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(54) **Bag for the containing of liquid products emanating gas, in particular yeast**

(57) Bag for containing liquid products which produce gas, in particular yeast, of the double wall type, comprising two opposite faces (2) joined one to the other along a perimeter heat-sealing line (3) and a spout (7)

for filling/delivering the liquid product placed on one of these faces (2), the double wall of the bag comprising a polyethylene-based inner film (5) with high permeability and a reinforcing outer film (6), wherein said outer film (6) is made of a polyethylene-based nonwoven fabric.

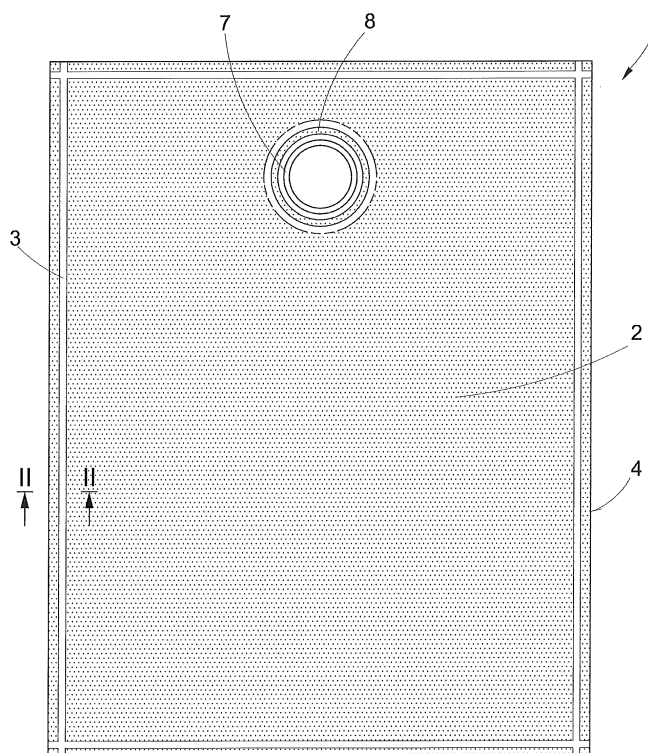


FIG. 1

Description

[0001] The object of the present invention is a bag for the containing of liquid products which emanate gas, in particular yeasts for bread making.

[0002] In the following description specific reference will be made to yeast, but it is to be understood that the invention can be applied to any liquid or paste product which during storage emanates gas.

[0003] Yeast, in the phase of production, is always in the liquid state and, for the placing on the market, in the majority of cases, is subsequently dehydrated in order to transform it into powder or into the form of solid cakes. In the phase of use the yeast has once again to be returned to the liquid form.

[0004] In recent times there has been the tendency to produce and package the yeast directly in liquid form which is advantageous from practical and economic standpoints in that the phases of transformation from the liquid state to the solid state during production and vice versa during use are eliminated.

[0005] The problem in the storage of the liquid yeast is that it emanates a considerable quantity of gas, in particular CO₂ up to 1/3 litres a day for a package of 10/20 litres.

[0006] Bags are therefore necessary which on the one hand are highly permeable to the gases and on the other hand have adequate toughness for sustaining the weight of the content, these bags normally having a capacity of 10/20 litres.

[0007] In order to meet these needs "double wall" bags have therefore been proposed, i.e. having a polyethylene-based inner film highly permeable to CO₂, with very thin thickness (30-50 µm) and therefore with little mechanical strength, and an outer film constituted by a nylon-based laminate, with thickness of 80-150 µm, suitable for conferring the necessary mechanical strength to the bag.

[0008] The outer film, which is not permeable, has a plurality of small holes to allow the release of the gases which permeate through the inner film.

[0009] The bag shaped in this way is placed inside a cardboard box in such a way as to constitute a so-called bag-in-box packaging which can easily be manipulated.

[0010] The bags of the aforementioned type have not proved to be satisfactory in that despite the providing of the perforated outer film an unsatisfactory release of the gases which tend to inflate the bag has been noted.

[0011] This is due to the fact that when the bag filled with liquid yeast is inserted in the cardboard box it adapts to the box, causing a pressure contact between the outer surface of the bag and the inner walls of the box, apart from the head space of the bag which remains clear.

[0012] This pressure contact causes a strong adherence between the inner and outer plastic films of the bag, practically clogging the holes provided in the outer film and preventing therefore the release of the gases, which tend to accumulate in the upper part of the bag, where

they have difficulty in exiting due to the small perforated surface of the outer film not in contact with the inner wall of the containing box.

[0013] The object of the invention is that of eliminating the aforesaid disadvantages of the prior art.

[0014] More particularly an object of the invention is that of providing a bag for liquid yeasts which allows a complete and rapid degassing of the product contained therein.

[0015] Another object of the present invention is that of providing such a bag which is simple and economical to manufacture.

[0016] The bag according to the invention has the features of the annexed independent claim 1.

[0017] Advantageous embodiments of the invention are disclosed by the dependent claims.

[0018] Substantially the bag according to the invention, of the so-called double wall type, comprises a polyethylene-based inner film with high permeability and a reinforcing outer film, wherein the outer film is a nonwoven fabric of polyethylene-based fibres, so as to be sealable to the inner film.

[0019] Conveniently the fibres of the nonwoven fabric of the outer film are constituted by a mixture of polypropylene and polyethylene (PP/PE), with a weight of 60-85 g/m².

[0020] Further features of the invention will be made clearer by the following detailed description, referred to one of its embodiments purely by way of a non-limiting example illustrated in the accompanying drawings, in which:

Figure 1 is a schematic plan view of the bag according to the invention;

Figure 2 is an enlarged section view taken along line II-II of Figure 1;

Figure 3 is a schematic perspective view of the bag of Figure 1.

[0021] Referring to these drawings, the bag according to the invention, for the containing of liquid products which emanate gas, in particular yeast, has been denoted by reference numeral 1.

[0022] It comprises two opposite faces 2, joined by means of perimeter heat sealing 3, which runs parallel to its outer edge 4.

[0023] In the accompanying drawings the bag 1 has been illustrated rectangular in shape, which is the simplest to make, but it is clear that it can take on any other shape.

[0024] The bag 1 is of the so-called double wall type, in the sense that each of its two opposite faces 2 comprises two films, an inner one 5 and an outer one 6, separated one from the other and joined only at said perimeter heat-sealing line 3.

[0025] On one of the two faces 2 of the bag 1 a spout 7 for filling/delivering of the product is applied, having a circular flange 8 sealed internally to the corresponding

face 2, while the spout 7 projects through a hole formed in this face, and is closed by a cap 9.

[0026] The inner film 5 of the double wall of the bag is with high permeability to gases, in particular to CO₂ which is produced in a large quantity by the yeast contained in the bag, > 501/m²day atm. It has a base of polyethylene, for example a coextruded LLDPE and has a very thin thickness (around 30 μm) and a weight of 28 g/m² in order to be able to obtain the aforesaid high values of permeability.

[0027] Such a film would alone be very fragile and therefore subject to easy tearing.

[0028] Therefore the outer film 6 is assigned the task of conferring toughness to the bag and avoiding easy breaking.

[0029] This outer film 6, according to the invention, is a nonwoven fabric of fibres constituted by a PP/PE mixture of 60-85 g/m².

[0030] The presence of polyethylene in the mixture constituting the fibres of the nonwoven fabric allows the performance of the perimeter heat sealing 3 to the inner film 5, as well as the heat sealing of the base 8 of the spout 7.

[0031] The manufacture of the outer film 6 in PP/PE nonwoven fabric allows the elimination of the disadvantages due to the adherence between the inner and outer films when the bag 1 is inserted in a containing box (bag-in-box) normally in cardboard.

[0032] In fact the greater wrinkling of the nonwoven fabric according to the invention, with respect to the perforated plastic film of the prior art, prevents the adherence between the films and allows easy release of the gas, in particular CO₂, through the nonwoven fabric of the outer film 6, which has micro holes over the entire surface.

[0033] From what has been disclosed the advantages appear clear of the invention which allows, with simple and economical means, the complete and rapid release of the CO₂ gas produced by the liquid contained in the bag 1.

[0034] Naturally the invention is not limited to the particular embodiment previously described and illustrated in the accompanying drawings, but instead numerous detail changes can be made thereto, within reach of the person skilled in the art, without thereby departing from the scope of the same invention as defined in the annexed claims.

characterised in that said outer film (6) is made of a polyethylene-based nonwoven fabric.

2. Bag according to claim 1, **characterised in that** said nonwoven fabric is a mixture of polypropylene and polyethylene (PP/PE).
3. Bag according to claim 2, **characterised in that** said nonwoven fabric of the outer film (6) has a weight of 60-85 g/m².
4. Bag according to claim 1, **characterised in that** said inner film (5) is a coextruded LLDPE of 30 μm and 28 g/m².

Claims

1. Bag for containing liquid products which produce gas, in particular yeast, of the double wall type, comprising two opposite faces (2) joined one to the other along a perimeter heat-sealing line (3) and a spout (7) for filling/delivering the liquid product placed on one of these faces (2), the double wall of the bag comprising a polyethylene-based inner film (5) with high permeability and a reinforcing outer film (6),

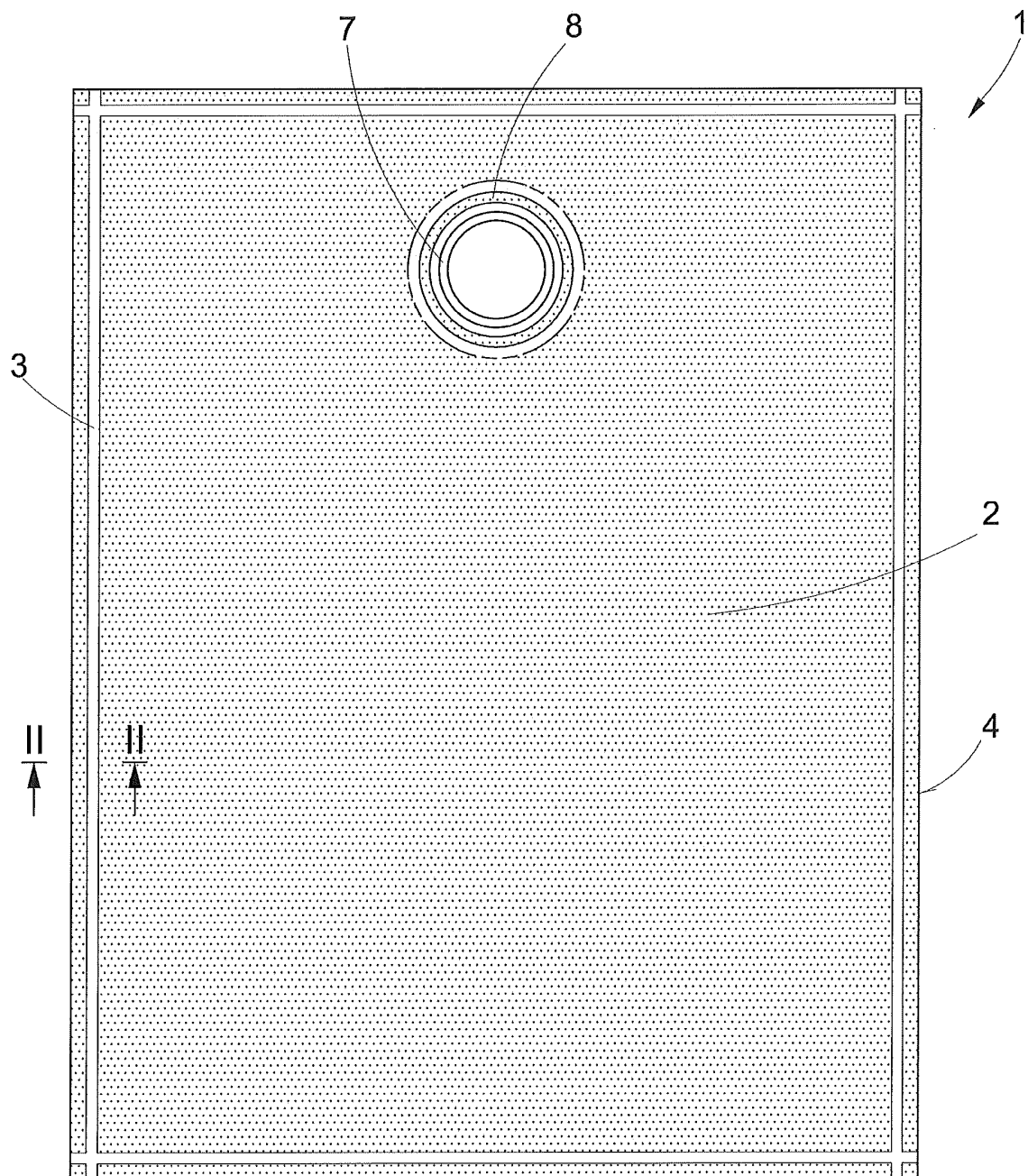


FIG. 1

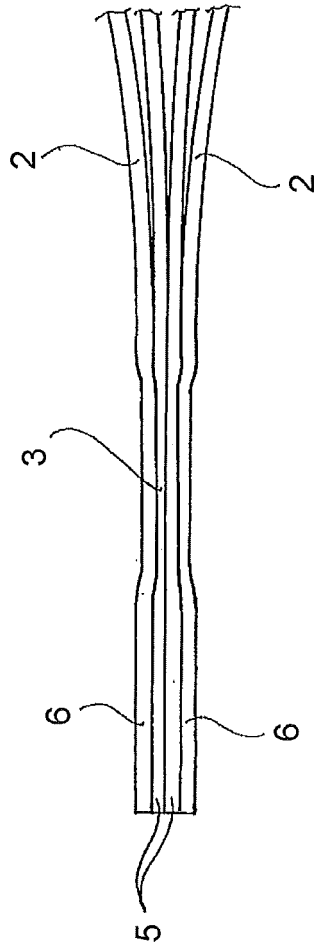


FIG. 2

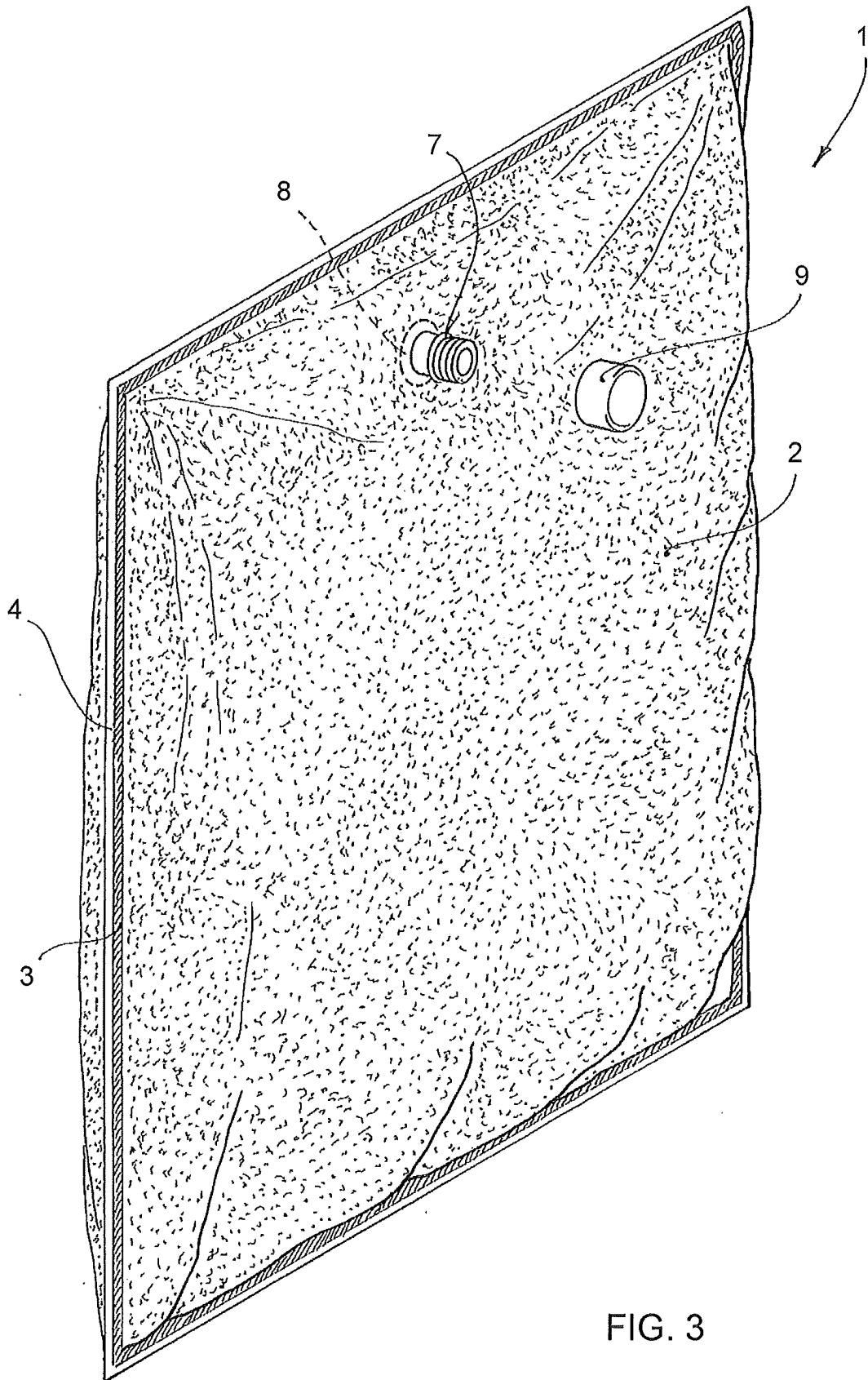


FIG. 3



EUROPEAN SEARCH REPORT

Application Number
EP 13 16 3611

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 2009/239432 A1 (CHANDRA SHUBHAM [US]) 24 September 2009 (2009-09-24) * paragraphs [0012], [0013], [0035]; figure 1 *	1-4	INV. B65D33/01
A	DE 20 2006 011976 U1 (NORDFOLIEN GMBH [DE]) 19 October 2006 (2006-10-19) * the whole document *	1-4	
A	US 2008/116098 A1 (MAROOF LAN IRA [US] ET AL) 22 May 2008 (2008-05-22) * paragraph [0028]; figures 1,2 *	1-4	
A	WO 98/46498 A1 (SEALED AIR CORP [US]; BERTRAM GEORGE TEOFILIUS [US]) 22 October 1998 (1998-10-22) * page 6, lines 34-36 - page 7, lines 1-30; figure 1 *	1-4	
			TECHNICAL FIELDS SEARCHED (IPC)
			B65D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 3 June 2013	Examiner Visentin, Mauro
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			

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

EP 13 16 3611

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
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03-06-2013

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2009239432 A1	24-09-2009	NONE	
DE 202006011976 U1	19-10-2006	NONE	
US 2008116098 A1	22-05-2008	NONE	
WO 9846498 A1	22-10-1998	AU 7128498 A WO 9846498 A1	11-11-1998 22-10-1998