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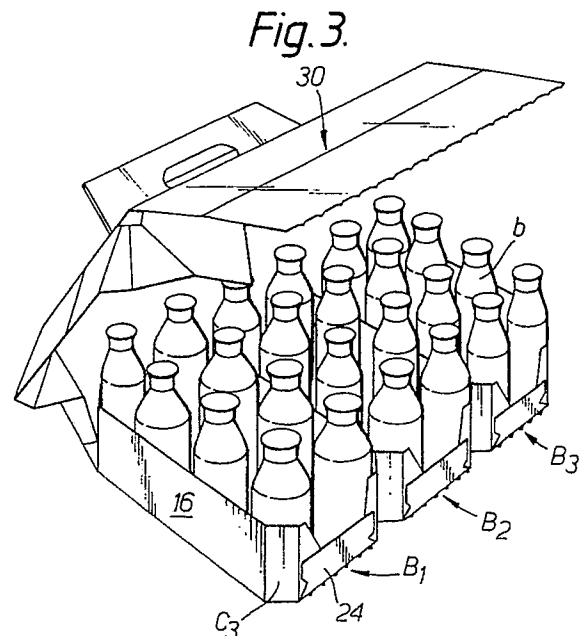
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(54) **Carton divisible into modular units.**

(57) A multiple compartment, separable carton (C) comprises a plurality of compartments (B1, B2, B3) connected together by a common top cover (30). The common top cover includes a top portion (34-42; 32'-42') which is removable relative to a lower portion (44, 44') thereof to expose the contents of each of the compartments. The lower portion of the top cover connects one compartment to the next by frangible connections (74, 76; 74', 76'), each of which is breakable to separate one compartment from the next.



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## CARTON DIVISIBLE INTO MODULAR UNITS

The present invention relates generally to a tubular carton or container and, more particularly, to such a container which is formed to include multiple article receiving compartments, and which may be separated to form a plurality of single compartment cartons.

It has, of course, long been known to package a plurality of articles within a carton or container to facilitate the purchase of a quantity of such articles by the consumer. For example, beverages packaged in individual cans or bottles may be placed into an end loading carton which holds a predetermined number of cans or bottles. It is also known, but less common, to form the carton such that it defines a pair of article receiving compartments so that the carton may be conveniently split into a plurality of sections. For example a carton can be designed having two compartments each holding twelve beverage cans. The entire carton i.e. 24 cans, may be easily transported, or the carton may be split to produce two individual cartons of twelve cans each. The separation of the individual compartments may be done at the point of sale so that smaller quantities of the product may be sold, or may be performed later by the purchaser at his convenience.

Such a carton is shown in US Patent No 3,677,458. There, the carton is formed having a common top wall and, for each compartment, individual side and bottom walls. The compartments are arranged with inner side walls placed adjacent each other. A tear strip is formed across the top wall along the lines where the facing inner side walls meet the top wall. Removal of this tear strip enables the two compartments to be separated into individual containers each of which has a foldable handle.

In the present invention, a whole common top wall incorporating a carrying handle is removed from the carton compartments and discarded. The invention provides a multiple compartment, separable carton comprising a plurality of compartments connected together by a common top cover said common top cover including a top portion which is removable relative to a lower portion thereof to expose the contents of each of said compartments and wherein said lower portion of the common top cover connects one compartment to the next by frangible connections, each of which is breakable to separate one compartment from the next.

The present invention provides a multiple compartment, separable carton comprising a plurality of compartments connected together by a common top cover, characterized in that said common top cover includes a top portion which is removable

relative to a lower portion thereof to expose the contents of each said compartments and wherein said lower portion of the common top cover connects one compartment to the next by frangible connections, each of which is breakable to separate one compartment from the next.

According to a feature of the invention that common top cover may include a pair of opposite side walls each of which side walls is included in said top portion of the common top cover.

According to another feature of the invention the common top cover may include a pair of base panels attached to the bottoms of said plurality of compartments, said pair of base panels providing said lower portion of the common top cover. In constructions where this feature is adopted, the bottom panels may be attached to said bottoms of the compartments by cooperating locking means.

According to another feature of the invention the common top cover may include a handle by which the carton can be carried. Where a carrying handle is provided, the handle may be disposed substantially centrally of the top of said carton and is hinged on opposite sides thereof to respective ones of a pair of top wall panels of the common top cover.

According to yet another feature of the invention the common top cover may include foldable panels for forming end closure panels at opposite ends of the carton. Where such end closure panels are provided said end closure panels at each end of the carton may be attached to an adjacent top wall panel and to said side wall panels.

According to a still further feature of the invention each of the compartments may comprise an open topped tray said trays being disposed in side by side relationship. Where such trays are provided, each tray may be formed from a single sheet of foldable material of which a side wall of the endmost trays provides a part of a respective end wall of the carton.

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

FIGURE 1 is a perspective view as seen from above and one end of a completed carton in accordance with the invention;

FIGURE 2 is a perspective view of the base of the carton shown in Figure 1 as seen from one end;

FIGURE 3 is a perspective view of the carton showing the upper closure panel partially removed from the bottom trays;

FIGURE 4 is a perspective view of the individual bottom trays loaded with bottles;

FIGURE 5 is a plan view of the upper cover of the carton; and

FIGURE 6 is a plan view of a blank forming one of the bottom trays of the carton.

Referring first to Figure 6 of the drawings, there is shown a blank 10 formed from paperboard or similar foldable sheet material for forming one of the bottom trays of the carton depicted in Figures 3 and 4 of the drawings. The blank comprises a base panel 12 which is formed with a pair of spaced locking apertures which are defined by retaining tabs R1 and R2 respectively. Further apertures of deltoid form "A" are struck in the base panel adjacent each corner thereof and provide handling holes for the tray. The tray further comprises side wall panels 14 and 16 which are hinged to the base panel 12 along fold lines 18 and 20 respectively. End wall panels 22 and 24 are hinged to opposite ends of the base panel along fold lines 26 and 28 respectively and corner panel structures C1-C4 are hinged between each of the adjacent ends of the side wall panels and end wall panels. Thus, corner panel structure C1 is hinged to the side wall panel 14 along a fold line 30 and is hinged to the end wall panel 22 by means of a gusset panel G1.

The tray is formed by raising the side and end wall panels relative to the base panel 12 and folding the corner structure C1-C4 so that they provide parts of the ends of the tray and those parts are overlapped by the end panels 22 and 24. The trays can then be loaded with a group of articles, for example, bottles arranged in two rows of four bottles each as shown in Figures 3 and 4.

In order to form a carton according to the invention more than one tray is required and this particular embodiment shows an arrangement in which three similar bottom trays are utilised thus providing a carton of 24 bottles which can be separated into three groups of eight bottles. It is however envisaged that other groups may be formed depending on the overall number of bottles required and the sub-divisions which also may be required.

Referring now to Figure 5 of the drawings, there is shown a blank 30 formed from paperboard or similar foldable sheet material for forming the top cover of the carton. The carton has a top handle structure H (Figure 1) which is provided by the top cover formed by a pair of like handle panels H1 and H2 at the centre of the blank and which are connected together by fold line 32. The blank is symmetrical about the fold line 32 and therefore the remainder of the description relating to it describes one half of the blank, like parts of the other half of the blank have been identified by like reference numerals with the addition of suffix "'".

A top wall panel 34 is hinged to handle panel

H1 along fold line 36 and an upper side wall panel 38 is hinged to the top panel 34 along the fold line 40. A lower side wall panel 42 is hinged to the upper side wall panel 38 along a fold line 42 and base panel 44 is hinged to the lower side wall panel 42 along a fold line 46. The blank includes upper end closure panels 48 and which are hinged to opposite ends of the top panel 34 along oblique fold lines 52 and 54 respectively. Lower end closure panels 56 and 58 are hinged to each of the upper end closure panels 48 and 50 along fold lines 60 and 63 respectively. When the handle panels are joined together to form the handle structure H and the cover applied to the base trays, the upper end closure panels 48 and 48' form an extension of the top panel at one end of the carton and, likewise, upper end closure panels 50, 50' form an extension of the top panel at the opposite end of the carton. The lower end panels 56 and 56' cooperate at one end of the carton to form an inclined end wall and, likewise lower end panels 58 and 58' cooperate at the opposite end of the carton to form an opposed inclined end wall. Gusset panels 61 are folded to the bottom end wall panel 56 along a fold line 64 and to the side wall panels 38 and 42 along a fold line 66. Likewise gusset panels 62 are folded to the lower end wall panel 58 along a fold line 68 and to the side wall panels 38 and 42 along a fold line 70. These gusset panels are folded inwardly of the carton when the carton is set up so as to be brought into face-contacting relationship with the upper side wall panels.

Base panel 44 comprises three like sections 44a, 44b and 44c which are connected together by score lines 72 and 74 which provide a frangible connection between sections 44a and 44b and between sections 44b and 44c respectively. Each of the sections of the base panel 44 is formed with a locking tab T1, T2 and T3, respectively and with apertures A by which the panel is manipulated to bring it into correct alignment for locking into the base of the base trays. As best seen in Figure 2 of the drawings, when the cover is applied to the bottom trays each of the locking tabs T1, T2 and T3 are driven into the registering locking apertures formed in the base panels of each of the three base trays and likewise locking tabs T1', T2' and T3' are also driven into cooperating locking apertures thereby securing the top cover to the trays.

In order to detach the top cover from the tray, tear-away strips S1 and S2 are formed in lower side wall panels 42 and 42' respectively and can be removed so as to detach base panel 44 from the side panel 42 and likewise to detach base panel 44' from side panel 42' so that the whole of the top cover except for the base panels which remain attached to the base trays can then be removed.

Each of the base trays may then be separated from one another by tearing along the frangible connections 74, 74' and 76, 76' thereby providing three separate tray units as shown in Figure 4 of the drawings.

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## Claims

1. A multiple compartment, separable carton comprises a plurality of compartments connected together by a common top cover, characterized in that said common top cover includes a top portion which is removable relative to a lower portion thereof to expose the contents of each of said compartments and wherein said lower portion of the common top cover connects one compartment to the next by frangible connections, each of which is breakable to separate one compartment from the next. 10 15 20
2. A carton according to Claim 1 wherein said common top cover includes a pair of opposite side walls each of which side walls is included in said top portion of the common top cover.
3. A carton according to Claim 1 or Claim 2 wherein said common top cover includes a pair of base panels attached to the bottoms of said plurality of compartments, said pair of base panels providing said lower portion of the common top cover. 25
4. A carton according to Claim 3, wherein said bottom panels are attached to said bottoms of the compartments by cooperating locking means. 30
5. A carton according to any of the preceding claims wherein the common top cover includes a handle by which the carton can be carried. 35
6. A carton according to Claim 5, wherein said handle is disposed substantially centrally of the top of said carton and is hinged on opposite sides thereof to respective ones of a pair of top wall panels of the common top cover. 40
7. A carton according to Claim 5 wherein the common top cover includes foldable panels for forming end closure panels at opposite ends of the carton.
8. A carton according to Claim 7 wherein said end closure panels at each end of the carton are attached to an adjacent top wall panel and to said side wall panels. 45
9. A carton according to any of the preceding claims wherein each of said compartments comprises an open topped tray said trays being disposed in side by side relationship. 50
10. A carton according to Claim 9 wherein each tray is formed from a single sheet of foldable material of which a side wall of the endmost trays provides a part of a respective end wall of the carton. 55

Fig.1.

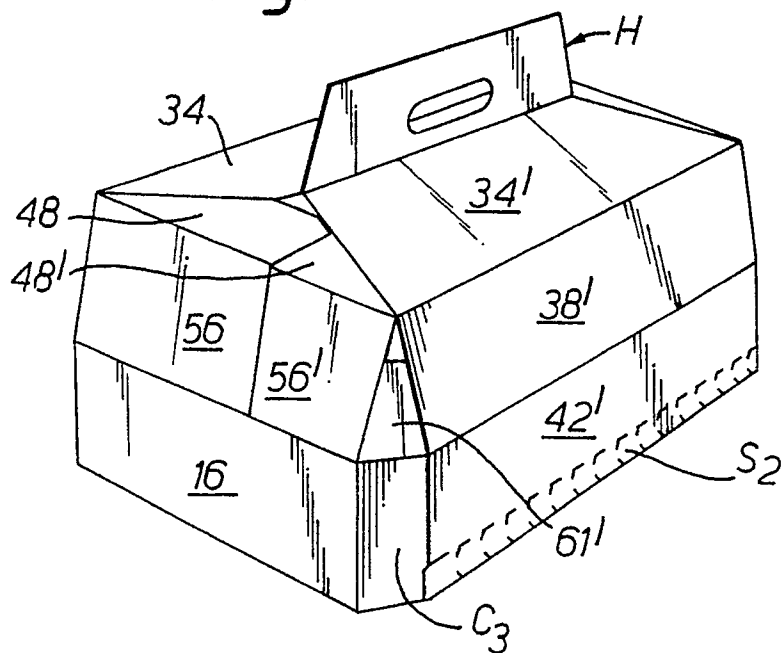
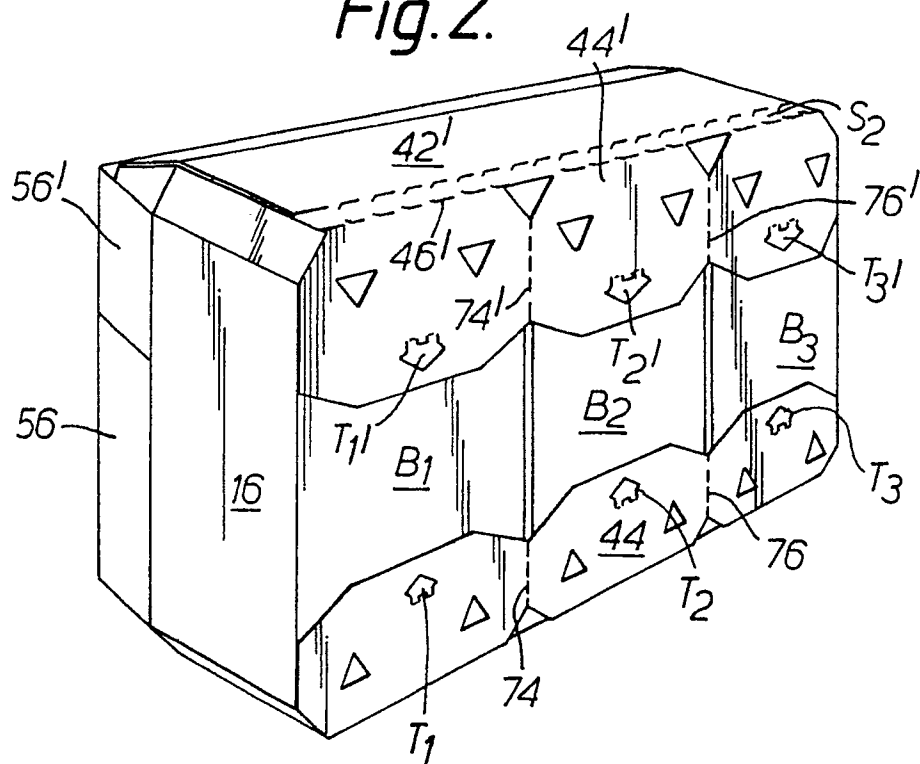
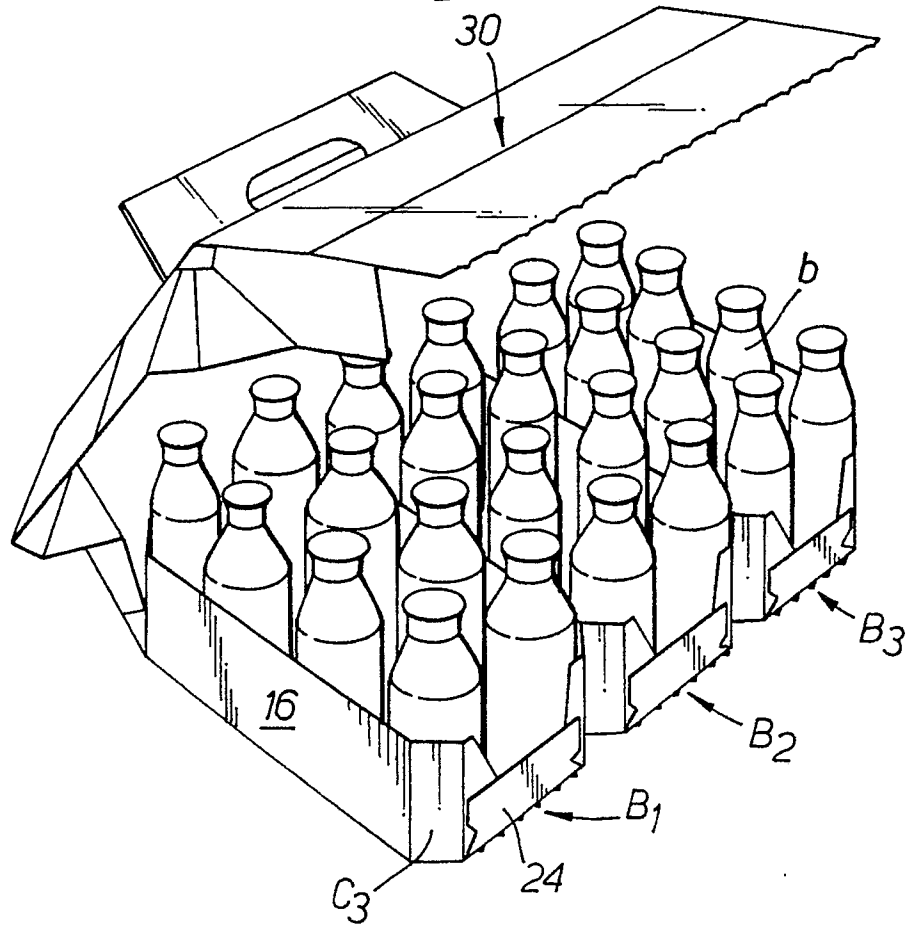


Fig.2.



*Fig. 3.*



*Fig. 4.*

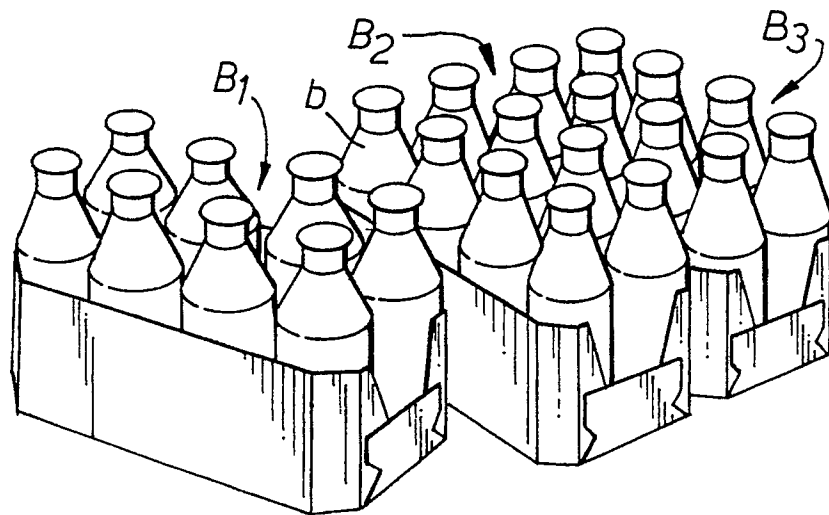


Fig.5.

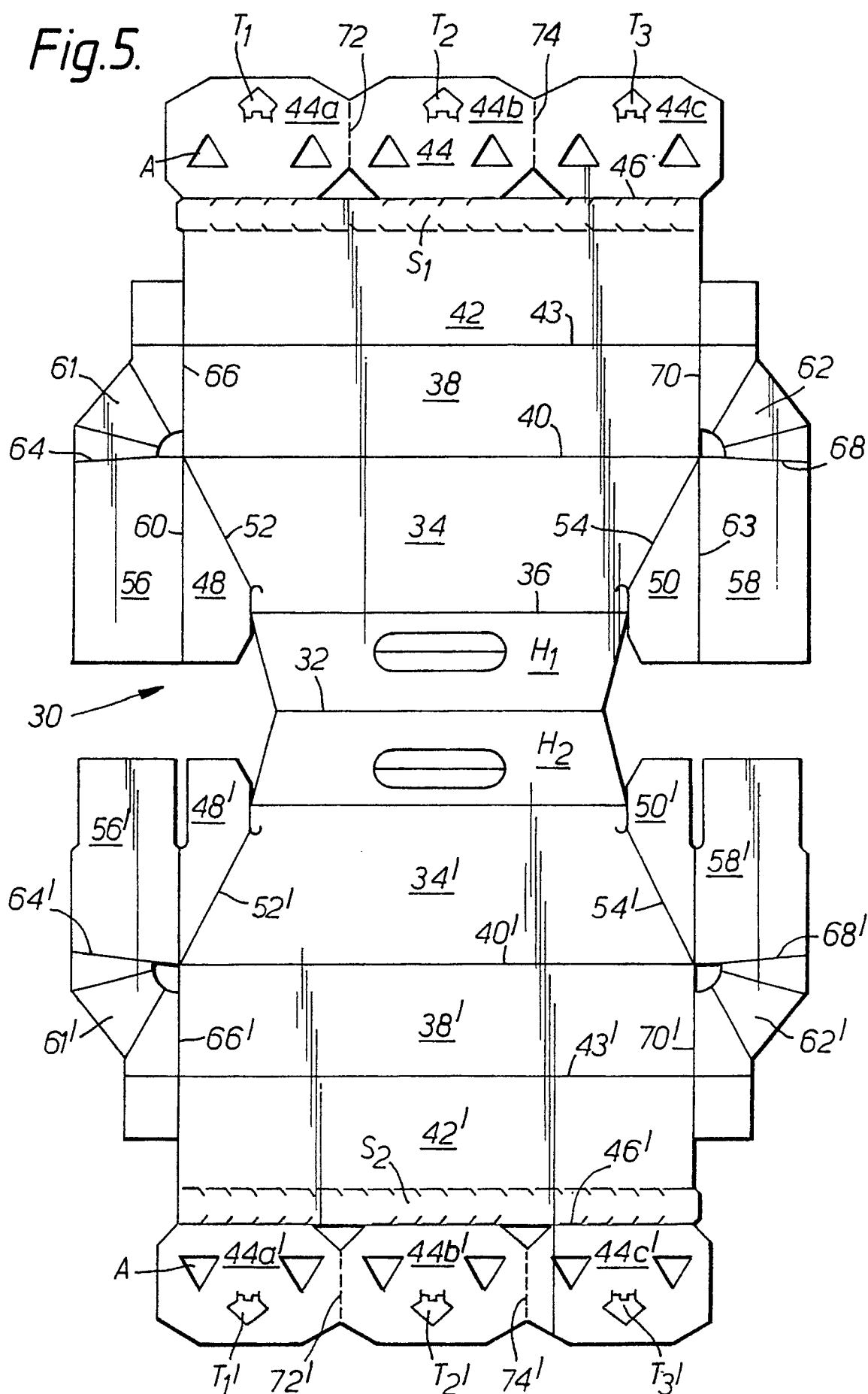
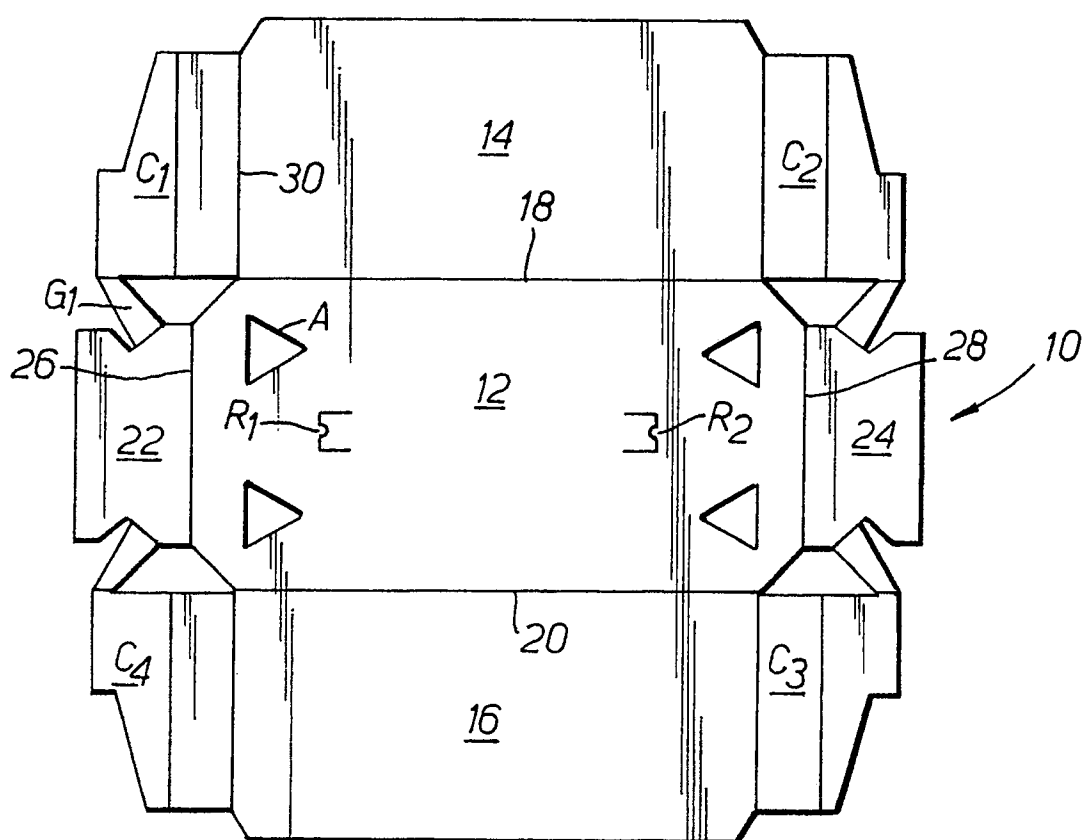


Fig.6.







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## EUROPEAN SEARCH REPORT

Application Number

EP 90 31 2408

| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                       |                                                      |                                               |                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                       |
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| Category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Citation of document with indication, where appropriate, of relevant passages                                                                                                                                                                                                         | Relevant to claim                                    | CLASSIFICATION OF THE APPLICATION (Int. Cl.5) |                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                       |
| D,A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | US-A-3677458 (GOSLING)<br>* the whole document *<br>----                                                                                                                                                                                                                              | 1                                                    | B65D5/54                                      |                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                       |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | US-A-4039120 (HERZOG)<br>* the whole document *<br>----                                                                                                                                                                                                                               | 1                                                    |                                               |                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                       |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | US-A-3099380 (NATHAN)<br>* the whole document *<br>-----                                                                                                                                                                                                                              | 1                                                    |                                               |                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                       |                                                      | TECHNICAL FIELDS SEARCHED (Int. Cl.5)         |                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                       |                                                      | B65D                                          |                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                       |
| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                       |                                                      |                                               |                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                       |
| Place of search<br>BERLIN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                       | Date of completion of the search<br>15 FEBRUARY 1991 | Examiner<br>SMITH C.                          |                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                       |
| <table><tr><td><b>CATEGORY OF CITED DOCUMENTS</b><br/>X : particularly relevant if taken alone<br/>Y : particularly relevant if combined with another document of the same category<br/>A : technological background<br/>O : non-written disclosure<br/>P : intermediate document</td><td>T : theory or principle underlying the invention<br/>E : earlier patent document, but published on, or after the filing date<br/>D : document cited in the application<br/>I : document cited for other reasons<br/>-----<br/>&amp; : member of the same patent family, corresponding document</td></tr></table> |                                                                                                                                                                                                                                                                                       |                                                      |                                               | <b>CATEGORY OF CITED DOCUMENTS</b><br>X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>P : intermediate document | T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>I : document cited for other reasons<br>-----<br>& : member of the same patent family, corresponding document |
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