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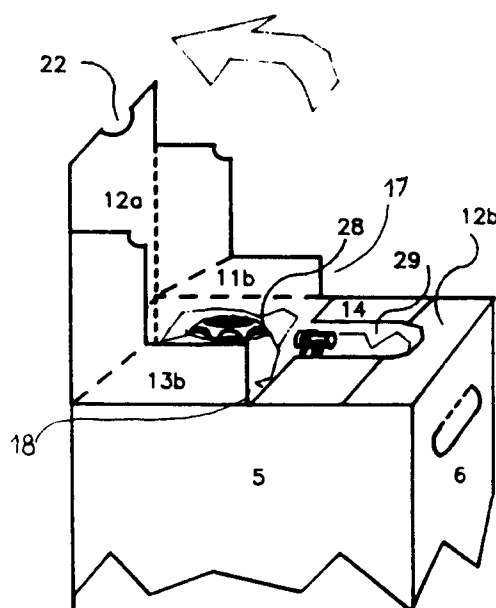
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Flip top bag-in-box.

Bag-in-box comprising an outer rigid container (1), an inner flexible container (24) equipped with a dispensing device (26), such device (26) being located inside the outer rigid container (1) during shipping and storage, and means for giving quick and easy access to the dispensing device (26) when it is

to be put in place and stabilized for first dispensing of the contents (25), whereby said means is provided in the top panel of said outer rigid container (1), a flap (12) of said top panel flipping open upon tearing out of a tear strip (21) and a precut tap opening (22) of said top flap (12).

Fig. 6



TECHNICAL FIELD

This invention relates to a so-called bag-in-box which comprises a rigid outer container made of cardboard or the like, an inside flexible container made of plastic or another flexible, liquid-impervious material and a dispensing device sealed to the flexible inner bag and which is to be stabilized on an opening in the outer rigid container once the product packed in the package is to be dispensed. More particularly, the invention consists in new and useful improvements of such a bag-in-box, involving optimum use of its volume be it for shipping or storage, convenient access to its contents little by little, and disposing of the empty package in a way suitable for possible recycling.

BACKGROUND OF THE INVENTION

Over the last twenty years, the package that is to contain liquid product, like e.g. liquid detergents, is being changed from glass or plastic bottles to the so-called bag-in-box type package. The advantages of the bag-in-boxes are manifold, some of the more obvious ones being more efficient usage of volume which leads to savings both during shipping and storage and more convenience in the home when bulk sizes are involved, cost reduction over certain packaging materials, easier disposal, better chances for recycling, use of less plastic than current plastic bottles, etc...

In order to allow optimum usage of space and optimum protection of the container components during transportation and storage, the dispensing device attached to the inner bag is most frequently stored inside the rigid outer container until the time the contents is to be first delivered. At that time, the outer rigid container has to be opened to a certain extent and the dispensing device has to be found and pulled outwardly to be stabilized in the appropriate way. Furthermore, with the development of dosing devices recommended for use with heavy and light duty liquids in washing machines, ideally some space has to be foreseen inside the outer rigid container for storing this dosing device and as a consequence the opening to be made in the bag-in-box for acceding to this dosing device at the time of first usage is to be large enough, without detracting from the solidity or stability of the complete package until its contents is entirely used up, which duration can easily cover several weeks if not several months, considering that, e.g. in the case of liquid detergents, these bag-in-boxes will in many instances hold as much as 5 liters or more. Many attempts have been made to solve the above problems and a variety of bag-in-box executions can be found on the market and an even larger variety of possible solutions are described in the

patent literature. However, none of these executions combine the optimum usage of space with easy access to the individual elements inside the bag-in-box, continued stability during the usage lifetime of the package and quick, easy separation of the individual elements for disposal and separate recycling.

U.S. Patent 3,119,544, filed March 30, 1962, although it discloses a bag-in-box whereby the pouring spout is held inside the container up to the moment the appropriate opening for extracting it is pushed through, does not give a good solution in that, after the opening for the spout is liberated, the user has still to fish for said spout inside the rigid outer container, thereby easily hurting fingers or damaging finger-nails. Furthermore, the development is more directed to defining a carrying means for the container, which carrying means necessitates an additional paperboard blank and consequently more expenses. Finally, there is no indication that the inner plastic container has to be flexible so as to leave sufficient space for inserting a dispensing device in the outer rigid container.

German patent 1 486 558, filed November 28, 1963, describes a bag-in-box whereby the pouring spout, attached to the inner bag, is located inside the outer rigid container during shipping and during storage, and does not have to be taken out of the outer rigid container through an ad hoc opening but is reachable by breaking away a part of the outer rigid container when the product is first to be dispensed. Assembling and closing such a container on an automated line is not easy in that this cannot be achieved by using one single cardboard blank, but an additional piece of material is necessary to keep the dispensing tap which is attached to the flexible inner container, in the proper location so that it coincides with the part to be broken away from the outer rigid container. Furthermore, breaking away such a part is not a simple operation either since, if the container is to be strong enough for a possibly heavy contents, an instrument like a knife may be needed to break away this removable part in order to avoid damage to fingers or finger-nails. Finally, if the individual components of the total package have to be separated for disposal and, possibly, recycling, the user is to study carefully the combination of flexible inside container and outer rigid container in order to get the individual elements untangled and separated.

Dutch Patent Application 81 02 850, filed June 12, 1981, also describes a bag-in-box whereby the pouring spout, attached to the inner flexible container, is located inside the outer rigid container until the time of use. The problem this patent application addresses is easy checking of the sealed cover of the pouring spout, without damage to the outer carton. The positioning of the pouring

spout is partly set thanks to an additional piece of cardboard and is furthermore regulated by the positioning of the complete bag-in-box, the weight of the contents pushing the spout either toward an opening in the rigid outer container or again down inside the outer rigid container if the package is tilted in a different direction. The disadvantage of such a package is not only that an additional piece of cardboard involving additional cost and additional step in the packing operation is needed, but it also involves the risk that, if the unopened package is by accident directed in an undesired way, the pouring spout might very well cause undesired opening up of the outer rigid container by pushing a pre-perforated part out, due to the shear weight of the product moving in the undesired direction.

U.S. Patent 4,572,422 describes another solution for optimizing use of volume while keeping the spout reasonably protected during shipping and storage. This is achieved by providing the final package with a slanted cut-off corner, through which the spout protrudes, a possibility existing for extracting the spout even further through the panel of that slanted corner. It will be evident that, by having the spout stick out of the outer rigid container also shipping and storage, additional reinforcement or protection will be needed to stabilize it in that area, possibly by providing additional layers of material or additional glueing points. Furthermore, the package according to U.S. Patent 4,572,422 does not provide space for holding e.g. a dosing device consequently no corresponding access opening.

A package combining a bag-in-box providing space for the dosing device and protection for the pouring spout until first use, in addition with an easily shape, is described in German Patent Application DE 38 06 730. In addition, this patent application describes a feature which, at the time of shipping, is integral with the outer rigid container and which, at the time of first use, can be partially detached and folded over to serve as a basis with inclined surface to enhance complete emptying of the package. However, the package is not only expensive to automate on the packing line, five blanks having to be assembled in addition to the insertion of the flexible inside container holding the product and the dispensing device. Furthermore, no optimal use of the total volume is made, as can be easily seen from the drawings.

In the light of the above, it is a principal object of the present invention to provide a bag-in-box type container which has its dispensing device held inside the rigid outer container during shipping and storage, a convenient way being provided to get access to said dispensing device when it is first needed for dispensing.

It is another object of the invention to provide this bag-in-box with sufficient space for holding a dosing device or a premium during shipping and storage, while providing an easy reclosable access to said device at the time it is first needed.

It is another object of the invention to provide the bag-in-box with (a) semi-automatic spring back top flap(s) once a zip string has been pulled away, the top flap popping open without the help or any additional operation of the user.

It is still another object of the invention to provide a rigid outer container for this bag-in-box, made of one single blank and which can be easily erected and assembled on the packing line.

It is still a further object of the invention to provide an easy and clear way of installing and stabilizing the dispensing device once the bag has been opened as well as a clear way for reclosing the package after the dispensing device has been installed in its dispensing position.

It is also an object of the invention to provide the bag-in-box with an integrated reinforced handle combined with a pilfer-proof opening without the need for separate reinforcing material.

SUMMARY OF THE INVENTION

In order to accomplish the above stated objectives, the present invention provides a bag-in-box comprising an outer rigid container, an inner flexible container equipped with a dispensing device, said device being located inside the outer rigid container during shipping and storage, and means for giving quick and easy access to the dispensing device when it is to be put in place and stabilized for first dispensing of the contents. In a preferred embodiment, the bag-in-box according to the invention is so sized and the means for getting access to the interior is sized and so positioned that a dosing device or another object like a premium can be held inside the outer rigid container for shipping and for storage, while these can be easily removed after operation of said opening means, the rigid outer container being easily reclosable around said dispensing device.

BRIEF DESCRIPTION OF THE DRAWINGS

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

Fig. 1 represents the cardboard blank from which the rigid outer container of the flip top bag-in-box according to the invention is erected.

Fig. 2 shows how the carton blank of fig. 1 is partially erected, the top panel only remaining open, and the flexible inner container filled with product is dropped into it, to be followed by dropping of the dosing device.

Fig. 3a, b and c shows how the top panel of the bag-in-box is closed.

Fig. 4 is a perspective view of the bag-in-box erected and closed from the cardboard blank shown in fig. 1.

Fig. 5 is a broken-away perspective view of the top part of the bag-in-box of fig. 1, showing how it is being opened for the first time.

Fig. 6 is a broken-away view corresponding to the part shown in fig. 3, one part of the top panel having flipped back after opening.

Fig. 7 shows how the dosing device is being removed and the dispensing device is put in place.

Fig. 8 shows how the section of the top panel which flipped open upon actuation of the opening device, is secured behind the dispensing device, thereby reclosing the bag-in-box.

Fig. 9 shows a detail of the pilfer-proof handle provided in one side panel of the bag-in-box.

Fig. 10 represents another embodiment of a cardboard blank from which a rigid outer container of the flip top bag-in-box according to the invention can be erected.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings in detail, wherein like reference numbers indicate the same elements throughout the use, a preferred embodiment of a flip top bag-in-box according to the invention is illustrated.

As can be seen from fig. 1, the blank out of which the rigid outer container (1) is formed consists of side panels (2,3,4,5 and 6); of bottom panel flaps (7,8,9 and 10); and of top panel flaps (11,12,13 and 14) flaps 11 and 13 each consisting in fact of two sections, respectively 11a and 11b and 13a and 13b. Side panel (2) shows a handle opening (15) whereas side panel (6) shows a partially pre-cut and partially pre-scored handle opening (16). Top panel flaps (11 and 13) show symmetrical cut-outs (17 and 18) between the two sections and symmetrical double score-lines (19 and 20). Top panel flap (12) shows pre-scored tear-strip (21) and pre-scored tap opening (22). Top panel flap (14) shows a cut-out (23) of a diameter which is slightly larger than that of the pre-scored tap opening (22) of top flap (12). Top panel flap sections (11b and 13b) are divided along their respective edges touching top panel (12) by a score line only, so that they remain integral with said top panel (12).

Fig. 2 shows how the carton blank of fig. 1 is partially erected, the top panel remaining open. This partial erection is performed in a way well known to the man of the art, i. e. a rectangular tube is formed by folding the side panels (2,3,4,5 and 6), side panel (6) coming to rest over and being glued on the outside of side panel (2), opening (15) and partially pre-cut/partially pre-scored temporarily blocked handle opening (16) coinciding with each other. Subsequently bottom panel flaps (8 and 10) are folded inwardly by 90° and, as a next step, bottom panel flaps (7 and 9) are also folded towards each other by 90° and glued onto previously folded over bottom panel flaps (8 and 10). The top panel flaps out of which the top panel will be formed are still open and the flexible inner container (24) which has already been formed and filled in a conventional way with product (25) is being dropped into the partially erected rigid outer container (1). Flexible inner container (24) is provided with dispensing tap (26). The flexible inner container not being completely filled, its shape will easily adjust to the shape of the rigid outer container. Subsequently, dosing device (28) will be dropped in the rigid outer container to come to rest on top of flexible inner container (24).

From figures 3a, b and c, it can be seen how the top panel is put together by specific folding of top panel flaps (11, 12, 13 and 14). First of all, sections (11a and 13a) of the corresponding top panel flaps are folded inwardly by 90° at the point of cut-outs (17 and 18). Subsequently top panel flap (14) is folded inwardly to come to rest on top of and being glued to said inwardly folded sections (11a and 13a). Cut-out (23) coinciding with part of the cut-outs (17 and 18), this will leave a slot (29) into which the dispensing tap (26) can be inserted and stabilized once it is put in place for dispensing. As a next step, top panel flap (12) is bent over to come to lay on top of the already bent over top panel flaps, and top panel section (12b) is being glued onto the coinciding area of the outer surface of top panel flap (14).

The perspective view of fig. 4 shows the bag-in-box erected and closed as made from the cardboard blank shown in fig. 1, with side panels (5 and 6) and top flap (12) with pre-scored zip tape (21) and pre-cut tap opening (22) for dispensing tap (26) visible.

From fig. 5 it can be seen how zip tape (21) is torn out, thereby also freeing pre-cut tap opening (22) which is coinciding with the dispensing tap stabilizing slot (29).

Fig. 6 shows how part (12a) of top panel flap (12) flips open automatically upon removal of tear strip (21), thereby freeing an opening giving easy access to the dosing device (28) and the flexible inner container (24) with tap (26). Part (12b) of top

panel flap (12) remains attached to the outer surface of top panel flaps (14), thereby giving additional strength to the tape stabilizing slot (29), whereas, thanks to symmetrical cut-outs (17 and 18), parts (11b and 13b) can flip up together with top panel flap part (12a) to which they remain attached.

Fig. 7 shows how, after dosing device (28) has been removed, dispensing tap (26) is stabilized in slot (29), flexible inner container (24) remaining inside the rigid outer container (1).

Finally, fig. 8 illustrates how top flap panel part (12a) is bent over and slit around the basis of dispensing tap (26), thereby stabilizing it further and also reclosing the top panel of rigid outer container (1).

The detail shown in fig. 9 illustrates how, by superimposing and glueing together side panels (2 and 6), making handle opening (15) and partially pre-cut and partially pre-scored handle opening (16) coincide, a convenient carrying device which can at the same time act as pilfer-proof device against removal of e.g. premiums from the rigid outer container, is obtained. Indeed, when the hand is pushed inside partially pre-cut and partially pre-scored temporarily blocked handle opening (16), the corresponding part (16a) is pushed inwardly and folded back by 180° along the partially pre-scored line (16b), thereby traversing handle opening (15) and coming to lay against the inside of side panel (2). In this way not only a strong carrying handle is formed, but a protection against hurting the fingers by raw edges is provided.

The cardboard blank (101) represented in fig. 10, differs from the cardboard blank presented in fig. 1 in that the handle opening has been provided in a different location. Whereas in the cardboard blank according to fig. 1 the carrying device 16 is provided in the double wall formed by side panels 2 and 6, which double wall lays close to the final stabilization position of dispensing tap 26, the handle opening 116 of the cardboard blank according to fig. 10, is provided in the double wall formed by side panels 4 and 2, which leads to having the handle opening located on the panel opposite the panel closest to the dispensing tap when stabilized in its dispensing position. This involves the addition of top panel flap (30) which is divided along its edge touching top panel (11) by a score line only. The subsequent steps of erecting said carton blank are similar to what has been described for carton blank according to fig. 1, as will be evident to the man of the art. The subsequent steps of filling, closing, opening, removal of dispensing device, stabilization of the dispensing cap and reclosing of the outer carton are identical with what has been described in connection with the carton blank of fig. 1.

The above description of the drawings explains how the preferred embodiments of the flip top bag-in-box according to the invention are put together for shipping, storage and gradual use of the contents. Once the contents is completely used up, separate disposal of the constituting elements will be easy. All the user has to do is let section (12a) of top flap panel (12) flip back by liberating it from around dispensing tap (26), disengage dispensing tap (26) from slot (29) and pull the empty flexible container from the rigid outer container. This empty flexible container can then go for recycling to the plastics collector, whereas the rigid outer container, normally made of a cardboard type material, can go to the paper collector.

Suitable materials for making the rigid outer container are cardboard, cardboard laminate, whereas suitable materials for making the inner flexible container are polyethylene or a nylon sandwiched between two layers of polyethylene. However, these materials are not limiting and their choice will be influenced by the type of product to be held in the container, its use not being limited to liquid detergents.

While the present application describes two preferred embodiments only, it will be obvious to those skilled in the art that various changes and modifications can be made without departing from the spirit and scope of the invention which is to be considered in terms of the following claims, it being understood that it is not to be limited to details or structures described and shown in the specification and drawings. Indeed, any known opening device equivalent to the described tear strip, and which allows popping open of the top panel (12a) upon operation, is encompassed in this development. The same applies to any known way of erecting a cardboard container or of reinforcing a carrying opening in the side panel of such a container.

Claims

1. Bag-in-box comprising an outer rigid container, an inner flexible container equipped with a dispensing device, said device being located inside the outer rigid container during shipping and storage, and means for giving quick and easy access to the dispensing device when it is to be put in place and stabilized for first dispensing of the contents, characterized in that said means is provided in the top panel of said outer rigid container, said top panel consisting of top flaps (11a/11b, 12, 13a/13b and 14), top flaps (11b and 13b) being attached to top flap (12) by a scored line, section (12b) of top flap (12) being attached over top flap (14) when said outer rigid container is closed, portion (12a) of said top flap (12) flipping open

upon tearing out of tear strip (21) and pre-cut tap opening (22) of said top flap (12).

2. Bag-in-box according to claim 1, characterized in that said outer rigid container and said means for getting access to the dispensing device are so sized as to permit additional space for holding and extracting a dosing device or a premium. 5
3. Bag-in-box according to claim 1 or 2, characterized in that said outer rigid container can be easily reclosed after stabilization of the dispensing device and removal of said dosing device by bending part (12a) of top flap panel (12) over by 90° and sliding it around the basis of dispensing device (26) stabilized in slot 29. 10 15
4. Bag-in-box according to any of the preceding claims, characterized in that a reinforced carrying device (16) is provided in superimposed side panels (2 and 6). 20
5. Bag-in-box according to claims 1, 2 or 3, characterized in that a reinforced carrying device (116) is provided in superimposed side panels (2 and 4). 25

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Fig.1

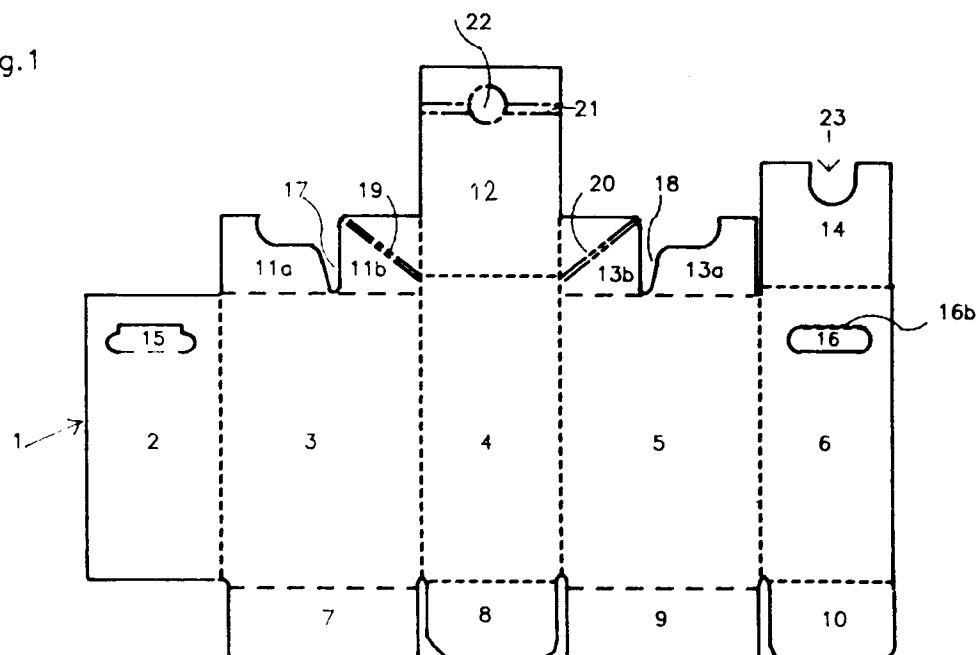
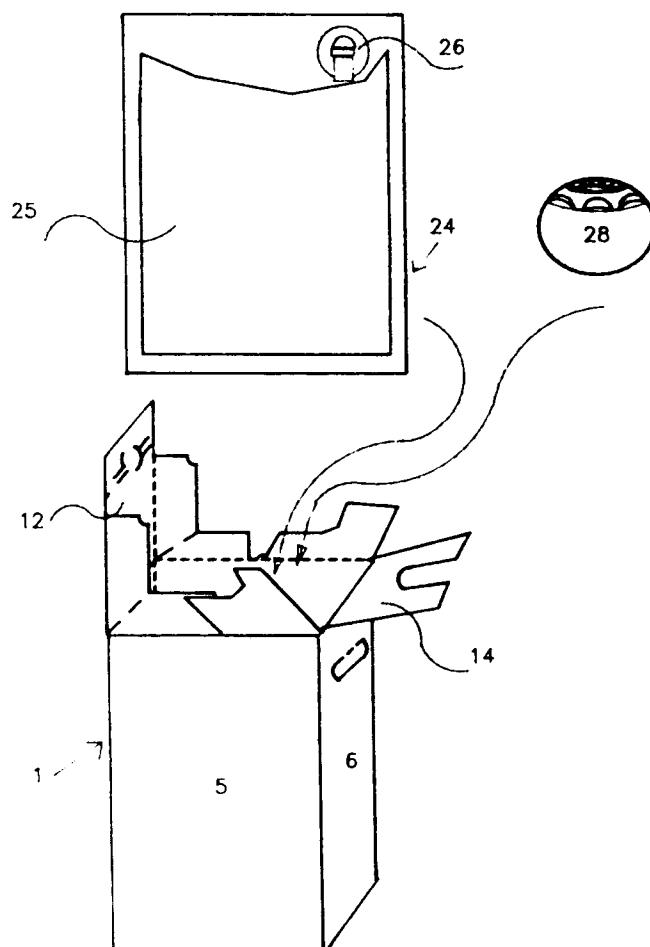


Fig.2



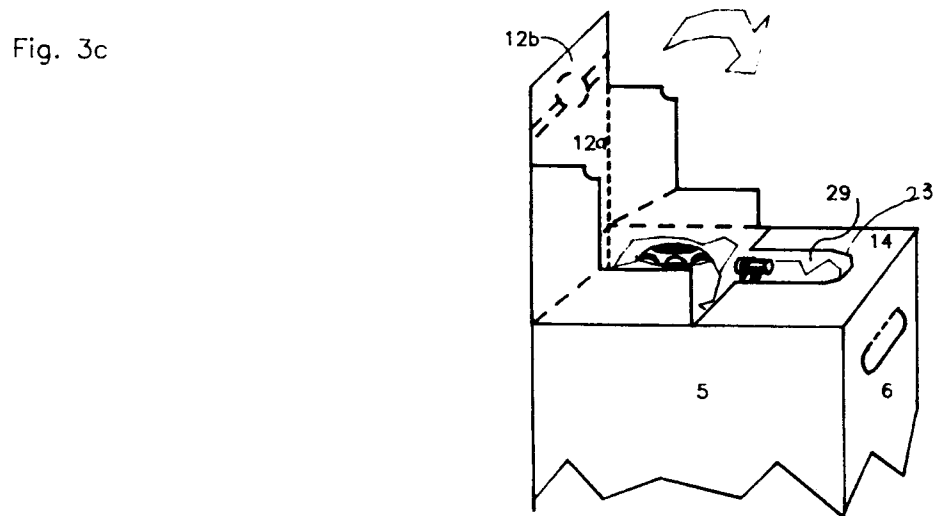
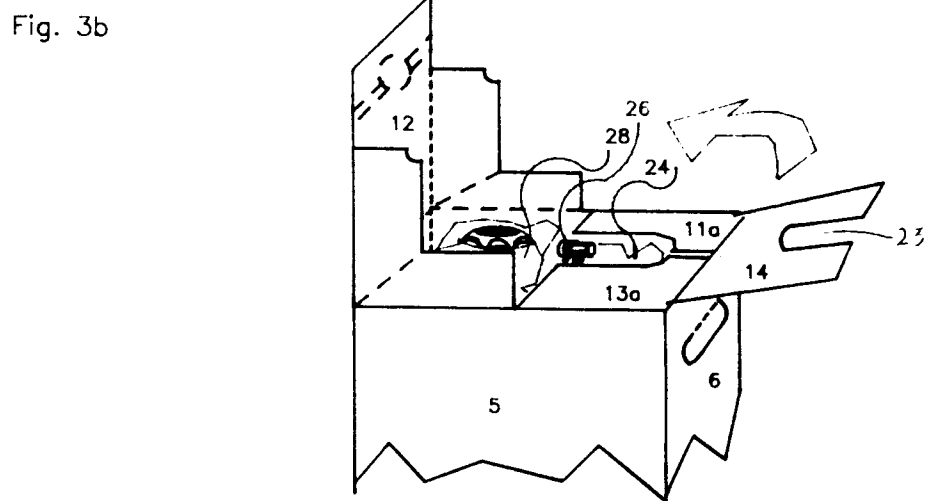
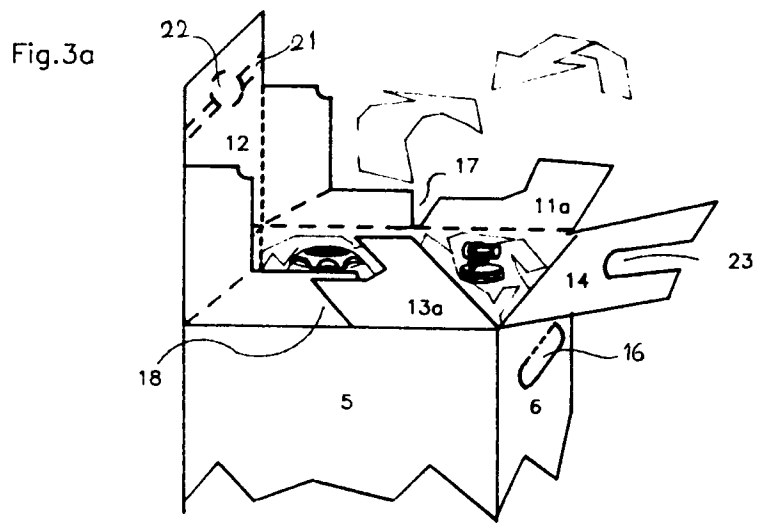


Fig. 4

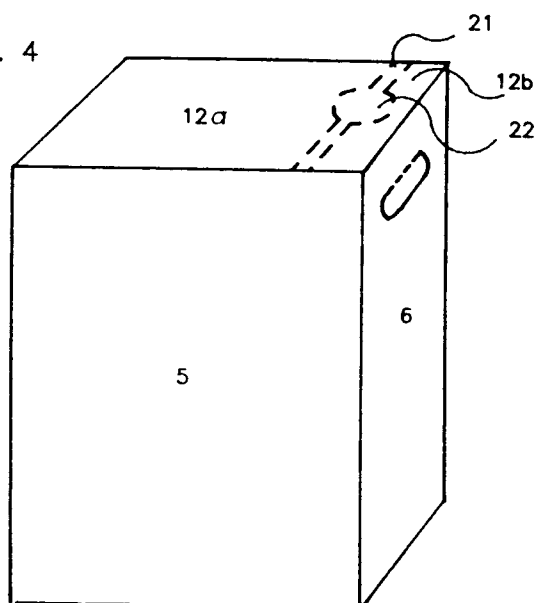


Fig. 5

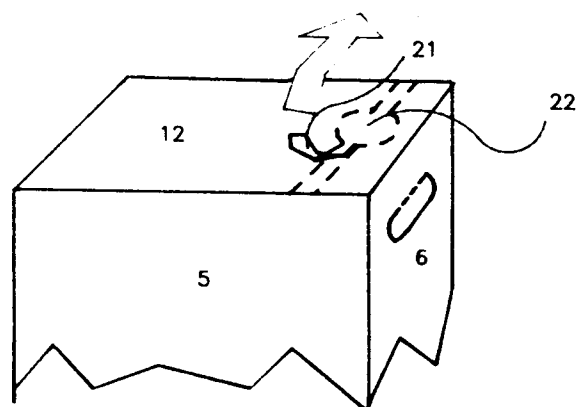


Fig. 6

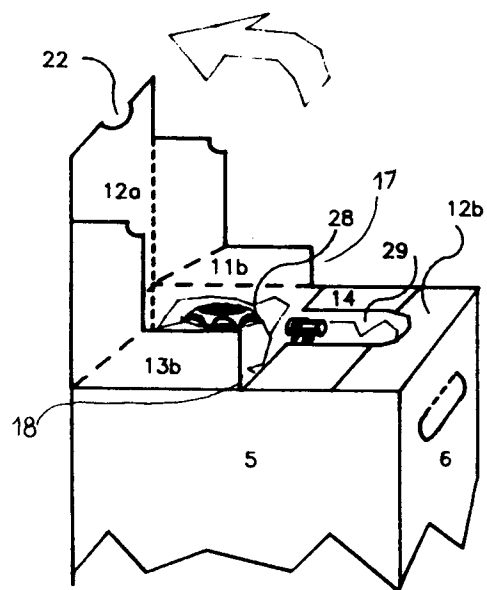


Fig. 7

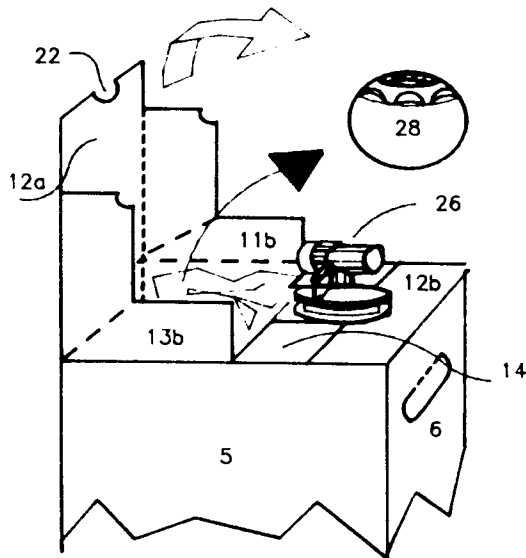


Fig. 8

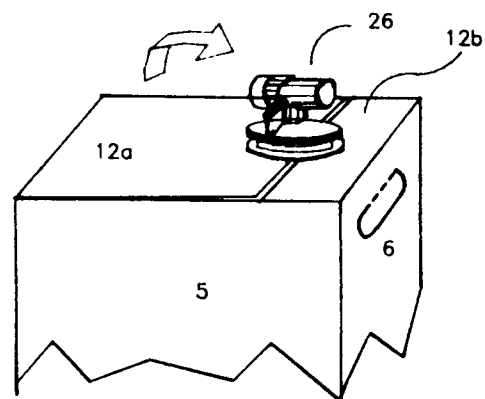
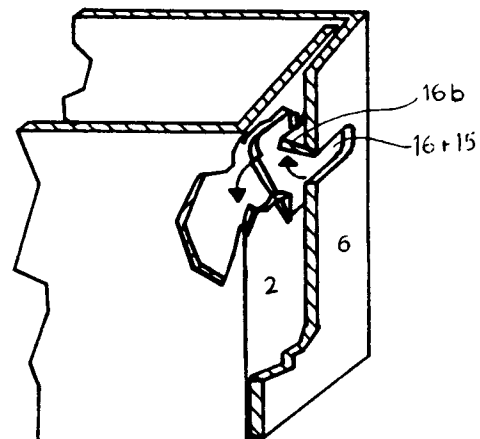
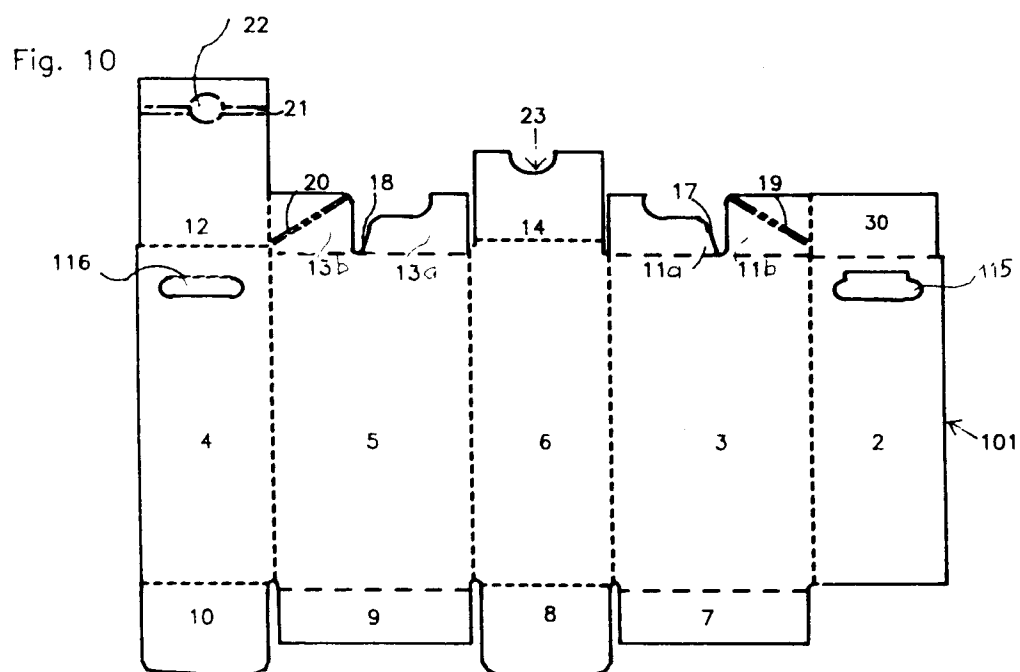


Fig. 9

detail of glue lap joint & handle







European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 91 20 2311

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)
A	DE-A-3 801 794 (HOLFELDER WERKE) * column 4, line 2 - line 31; figures 1-10 *	1	B65D77/06
A	EP-A-0 365 940 (HENKEL KG) * figures 1-5 *	1	
A	EP-A-0 341 549 (HENKEL KG) * figures 2-9,14 *	1,2	
A	US-A-2 928 579 (GRAYBILL) * column 2, line 43 - column 3, line 14; figures 1-6 *	1	
A	EP-A-0 365 941 (HENKEL KG) * figures 1,4-6 *	4,5	
A	EP-A-0 171 275 (OWENS-ILLINOIS)		
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B65D
Place of search THE HAGUE		Date of completion of the search 09 APRIL 1992	Examiner BERRINGTON
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