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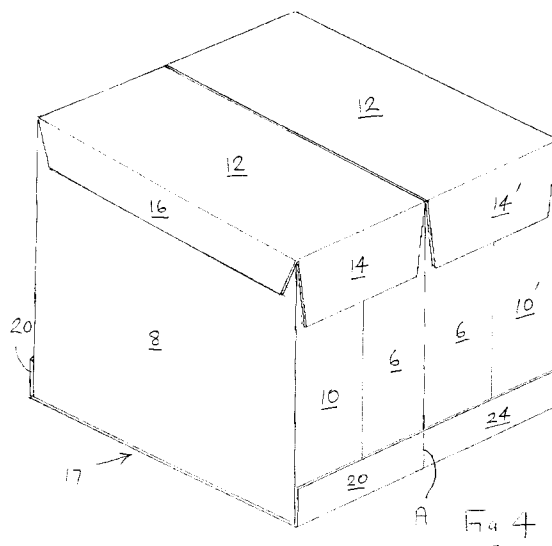
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(54) **Packaging assembly for a plurality of cartons.**

(57) The invention relates to the provision of a carton assembly which is large enough for economical factory and warehouse handling, but readily transforms into sub-assemblies suitable in size and weight for manual handling. The assembly comprises at least two cartons (1;27;60,62) which are yoked together by a panel member (17;43;66) which has edge flanges (20,24;48,52;68,70) which are bonded to side walls of the cartons. A parting line (A;B) is provided which enables the panel member to be separable to enable the yoked cartons to be parted. If desired, the panel member (17;43) may be arranged to complete the structure of the cartons.



The invention is concerned with the manufacture of packaging cartons. Particularly but not exclusively, the invention finds use in the field of outer cartons, i.e. packaging of goods in multiple groups, for example, where each item in a group is separate or is already individually packaged.

For example, in the liquor and soft drinks industry it is convenient to handle containers, cans or bottles, in batches of four, six or twelve using an outer sleeve or box carton. Advantageously the carton may afford complete packaging protection for the individual containers therewithin.

It will be appreciated that in the handling and distribution of cartons there is an optimum size of carton which is preferred for ease of loading/unloading in warehouses, lorries and the like. However, a size which is suitable under such circumstances may not be acceptable in a situation where a retailer or a consumer is involved, from the point of view of weight and dimensions. Thus the use of a size small enough to permit handling by, for example, a sales assistant in an off-licence premises will entail unacceptably high handling costs of wholesale distribution.

It is an object of the invention to provide packaging cartons which are economically acceptable throughout the product handling and distribution system from manufacture to retail sales.

The invention provides, in one of its several aspects, a compound packaging carton assembly comprising at least two erected carton blanks each forming a complete or substantially complete carton adapted to enclose in use contents therewithin, and a panel member comprising a main body portion and at least one edge flange, said flange(s) being in-turned about the cartons so as to maintain the cartons in a side-by-side condition yoked together by said panel member, the latter being provided with a parting zone to allow parting of the panel member into panel member portions and to facilitate separation of said cartons one from another, the parting zone of the panel member traversing the or each edge flange and the body portion thereof.

The invention provides, in another of its several aspects, a machine for assembling compound packaging carton assemblies comprising conveyor means adapted to convey groups of erected cartons each group comprising two or more cartons to a carton assembly zone of the machine, holding means to maintain each said group of cartons successively at said zone in a predetermined configuration, supply means to supply to a location adjacent to a group of cartons held by said holding means a panel member having a parting zone provided therein, aligning said parting zone lengthwise with contiguous wall portions of adjacent cartons in said group, folding means adapted to fold an edge flange of said panel member inwardly about said cartons to yoke the latter together, there being further provided means to secure said

panel edge flanges to at least one of further wall portions of the cartons.

Conveniently, each group of cartons may comprise between two and six cartons.

Advantageously, the flange(s) and the body portion may be bonded to the carton wall portions by means of an adhesive cement.

While it will be understood that in the examples to be described below, the panel member comprises two edge flanges on opposed sides of the main body member, it is also possible to provide a panel member which have one, deep, flange intumed with respect to the main body portion. The depth of the flange, which in practice is usually greater than that of either of a pair of flanges, will be such as to bond to a sufficient area of the side wall of the carton to ensure that the cartons remain yoked together.

In some circumstances, it may be found advantageous to provide temporary bonding means between contiguous side wall portions of adjacent cartons in a group, preferably at a location spaced from the panel member.

In the present specification, it will be understood that the term side walls includes any one of four walls arranged to abut each other at side edges thereof to enclose rectangular volume. End walls may be either top or bottom walls (bases) and these terms may be used as appropriate according to the orientation of the cartons during the formation of the assembly.

The invention further provides a compound packaging carton as described in the fifth paragraph of the specification wherein there are at least two erected carton blanks, said blanks each comprising an incomplete carton, wherein at least a portion of said panel member acts to supplement each of the blanks comprising incomplete cartons to complete the assembly of each carton, the panel member being provided with a parting zone to allow parting of the panel member into panel member portions and also to facilitate separation of said cartons from one another, the construction and arrangement being such that each separated carton retains a panel member portion as an integral part of its assembly.

In this specification, the term "incomplete carton" refers to the absence of a side wall or top or bottom wall or end wall thereof or the lack of one or more securing flange(s) which would normally secure together two or more side, top, bottom or end walls of the carton, leaving walls of the carton unsecured if said panel member portion were not present.

There will now be described several examples of packaging cartons according to the invention. It will be understood that the description, which is to be read with reference to the drawings, is given by way of example only and not by way of limitation.

In the drawings:-

Figure 1 shows a carton blank for use in a first example of a compound packaging carton

according to the invention;

Figure 2 shows a panel member blank for use in said first example;

Figure 3 shows the carton of the first example during assembly;

Figure 4 shows the assembled carton of Figure 3;

Figure 5 shows an insert suitable to be received within said carton;

Figures 6 to 9 correspond to Figures 1 to 4 above and relate to a second example according to the invention;

Figure 10 illustrates a third example according to the invention and shows a group of two cartons and a panel member in an unassembled condition;

Figure 11 shows the parts in Figure 10 in an assembled condition;

Figure 12 shows an alternative design of carton, two of which are assembled with a panel member; and

Figure 13 shows a diagrammatic layout of a machine for the formation of the compound carton assemblies.

In Figure 1 there is shown a first carton blank 1 cut from conventional multi-ply corrugated cardboard and comprising, in terms of the erected carton, a base 2, a first side wall 4 having two opposed edge flanges 6,6', a second side wall 8 having two opposed edge flanges 10, 10' and a top wall 12 having three edge flanges 14,14' and 16.

Figure 2 shows a panel member 17 comprising a main body portion and two edge flanges 19, 19'. Perforations in the member form a parting zone shown at chain-dot line A, defining body portion areas 18 and 22 and flange portion areas 20,24.

A compound packaging carton is shown in Figure 3, partly assembly. The carton comprises two carton blanks 1 each folded along fold lines in a conventional manner and glued to form the arrangement as shown. Each carton blank is folded so that side walls 4 and 8 are upright, the top wall 12 is folded over so that flange 16 is glued to the upper part of the side wall 8 and the flanges 14 and 14' are glued to end walls respectively comprised of edge flanges 6,10 and 6',10'.

It will be observed that both cartons are incomplete in that there is no means to secure free edge portions of the base 2 to the lower edges of the flanges 6,10 or 6',10' comprising the end walls. The carton construction is completed by taking the panel member 17 and folding the two edge flanges 19,19' upwardly so that the two cartons 1 are received on the panel member in a back-to-back arrangement as shown in Figure 3, with the panel edge flanges 19,19' glued to the flanges 6,10 and 6',10' of the cartons. Thus the cartons 1 are now completed and, although there is no tape, strapping or other means binding the two cartons together, they are maintained rigidly in close proximity by the presence of the panel member 17. It

will be appreciated that the panel member may be secured in position by adhesive applied thereto, or a coating of pre-applied adhesive may be activated by suitable means prior to attachment.

In use, a conventional partitioning device 26 is inserted into each carton when partially assembled and the carton contents, six bottles of spirits in the present example placed in the partitioned spaces within the carton. When fully assembled and glued, the compound packaging carton contains twelve bottles and presents these to warehouse handling equipment in a manner which is convenient and economical.

However, where circumstances make a twelve-bottle carton assembly too heavy or cumbersome to handle manually, the two cartons 1 may readily be separated by parting the panel member 17 along the line A, leaving two cleanly separated, entirely complete cartons which still afford full protection to their contents and give a neat visual appearance for retail display acceptability. Each carton is now of a weight which can easily be carried by, say, a junior sales assistant.

Figures 6 to 9 illustrate a second embodiment of the invention. Figure 6 shows a second carton blank 27 comprising, in terms of the erected carton, a base 28, a first side wall 32 having two opposed edge flanges 34,34', a second side wall 38 having two opposed edge flanges 40,40'. Each side wall 32 and 38 is also provided with a third edge flange 36 and 42 respectively, which together will form part of a top wall as will be explained below with reference to Figure 8.

Figure 7 shows a blank for a panel member 43 comprising a main body portion and two edge flanges 46,46'. Two rows of perforations are provided at B which form a parting zone comprising a tear strip area 56, which defines body portion areas 44 and 50 and flange portions area 48 and 52.

A compound packaging carton is shown in Figure 8, partly assembled. The carton comprises two carton blanks 27 each folded along fold lines in a conventional manner and glued to form the arrangement as shown. Each blank is folded so that side walls 32 and 38 are upright, and flanges 34 and 40, 34' and 40' are folded so that edge surfaces abut to form end walls. The end walls secured in place by folding respective flanges 30,31' upwardly and gluing the against the flanges 34 and 40, 34' and 40' respectively.

Flanges 36 and 42 are also folded inwardly, i.e. towards each other, but it will be observed that each carton is incomplete in that there is no means to secure the flanges 36 and 42 in position and in the present example the dimensions of the flanges 36 and 42 are such that they do not abut. There is thus no effective top wall at this stage.

However, the construction of the cartons is completed by taking the panel member 43 and folding the two flanges 46,46' downwardly so that the member is

received over the top of both cartons.

Flanges 46,46' are glued to the flanges 40,34,40,34 and the cartons are now completed. In this second example, as in the first, there is no tape or strapping binding the two cartons together since they are in effect yoked by means of the panel member 43. The compound packaging carton is thus ready for handling in its form as shown in Figure 9, i.e. in a twelve-bottle arrangement.

When it is desired to handle a smaller package the tear strip 56 may be removed by pulling upwardly on the end portion 58 and the two cartons may then be separated. Each carton is complete and affords full protection to its contents, giving a neat visual appearance acceptable to a customer.

A third example is shown in Figure 10, comprising two conventional cartons 60, 62 in an erected condition. The cartons are positioned side-by-side with longer ones of side walls 64 thereof facing each other.

A panel member 66 is shown beneath the cartons for bonding thereto. The member 66 is provided with up-turned edge flanges 68 so that the member 66 acts to yoke the two cartons together in a manner similar to that shown in Figure 3. The member 66 includes a parting zone comprising a line 70 of perforations, which, when the member is secured to the cartons 60, 62 lies at the junction between the two cartons. Separating the cartons is then made possible, when required, by parting the member along the line 70.

Figure 11 shows an end view of the cartons 60, 62 and the panel member 66 in the assembled condition, with the addition, if it is considered advantageous of a portion 72 of a temporary bonding agent between the two confronting walls 64 of contiguous cartons. This bonding agent will be selected to be readily releasable and visually inconspicuous. However, its presence may be of benefit particularly in instances in which the cartons are tall relative to their base dimensions.

Figure 12 of the present application shows a portion of temporary bonding adhesive 72', for example a latex adhesive, applied between cartons made up from blanks 1.

It will be understood that the panel member may be assembled below the cartons to an additional base panel or may be applied to side walls or the top wall of a group of cartons. If desired, the exterior, visible, surface of the panel may bear printed matter, advertising or display or the like.

Figure 13 illustrates the stages of operation in a machine layout for use in the formation of a compound packaging assembly indicated at 74. It will be understood that the cartons of assembly 74 may be for example, incomplete cartons as shown in Figure 3 or complete cartons as shown in Figure 10, and may be arranged to be handled in an upright condition or lying on their sides according to factory requirements and marketing strategies, or indeed the nature of the car-

ton contents.

A conveyor device 76 is arranged at stage (i) to transfer a series of erected cartons arranged in groups of two, as indicated at 78, to an assembly zone including holding means 80 which maintain the orientation of the cartons as they leave the conveyor device. A panel member 82 having two flanges 84 and a parting line 86 is transferred from a stack and passed through an adhesive applying device 88. A conveyor belt 90 is used to position the panel member 82 on a bed member 92 at stage (ii) below the cartons 78 so that the member adheres to the lower surfaces of the cartons. Two side clamps 94 then move into positions at stage (iii) in which leading edge portions 96 underlie the flanges 84. The bed member 92 is then lowered at the same rate and to the same extent as are the holding means 80 to force the cartons downwardly so as to turn the flanges 84 upwardly about the cartons in stage (iv). The pressure exerted by the side clamps 94 is then increased to ensure satisfactory adhesion and the holding means is withdrawn as the clamps are released in stage (v).

Various modifications may be made within the scope of the invention as defined by the following claims. For example the parting line in the panel member may be provided by bonding together two panel member portions by an adhesive strip spanning adjacent margins of the portions across its transverse dimension and incorporating a release cord to part the strip in a lengthwise direction.

Claims

1. A compound packaging carton assembly comprising at least two erected carton blanks each forming a complete or substantially complete carton adapted to enclose in use contents there-within, and a panel member comprising a main body portion and at least one edge flange, said flange(s) being in-turned about the cartons so as to maintain the cartons in a side-by-side condition yoked together by said panel member, the latter being provided with a parting zone to allow parting of the panel member into panel member portions and to facilitate separation of said cartons one from another, the parting zone of the panel member traversing the or each edge flange and the body portion thereof.
2. An assembly as claimed in claim 1, wherein said panel member comprises the main body portion and two edge flanges inturned so as to be in parallel planes and to be bonded to opposed side walls of said cartons to maintain the cartons in said side-by-side condition.
3. An assembly as claimed in claim 1, wherein said

panel member comprises the main body portion and one of said edge flanges inturned so as to be bonded to a zone of a side wall of carton of adequate area to permit said cartons to be maintained in said side-by-side condition.

4. An assembly as claimed in any one of the preceding claims, wherein said parting zone comprises a row of perforations in the thickness of the body portion and the flange(s) of the panel member. 5
5. An assembly as claimed in any one of claims 1 to 3, wherein said parting zone comprises two rows of perforations arranged to be at least substantially parallel over a major portion of their length so as to define a tear-strip area. 10
6. An assembly as claimed in any one of claims 1 to 3, wherein said parting zone comprises an adhesive strip secured to panel member portions to form said panel member, said strip being provided with release means to part the strip in a lengthwise direction. 15
7. An assembly as claimed any one of the preceding claims in which a portion of a bonding agent is applied between confronting side wall areas of contiguous cartons. 20
8. An assembly as claimed in claim 1 wherein there is provided at least two carton blanks each comprising an incomplete carton, and wherein at least a portion of said panel member acts to supplement each of the blanks comprising incomplete cartons to complete the assembly of each carton, the panel member being provided with a parting zone to allow parting of the panel member into panel member portions and also to facilitate separation of said cartons from one another, the construction and arrangement being such that each separated carton retains a panel member portion as an integral part of its assembly. 25
9. A machine for assembling compound packaging carton assemblies as claimed in claim 1, comprising conveyor means adapted to convey groups of erected cartons each group comprising two or more cartons to a carton assembly zone of the machine, holding means to maintain each said group of cartons successively at said zone in a predetermined configuration, supply means to supply to a location adjacent to a group of cartons held by said holding means a panel member having a parting zone provided therein, aligning said parting zone lengthwise with contiguous wall portions of adjacent cartons in said group, folding means adapted to fold an edge flange of said panel member inwardly about said cartons to 30

yoke the latter together, there being further provided means to secure said panel edge flanges to at least one of further wall portions of the cartons.

10. A machine as claimed in claim 9, wherein adhesive applying means are provided to apply adhesive to each panel member prior to attachment to said carton. 35
11. A machine as claimed in claim 9, wherein adhesive activating means are provided to activate adhesive previously applied to said panel members. 40
12. A machine as claimed in any one of claims 9 to 11, wherein the folding means comprise side clamps having leading edges adapted to engage flange portions of said panel members, the construction and arrangement being such that relative movement between the side clamps and the carton assembly causes the edge flanges of the panel member to be folded inwardly about the carton assembly and secured thereto. 45

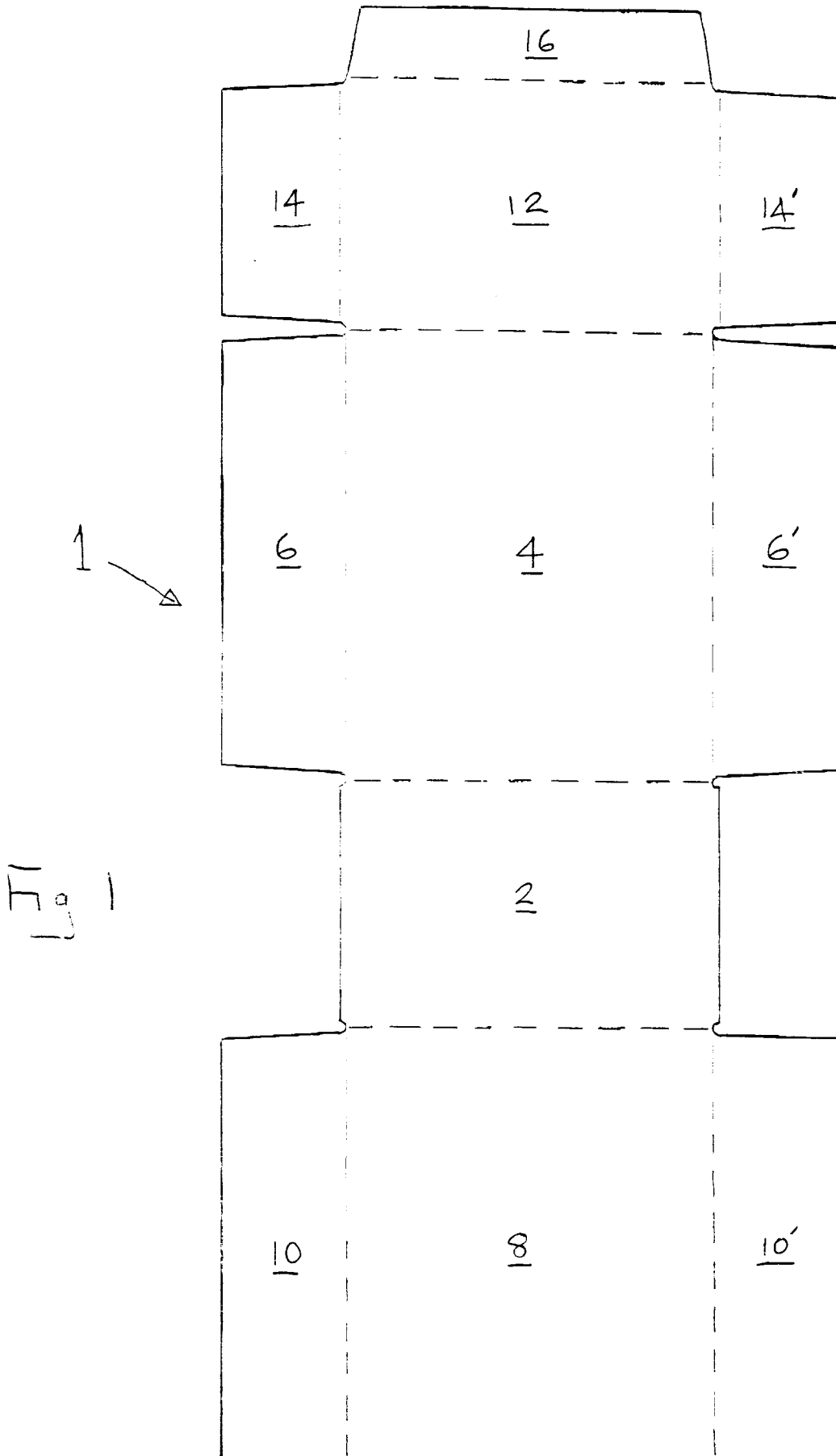


Fig 2

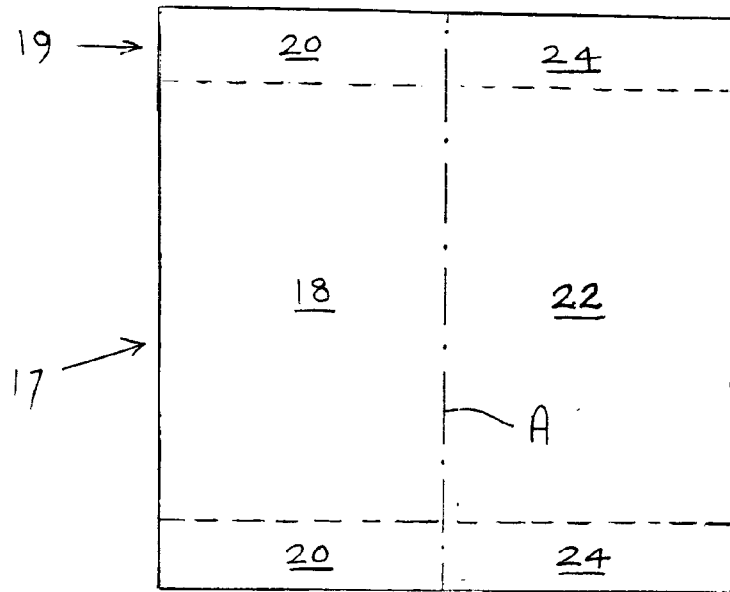
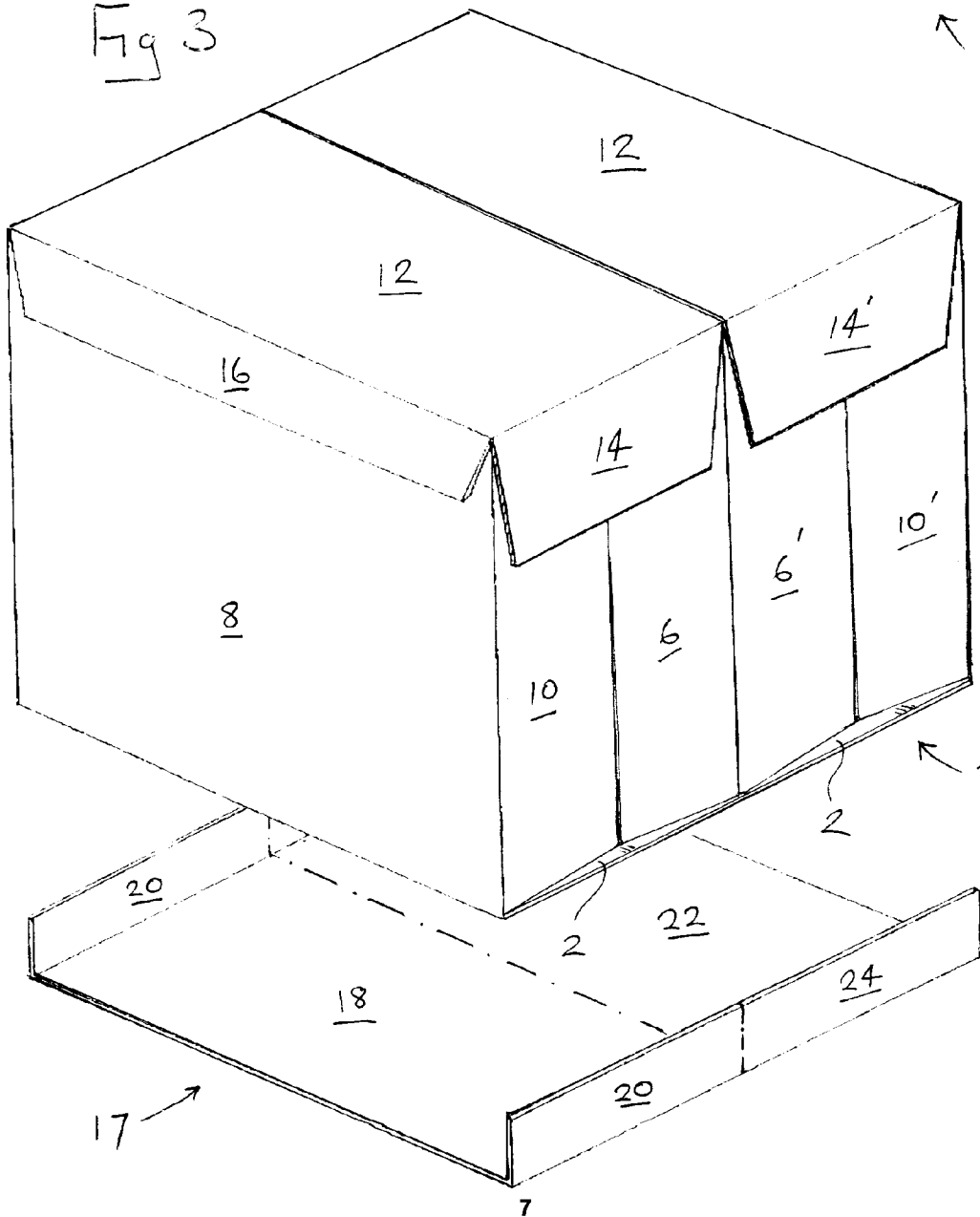


Fig 3



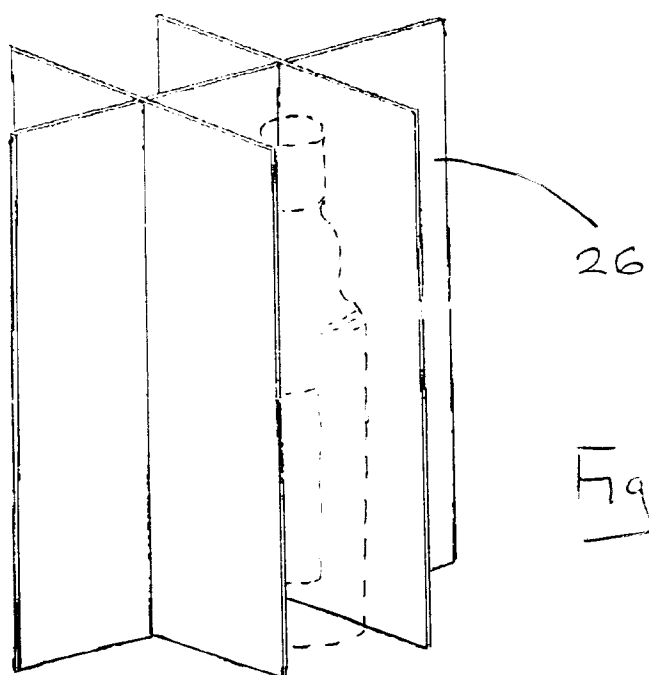
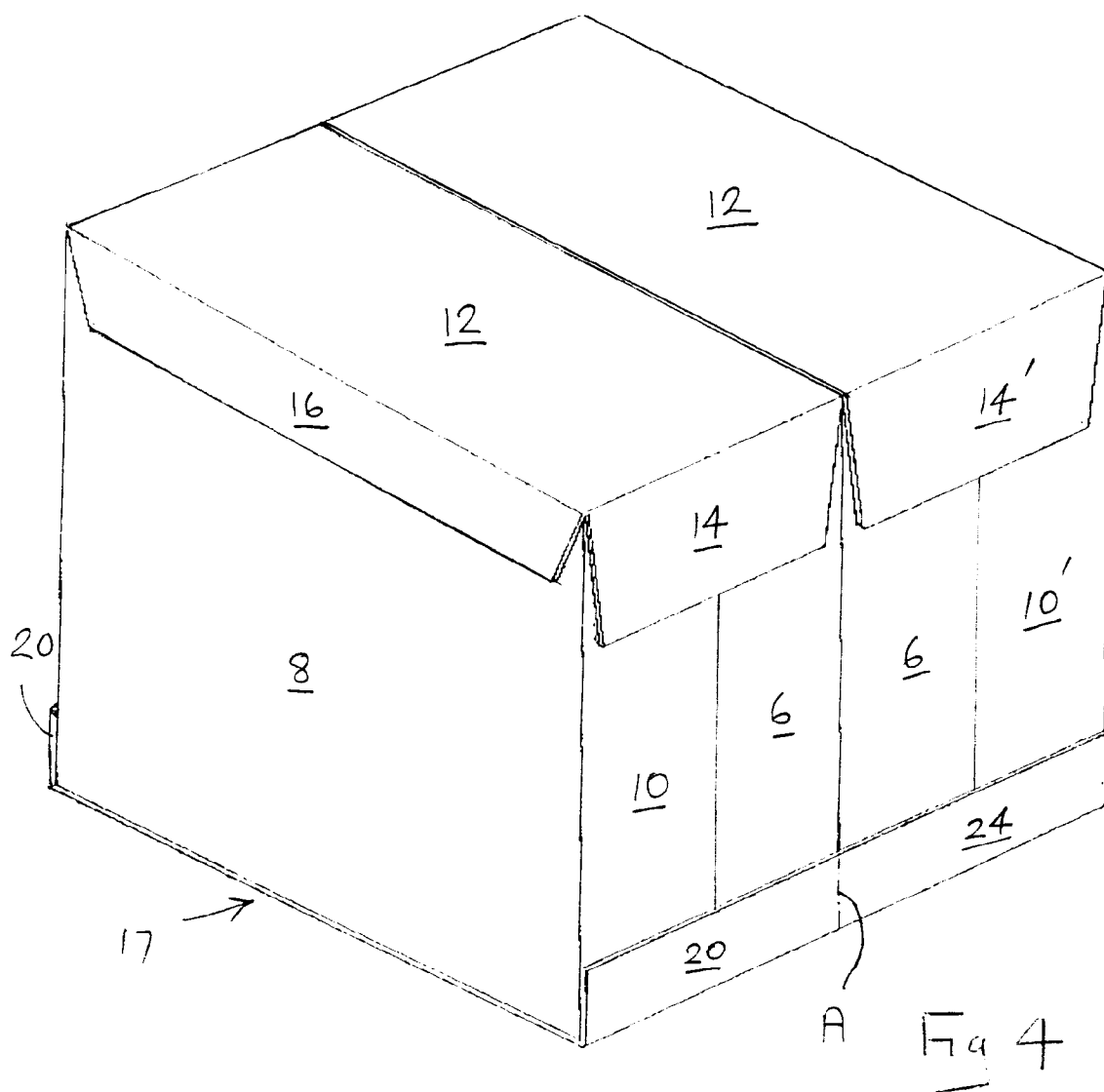
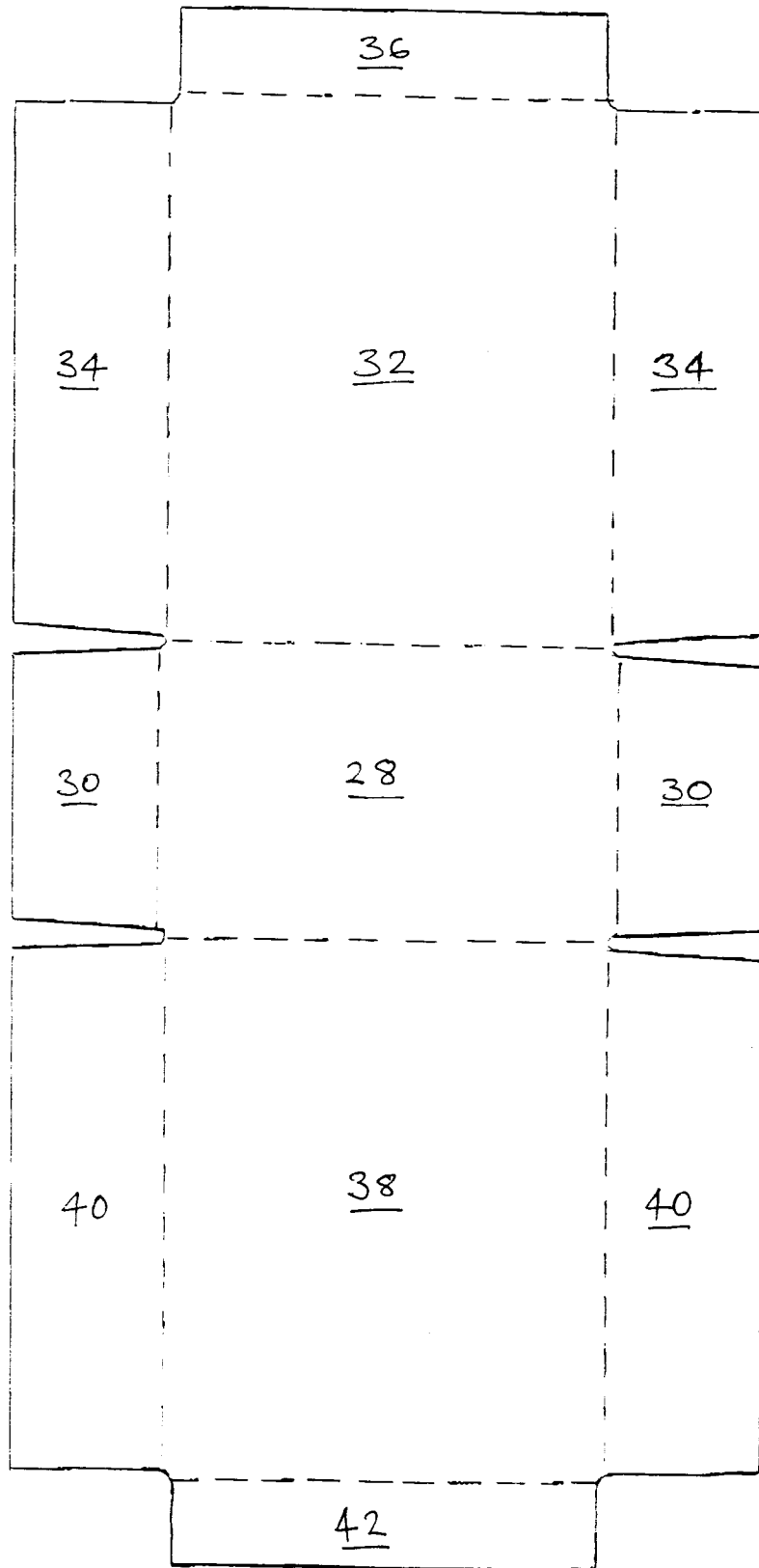
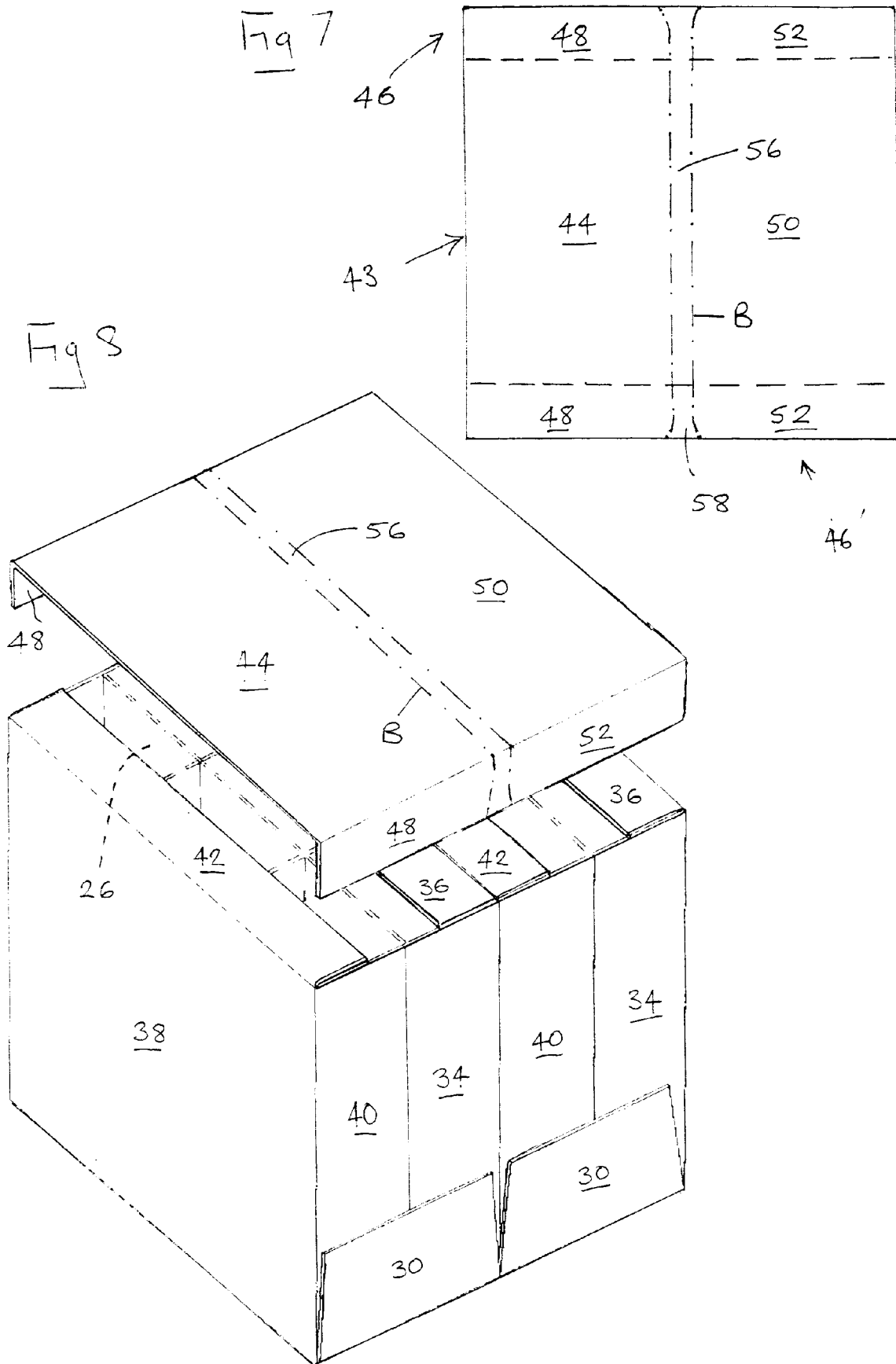


Fig 6

27 →





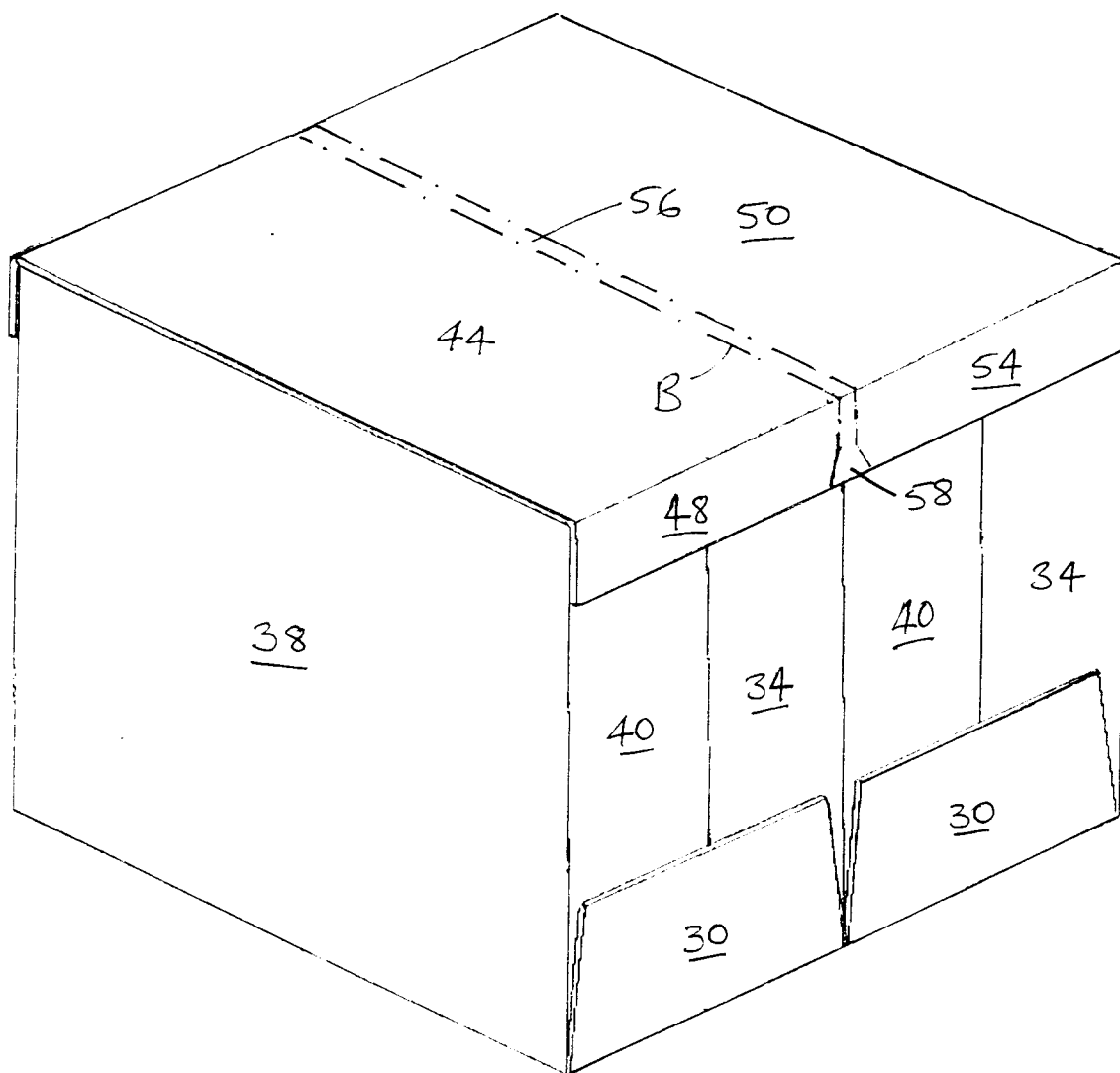
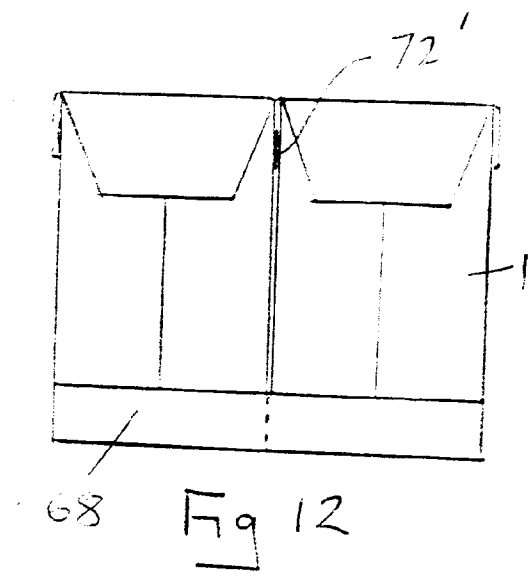
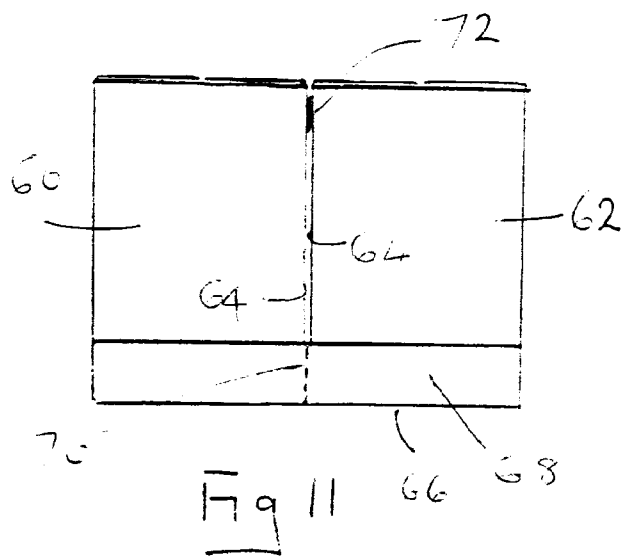
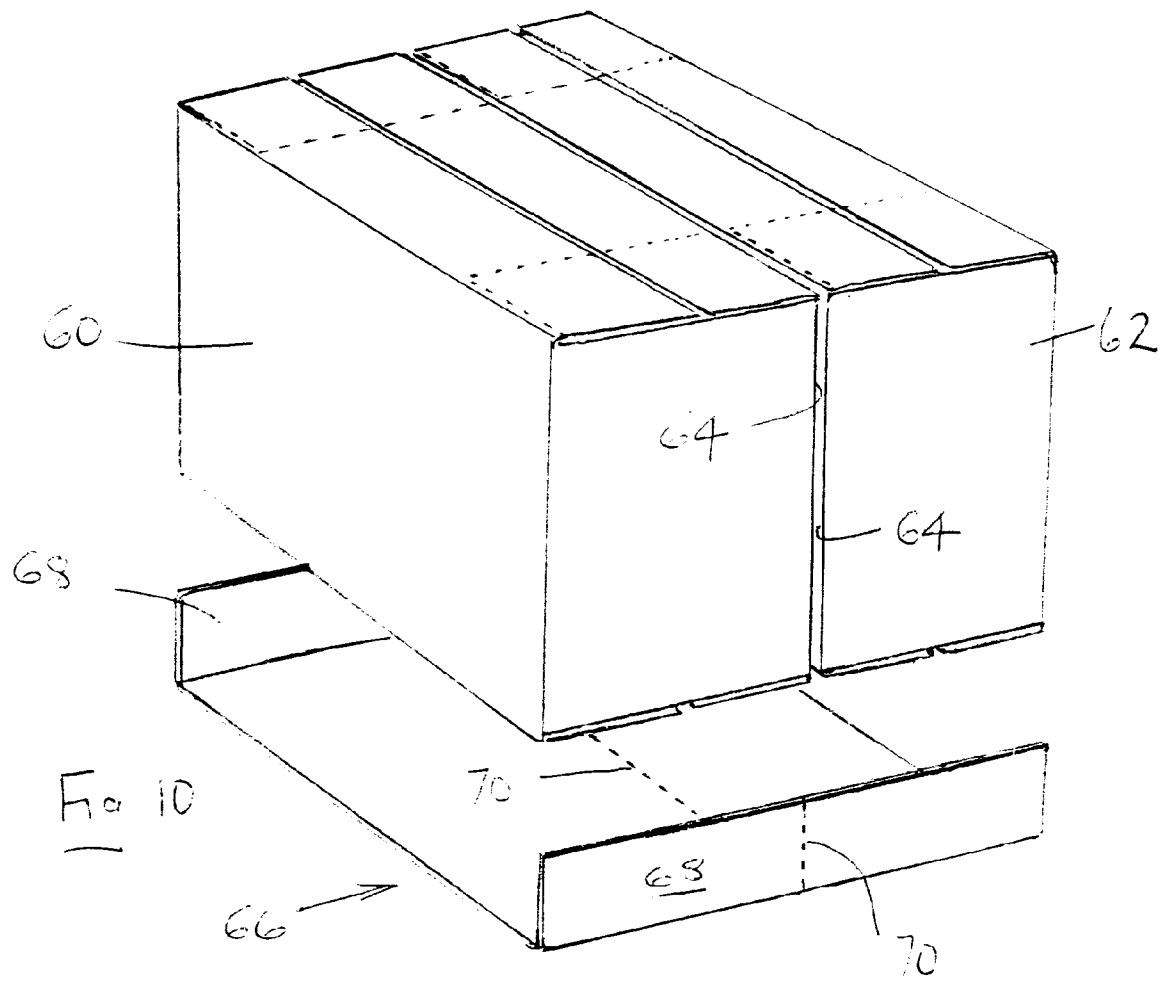
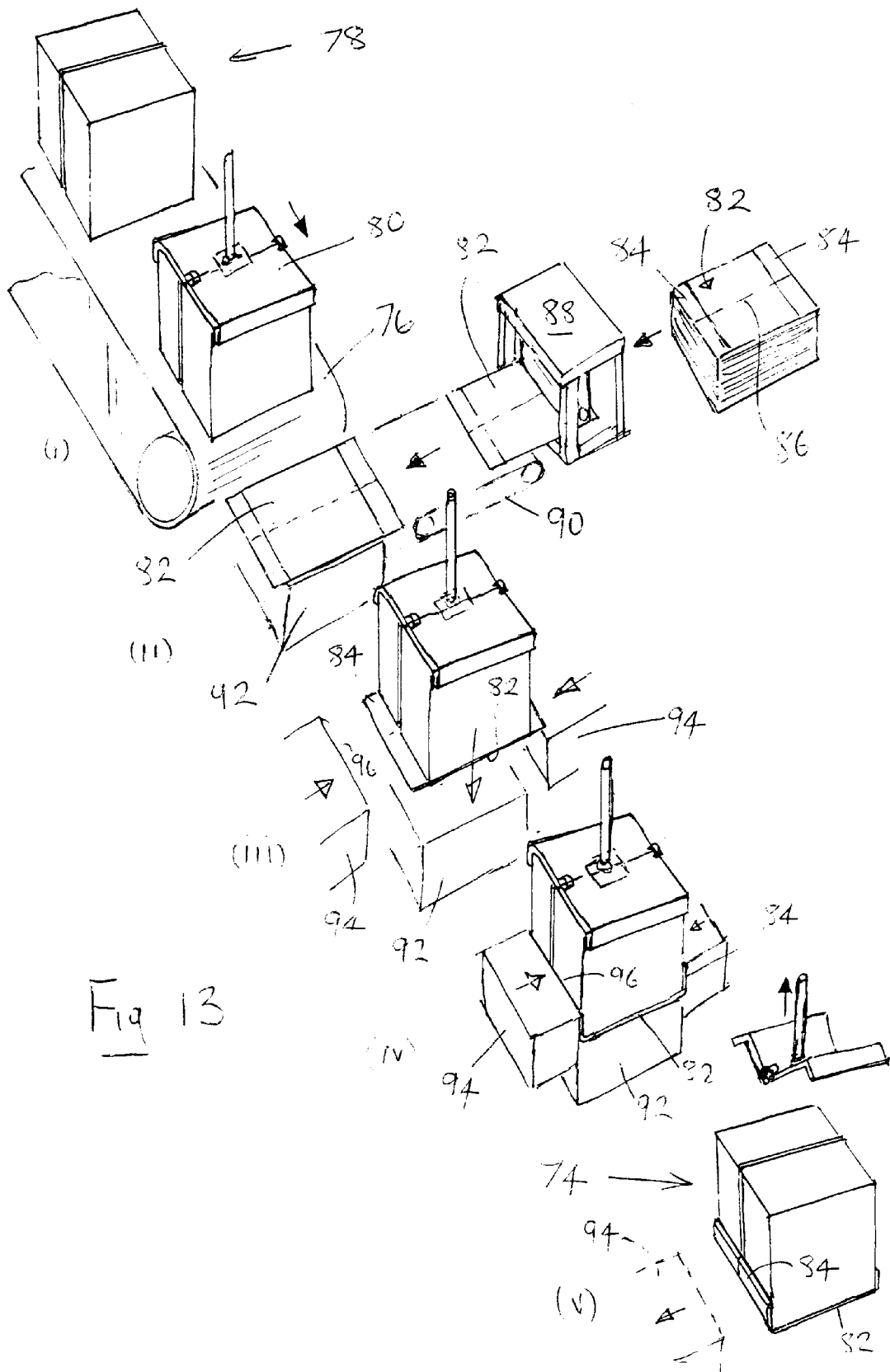


Fig 9







European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 91 30 9405

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	DE-A-2 931 118 (LION FAT AND OIL)	1-5, 8-10, 12	B65D71/00 B65B17/02
Y	* the whole document *	6, 7	B65B5/06 B65D5/54

X	DE-A-3 340 918 (WEIXLER)	1-5, 8-10	
	* the whole document *		

X	FR-A-2 471 924 (SOULIE)	1-4, 8	
	* the whole document *		

Y	US-A-3 343 746 (SHIFFMAN)	6	
	* abstract *		

Y	DE-A-2 553 235 (BASF)	7	
	* page 6, paragraph 6; figure 1 *		

			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B65D B65B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 27 JANUARY 1992	Examiner LEONG, C. Y.
CATEGORY OF CITED DOCUMENTS		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	
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			

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