

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) Publication number:

0 439 209 A1

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: 91200039.5

(51) Int. Cl.⁵: **B65D 33/10**

(22) Date of filing: 11.01.91

(30) Priority: 19.01.90 GB 9001290

(43) Date of publication of application:
31.07.91 Bulletin 91/31

(84) Designated Contracting States:
AT BE CH DE DK ES FR GB GR IT LI LU NL SE

(71) Applicant: **THE PROCTER & GAMBLE
COMPANY**
One Procter & Gamble Plaza
Cincinnati Ohio 45202(US)

(72) Inventor: **Haubach, Claus Carl Ferdinand**
Defreggerstrasse 1
Ludwigshafen(DE)
Inventor: **Blanco, Agustin Ramos**
Pfaffenweg 12 b
W-6370 Oberursel(DE)

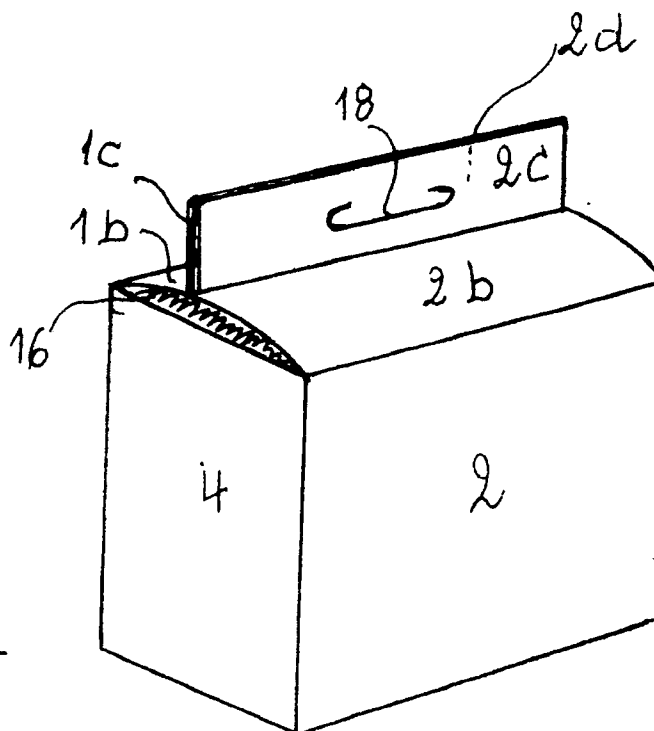
(74) Representative: **Suslic, Lydia et al**
Procter & Gamble European Technical
Center N.V. Temselaan 100
B-1853 Strombeek-Bever(BE)

(54) Paper bag with integral carrying device.

(57) Paper bag with integral carrying device consisting of two main panels (2,1), two side panels (3,4), a bottom panel and a top panel, whereby the integral carrying device is formed by folding over extensions

of said main panels and by punching a carrying hole (18) in said folded-over extensions of said main panels.

fig. 8



EP 0 439 209 A1

PAPER BAG WITH INTEGRAL CARRYING DEVICE

TECHNICAL FIELD

This invention relates to a paper bag with carrying device. More particularly it relates to a paper bag with carrying device whereby the carrying device is provided as an extension of the top part of the bag, which top part is closed before the bag is filled from the bottom with a given quantity of goods. After filling, the bottom part of the bag is also closed.

BACKGROUND OF THE INVENTION

Paper bags with a carrying device, like a double added-on carrying handle, are in widespread use. Such paper bags have mostly an open top, although some of them may be equipped with an extension that can be folded over when the bag has been filled. Such paper bags are mostly handed out by shopkeepers for their customers to carry away the individual goods they bought. They are not suitable for packing and selling goods which are sold in a prepacked given quantity.

In order to solve that problem, paper bags have been developed whereby a carrying opening, possibly with reinforcement, is provided on opposite sides near the edges of the open end of the bag, said open end being closed after filling by e.g. sewing, stitching or glueing across the full width of the bag underneath the carrying opening, said closure being torn apart when the contents of the bag is to be dispensed. Such bags are used e.g. for pet food, cat litter, etc. but have the disadvantage that they can no longer be easily carried by the carrying openings once they have been opened. Furthermore, the filled and closed package will not result in an optimum, space saving shape, in that the filled product will have the tendency to sag downwards and the extension with carrying hole will be standing up over the sagging bag.

British patent application 8923835.6 describes a package consisting of a paper bag compactly packing compressed flexible articles, said package being provided with an opening device as well as with a carrying device, said carrying device being formed by an extension of the top panel of the package. The negative of the described carrying device is, however, that, in order to avoid raw edges which might make carrying of the bag less comfortable, a protective member is slid over the free top edges of the device and attached e.g. by a sewing line. This renders the bag more expensive since it not only means additional material but also an additional manufacturing step involving more equipment and more time.

German Utility Model G 8905480.6 describes how a paper bag is folded and closed at what will be the upper end of the bag and how a separate piece of material, incorporating a carrying handle, is glued in the middle of the just formed upper side of the bag. This is a somewhat expensive way of solving the problem since it requires an additional operation after the top of the bag has been closed on conventional equipment, as well as additional equipment.

In view of the above, it is clear that there is a need to find a way to provide a carrying device for paper bags which is economical to make, easy to handle on the packing line, which does not stand in the way when the filled paper bags are to be shipped and stored and which is comfortable in use and can still be used after the paper bags have been opened to reach their contents.

In light of the above, a principal object of the present invention is to provide a carrying device for a paper bag which is generally used for sale of a prepacked quantity of goods.

It is another object of the invention to provide such a carrying device which is integral with the paper bag and can be formed in the course of the bag forming operation.

It is still another object of the invention to provide such a carrying device which can be conveniently folded back during shipping and storing.

It is still a further object of the invention to provide a carrying device for a paper bag which is comfortable in use and still serves its carrying function after the paper bag has been opened.

It is an additional object of the invention to provide a folding pattern of the blank for the paper bag with integral carrying device that allows an easy preforming and opening of the partially preformed bag before the articles are packed through the bottom, hence offering a much higher compatibility with state of the art packing lines for polyethylene bags than other existing paper bag executions with integrated handle.

SUMMARY OF THE INVENTION

In order to accomplish the above stated objectives, the present invention provides a paper bag which has a carrying device which is integral with the top part of the bag which is closed before the bag is filled. Said carrying device is formed by proper folding and glueing or sealing of extensions of the two opposite main side panels of the bag, possibly with addition of reinforcing material.

BRIEF DESCRIPTION OF THE DRAWINGS

While the specification concludes with claims that particularly point out and distinctly claim the present invention, it is believed that the same will be better understood from the following description taken in conjunction with the accompanying drawings:

Figure 1 represents a flat blank for a paper bag with integral carrying device according to the invention.

Figure 2 is a perspective view of the blank of Figure 1 as it is being folded and glued into a tube.

Figure 3 represents the bag tube formed as shown in Figure 2, readily cut for folding into a carrying device according to the invention.

Figures 4 and 5 are perspective views of the two first steps of folding the top part of the bag tube of Figure 3 into a carrying device.

Figure 6 shows the subsequent step of applying a reinforcement tube as well as a reinforcement piece over the partially folded top part of the bag tube of Figure 3.

Figure 7 shows how the three components of Figure 6 are being folded over each other and assembled.

Figure 8 shows the finished paper bag with integral carrying device based on the three components of Figure 6.

Figure 9 shows another execution of a reinforcement sheet and a reinforcement piece, ready to be applied on the partially folded top part of the bag tube of Figure 3.

Figure 10 shows how the three components of Figure 9 have been assembled on the top part of the bag partially folded as shown in Figures 4 and 5 and are being folded towards and over each other.

Figure 11 shows the finished paper bag with integral carrying device based on the three components of Figure 9.

Figure 12 shows still another way of forming the integral carrying device according to the invention by folding and assembling steps subsequent to those shown in Figures 4 and 5.

Figure 13 shows the finished paper bag with integral carrying device based on details shown in Figure 12.

Figure 14 shows how a second paper bag with integral carrying device can be grouped with a first one for easy carrying or for assembling for e.g. promotion sales.

the present invention are illustrated.

All three embodiments of carrying devices which are illustrated start from the blank (100) shown in Figure 1. This blank consists of main panels (1 and 2) and side panels (3 and 4). Side panel (4) shows a glue flap (5). Crease line (6) shows where panels (1, 2, 3 and 4) continue into extensions (1a, 2a, 3a, 4a), from which the bottom of the bag will be constructed in a conventional way once the bag has been filled. Crease line (7) shows where panels (1, 2, 3 and 4) continue into extensions (1b, 2b, 3b and 4b), extensions (1b and 2b), in turn, continue over crease line (8) into extensions (1c and 2c), extension (2c) continuing over crease line (9) into final extension (2d). By folding extensions (1b) through (2d) in the ways described hereafter, three embodiments according to the present invention are achieved.

Crease lines (7, 8, 9) or any of the crease lines referred to hereafter, do not have to be visible in the carton blank before the folding and assembling operations start using conventional equipment, but are shown here to better explain hereafter the different steps the paper blank undergoes. A fold achieved along a crease line shown in the blank is shown as a full line in the perspective views, but carries the same reference numeral.

Figure 2 shows a conventional way for a first step in the bag forming operation. This is achieved by folding the bag along crease lines (10 and 11) and attaching overlap strip (5) against the free end of main panel (1), so that a bag tube is formed.

Figure 3 illustrates how the bag tube has been formed as shown in Figure 2 and shows cuts (14, 15) that have been made along crease lines (12, 13, respectively 26) along the section separating extensions (1b, 2b) respectively (2b, 2c), from extensions (3b) respectively (4b).

Going now to Figures 4 and 5, there is illustrated how the bag tube (of which the top part only is shown) is being opened and squared up so that the top panel can be closed and the carrying device can be formed. First of all extensions (1b and 1c) are folded outwardly by 90° whereas extensions (2b, 2c, 2d) are folded outwardly by 90° in the opposite direction. Crease lines (10 and 11) are pushed inwardly until side panels (3 and 4) form a 90° angle with main panels (1 and 2). Subsequently, extensions (3b and 4b) are folded inwardly towards each other by 90° .

As can be seen in Figure 6, the bag with the partially folded top part is flattened along crease lines (10 and 11) in such a way that extensions (1b and 1c) come to lie against main panel (1) whereas extensions (2b, 2c and 2d) are returned to their original plane with main panel (2). Subsequently, reinforcement tube (16) is attached over extensions (3b and 4b) to cover the full surface of the bag top

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings in detail, wherein like reference numerals indicate the same elements throughout the use, three preferred embodiments of a paper bag with carrying device according to

panel and reinforcement piece (17) is attached over extension (2c).

Figure 7 shows reinforcement tube (16) covering the top surface of the bag and reinforcement piece (17) covering extension (2c). First extensions (1b and 2b) are folded over by 180° and attached to tube (16), whereas extensions (1c and 2c) are folded upwards by 90° with respect to the folded over extensions (1b and 2b) and attached to each other. Finally extension (2d) is folded over by 180° and attached against the free surface of extension (1c). A carrying hole (18) is punched through extensions (1c, 2c, 2d) and reinforcement strip (17). This punching can be made after these extensions have been assembled but can also be made in the individual extensions and reinforcement strip before assembling. The completed top with carrying device of the paper bag according to this first execution is shown in Figure 8.

As has been explained above, a first reinforcement of the carrying device is achieved by a reinforcement tube (16). This type of reinforcement not only ensures perfect closing of the top panel of the filled bag but also prevents separation of extensions (1c and 2c) due to the gravity forces of the filled bag when it is carried by carrying hole (18). Reinforcement strip (17) prevents tearing of the carrying hole when the bag is carried.

Turning now to Figure 9 a different embodiment of a reinforcement sheet and a reinforcement piece for the carrying handle is shown. After the partially folded top of the bag tube has been flattened as explained under Figure 6, a reinforcement sheet (19) is attached over extensions (1c', 1b', 2b', 2c', 2d', 3b and 4b). Subsequently reinforcement piece (20) is attached over the central area of extensions (2b', c', d').

From Figure 10 it can be seen how the three components of Figure 9 have been assembled. Subsequently, sections (21, 22 and 23) of reinforcement sheet (19) attached on extensions (1b', 1c', 2b', 2c', 2d', 3c and 4c) as explained under Figure 9, are folded over towards each other by 135° and subsequently section (23) is again folded over by 90° to be attached against the top surface of previously folded over section (21).

Figure 11 shows the completed top with carrying device of the paper bag according to a second embodiment of this invention. Carrying holes (24) are punched through extensions (1c', 2c', 2d') and reinforcement strip (17). This punching can be made after these extensions have been assembled but also in the individual extensions and reinforcement strip before assembling.

In the second preferred embodiment according to the invention, the reinforcement of the carrying device is achieved by provision of a reinforcement sheet (19), which type of reinforcement ensures not

only perfect closing of the top part of the bag after filling but provides also a tube-like carrying device with double carrying holes which render carrying of the bag more comfortable thanks to the bridge area (28) between the carrying holes (24).

Figures 12 through 14 show still another specially preferred embodiment according to the present invention, which embodiment has the advantage of allowing convenient assembling of two filled paper bags with integral carrying device, be it for easy carrying or for group sale, e.g. in the case of promotion sales.

Subsequent to the folding steps shown in Figures 4 and 5, the bag tube is flattened as explained in Figure 6. A reinforcement piece (25) is applied on extension (1b"). Subsequently extensions (2b", c", d") are folded over by 180° and extensions (2b", c") are attached to extensions (3b" and 4b"). Subsequently extensions (1b" and 2d") are folded towards each other by 90° and are attached to each other. Finally, extension (1c") is folded over by 180° to be attached against the free surface of extension (2d").

Figure 13 shows the completed top with carrying device of the paper bag according to a third embodiment of this invention. A carrying hole (18) is punched through extensions (1b", 1c", and 2d") and reinforcement strip (25). This punching can be made after these extensions and strip have been assembled but also in the individual extensions and reinforcement strip before assembling.

Figure 14 shows clearly how a second bag of the third preferred embodiment can be easily carried or assembled with a first one, e.g. for promotion sales. Assembling can be achieved by any conventional means like glueing, stitching or sewing.

Paper bags with integral carrying device according to the invention can be made of a variety of qualities of paper. It has been found that papers or combined layers of paper, having a total basis weight in the range of from 70 to 125 grams per m², are suitable. However, the qualities of paper that present the most advantages from the environmental point of view for making the bag with integral carrying device according to the present invention, are unbleached virgin papers or unbleached recycled papers. In order to be able to present an attractive package made with unbleached papers, it is however necessary to whiten the outside of these papers to allow good quality printing. Experience has shown that high opacity coating of unbleached paper is problematic, since the paper has either to be made of light colored fibers like unbleached mechanical wood pulp and/or a high grammage coating of the paper layer is required. Either of these solutions is controversial since they detract from the good me-

chanical properties required for packing compressed articles in a paper bag.

For the above reasons, the best results are found with a two layer paper consisting of one layer of brown, unbleached kraft pulp/paper with good mechanical properties and one layer of light brown unbleached wood pulp/paper. As will be known to the man of the art, such two layer paper can be made either with a two or more screen paper making machine whereby, in the end product, the kraft pulp layer will be at the inside of the bag and the mechanical wood pulp layer will be at the outside of the bag. Another solution is to have both layers made separately and subsequently glued together to form a laminate. It has been found that the glue laminated paper presents the best technical properties required for packing of, e.g., compressed disposables, while still retaining the environmentally desirable properties.

In order to obtain a good printing surface for the final bag if this is desired, the layer of light brown unbleached mechanical wood pulp/paper can be low grammage whitecoated. Another backup option would be to use a bleached paper quality with optimized environmental properties like (partially with oxygen) bleached paper. If such a paper is used, no whitecoating of the outer surface is needed to achieve a good quality basis for printing.

As for the reinforcing elements, any type of biodegradable and/or easily recyclable material is in order. Such materials can include paper, cotton webs, combinations of both, etc.

Whenever reference is made to attachment of extensions, panels, strips, this attachment may be achieved in any conventional way, be it by glue, heatsealing of appropriate coatings applied during the printing step of the paper blanks, etc. It is highly recommended that the glue or heatsealing varnish be of a biodegradable composition.

Since the invention is directed to carrying devices integral with paper bags, only top portions of such bags have been shown. These bags are preferably equipped with opening/dispensing devices which leave the carrying device intact whenever the contents of the bag have to be removed. Very suitable opening devices are described in British patent application 8923835.6.

Although, as explained under Figure 2, the first step in the bag forming operation is achieved by attaching an overlap strip (5) against the free end of main panel (1), this bag tube can also be formed by dividing the blank in such a way that the overlap strip, by attachment of which the bag tube is formed, is positioned in another location. The advantage of positioning it as described in Figure 2 is that a perfectly smooth side panel is obtained, which facilitates printing of the blank or integration

of the opening/dispensing device.

It will also be evident to the man of the art that the integral carrying devices shown in the above three preferred embodiments can be easily flattened against the top surface of the filled paper bag for shipping and storing and that they can easily resume their carrying position when needed.

Paper bags with integral carrying device according to the invention are extremely useful for packing e.g. disposable diapers, although their use is not restricted to this type of contents. Until now disposable diapers are mostly packed in plastic bags or, for smaller quantities, in cardboard cartons. Plastic bags are not biodegradable and not yet easily recyclable so that there is a big advantage in being able to pack disposables in a paper bag. The paper bag with integral carrying device according to the invention can be filled on the packing machines presently used for filling plastic bags with integral carrying device, with very little modification to the existing machinery. Furthermore, the crease lines shown in the above examples can easily be replaced by score lines already formed on the paper blank, so that folding and squaring of the paper bag during the bag forming operation is enhanced.

Various modifications of the described invention will be apparent to those skilled in the art. Examples of some such variations have been mentioned above. Accordingly, the scope of the present invention should be considered in terms of the following claims and is understood not to be limited to details or structures described and shown in the specification and drawings.

Claims

1. Paper bag with integral carrying device consisting of two main panels (1, 2), two side panels (3, 4), a bottom panel and a top panel, characterized in that the integral carrying device is formed by folding over extensions of said main panels (1, 2) and by punching a carrying hole (18, 24) in said folded-over extensions (1c, 2c, 2d; 1c', 2c', 2d'; 1b", 1c", 2d") of said main panels (1, 2).
2. Paper bag with integral carrying device according to Claim 1, characterized in that a reinforcement tube (16) is positioned and attached between side panels extensions (3b, 4b) folded over by 90° towards each other in the top plane of the bag, and folded-over extensions (1b, 2b) completing the top panel of the bag.
3. Paper bag with integral carrying device according to Claim 1, characterized in that a

reinforcement sheet (19) is positioned over and attached to extensions (1b', 1c', 2b', 2c', 2d') before said extensions are folded over in their carrying device position.

- 5
4. Paper bag with integral carrying device according to Claim 1, characterized in that the integral carrying device, consisting of folded-over extensions (1b", 1c" and 2d"), is positioned in the plane of either one of the main panels (1, 2), extending over the top panel of the bag. 10
5. Paper bag with integral carrying device according to any of the preceding Claims, characterized in that a reinforcement strip (17, 20, 25) is attached between the carrying device forming extensions in the area through which the carrying hole (18, 24) is punched. 15
6. Paper bag with integral carrying device according to any of the preceding Claims characterized in that an opening device is provided on one of the side panels (3, 4). 20
7. Paper bag with integral carrying device according to any of the preceding Claims, characterized in that the blank of which the paper bag with integral carrying device will be formed is prescored along the proposed folding lines. 25 30
8. Paper bag with integral carrying device according to any of the preceding Claims, characterized in that all materials of which said paper bag with integral carrying device is formed are generally biodegradable. 35
9. Paper bag with integral carrying device according to any of the preceding Claims, characterized in that it is filled with disposable articles. 40

45

50

55

fig.1

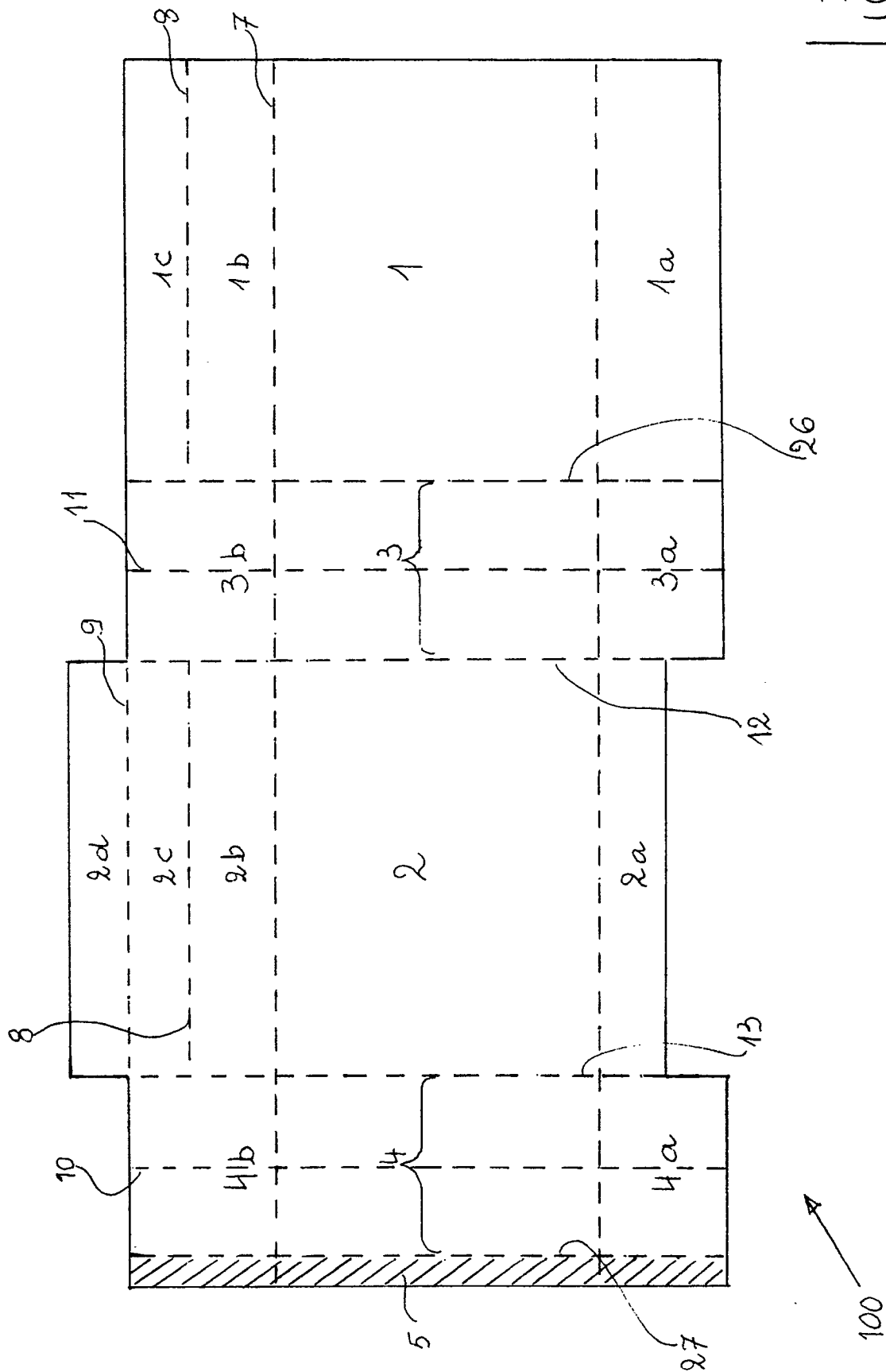


fig. 2

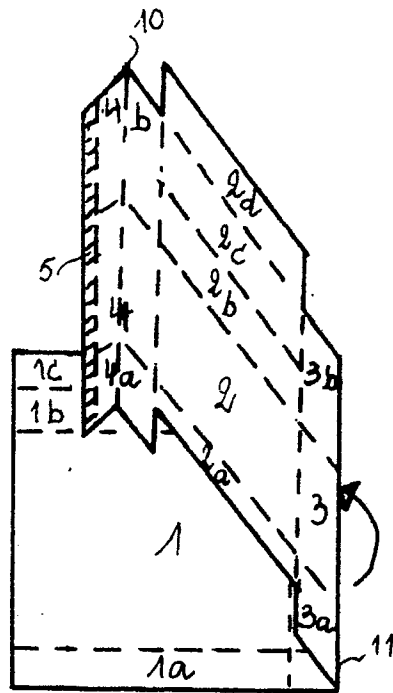


fig. 3

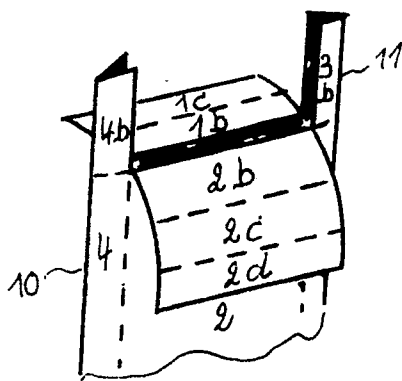
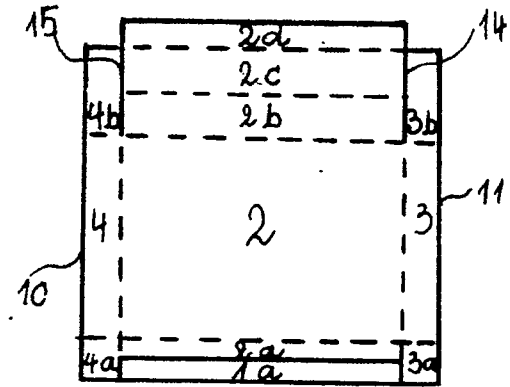


fig. 4

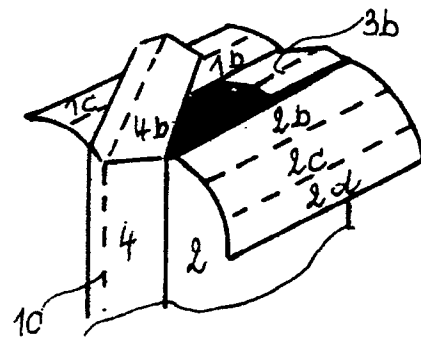


fig. 5

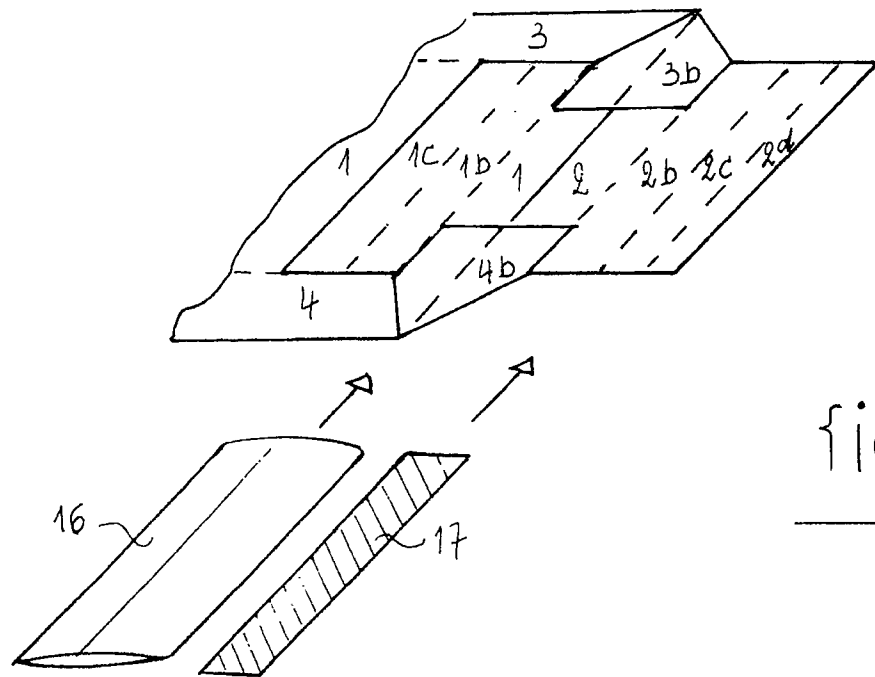


fig.6

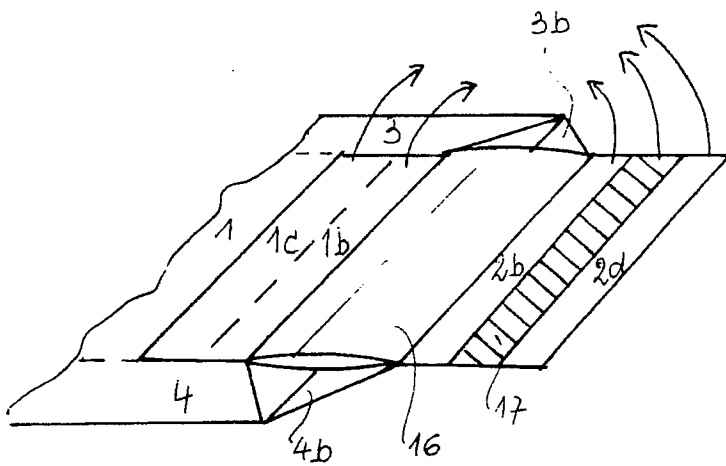


fig.7

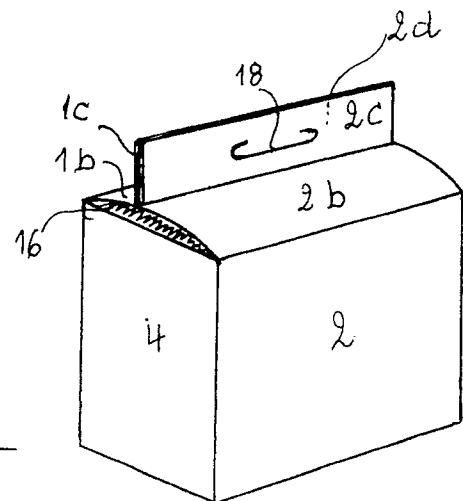


fig.8

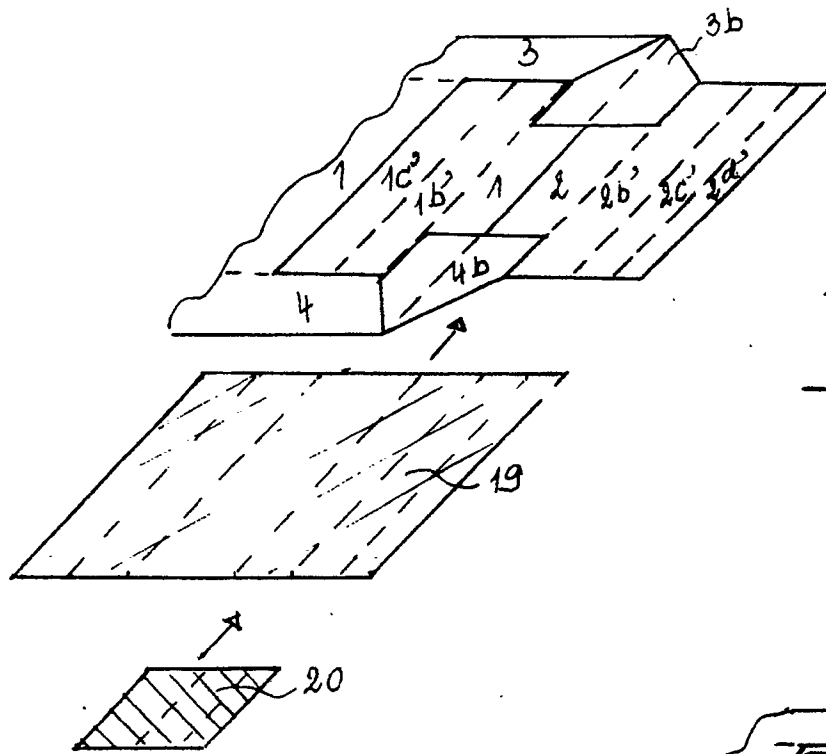


fig.9

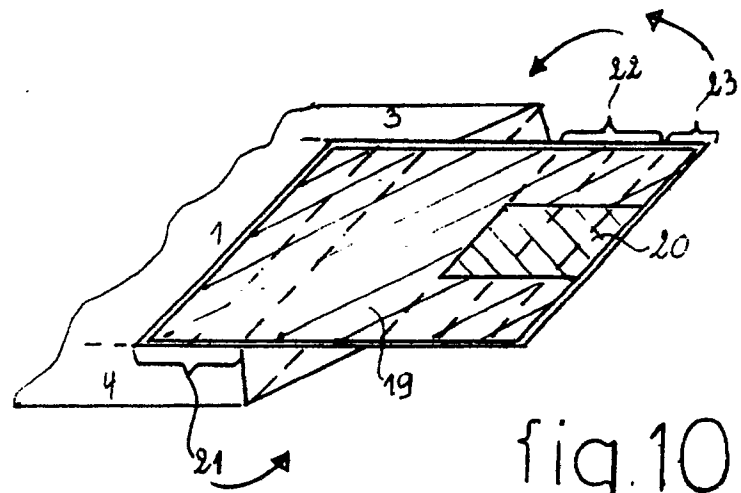


fig.10

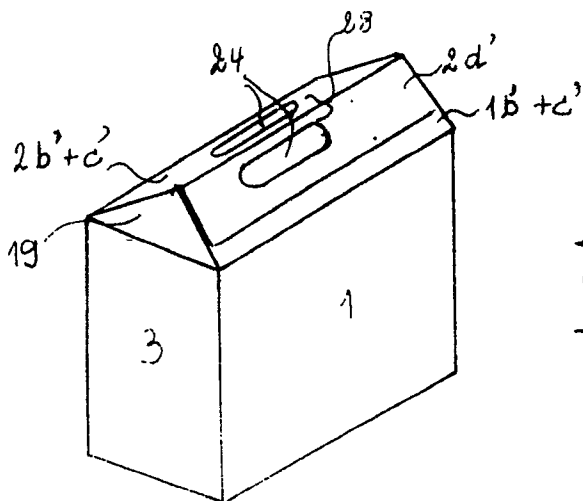


fig.11

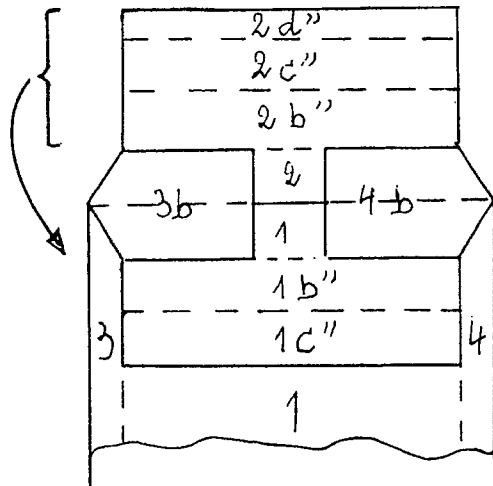


fig.12

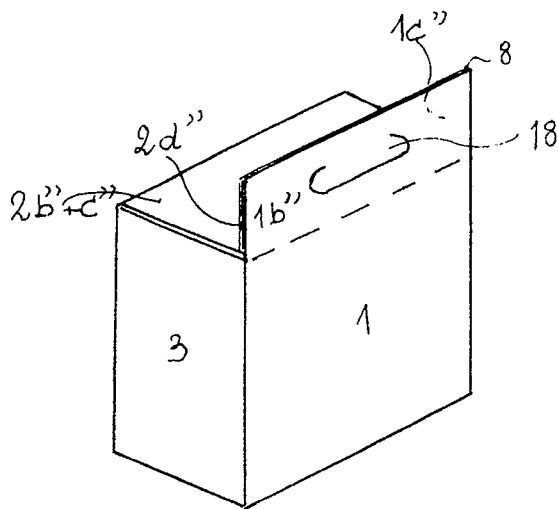
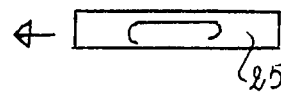


fig.13

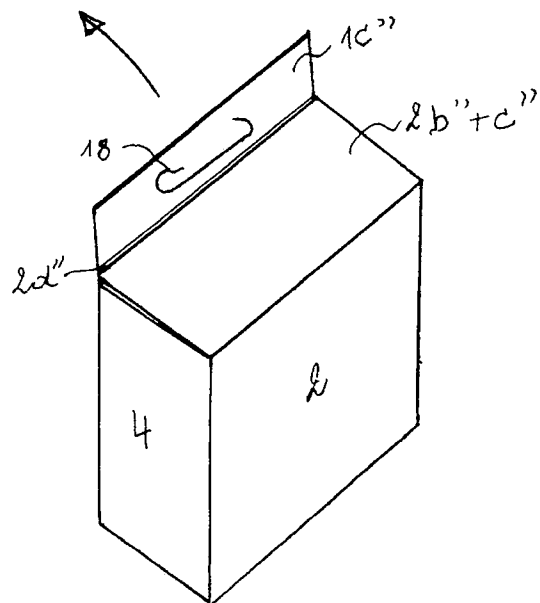


fig.14



EUROPEAN SEARCH REPORT

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	FR-A-1 193 764 (THORBEL) * Whole document *	1,5,7-9	B 65 D 33/10
Y	-----	4,6	
X	FR-A-2 013 083 (WINDMÖLLER + HÖLSCHER) * Page 5, line 19 - page 6, line 27; figures *	1-3,5	
Y	-----		
Y	US-A-4 691 368 (OCOR PRODUCTS) * Column 3, line 57 - column 4, line 46; figures 1-7 *	4	
Y	-----		
Y	EP-A-0 349 050 (PROCTER + GAMBLE) * Abstract; figure 1 *	6	

The present search report has been drawn up for all claims			
Place of search		Date of completion of search	Examiner
The Hague		12 April 91	NEWELL P.G.
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			