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(54) **CONTINUOUS BAND OF PLASTIC-COATED PAPER FOR THE PRODUCTION OF BAGS FOR FRUIT AND VEGETABLE PRODUCE AND SIMILAR PRODUCTS**

(57) The invention relates to a continuous band of plastic-coated paper for the production of bags for fruit and vegetable produce and similar products, made from plastic-coated paper and provided with polyethylene re-

inforcements at the welding zones, the handles and, where applicable, along the periphery of the windows, in order to increase the mechanical strength thereof. The windows are closed with fragments of netting.

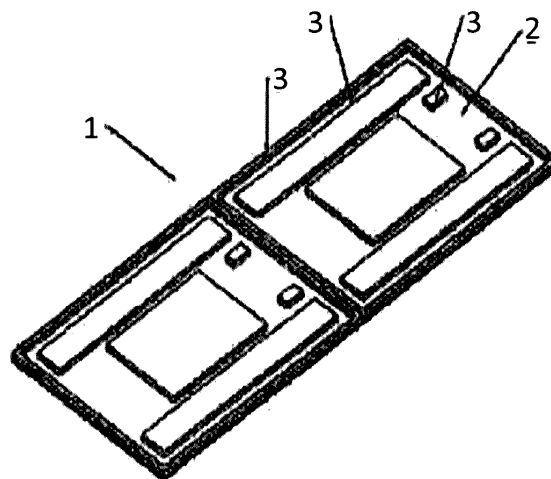


Fig. 1

Description

Object of the invention

[0001] The present invention refers to a continuous band of plastic-coated paper, which has been specially designed for the subsequent production of bags for horticultural produce and other similar products, by means of longitudinal heat-sealing or similar procedure of the said sheet along its longitudinal edges, in order to convert it into a continuous tube, and by means of parallel heat-sealing and transversal cutting, unitary independent sealed bags are produced.

[0002] The object of the invention is to obtain a continuous sheet which combines areas of plastic-coated paper that are completely closed off with mesh areas, and, where appropriate with perforations, to allow visibility, and, more importantly, the aeration of the products contained within, together with the maximum mechanical resistance of the bag, optimum protection against light for the contents contained therein, a greater bag printing capacity, greater production speed, a recyclable bag and a reduction in thickness and weight of the plastic sheet, thus resulting in cost reduction.

Background of the invention

[0003] Certain horticultural products, such as oranges, potatoes, etc. have been marketed for a long time in plastic bags with a reticulated structure, which allows both aeration and visualization of the product.

[0004] Sometimes, the production of these bags is based on a tubular mesh body that closes at both ends after packaging the product, optionally with one of the aforementioned ends having handles which aid the transport of the product.

[0005] On other occasions, bags are produced from a continuous laminated sheet, which closes upon itself to arrive at the aforementioned tubular body, through a longitudinal line of heat-sealing, after which the aforementioned process is repeated, in such a manner that as the bags are filled, they are simultaneously separated to become a single unit.

[0006] The best solution to date belongs to the same applicant as this invention and consists of a laminated sheet of plastic into which a series of openings are made which are closed by a reticular material attached to the sheet by means of heat-sealing or similar process.

Description of the invention

[0007] The continuous band proposed in the present invention, constitutes of a technological advance in this field and is based on the use of a single continuous plastic-coated sheet, coinciding in width with the sheet itself such that the said sheet is designed to close over upon itself, by means of heat-sealing its longitudinal seam, in order to configure a continuous tube that can be frag-

mented in multiple areas corresponding to respective bags, the said continuous band having one or more windows and, where appropriate, perforations of the same or different sizes that can be closed with the aid of a mesh fragment, formal and dimensionally suitable for each window and fixed to the periphery of the same. The continuous band is formed from a continuous sheet plastic-coated on at least one of its sides, having the same width as the said continuous sheet; continuous sheet of plastic-coated paper to which, in correspondence with each one of the sectors intended to produce a bag, polythene reinforcements are provided in the areas envisaged for the handles, the heat seals and the edges or periphery of the windows, and, where appropriate, perforations, attached to the plastic-coated sheet by means of heat-sealing or similar procedure.

[0008] In a first embodiment of the invention in correspondence with each one of the areas of continuous sheet of plastic-coated paper at least one window is created, which closes with the aid of a fragment of mesh, formal and dimensionally suitable for the said window and fixed by means of a heat seal at the periphery of said window.

[0009] The sheet of plastic-coated paper can be plasticised on both sides.

[0010] In a second embodiment of the invention when in each section of the continuous sheet of plastic-coated paper a sole window is created with its corresponding mesh, the said window is centred with respect to the longitudinal axis of the continuous sheet of plastic-coated paper, and to both sides of the sheet small perforations are established, without mesh.

[0011] There is an option that the mesh which closes the window to be a continuous strip of mesh which runs longitudinally along the continuous sheet of plastic.

[0012] In any event, over and above the polythene reinforcements available in the handle areas, one can also have a secondary polythene reinforcement fixed to the polythene reinforcements by means of heat-sealing or any other method, with the special feature that the second reinforcement is fixed to the polythene reinforcement on the surface of the latter unrelated to a "U"-shaped strip delimited by a punched line that affects both the polythene reinforcement and the sheet of plastic-coated paper, a strip which constitutes a handle designed to emerge through the opening of the bag body.

[0013] The punched lines determinant of the "U"-shaped strip which can be pre-cut or sliding, retain the said strip in coplanar disposition with the rest of the polythene reinforcement and the plastic-coated sheet.

[0014] Moreover, each sector of the band designed to produce one bag incorporates polythene reinforcements corresponding with two points at the opening of the bag with are diametrically opposed to each other, so that the base incorporates two handles which emerge from the opening of the bag which are also diagonally opposite.

[0015] With the continuous band of plastic-coated paper previously described, we obtain a product with all the

advantages of the continuous plastic-coated bands but at a reduced cost and with the possibility to recycle some of the materials utilised in its manufacture there for causing less harm to the environment.

Description of the Diagrams

[0016]

Figure 1: shows the sheet of plastic-coated paper with the polythene reinforcements attached.

Figure 2: shows an exploded view of the sheet with the windows, punched perforations, mesh fragments and handles.

Figure 3: shows the continuous sheet of plastic-coated paper, with the mesh fragments and the handles placed in their final position

Figure 4: shows several models of bag that can be obtained.

List of References used

[0017]

1. Continuousband of plastic-coated paper
2. Sheet of plastic-coated paper
3. Polythene reinforcement
4. Central window
5. Lateral window
6. Mesh fragment
7. Perforations
8. Handle
9. Bag

Preferred embodiment of the invention

[0018] Onviewing the diagrams incorporated in the report herewith, and especially Figures 1 - 3, it can be seen how the continuous band of plastic-coated paper for the production of bags is constituted from a continuous sheet of plastic-coated paper, in this preferred embodiment of the invention the paper is plasticised on two sides, having a width which coincides with the width of the actual band of plastic-coated paper, and therefore is of double the width of the bag to be obtained, along the sheet of plastic-coated paper groups of windows are available in different sizes and shapes, these are obtained by punching, with a minimum of one window centred on what has to be the front side of the bag, and in this invention another pair of longer windows located at the sides of the central win-

dow. The windows are closed off by suitable fragments of formal dimensionally correct mesh. There is also the option to have groups of perforations that are not closed off with fragments of mesh in order to increase the aeration of the packaged products.

[0019] In order to increase the bag's mechanical resistance in the areas envisaged to be heat-sealed, such as the handles and on the periphery of the windows, polythene reinforcements are available, these are joined to the continuous sheet by means of heat-sealing or any other similar method. In this embodiment the windows are made following the welding of the fragments of mesh.

[0020] In Figure 4 we can see the various types of bag that can be obtained from the continuous band of plastic-coated paper, which is the object of the present invention.

Claims

1. Continuous band of plastic-coated paper for the production of bags for horticultural produce and similar products, of the type wherein the said band is designed to close over on itself, by means of the union of its longitudinal edges by heat-sealing, in order to achieve a continuous tube which can be fragmented into many sectors corresponding to respective bags, the said continuous band has one or more windows, and, where appropriate, perforations of equal or different sizes, **characterised by** the fact that it is produced from a continuous sheet of plastic-coated paper on at least one of its sides, of equal width to the said continuous band; a continuous sheet of plastic-coated paper to which, in correspondence with each one of its sectors intended to produce a bag, polythene reinforcements are available in the areas intended for handles, the heat-seals and on the edges or periphery of the windows and, where appropriate, perforations, the said polythene reinforcements are joined to the sheet of plastic-coated paper by means of heat-sealing or a similar procedure.
2. Continuous band of plastic-coated paper for the manufacture of bags for horticultural produce and similar products, in accordance with any of Claims 1 to 5 **characterised by** the fact that in correspondence with each one of the sectors of the continuous sheet of plastic-coated paper at least one window is established, which closes with the aid of a fragment of mesh, which is formal and dimensionally suitable for the said window and is fixed by heat-sealing at the periphery of each window.
3. Continuous band of plastic-coated paper for the manufacture of bags for horticultural produce and similar products in accordance with Claim 1, **characterized by** the fact that when in each section of the continuous sheet of plastic-coated paper a sole window is created with its corresponding mesh, the

said window in centred with respect to the longitudinal axis of the continuous sheet of plastic-coated paper, and to both sides of the sheet small perforations are established, without mesh, which do not coincide with the position of the rectangular cardboard plates.

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4. Continuous band of plastic-coated paper for the manufacture of bags for horticultural produce and similar products in accordance with Claim 2 **characterized by** the fact that the mesh that closes the window is a continuous strip of mesh which runs longitudinally along the continuous plastic sheet. 10
5. Continuous band of plastic-coated paper for the manufacture of bags for horticultural produce and similar products in accordance with any of the previous claims **characterised by** the fact that the plastic-coated sheet is plasticised on two sides. 15
6. Continuous band of plastic-coated paper for the manufacture of bags for horticultural produce and similar products in accordance with any of the previous claims **characterised by** the fact that in addition to the polythene reinforcements available in the handle areas, there is a second polythene reinforcement fixed to the polythene reinforcement by heat-seal or by any other procedure, with the feature that the second reinforcement is joined to the polythene reinforcement on the surface of the latter unrelated to a "U"-shaped strip delimited by a punched line which affects both the polythene reinforcement as well as the sheet of plastic-coated paper, a strip which constitutes a handle designed to emerge through the opening of the bag body. 20 25 30 35
7. Continuous band of plastic-coated paper for the manufacture of bags for horticultural produce and similar products in accordance with any of the previous claims **characterised by** the fact that the punched line determinant of the "U"-shaped strip are pre-cut or sliding lines that retain the said "U" strip in coplanar disposition with the rest of the polythene reinforcements and the sheet of plastic-coated paper. 40 45

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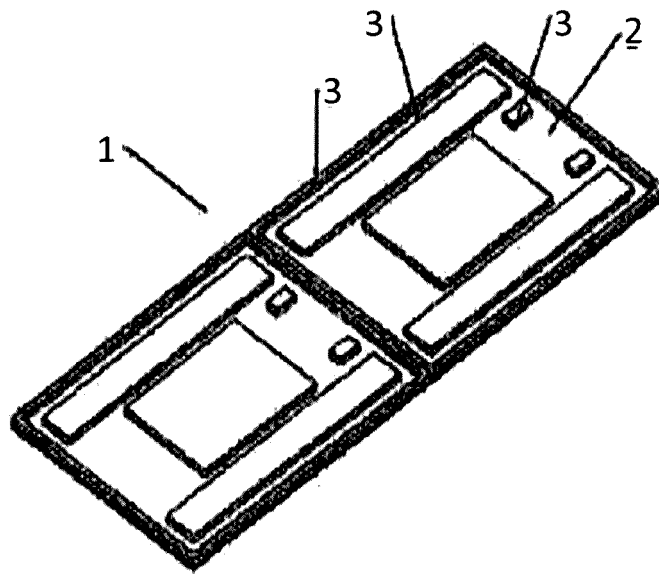


Fig. 1

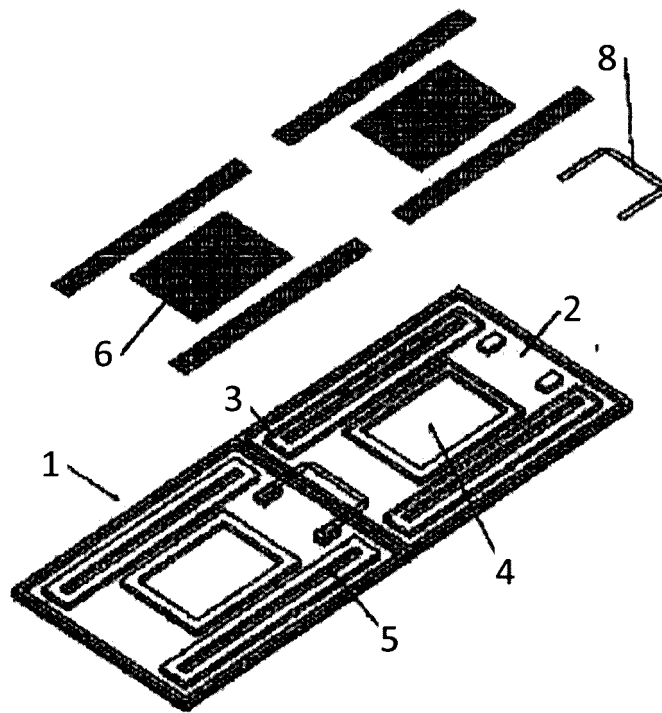


Fig. 2

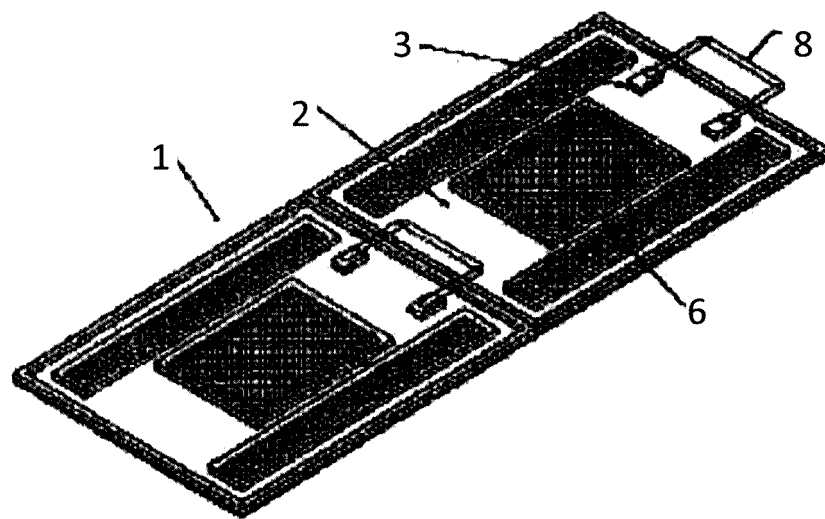


Fig. 3

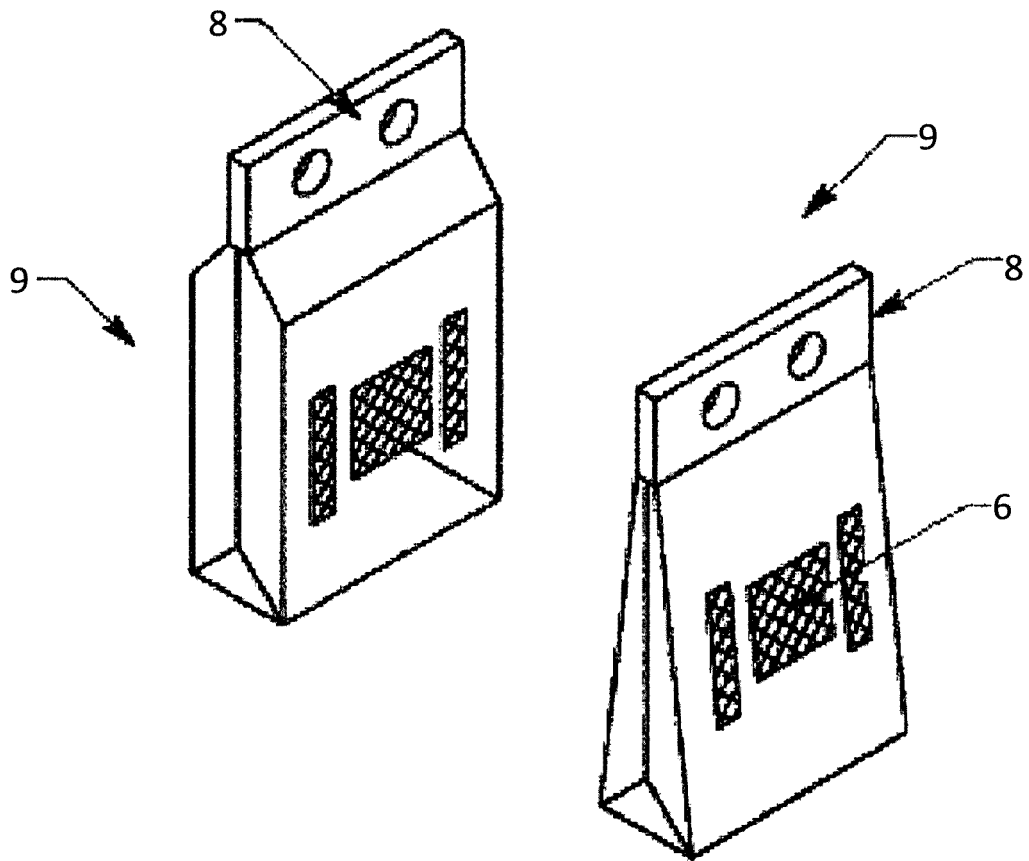


Fig. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2013/070588

A. CLASSIFICATION OF SUBJECT MATTER

B65D30/10 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, INVENES, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2008040826 A1 (MESEGUER CRISTOBAL SA ET AL.) 10/04/2008, description; figures 1 - 10.	1-7
A	ES 1040772U U (MESEGUER CRISTOBAL SA) 16/05/1999, description; figures 1 - 4.	1-7
A	WO 2012044452 A1 (NARULA VIR ET AL.) 05/04/2012, description; figures 1 - 9.	1-7
A	WO 2009122451 A1 (GIACOMETTI FERNANDO) 08/10/2009, description; figure 1-20	1-7
A	JP 2010013127 A (ISHIZAKI SHIZAI KK) 21/01/2010, Figures 1-5; Abstract from DataBase WPI; Retrieved from EPOQUE; AN JP-2008172323-A	1-7

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance.	
"E" earlier document but published on or after the international filing date	
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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"P" document published prior to the international filing date but later than the priority date claimed	"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES2013/070588

Information on patent family members

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
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