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(54) **METHOD FOR MANUFACTURING FLEXIBLE PACKAGES HAVING A DISPENSING VALVE**

(57) Method for manufacturing flexible packages having a dispensing valve; which comprises: the vertical forming of a tubular body (2) by means of the vertical displacement and the longitudinal folding of a thermosealable film (1); the longitudinal sealing of two vertical ends (11, 12) of thermosealable film (1); obtaining independent flexible envelopes (3) from the tubular body (2), provided with a closed bottom and an open upper mouth (33), by

means carrying out successive transversal sealings (32) and transversal cuts in said tubular body; and the horizontal displacement of the successive flexible envelopes (3) by a series of workstations in which the metering of the product to be packaged is carried out, the insertion of a dispensing valve (4) in the upper mouth (33) of the flexible envelope (3) and the sealing (34) of the upper mouth (33), fixing the dispensing valve (4).

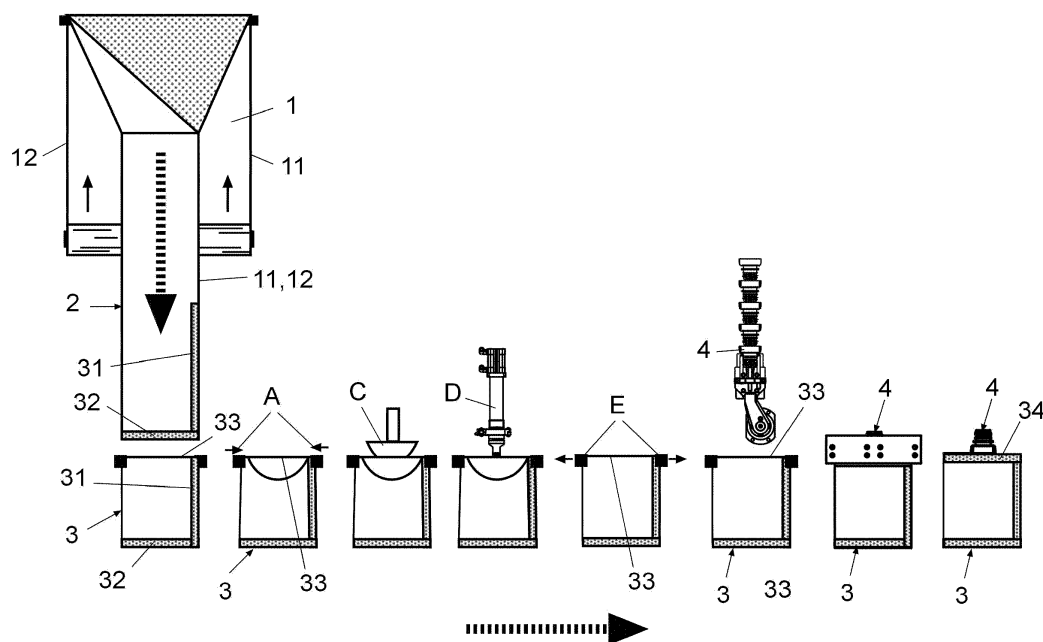


Fig.1

Description

OBJECT OF THE INVENTION.

[0001] The object of the present invention is a method for manufacturing flexible packages having a dispensing valve which has characteristics aimed at minimizing the space required for manufacturing these types of packages and notably simplifying said manufacturing process.

FIELD OF APPLICATION OF THE INVENTION.

[0002] This invention is applicable to the sector dedicated to the manufacturing of packages and in particular packages for liquids or pasty products.

PRIOR ART.

[0003] At present, there are a number of packages on the market for all types of products and they have a more or less rigid configuration, when made of plastics material or sheets which include layers of different materials such as cardboard, aluminum and plastic.

[0004] There are also a large number of packages on the market, dedicated in particular to liquids and pasty products which comprise a body in the form of a bag or envelope formed in a flexible thermosealable film and which have at their upper end a dispensing valve, generally made of rigid plastic, joined to the envelope of the package by thermosealing.

[0005] From among these types of packages can be distinguished those which comprise a flat flexible envelope provided with two faces, one front and another rear, joined by their periphery; and those which comprise an envelope which has two portions folded in the manner of a bellows between the ends of the front and rear face.

[0006] The flexible packages provided with a flat envelope are commonly manufactured in horizontal packaging machines carrying out the unwinding of a thermosealable film, the folding of the two longitudinal halves of the film towards the upper area to form the front and rear faces of the packages, subsequently carrying out the lateral sealings required to delimit the lateral ends of the envelope, the separation by cutting the successive envelopes, the filling of the same and lastly the insertion of the valve in the upper mouth of the envelope and the closing of the same by sealing.

[0007] The manufacturing of these flexible packages of flat envelope, when carried out in a horizontal packer, requires the use of an elevated space for the setting up of the machine in question.

[0008] The flexible packages which comprise an envelope with lateral bellows as described for example in the European patent EP1538105, or in the European patent EP 0751081, have a much greater constructive complexity since the manufacture of the envelope is carried out in a flat manner, that is to say, with the envelope lying

flat and from four portions of film previously molded. Two of the portions of thermosealable film intended to form the front and rear faces of the envelope are arranged flat while the other two portions of the film intended to form the lateral bellows are arranged folded through their longitudinal central area between the opposing lateral ends of the portions forming the front and rear face.

[0009] Specifically in the mentioned European patent, EP 0751081 there is described the method for manufacturing which requires a temporal joining to be established between the four portions of film forming the front and rear faces and the lateral bellows, subsequently carrying out the sealing of the same and leaving an opening open to insert the dispensing valve which is lastly fixed to the package.

[0010] In addition to the complexity which is involved in its manufacture, this package has the drawback that it must be subsequently manipulated to carry out the filling of the same by way of the valve, which makes the packaging of the product within its interior difficult and more expensive.

[0011] The technical problem posed is thus the development of a method for manufacturing flexible packages having a dispensing valve, of the type mentioned above which notably simplifies its manufacture and even its filling.

DESCRIPTION OF THE INVENTION.

[0012] The method for manufacturing flexible packages having a dispensing valve which is the object of this invention has constructive particularities aimed at drastically simplifying the manufacture of these types of packages and in particular flexible packages with lateral bellows, although the use of the same method for manufacturing flexible packages with a flat envelope, that is to say, without lateral bellows, is not disregarded.

[0013] In order to achieve objects set out, the method of the invention comprises the following steps:

- a) the unwinding of a flexible thermosealable film;
- b) the vertical forming of a continuous tubular body by means of the vertical displacement and the longitudinal folding of the thermosealable film such that the vertical ends of the film are arranged opposing each other along their entire length;
- c) the longitudinal sealing of the two opposing ends of the film laterally closing the tubular body;
- d) obtaining independent flexible envelopes from the tubular body, provided with a closed bottom and an open upper mouth, by means of carrying out successive transversal sealings (32) and transversal cuts in said tubular body;
- e) the horizontal displacement of the successive independent envelopes by a series of work stations in which the metering or filling of the product to be packaged in the interior of the envelope is carried out, the insertion of an opening valve in the upper mouth of

the envelope and the sealing of the upper mouth of the envelope, establishing the fixing of the dispensing valve to the envelope and the finishing of the package.

[0014] This method of manufacture notably simplifies the manufacture of the flexible packages having a dispensing valve since the vertical forming of the body of the envelope enables this to be flat or have lateral bellows, being formed, in any case, from a single sheet of film and with a single longitudinal sealing, that is to say, in the vertical direction, for closing the edge of the envelope.

[0015] Another advantage which this method of manufacturing provides is that the formation of the envelopes is carried out vertically, that is to say, in a direction parallel to that of the filling of the package, the latter being maintained in a vertical position from the obtaining thereof from the continuous tubular body to the finalizing of the package.

[0016] This allows the filling of the package with the product to be packaged to be carried out before or after inserting the dispensing valve in the upper mouth of the envelope and carrying out the sealing of the mouth of the envelope establishing the fixing of the dispensing valve to the envelope.

[0017] The formation of the envelopes vertically, and the rest of the operations (filling, insertion of the dispensing valve and upper closing of the package) in the horizontal direction, significantly reduces the space required for the installation of the machinery required for carrying out these operations which constitutes a highly relevant advantage with respect to the processes for manufacturing which carry out all of the operations in the horizontal direction.

DESCRIPTION OF THE FIGURES.

[0018] In order to complement the ongoing description and with the object of facilitating the understanding of the characteristics of the invention, a set of drawings accompany this specification in which the following is depicted in an illustrative and non-limiting manner:

- Figure 1 shows a schematic view of an elevation of an exemplary embodiment of the method for manufacturing flexible packages having a dispensing valve according to the invention.
- Figure 2 shows a perspective view of a flexible package provided with an envelope with a bellows obtained by the method of the invention.
- Figure 3 shows a plan view of the tubular element formed vertically according to the method of the invention for manufacturing the envelope with lateral bellows from Figure 2.
- Figure 4 shows a perspective view of a flexible package provided with a flat envelope obtained by the method of the invention.

- Figure 5 shows a plan view of the tubular element formed vertically according to the method of the invention for manufacturing the flat envelope (without lateral bellows) from Figure 5.

PREFERRED EMBODIMENT OF THE INVENTION.

[0019] As depicted in Figure 1, the method of the invention comprises the unwinding of a flexible thermosealable film (1) supplied in a reel and the vertical formation, with said thermosealable film (1), of a continuous tubular body (2) by means of the vertical displacement and the longitudinal folding of the thermosealable film (1) such that the vertical ends (11, 12) of the thermosealable film (1) are arranged opposing each other along their entire length.

[0020] Subsequently, in the tubular body (2), a longitudinal sealing (31) is carried out which joins the two opposing ends (11, 12) of the thermosealable film laterally closing the tubular body (2).

[0021] By means of carrying out transversal sealings (32) and transversal cuts in the tubular body (2), independent successive flexible envelopes (3) are obtained, provided with a bottom closed by the corresponding transversal sealing (32) and with an open upper mouth (33).

[0022] As these envelopes (3) are formed and released from the tubular body (2), which is produced at a determined height, they are horizontally displaced towards a series of work stations in which the filling and finishing is carried out.

[0023] In said work stations, which are horizontally spaced, the opening of the envelope (3) is carried out, laterally approximating the opposing ends of the upper mouth (33) and introducing in its interior a blowing cone (C) to separate the opposing faces of the same.

[0024] Subsequently, the metering (D) or filling of the same with the product to be packaged is carried out, the upper mouth (33) of the flexible envelope (3) is stretched (E), separating its opposing ends; a dispensing valve (4) is introduced into the said upper mouth (33) by means of an automatic feeder; and a sealing (34) is carried out which closes the upper mouth (33) and fixes the dispensing valve (4) to the flexible envelope (3), finalizing the manufacture of the package.

[0025] This method of manufacturing, as a function of the horizontal section of the tubular body (2) formed vertically with a single thermosealable film, allows the following to be obtained:

- packages whose envelope (3a) has a single longitudinal sealing (31), two faces (35) front and rear and two lateral bellows (36), as shown in Figures 2 and 3.
- packages whose envelope (3b) has a single longitudinal sealing (31), two faces (35) front and rear, lacking lateral bellows and adopting a flattened configuration, as shown in Figures 3 and 4.

[0026] Once the nature of the invention has been sufficiently described, as well as a preferred exemplary embodiment, it should accordingly be pointed out that the materials, form, size and arrangement of the elements described may be modified, provided that it does not involve an alteration of the essential characteristics of the invention as claimed below.

Claims

1. Method for manufacturing flexible packages having a dispensing valve **characterized in that** it comprises the following steps:
 - a) the unwinding of a flexible thermosealable film (1);
 - b) the vertical forming of a continuous tubular body (2) by means of the vertical displacement and the longitudinal folding of the thermosealable film (1) such that the vertical ends (11, 12) of the thermosealable film (1) are arranged opposing each other along their entire length;
 - c) the longitudinal sealing of the two opposing vertical ends (11, 12) of the thermosealable film (1) laterally closing the tubular body (2);
 - d) obtaining independent flexible successive envelopes from the tubular body (2), provided with a closed bottom and an open upper mouth (33), by means of carrying out successive transversal sealings (32) and transversal cuts in said tubular body;
 - e) the horizontal displacement of the successive independent envelopes (3) by a series of work stations in which the metering (D) or filling of the product to be packaged in the interior of the successive flexible envelopes (3) is carried out, the insertion of an dispensing valve (4) in the upper mouth (33) of the flexible envelopes (3) and the sealing (34) of the upper mouth (33) of the flexible envelopes, establishing its closing and the fixing of the dispensing valve (4) to the corresponding flexible envelope (3).
2. Method according to claim 1, **characterized in that** during vertical forming of the tubular body (2), there are defined in the thermosealable film (1), longitudinal folds which define a flexible envelope (3a) having two faces (35), front and rear, and two lateral bellows (36).
3. Method according to Claim 1, **characterized in that** during vertical forming of the tubular body (2), there are defined in the thermosealable film, longitudinal folds which define a flexible envelope (3a) having two faces (35), front and rear, and two lateral bellows (36).

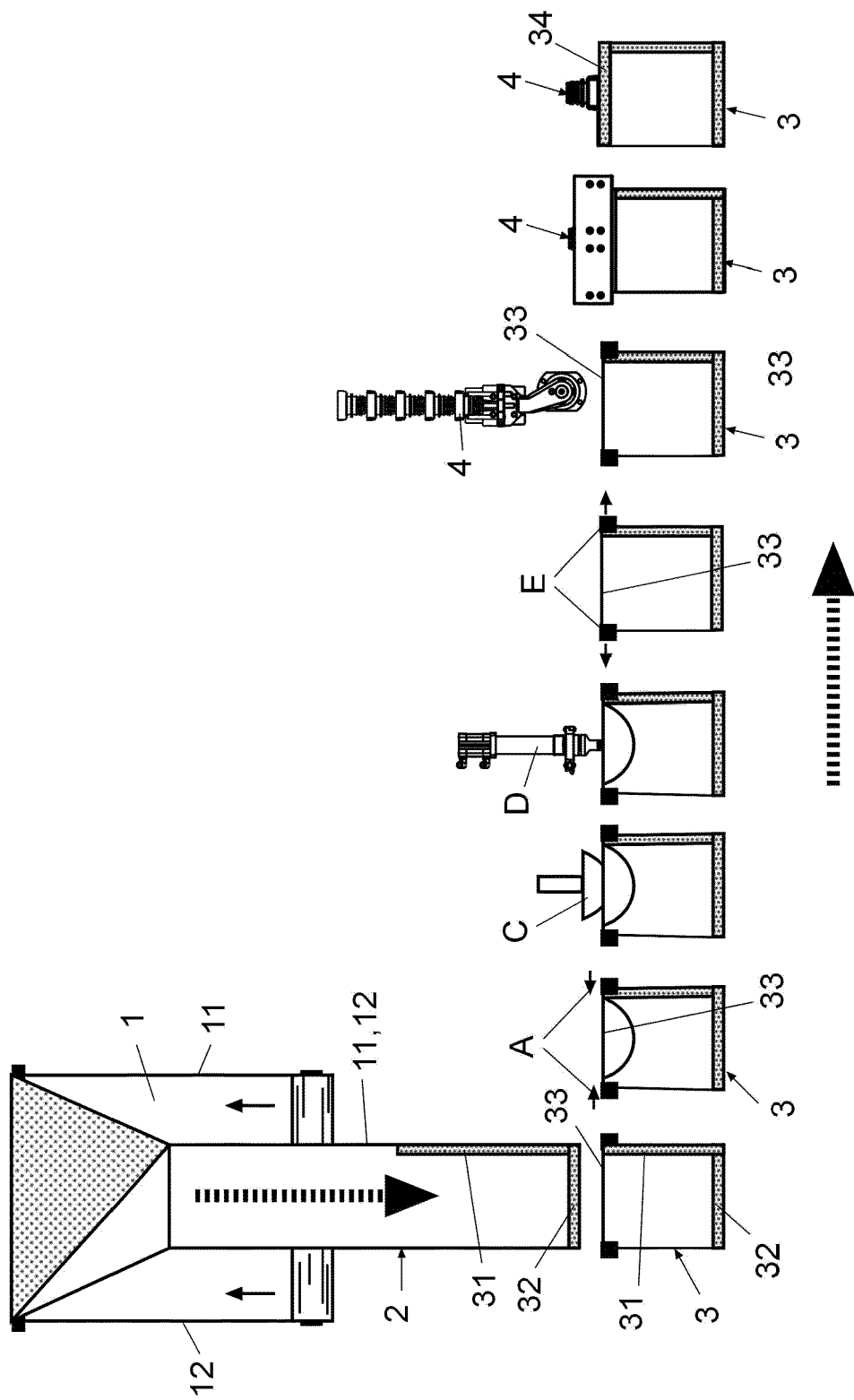


Fig.1

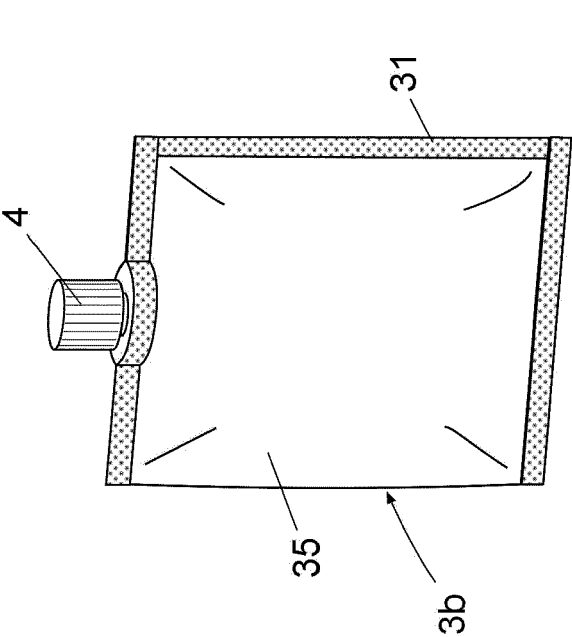


Fig. 2

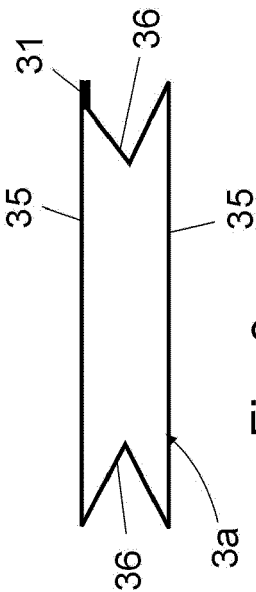


Fig. 3

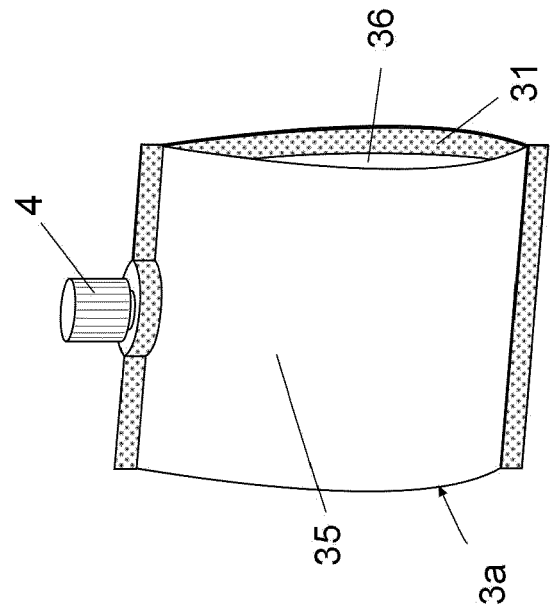


Fig. 4

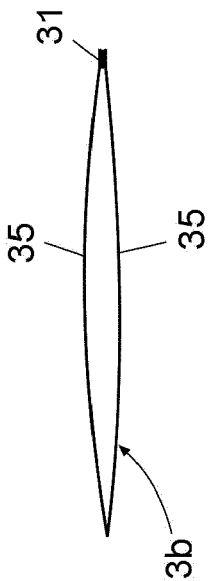


Fig. 5



EUROPEAN SEARCH REPORT

Application Number
EP 15 38 2140

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	US 2009/056281 A1 (MURRAY R CHARLES [US]) 5 March 2009 (2009-03-05) * paragraphs [0005], [0007], [0021] - [0034], [0046] - [0105]; figures 5,9,10 *	1-3	INV. B65B9/093 B65B3/02 B65B43/04
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A	US 5 564 259 A (STOLMEIER ROBERT C [US]) 15 October 1996 (1996-10-15) * figure 2 *	1-3	
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 24 June 2015	Examiner Cardoso, Victor
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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