



(11) **EP 1 908 695 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention
of the grant of the patent:
22.08.2012 Bulletin 2012/34

(51) Int Cl.:
B65D 30/06 (2006.01) B31B 37/00 (2006.01)

(21) Application number: **06794062.7**

(86) International application number:
PCT/ES2006/000389

(22) Date of filing: **06.07.2006**

(87) International publication number:
WO 2007/003676 (11.01.2007 Gazette 2007/02)

(54) **METHOD OF OBTAINING A CONTINUOUS MESH TUBE WHICH IS USED TO PRODUCE BAGS FOR VEGETABLE AND FRUIT PRODUCTS OR SIMILAR PRODUCTS**

VERFAHREN ZUR ERHALTUNG EINES FÜR DIE HERSTELLUNG VON TÜTEN FÜR GEMÜSE UND OBST ODER ÄHNLICHE PRODUKTE VERWENDETEN KONTINUIERLICHEN NETZSCHLAUCHES

PROCEDE D'OBTENTION D'UN TUBE CONTINU DE MAILLE POUR LA FORMATION DE SACS POUR PRODUITS HORTOFRUITICOLES ET ANALOGUES

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI
SK TR**

(30) Priority: **06.07.2005 ES 200501645**

(43) Date of publication of application:
09.04.2008 Bulletin 2008/15

(73) Proprietor: **Preformados Tubulares, S.L.**
08915 Badalona (ES)

(72) Inventor: **DE CLASCA CABRE, Juan, Carlos**
08911 Badalona (ES)

(74) Representative: **Carvajal y Urquijo, Isabel**
Clarke, Modet & Co.
c/ Goya, 11
28001 Madrid (ES)

(56) References cited:
EP-A- 1 454 837 WO-A-2004/076162
WO-A1-03/045803 ES-A1- 2 239 920
ES-U- 1 037 623 ES-U- 1 047 800
US-A- 5 823 683

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 1 908 695 B1

Description

Field of the Invention

[0001] The present invention relates to improvements introduced in invention patent number ES2192962 relating to a process for obtaining a continuous mesh tube which is used to produce bags for vegetable and fruit products and similar products, especially applied for obtaining a continuous tube which transversely alternates crosslinked mesh strips with plastic strips and reinforcement bands located on the inner face of said tube which act, together with the mentioned laminated, as reinforcement and support for different types of graphic prints.

Background of the Invention

[0002] Different types of bags intended for containing vegetable and fruit products such as oranges, lemons, potatoes, etc. are already known on the market and are usually formed from a continuous extruded mesh tube which is filled with the mentioned products and subsequently closed in the packaging process.

[0003] The tube obtained by means of the process described in patent number ES2192962 is formed from four longitudinal strips, two lateral mesh strips and two plastic laminar strips, which are all arranged in alternating positions being partially overlapped, the laminar strips specifically being located outside the lateral mesh strips. The laminar strips and the lateral mesh strips are connected by means of heat-welding.

[0004] The tube obtained by means of the process described in the document W02004/076162 is especially indicated for packaging and transporting mussels or other similar objects, which due to the presence of the cutting edges of their valves, require an extruded mesh of great thickness in order to prevent rips or tears in the bags. The tube is formed by two continuous plastic sheets, or laminar strips, between which are arranged two half-tubes of mesh with a dihedral configuration and with their concavities oriented outwards. The laminar strips have peripheral areas forming tabs which are folded inwards enclosing peripheral areas of the half-tubes of mesh. In these areas are established joining welds between the two types of parts, determining a triple layer, specifically of two outer layers of continuous plastic and an intermediate layer of extruded mesh.

[0005] These manufacturing processes have the following drawbacks:

- The heat applied for the mentioned connection occasionally wrinkles the laminated strip and deforms the graphic prints and make the letters illegible.
- The process is limited to the use of certain materials for the mesh strips and the laminar strips because in order for the safe connection of the materials to occur it is necessary for both of them to have similar melting points, and therefore the connection of dif-

ferent types of materials and with different melting points, such as polypropylene, polyethylene, paper, etc., for example, is not allowed.

- The tube production rate is rather slow because it is necessary to wait for the melted material to cool down in order to be able to handle the tube without causing deformations.

[0006] The objective of these improvements is to solve the problems set forth, making it possible to connect the laminar strips and the lateral mesh strips by means of simple gluing, to which end it is necessary to introduce additional bands located on the inner face of the free ends of the lateral mesh strips, the main purpose of which is to reinforce the connection between the laminar strips and the lateral mesh strips.

Description of the Invention

[0007] The present invention relates to improvements introduced in invention patent number ES2192962 relating to a process for obtaining a continuous mesh tube which is used to produce bags for vegetable and fruit products and similar products. The process comprises:

- a) putting two C-shaped mesh strips on a plate forming part of a mounting, surrounding the edges of said plate so that the strips can continue to be C-shaped;
- b) arranging inwardly from the mesh strips four reinforcement bands which are initially located on a second narrower plate connected to the previous plate;
- c) passing two laminar strips through respective rollers which are subsequently arranged a certain distant from the mounting;
- d) applying glue on the inner face of the laminar strips, in the instant that the laminar strips (pass through the respective rollers;
- e) locating right under the innermost face of the mesh strips the reinforcement bands, as a result of respective pairs of eyelets made on the plate;
- f) pressing the laminar strips by means of a pressure rollers which press each laminar strip, the inner face of which is previously impregnated with glue, against the corresponding mesh strip and in turn against the reinforcement bands located under the free ends of each mesh strip.

[0008] Additionally, the process comprises previously to the step f):

- f.0) tensing the laminar strips (1-1') by means of intermediate rollers (12-12').

[0009] The tube obtained by means of said process is formed by four strips, two laminar strips and two other mesh strips, all of which are arranged in alternating positions, partially overlapping along bands connected to

one another, providing in addition to the mentioned laminar strips four reinforcement bands located near both free ends of each of the mesh strips being connected to their inner face and to the laminar strips.

[0010] It is therefore achieved that there is no deformation of the laminar strips since they do not have to be heating for connecting them to the mesh strips; different materials can be used in the manufacture of the tube, such as paper with polypropylene or polyethylene, and the tube manufacture rate is furthermore considerably increased.

[0011] Said connection of the reinforcement strips to the inner face of the mesh strips and to the laminar strips is preferably carried out by means of gluing. It can also be carried out by means of high frequency welding.

[0012] As a result of the described configuration, a sandwich arrangement is defined in each of the four connections existing in the tube formed by three layers: a first layer formed by the end of the corresponding laminated strip, an intermediate layer formed by the end of the mesh strip and a third layer formed by the corresponding band; said arrangement makes the bags formed from the tube defined in the present invention to be very strong and it causes greater verticality or rigidity of the tube, making the storage of bags filled with products safer and more stable.

[0013] In addition, the placement of the reinforcement bands in coincidence with the handle that each bag incorporates makes the fixing of said handles firmer than if they were only connected to the laminar strips, thus preventing said handles from becoming detached during transport of the bags and therefore preventing the transported product from being damaged.

Brief Description of the Drawings

[0014] The makeup, form of assembly and improved advantages introduced in invention patent number ES2192962 relating to a process for obtaining a continuous mesh tube which is used to produce bags for vegetable and fruit products and similar products, and the tube obtained by means of said process, are explained below in greater detail in the attached drawings which aid in better understanding the invention and which are expressly related to embodiments of said invention that are presented as illustrative and non-limiting examples thereof.

Figure 1 shows a cross-sectional view of the tube obtained by the process object of the present invention.

Figure 2 shows a plan schematic view of the facility for manufacturing the tube.

Figure 3 shows a side schematic view of the facility for manufacturing the tube.

Description of an Embodiment of the Invention

[0015] As can be seen in Figure 1, the improved continuous mesh tube which is used to produce bags for vegetable and fruit products is formed from four strips: two laminar strips 1-1' and two other mesh strips 2-2', all of which are arranged in altering positions, partially overlapping along bands connected to one another.

[0016] In addition to the four mentioned strips, the tube has four reinforcement bands 3-3' and 4-4' located near both free ends of the mesh strips, specifically bands 3 and 3' are located at the free ends of mesh strip 2 and bands 4 and 4' on the free ends of mesh strip 2', being connected to their inner face and at the same time to the laminar strips 1-1'.

[0017] Said laminar strips 1-1' will each be arranged on the free ends of the two mesh strips 2-2' by means of glue, i.e. laminated strip 1 will be placed on the ends 5 and 6 of the mesh strips 2-2' respectively, and laminated strip 1' will be placed on ends 5' and 6' of mesh strips 2-2' respectively; Figure 1 clearly shows the described arrangement.

[0018] Four connections coinciding with the position of the mentioned reinforcement bands 3-3' and 4-4' are thus defined with the mentioned arrangement, which bands are arranged longitudinally with regard to the casing of the tube. In each one of the mentioned connections there will be a three-layered structure formed by an outermost layer made up of the ends of the laminar strips, by an intermediate layer made up of the ends of the mesh strips, and by an innermost layer made up of the reinforcement bands.

[0019] With regard to the facility for manufacturing the improved tube, as can be seen in Figures 2 and 3, mesh strips 2-2' are used to start, which strips can be obtained in two ways: either from two strips which are bent in the shape of a C, or from a closed mesh tube which is cut into two equal portions defining two likewise C-shaped semi-tubes.

[0020] At the beginning of the facility, the mesh strips 2-2' are put on a plate 7 forming part of the mounting, surrounding the edges of said plate so that the strips can continue to be C-shaped; the reinforcement bands 3 and 4 for their part are initially located on a second narrower plate 8 connected to the previous plate such that they are arranged inwardly from the mesh strips; bands 3 and 4 are above the mentioned second plate 8 and bands 3' and 4' are under said plate.

[0021] Respective rollers 9-9' are subsequently arranged a certain distance from the mounting through which the laminar strips 1 and 1' pass, respectively; in that instant four glue applicators, two applicators 10 located above the tube and two applicators 10' below it, apply glue on the inner face of the laminar strips 1-1', respectively.

[0022] The bands, which will at first run outside the mesh strips, as can be seen in Figure 2, will then, as a result of respective pairs of eyelets 13-13' made on the

plate 7 (made at 45° in this case) and shown in the figure by means of a disruption in the path of the mentioned bands, be located right under the innermost face of the mesh strips (in order to simplify the drawing, Figure 2 only shows a pair of bands 3 and 4 with their corresponding parallel eyelets at 45°).

[0023] Each of the laminar strips 1-1' is led to pressure rollers 11-11', respectively, by means of intermediate rollers 12-12' tensing said laminar strips; said pressure rollers press each laminated strip, the inner face of which is previously impregnated with glue, against the corresponding mesh strip and in turn against the reinforcement bands located under the free ends of each laminated mesh, achieving that the connection reinforced by the mentioned bands is carried out between the laminar strips and the free ends of the mesh strips, defining a very strong closed tube, the sides of which are made of normally extruded mesh and the front ends of which are made of a laminated strip which can be printed on with commercial and informative motifs.

[0024] The connection obtained between the laminar strips and the mesh strips is very strong due to the fact that the mesh strip is located in an intermediate position between the corresponding laminated strip and the reinforcement band, and due to its mesh structure, the glue deposited on the laminated layer passes through the holes of the mesh strip and reaches the band, connecting the three layers in a single pressure-application step by means of the pressure rollers 11-11', defining a sandwich-type structure in which the mesh strip layer is retained between the corresponding laminated strip layer and the layer formed by the reinforcement band.

Claims

1. Process for obtaining a continuous mesh tube which is used to produce bags for vegetable and fruit products and similar products, **characterized in that** it comprises:

- a) putting two C-shaped mesh strips (2-2') on a plate (7) forming part of a mounting, surrounding the edges of said plate (7) so that the strips (2-2') can continue to be C-shaped;
- b) arranging inwardly from the mesh strips (2-2') four reinforcement bands (3-3', 4-4') which are initially located on a second narrower plate (8) connected to the previous plate (7);
- c) passing two laminar strips (1-1') through respective rollers (9-9') which are subsequently arranged a certain distant from the mounting;
- d) applying glue on the inner face of the laminar strips (1-1'), in the instant that the laminar strips (1-1') pass through the respective rollers (9-9');
- e) locating right under the innermost face of the mesh strips (2-2') the reinforcement bands (3-3', 4-4'), as a result of respective pairs of eyelets

(13-13') made on the plate (7);

f) pressing the laminar strips (1-1') by means of a pressure rollers (11-11') which press each laminar strip (1-1'), the inner face of which is previously impregnated with glue, against the corresponding mesh strip (2-2') and in turn against the reinforcement bands (3-3', 4-4') located under the free ends of each mesh strip (2-2').

2. Process for obtaining a continuous mesh tube according to claim 2, **characterized in that** previously to the step f) it comprises:

f.0) tensing the laminar strips (1-1') by means of intermediate rollers (12-12').

Patentansprüche

1. Verfahren zur Erhaltung von einem kontinuierlichen Netztrohr, welches für die Herstellung von Beuteln für Gemüse- und Obstprodukte und ähnliche Produkte verwendet wird, **dadurch gekennzeichnet, dass** es Folgendes umfasst:

- a) Bereitstellen von zwei C-förmigen Netzbändern (2-2') auf eine Platte (7), die Teil von einem Rahmen ist, wobei die Ränder der genannten Platte (7) umgeben werden, so dass die Streifen (2-2') die C-Form erhalten können;
- b) Anbringen innerlich von den Netzbändern (2-2') von vier Verstärkungsbändern (3-3', 4-4'), welche anfänglich auf einer zweiten engeren Platte (8) angebracht sind, die mit der vorhergehenden Platte (7) verbunden ist;
- c) Durchführen von zwei flächenförmigen Streifen (1-1') durch jeweilige Walzen (9-9'), welche anschließend mit einem bestimmten Abstand von dem Rahmen angeordnet sind;
- d) Anbringen von Klebstoff auf die innere Seite der flächenförmigen Streifen (1-1'), zum Zeitpunkt, in welchem die flächenförmigen Streifen (1-1') durch die jeweilige Walzen (9-9') durchgehen;
- e) Platzieren genau unter der innersten Seite der Netzbänder (2-2') von den Verstärkungsbändern (3-3', 4-4'), als Ergebnis von jeweiligen Paaren von Ösen (13-13'), welche an der Platte (7) angebracht sind;
- f) Drücken der flächenförmigen Streifen (1-1') mittels Druckwalzen (11-11'), welche jeden flächenförmigen Streifen (1-1') drücken, wobei die innere Seite desselben vorher mit Klebstoff imprägniert wird, gegen den entsprechenden Netzbänder (2-2') und wiederum gegen den Verstärkungsbändern (3-3', 4-4'), welche unter den freien Enden von jedem Netzbänder (2-2')

platziert sind.

2. Verfahren zur Erhaltung von einem kontinuierlichen Netzrohr nach Anspruch 2, **dadurch gekennzeichnet, dass** es vor dem Schritt f) Folgendes umfasst: 5

f.0) Spannen der flächenförmigen Streifen (1-1') mittels Zwischenwalzen (12-12').

10

Revendications

1. Procédé d'obtention d'un tube en treillis continu qui est utilisé pour produire des sacs pour des légumes et des fruits et des produits similaires, **caractérisé en ce qu'il** comprend : 15

a) mettre deux bandes en treillis sous forme de C (2, 2') sur une plaque (7) faisant partie d'un support, entourer les bords de ladite plaque (7) afin que les bandes (2-2') puissent continuer à être sous forme de C ; 20

b) disposer intérieurement à partir des bandes en treillis (2-2') quatre bandes de renfort (3, 3', 4-4') qui sont initialement situées sur une deuxième plaque plus étroite (8) reliée à la plaque précédente (7) ; 25

c) passer deux bandes laminaires (1, 1') à travers les rouleaux respectifs (9-9') qui sont disposés ensuite à une certaine distance du support ; 30

d) appliquer de la colle sur la face intérieure des bandes laminaires (1-1'), au moment où les bandes laminaires (1-1') passent à travers les rouleaux respectifs (9-9') ; 35

e) situer juste sous la face interne des bandes en treillis (2-2') les bandes de renfort (3-3', 4-4'), du fait des paires respectives d'oeillets (13-13') aménagés sur la plaque (7) ;

f) presser les bandes laminaires (1-1') au moyen de rouleaux de pression (11-11') qui pressent chaque bande laminaire (1-1'), la face interne desquelles est préalablement imprégnée de colle, contre la bande en treillis correspondante (2-2') et à son tour contre les bandes de renfort (3-3', 4-4') situées sous les extrémités libres de chaque bande en treillis (2-2'). 40 45

2. Procédé d'obtention d'un tube en treillis continu selon la revendication 2, **caractérisé en ce que** préalablement à l'étape f) il comprend : 50

f.0) tendre les bandes laminaires (1.1') au moyen de rouleaux intermédiaires (12-12').

55

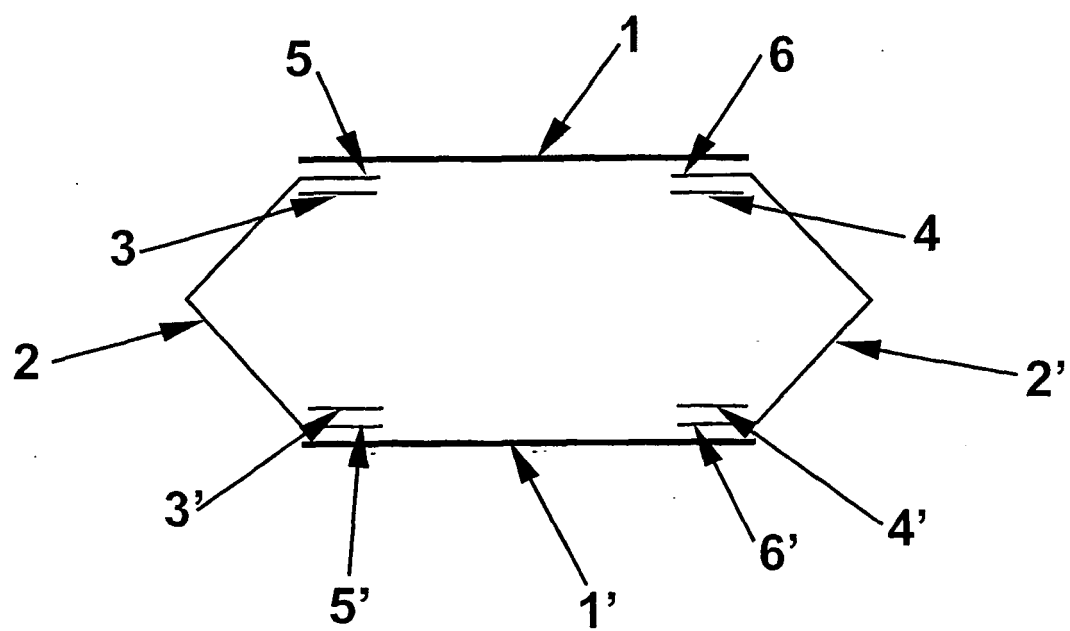
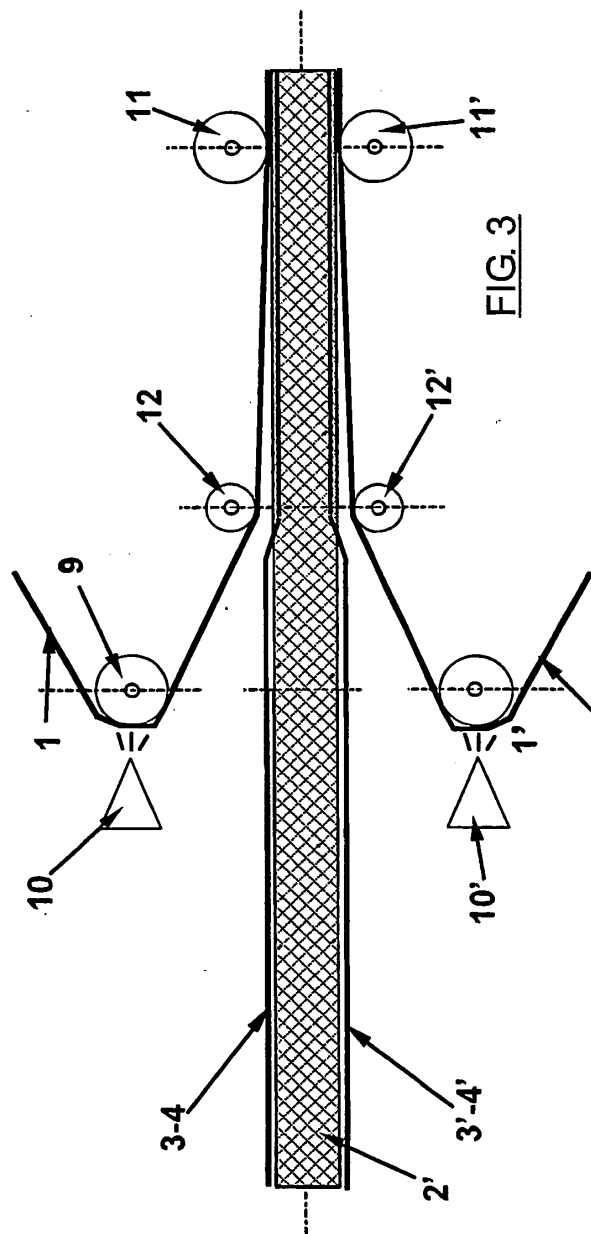
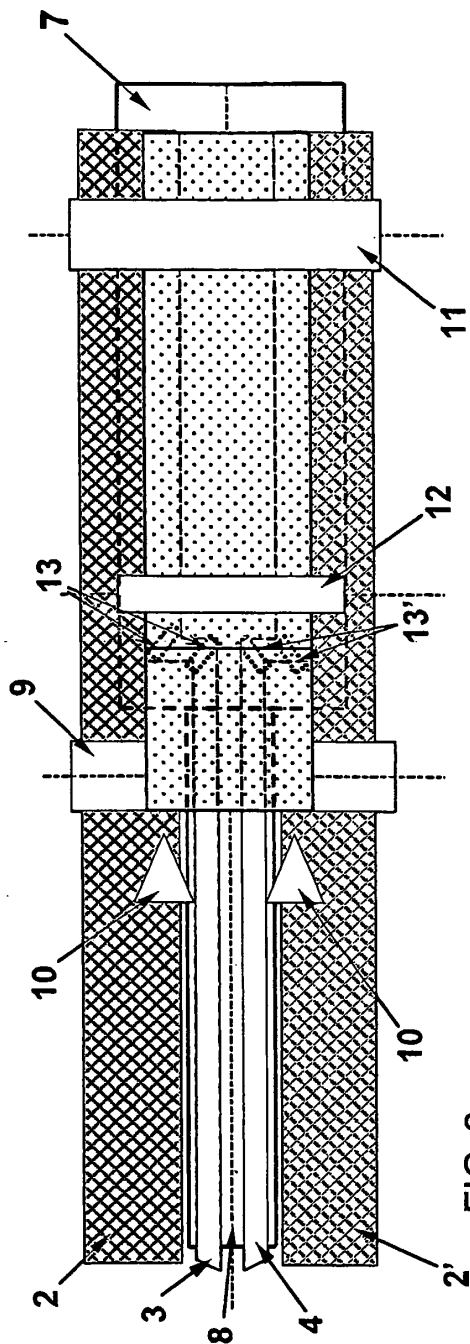


FIG. 1



REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- ES 2192962 [0001] [0003] [0007] [0014]
- WO 2004076162 A [0004]