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(54) PAPER, BREAD BAG AND METHOD FOR MANUFACTURE THEREOF

(57) Paper, which paper comprises different layers, including a cellulose layer (13) and a coating layer (17), such as for setting the moisture permeability, wherein the coating layer is situated on a first side (11) of the cellulose layer and a masking layer (16) is present on a second side(12) of the cellulose layer, which masking layer is provided with a predetermined pattern and comprises a binder material which impregnates the cellulose layer, wherein the cellulose layer has a specific weight of at most 60 g/m^2 and a Gurley (ISO5636-5) air resistance of at most 100 seconds, wherein the masking layer has penetrated through the cellulose layer to the first side.

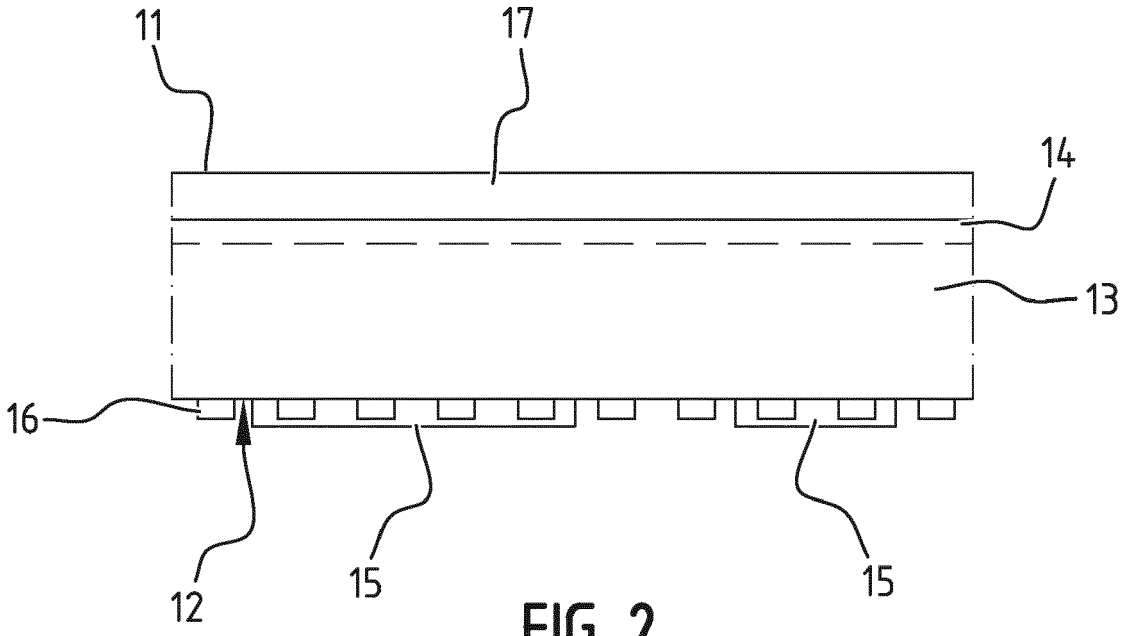

FIG. 2

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Description

FIELD OF THE INVENTION

[0001] The invention relates to paper of combined layers comprising a cellulose layer and a coating layer for setting the moisture permeability, wherein the coating layer is situated on a first side of the cellulose layer.
The invention likewise relates to a bread bag on the basis of said paper.

[0002] The invention further relates to a method for manufacturing a bread bag, comprising the steps of:

- Providing a cellulose layer with a first side and a second side;
- Applying a coating layer to the first side;
- Forming bread bags from the combined layers.

BACKGROUND OF THE INVENTION

[0003] Such a bread bag is known from BE 1022151. This relates to a bread bag of paper which has been treated and thereby consists of combined layers. The known bread bag is provided with a coating layer of vegetable oil, such as a modified vegetable oil. With this green coating layer the bread bag meets the requirements of recyclability and can meet the requirements of compostability. The coating is particularly applied on the outer side. When an imprint is desired, it is arranged under the coating.

[0004] It has been found that some customers do not like the appearance of the known bread bag. It is possible that the vegetable oil, which is more viscous than a conventionally applied coating on the basis of paraffin (mineral oil), spreads out too much, as well as permeates the paper. A conventional bread bag with a mineral oil-based coating however also has such aesthetic objections.

SUMMARY OF THE INVENTION

[0005] It is therefore a first object of the invention to provide paper with which bread bags and, if necessary, also other types of bag can be manufactured. It is a second object of the invention to provide an improved and particularly aesthetically improved bread bag. It is a third object of the invention to provide a method therefor.

[0006] According to a first aspect, paper is for this purpose provided which is suitable for manufacturing bread bags, which paper comprises different layers, including a cellulose layer and a coating layer, such as for setting the moisture permeability, wherein the coating layer is situated on a first side of the cellulose layer and a masking layer is present on a second side of the cellulose layer, which masking layer is provided with a predetermined pattern and comprises a binder material which impregnates the cellulose layer, and wherein the masking layer has penetrated through the cellulose layer to the first side, wherein the cellulose layer has a specific weight of at most 60 g/m^2 and a Gurley (ISO5636-5) air resistance of at most 100 seconds.

[0007] In a second aspect a bread bag of combined layers is provided, which comprises a cellulose layer and a coating layer for setting the moisture permeability, wherein the coating layer is situated on a first side of the cellulose layer. The coating layer is here situated on an inner side of the bread bag and the cellulose layer has a specific weight of at most 60 g/m^2 and a Gurley (ISO5636-5) air resistance of at most 100 seconds. A masking layer is moreover present on a second side of the cellulose layer, which masking layer is provided with a predetermined pattern and comprises a binder material which impregnates the cellulose layer locally, and wherein the masking layer has penetrated through the cellulose layer to the first side.

[0008] In a third aspect a method is provided for manufacturing a bread bag, comprising the steps of: (1) providing a cellulose layer with a first side and a second side, wherein the cellulose layer has a specific weight of at most 60 g/m^2 and a Gurley (ISO5636-5) air resistance of at most 100 seconds; (2) applying a masking layer to the second side in accordance with a predetermined pattern, this masking layer comprising a binder material which impregnates the cellulose layer and wherein the masking layer permeates the cellulose layer to the first side; (3) applying a coating layer to the first side of the cellulose layer; (4) forming bread bags from the combined layers.

[0009] In a further aspect the paper according to the invention is used to package sliced meats and/or cheese and/or to package vegetables and/or fruit.

[0010] It has been found that by arranging the combination of a masking layer on the outer side and the coating layer on the inner side a bread bag is obtained which is aesthetically attractive, has a desired moisture permeability and, at least in determined embodiments, is moreover recyclable and may also be compostable in accordance with set standards. The per se transparent or white masking layer appears to become opaque in combination with the coating layer. This effect is based on the fact that the masking layer obstructs the oily material of the coating layer and that the paper retains its original colour at the position of the masking layer. The partial penetration of the oily material of the coating layer into the cellulose layer has been found to produce an increase in the transparency of the paper in a uniformly distributed manner, and particular at positions where there is no masking layer.

[0011] It has further been found that the masking layer here affects the coating layer, despite the two layers being arranged on opposite sides of the paper, when paper is used with a relatively low specific weight, which is comparatively porous. Particularly suitable are types of paper which are open or semi-open. The porosity of paper is measured with the Gurley air resistance. Semi-open paper has a (Gurley) air resistance of at most 100 seconds and open paper has an air resistance of at most 20 sec-

onds. The air resistance according to the invention is preferably at most 60 seconds, and more preferably at most 40 seconds. More preferably, the paper is furthermore light, with a specific weight of at most 50 g/m^2, still more preferably at most 40 g/m^2. It is suspected, without wishing to be bound thereby, that the masking layer which is applied as aqueous layer and which permeates the cellulose layer has a repelling effect on the previous non-polar coating layer. It can be of influence here that the coating layer, which is applied at a temperature higher than room temperature so as to ensure good spreading, cools more quickly because of the contact with the aqueous masking layer, whereby the viscosity increases more quickly than in the absence of the - aqueous - masking layer. It is noted here that the masking layer is applied in accordance with a predetermined pattern, which appears to enlarge the boundary surface between masking layer and coating layer.

[0012] The masking layer comprises here a binder material which penetrates the paper. Good results have been obtained with binder material chosen from the group of polyvinyl acetate, acrylate (co)polymers, polyamide, polyurethane, lignin resin and/or combinations thereof and copolymers therewith. It is an additional advantage of this type of binder material that it is dispersible or even (partially) soluble in water, so that the masking layer can be applied as an aqueous solution. At least one of a polyacrylate and a polyvinyl acetate is preferably present.

[0013] Besides a binder material, the masking layer preferably also comprises a resin and/or a wax, for instance a wax on the basis of polyester, epoxy, polyamide, polysulfonic acid and the like. The amount of resin and wax is preferably at most 20% by weight on the basis of the dry substance content of the composition of the masking layer. The amount of binder material can be up to 90% by weight. In the case that a dye is present, this amount is generally smaller. The masking layer is more preferably arranged as a composition with 40-60% by weight water of the whole composition (so 80-120% by weight relative to the dry substance content, including optionally present dye or pigment). The water content is more preferably greater than the dry substance content.

[0014] The coating layer preferably comprises a vegetable oil. This allows recycling of the paper. There is moreover no risk of mineral oil coming into contact with the bread or possible other foodstuff in the bag. Examples of vegetable oils are, among others, palm oil, soybean oil, sunflower oil, olive oil, almond oil, canola oil, linseed oil, corn oil. The oil is preferably applied as an ester of the fatty acid, for instance as a glyceride of the fatty acid, as is known to the skilled person. The coating layer is more preferably applied at an increased temperature, such as a temperature above 100°C. This results in a reduction of the viscosity of the vegetable oil. It is moreover suspected that at the increased temperature the oil also mixes at least partially with the masking layer or at least a top layer thereof. This is advantageous for the bonding. It is not precluded that this mixing further reduces the permeation of the oil toward the cellulose layer.

[0015] The coating layer is preferably applied in an amount of more than 3 g/m^2, such as 4-15 g/m^2. For open paper the amount of coating layer is more preferably more than 6 g/m^2, for semi-open paper the amount of coating layer more preferably lies in the range of 4-8 g/m^2. It has been found that the amount of coating layer can be limited owing to the combination of the masking layer and the coating layer. With an increase in the amount of binder material in the masking layer the amount of coating layer appears to decrease more strongly.

[0016] Because of the presence of the masking layer, a coating layer of for instance 9 g/m^2 provides for a lower moisture permeability than that of 7 g/m^2. Without masking layer, a minimum in the moisture permeability is already reached at a lower amount.

[0017] In a further embodiment the masking layer comprises a dye. An advantageous dye is a dye on the basis of inorganic pigment, such as a white dye comprising for instance calcium carbonate particles and/or titanium dioxide. This has been found to be particularly advantageous for open paper. The dye particles are found to help in reducing penetration of the oily material of the coating layer through the paper, and thereby in reducing the necessary thickness of the coating layer in order to obtain a desired moisture permeability.

[0018] In yet another embodiment the cellulose layer comprises a mixture of long fibre and short fibre, with at least 40% long fibres. Paper with a relatively large proportion of long fibres is highly suitable as packaging material for foodstuffs, such as bread, more preferably at least 50% or even at least 70%. It has been found that paper with a very high percentage of long fibres, such as 70% or even 80%, is very useful in obtaining thin and open or semi-open paper, i.e. for instance paper with a specific weight of less than 50 g/m^2 or even 40 g/m^2 and a Gurley air resistance of less than 50 seconds. In the context of the invention 'short fibre' refers to cellulose originating from for instance hardwood or recycled paper and having a length in the order of 0.5-3 mm, more specifically 0.7-2.5 mm, and a diameter of for instance 20-30 μm. 'Long fibre' refers to cellulose primarily originating from softwood and more particularly having a length in the order of 2.5-5.0 mm, more specifically 2.7-4.5 mm, and a diameter of for instance 30-45 μm.

[0019] In yet another embodiment the cellulose layer has a more closed structure on a first side than on an opposite second side. For bread bags it is not unusual to use asymmetrical paper, with a more matt or open side and a second, more shiny or closed side. The masking layer is here applied to the more matt or open side, which in a bread bag is preferably situated on the outer side. The closed structure is for instance obtained in that the cellulose layer further comprises a sub-layer on the first side, which gives the paper a more closed structure on this side. In a first example the sub-layer comprises a filler material or a fibrous material in addition to cellulose.

In a second example the sub-layer comprises calcium carbonate in addition to cellulose, resulting in a calcium carbonate layer. In a further example the more closed structure is obtained by processing the cellulose layer, for instance by subjecting it to additional calendering or providing it with a machine glazing. Combinations and/or further constituents are not precluded.

[0020] In another embodiment a cellulose layer is applied which is open to the same extent on the first and the second side. This is for instance achieved by treating the cellulose layer on both sides so that a sub-layer results, for instance with machine glazing. This is also an advantageous option for thin paper, for instance with a specific weight of at most 50 g/m^2, such as 35-50 g/m^2.

[0021] In yet another embodiment the surface of the paper has on the first side a surface roughness of at most 100 ml/min in accordance with ISO 8791-2 and on the second side a surface roughness of at least 100 ml/min in accordance with ISO 8791-2. The second side is hereby highly suitable for arranging an imprint, while the first side is suitable for application of the coating layer.

[0022] The masking layer is preferably applied in a repetitive configuration. It has been found that the masking layer preferably covers 10-70% of the surface area of the cellulose layer. The pattern of the masking layer preferably comprises repetitive elements. The repetitive elements preferably have a zero-dimensional or one-dimensional form, such as dots, lines, circles. It is further possible for the repetitive elements to have other forms, such as zigzag lines, stepped forms, sine shapes, rectangles, squares, triangles. The repetitive elements more preferably have a fixed width. The repetitive elements are still more preferably situated at a uniform mutual distance, whereby a pattern of lines and intermediate spaces results. The perpendicular distance between the repetitive elements is more preferably at least 4 times greater than the width of the repetitive elements. The perpendicular distance is still more preferably a maximum of 3 times or even a maximum of 2 times the width of the repetitive elements.

[0023] Instead of and/or in addition to a regularly repeating element, a watermark can also be arranged in this way. Although the watermark formally lies on the paper, it shines through the paper and appears to be located in the paper. The watermark can comprise an image or structure chosen as desired.

[0024] It has further been found that when applying a masking layer with a uniform pattern, such as a pattern of parallel lines at uniform mutual distances, the lines nevertheless do not have a wholly uniform width after application of the coating layer. This effect is particularly achieved in somewhat rougher (open) types of paper, such as for instance unbleached paper with a higher percentage of long fibres. Such paper types typically have a surface roughness on the first side of 100-250 ml/min (ISO 8791-2), such as 150-200 ml/min. Such a slight variation gives the appearance that the pattern is actually located in the paper, rather than being situated on it. This particular effect is achieved particularly when the effective amount of pigment is relatively low (for instance up to 30% by weight on the basis of the dry substance content, preferably at most 10% or even without pigment), or the pigment is chosen with a fine particle size distribution (for instance 90% by weight smaller than 10 micron or even 80% by weight smaller than 5 micron).

[0025] Advantageous results are achieved by applying the aqueous composition of the masking layer with a printing process. Use is particularly made here of a printing process wherein a pattern is transferred with one or more rolls. Examples thereof are rotogravure and flexography (abbreviated to flexo) printing. Not only is the aqueous composition transferred during use of a roll, but pressure is also exerted. This is deemed advantageous because the masking layer thereby permeates even further into the cellulose layer. This achieves that the cellulose layer has a reduced porosity underneath the masking layer as well, and becomes substantially impermeable to the oily coating layer.

[0026] In an advantageous embodiment an imprint is present on the second, preferably more open side of the cellulose layer, which is situated on an outer side of the bread bag. Arranging of the imprint on the outer side is commercially desirable and has been found to be effective, despite the fact that the second side is more open. The imprint is preferably arranged before the coating layer is applied.

[0027] The above stated layers and options can be used in the method for manufacturing the bread bag of combined layers. Paper comprising a cellulose layer and optionally further layers, such as a calcium carbonate layer, is generally used as a starting point. The paper can here be provided on the first side with a more closed structure than on the second side. The masking layer and, if applicable, the imprint are then applied to the paper. This is followed by the coating layer. This coating layer is preferably applied using a roller, as further elucidated in the application BE1022151, at a temperature above 100°C. The masking layer is more preferably applied prior to an optional imprint.

[0028] When the paper with imprint, masking layer and coating layer is complete, it is processed into bread bags. If desired, a strip of plastic can be adhered to a strip of paper beforehand. This makes it possible to manufacture window bags. The process for manufacturing bread bags from paper is per se known. Bread bags are distinguished from other bags, such as bags for flour, by the shape of the bag and/or the properties of the paper. Besides being used as bread bags, the paper of combined layers according to the invention including a masking layer and a coating layer is also suitable for other applications. An example is the use as packaging paper for vegetables and fruit, sliced meats and/or cheese, for instance in the form of sheets of paper. This invention can also serve for vegetable and fruit bags; the coating layer here provides for a water barrier for the wet vegetables and fruit. It is here also advantageous for the coating layer to be

situated on the inner side of the bag.

[0029] In a further embodiment, which is particularly suitable for paper for use as packaging paper for sliced meats and/or cheese, a first coating layer can be present on the first side and a second coating layer on the second side. This provides for an even better resistance to grease. By applying the masking layer an optimal property is here once again achieved without the use of too much oil (i.e. more than is visually attractive). Very good results have been achieved with this embodiment, wherein it has been found that, despite a large amount of coating layer, the paper has a good visual appearance and will thus be deemed acceptable by the consumer and the seller, partially due to the masking layer which is applied on only one side. Applying two coating layers makes it possible to apply a greater amount of coating layer to the paper, preferably more than 8 g/m^2, more preferably more than 10 g/m^2, more than 11 g/m^2 or even more than 12 g/m^2, such as 12-20 g/m^2. The current packaging paper for cheese and sliced meats, which is provided with a layer of plastic, can hereby be replaced with paper which is recyclable and/or compostable.

[0030] The specific embodiments discussed above and/or further elucidated in the following figure description can be applied to a bread bag as well as to the stated method and the paper.

BRIEF DESCRIPTION OF THE FIGURES

[0031] These and other aspects of the invention will be further elucidated with reference to the following figures:

Fig. 1A shows schematically a first embodiment of a bread bag in top view;
Fig. 1B shows schematically the bread bag of Fig. 1A in slightly opened position;
Fig. 2 shows a schematic cross-section of the paper used in the bread bag according to the invention; and
Fig. 3 shows a part of Fig. 1A, on which is shown the pattern obtained with the paper as shown in Fig. 2.

DETAILED DESCRIPTION OF ILLUSTRATED EMBODIMENTS

[0032] The figures are not to scale and are purely schematic. The same reference numerals in different figures refer to identical or similar elements.

[0033] Fig. 1A shows a bread bag 10 in a first embodiment. Fig. 1B shows the same bread bag 10 in a slightly opened position. The bread bag is made of paper with a first side 11 and a second side 12. The first side 11 is here situated on the inner side of bread bag 10. On second side 12 an imprint 15 has been arranged on the paper, here in the form of a letter B. Bread bag 10 is provided with a lower edge 21 and an upper edge 22, a front side 24 and a rear side (not numbered). Side flaps 23 are present between front side 24 and the rear side. Bread bag 10 is made by providing a sheet of paper with folds in suitable manner and then glueing a first side edge to a second side edge, thus forming a sleeve. After separating a strip of paper into individual units, a part of front side 24 is folded along lower edge 21 and glued on the rear side. The type of bread bag with an upper edge 22 which rises from front side to rear side in two steps is very favourable for this purpose.

[0034] Imprint 15 is generally arranged on the first side and covered with a coating layer. The coating layer traditionally comprises a mineral oil, although good results have also been achieved with a vegetable oil. After application, the oil soaks into the paper. Owing to the oil, the water vapour permeability is set, such that bread maintains a crispy crust without drying out too quickly.

[0035] Fig. 2 shows the paper which is applied in the bread bag 10 according to the invention. This paper is also referred to as a package of combined layers. The primary layer thereof is the cellulose layer 13, which in the shown embodiment is provided on one side with a smoother, less open, treated sub-layer 14. In an embodiment this sub-layer 14 is obtained by adding calcium carbonate on that side and/or by extra calendering and/or by filling with filler materials and/or refining fibres. This sub-layer 14 is for instance a layer which is filled with calcium carbonate (i.e. a cellulose layer comprising calcium carbonate, calcium carbonate layer for short). In another, advantageous embodiment sub-layer 14 is obtained by extra addition of short fibres and filler materials and additional calendering of paper. Cellulose layer 13 is chosen such that it is suitable for packaging foodstuff and is normally supplied including sub-layer 14 by a paper manufacturer. In yet another embodiment the cellulose layer is open to the same extent on the first and on the second side (for instance with a tolerance of a maximum of 10%). This is for instance achieved by treating the paper on both sides, for instance as machine-glazed paper. According to an advantageous embodiment of the invention, sub-layer 14, if present, is situated on first side 11, i.e. the side which will be situated on the inner side of bread bag 10 after folding and glueing. As before, the imprint is arranged on second side 12, which will later serve as outer side. Unlike before, this is the second side 12 with a more open structure than first side 11 or with a structure which is open to the same extent on first side 11 and second side 12. A masking layer 16 is arranged on second side 12, particularly as a water-based layer of technical varnish. In the illustrated embodiment the varnish is free of dye concentrate. Addition of a dye is however not absolutely precluded. Masking layer 16 is preferably applied by means of flexography. Applied to the first side is a coating layer 17 which comprises an oily material such as paraffin or vegetable oil. The use of palm oil or soybean oil or mixtures thereof is favourable. The oils are in particular modified in usual manner, i.e. into esters, for instance with glycerol. Coating layer 17 is preferably applied by having a roller run through a bath of melted oil and transferring the coating layer from the roller to the paper.

[0036] The presence of masking layer 16, which has penetrated to the first side, makes the paper less accessible to the oil of coating layer 17 on the first side. This has the result that less oil permeates the cellulose layer and that surprisingly good properties are obtained. In particular, the water vapour permeability lies in the same order of magnitude, even though less coating layer permeates into the cellulose layer at the positions where the masking layer has previously permeated into the cellulose layer of the bread bag. The aesthetic properties improve. It is suspected that when applied as aqueous suspension, masking layer 16 permeates partially into cellulose layer 13, 14 and there further closes pores of the cellulose layer 14.

[0037] Fig. 3 shows schematically a detail of bread bag 10 as shown in Fig. 1A. This shows the pattern which results from the use of the combination of masking layer 16 and coating layer 17. In this case masking layer 16 is applied in a pattern of parallel lines. On the inner side 11 of bread bag 10 the pattern is visible as dark lines 121 alternated with light lines. Dark lines 121 correspond to the positions where coating layer 17 is in contact with the cellulose layer. The light lines correspond to the positions where masking layer 16 is in contact with the cellulose layer. At first sight, it appears as if the light lines have been placed on the paper, but the paper has essentially retained its original colour at the position of masking layer 16, while it has become darker outside of this layer as a result of penetration of the oil of coating layer 17 into cellulose layer 13, 14. Nevertheless, the discoloration is less intense there than in conventional bags without masking layer 16.

Claims

1. Paper, which paper comprises different layers, including a cellulose layer and a coating layer, such as for setting the moisture permeability, wherein the coating layer is situated on a first side of the cellulose layer and a masking layer is present on a second side of the cellulose layer, which masking layer is provided with a predetermined pattern and comprises a binder material which impregnates the cellulose layer, wherein the cellulose layer has a specific weight of at most 60 g/m^2 and a Gurley (ISO5636-5) air resistance of at most 100 seconds, wherein the masking layer has penetrated through the cellulose layer to the first side.

2. Paper according to claim 1, wherein a first coating layer is present on the first side and a second coating layer on the second side.

3. Paper according to claim 1 or 2, **characterized in that** the pattern of the masking layer is a repetitive configuration and comprises repetitive elements, such as for instance a line as repetitive element.

4. Paper according to claims 1-3, wherein the masking layer further comprises a dye on the basis of inorganic pigment, such as a white dye.

5. Paper according to claims 1-4, wherein the coating layer comprises a vegetable oil.

6. Paper according to claims 1-5, wherein the coating layer has a weight of 3-25 g/m^2, preferably 4-15 g/m^2.

7. Paper according to claims 1-6, wherein the cellulose layer comprises a mixture of long fibre and short fibre, with at least 40% long fibres, more preferably at least 50% or even at least 70%.

8. Paper according to claims 1-7, wherein the cellulose layer has a Gurley air resistance of at most 60 seconds, more preferably at most 40 seconds.

9. Paper according to claims 1-8, wherein the cellulose layer has a specific weight of at most 50 g/m^2, preferably at most 40 g/m^2.

10. Paper according to claim 7, wherein the cellulose layer comprises a mixture of long fibre and short fibre, with at least 70% long fibres, wherein the cellulose layer has a Gurley air resistance of less than 50 seconds and a specific weight of less than 50 g/m^2.

11. Paper according to any one of the foregoing claims, wherein the cellulose layer is open to the same extent on the first and on the second side, preferably in that the cellulose layer is treated on both sides, thus forming a sub-layer, for instance with machine glazing.

12. Use of the paper according to any one of the foregoing claims as packaging paper for sliced meats and/or cheese, wherein the paper is preferably used in the form of sheets of paper.

13. Bread bag of combined layers, comprising a cellulose layer and a coating layer for setting the moisture permeability, wherein the coating layer is situated on the first side of the cellulose layer, which bread bag preferably comprises the paper according to any one of the foregoing claims 1-11, **characterized in that**

    - the coating layer is situated on an inner side of the bread bag;
    - the cellulose layer has a specific weight of at most 60 g/m^2 and a Gurley (ISO5636-5) air resistance of at most 100 seconds;
    - a masking layer is present on a second side of the cellulose layer, which masking layer is provided with a predetermined pattern and comprises a binder material which impregnates the cellulose layer locally, wherein the masking layer has penetrated through the cellulose layer to the

first side.

14. Bag for vegetables and/or fruit, comprising the paper according to any one of the claims 1-11, wherein the coating layer is configured as water barrier, wherein the coating layer is preferably situated on the inner side of the bag.

15. Use of the paper according to any one of the claims 1-11 and/or the bag according to claim 14 for packaging vegetables and/or fruit.

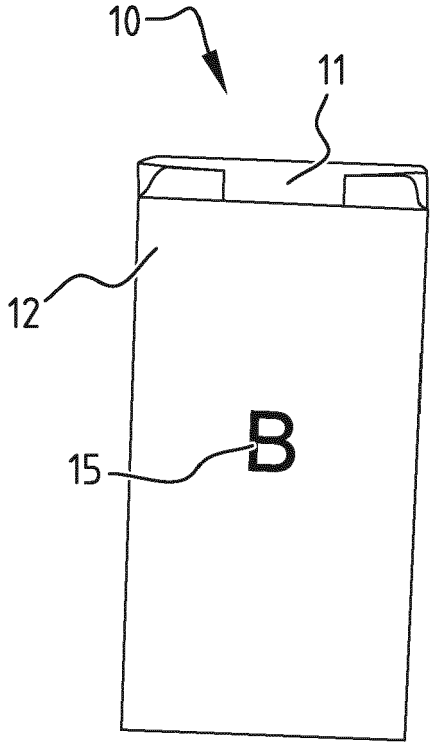

FIG. 1A

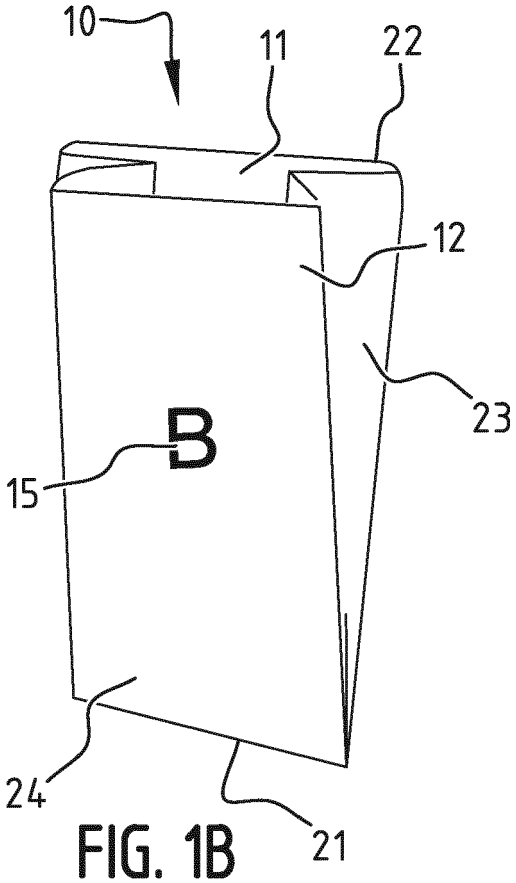

FIG. 1B

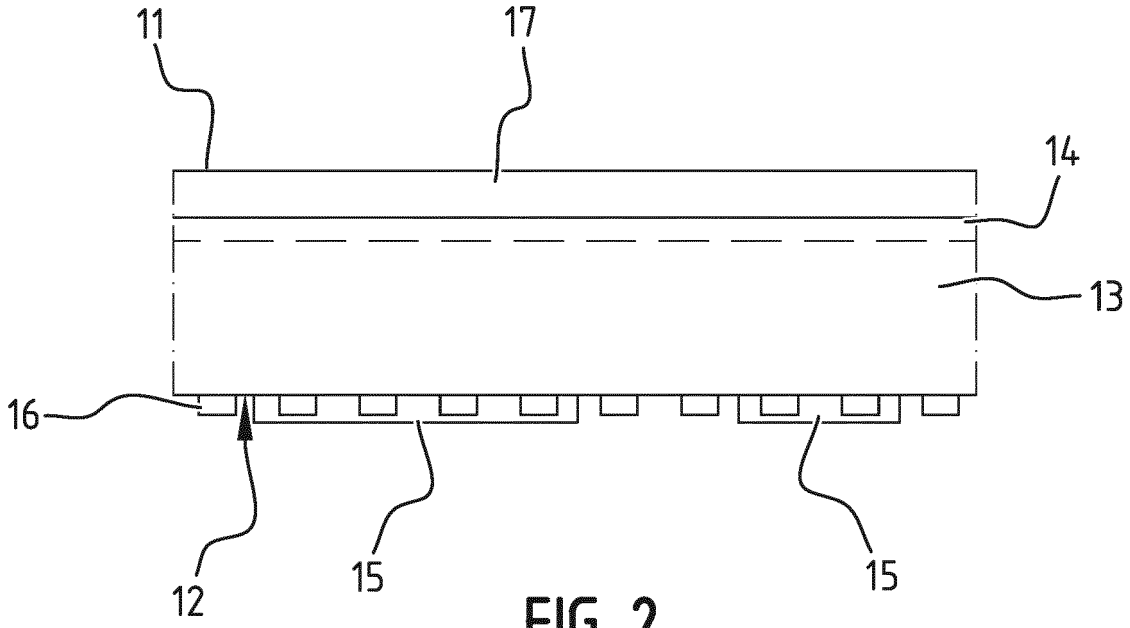

FIG. 2

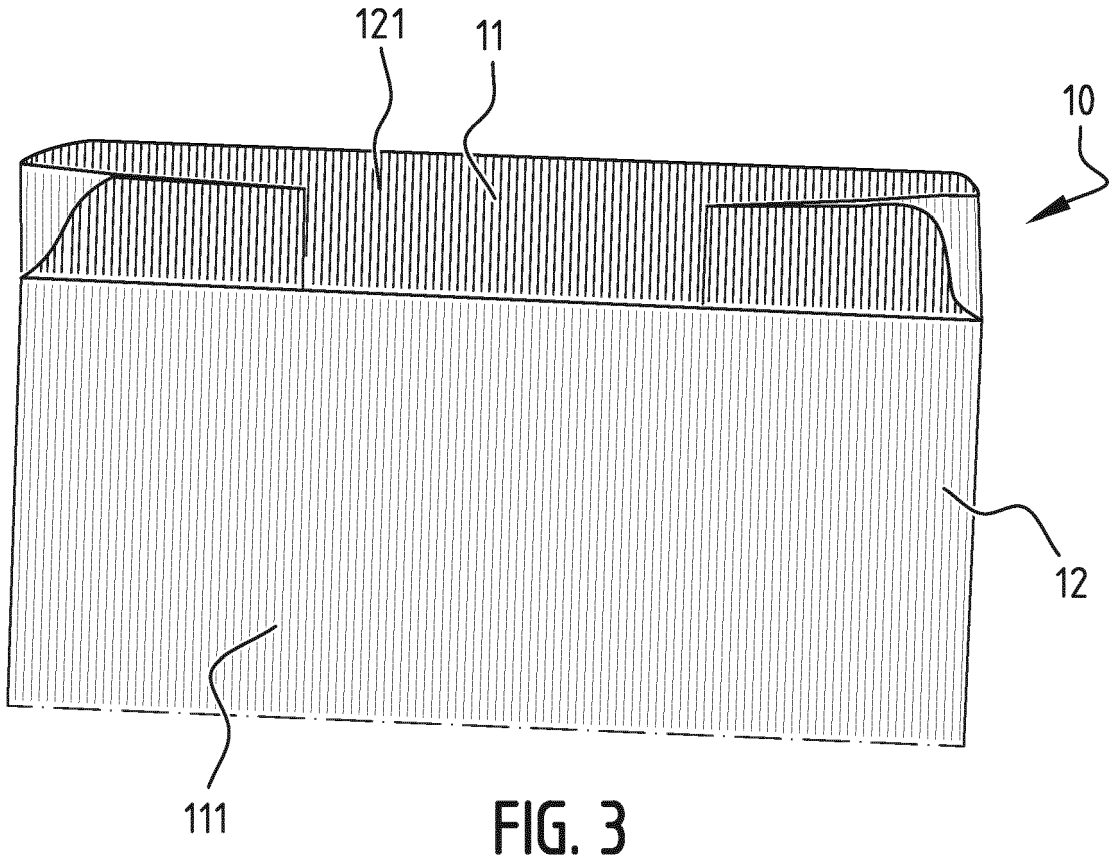

FIG. 3

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EUROPEAN SEARCH REPORT

Application Number
EP 19 20 1224

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	FR 3 008 392 A1 (ACE PACKAGING NV [BE]) 16 January 2015 (2015-01-16) * the whole document *	1-15	INV. B65D30/08 B65D30/20 B65D85/36 B65D65/42
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TECHNICAL FIELDS SEARCHED (IPC)

B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	17 March 2020	Balz, Oliver

CATEGORY OF CITED DOCUMENTS

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EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 19 20 1224

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REFERENCES CITED IN THE DESCRIPTION

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