherein the individual flexible packaging sheets 100 are defined in feeding direction FD by separating marks 323.

Claims

1. A container (C) for accommodating consumer goods, like cigarettes, comprising:

- an outer housing (OH), comprising:

- a box (B) having a front side (FS) and back side (BS); and
- a lid (L) hinged to the box (B) at the back side (BS) of the box (B) for opening and closing a box take-out opening (TO) of the outer housing (OH),

wherein the box (B) and the lid (L) have an inner surface and an outer surface; and

- a flexible packaging bag (PB) for accommodating the consumer goods wherein the flexible packaging bag (PB) is provided inside the outer housing (OH) and has an access opening (AO) facing at least substantially the box take-out opening (TO) of the outer housing (OH), wherein the flexible packaging bag (PB) is formed of at least one first film (102) forming the inner side of the flexible packaging bag (PB) and at least one second film (114) forming the outer side of the flexible packaging bag (PB) and being arranged on the first film (102) wherein at least one resealable adhesive layer (112) is provided between the first film (102) and the second film (114),

wherein the first film (102) has at least one access opening area (108) defined therein at least partially by at least one weakening line for providing the access opening (AO),

wherein the second film (114) comprises at least one opening support area (109) for uncovering and recovering the access opening (210) and at least one packaging reinforcing area (115),

wherein the opening support area (109) is partially weakened along its periphery,

wherein the area size of the opening support area (109) of the second film (114) is larger than the area size of the access opening area (108) of the first film (102) and covers at least substantially fully the access opening area (108) of the first film (102), and wherein an adhesion-reduced area (110) being arranged between the first film (102) and the second film (114) is provided between two facing borderlines of the access opening area (108) of the first film (102) and the opening support area (109) of the second film (114).

2. The container according to claim 1, wherein the area size of the second film (114) being arranged on the first film (102) is substantially as large as the area size of the first film (102) and wherein the second film (114) is at least substantially congruently arranged on the outer surface of the first film (102).

3. The container according to claim 1, wherein the area size of the second film (114) being arranged on the first film (102) is at least substantially smaller than the area size of first film (102) to provide a sealing seam area (130) at the first film (102) and wherein the resealable adhesive layer (112) is substantially fully covered by the second film (114).

4. The container according to at least one of claims 1 to 3, wherein the opening support area (109) of the second film (114) is at least partially surrounded by the packaging reinforcing area (115) of the second film (114).

5. The container according to at least one of claims 1 to 3, wherein the opening support area (109) of the second film (114) and the packaging reinforcing area (115) of the second film (114) are spaced apart preferably at the front side (FS) of the box (B) to form a gap (134).

6. The container according to at least one of claims 1 to 5, wherein a permanent adhesive area (136) is provided on the opening support area (109) of the second film (114) forming the outer side of the flexible packaging bag (PB), the permanent adhesive area (136) being aligned to the adhesion-reduced area (110), and wherein the permanent adhesive area (136) is attached to the inner surface of the lid (L) so that the opening support area (109) of the second film (114) automatically uncovers the access opening (AO) of the flexible packaging bag (PB) to allow for extracting at least one of the consumer goods when the container (C) is opened by pivoting the lid (L).

7. The container according to at least one of claims 1 to 5, wherein a finger lift tab (LT) is formed at the opening support area (109) of the second film (114) to allow for manually uncovering and recovering the access opening (AO) of the flexible packaging bag (PB).

8. The container according to at least one of claims 1 to 7, wherein the adhesion-reduced area (110) is at least substantially adhesion-free or the adhesive of the resealable adhesive layer (112) in the adhesion-reduced area (110) is at least partially deadened.

9. The container according to at least one of claims 1 to 7, wherein the adhesion-reduced area (110) is

formed by an anti-adhesive agent, such as an anti-adhesive lacquer, being provided on one of the two mutually facing sides (106, 116) of the first or second film (102, 114).

10. The container according to at least one of claims 1 to 9, wherein at least one primer layer (122) is provided on the side (106) of the first film (102) facing to the second film (114) within the region of the access opening area (108) wherein preferably the area size of the primer layer (122) is at most substantially equal to the area size of the access opening area (108).

11. A flexible packaging sheet (100) for a flexible packaging bag (PB) particularly used for accommodating consumer goods, like cigarettes, having a width direction (WD), a longitudinal direction (LD) and a thickness direction (TD), wherein the flexible packaging sheet (100) comprises:

at least one first film (102) forming the inner side of the flexible packaging bag (PB) and at least one second film (114) forming the outer side of the flexible packaging bag (PB) and being arranged on the first film (102) wherein at least one resealable adhesive layer (112) is provided between the first film (102) and the second film (114),

wherein the first film (102) has at least one access opening area (108) defined therein at least partially by at least one weakening line for providing the access opening (AO),

wherein the second film (114) comprises at least one opening support area (109) for uncovering and recovering the access opening (AO) and at least one packaging reinforcing area (115), wherein the opening support area (109) is partially weakened along its periphery,

wherein the area size of the opening support area (109) of the second film (114) is larger than the area size of the access opening area (108) of the first film (102) and covers at least substantially fully the access opening area (108) of the first film (102), and

wherein an adhesion-reduced area (110) being arranged between the first film (102) and the second film (114) is provided between two facing borderlines of the access opening area (108) of the first film (102) and the opening support area (109) of the second film (114).

12. A method for manufacturing a flexible packaging sheet web (332), wherein the method comprises the steps of:

- feeding a first film web (302) having a first and a second side in a feeding direction (FD) and

comprising at least one layer;

- feeding a second film web (310) having a first and a second side in the feeding direction (FD) and comprising at least one layer;

- coating at least the first side of the second film web (310) and/or the second side of the first film web (302) with at least one resealable adhesive layer (112);

- bonding the second side of the first film web (302) and the first side of the second film web (310) by means of the resealable adhesive layer (112) to form a flexible packaging sheet web (320);

- defining access opening areas (108) at least substantially equidistantly spaced in feeding direction (FD) into the first film web (302) by weakening the first film web (302) along the periphery of each access opening area (108) to be defined;

- defining at least opening support areas (109), both at least substantially equidistantly spaced in feeding direction (FD), into the second film web (310) by weakening the second film web (302), wherein the area size of the opening support areas (109) is larger than the area size of the access opening areas (108), and wherein the opening support areas at least substantially fully cover the access opening areas (108);

- providing adhesion-reduced areas (110) between the first film web (302) and the second film web (310) and between two facing borderlines of the access opening areas (108) of the first film web (302) and the opening support areas (109) of the second film web (310); and

- winding up the packaging film web (332).

13. The method according to claim 12, wherein the step of providing adhesion-reduced areas (110) further comprises the step of:

- applying an anti-adhesive agent, such as an anti-adhesive lacquer, to one of the two mutually facing sides (106, 116) of the first or second film (102, 114).

14. The method according to claim 12, wherein the step of providing adhesion-reduced areas (110) further comprises the step of at least approximately regularly interrupting the application of the resealable adhesive layer (112).

15. A supply roll on which the flexible packaging sheet web (332) manufactured according to at least one of the claims 12 to 14 is wound up.

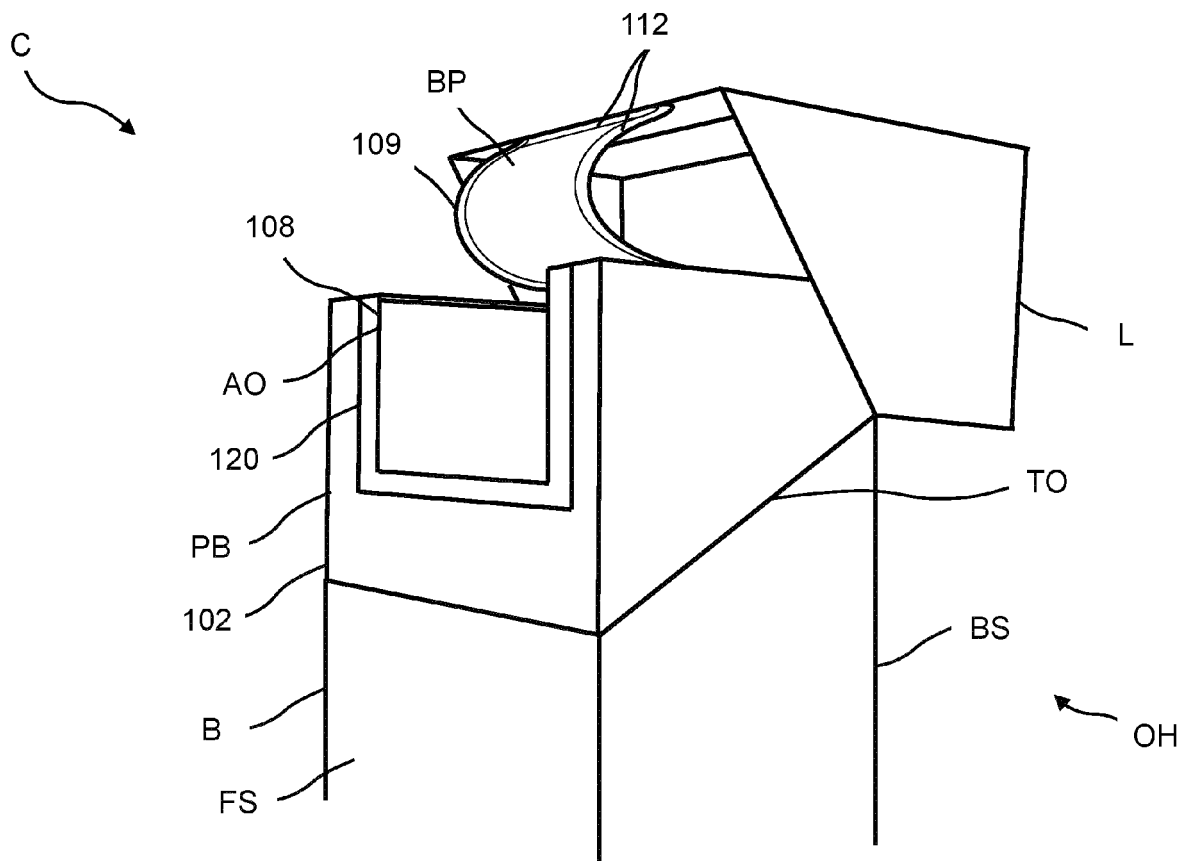


Fig. 1

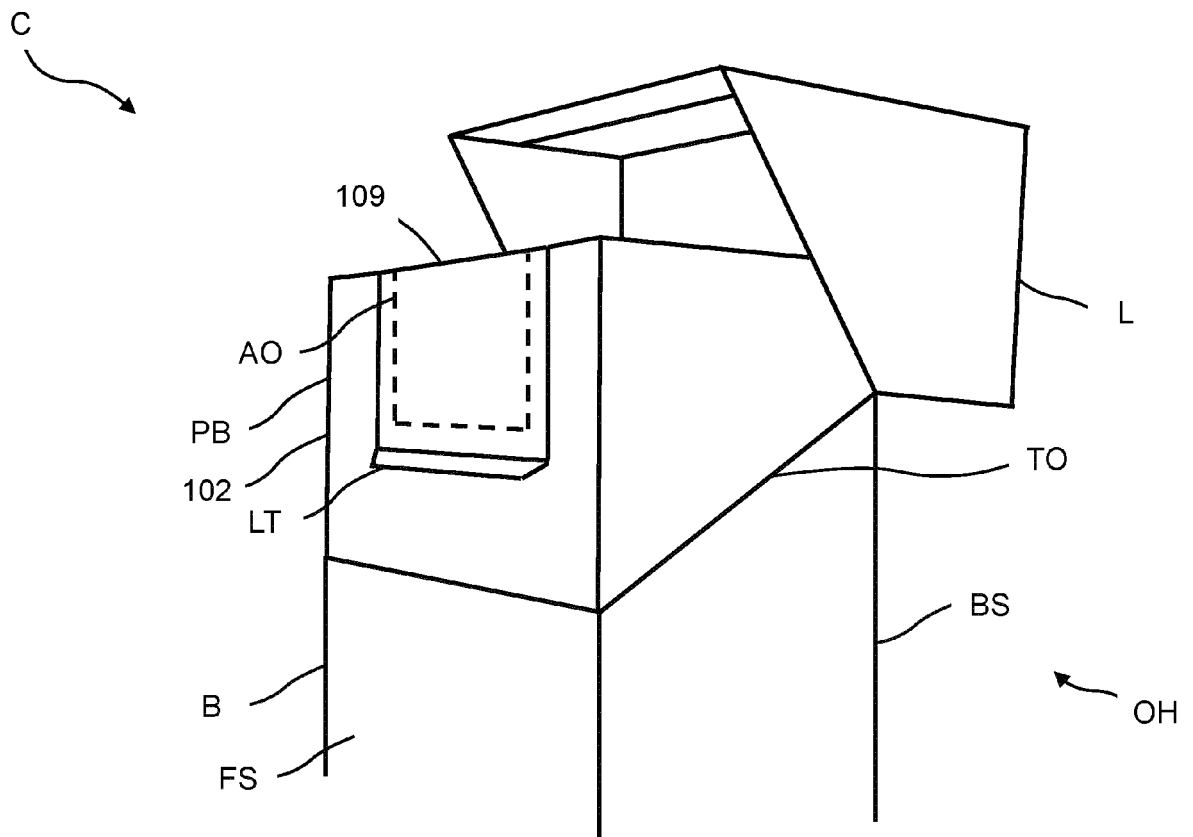


Fig. 2

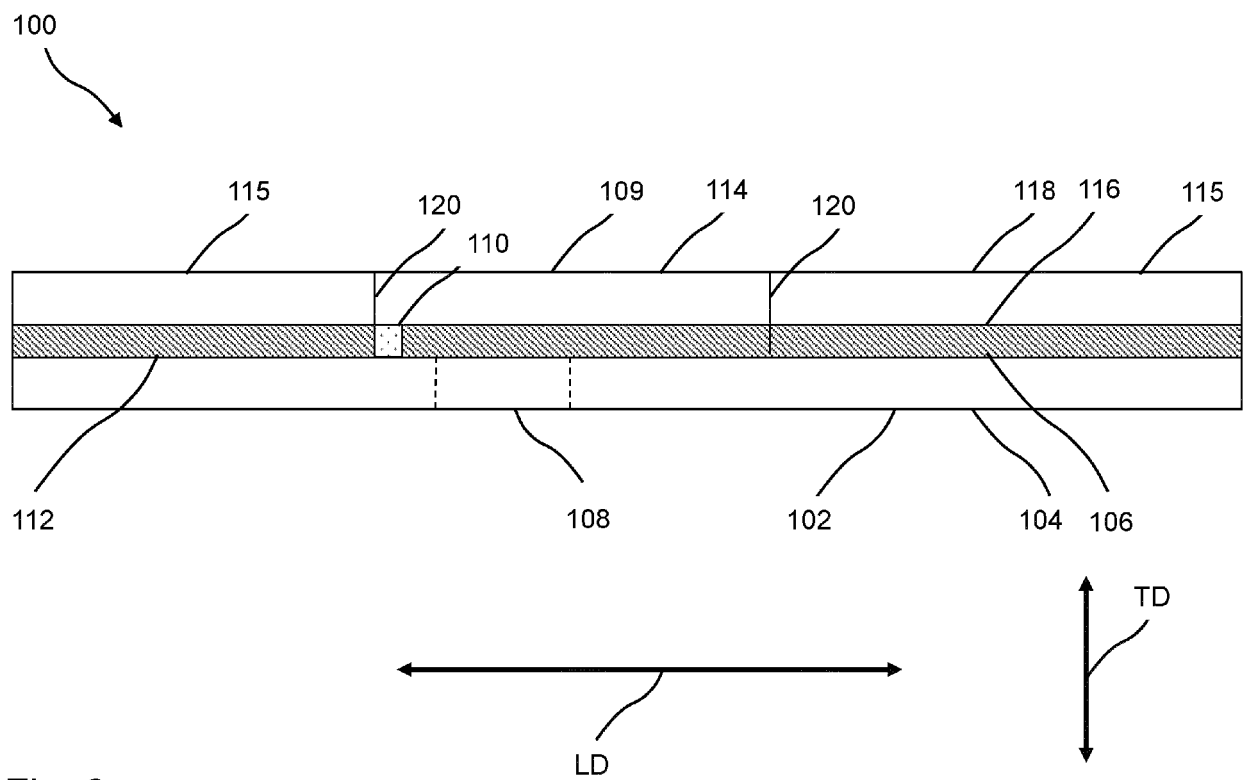


Fig. 3

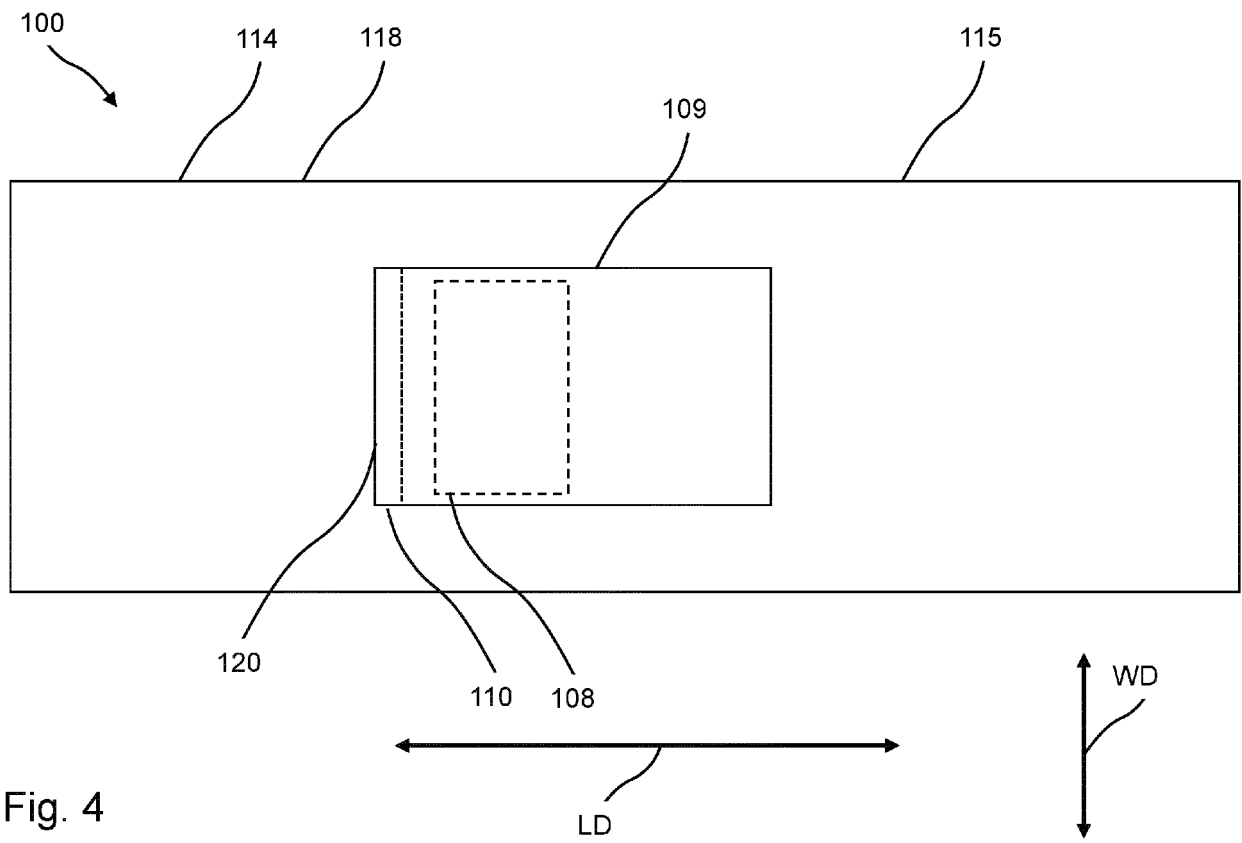


Fig. 4

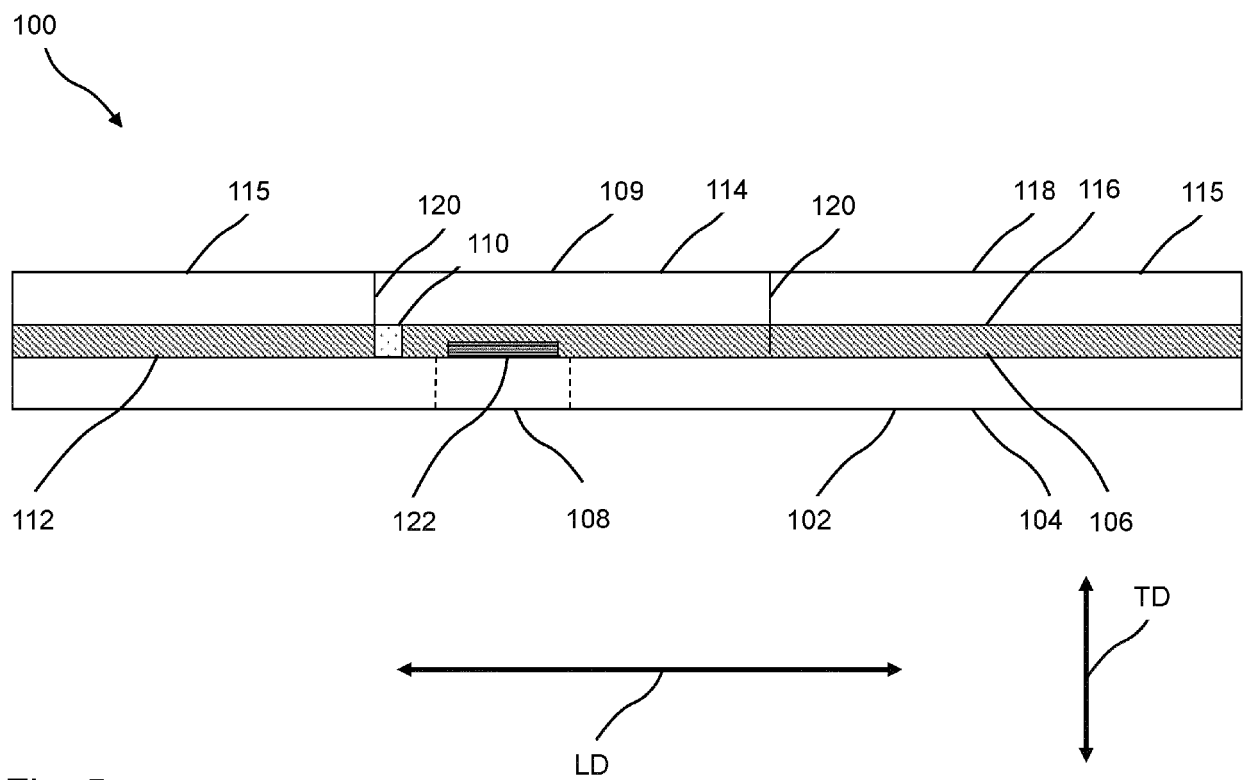


Fig. 5

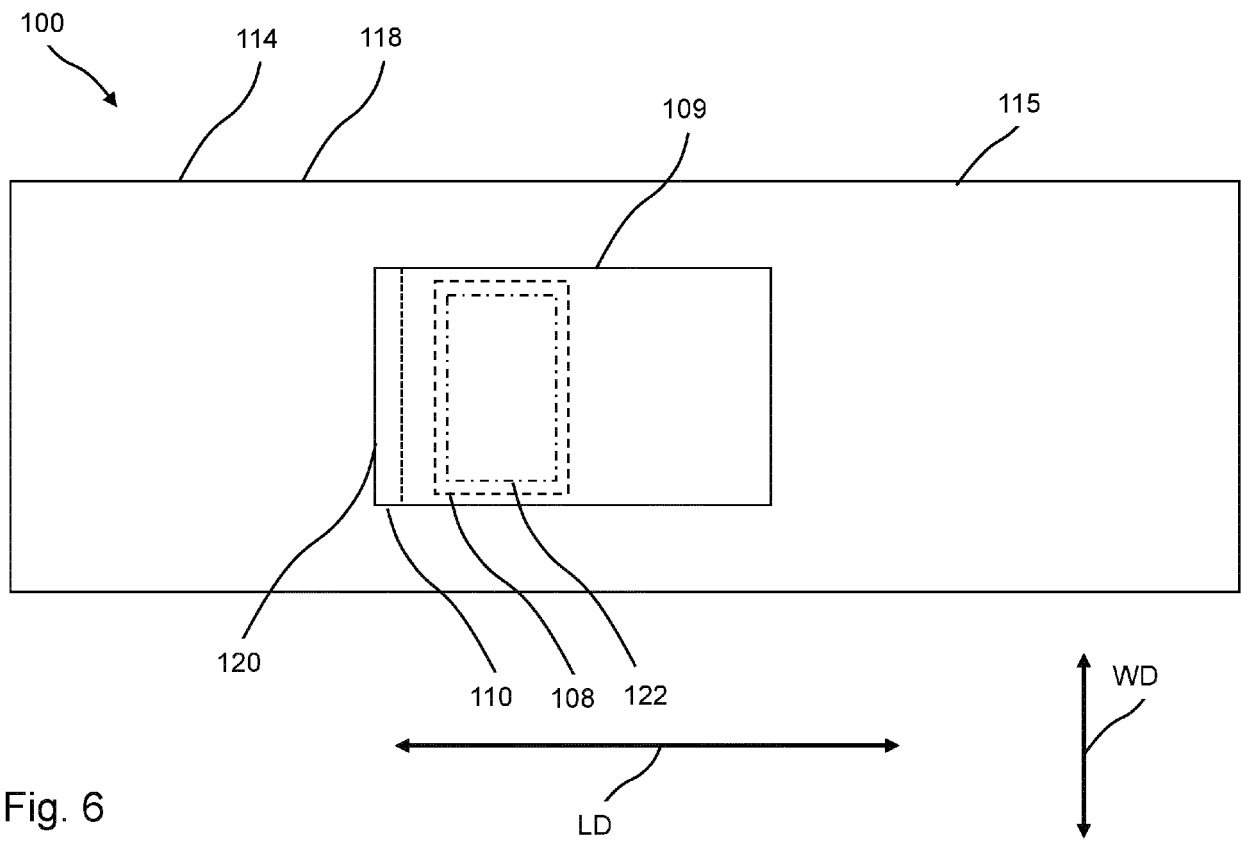
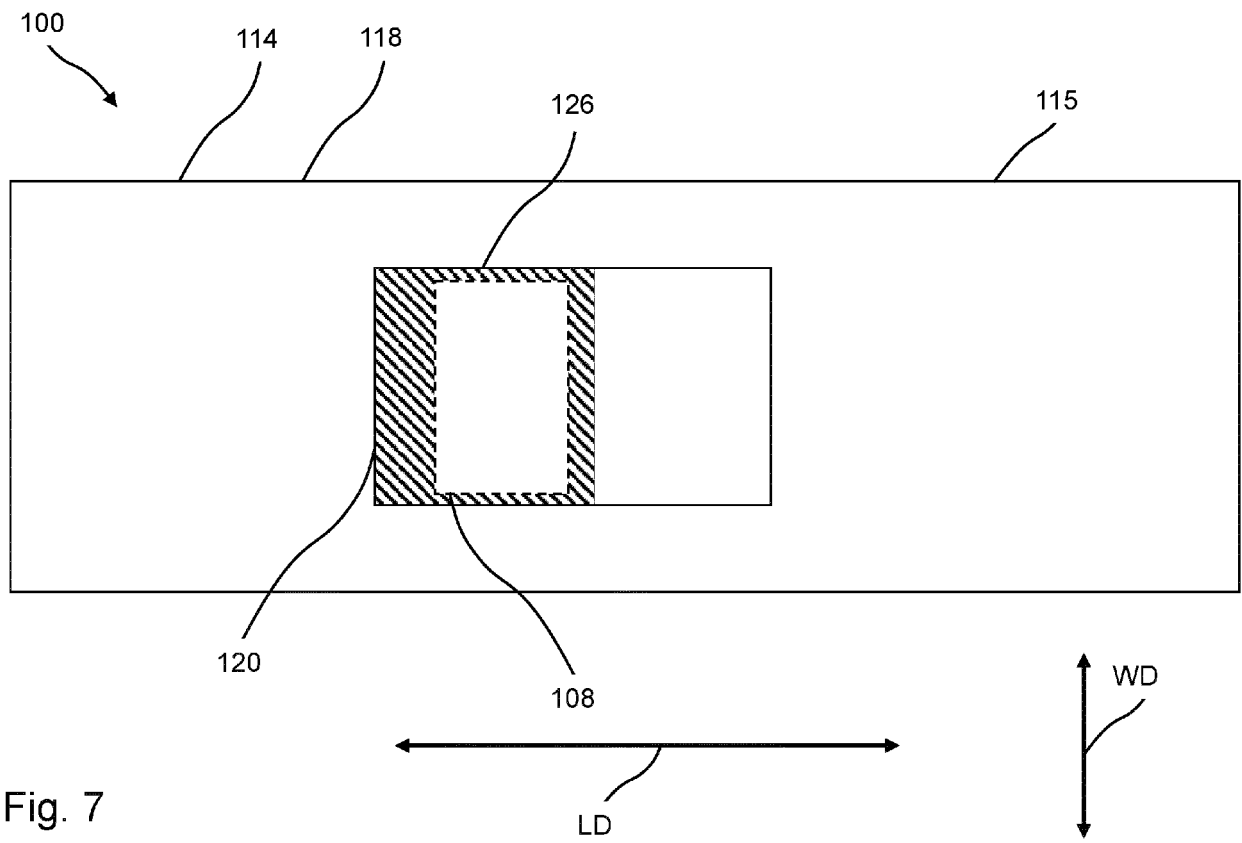


Fig. 6



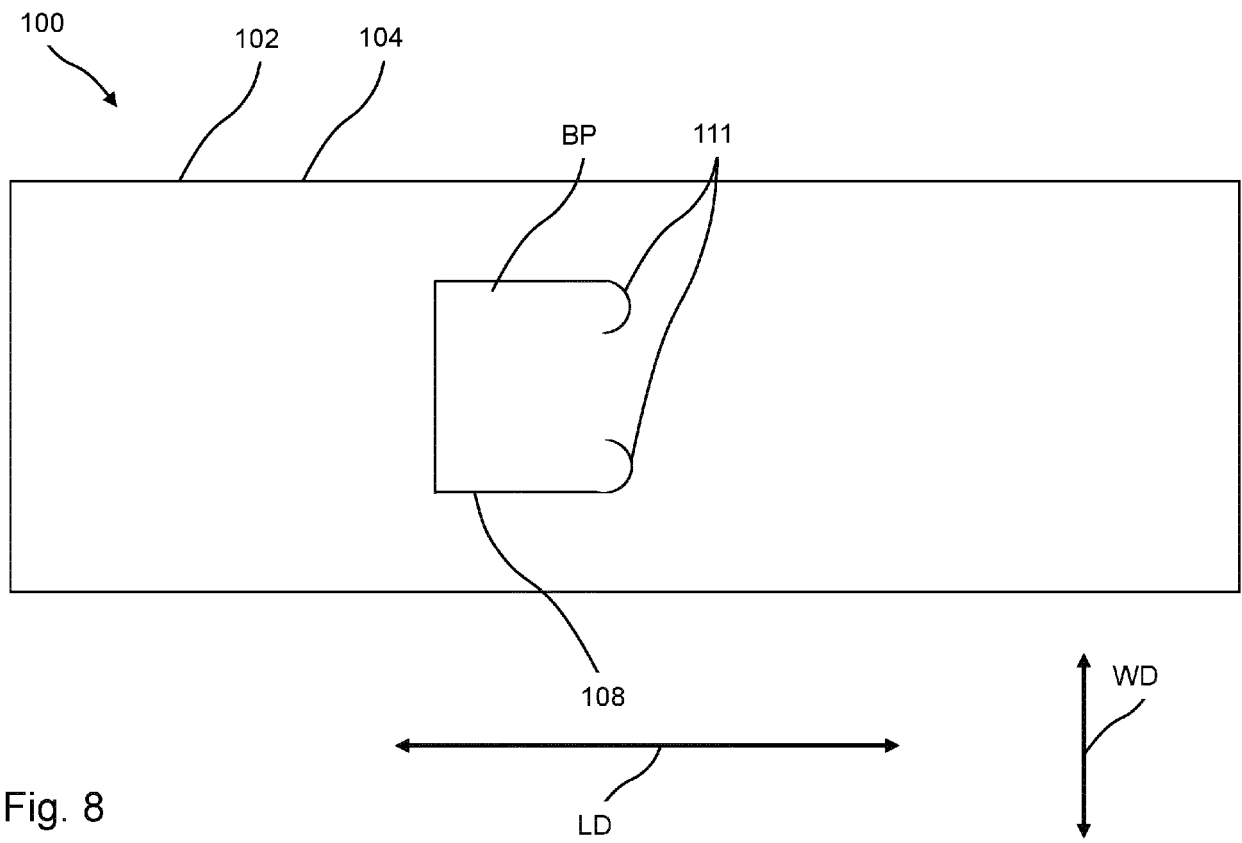


Fig. 8

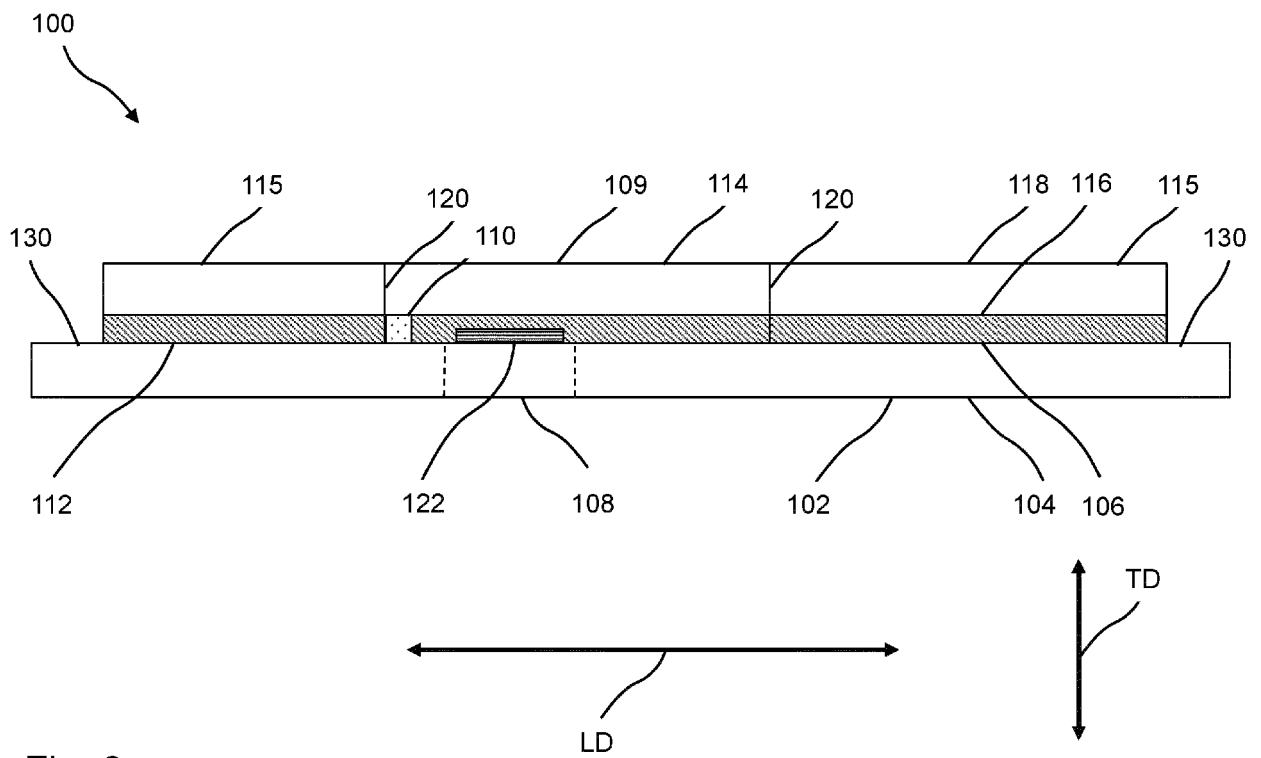


Fig. 9

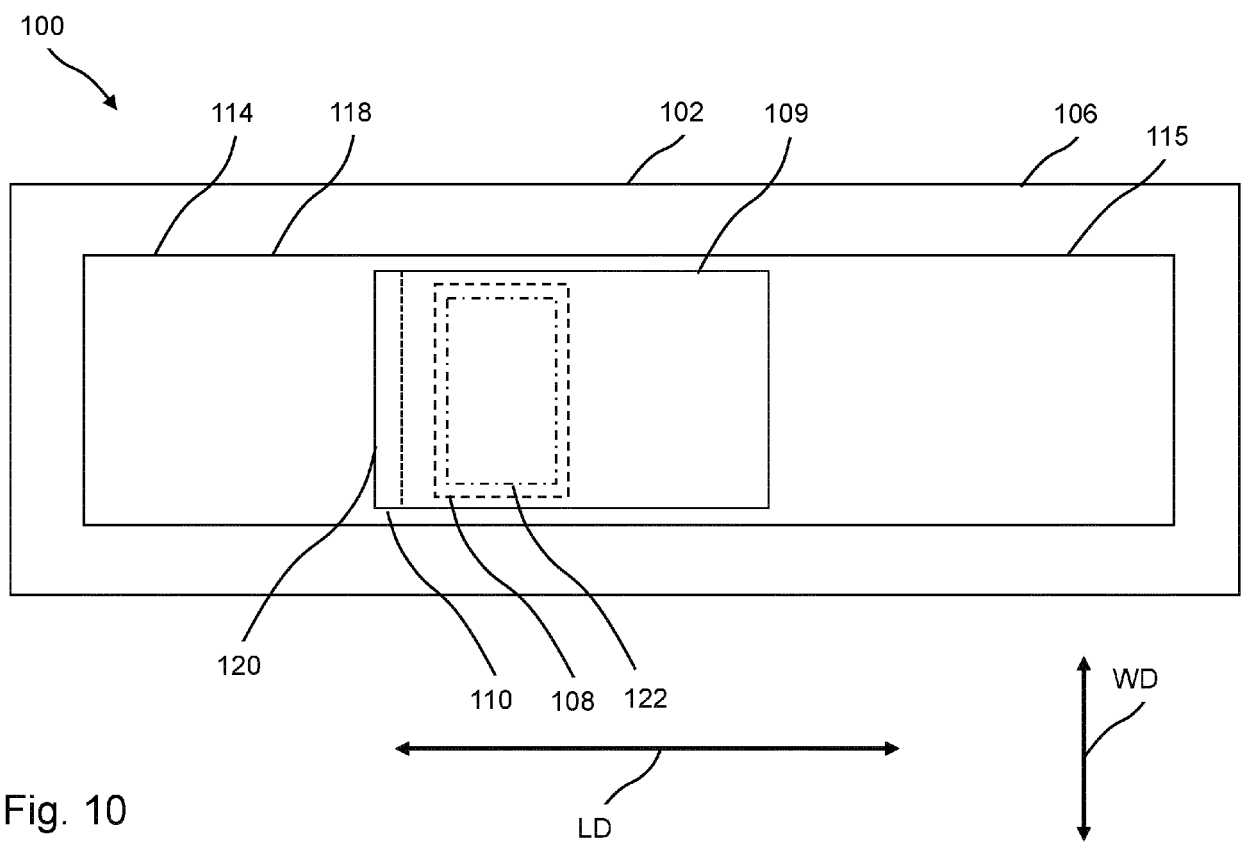


Fig. 10

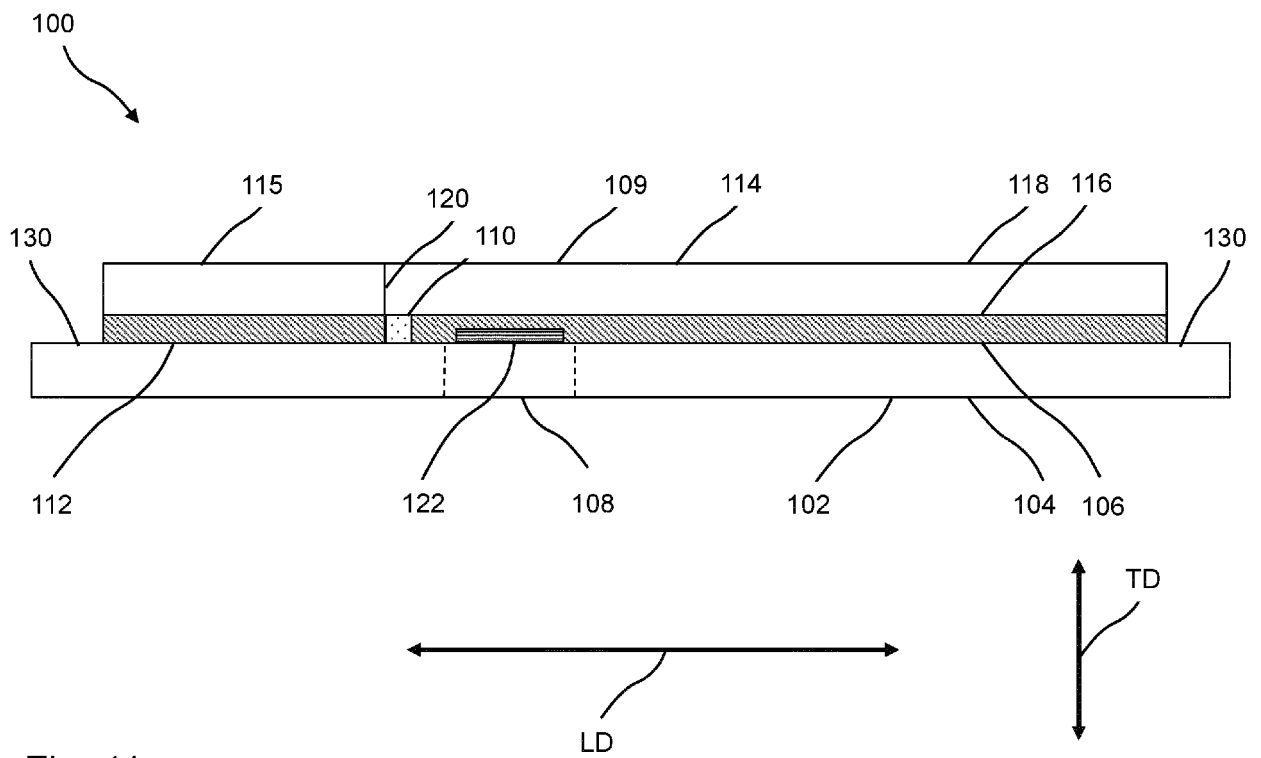


Fig. 11

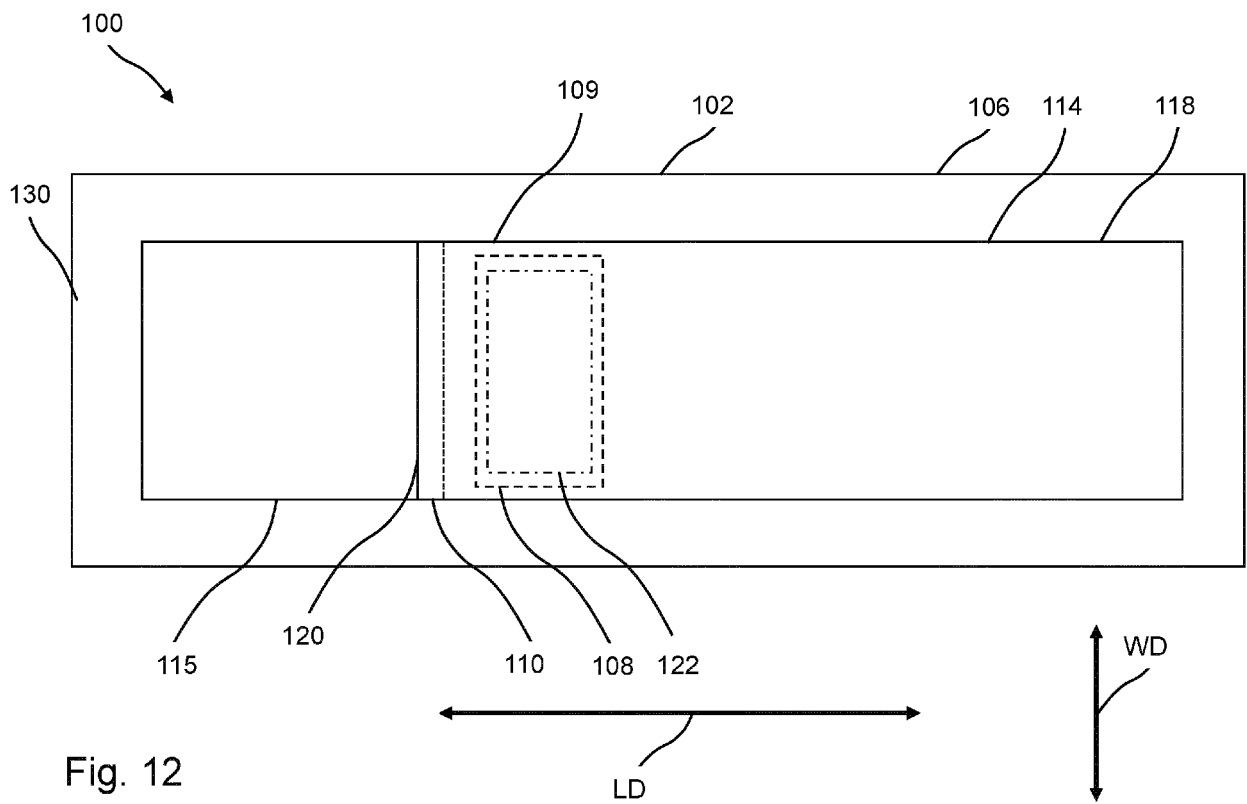


Fig. 12

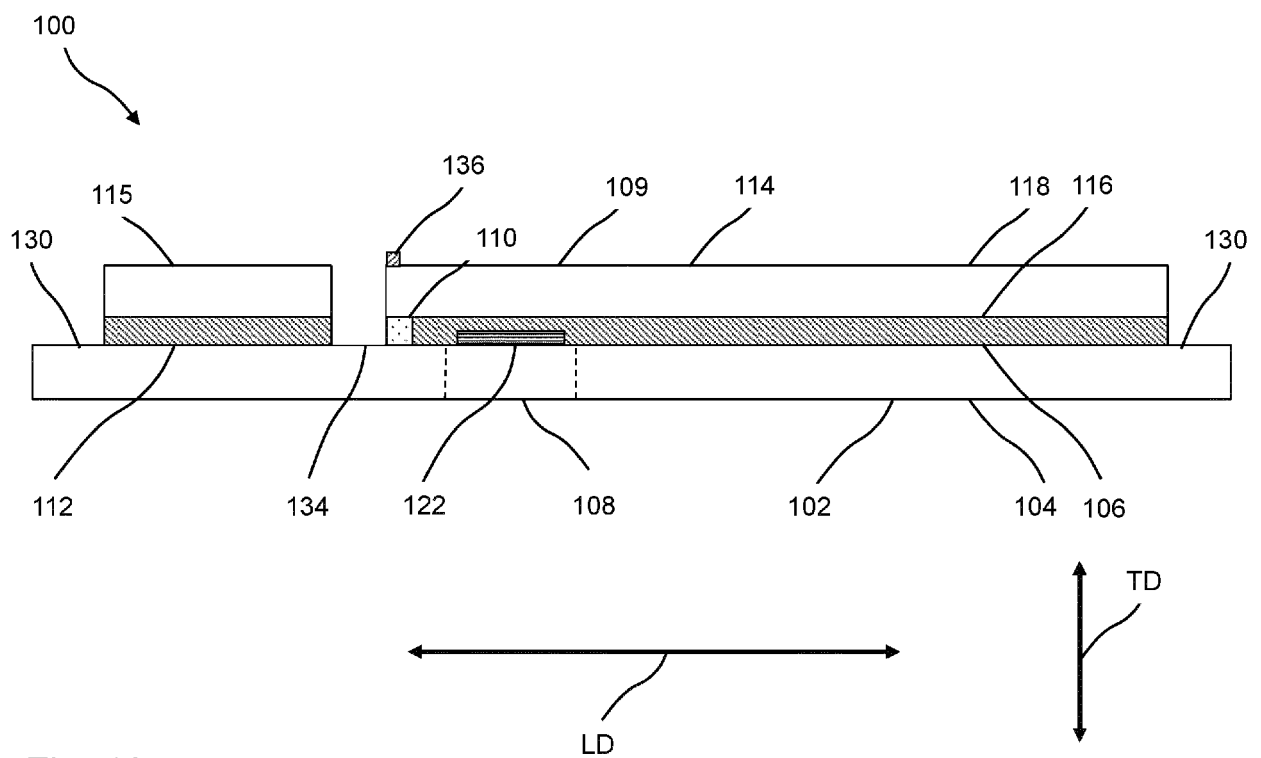


Fig. 13

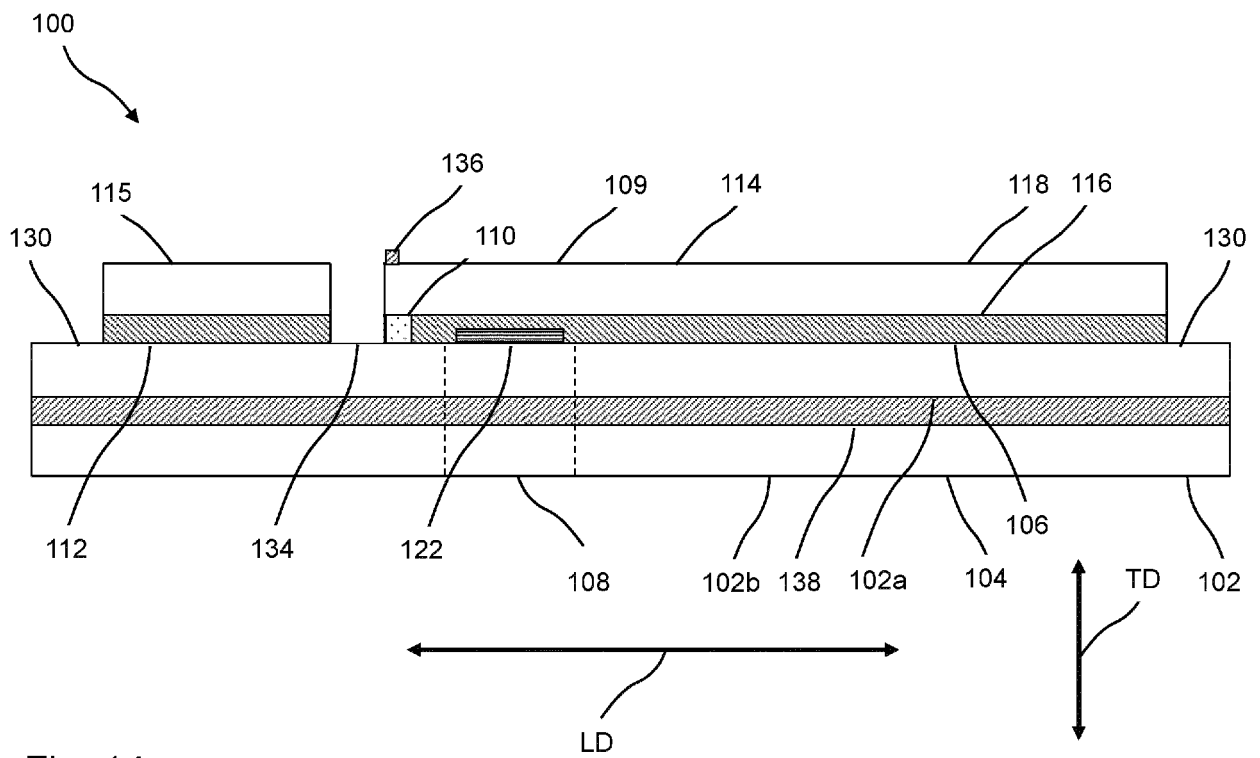


Fig. 14

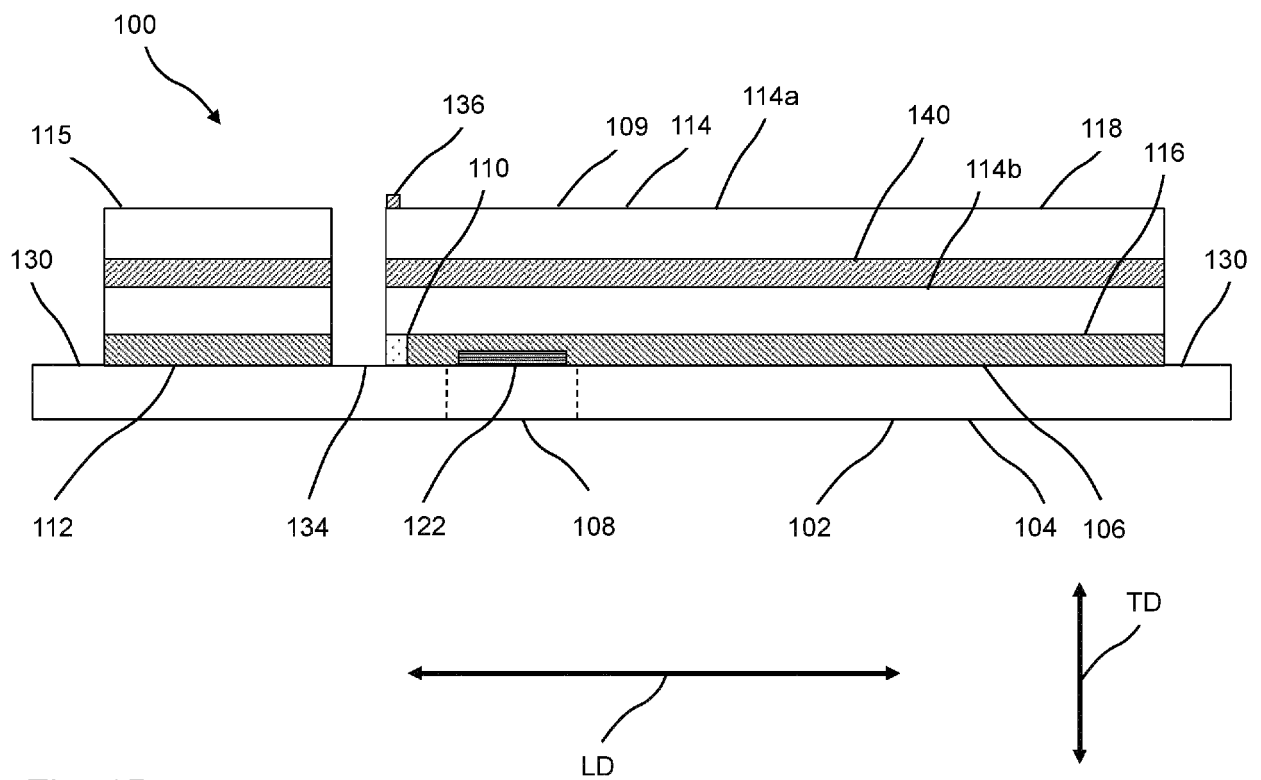


Fig. 15

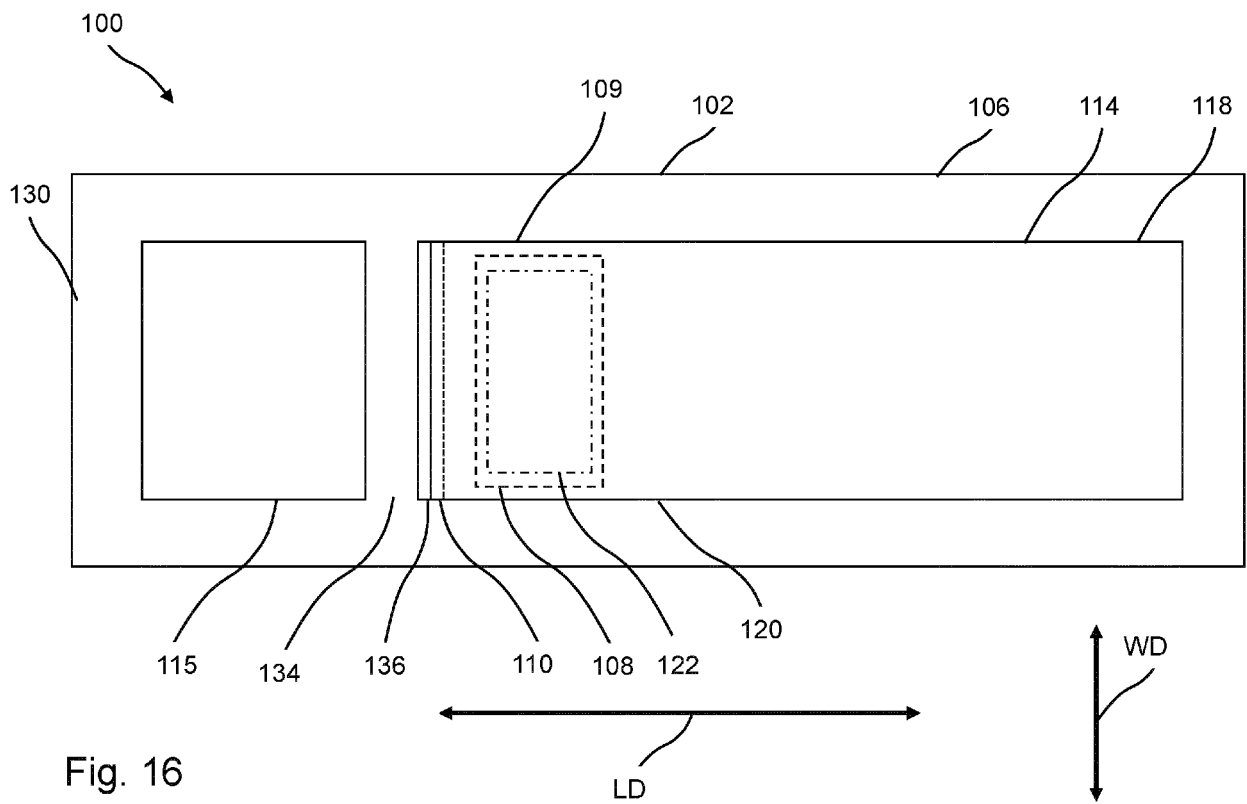


Fig. 16

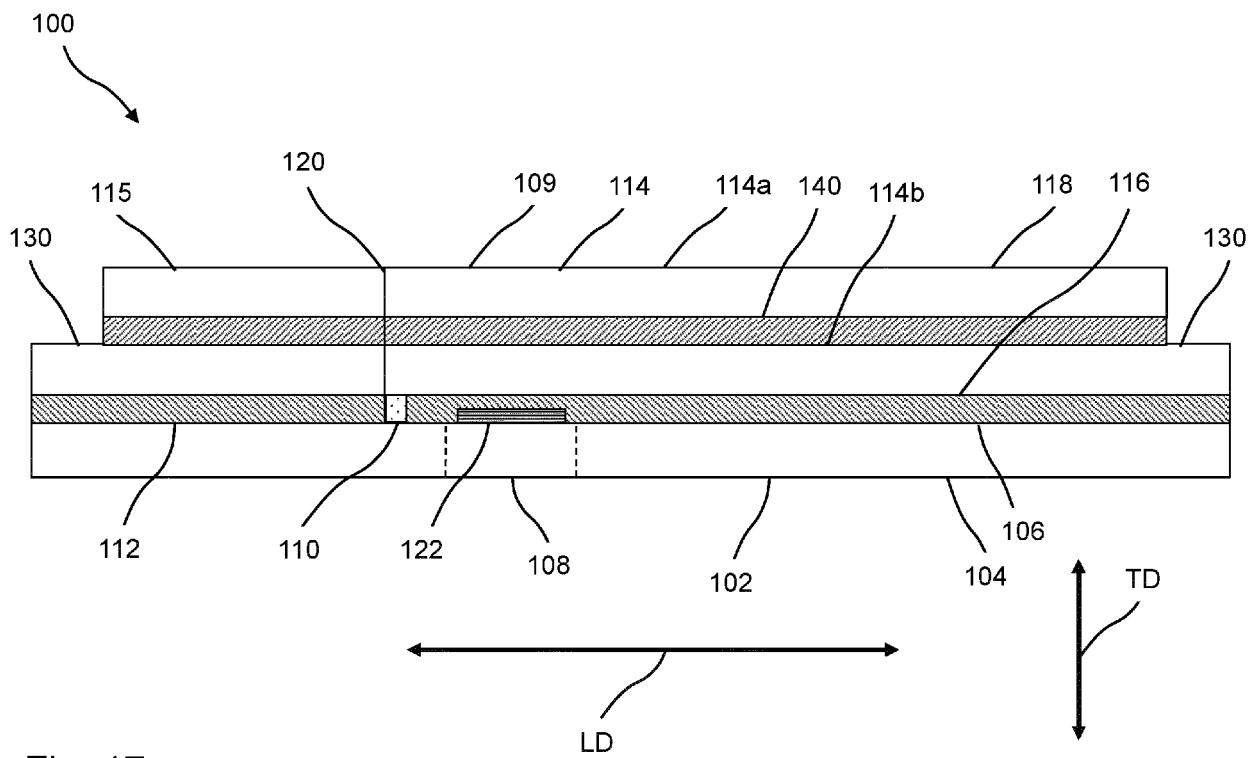


Fig. 17

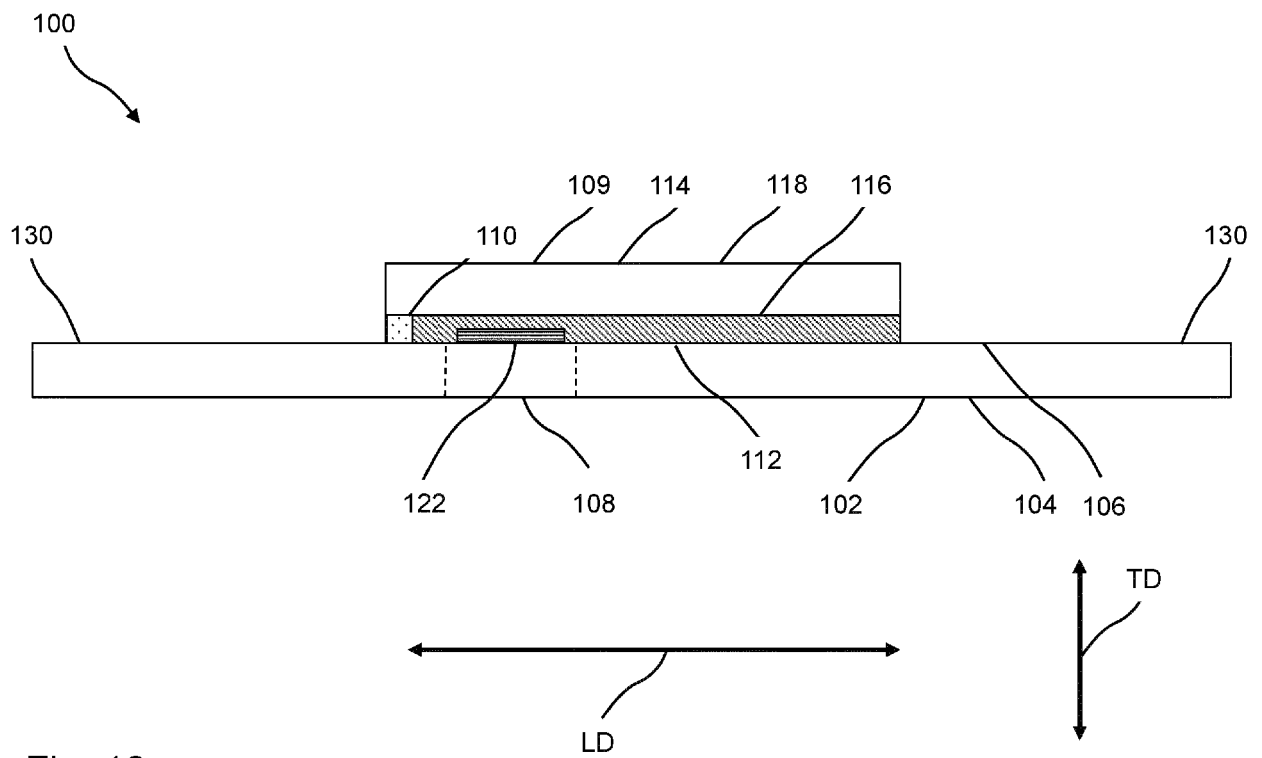


Fig. 18

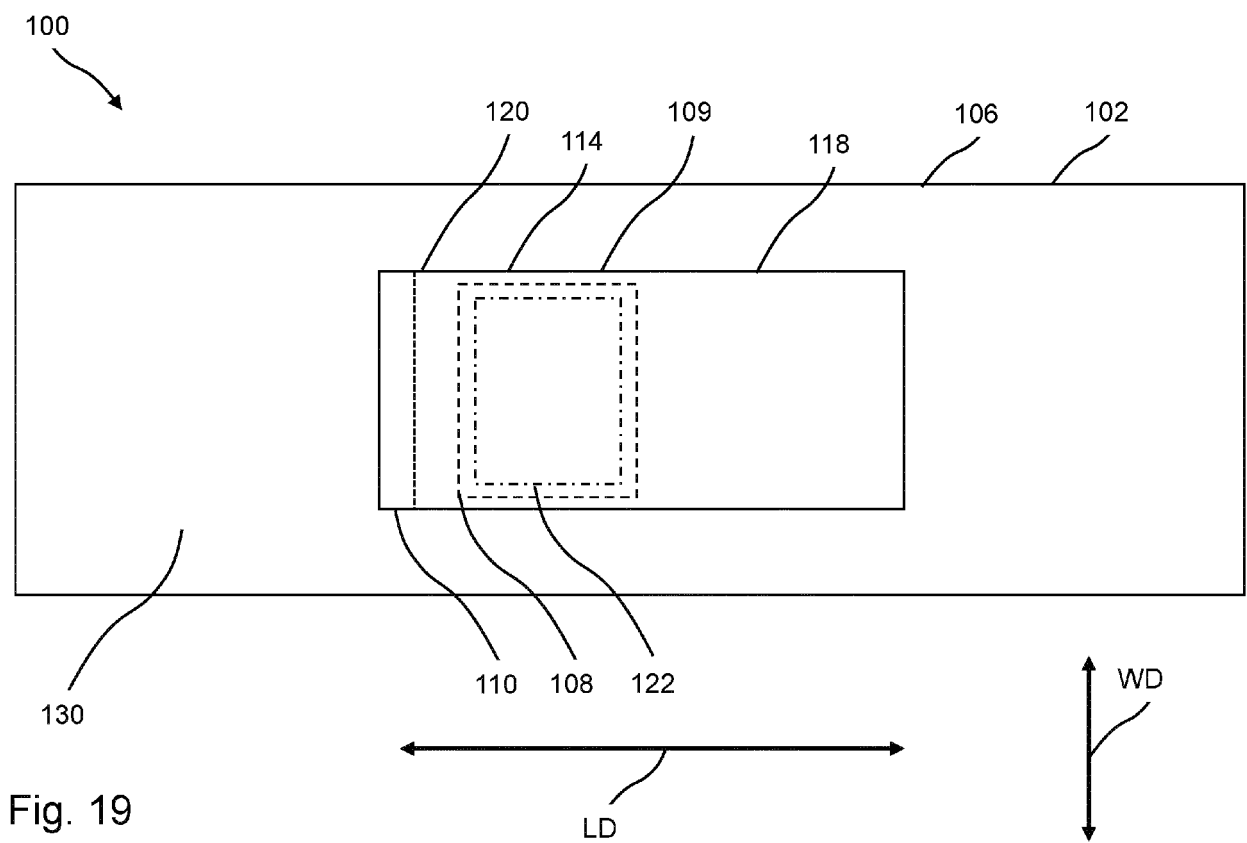


Fig. 19

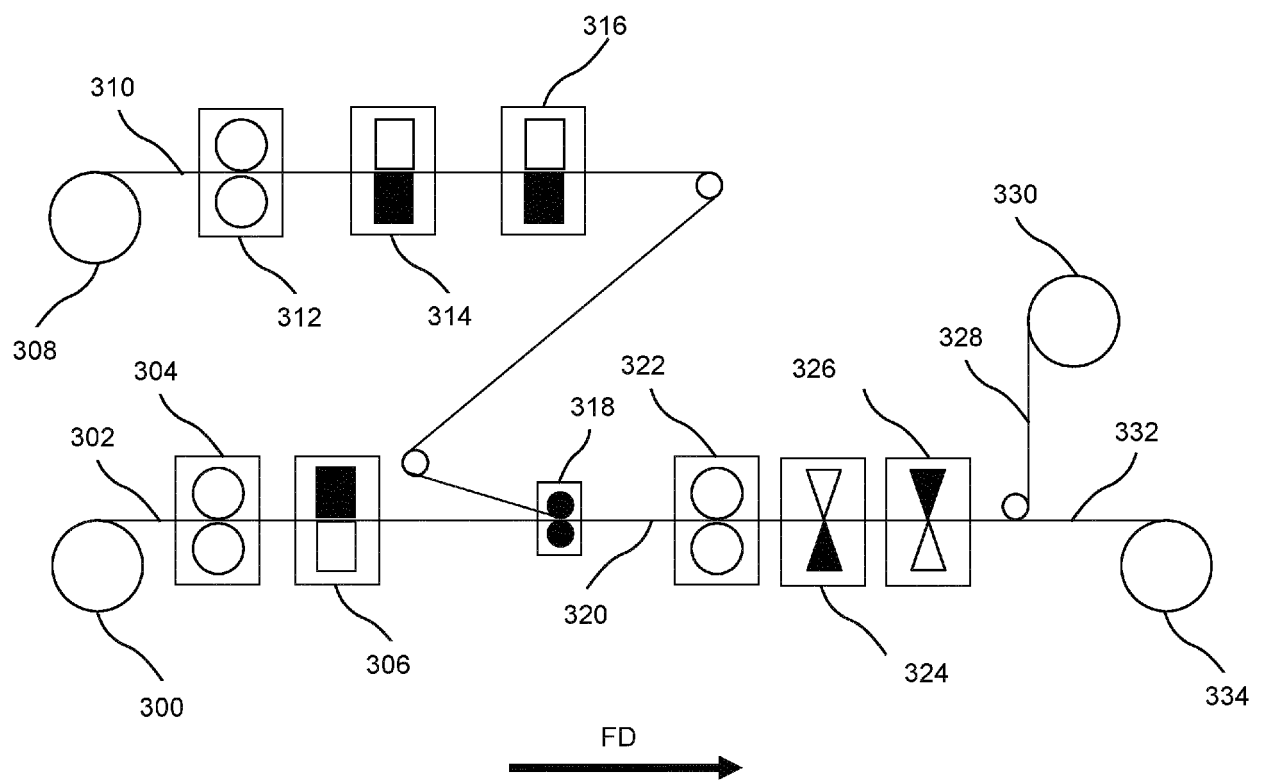


Fig. 20

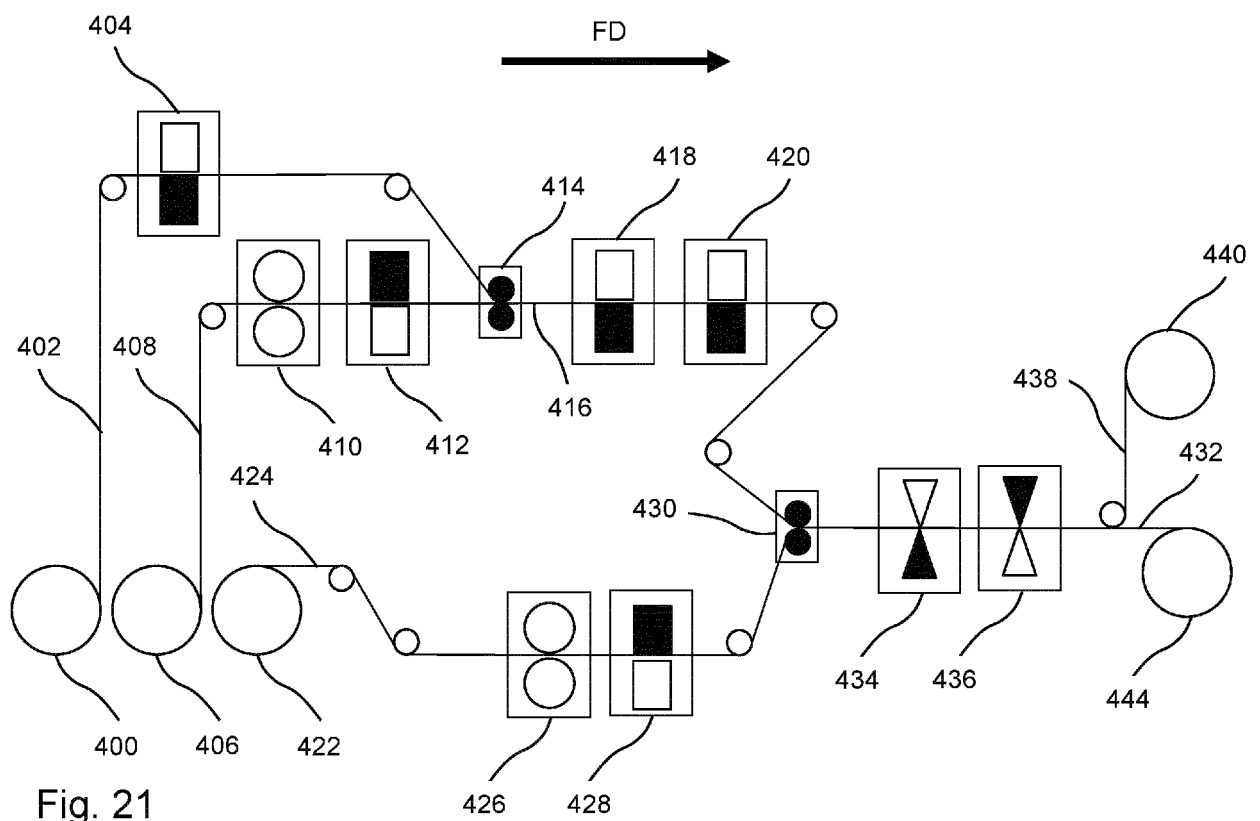


Fig. 21

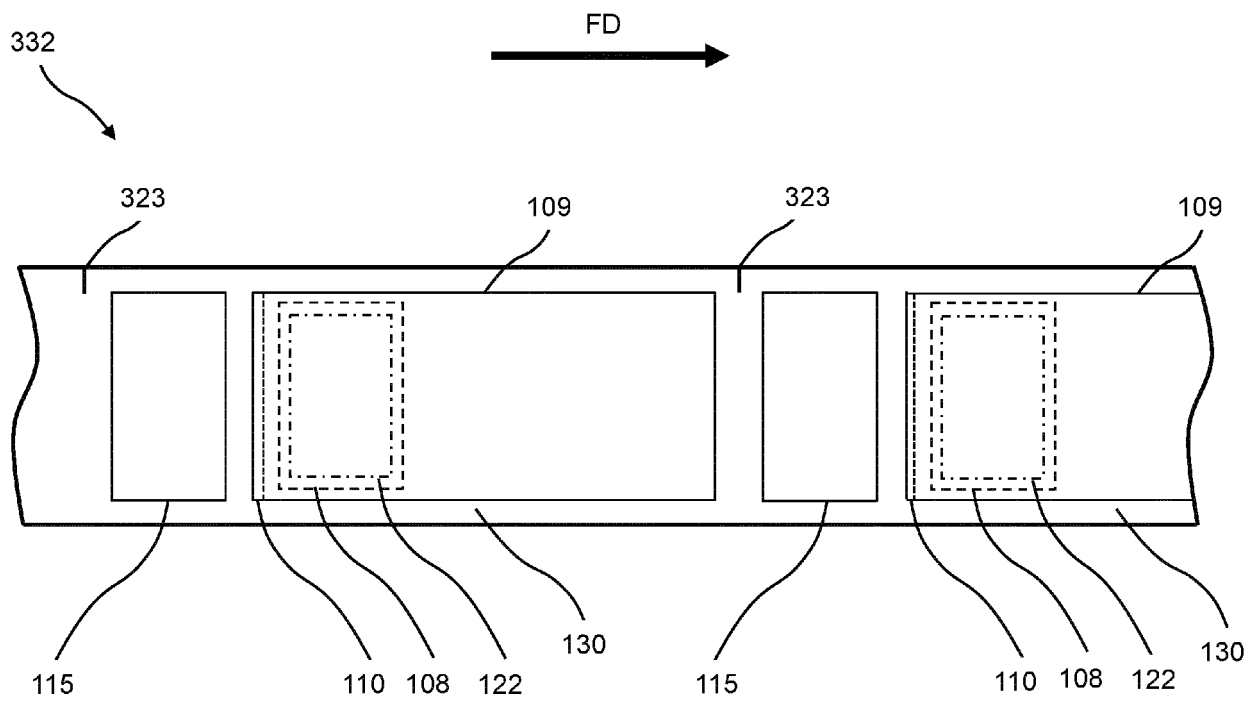


Fig. 22



EUROPEAN SEARCH REPORT

 Application Number
 EP 20 15 9427

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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	DE 10 2010 019867 A1 (FOCKE & CO [DE]) 15 September 2011 (2011-09-15) * figures 10,11,14 *	1,2,4,5,7-15	INV. B65D77/20 B65D85/10
X	DE 10 2015 016456 A1 (FOCKE & CO [DE]) 22 June 2017 (2017-06-22) * figures 11,12 *	1,3,6,8-12	
X	DE 10 2009 034705 A1 (FOCKE & CO [DE]) 27 January 2011 (2011-01-27) * figures 12,15,19 *	1-5,7-15	
A	US 2014/314339 A1 (DOCHERTY RICHARD V [US]) 23 October 2014 (2014-10-23) * figure 2 *	1-15	
A	ES 2 288 592 T3 (ALCAN TECH & MAN LTD) 16 January 2008 (2008-01-16) * figures 14-16 *	1-15	
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		17 June 2020	Wimmer, Martin
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