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(54) **BREAD BAG AND METHOD FOR MANUFACTURE THEREOF**

(57) Bread bag of combined layers comprising a cellulose layer and a coating layer for setting the moisture permeability, wherein the cellulose layer has a more closed structure on a first side than on an opposite, second side, and wherein the coating layer is situated on the first side of the cellulose layer, wherein the coating layer is situated on an inner side of the bread bag, and a masking layer is present on the second side of the cellulose layer, which masking layer is provided with a predetermined pattern.

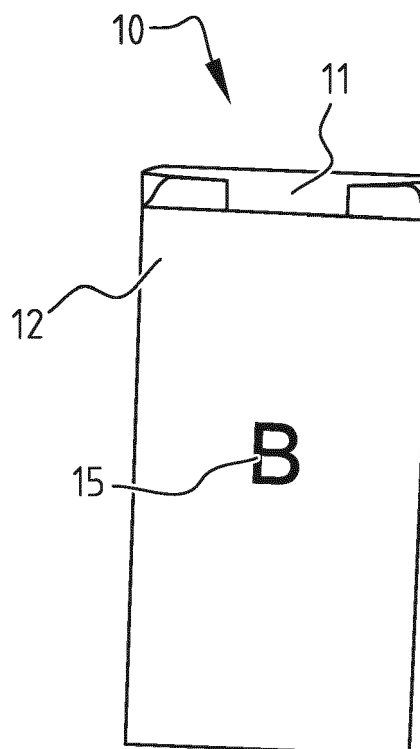


FIG. 1A

Description**FIELD OF THE INVENTION**

[0001] The invention relates to a 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 a first side of the cellulose layer.

[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 an improved and particularly aesthetically improved bread bag.

It is a second object of the invention to provide a method therefor.

[0006] According to a first aspect, the invention relates for this purpose to a bread bag of combined layers comprising a cellulose layer and a coating layer for setting the moisture permeability, wherein the cellulose layer has a more closed structure on a first side than on an opposite, second side, and wherein the coating layer is situated on the first side of the cellulose layer, characterized in that the coating layer is situated on an inner side of the bread bag. A masking layer is further present between the cellulose layer and the coating layer, which masking layer is provided with a predetermined pattern and wherein outside the pattern the coating layer has a boundary surface with the cellulose layer.

According to a second aspect, the invention relates to a

method for manufacturing a bread bag of combined layers, comprising of:

- Providing a cellulose layer with a first side and a second side, wherein the cellulose layer has a more closed structure on the first side than on the second side;
- Applying a masking layer to the first side in accordance with a predetermined pattern;
- Applying a coating layer over the masking layer in a manner such that the coating layer has a boundary surface with the cellulose layer, and
- Forming bread bags from the combined layers.

According to a third aspect, the invention relates to a paper of combined layers comprising a cellulose layer and a coating layer, particularly for setting the moisture permeability, wherein the coating layer is situated on a first side of the cellulose layer, characterized in that a masking layer is present between the cellulose layer and the coating layer, which masking layer is provided with a predetermined pattern, wherein outside the pattern the coating layer has a boundary surface with the cellulose layer.

[0007] It has been found that by arranging the combination of a masking layer 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 recyclable and may also be compostable in accordance with set standards. The presence of the masking layer on the inner side results in a pattern which is visible from the outer side. The per se transparent 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.

[0008] The thickness of the coating layer can further be limited owing to the masking layer. Where in the known bread bags the coating layer is applied with a thickness (or quantity) of 7-10 g/m², also depending on the paper used (i.e. the type of cellulose layer and possible modifications), in a first embodiment of the invention this is limited to about 6.5 g/m², generally to less than 5.5 g/m². Particularly when use is made of paper which is provided on the first side with a calcium carbonate layer is it possible to apply the coating layer with a thickness of less than 3 g/m². More particularly, the thickness of the combination of the masking layer and the coating layer is equal to at most the thickness of the coating layer in the known bread bag. It has moreover been found that the oil of the coating layer in the bread bag according to the invention substantially does not permeate the paper, while this does happen in conventional bread bags with

a coating layer of vegetable or mineral oil. In the absence of a definitive explanation, it is suspected that the masking layer partially permeates the paper and thus limits the surface area over which oil is able to permeate the paper, and, with this, the effective permeability of the paper.

[0009] It has further been found that, because of the reduced thickness of the coating layer, the overall quantity of additions to the paper decreases. This is favourable, since determined legislation and standards require the quantity of additions to remain below a value in order to be able to be eligible for preferred treatment or the option of recycling. In Germany, the rule is for instance that a material qualifies as a 'monomaterial' when it has a maximum of 5 percent by weight of additions. Taxes levied on items of a monomaterial are much lower than on items of multiple materials, this in respect of recycling generally being easier. It has in particular been found possible owing to the invention to comply with this 5 percent by weight standard in combination with a suitable choice of paper, such as for instance paper provided with a calcium carbonate layer.

[0010] In a second embodiment the coating layer is applied with a thickness which is similar to the known thickness, for instance in a quantity of more than 5 g/m², such as 6-10 g/m². It has been found that the combination of the masking layer and the coating layer can limit the moisture permeability further, to levels at least substantially corresponding to the moisture permeability of plastic coatings, typically below 50 g/m²/day or even in the order of 20-40 g/m²/day, in accordance with DIN 53-122-1, as will be further discussed hereinbelow. The achievable values are here of course dependent on the choice of paper and, in a favourable embodiment, are achieved in combination with the use of paper which is provided with a calcium carbonate layer. Two aspects are deemed to play a part in the reduced moisture permeability (also known as water vapour permeability): a contribution of the masking layer to the reduction of the moisture permeability; and a correlation between thickness of the coating layer and moisture permeability, continuing to greater thicknesses of the coating layer. Because of the presence of the masking layer, a coating layer of for instance 9 g/m² provides for a lower moisture permeability than that of 7 g/m². Without masking layer, an achievable minimum in the moisture permeability is already reached at a lower quantity.

[0011] 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 zig-zag lines, stepped forms, sine shapes, rectangles, squares, triangles. The repetitive elements 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.

[0012] Instead of and/or in addition to a regularly repetitive 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.

[0013] The masking layer comprises in particular a binder material. The masking layer is more particularly applied as an aqueous composition. Such an aqueous composition is also known as a varnish. Where a varnish is normally mixed with a dye concentrate prior to application, in the invention the varnish is used without being mixed with dye. The varnish generally comprises 50-80% binder material, 0-10% an alcohol, such as a (poly)ethylene glycol or (poly)propylene glycol, and 0-5% additives, including an antifoaming agent, a wax and a biocide. The remaining part of the varnish consists of water. This water will evaporate during drying of the layer. It is also possible for the water to spread through the cellulose layer. Drying of the layer can take place in active manner (i.e. by bringing the substrate into contact with dry and/or hot air), but also in passive manner. It is not precluded per se for a (small quantity of) dye to be used as additive.

[0014] It is particularly favourable for the varnish, and therefore the masking layer, to comprise a wax. Such a wax is deemed favourable for the humidification of the masking layer by the coating layer, which is in particular oily. Favourable binder materials include polyacrylates, polyvinyl acetates, polyvinyl alcohols, polyurethanes, polyamides and also lignin, as well as copolymers therewith. At least one of a polyacrylate and a polyvinyl acetate is preferably present. The use of a binder material comprising lignin, polyvinyl acetate and/or polyvinyl alcohol is preferred because these materials have a sufficient degree of biodegradability, particularly the compostability.

[0015] Advantageous results are achieved by applying the aqueous composition 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 ink transferred during use of a roll, but pressure is also exerted. This is deemed advantageous because the coating 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.

[0016] 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.

[0017] In one embodiment the paper of combined layers further comprises a sub-layer on the first side, which gives the paper a more closed structure on that side. The sub-layer forms part of the cellulose layer. 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.

[0018] The sub-layer is more preferably a calcium carbonate layer which ensures that the paper is more closed on the first side than on the second side. This is generally bleached paper. In application hereof, a very low water vapour permeability in the order of 50-100 g/m²/day or even 50-75 g/m²/day is obtained, wherein the vapour permeability is measured in accordance with DIN 53-122-1 at 25°C and at 75% relative humidity. The vapour permeability is also known in the field as the MVTR (moisture vapour transmission rate). This low vapour permeability is advantageous because it makes paper bags an effective alternative to conventional plastic bread bags, which have a vapour permeability of about 30 g/m²/day. The further decrease of the MVTR appears to be partially related to the fact that the coating layer does not permeate through the whole bread bag. When permeating into the paper, the oil apparently creates hydrophobic pores, through which vapour diffuses and thus no longer adheres to the rather hydrophilic cellulose.

[0019] The surface on the first side of the cellulose layer more preferably has a surface roughness below 120 ml/min, preferably below 100 ml/min or even below 80 ml/min, for instance between 15 and 70 ml/min, such as 20-50 ml/min. The surface roughness is here determined in accordance with ISO 8791-2 and is also known as the Roughness Bendtsen. This low surface roughness on the first side is for instance achieved with the above stated calcium carbonate layer. Such a surface roughness has generally been found too low to arrange an imprint thereon. That is to say, the imprint may spread due to vibrations of the printing machine used for the printing, more particularly a printing machine for flexography, such as for instance a stack type printing machine with individual impression cylinders. It has however been found that a paper with such a surface roughness on the first side (inner side) is suitable for having the masking layer placed thereon without spreading out or formation of additional stripes. A paper with such a low surface roughness has moreover been found to be very closed. This prevents permeation of the oil of the coating layer.

[0020] In yet another embodiment the surface of the paper has a surface roughness on the second side of at least 100 ml/min in accordance with ISO 8791-2. This

makes the second side highly suitable for arranging of an imprint.

[0021] In addition to the above stated use of bleached paper, the invention is likewise advantageous for use of unbleached paper. Unbleached paper is generally less smooth on the first side. It can particularly be felt that it has ridges on the first side. Upon inspection with a microscope, these ridges are found to vary in height. The paper is not substantially flat, but comprises microscopic ridges and valleys. For this reason a greater quantity of coating layer generally has to be used for this type of paper than for bleached paper. It has however been found that in application according to the invention of the masking layer on the first side with a more closed structure, the oil of the coating layer nevertheless hardly permeates through the paper. The oil appears to accumulate in the valleys, at the surface. It has been found that in this case the effective water vapour permeability also decreases. Where the water vapour permeability for unbleached paper was previously generally 200-350 g/m²/day, with the invention this has been reduced to 100-170 g/m²/day. It is here also suspected that the decreased penetration of the oil is favourable for avoiding formation of hydrophobic pores.

[0022] It has further been found that when applying a masking layer with a uniform pattern, such as 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 occurs particularly in rougher 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. It is noted that, in the case of the rougher types of paper, ridges in the paper with the masking layer can be felt when the paper is rubbed with one or more fingers. The quantity of long fibres in the paper of the combined layers is preferably at least 40%. The quantity of long fibres is more preferably at least 50%, still more preferably at least 70%. 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 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.

[0023] In a first embodiment the cellulose layer has a weight which is higher than 20 g/m² and lower than 70 g/m², the weight preferably lying between 35 g/m² and 60 g/m². It is very important for the paper to have a Gurley (ISO 5636-5) air resistance of at least 30 seconds. There are likewise types of paper with such an air resistance of more than 100 sec or even more than 150 sec. Such paper types with a Gurley air resistance of at least 100

seconds are preferred.

[0024] The opacity in accordance with ISO 2471 preferably lies between 50 and 85%, more particularly between 60 and 75%. Use can be made of unbleached paper and of bleached paper. In forming of the bread bag it is further possible for a window to be arranged, as is per se known to the skilled person.

[0025] In order to avoid misunderstanding it is noted that the term 'structure' refers to the microstructure of the paper, which can be more closed, less closed or closed, depending on the type of paper, surface treatment and so on. A more closed structure can be obtained by the use of a specific layer or coating, but also by a heat treatment. The glue used during manufacture of the cellulose layer also affects the degree to which the microstructure is open. The specific layer is often a calcium carbonate layer, but can also comprise filler materials other than calcium carbonate, such as for instance TiO₂ in order to make the paper extra white. An example of a treatment is machine glazing.

[0026] It is highly preferable for the coating layer to comprise a vegetable oil. 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.

[0027] A favourable effect of the masking layer is that the required quantity of coating layer decreases. There are several reasons for this; firstly, the paper of cellulose layer and masking layer is less open; less is thus needed in order to form a coating layer. The masking layer is moreover deemed to have a suitable surface over which the coating layer can extend. An even layer is thus formed quickly.

[0028] 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 is here already provided with a more closed structure on the first side than on the second side. The masking layer and, if applicable, the imprint are then applied to either side of 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.

[0029] 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. This invention can also serve for vegetable and fruit bags (the same bag as the bread bag); 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.

[0030] In a further, favourable embodiment the paper of combined layers according to the invention is cardboard. In other words, the cellulose layer is multilayer paper. The multilayer paper preferably has a weight here of at least 179 g/m². The cardboard is more preferably chosen from corrugated board (with a specific weight of up to 600 g/m²) or solid board (with a specific weight of up to 1000 g/m²), and is provided on the second side with an additional layer of paper on which an imprint can be arranged. Application is expected particularly as cardboard in the food sector, such as for instance as paper trays. It is favourable here for the masking layer and the coating layer to be situated on the side which comes into contact with the foodstuff. The combination ensures that mineral oils from the cellulose layer (i.e. the cardboard) are unable to permeate into the foodstuff. The masking layer furthermore provides a neat appearance.

[0031] In yet another aspect the invention provides a bread bag of combined layers comprising a cellulose layer and a coating layer for setting the moisture permeability, wherein the cellulose layer has a more closed structure on a first side than on an opposite, second side, and wherein the coating layer is situated on the first side of the cellulose layer, wherein the coating layer is situated on an inner side of the bread bag, and a masking layer is present on a second side of the cellulose layer, which masking layer is provided with a predetermined pattern. The masking layer also comes into contact with the oily material of the coating layer when this masking layer is situated on the other side of the paper. This results in the invented optical effect. The thickness of the coating layer can also be reduced. The masking layer according to this aspect is applied as a technical varnish, as discussed more at length above, and is free of a dye (concentrate). A method for producing such a bag by applying the masking layer in accordance with the predetermined pattern and the coating layer is likewise provided.

[0032] The embodiments discussed above and stated in the claims of course apply to all stated aspects of the invention.

BRIEF DESCRIPTION OF THE FIGURES

[0033] 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

[0034] The figures are not to scale and are purely schematic. The same reference numerals in different figures refer to identical or similar elements.

[0035] 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.

[0036] Print 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.

[0037] Fig. 2 shows the paper which is used 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 is provided on one side with a smooth, treated sub-layer 14. 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, in short calcium carbonate layer). In another 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. According to the invention, sub-layer 14 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. A masking layer 16 is arranged on first side 11, 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 over this 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. The presence of masking layer 16 makes the paper less accessible to the oil of coating layer 17 on the second 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 has decreased greatly and the aesthetic properties of the bread bag are better. It is suspected that when applied as aqueous suspension, the masking layer permeates partially into cellulose layer 13, 14 and there further closes pores of the cellulose layer 14. The coating layer moreover appears to form a better layer. This may be enhanced by interaction at the boundary surface of coating layer 17 and masking layer 16.

[0038] Fig. 3 shows schematically a detail of bread bag 10 is shown in Fig. 1A. This shows the pattern which results from the use of the combination of masking layer 16 and coating layer 17 on first side 11 of the paper, which is situated on the inner side of bread bag 10. 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. Line pattern 111 has also been found to be visible on the first side, but in a lighter shade. It is thus well possible to arrange an imprint on second side 12 without it being disrupted by line pattern 111.

Claims

1. Bread bag of combined layers comprising a cellulose layer and a coating layer for setting the moisture permeability, wherein the cellulose layer has a more closed structure on a first side than on an opposite, second side, and wherein the coating layer is situated on the first side of the cellulose layer, wherein the coating layer is situated on an inner side of the bread bag, and
a masking layer is present on the second side of the cellulose layer, which masking layer is provided with a predetermined pattern. 5
2. Bread bag as claimed in claim 1, wherein the masking layer comes into contact with the coating layer. 10
3. Bread bag as claimed in claim 1 or 2, wherein the pattern of the masking layer is a repetitive configuration and comprises repetitive elements; and/or wherein the repetitive element is a line. 20
4. Bread bag as claimed in claims 1-3, wherein the masking layer covers 10-75% of the cellulose layer on the second side. 25
5. Bread bag as claimed in claims 1-4, wherein the masking layer comprises a binder material, wherein the binder material preferably impregnates the cellulose layer locally. 30
6. Bread bag as claimed in claim 5, wherein the binder material comprises at least one material chosen from the group of polyvinyl acetate, acrylate (co)polymers, polyamide, polyurethane, and/or wherein the binder material comprises a lignin resin. 35
7. Bread bag as claimed in claims 1-6, wherein the coating layer comprises an oily material such as a vegetable oil or paraffin; and/or wherein the coating layer has a weight of 1-5 g/m². 40
8. Bread bag as claimed in claims 2 and 7, wherein the masking layer comes into contact with the oily material of the coating layer. 45
9. Bread bag as claimed in claims 1-8, wherein the cellulose layer comprises a mixture of long fibres and short fibres with at least 40% long fibres; and/or wherein the cellulose layer comprises unbleached cellulose fibres; and/or wherein the cellulose layer has a weight of a maximum of 70 g/m². 50
10. Method for manufacturing a bread bag of combined layers, comprising of: 55
 - providing a cellulose layer with a first side and
 - a second side, wherein the cellulose layer has a more closed structure on the first side than on the second side;
 - applying a masking layer to the second side in accordance with a predetermined pattern;
 - applying a coating layer to the first side; and
 - forming bread bags from the combined layers.
11. Method as claimed in claim 10, wherein the masking layer is applied such that it comes into contact with the coating layer.
12. Method as claimed in claims 10-11, wherein the masking layer is applied as an aqueous composition, while the coating layer comprises an oily material such as a vegetable oil or paraffin; and/or wherein the marking layer is applied such that it comes into contact with the oily material of the coating layer.
13. Method as claimed in claims 10-12, wherein the masking layer is applied in a repetitive configuration by means of flexography.
14. Method as claimed in claims 10-13, wherein an imprint is arranged on the second side of the cellulose layer, preferably before the masking layer is applied.
15. Paper of combined layers comprising a cellulose layer and a coating layer, such as for setting the moisture permeability, wherein the cellulose layer has a more closed structure on a first side than on an opposite, second side, wherein the coating layer is situated on the first side of the cellulose layer, wherein a masking layer is present on the second side of the cellulose layer, which masking layer is provided with a predetermined pattern.

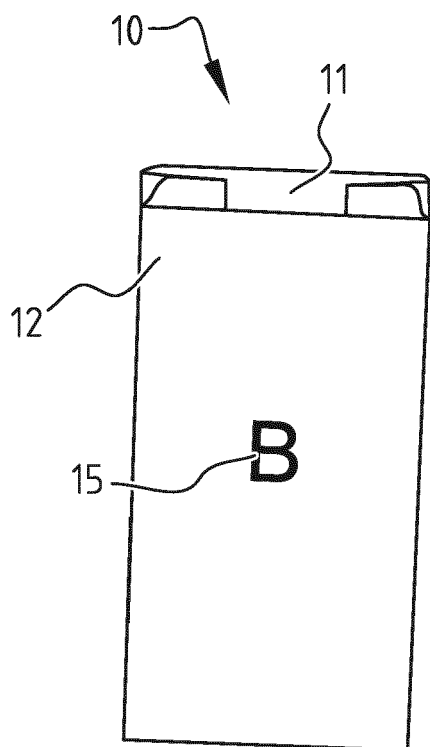


FIG. 1A

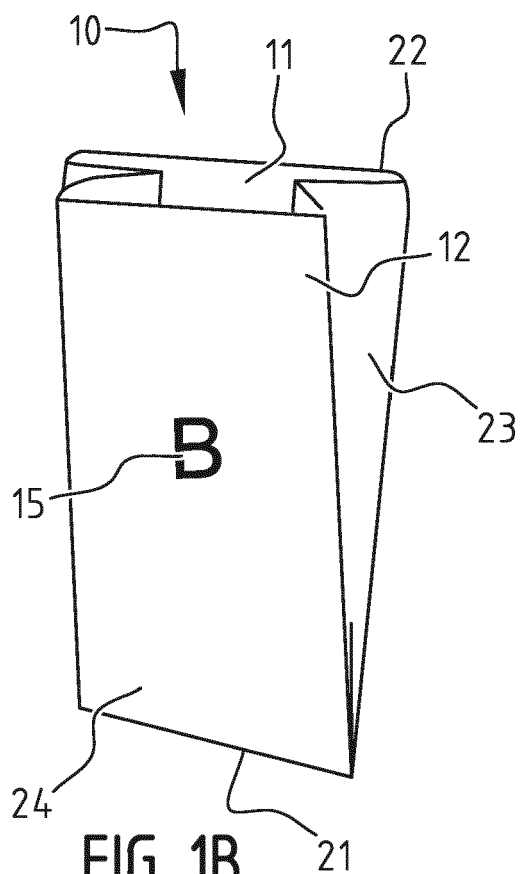


FIG. 1B

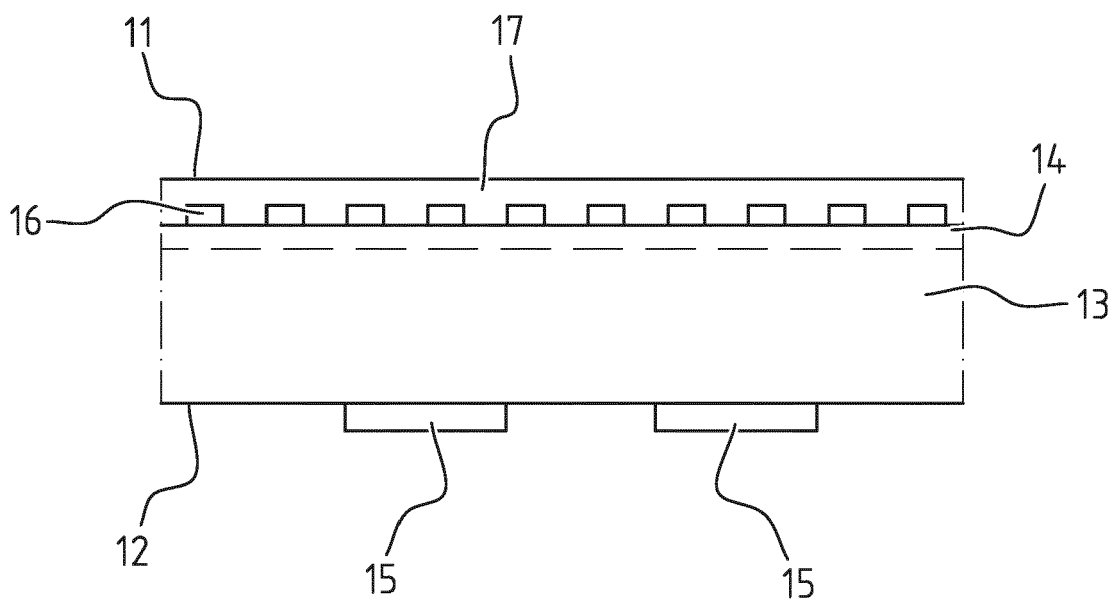


FIG. 2

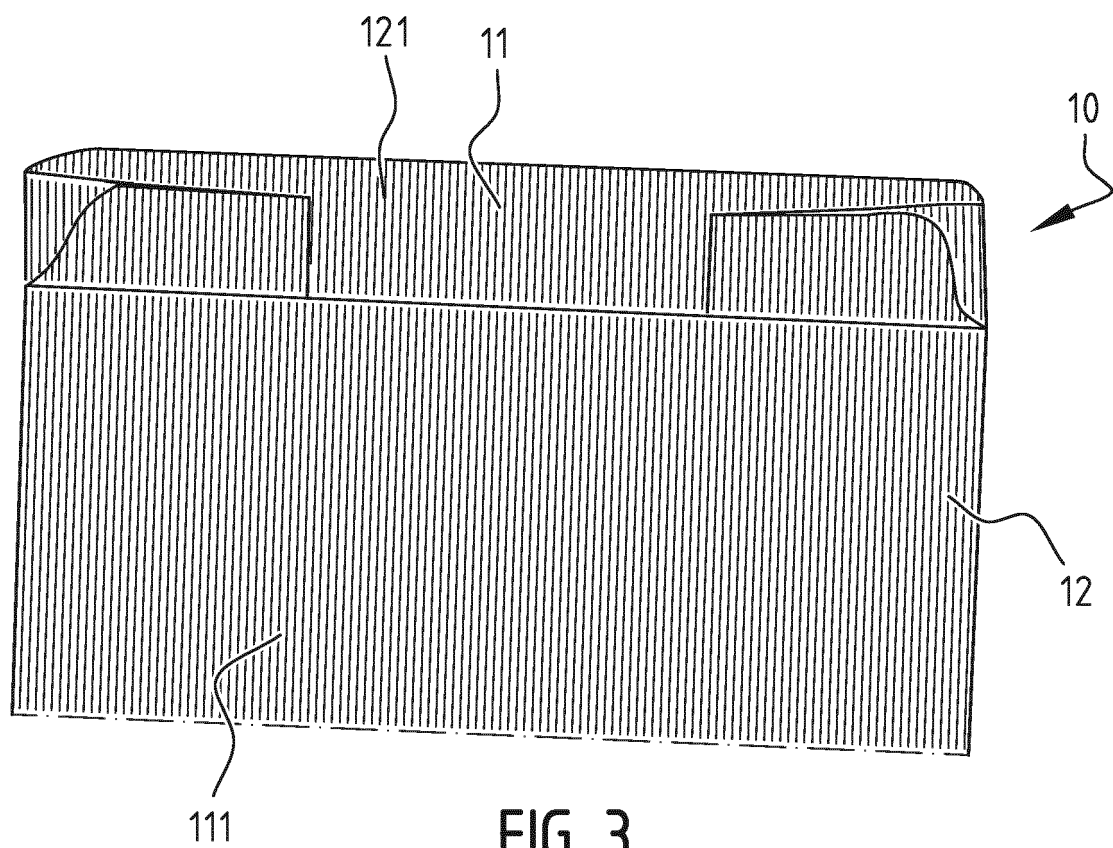


FIG. 3



PARTIAL EUROPEAN SEARCH REPORT

Application Number

under Rule 62a and/or 63 of the European Patent Convention.
This report shall be considered, for the purposes of
subsequent proceedings, as the European search report

EP 20 15 6936

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	US 4 773 677 A (PLASSE PAUL A [US]) 27 September 1988 (1988-09-27) * column 2, line 58 - column 3, line 15; figure 1 *	1,3-10, 12-15	INV. D21H27/10 D21H19/14 D21H19/68 D21H19/82 D21H21/16
A	US 5 639 539 A (DEPROSPERO DAVID A [US] ET AL) 17 June 1997 (1997-06-17) * column 2, line 45 - line 62; figure 1 *	1,3-10, 12-15	ADD. B65D30/02
A,D	NL 2 013 182 C (ACE PACKAGING N V) 21 January 2015 (2015-01-21) * page 1, line 5 - page 8, line 14; example 1 * * page 5, line 34 - line 35 *	1,3-10, 12-15	
A	DATABASE CA, [Online] 10 December 1996 (1996-12-10), ERIKSEN JOERGEN: "Paper coating", XP002721569, retrieved from CA; stn Database accession no. 126-90910 * abstract *	1,3-10, 12-15	
			TECHNICAL FIELDS SEARCHED (IPC)
			D21H B65D

INCOMPLETE SEARCH

The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.

Claims searched completely :

Claims searched incompletely :

Claims not searched :

Reason for the limitation of the search:

see sheet C

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EPO FORM 1503 03.82 (P04E07)

Place of search	Date of completion of the search	Examiner
Munich	23 July 2020	Okunowski, Joachim
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document		

**INCOMPLETE SEARCH
SHEET C**

Application Number

EP 20 15 6936

Claim(s) completely searchable:

8

Claim(s) searched incompletely:

1, 3-7, 9, 10, 12-15

Claim(s) not searched:

2, 11

Reason for the limitation of the search:

The wording of claim 1 can be found on page, line 34 to page 9, line 3 of the earlier application EP18164045 as originally filed. However, this disclosure is exclusively in the context of, first, the coating layer comprising an oily material and, second, the oily material making contact with the masking layer, see page 9, line 3 of the earlier application EP18164045 as originally filed. Thus, claim 1, as well as claims 3-7, 9, 10, 12-15 in so far as they are not limited to these two additional features, contain subject-matter that extends beyond the contents of the earlier application as originally filed, and are objectionable under Article 76(1) EPC. Hence, these claims are only searched in so far as their subject-matter is limited to the subject-matter of present claim 8.

The earlier application as originally filed does not offer a clear and unambiguous disclosure of the subject-matter of claims 2 and 11: when the masking layer and the coating layer are on opposite sides of the cellulose layer, they do not come into contact. The contact is not mentioned on page 9 of the earlier application as originally filed. Rather, the masking layer comes into contact with oily material that is absorbed by the cellulosic material from the coating layer. Claims 2 and 11 define therefore embodiments that extend beyond the contents of the earlier application as originally filed, and are objectionable under Article 76(1) EPC. Hence, these claims are not searched.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 20 15 6936

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

23-07-2020

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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