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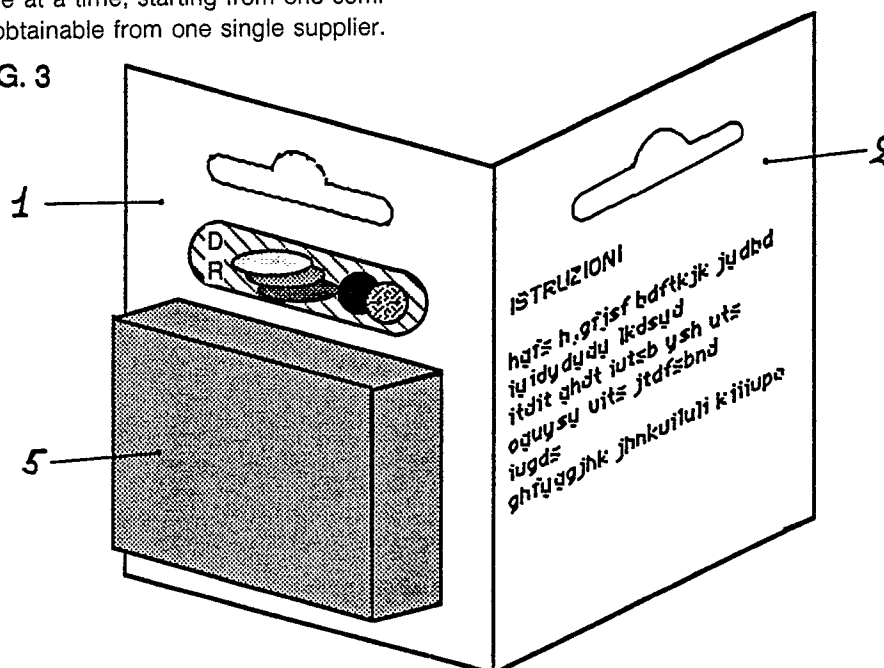
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54 Support with incorporated sheet of PVC prepared for the formation of a blister and process for its production.

57 A pre-printed support card (1, 2) is described which incorporates a sheet of PVC prepared for the formation of a tray or blister (5) to contain various articles and the related procedure for packaging the articles which permits the products to be prepared in small batches, one at a time, starting from one semi-finished product obtainable from one single supplier.

FIG. 3



SUPPORT WITH INCORPORATED SHEET OF PVC PREPARED FOR THE FORMATION OF A BLISTER AND PROCESS FOR ITS PRODUCTION

The invention relates to an original support with an incorporated sheet of PVC prepared for the formation of so-called blisters as well as the process for making it which constitutes a considerable technical and economic advance compared to the methods currently used for this purpose.

The technology of packing articles in blister packs has been developed over a considerable number of years and is widely used. Blister packs are sealed bubbles of transparent plastic which permit the articles they hold to be seen, bonded to a card support and they are normally displayed hanging from a rack or a similar display unit, thus allowing the consumer to examine the contents and to take the container from the display unit if he decides to purchase the product.

This system of presenting the products is certainly excellent for the shopkeeper and for the customer but it presents a certain number of problems for the company which manufactures the products.

For a full understanding of the problems encountered by the manufacturer of the articles to be packaged, it is important to provide a brief explanation of the current methods used to package articles in blister packs for display and sale to the public before starting to describe this invention.

The current method requires the following steps:

a) the manufacturer of the article commissions two different companies to supply 1) the pre-printed and pre-glued card support and 2) the blister or "tray"; b) the support and the blister are prepared by the two different suppliers who then deliver them separately to the customer as requested; c) when the manufacturer of the article has received the support and the blister from the two suppliers, he proceeds to package the articles, using a process which involves the following stages: manual insertion of the blister in the mould, insertion of the article into the blister; closing of the blister with the support card; heat sealing.

The process of this invention is quite different from the traditional one, permitting a method of production which is more advantageous because of the reduction in production times and costs and because the result is a finished product of a higher quality while, at the same time, a limited number of items can be produced when necessary.

The supplier of the support card prepares a card of half the basis weight (for example 250 g/m² instead of 500 g/m²) but twice the size of the card to be supplied, so that this card can be folded into two perfectly symmetrical superimposable parts.

The inside of the card is covered with the glue which will "melt" when hot. On the side which has already been printed with the colours and text required a hollow is shaped of the form and size required to accept the article to be packaged.

On the inside of this same side a sheet of PVC slightly larger than the hollow is laid and glued over the hollow itself.

The support card, prepared and pre-printed in this way, is delivered directly to the manufacturer of the article who then proceeds with the packaging.

For this operation, the normal blister sealing machines with a rotating table or a mat must be fitted with a vacuum thermoformer for blisters of extremely small dimensions since it is set up for a single moulding operation.

Given all this, the packaging process consists of the following steps:

a) the support card with the sheet of PVC glued to it enters the thermoformer which, with the selected mould, shapes the sheet of PVC which thus becomes a blister; b) the article to be packed is inserted into the blister; c) during the passage from point b) to next point d); the card is folded onto itself by means of a track-like device which guides the card, lifting one side until it falls on the other side by inertia, thus closing the article in the blister; e) the two sides of the support card superimposed in this way are finally heat-sealed and the product is presented packaged perfectly.

The advantages obtained from the process of this invention are considerable and can be identified as:

(1) the manufacturer of the article to be packaged needs to contact one supplier and not two, thus avoiding or at least reducing possible non-delivery or delays in delivery as well as delivery of goods which cannot be used because the blisters and support cards are not compatible.

(2) The support card prepared in this way takes up a great deal less space and, as a consequence, there is a reduction in the transport costs from the suppliers to the manufacturer of the article to be packaged.

(3) The blister is firmly glued and "trapped" between the two sides of the support card which are sealed together, thus eliminating all possibility of slipping or becoming detached, the cause of frequent and innumerable complaints, and the seal is improved.

(4) There is a remarkable improvement in the appearance of the finished product since the glueing of the blister to the support card is invi-

ble.

(5) The blister thermoformer can be much smaller than the ones in current use and mounted directly onto the blister-sealing machines; thus single moulds can be used instead of multiple ones with a consequent considerable reduction in the cost of the moulds themselves; so that the number of rejects is reduced and, above all, limited production runs become possible and are not uneconomic.

In addition, there is a reduction in the number of blister-sealing machine operators required since the blister does not have to be manually inserted into the mould.

These and other advantages, characteristics and objects of the equipment and the process according to this invention will become clear and evident from the following detailed description of a preferred embodiment which is considered to be of the greatest importance, given purely as a non-limiting example of the scope of this invention, and referring to the attached illustrative schematic drawings in which:

Figure 1 is a view of the pre-printed support card provided with a hollow for the tray or blister;

Figure 2 is a similar view but with the sheet of PVC applied and glued;

Figure 3 is the same view but with the PVC expanded by heat, ready for the insertion of the article to be packaged;

Figure 4 is the same view at a subsequent stage in which the products to be sold have been inserted in the tray while the card folded in half is ready for sealing; and

Figure 5 is the same view with the card support closed, the product packaged and the articles ready for display and sale to the public.

Referring now to the various figures in the attached drawings, the support is constituted by a light weight pre-printed card, made up of two sides 1 and 2, with heat actuated glue applied to the internal surfaces, while a window or shape 3 has been cut out of the front side 1 of a form and size suitable to accept the article or articles to be packaged (Figure 1).

A sheet of PVC 4 is applied and glued to the inside of side 1 in correspondance to the window and at this point (Figure 2) the pre-printed and prepared support card is sent to the manufacturer of the articles to be packaged.

At the manufacturer's, the aforesaid support card is fed into the thermoformer which, by means of a suitable mould forms the sheet of PVC 4 into the shape desired, thus producing a tray or blister (Figure 3).

The articles to be packaged 6 are then inserted into the blister and the two sides 1 and 2 are then bent together (Figure 4) thus enclosing the articles

in the blister. Finally, the two sides of the support card are heat-sealed melting the glue which was applied at a previous stage, thus producing a perfectly packaged product.

The description above clearly shows how the disadvantages of previous techniques have been eliminated and the set objectives have been fully achieved, but it must also be noted that numerous modifications, variations, additions and/or replacements of elements and phases can be made to the article described above and/or the packaging procedure without in any way violating the spirit or object and while still remaining within its scope of protection as defined in the appended claims.

Claims

1. Support in pre-printed card, for blister packs, characterised by the fact that it comprises two sides united by a fold line, the front side having a window cut into it to the inside of which a sheet of PVC is applied prepared for the formation of a tray or blister, having a layer of heat-actuated glue applied to the inner surfaces of both sides so that they can be heat-sealed together after the tray has been formed and filled with the articles to be packaged.

2. Support according to claim 1, characterised by the fact that the tray is thermoformed by an appropriate mould.

3. Process for packaging articles in a blister pack starting from a support card according to claims 1 and 2, characterised by the operations for shaping the PVC sheet by a thermoformer machine to create a tray; inserting the articles into the blister formed in this way; folding the two sides of the card one on top of the other, closing the articles in the blister, and heat-sealing the two superimposed sides of the card, thus completing the sealing of the article.

4. Process according to claim 3, characterised by the fact that the vacuum thermoforming machine, set up to accept a single mould, is incorporated in a blister-sealing machine which heats the glue applied to the inner surface of the sides of the card.

5. Process according to claims 3 and 4, characterised by the fact that the two sides of the card are folded one on top of the other by a track-like device which guides the card raising one side until it falls by inertia on the other side, becoming superimposed and thus closing the article in the blister.

FIG. 1

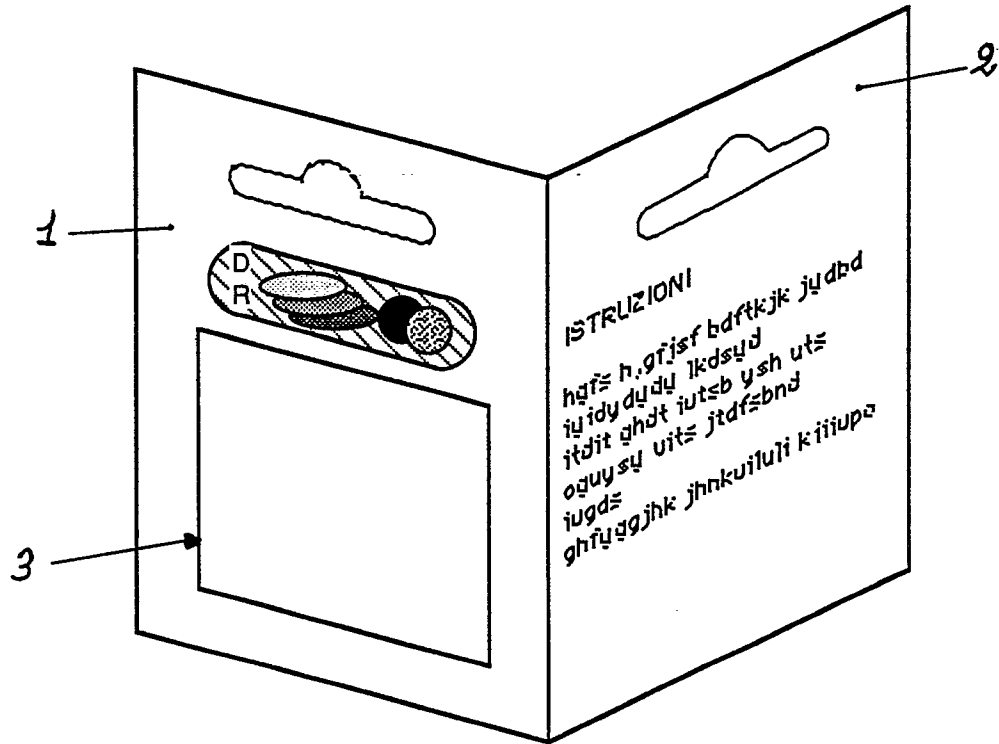


FIG. 2

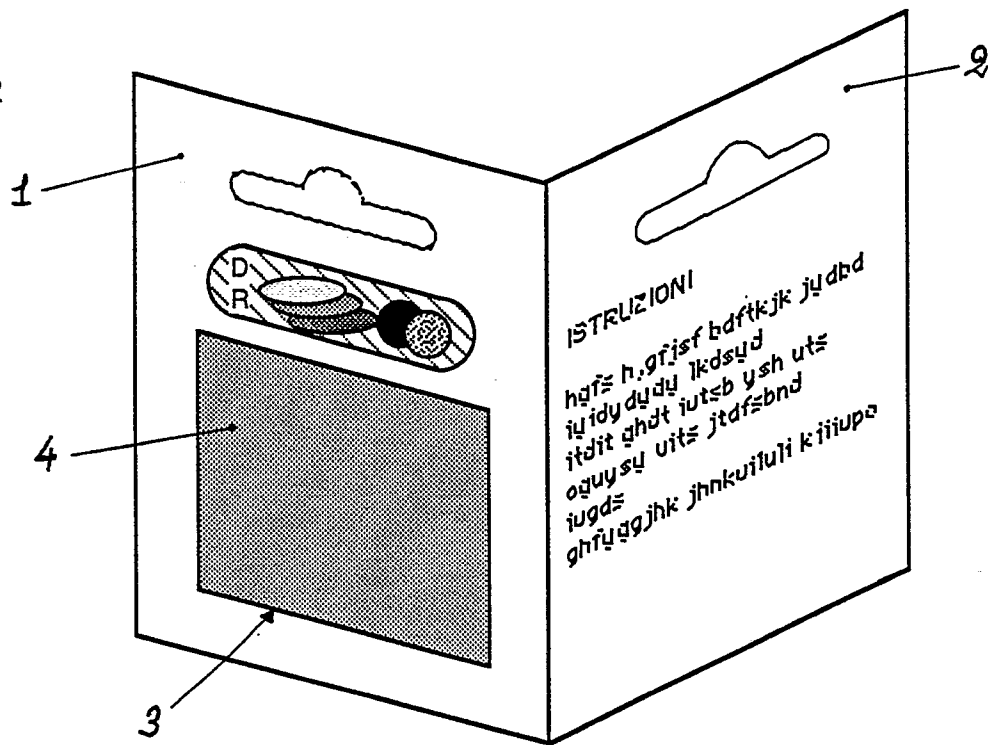


FIG. 3

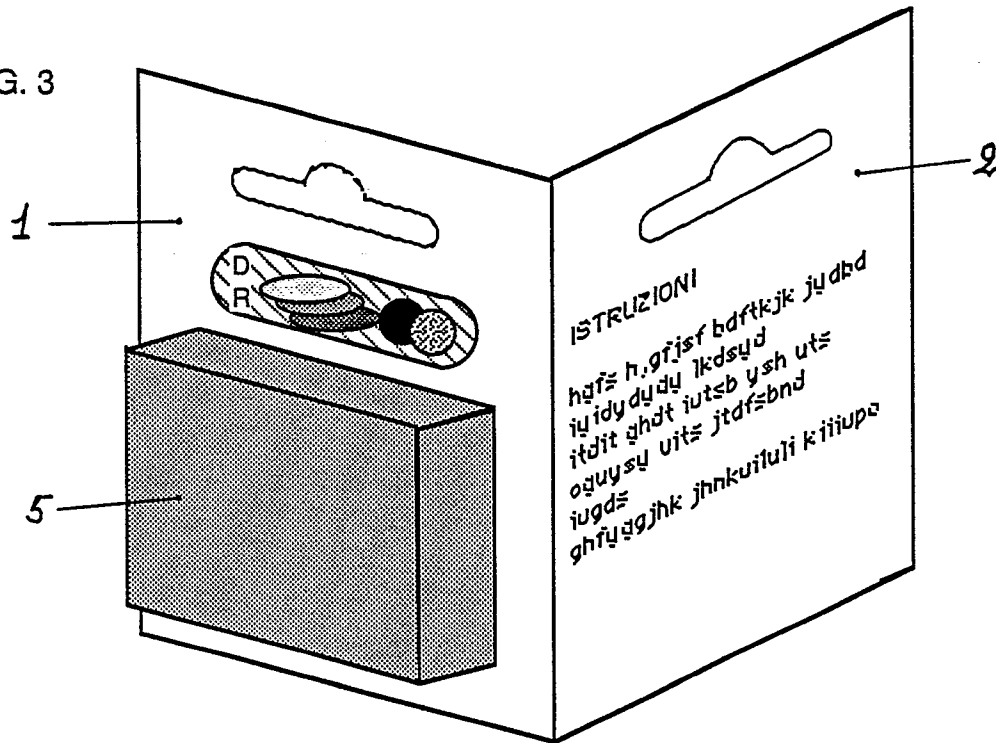


FIG. 4

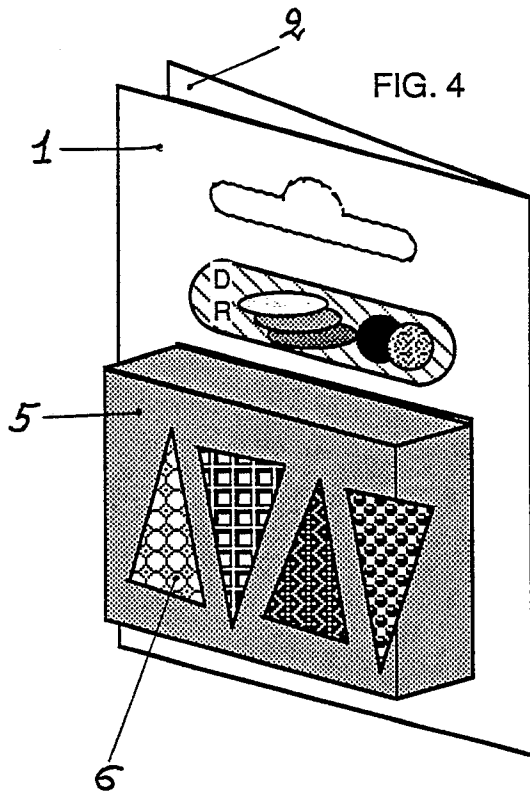
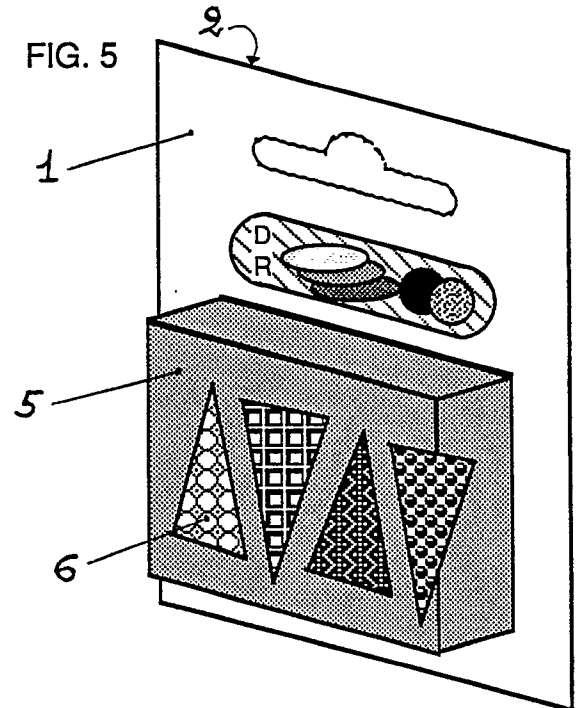


FIG. 5





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	US-A-3 948 017 (FALLER) * Column 3, line 29 - column 4, line 53; column 10, lines 12-21; figures 1-7,17,18 * ---	1-5	B 65 D 75/36
X	DE-B-2 047 403 (WILLIAM PRYM-WERKE KG) * Whole document * -----	1-5	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B 65 D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 30-08-1989	Examiner CLARKE A.J.
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			