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**DE-A-1 411 852**
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**DE-B-1 274 432**
**US-A-2 559 873**
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**Description**

The invention relates to a method of manufacturing paper bags according to the pre-characterizing portion of claim 1.

In some applications of paper bags the valve aperture of the paper bag is required to be comparatively well sealing. An example are toxic chemical substances to be packaged in paper bags. In order to achieve good sealing in the valve aperture of a paper bag has been fitted a sheet which is closed by inverting it after filling the paper bag. Both ends of the paper bags are provided with sewn seams.

The paper bag of prior art described above has up to date been manufactured using the following manufacturing procedure. Full width paper web is run in a tubular form of desired dimensions, the paper bag now in tubular form comprising a sleeve part in which both ends are open. In the next step of the method one open end of the tubular paper bag is closed by sewing and the valve aperture corner is folded. Thereafter the tubular paper bags are taken off the production line and separate sheets are manually mounted on the valve aperture. Next, the tubular paper bags are returned to the production line and the sewing of the valve aperture end is carried out in order to produce a finished paper bag.

This method is encumbered by several drawbacks. The method requires the cutting of separate sheet blanks and the manual placing of them into the valve aperture which is a cumbersome step and in which costs are incurred. Moreover, the paper bag blanks have to be run twice through the production line with the result that efficient enough production cannot be achieved.

To avoid some of those drawbacks the DE-B-1 119 644 discloses a method of manufacturing paper bags of the type indicated in the pre-characterizing portion of claim 1. In this method, sheet blanks are automatically affixed on a paper web, or in the case of utilizing a paper web being composed of several paper layers, are automatically inserted between two of those layers. The sheet blanks are situated on the paper web in such a manner that they are positioned in a corner portion after the paper web has been brought into a tubular form and separated in desired dimensions. Afterwards valve means are inserted into those sheets. Then the tubular paper bags are sewn together at this end portions.

During this method of manufacturing a paper bag the production of the paper bag is interrupted when the valve means is inserted into the sheet before sewing together the top end and the bottom end of the paper bag.

It is an object of the present invention to provide a method of manufacturing paper bags, by which finished paper bags can be produced in a continuous on-line process.

This object is achieved according to the invention by the characterizing features of claim 1. The positioning of the sheet blank in connection with the pleating of the corresponding corner portion before sewing both open ends provides a finished paper bag without break in the production process.

Further advantages of the method are gained if it is carried out according to the subclaims.

The invention is described in detail by referring to certain advantageous embodiments of the invention presented in the Figs. of the attached drawing, but to which the invention is not intended to be exclusively confined.

Fig. 1 presents a paper bag in the art, viewed from above.

Fig. 2 presents schematically that step of the method of the invention wherein the sheet blanks are affixed to the full width paper web.

Fig. 3 presents schematically that step of the method of the invention in which the paper bags are in tubular form, with the sheet blank affixed to the valve aperture.

Fig. 4a presents an advantageous embodiment of the sheet blank of the invention.

Fig. 4b presents another advantageous embodiment of the sheet blank of the invention.

Fig. 4c presents a third advantageous embodiment of the sheet blank of the invention.

Fig. 5 presents a part of a paper bag in tubular form made by the procedure of the invention, viewed from one side.

Fig. 6 presents a paper bag in tubular form made by the procedure of the invention, viewed from one end.

The paper bag known in prior art, depicted in Fig. 1, has been generally indicated by the reference numeral 10. The paper bag 10 comprises a sleeve 11, a bottom part 12 and a top part 13. In the corner of the top part 13 a valve aperture has been provided, fitted with a patch or sheet 14 to close the valve aperture after the bag 10 has been filled. Both ends, respectively the bottom and the top part 12 and 13 of the paper bag 10 have been provided with a sewn seam 15. The pleats of the paper bag 10 are indicated by the reference numeral 16. The sleeve 11 of the paper bag 10 usually consists of several material layers, for instance of the 6-fold material thickness.

In the method of the invention, as shown in Fig. 2, to the full width paper web 20 are affixed by glueing or in another equivalent manner sheet blanks 24 with a given spacing. Hereafter the full width paper web 20 is run to tubular form and cut in fixed lengths, as shown in Fig. 3. Thereby the paper bag 20a, 20b in tubular form, etc. comprises a sleeve 21, with both ends open and having on its corner a sheet blank 24. The paper bags 20a, 20b in tubular form etc., depicted in Fig. 3, have pleats 26 indicated with a dotted line. Next, the paper bags 20a, 20b, etc. in tubular form are folded in one corner and both open ends are sewn with a seam 15, whereby the finished paper bag 10, depicted in Fig. 1, is obtained. In Figs. 5 and 6 the glueing line of the sleeve 21 is indicated by the reference numeral 29 and the incision, made in the sheet blank 24, by the reference numeral 27.

In Fig. 4a has been presented an advantageous embodiment of the sheet blank 24a of the inven-

tion. In this embodiment the sheet blank 24a has been provided with an incision 27a, whereby folding the valve aperture by machine means is reliably managed. It should be noted that the incision 27a is made in the first step of the procedure of the invention, at which to the full width paper web 20 sheet blanks 24a are glued with a given spacing. In addition, in the sheet blank 24a has been made an oblique cut 28a, whereby the folded sheet blank 24a can be better opened in the finished paper bag 10.

The sheet blank 24b shown in Fig. 4b is in some respects the same as the sheet blank 24a of Fig. 4a, but in the sheet blank 24b of Fig. 4b has been removed, instead of the incision 27a, a segmentally shaped piece 27b. The sheet blank 24b also has an oblique cut 28b.

In the case of the sheet blank 24c, depicted in Fig. 4c, from the sheet blank 24c has been removed a substantially triangular piece 27c and an oblique cut 28c has been made in the sheet blank 24c.

**Claims**

1. Method of manufacturing paper bags, said paper bags (10) being provided at both ends with a sewn seam (15) and having in the corner of the paper bag (10) a valve aperture provided with a sheet (14), with sheet blanks (24) being affixed in a given spacing onto a full width paper web (20), the full width paper web being run to assume tubular form and cut into sleeve—like fixed lengths with both ends open and the open ends being sewn, characterized in that the sheet blanks (24, 24a, 24b, 24c, etc.) are affixed onto the outer surface of that layer of the full width paper web (20) which in tubular form (20a, 20b, etc.) becomes the outer surface and that on the paper bags in tubular form (20a, 20b, etc.) the corners carrying the sheet blanks are folded before sewing the open ends.

2. Method according to claim 1, characterized in that for sheet blank (24, 24a) is used a sheet blank (24, 24a) furnished with an incision (27, 27a), and that the incision (27, 27a) is made in that step of the method at which to the full width paper web (20) are glued sheet blanks (24) with a given spacing.

3. Method according to claim 1, characterized in that for sheet blank (24) is used a sheet blank (24b) from which has been removed a substantially segment-shaped piece (27b), and that removal of the segment-shaped piece (27b) is carried out in that step of the method at which to the full width paper web (20) are fixed sheet blanks (24) with a given spacing.

4. Method according to claim 1, characterized in that for sheet blank (24) is used a sheet blank (24c) from which has been removed a substantially triangular piece (27c), and that the removal of the substantially triangular piece (27c) is carried out in that step of the method at which to the full width paper web (20) are affixed sheet blanks (24) with a given spacing.

5. Method according to any one of claims 1 to 4, characterized in that for sheet blanks (24a, 24b, 24c) are used sheet blanks, in the edge of which an oblique cut (28a, 28b, 28c) has been made.

**Patentansprüche**

1. Verfahren zur Herstellung von Papiersäcken (10), die an beiden Enden mit einer Naht (15) versehen sind und an einer Ecke des Papiersacks (10) eine Füllöffnung haben, die mit einem Blatt (14) versehen ist, wobei Blattrohlinge (24) in einem vorgegebenen Abstand aud eine Papierbahn (20) voller Breite befestigt werden, die derart geführt wird, daß sie Rohrform annimmt und die in schlauchartige Teillängenabschnitte mit zwei offenen Enden geschnitten wird, wobei die offenen Enden vernäht werden, dadurch gekennzeichnet, daß die Blattrohlinge (24, 24a, 24b, 24c, etc.) auf der Außenfläche der Schicht der Papierbahn (20) voller Breite befestigt werden, die in Rohrform (20a, 20b, etc.) zur Außenfläche wird, une daß auf den Papiersäcken in Rohrform (20a, 20b, etc.) die die Blattrohlinge tragenden Ecken gefaltet werden, bevor die offenen Enden vernäht werden.

2. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß als Blattrohling (24, 24a) ein mit einem Einschnitt (27, 27a) versehener Blattrohling (24, 24a) verwendet wird und daß der Einschnitt (27, 27a) bei dem Verfahrensschritt hergestellt wird, bei dem Blattrohlinge (24) in einem vorgegebenen Abstand auf die Papierbahn (20) voller Breite aufgeklebt werden.

3. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß als Blattrohling (24) ein Blattrohling (24b) angewendet wird, von dem ein etwa segmentförmiges Stück (27b) entfernt ist, und daß die Entfernung des segmentförmigen Stükkes (27b) bei dem Verfahrensschritt ausgeführt wird, bei dem Blattrohlinge (24) mit einem vorgegebenen Abstand auf der Papierbahn (20) voller Breite befestigt werden.

4. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß als Blattrohling (24) ein Blattrohling (24c) benutzt wird, von dem ein etwa dreieckiges Stück (27c) entfernt ist, und daß die Entfernung des etwa dreieckigen Stückes (27c) bei dem Verfahrensschritt durchgeführt wird, bei dem Blattrohlinge (24) mit einem vorgegebenen Abstand auf die Papierbahn (20) voller Breite befestigt werden.

5. Verfahren nach einem der Ansprüche 1 bis 4, dadurch gekennzeichnet, daß als Blattrohlinge (24a, 24b, 24c) Blattrohlinge verwendet werden, an deren Rand ein Schrägschnitt (28a, 28b, 28c) gemacht wurde.

**Revendications**

1. Procédé de fabrication de sacs en papier, ces sacs en papier (10) étant munis aux deux extrémités d'un joint cousu (15) et comportant, dans le coin du sac en papier (10), une ouverture d'obturation dotée d'une feuille (14), des ébauches de

feuille (24) étant fixées à un espacement donné sur une nappe de papier (20) de pleine largeur, cette nappe de papier de pleine largeur étant enroulée sur elle-même pour lui donner une forme tubulaire, puis débitée en des longueurs fixes du type manchons dont les deux extrémités sont ouvertes, les extrémités ouvertes étant cousues, caractérisé par le fait que les ébauches de feuilles (24, 24a, 24b, 24c, etc.) sont fixées sur la surface externe de la couche de la nappe de papier (20) de pleine largeur qui devient la surface externe sous la forme tubulaire (20a, 20b, etc.); et par le fait que les coins portant les ébauches de feuille sont repliés sur les sacs en papier de forme tubulaire (20a, 20b, etc.) avant de coudre les extrémités ouvertes.

2. Procédé selon la revendication 1, caractérisé par le fait qu'on utilise, en tant qu'ébauche de feuille (24, 24a), une ébauche de feuille (24, 24a) munie d'une incision (27, 27a); et par le fait que l'incision (27, 27a) est pratiquée à l'étape du procédé pendant laquelle des ébauches de feuille (24) sont collées avec un espacement donne à la nappe de papier (20) de pleine largeur.

3. Procédé selon la revendication 1, caractérisé par le fait qu'on utilise, en tant qu'ébauche de feuille (24), une ébauche de feuille (24b) dont a été enlevé un morceau (27b) sensiblement configuré en segment; et par le fait que l'enlèvement du morceau (27b) configuré en segment a lieu à l'étape du procédé lors de laquelle des ébauches de feuille (24) sont fixées avec un espacement donné à la nappe de papier (20) de pleine largeur.

4. Procédé selon la revendication 1, caractérisé par le fait qu'on utilise, en tant qu'ébauche de feuille (24), une ébauche de feuille (24c) dont un morceau (27c) sensiblement triangulaire a été enlevé; et par le fait que l'enlèvement du morceau (27c) sensiblement triangulaire a lieu à l'étape du procédé lors de laquelle des ébauches de feuille (24) sont fixées avec un espacement donné à la nappe de papier (20) de pleine largeur.

5. Procédé selon l'une quelconque des revendications 1 à 4, caractérisé par le fait qu'on utilise, en tant qu'ébauches de feuille (24a, 24b, 24c), des ébauches de feuille sur le bord desquelles une incision oblique (28a, 28b, 28c) a été pratiquée.

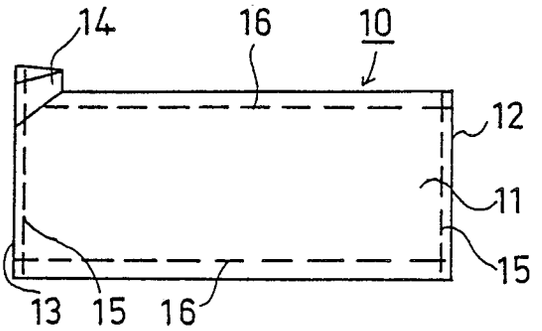



FIG. 1

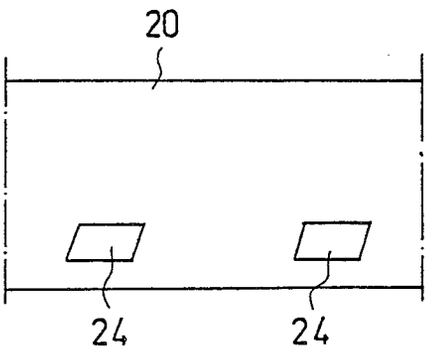



FIG. 2

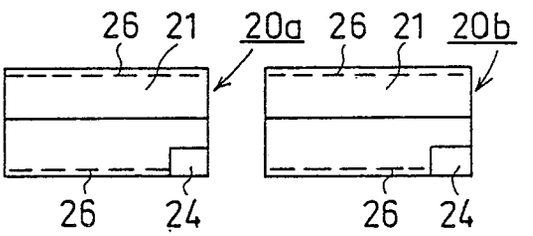



FIG. 3

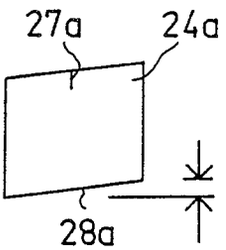



FIG. 4a

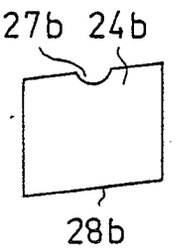



FIG. 4b

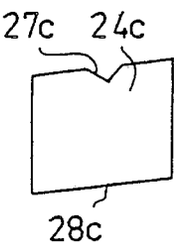



FIG. 4c

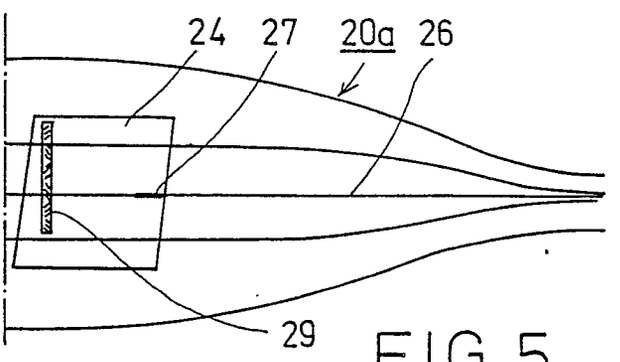



FIG. 5

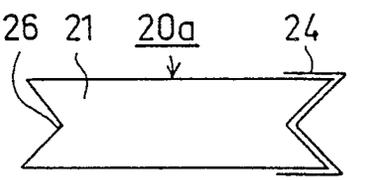



FIG. 6