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(12) # EUROPEAN PATENT APPLICATION

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(54) **Flexible material container to transport and store products in bulk and manufacturing method thereof.**

(57) Starting with a rectangular flat piece that is folded by a transversal fold I-I', making points AA', OO', BB', MM' and NN' coincide and effecting the side sealing seams from AA' to MM' and from BB' to NN', and then according to the method of the invention, vertexes B'' are made to coincide with O, O''' with AA', A'' with B''O and O'' with BB', the portions or flaps O'B'B''O''' and O'A''O'' remaining overlying. Then the seam of the edges O''BB' to OB''A'' and OB''A'' to A'AO''' is made, forming a bottom with a square shape in which those two portions or flaps remain overlying. That bottom can incorporate a relief valve housed in holes provided in the two flaps that form the former.

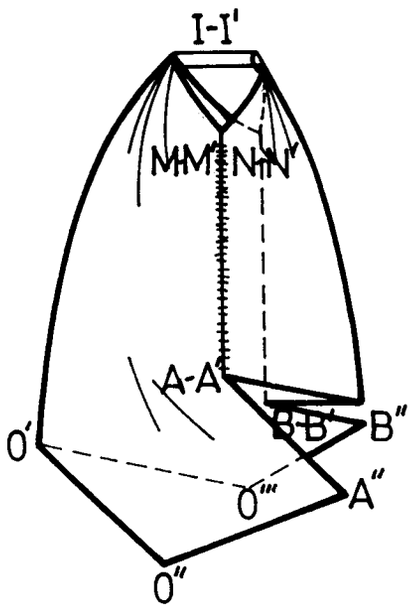

FIG. 3

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OBJECT OF THE INVENTION

As is expressed in the title of this specification, the present invention refers to a manufacturing method of a flexible material container for products in bulk, on the basis of whose method a much more advantageous, rational and practical bottom is obtained than the bottoms provided in conventional containers of the same type.

The flexible material container is provided to transport, store, distribute and sell products in bulk such as cereals, feeds, etc., said container being of a large capacity and being provided with suspension loops or handles to handle the same by means of mechanical elements.

BACKGROUND OF THE INVENTION

Generally, the handling of products in bulk is done in fabric or plastic containers of a small capacity (25, 50 and 100 kg.), all of which requires considerable manpower, as well as the loss of time in movement of large volumes of merchandize.

For the purpose of eliminating in great part the manpower and reducing the handling times, large fabric sacks of high toughness that are normally handled by mechanical means have been used, in such a way that by means of this type of alternative container transport is rationalized and cheapened.

Now then, large capacity containers of the type cited consist of three basic parts: one consisting of the suspension system, another of the container system, while the third, which is optional, consists of a leak-tightness system.

As to the suspension system, this can be made up of tape loops of high toughness or else loops formed by the fabric itself, even the handles called loops and that are made up of the same material as the container. The function of said suspension system is to permit the handling of the sack once it is full.

As to the container system, the same is formed of a fabric of high toughness upon which the load will gravitate.

The optional leak-tighness system, when it is necessary to apply it to the container, will consist of a waterproofed fabric that forms the body itself, or else by a film bag inserted inside the container.

On the other hand, it should also be taken into account that at times this type of container is stored stacked up, which requires a flat bottom, either square or rectangular, to obtain maximum stabilization in the stacking, in such a way that said base or flat bottom is obtained by means of some cuts of the fabric, which once they are sewn in the adequate manner, they will form the cited square or rectangular bottom.

To this regard the registrations corresponding to Spanish utility model 289.577, as well as French patents 2,517,280 and 2,356,569, and even European patent 0382951A1 can be cited, in such a way that in all of these registrations the container which the same refer to have a square or rectangular bottom obtained by the above cited cuts, having an inconvenience consisting in said cuts implying a waste of material that of course will increase the cost of the container.

DESCRIPTION OF THE INVENTION

The invention is centered on a method to manufacture a container of the type described in the above section, its basic novelty being the way the bottom is obtained, for the purpose of eliminating the inconveniences that conventional containers have and specifically the bottom of the same.

Therefore, the invention proposes a flexible material container whose manufacturing method includes the operations of manufacturing and sewing thereof, from a flat rectangular sheet of suitable material, such as fabric and/or plastic, in such a way that as of the sheet after making a single cut in one of its ends, by means of folds and seams a container with a totally flat square bottom is obtained, all without causing a waste of material.

The fundamental characteristic consists of that the bottom is formed by overlying two sectors of fabric and two perimetric seams that the seal of the container has, where one of the sectors is formed by a strip of fabric that continuously passes by the suspension point and will return to the bottom, without there being a break or discontinuity of the fabric of the whole container.

On the basis of these features the basic advantages of the container of the invention can be summarized as the following:

- Formation of the container from a single rectangular sheet of fabric, with the peculiarity that the formation of the base is done by means of a single cut in one of its ends, giving rise to a totally flat bottom without causing any waste.
- The number of seams existing in the base is reduced to two, therefore, the critical resistance points of the container are reduced.
- Upon extending the fabric all along the bottom, making the same be formed by continuous material without seams from the suspension system to the end opposite the bottom, this container is caused to have excellent performance against dynamic stresses to which it is subjected during handling thereof.
- Upon the bottom being made up of a double layer of fabric greater protection against possible friction produced during poor handling

is attained.

- Upon being a bottom formed by double fabric it offers the possibility of a wide range of solutions for emptying means: relief valve, protected relief valve, dosing bottom, closed bottom.

In order to complement the description that is going to be made hereinafter and for the purpose of providing a better understanding of the features of the invention, a set of drawings on the basis of whose figures the innovations and advantages of the manufacturing method of the container for products in bulk object of the invention is attached.

BRIEF DESCRIPTION OF THE DRAWINGS

Figures 1 to 4 show different views corresponding to the way of making the container of the invention, starting from the development of a rectangular sheet as is seen in figure 1, which is folded transversally according to figure 2, in order to later make the two side seams as seen in figure 3 and finally sew the two flaps that are going to form the bottom, as seen in figure 4.

Figure 5 shows a view of a container similar to that of figure 4 but with an edge of one of the flaps that is going to form the bottom not sewn in order to be able to effect a dosified release.

Figure 6 shows a sheet like the one of figure 1, incorporating in the flaps which are to form the bottom, means to assemble a relief valve.

Figures 7 and 8 show two other views corresponding to the final phase of obtainment of a container similar to that of figure 4, but incorporating fastening and reinforcing means represented in the previous figure, for a relief valve.

Figures 9 and 10 show two other views similar to the two previous ones, where the relief valve is placed without any reinforcement.

Figures 11 to 14 show other views of the manufacturing process of a container, coinciding with the operative stages corresponding to figures 1 to 4, but with the particularity that in these figures 11 to 14 the container includes a different suspension system.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Beginning with the embodiment shown in figures 1 to 4, it can be seen how one starts from the development of one rectangular piece of fabric with a cut in the horizontal axis and that affects section O'O''O''', in such a way that as of this development the piece is folded along the transversal line I-I', obtaining that which is seen in figure two, where points A-A', M-M', N-N', B-B', O-O' are made coincident, also determining the portions or flaps AA'OO''A'' and O'BB'B''O''' which are going to form the bottom. As of what is shown in figure two the side seams are made from M-M' to A-A' and from N-N' to B-B', at the same time that the suspension handle is made or formed by means of folding of the shadowed area, to thus obtain the container of figure 3 in which the bottom itself will be definitively formed after making the vertexes B'' coincide with O; O''' with A-A'; A'' with B''O and O'' with B-B', the flaps O'B'B'' O''' and O'A'A''O'' remaining overlying, then effecting the seam of the edges O''BB' up to OB''A'' and OB''A'' up to A'AO''', a square bottom being formed.

As it has been said above, the suspension handle or system is formed by the folding of the shadowed area that is shown in figure 2, also defining in that area the corresponding inlet mouth, by virtue that the areas of the sides comprised by coincident points M-M' and N-N' as well as the axis of fold I-I' are not sewn. The fold of the shadowed area to form the handle is complemented with an independent flat sheet portion that will surround the folded area, forming the definitive handle or loop.

Now referring to figure 5, the same shows a sack obtained in the way described above, but with the particularity in this case that the flap or portion AA'A'' is not sewn, forming the same square bottom but by virtue of that portion or flap not being sewn. It makes the bottom flap O'O''A''AA' have two sides O'O'' and A''AA' without joining the bottom, which makes it possible to introduce some implement in order to dosify the release.

As to figures 6, 7 and 8 the same container of figure 4 is shown, but including in the flaps forming the bottom, one of them, a circular hole F and the other a cross cut G, in such a way that upon both flaps overlying forming the bottom the hole and the cross cut will face each other, the cross cut constituting a reinforcement for the tubular relief valve and coupled precisely in the hole, valve V which is independent and in the position of being assembled in figure 8, and whose valve is complemented with a sealing string that will make it possible to open or close said valve at will, in such a way that if it is kept closed it will prevent the unfolding of the release valve, which remains protected by the portion or flap O'O''A''AA'.

In figures 9 and 10 another similar embodiment of the container is seen, where the relief valve V is assembled without reinforcement, in other words, lodged in two opposite holes F provided for this purpose in the two flaps that form the bottom.

Finally, in figures 11 to 14 a container obtained by the same method is shown but with the particularity of being provided with a different handle, and in that sense the rectangular piece as of which the container is obtained which includes, aside from the longitudinal cut O'O''O'''. The cuts PP' and SS',

made longitudinally but equidistant from the side edges and of the horizontal axis itself and in correspondence with the precisely folded area for the purpose of obtaining two handles that later are joined together by folding and obtain a single suspension element. As of the development of figure 11 and after the corresponding folding, that which is shown in figure 12 is obtained, in such a way that once folded it turns 180 degrees clockwise, and next to the part that has been folded the shadowed area between cuts PP' and SS' folds.

Afterwards, along with all of the fabric already folded the portion delimited by the cut PP' and the points I-MM' is folded, this fabric having previously turned 180 degrees counterclockwise.

All of this fabric thus folded will be kept gathered by tape loops of high toughness, with string or with an independent flat sheet that will surround the folded fabric forming a handle or loop, as has been done exactly in the same way as in all the embodiments shown in the above figures.

In this way a suspension handle with a different orientation with regards to the body (turned 90 degrees) is obtained.

Claims

1. Flexible material container to transport and store products in bulk and manufacturing method thereof, which starting from a suitable material flat rectangular sheet, such as fabric and/or plastic, which is folded through a transversal line I-I', effecting side seams, essentially characterized because in the rectangular sheet or piece itself a single cut O'O''O''' is made in correspondence with an end section of its middle longitudinal line, this cut determining both flaps A'O'O''A'' and O'B'B''O''', which, after the operation of making the side seams, they are folded and overlaid making vertexes B'' coincide with O; O''' with AA'; A'' with B''O and O'' with BB', then doing the sewing of the edges O''BB' up to OB''A'' and OB''A'' up to A'AO''', forming a square and totally flat bottom.

2. Flexible material container to transport and store products in bulk and manufacturing method thereof, according to claim 1, characterized because the flaps A'O'O''A'' and O'B'B''O''' have holes F that in the folding and overlaying thereof they face each other to receive the fastening of a tubular portion V forming a relief valve, complemented with a sealing string.

3. Flexible material container to transport and store products in bulk and manufacturing method thereof, according to the above claim, characterized because one of the flaps of the two that form the bottom, instead of passing hole F for the relief valve V includes a cross cut G forming a reinforcement element of said relief valve.

4. Flexible material container to transport and store products in bulk and manufacturing method thereof, according to claim 1, characterized because the two flaps that form the double bottom of the container correspond to a strip that continuously passes through the corresponding suspension point returning to the bottom without any breaking or discontinuity of the laminar body forming the container.

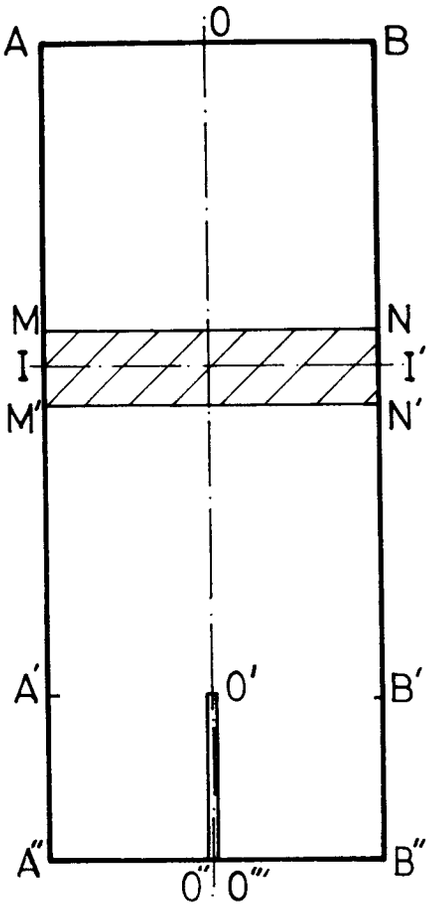

FIG. 1

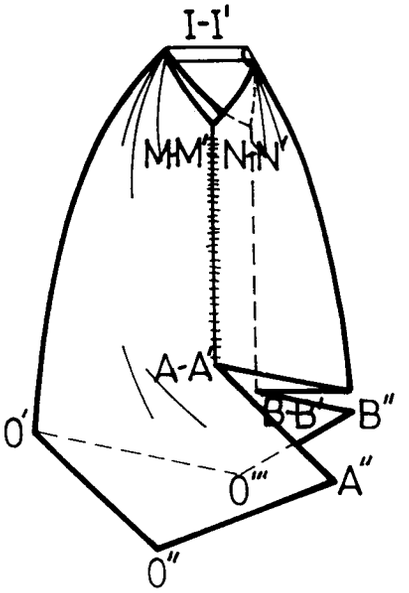

FIG. 3

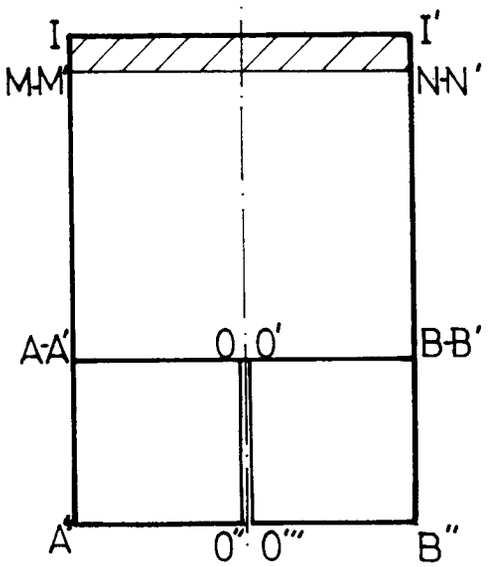

FIG. 2

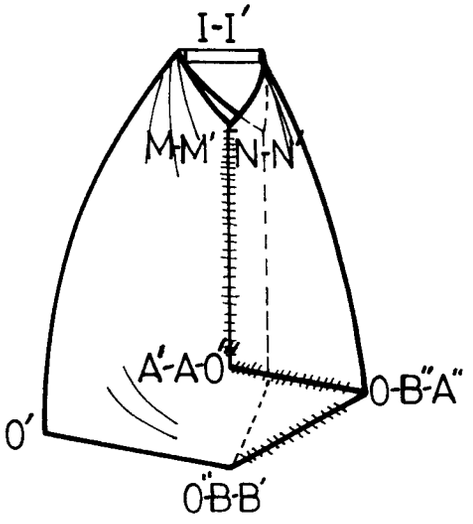

FIG. 4

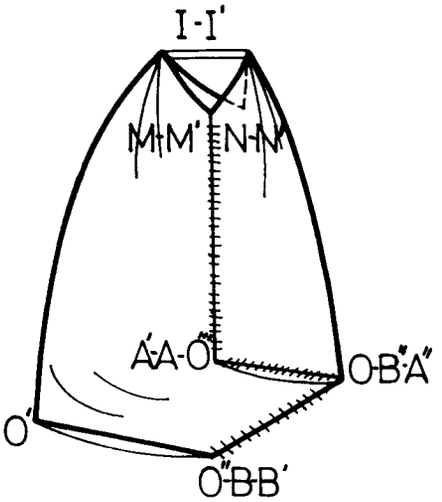

FIG. 5

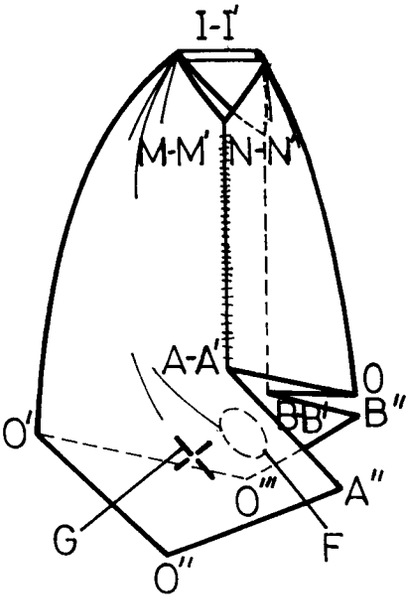

FIG. 7

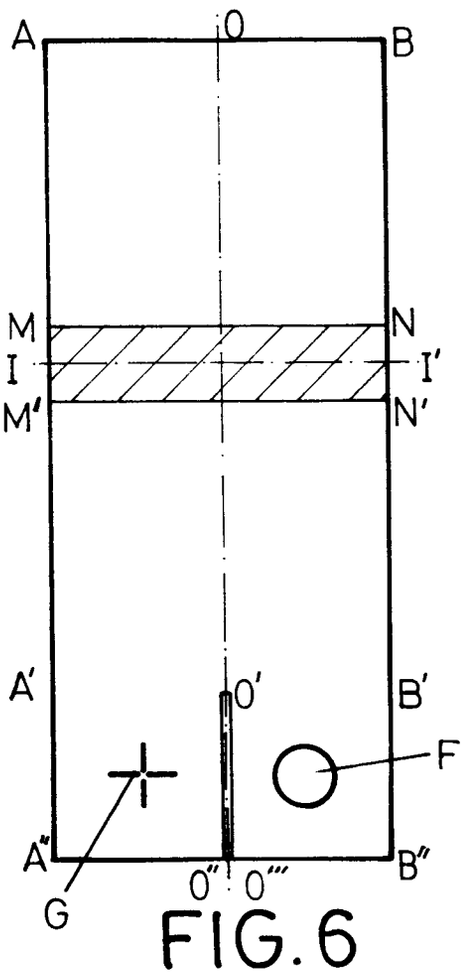

FIG. 6

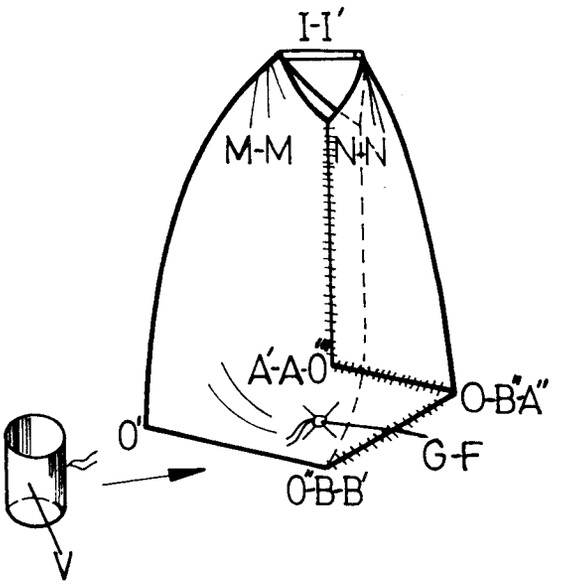

FIG. 8

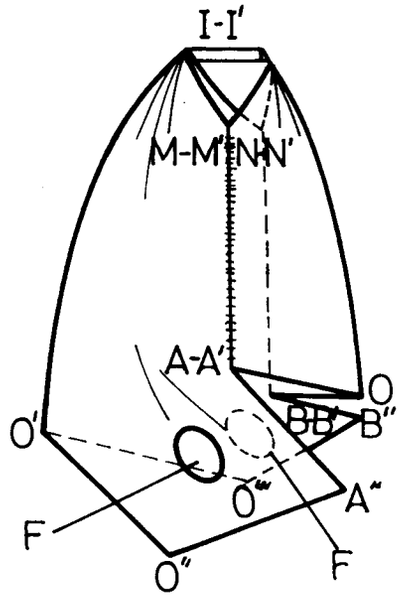

FIG. 9

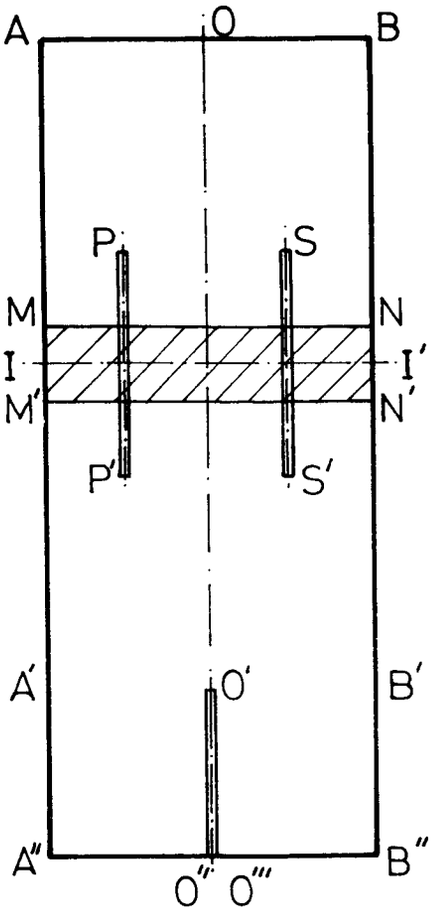

FIG. 11

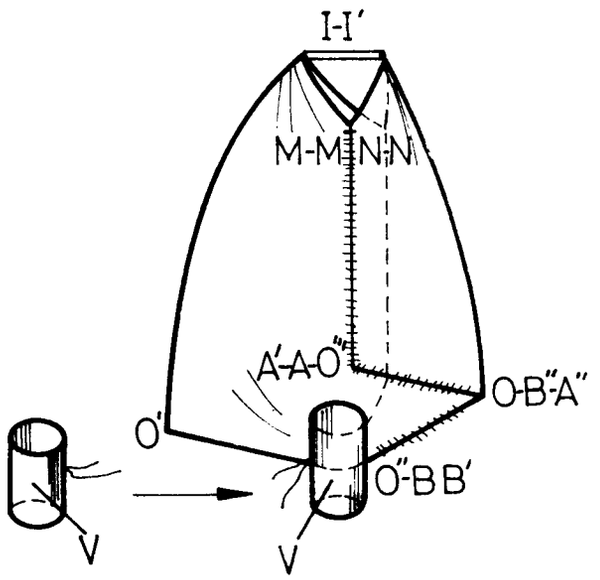

FIG. 10

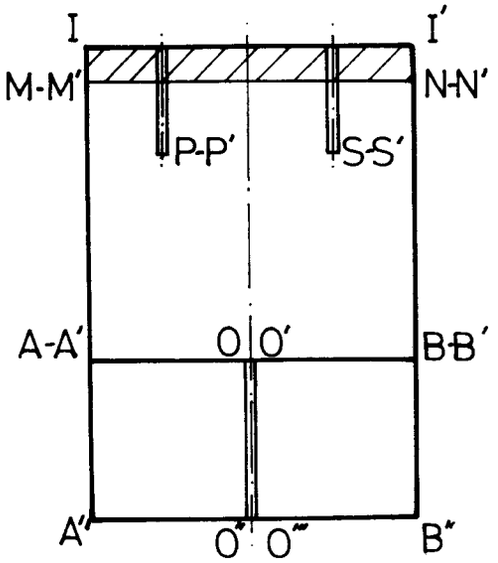

FIG. 12

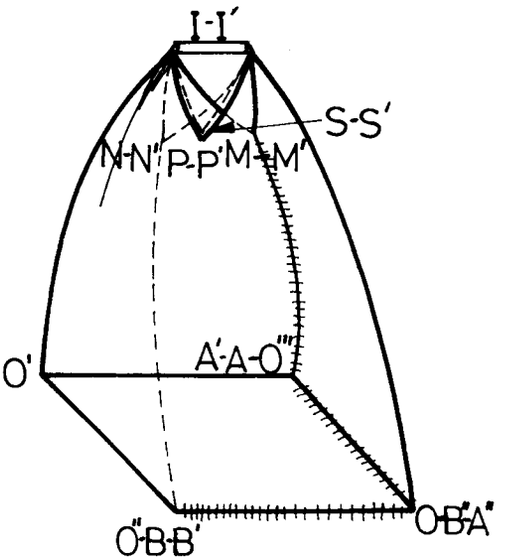

FIG. 14

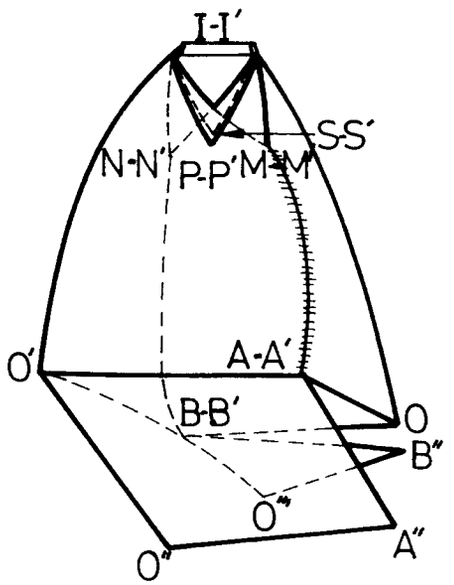

FIG. 13

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 91 20 3146

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	EP-A-0 041 586 (NORSK HYDRO)	1	B65D88/16
A	* page 4, line 15 - line 37; figures *	2,4	
A	US-A-4 191 229 (J. SKAADEL)	1,4	
	* column 5, line 5 - line 22; figures 3,4 *		
A	EP-A-0 083 505 (SUPER SACK MANUFACTURING)	3	
	* page 20, line 10 - page 21, line 10; figures *		

TECHNICAL FIELDS SEARCHED (Int. Cl.5)
B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	20 JULY 1992	VAN ROLLEGHEM F.

CATEGORY OF CITED DOCUMENTS

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