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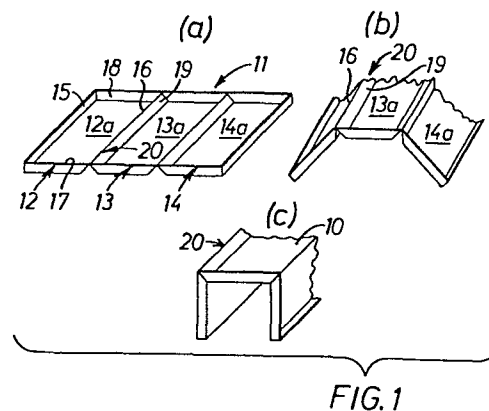
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54 **Improvements in display packaging.**

57 A package for one or more articles of merchandise and which comprises at least two mutually adjacent walls (12, 13) comprising panels (12a, 13a) formed from plastics material, the plastics panels initially lying in substantially the same plane as one another and being connected together by a fold section (20) formed integrally with each of the panels (12a, 13a). The fold section consists of two mutually inclined faces (14, 16) integrally connected together so as to form a hinge located between and out of said plane of the panels. The walls (12, 13) are brought into different planes to form the package or a part thereof by folding the walls about their connecting hinge (20) so as to cause the inclined faces (14, 16) to abut one another.



The applicant has requested
the deletion of references
to figure 8a.

The Hague, 12. 12. 80 *Q.L. Nohem*
Receiving Section

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IMPROVEMENTS IN DISPLAY PACKAGING

This invention relates to display packs in which one or more articles of merchandise can be displayed and sold and to hinged plastics panels for use in such packs.

A known kind of display pack, generally called a
5 'blister' pack has a backing sheet made from cardboard, paperboard or similar sheet material and a hollow transparent plastics flanged housing containing the articles of merchandise and secured to the backing sheet by the flange or flanges.

Normally, such plastics housings are fabricated by
10 extrusion, injection moulding or by a vacuum forming process although it is known to erect housings from sheet plastics material which is appropriately scored and folded to produce a three dimensional construction. The former processes have the disadvantage that the depth of the housing which can be
15 produced is limited or that the tooling costs and/or process costs are expensive. The scoring and folding process also is labour intensive and expensive.

The present invention overcomes the disadvantages inherent in the prior processes by providing a readily foldable plastics sheet which can be erected to form housings or complete boxes.

5 The invention provides a package for one or more articles of merchandise, which package comprises at least two mutually adjacent walls comprising panels formed from a plastics material, the plastics panels initially lying in substantially the same plane as one another and being connected together by a fold
10 section formed integrally with each of the panels, the fold section comprising two mutually inclined faces integrally connected together so as to form a hinge located between and out of said plane of the panels, the arrangement being such that the mutually adjacent walls are brought into different planes to
15 form the package or a part thereof by folding those walls about their connecting hinge so as to cause the inclined faces of that hinge to abut one another.

According to a feature of the invention the inclined faces may define a 'V' between the mutually adjacent walls.

20 The angle subtended between the inclined faces may be acute or obtuse.

A feature of the invention, the panel of each mutually adjacent wall may comprise an integral peripheral flange extending from each of the edges of the panel so as to form a dished
25 element, the peripheral flanges being angled with respect to the panel, and said mutually inclined faces connecting together two adjacent walls being provided by neighbouring peripheral flange portions of adjacent panels.

According to a still further feature of the invention the container may be constituted solely by plastics walls comprising a series of panels connected together as defined in the immediately preceding paragraph so as to form initially
5 a generally 'T'-shaped blank.

According to yet another feature of the invention one or more of the plastics panels of the container may be translucent.

One or more of the panels may be embossed.

Some embodiments of the invention will now be described
10 by way of example with reference to the accompanying drawings, in which:-

Figures 1a, 1b and 1c show schematically the assembly of a housing from a flat plastics sheet,

Figures 2a, 2b and 2c show various fold regions in the sheet,

15 Figures 3a, 3b and 3c show schematically a housing having fold regions formed to produce variations in the housing wall angles,

Figures 4 to 7 inclusive illustrate various multi-panel plastics sheets,

20 Figure 8 illustrates a multi-panel sheet for forming a tubular structure, and

Figures 9 and 9a illustrate a six-panel plastics sheet for forming complete packages.

Referring to the drawings, there is shown in Figures 1a
25 to 1c the formation of a plastics U-shaped shell 10 (Figure 1c) used to provide a housing in the assembly of a 'blister' package (not shown). The shell 10 is erected by folding at appropriate locations a tray element 11. Tray element 11 is formed from a flat, relatively rigid, transparent sheet

plastics material by application of heat and pressure in a process known as thermofolding. As shown in Figure 1a the tray element 11 comprises a series of three walls 12, 13, 14 connected together in side-by-side relationship so that all the walls lie in substantially the same plane.

The walls 12, 13, 14 each comprise a planar panel 12a, 13a, 14a respectively and each panel is formed with integral peripheral flanges. Panel 12a includes longitudinal flanges 15, 16 and vertical transverse flanges 17, 18 extending from one face of and out of the plane of the panel so as to provide the tray element 11. Flange 15 is vertical but flange 16 is inclined and is integrally formed with a similar inclined flange 19 formed on neighbouring panel 13a so that when the tray element 11 is flat the angle subtended between flanges 16 and 19 is approximately 90° . Hence, the two adjacent inclined flanges 16, 19 of panels 12a, 13a provide a ridge like structure including a central joining fold or hinge 20 which is located out of the plane of the panels 12a, 13a but within the overall depth of the tray element 11. The ridge like structure thus constitutes a fold section which, in the erected U-shell, stands proud of the walls. In this embodiment the overall depth of the tray element 11, i.e. the height of a vertical flange 15, 17 or 18 is about 5mm. To arrive at the U-shaped shell 10 depicted in Figure 1c, walls 12 and 14 are both folded in the same direction out of the plane of wall 13 (see Figure 1b) until the juxtaposed inclined faces of the adjacent connecting flanges abut one another.

Of course, the angle subtended between the inclined faces may be varied in order to vary the angle adopted between

adjacent walls and hence the general shape of the shell.

Figure 2a shows a 90° subtended angle whereas Figure 2b shows a 60° subtended angle giving a 120° angle between adjacent walls when the tray element is erected. In contrast, Figure

5 2c shows a 120° subtended angle giving a 60° angle between adjacent walls when the tray element is erected. Hence, various shapes of shell can be produced as is shown in Figures 3a, b and c. Figure 3a illustrates the end view of a right-angled U-shell 10a whereas Figure 3b shows a tray element 11a
10 having an obtuse angled connection 21 between adjacent inclined faces 22, 23 and a 90° angled connection 24 between adjacent inclined faces 25, 26 giving the final erected shape illustrated in Figure 3c.

Figures 4 to 7 inclusive illustrate various multi-panel
15 tray elements used for forming parts of various packages. The shell erected from tray element 11b in Figure 4 can be used, for example, in conjunction with the packages illustrated in Figures 18, 18a, and 19, 19a in our co-pending British patent application No. 8012019 (Ref: D-7060) entitled "Display Packs"
20 filed April 11th, 1980.

The shell erected from tray element 11 and/or 11c in Figure 5 can be used, for example, in conjunction with the packages illustrated in any of Figures 2, 3, 7, 7a, 8, 8a, 10a, 15a or 16a in our co-pending British patent application No.
25 8012019 (Ref: D-7060) entitled "Display Packs" filed April 11th, 1980 and in conjunction with the packages described in our co-pending British patent application No. 8021425 (Ref: D-7111) entitled "Display Packages" filed July 1st, 1980. The shell erected from tray element 11d in Figure 6 can be used, for
30 example, in conjunction with the packages illustrated in Figures 11, 12 or 14a in our co-pending British patent application

No. 8012019 (Ref: D-7060) entitled "Display Packs" filed April 11th, 1980. The shell erected from tray element 11e in Figure 7 can be used, for example, in conjunction with the package illustrated in Figure 25a of our co-pending British
5 patent application No. 8012019 (Ref: D-7060) entitled "Display Packs" filed April 11th, 1980.

Referring now to Figure 8 of the drawings, there is shown a transparent plastics tray element 27, which, when erected, will form a wholly transparent box. The tray element
10 comprises a series of six transparent plastics panels 28 to 33 inclusive connected together by integral fold sections 34 to 38 inclusive. The fold sections are formed as previously described. Figure 8a shows a similar tray element 27a having panels 28a to 33a inclusive. In this embodiment the panels 28a
15 and 30a have a 'frosted' pattern and panel 31a is deeply embossed with a character 39. The remaining panels have wider border areas than tray element 27 and the overall depth of the element is greater.

Packages having plastics panels which are or can be hinged
20 together as described herein are also disclosed in our co-pending British patent applications Nos. 8012016 (Ref: D-7078) entitled "Slide Top Display Pack" filed April 11th, 1980; 8021421 (Ref: D-7117/8) entitled "Packages for Light Bulbs" filed July 1st, 1980; 8021422 (Ref: D-7119) entitled "Packages
25 for Light Bulbs" filed July 1st, 1980; and 8021423 (Ref: D-7120) entitled "Packages for Light Bulbs" filed July 1st, 1980, to all of which the reader is directed.

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IMPROVEMENTS IN DISPLAY PACKAGINGCLAIMS .

1. A package for accommodating at least one article of merchandise which package comprises at least two mutually adjacent walls (12, 13) comprising panels(12a, 13a) formed from a plastics material, the plastics panels initially lying
5 in substantially the same plane as one another and being connected together by a fold section (20) formed integrally with each of the panels, characterised in that the fold section comprises two mutually inclined faces (14, 16) integrally connected together so as to form a hinge located between and
10 out of the plane of the panels, the arrangement being such that the mutually adjacent walls (12, 13) are brought into different planes to form a package or a part thereof by folding said walls about their connecting hinge so as to cause the inclined faces (14, 16) to abut one another.
- 15 2. A package according to claim 1 characterised in that said inclined faces (14,16) define a 'V' (21,24) between the mutually adjacent walls.

3. A package according to claim 1 or claim 2 characterised in that the angle subtended between the inclined faces is substantially 90° .

4. A package according to any of the preceding claims
5 characterised in that the unattached edges of each panel are provided with peripheral walls (15, 17, 18) upstanding from said edges so that said hinged panels form a dished element with the hinge (20) located at substantially the same height as or below the uppermost edges of said peripheral walls.

10 5. A package according to claim 4 characterised in that at least the endmost peripheral wall portions (15) parallel to said hinge connections (20) are angled with respect to the panels (12a, 13a) said mutually inclined faces (14, 16) connecting together two adjacent walls being provided by neigh-
15 bouring peripheral wall portions of adjacent panels.

6. A package according to any of the preceding claims characterised in that the package is constituted solely by plastics walls comprising a series of said panels so as to form a generally 'T'-shaped element (27).

20 7. A package according to any of claims 1 to 5 characterised in that said package comprises a U-shaped shell (10) formed from three adjacent connected walls to provide a housing.

8. A package according to claim 7 characterised in that
25 the housing is closed by further walls provided by paperboard or similar foldable sheet material.

9. A package according to any of the previous claims characterised in that at least one of said plastics panels is translucent.

10. A package according to any of the preceding claims
5 characterised in that at least one of said plastics panels is embossed.

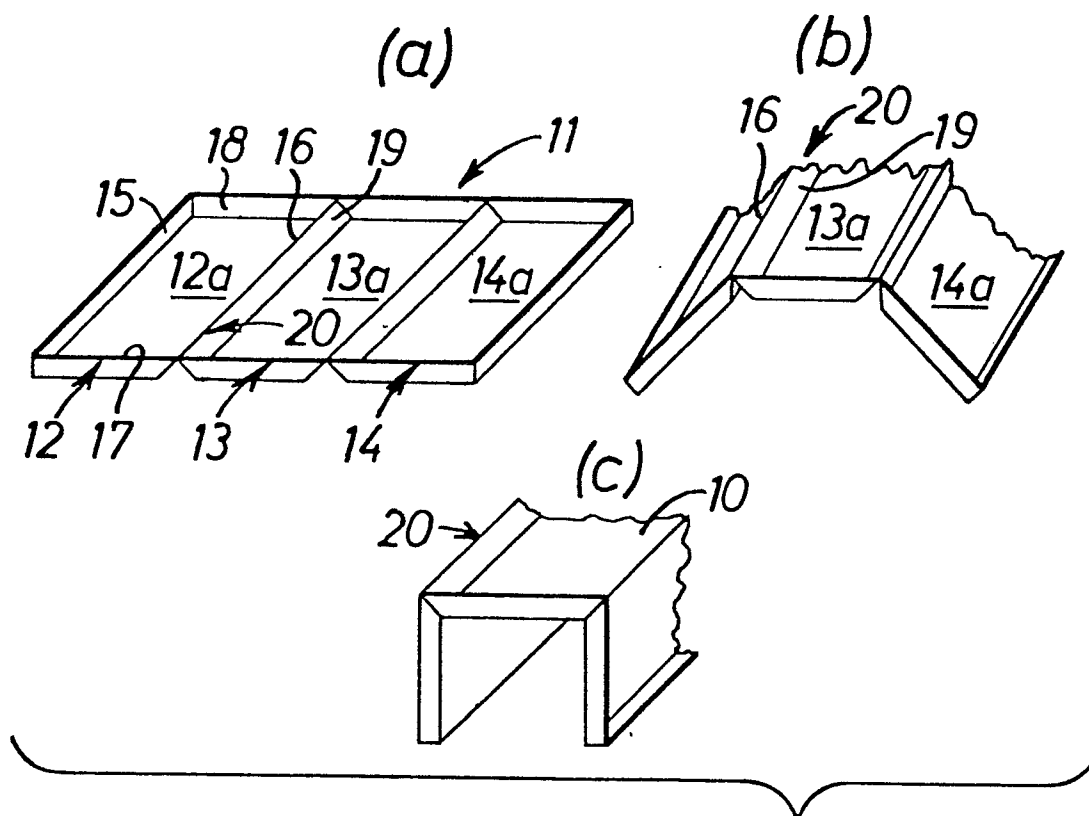


FIG. 1

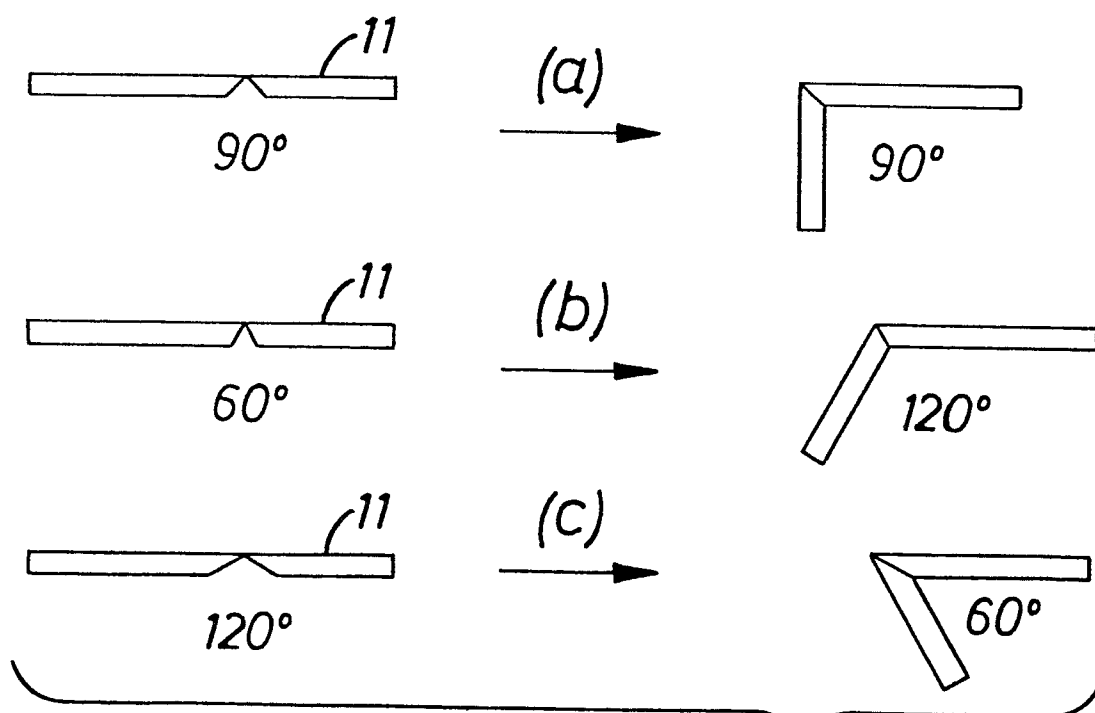


FIG. 2

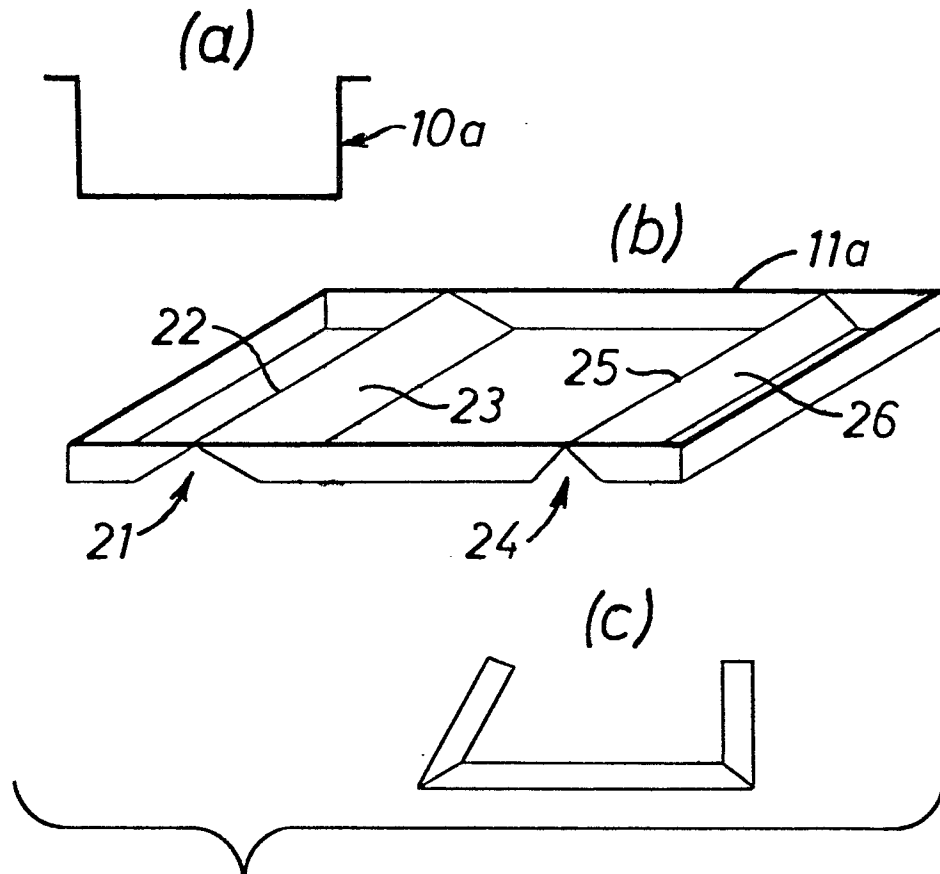
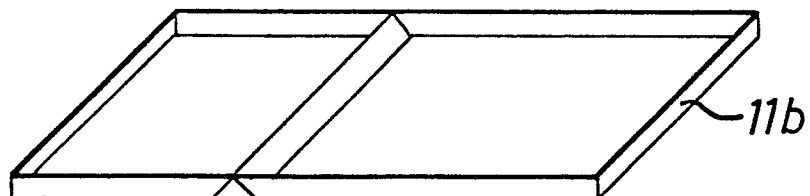


FIG. 3

FIG. 4



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FIG. 5

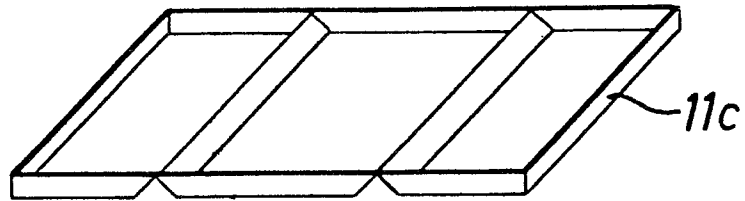


FIG. 6

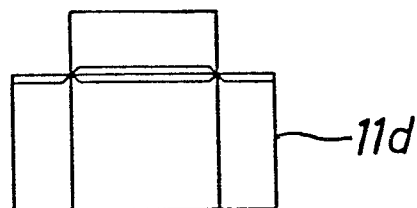


FIG. 7

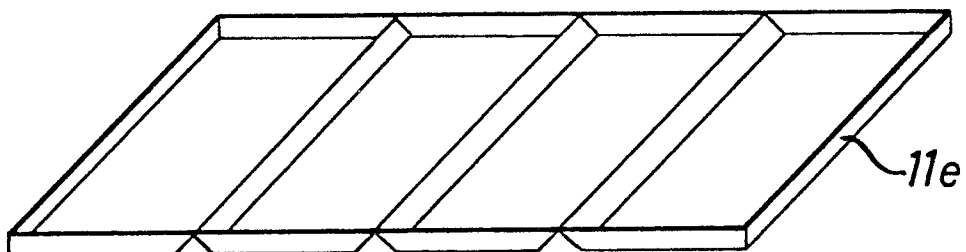
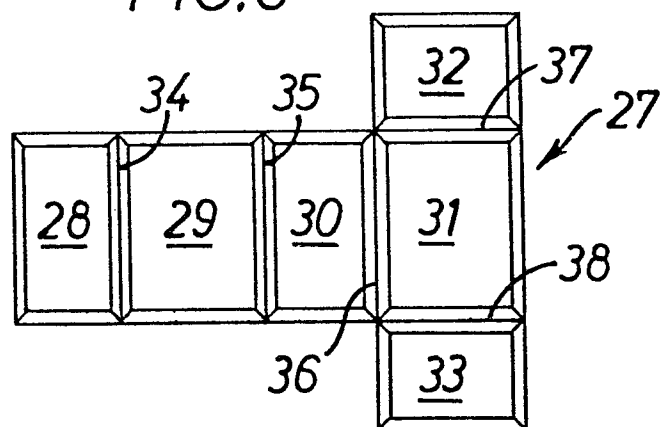


FIG. 8



DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
	<u>US - A - 3 552 550</u> (CAROLL CONTAINER CORP.) * Totality * --	1,2,3, 9	B 65 D 5/20
	<u>US - A - 3 800 998</u> (PRENT CORP.) * Totality * --	1,2,3, 9	
	<u>US - A - 3 695 514</u> (PLASTOFILM IND. INC.) * Fig. 4-7 * --	1,2,3, 9	
	<u>DE - A - 1 949 688</u> (SIEMENS) * Totality * ----	1,9	
			TECHNICAL FIELDS SEARCHED (Int. Cl. 3) B 65 D 1/00 B 65 D 5/00 B 65 D 75/00 B 65 D 77/00 B 65 D 81/00 B 65 D 85/00
			CATEGORY OF CITED DOCUMENTS X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
X The present search report has been drawn up for all claims			&: member of the same patent family, corresponding document
Place of search		Date of completion of the search	Examiner
VIENNA		24-10-1980	JANC