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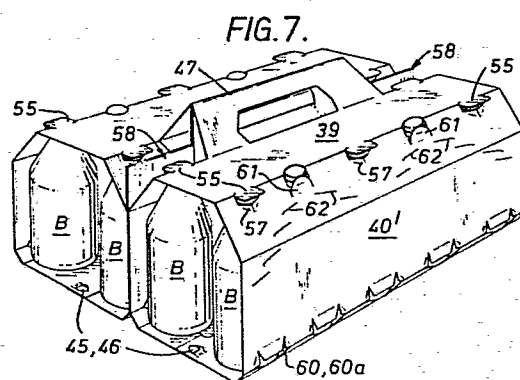
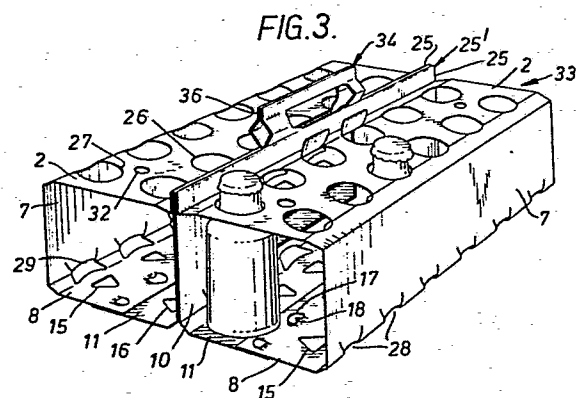
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54 **Carrier cartons of the wrap-around type and blanks therefor.**

57 A carrier carton of the wrap-around type for packaging a group of similar articles such as bottles, comprises a pair of carton halves (Figure 2; Figure 6) each comprising a generally tubular structure and including upstanding handle means (34, 47) adjacent one edge of the top wall (2, 39). The carton halves are fixed together to provide a single carton having a central handle integral with a reinforcing ridge (25', 58).



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CARRIER CARTONS OF THE WRAP-AROUNDTYPE AND BLANKS THEREFOR

This invention relates to carrier cartons of the wrap around type and to blanks for forming such cartons. Carrier cartons of the wrap-around type fabricated from a single sheet of material are well known but normally are sized to receive
5 6 to 12 similar articles such as bottles or cans. Carriers which are sized to receive a greater quantity of such articles have proved to be difficult to produce successfully because of failure of the material at or around the handle or other means by which the carrier is grasped. This invention provides a
10 large multi-article carrier which includes a handle of sufficient strength to withstand the load exerted by the articles.

One aspect of the invention provides a carrier carton of the wrap-around type adapted for packaging a group of articles disposed in side by side relationship and forming a
15 rectilinear arrangement, which carton comprises top and bottom walls interconnected by spaced side walls for forming a tubular structure with the top and bottom walls parallel to each other and adapted for engagement respectively with a group of suitably sized articles, characterized in that the carton including
20 means adjacent one of the edges of the top wall from which a side wall depends by which the carton can be carried.

Another aspect of the invention provides a carrier carton of the wrap-around type comprising a pair of cartons as defined in the immediately preceding paragraph characterized in that the cartons of the pair are joined together along juxtaposed side walls such that the means by which each carton of the pair can be carried is fixed to the said means of the other carton.

Yet another aspect of this invention provides a blank for forming a rectilinear carton of the wrap-around type characterized by an intermediate panel to provide a top wall of the carton and a pair of wing panels contiguous therewith, each wing panel being foldably joined to opposite sides of the intermediate panel and comprising a mid-section panel to provide one side wall of the carton and an end panel foldably joined to the mid-section panel to provide, with the other end panel, a bottom wall of the carton, one wing panel including a panel interadjacent and foldably joined to the associated mid-section panel and to the associated intermediate panel to provide a ridge upstanding along one edge of the top wall of the carton and including means by which the carton can be carried, the lines of fold between adjacent panels all being substantially parallel to one another.

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

Figure 1 is a plan view of a blank for forming a rectilinear carton of the wrap-around type,

Figure 2 is a perspective view of the blank shown in Figure 1 folded and assembled to form the rectilinear wrap-around carton.

Figure 3 is a perspective view of a carton of the wrap-around type formed by joining together a pair of the cartons shown in Figure 2.

Figure 4 shows a blank similar to that shown in Figure 1 but with a modified handle arrangement.

Figure 5 is a plan view of a further modified blank,

Figure 6 is a perspective view of the blank shown in

5 Figure 5 folded and assembled to form a rectilinear wrap-around carton, and

Figure 7 is a perspective view of a carton of the wrap-around type formed by joining together a pair of the cartons shown in Figure 6.

10 Referring to the drawings, there is shown in Figure 1 a paperboard blank 1 for forming a rectilinear carton of the wrap-around type. The blank 1 comprises an intermediate panel 2 providing a top wall of the carton and a pair of wing panels 3, 4 respectively, contiguous with intermediate panel 2. Each
15 wing panel is foldably joined to opposite sides of intermediate panel 2 along fold lines 5, 5a; 6, 6a respectively.

The wing panel 4 comprises a mid-section panel 7 for providing a side wall of the carton and an end panel 8 foldably joined to the mid-section panel 7 along fold lines 9, 9a.

20 The wing panel 3 comprises a mid-section panel 10 for providing the other side wall of the carton and an end panel 11 foldably joined to the mid-section panel 10 along fold lines 12, 12a. Wing panel 3 also includes a panel 13 interadjacent mid-section panel 10 and intermediate panel 2 and is foldably
25 joined to the mid-section panel 10 along a fold line 14.

As can be seen with reference to Figure 1 all the fold lines 5, 5a; 6, 6a; 9, 9a; 12, 12a and 14 extend across the width of the carton blank 1 and are substantially parallel to one another.

The end panels 8, 11 are each formed with a series of generally triangular apertures 15, 16 respectively and a series of tab elements 17, 18 respectively scored into the blank adjacent the end edge thereof. The function of the 5 apertures 15, 16 and tabs 17, 18 are described below.

As can be seen with reference to Figure 1 the mid-section panel 10 is formed with a cut out handle 19 having handle grip holes 20, 21 formed in mirror image portions 22, 23 of the handle disposed on opposite sides of a central fold line 24. 10 The portion 23 of the handle is foldably joined to the inter-adjacent panel 13 along portions of fold line 14.

Prior to the commencement of the packaging operation it is preferable to pre-form a portion of the container blank. This pre-forming operation includes bringing together the 15 handle portions 22, 23 which are adhered together in face to face relationship to form a double thickness of paperboard.

The blank also is folded along fold line 14 to bring the interadjacent panel 13 in face to face relationship with a portion of mid-section panel 10 adjacent the fold line 14 which 20 are then adhered together.

This operation forms a double thickness reinforcing ridge 25 (Figures 2 and 3) extending along one edge of the intermediate panel 2 from which the handle depends.

25 The intermediate panel 2 is formed with two rows of circular apertures 26, 27 which are arranged such that when the part-formed blank is to be finish-formed into a carton in a suitable packaging machine, each aperture receives a top

portion of an article to be packaged. This is seen better with reference to the right hand side of Figure 3 from which it will be seen that the neck portion of a bottle is adapted to project through each of the apertures of rows 26, 27 to
5 retain the bottle in position.

As the part formed blank progresses through the packaging machine the wing panels 3, 4 respectively are caused to be folded along fold lines 5, 5a and 6, 6a and the end panels 8, 11 respectively are brought into overlapping relationship by
10 being caused to fold along fold lines 9, 9a and 12, 12a respectively with the articles in engagement with the internal overlapping portions. The carton at this stage has adopted a substantially rectilinear tubular configuration. Suitable machine elements engage the triangular recesses 15, 16 of each
15 end panel 8, 11 respectively to bring the overlapping end panels to a predetermined position whereby the carton is correctly tensioned around the packaged articles. Further machine elements engage the series of tab elements 17, 18 so that the tabs elements 18 of the other series thereby locking together the
20 overlapping end panels 8, 11 respectively to form the bottom wall of the carton.

The carton is then in the configuration shown in Figure 2 of the drawings in which the top and bottom walls are substantially parallel and connected together by the spaced substantially
25 parallel side walls.

As will be seen better with reference to Figure 1, the portions of the blank defined by fold lines 9, 9a and 12, 12a are each formed with a series of further apertures 28, 29 respectively. Each aperture of each of the series 28, 29
30 receives a portion of the base periphery of an article to assist in retaining the articles in spaced relationship with respect to

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another.

Also, with reference to Figure 1 the intermediate panel 2 is formed with a number of scored lines of weakness 30 which extend between adjacent apertures of each of the rows. The scored lines together provide a tear-away strip 31 to facilitate removal of the articles from the carton. Adjacent each end of intermediate panel 2 and between the rows of apertures is formed a circular opening 32 to provide a finger hole by means of which the tear away strip can be grasped and pulled to tear open the intermediate panel.

Referring now to Figure 3 of the drawings it will be seen that the carton shown and described with reference to Figure 2 can be joined to a similar carton to provide a double sized package 33.

This joining operation may be in a subsequent operation in which two packaged cartons as shown in Figure 2 are brought together and their juxtaposed side walls 10 and the handles 19 adhered together. It will be appreciated that the double carton package 33 so formed has a reinforcing ridge 25' with an integral handle of four-ply paperboard thereby providing the strength required to withstand the weight of the loaded cartons.

Each of the handles 19 providing the doubled handle 34 are formed with further fold lines 35 (Figure 1) so that the handle can adopt an outwardly bowed configuration whereby it is necessary only to adhere together an upper

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strip 36 of each handle 34. Also by means of this construction the handle 34 can be collapsed by pushing downwardly thereon so that similar cartons may be stacked one on top of the other without causing
5 damage to the handles.

A modified wing panel 3a and handle arrangement is shown in Figure 4. In this arrangement the handle also is formed from a cut out portion of mid-section panel 10a. However, an additional fold line 5b is
10 formed across the blank so as to provide an inter-adjacent panel 13a defined by lines 5a and 5b which is broader than the equivalent panel of the Figure 1 blank.

In the pre-forming operation of the blank la
15 of this embodiment, the two handle portions 22a, 23a of handle 19a are brought together and adhered in face to face relationship and the blank is folded along fold line 14a. The blank sections defined by folds 5b and 14a and by 5a and 14a are also
20 brought together and adhered in face to face relationship to form the reinforced ridge 25. The reinforced ridge 25 may then be laid flat in superposed relationship on mid-section panel 10a by folding along fold line 5b to keep the pre-formed blank la in a substan-
25 tially planar configuration prior to the commencement of the packaging operation. When two cartons made from the modified blank la of this embodiment are

joined together the single handle formed from the handles 19a of each carton of the pair may be folded over the top wall 2a of either carton of the pair. The single handle is so shaped that the recessed portions are adapted to engage under
5 the lip of a crown cap of a pair of bottles located in the carton. Hence the single handle can be arrested in its folded position to facilitate stacking of similar cartons.

In this embodiment the blank 1a is provided with a series of cuts 37 extending between the periphery of each aperture
10 26a, 27a respectively and the adjacent fold line (5a in Figure 4) to facilitate folding of the blank.

Referring now to Figure 5 of the drawings, there is shown a blank 38 comprising an intermediate panel 39 for providing a top wall of the carton and a pair of wing panels
15 40, 41 respectively, contiguous with the intermediate panel 39. The intermediate panel 39 also includes two integral flank panels 39', 39'' foldably joined one on each side of the intermediate panel 39 along transverse fold lines 39a, and 39b.

20 The wing panels 40, 41 are foldably joined to flank panels 39', 39'' respectively along transverse fold lines 39c, 39d. Wing panel 40 comprises a mid-section panel 40 for providing a side wall of the carton when erected, and an end panel 40'' for providing part of the carton base foldably
25 joined to the mid-section panel 40 along transverse fold line 40a. The wing panel 41 comprises a mid-section panel 41' for providing the opposite side wall of the carton when erected, and an end panel 41'' for providing another part of the carton base foldably joined to the mid-section panel 41' along trans-
30 verse fold line 41a. Wing panel 41 also includes a panel 42 interadjacent flank panel 39'' and mid-section panel 41' and

which is foldably joined to flank panel 39" along transverse fold line 39a and to mid-section panel along transverse fold line 42a. The interadjacent panel includes a central transverse fold line 42b.

5 As can be seen with reference to Figure 5, all the fold lines (from left to right) 40a, 39c, 39a, 39b, 39d, 42b, 42a and 41a, extend across the width of the carton blank 38 and are substantially parallel to one another. End panels 40" and 41" and each formed with a series of generally triangular
10 apertures 43, 44 respectively struck from the blank, and a series of tab elements 45, 46, respectively cut into the blank adjacent the transverse edges thereof. The function of apertures 43, 44 and tab elements 45, 46 are described below.

 A handle panel 47 is struck from the blank by cut lines
15 48 and 49 which extend between fold lines 39b and 42b so that the handle panel extends across a central zone of flank panel 39" and across a similar zone in a part of the interadjacent panel 42. Fold line 39d passes through the handle panel so that it is notionally divided into two panel portions 47a and
20 47b. Panel portion 47a includes an aperture 50 struck from the blank and a flap 51 which is foldably joined at one edge of the aperture along a fold line 50a which extends transversely across the panel portion 47a. Panel portion 47b includes an aperture 52 struck from the blank. Both the apertures 50 and
25 52 are of similar size and shape and provide hand grip holes lying on either side of the handle panel central fold 39d.

 The mid-section panel 41' is formed with central flap 53 which is struck from the blank by cut line 54 defining three edges of flap 53. The flap 53 is foldably joined to mid-
30 section panel 41' along the transverse fold line 42a.

Adjacent the opposite edge of flap 53 is struck a series of three generally rectangular tabs 55 spaced across the flap along a fold line 56. Each of the tabs includes a hinged edge 55a and an opposite free edge 55b. Adjacent the free edge 55b of each tab 55 is formed arrow-shaped score lines providing a weakened area 57 which is able to rupture as is described later. Similar tabs 55 accompanied by weakened areas 57 also are struck from the blank 38 on fold line 39b between handle cut line 48 and one longitudinal edge of the blank and between handle cut line 49 and the other longitudinal edge of the blank 38. A further similar series of tabs 55 and 55' are formed along fold line 39a. As will be seen more readily in Figure 6 of the drawing the tabs 55 define apertures into which a portion of an article (such as a bottle top as shown) is received.

Prior to the commencement of the packaging operation it is preferable to pre-form a portion of the container blank. This pre-forming operation includes folding panel 42 out of the plane of the blank 38 about fold line 42b and adhering in back to back relationship the panel portions defined between fold lines 39d and 42b and between fold lines 42a and 42b. This operation forms a double thickness reinforcing ridge 58 (see Figures 6 and 7) extending along one edge of the mid-section panel 41' from which handle panel portion 47b depends. The pre-forming operation also causes flap 51 to be folded about fold line 50a and adhered to the underside of handle panel portion 47a. Lastly, flap 53 is folded out of the plane of the blank 38 about fold line 42a and has its border portion defined between fold line 56 and the free edge 54 adhered to intermediate panel 39. It will be appreciated that the flap 53 is sized such that when the reinforcing ridge 58 is formed

the flap 53 will be glued to intermediate panel 39 such that fold line 56 is coextensive with fold line 39b thereby bringing the series of tabs 55 lying along fold line 56 into line with the tabs 55 lying along fold line 39b. At the completion of the pre-
5 forming operation, mid-section panel 41' will have a central aperture remaining after flap 53 has been folded and glued beneath the handle panel 47 and the handle panel 47 will stand proud of the blank. Hence, the edges of the intermediate panel i.e. as defined by fold lines 39a and 39b will each have a series
10 of five tabs 55 and accompanying weakened areas 57 arranged such that when the part formed blank is to be finished-formed into a carton in a suitable packaging machine, each aperture defined by a tab 55 together with its weakened area 57 will receive a top
15 portion of an article to be packaged. This is achieved during the packaging operation.

In this embodiment, as in the previous embodiment, the articles to be packaged are beverage bottles having crown-cork tops. The tops are accommodated in the apertures defined by tabs 55 so that two longitudinal rows of five bottles each will be
20 received in the container. This arrangement is better shown in Figure 6 or 7, from which it will be seen that the top of the a crown-cork beverage bottle projects through each of the apertures defined by the tabs 55 so that the tabs lie across the top face of the crown-cork 58 whilst portions of the blank at the
25 weakened areas 57 are deformed and engage beneath the lip of each crown-cork so that the tops of the bottles are retained in position along the top wall of the container.

As the part-formed blank progresses through the packaging machine the wing panels 40; 41 are caused to be folded down-
30 wardly about 39a, 39c, and 39b, 39d, so that flank panels 39', 39"

are inclined downwardly with respect to intermediate (top wall) panel 39 and mid-section (side wall) panels 40', 41' depend vertically as shown in Figure 6. The end panels 40", 41" are then brought across the base of the bottles into overlapping
5 relationship by being caused to fold along fold lines 40a, 41a, respectively with the bottle bases in engagement with the internal overlapping portions of those panels. The carton at this stage has adopted a substantially rectilinear tubular configuration.

10 Suitable machine elements engage the triangular apertures 43, 44 of each end panel 40", 41" respectively to bring the overlapping end panels into a predetermined position whereby the carton correctly is tensioned around the packaged bottles. Further machine elements engage the series of tab elements
15 comprising locking tabs 45 and retaining tabs 46 so that the locking tabs 45 are interengaged with and located in the apertures defined by the retaining tabs 46, thereby locking together the (bottom) end panels 40", 41" to form the bottom wall of the carton. Such cooperating tab elements are known in the art
20 particularly in relation to article carriers of the wrap-around type and are disclosed e.g. in U.S. Patent Specification No. 4,093,116. The carton is then in the configuration shown in Figure 6 of the drawings in which the top and bottom walls are substantially parallel and connected together by the spaced,
25 substantially parallel side walls and having an upstanding reinforcing ridge 58 together with a handle 47 adjacent side wall 41'.

As will be seen with reference to Figure 5, the blank is formed with two further series of apertures 59, 60 and weakened
30 areas 59a, 60a struck along fold lines 40a and 41a respectively.

During the blank folding operation each aperture of the series 59, 60 receives a portion of the heel of a bottle whereby the weakened areas 59a, 60a are ruptured and assist together with the apertures defined by tabs 55 in retaining the packaged
5 bottles in spaced relationship with respect to one another. This feature, of course, prevents the packaged bottles from being dislodged from the package and reduces the risk of breakage occurring from bottle to bottle contact.

Further, it will be seen that two of the tabs in the series
10 along fold line 39a are designated 55. These tabs 55' perform exactly the same function as tabs 55 but, in addition, include an overlapping tongue 61 at the head of a divergent series of score lines 62. The scored lines 62 together with tongues provide tear-away strips to facilitate opening the carton for
15 removal of the bottles.

Referring now to Figure 7 of the drawings, it will be seen that the carton shown and described with reference to Figure 6 is joined to a similar carton to provide a double sized package for accommodating a total of twenty bottles 'R'. It will be
20 appreciated that more or less bottles can be packaged, it being necessary to modify the blank 38 accordingly.

This joining operation may be performed in a subsequent operation in which two packaged cartons as shown in Figure 6 are brought together and their juxtaposed side walls 41' and the
25 handle panels portions 47b are adhered or otherwise suitably secured together. It will be appreciated that the double carton package so formed will have a reinforcing ridge with an integral handle with a total of six-ply paperboard thereby providing the strength required to withstand the weight of the fully loaded
30 carton. As shown in Figure 7 the handle panels are positioned

such that the reinforcing ridge 58 extends between the outermost handle panels. These panels therefore straddle the ridge 58 and hence the plane in which the two cartons are joined.

Each of the handle panel portions 47a may be formed with
5 additional transverse fold lines so that the handle may be folded and laid flat on the top wall of the carton to facilitate stacking of a pile of similar cartons without causing damage to the handles.

Whilst the articles to be packaged have been described
10 herein as bottles having crown-cork closures it will be appreciated that other types of bottles may be packaged and indeed other articles such as cans or jars. It is envisaged that the article retaining apertures would need to be altered in shape and/or dimension and other modifications made to the carton are
15 envisaged within the scope of the appended claims.

It is further envisaged that the apertures for retaining the articles in spaced relationship in the top wall and/or bottom wall may be dispensed with in which case some other spacing means may be provided. Such means could, for example,
20 comprise internal partitions or similar spacing elements. Moreover, the carton may include end walls or end panels which partially or completely close the ends of the carton. In some constructions the end walls or panels may provide or contribute to retention of articles within the package by preventing
25 shifting of articles longitudinally of the carton.

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CLAIMS

1. A carrier carton of the wrap-around type adapted for packaging a group of articles disposed in side by side relationship and forming a rectilinear arrangement, which carton comprises top (2, 39) and bottom 8,11:40", 41") walls, 5 spaced side walls (7, 10: 40', 41') interconnecting said top and bottom walls for forming a tubular structure with said top and bottom walls parallel to each other and adapted for engagement respectively with a group of suitably sized articles ('B') characterised in that the carton includes means (34, 47) 10 adjacent an edge of said top wall from a side wall depends by which means the carton can be carried.

2. A carrier carton according to claim 1 characterised in that said means (34, 47) by which the carton can be carried is provided by a reinforcing ridge (25', 58) upstanding 15 adjacent said top wall and formed by a folded extension of said one side wall which extension is integral with said top wall.

3. A carrier carton according to claim 2 characterised in that said means by which the carton can be carried comprises a handle (34, 47) integral with said reinforcing ridge (25', 58) 20 and formed from a cut-out portion of the said one side wall.

4. A carrier carton according to claim 3 characterised in that the said cut out portion comprises a pair of similarly shaped integral panels (22,23:22a, 23a:47a, 47b) foldably joined to one another and adapted to be connected face to face to provide said handle.

5. A carrier carton according to claim 4 characterised in that said handle (34, 47) is collapsible along a line of weakness intermediate said reinforcing ridge (25) and the top edge of the handle remote from said reinforcing ridge.

10 6. A carrier carton according to claim 1 characterised in that retaining means (27, 55) is provided in or adjacent said top wall and comprises at least one series of apertures, each aperture of the or each series being sized to permit a portion of each article to project therethrough to retain the
15 articles in spaced side by side relationship in said carton.

7. A carrier carton according to claim 1 characterised in that said bottom wall is formed from a pair of overlapping panels (8,11:40", 41") each of said overlapping panels having a series of tabs (17, 18: 45, 46) adjacent its free edge and
20 confronting the other panel to interlock with the tabs of the said other panel.

8. A carrier carton of the wrap-around type comprising a pair of cartons according to claim 1 characterised in that the said cartons of the pair are joined together along
25 juxtaposed side walls (10), (41') such that the means (34, 47) by which each carton of said pair can be carried is fixed to the said means of the other carton.

9. A blank for forming a rectilinear carton of the wrap-around type which blank comprises an intermediate panel (2, 39) to provide a top wall of the carton and a pair of wing panels (3,4:40, 41) contiguous therewith, each wing panel being foldably joined to opposite sides of the intermediate panel and comprising a mid-section panel (7,10:40',41') to provide one side wall of the carton and an end panel (8,11:40", 41") foldably joined to the mid-section panel to provide, with the other end panel a bottom wall of the carton, one wing panel (3,41) including a panel (13, 42) interadjacent and foldably joined to the associated mid-section panel (10, 41) and to the associated intermediate panel (2, 39) to provide a ridge (25, 58) upstanding along one edge of the top wall of the carton and including means (34, 47) by which the carton can be carried, the lines of fold between adjacent panels all being substantially parallel to one another.

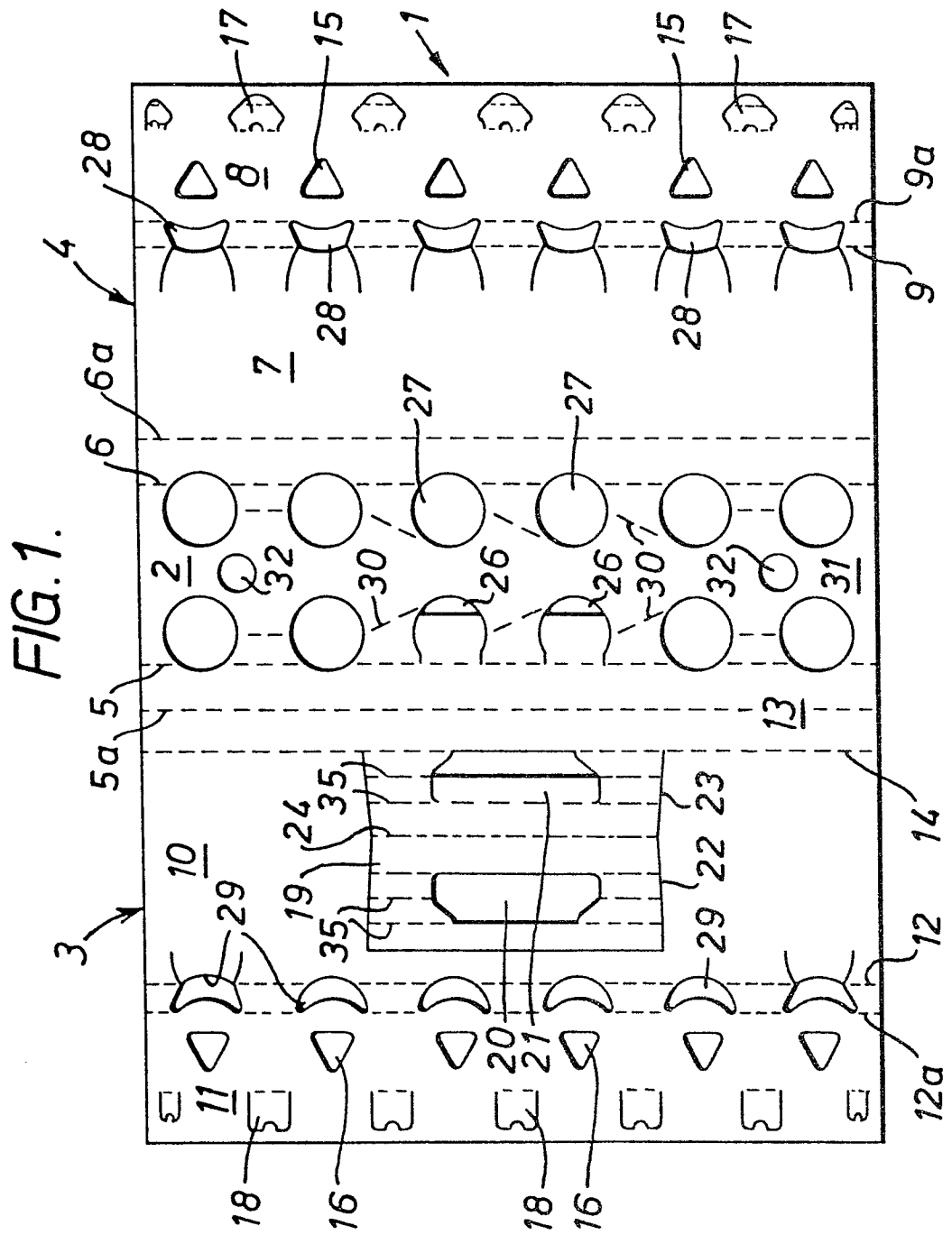


FIG. 2.

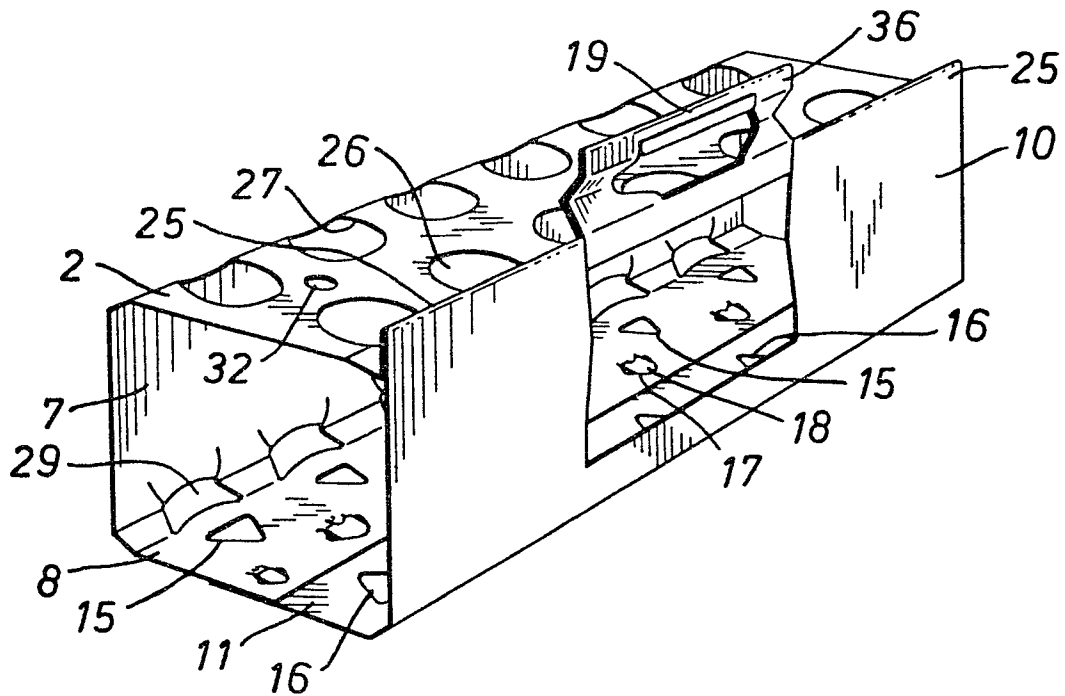


FIG. 3.

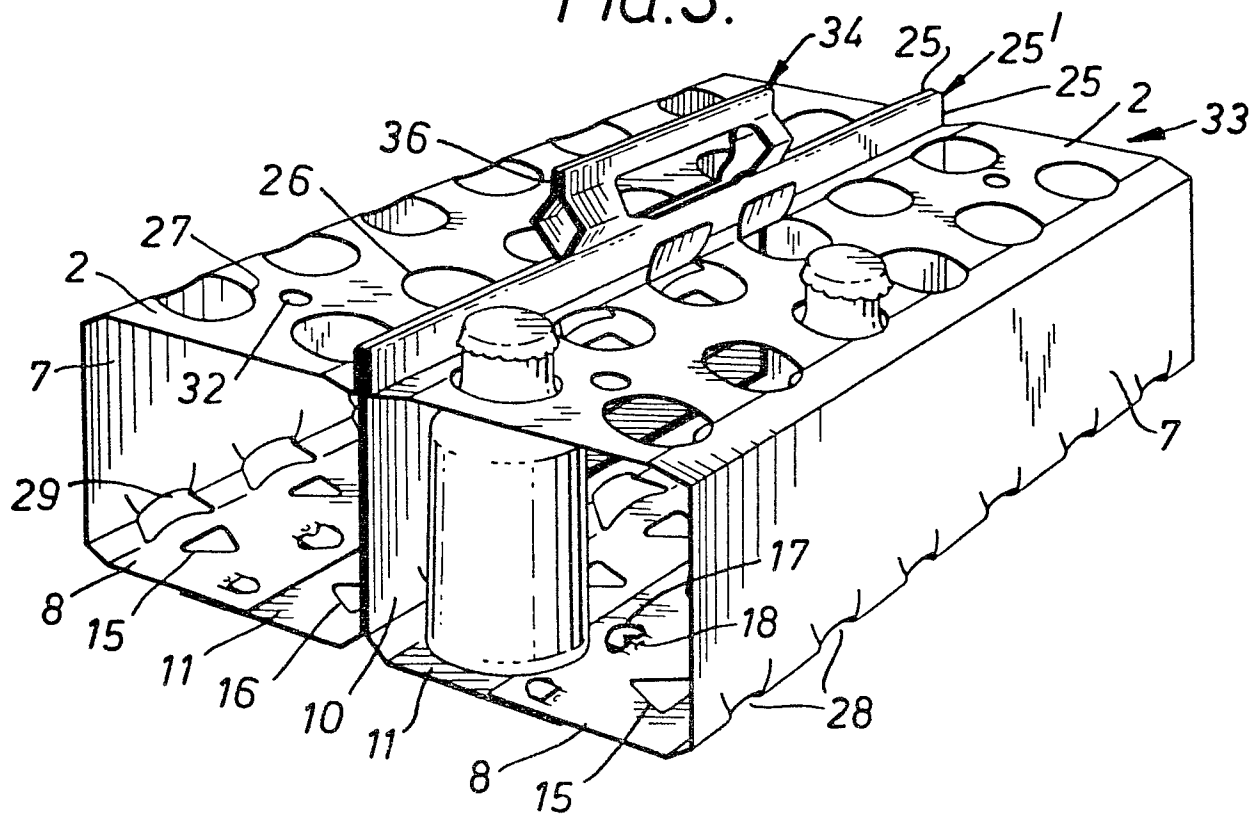
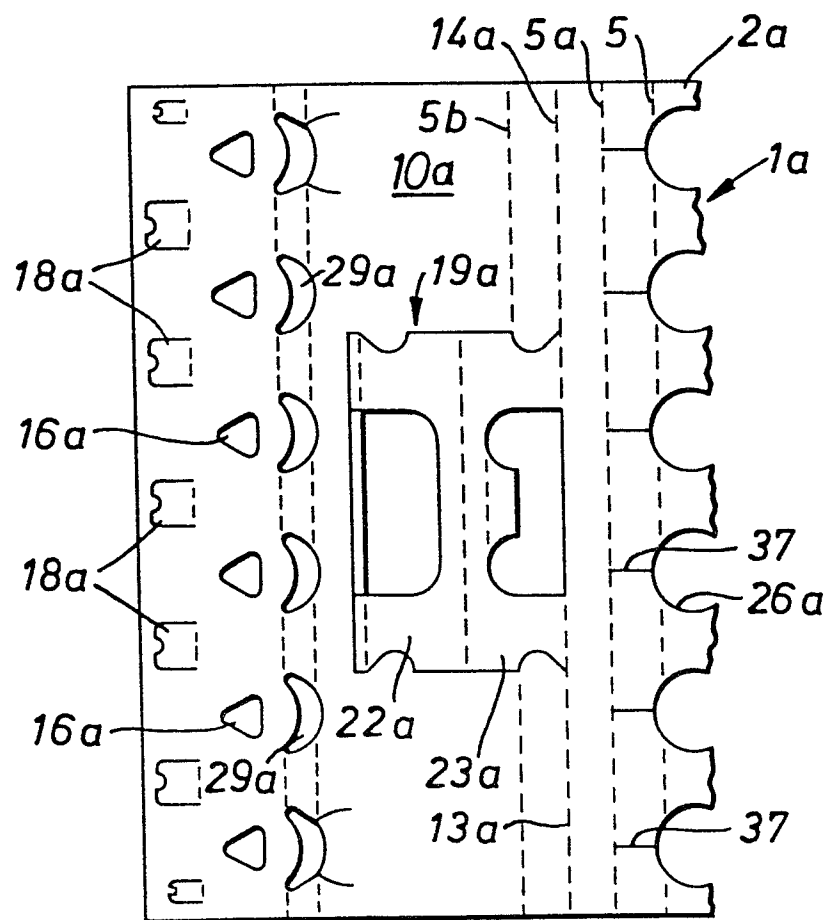
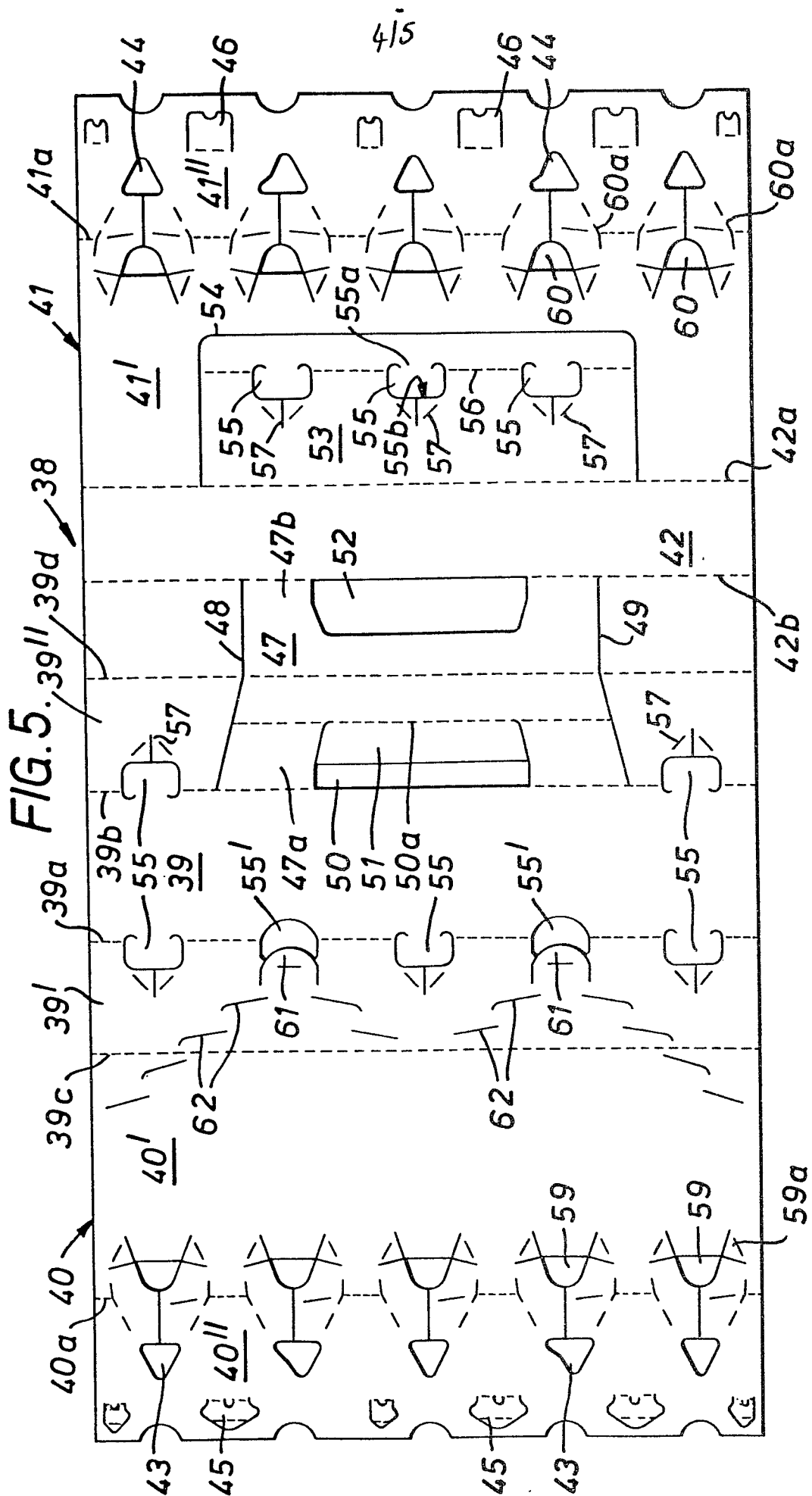


FIG. 4.





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FIG. 6.

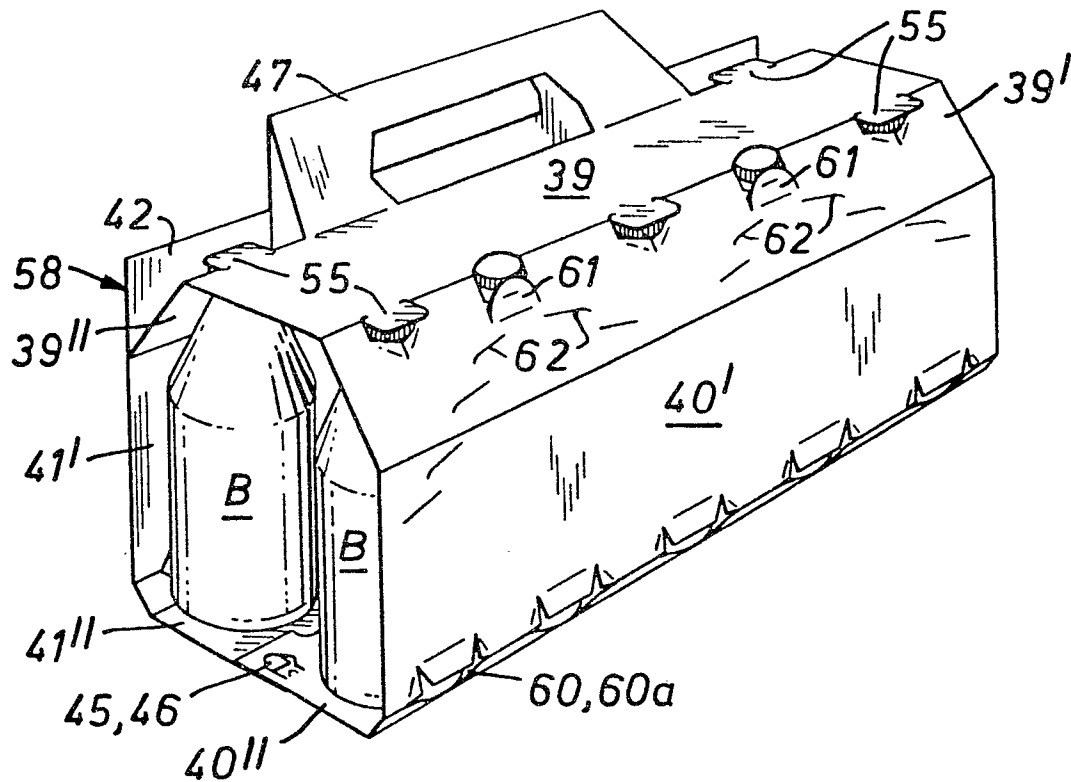
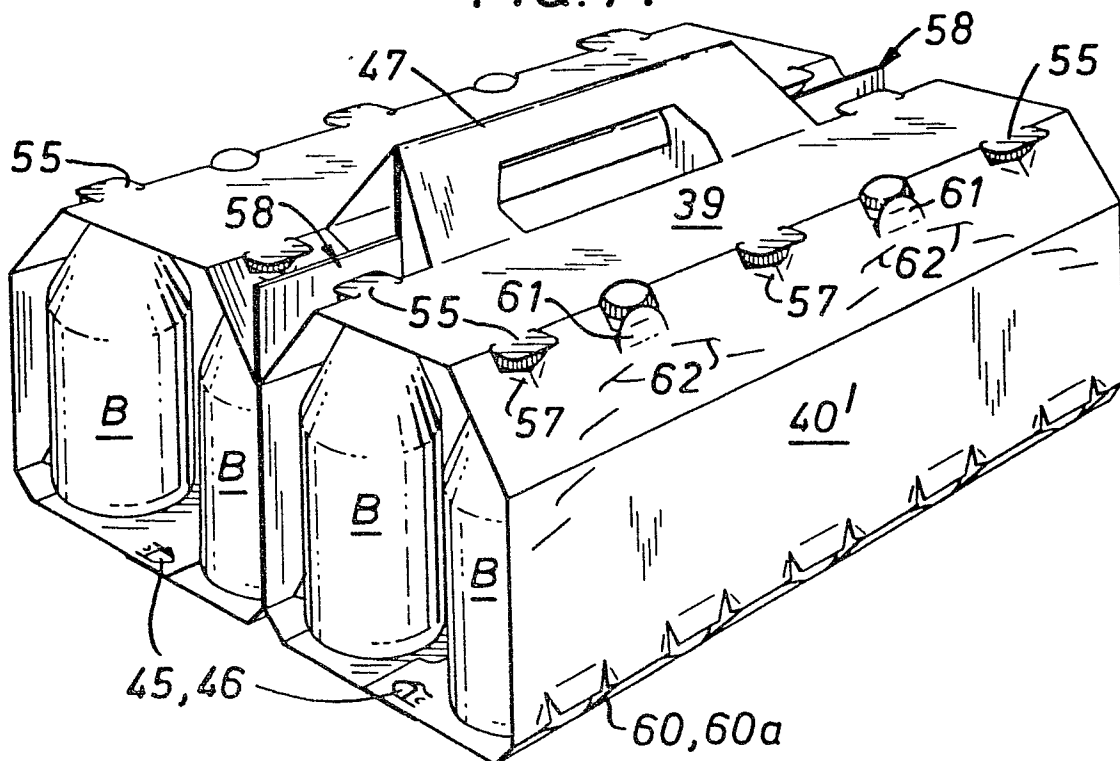


FIG. 7.





European Patent
Office

EUROPEAN SEARCH REPORT

0024782
Application number
EP 80 30 0627

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	DE - A - 2 029 381 (LANDERER) * The whole document *	1,5,6,7	B 65 D 71/00
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	--		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
D	US - A - 4 093 116 (THE MEAD CORP.) * The whole document *	7	

☒ The present search report has been drawn up for all claims			&: member of the same patent family, corresponding document
Place of search The Hague		Date of completion of the search 08-12-1980	Examiner BAERT