

PCT

EP. 0031348
 WORLD INTELLECTUAL PROPERTY ORGANIZATION
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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ³: B65D 5/46</p>	<p>A1</p>	<p>(11) International Publication Number: WO 81/00090 (43) International Publication Date: 22 January 1981 (22.01.81)</p>
<p>(21) International Application Number: PCT/AU80/00027 (22) International Filing Date: 2 July 1980 (02.07.80) (31) Priority Application Numbers: PD 9424 PD 9627 (32) Priority Dates: 2 July 1979 (02.07.79) 18 July 1979 (18.07.79) (33) Priority Country: AU (71) Applicant (for all designated States except US): PAK PACIFIC CORPORATION PTY. LIMITED [AU/AU]; Dougharty Road, West Heidelberg, Vic. 3081 (AU). (72) Inventor; and (75) Inventor/Applicant (for US only): MORRIS, Charles, Kenneth [AU/AU]; 529 Smiths Road, Templestowe, Vic. 3081 (AU).</p>		<p>(74) Agent: ROYAL, Malcolm, John; Phillips Ormonde and Fitzpatrick, 367 Collins Street, Melbourne, Vic. 3000 (AU). (81) Designated States: DE (European patent), FR (European patent), GB (European patent), JP, US. Published With international search report</p>
<p>(54) Title: CARTON HANDLES</p>		
<p style="text-align: right;">ALTERNATIVE NO. 2</p>		
<p>(57) Abstract</p> <p>Carton handles formed from the closing flaps of a carton by: (i) attaching to the carton sides at (16) a strip (13) severable at (12) from the end of an outer flap (7) using adhesive tape (Fig. 6); (ii) joining the ends of opposed outer flaps (5), (3); the flaps narrowing at their ends (Fig. 11).</p>		

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CARTON HANDLES

This invention relates to a carton and blank design which incorporates provision for a handle and relates particularly but not exclusively to carton blank/handle constructions which are suitable for use with relatively heavy contents such as packaged wine and to cartons constructed from same.

In one form the present invention provides a carton blank including along one edge a pair of inner closing flaps and a pair of outer covering flaps adapted to combine with said closing flaps to provide an end to the formed carton, and a handle strip formed as an integral edge portion of a closing flap and adapted to extend across the formed carton, said strip being at least partly severable from the closing flap thereby to provide a handle for the formed carton.

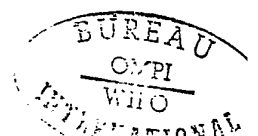
The invention provides a carton blank suitable for forming a carton of square or rectangular cross section therefrom, wherein said carton is provided at one end with two pairs of opposed integral flaps, the first of said pairs of flaps being adapted to close off said carton end when folded thereover and said second opposed pair of flaps forming a hand grip portion having a width substantially less than that of the carton end to which they are attached, when said second opposed pair of flaps is folded flat thereover and joined together.

Preferably, the second opposed pair of flaps are joined together using adhesive tape, a wire staple, a metal or plastic clip or a pre-glued strip which may be separated from one of the flaps of said first pair of flaps.

The handle strip may be severable from the covering flaps by any means such as score lines, slits or perforations.

A length of adhesive tape may be applied over the strip, the ends of the tape overlapping and attaching themselves to the carton sides. Thus the strip can be used as a carry handle when it is severed from the flap.

Thus the present invention provides a formed carton including at one end a pair of inner closing flaps and a pair of outer covering flaps adhered to said closing flaps to provide an end to said carton, a handle strip formed as an integral edge portion of a closing flap and extending across



-2-

the carton, and a pressure sensitive adhesive tape extending along said strip and onto the carton wall adjacent each end of said strips thereby to join said strip at its ends to the carton, said strip being at least partly severable from the closing flap thereby to provide a handle for the carton. It will be appreciated that in use the strip need only be severed from the closing flap to the extent necessary to allow for a persons fingers to pass beneath the strip.

Preferred embodiments of the invention will now be described with reference to the accompanying drawings wherein:

Fig. 1 shows an elevation of a partly erected carton constructed in accordance with the invention;

Figs. 2, 3, 4, 5 and 6 illustrate the various stages taken in folding the flaps and forming a handle.

Fig. 7 is a perspective view of a partially erected carton constructed in accordance with the invention;

Figs. 8 and 9 illustrate the steps taken for folding the flaps of the upper end of the carton of Fig. 7 to form a closed end with a carry handle;

Figs. 10, 11 and 12 illustrate alternative methods of joining flaps to form a carry handle;

Fig. 13 is a perspective view of an alternative form of partially erected carton constructed in accordance with the invention.

Figs. 14 to 17 illustrate the steps taken for folding the flaps of the upper end of the carton of Fig. 13 to form a closed end with a carry handle.

In Fig. 1, the carton 1 is of rectangular cross section and is constructed so that it can be readily erected from a flat blank by folding the blank along the fold lines 2 and joining opposed edges of the tubular partly formed carton by conventional means such as gluing. As the flaps 3, 4, 5 and 6 on the bottom end of the carton can be of any appropriate conventional configuration, the folding and gluing of this end will not be discussed further.

The flaps 7, 8, 9 and 10 are integral with the tubular body portion of the carton, the join between each carton and flap including the fold lines 11, which can be formed by any conventional means such as creasing, cutting or

-3-

scoring. One of the flaps 7 has a line of weakening 12, which runs across the entire width of the flap. The line of weakening which may comprise for example, slits, perforations or long cuts, 12a, interrupted by perforations 12b, is provided to facilitate tearing of the strip portion 13 from the rest of the flap. The length of flap 7 is preferably chosen so that the flap extends most, but not all the way across the carton end when it is folded flat. Thus the strip portion will lie generally across the middle of the carton end.

The steps a conventional box erecting machine may take to close the upper end of the carton involve bending back the flaps 7 and 9 in the manner illustrated in Fig. 2, so that they do not interfere with the folding of the flaps 8 and 10 as per Fig. 3. Adhesive, such as the lines of hot melt adhesive 15, can then be applied to the folded flaps 8 and 10, prior to the flap 9 being folded thereover in the manner illustrated in Fig. 4. The final flap 7 is then folded down as per Fig. 5 and a length of adhesive tape 17 is applied over the strip portion 13 of the flap. The adhesive tape extends beyond the edges of the strip to be secured to the opposed side walls 17 and 18. Thus when the strip is severed from the flap, a narrow carry handle stretching flap across the middle of the carton is formed in the manner shown in Fig. 6. The width of the strip may suitably be chosen so that the end of the remaining portion of flap 7 does not overlap the flap 9, but may be substantially in abutment with the leading edge thereof.

Referring to Figs. 7 to 12, the carton blank generally designated 1 may be constructed from any suitable sheet material such as solid fibreboard, corrugated board, E flute board or plastic for example. The sheet may be creased and cut using conventional processes and folded to form the tubular configuration of Fig. 7 with a square or rectangular cross-section, the various flaps protruding therefrom. The ends of the folded blank are overlapped and are held together by any appropriate means such as gluing or stapling. As the bottom flaps of the carton are of conventional construction, these will not be discussed further.

The upper flaps 2, 3, 4 and 5 all form an integral part of the blank from which the carton is constructed. Means



-4-

for holding the two flaps 2 and 4 together when they are folded down over the carton end may be provided in the form of the tongue and slot 6 and 7 respectively. When these two flaps are folded in the manner illustrated in Fig. 8, the tongue 6 fits into the slot 7 and the extensions 8 and 9 forming part of the flap 4 rest on the upper surface of flap 2. The same effect can be achieved by providing an adhesive on the upper surface of an equivalent unslotted flap 2 and folding the opposite flap thereover to close off the carton end.

10 Opposed flaps 3 and 5 are then folded down over the flaps 2 and 4 which already close off the carton, and are joined together by any appropriate means such as adhesive taping, stapling or using a clip as shown in Figs. 10, 11 and 12 respectively. The opposed flaps 3 and 5 are constructed in such a way that a relatively narrow elongate grip portion 10 is formed in the region of the centre of the carton end when the two are joined together. In the illustrated embodiment the ends of the flaps 3 and 5 abut each other when they are folded down. However, it is also possible to form flaps which overlap to achieve the same result.

20 The ends of the flaps 3 and 5 joining onto the tubular portions of the carton are preferably as close to the width of the carton end as is practicable to ensure maximum strength of attachment of the hand grip portion to the carton.

25 In the alternative embodiment shown in Figs. 13 to 17 inclusive, a carton blank 30 has been formed into a hollow tubular member with integral upper flap members 31, 32, 33 and 34. Flap member 32 is made longer than its opposed flap member 31 so that when it is folded down over the carton end (Fig. 14) adhesive means such as the line of hot melt adhesive are applied thereto, the opposed flap 31 is folded thereover, and the two flaps are adhered together to close off the carton end.

30 Flap 31 is formed with a line of perforations 35 or the equivalent which permit the elongate strip 36 to be separated therefrom. When the flap 31 has been adhered to flap 32 the exposed surface of the strip which has been formed so that it is aligned with the narrow portions of the flaps 33 and 34 when they are folded down, is treated with a line of contact adhesive 37. Thus, when the flaps 33 and 34 are folded down,

-5-

the strip 36 becomes adhered thereto and joins them together. The strip readily separates from the flap 31 because of the perforations 35 to form the slightly raised hand grip portions 38. After the hand grip end of the carton has been formed and sealed off, the carton is held bottom up and product is introduced through the open bottom end. Thereafter the bottom end flaps are sealed off using conventional methods to form the completed package with integral lay flat carry handle.

CLAIMS:

1. A carton blank including along one edge a pair of inner closing flaps and a pair of outer covering flaps adapted to combine with said closing flaps to provide an end to the formed carton, and a handle strip formed as an integral edge portion of a closing flap and adapted to extend across the formed carton, said strip being at least partly severable from the closing flap thereby to provide a handle for the formed carton.
2. A carton blank as claimed in claim 1, wherein the depth of said closing flaps is such that said handle strip lies substantially across a line bisecting the end of the formed carton into two equal areas.
3. A carton blank as claimed in any preceding claim, wherein said closing flaps overlap in the formed carton.
4. A carton blank as claimed in claim 3, wherein the leading edges of said closing flaps are in substantial abutment in the formed carton.
5. A carton blank according to any preceding claim, wherein said handle strip is severable from said closing flap by means of score lines, slits, perforations or a combination thereof.
6. A method of forming a carton from a blank as claimed in any one of claims 1 to 5, including the steps of folding said blank to form an open ended carton of square or rectangular cross section, folding said closing flaps inwardly to cover one end of the container, applying adhesive to closing flaps and/or to said covering flaps, folding said covering flaps onto said closing flaps, and applying a length of a pressure sensitive adhesive tape over said handle strip so that the opposite ends of said tape extend down and become adhesively secured to opposites sides of said carton.
7. A carton blank for forming a carton of square or rectangular cross-section therefrom, wherein said carton is provided at one end with two pairs of opposed integral flaps the first of said pairs of flaps being adapted to overlap and close off said carton end when folded thereover and said second opposed pair of flaps forming a carry handle portion having a

-7-

width substantially less than the carton end to which they are attached, when said second opposed pair of flaps is folded flat thereover and joined together.

8. A carton blank according to claim 7 wherein the flaps of said second pair are substantially wider at the portions where they are joined to the carton than in the portions which form said carry handle portion.

9. A carton blank according to claim 7 or claim 8, wherein one flap of said first pair of opposed integral flaps includes an integral strip with means for facilitating severing of said strip therefrom, said one flap being dimensioned so that said strip underlies said carry handle portion when said first and second pairs of opposed flaps are folded down over said carton end.

10. A carton blank according to claim 9, wherein said severing means comprise score lines, slits, perforations or combinations thereof.

11. A method of forming a carton with carry handle from a blank constructed in accordance with claim 7 or claim 8 comprising forming said blank into a carton of square or rectangular cross section, folding said first pair of opposed integral flaps down flat over one end of said carton and securing them to each other, folding said second pair of flaps down over said first pair and securing said second pair of flaps to each other to form a carry handle.

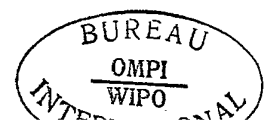
12. A method according to claim 11, wherein said first pair of flaps are secured together by gluing.

13. A method according to claim 11 or claim 12, wherein said second pair of flaps are secured together by gluing, stapling, taping or clipping.

14. A method according to claim 11 or claim 12, wherein adhesive is applied along a separable strip forming part of the uppermost of said first pair of joined and folded flaps and said second pair of flaps are joined together by folding them down and adhering them to said separable strip.

15. A carton blank substantially as hereinbefore described with reference to any one of the accompanying drawings.

16. A method of forming a carton with carry handle substantially as hereinbefore described with reference to any



one of the accompanying drawings.

17. A carton formed from a blank as claimed in any one of claims 1 to 5, 7 to 10 and 15 or by the method claimed in any one of claims 6, 11 to 14 and 16.

18. A formed carton including at one end a pair of inner closing flaps and a pair of outer covering flaps adhered to said closing flaps to provide an end to said carton, a handle strip formed as an integral edge portion of a closing flap and extending across the carton, and a pressure sensitive adhesive tape extending along said strip and onto the carton wall adjacent each end of said strips thereby to join said strip at its ends to the carton, said strip being at least partly severable from the closing flap thereby to provide a handle for the carton.

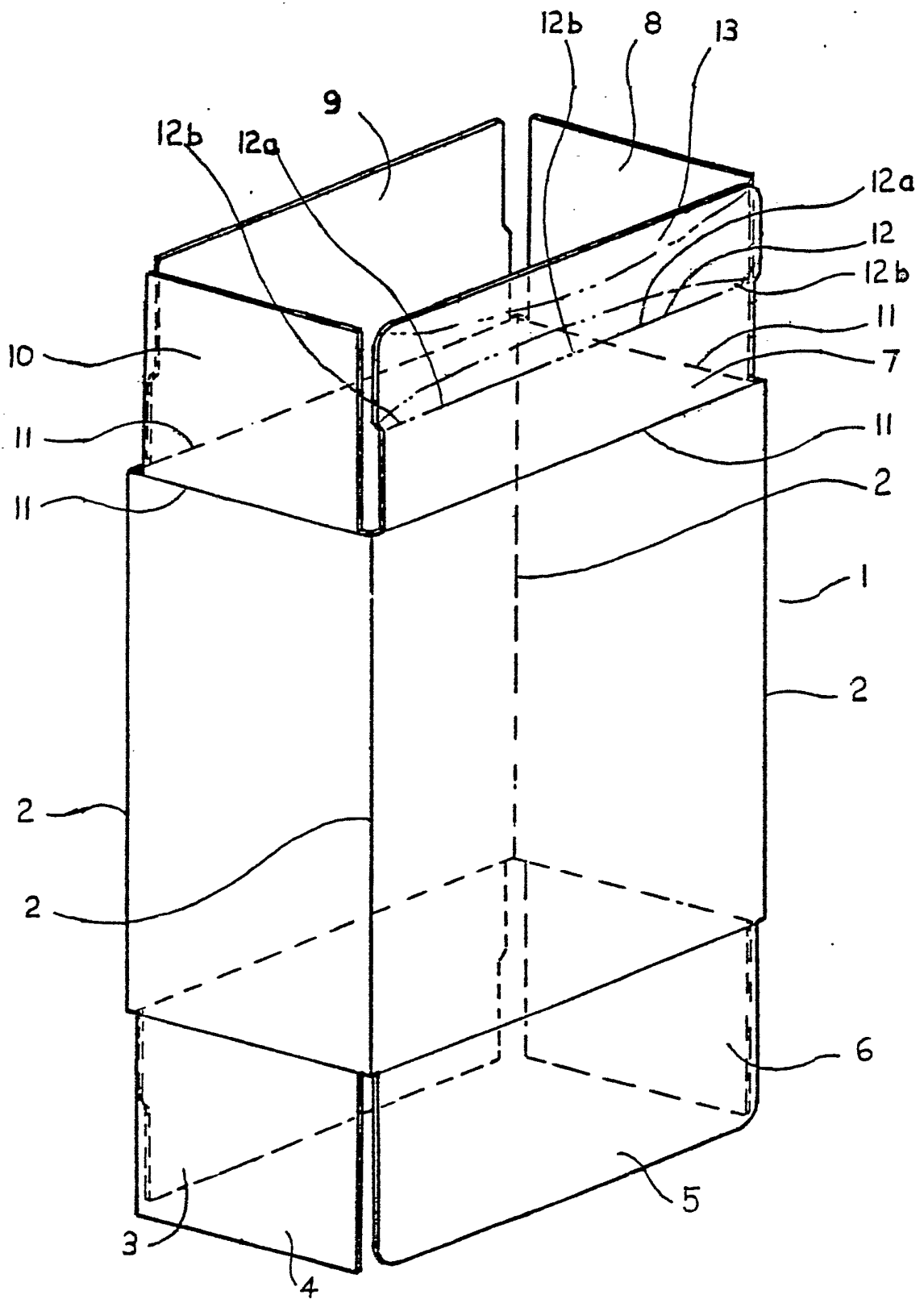


Fig. 1

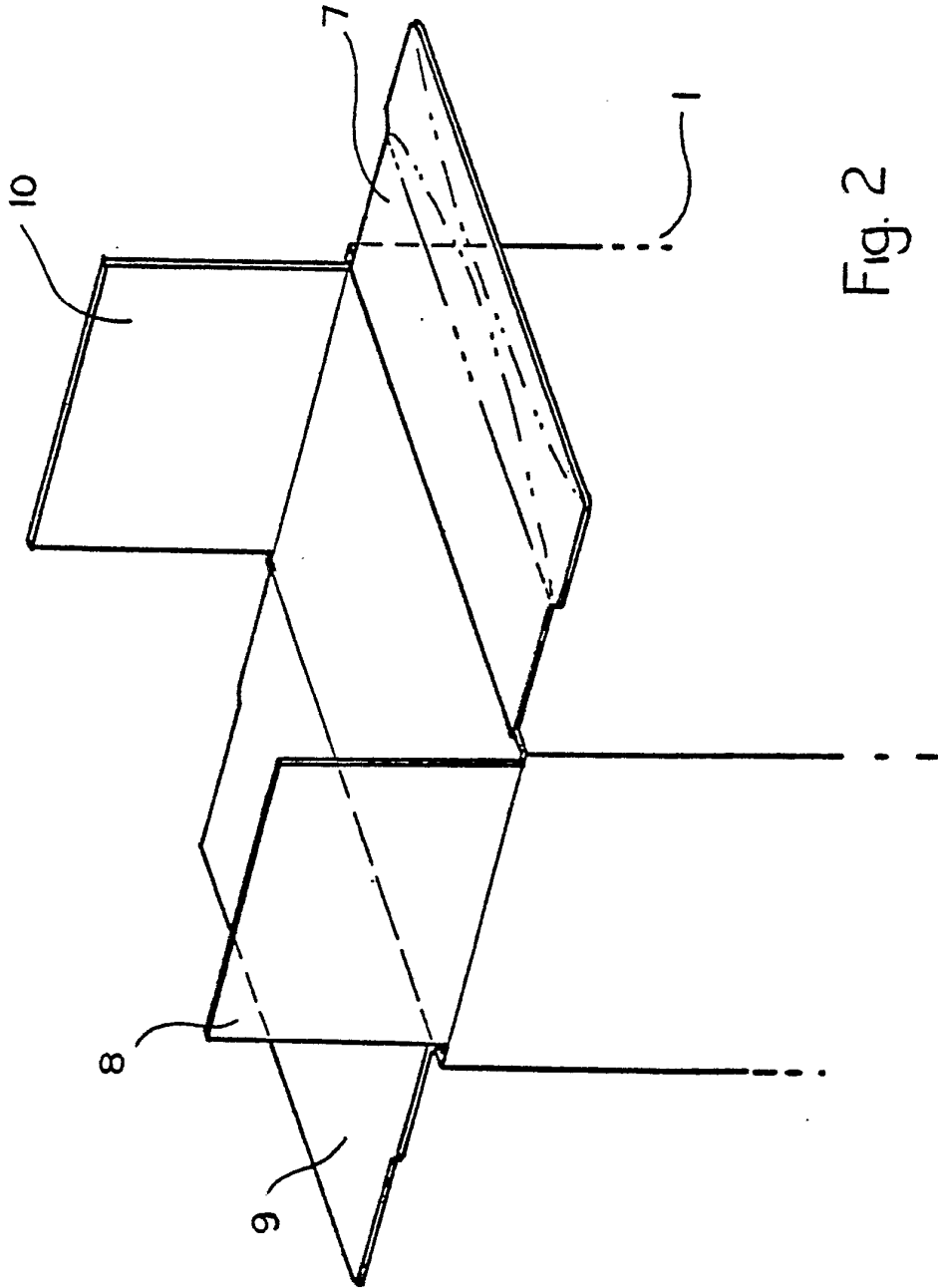


Fig. 2

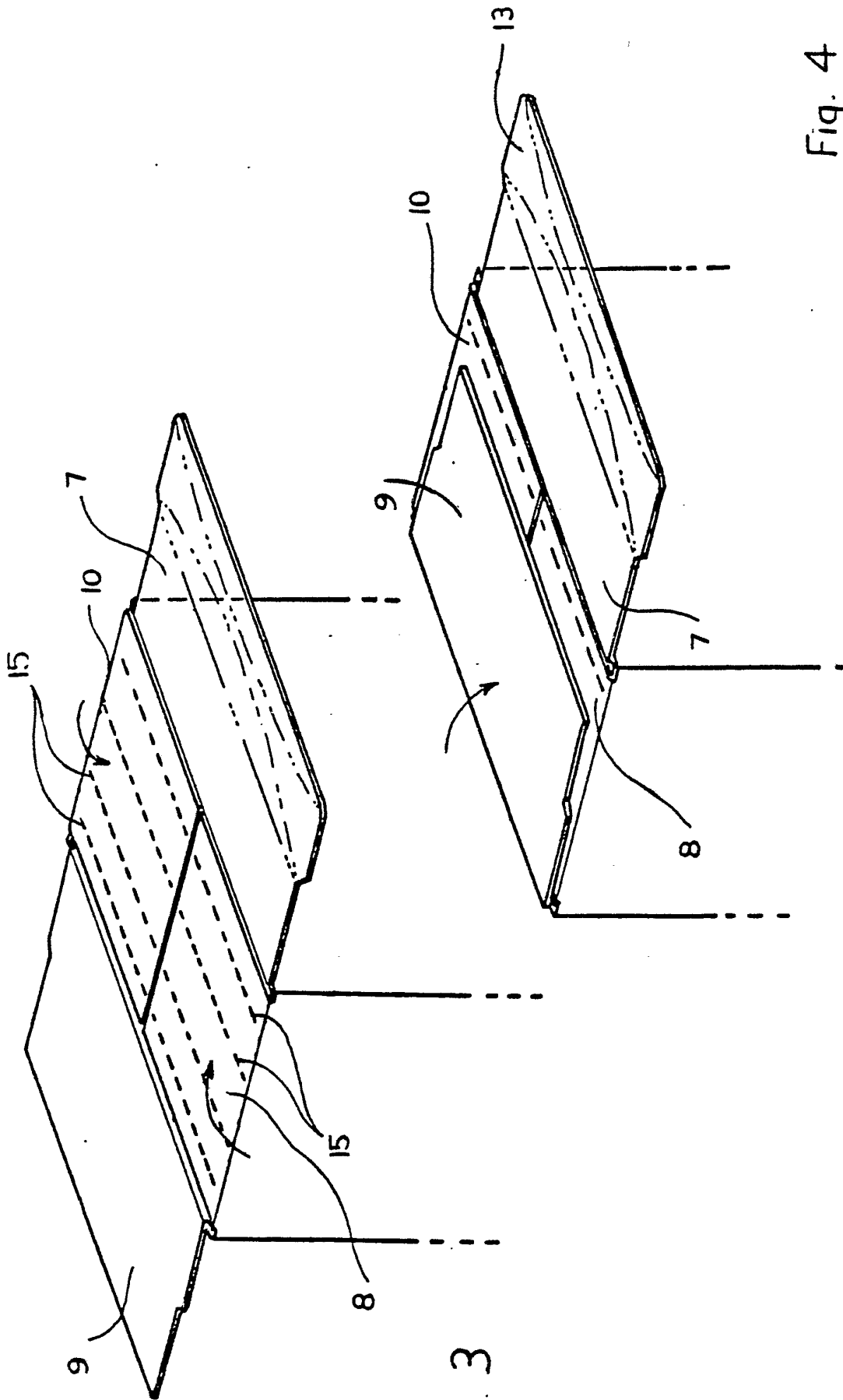


Fig. 3

Fig. 4



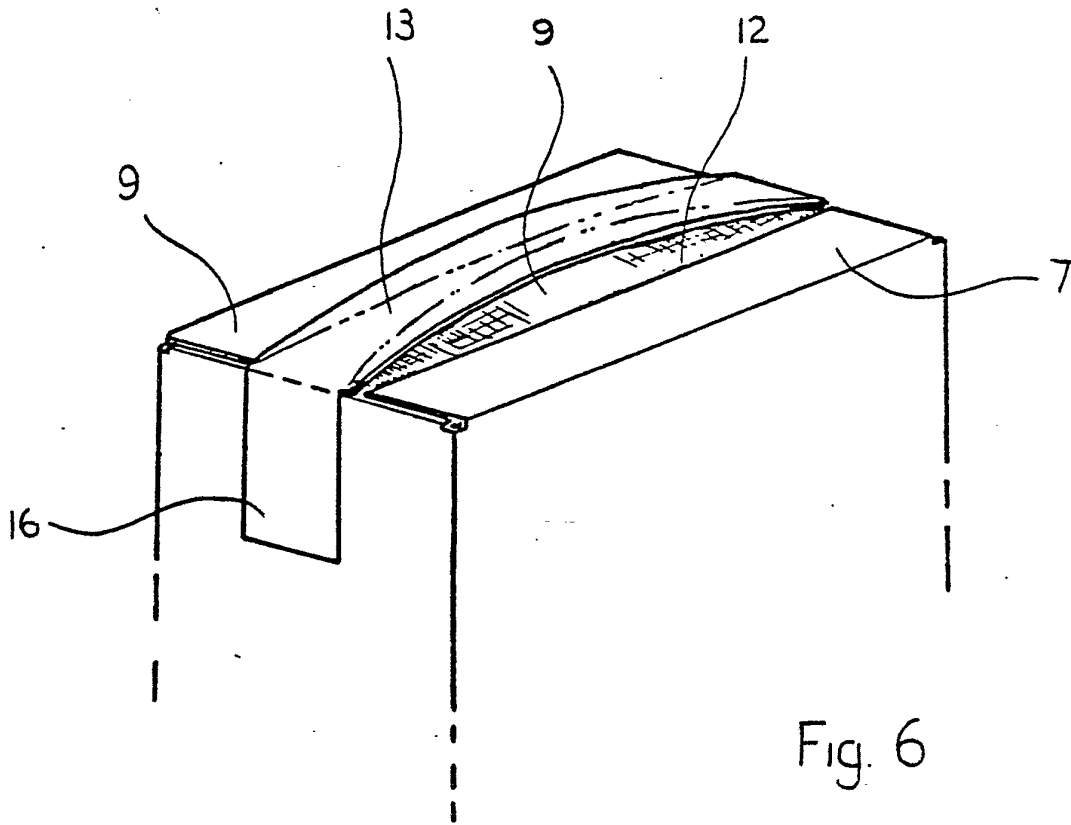


Fig. 6

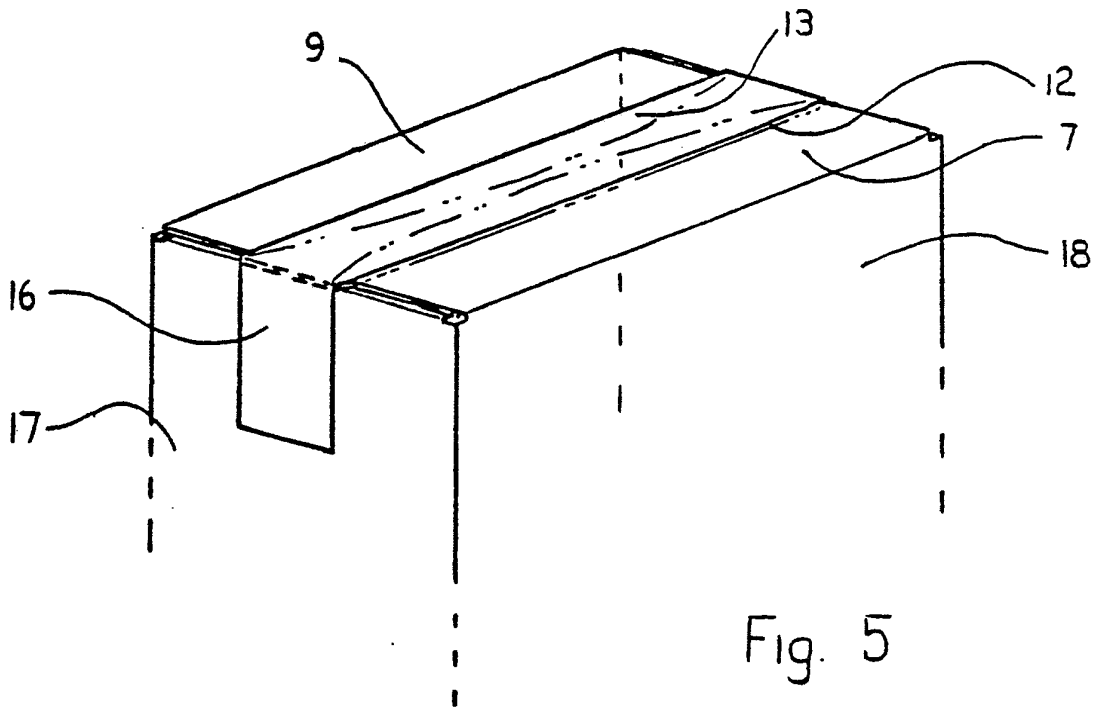


Fig. 5

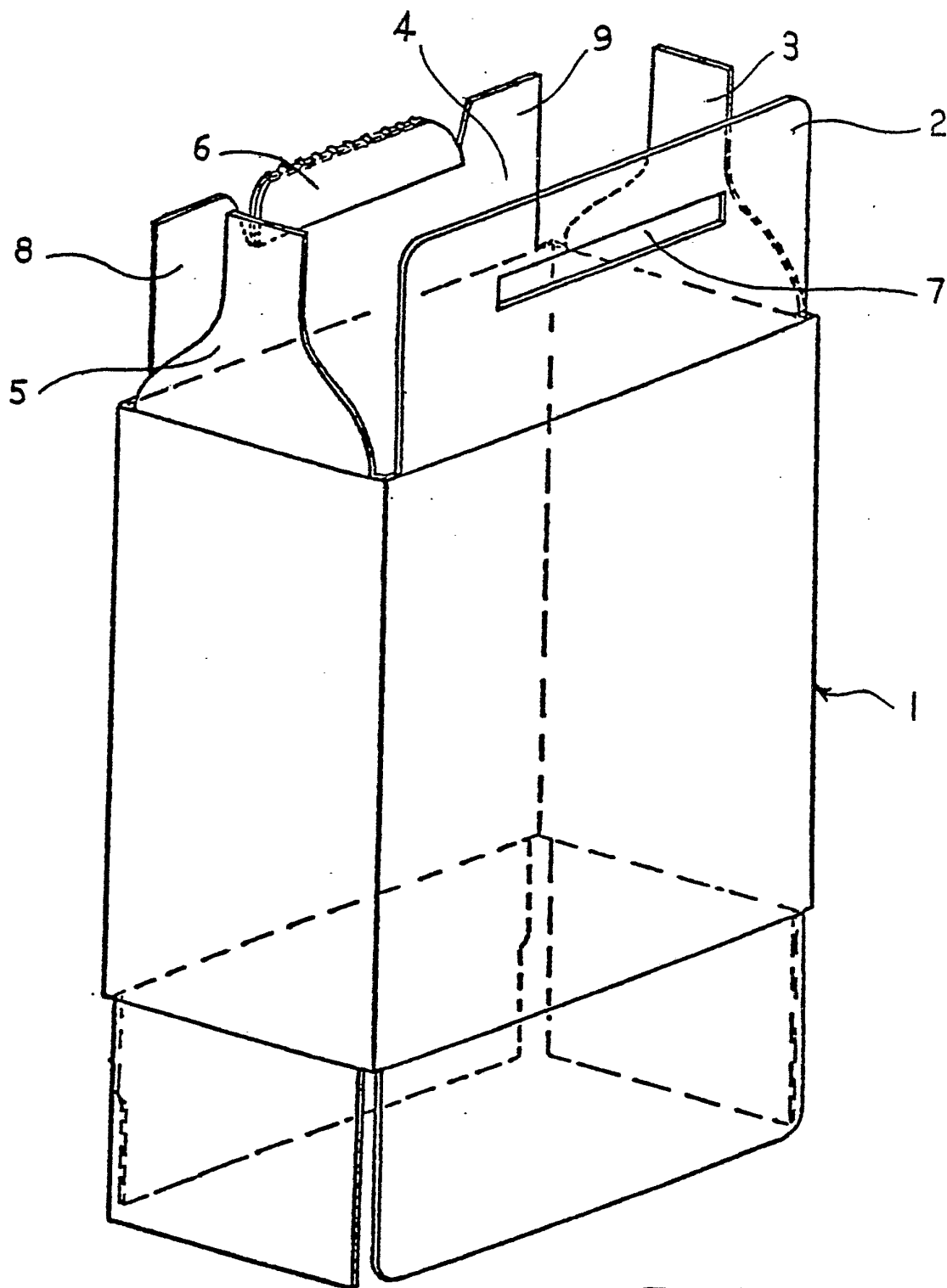


Fig. 7



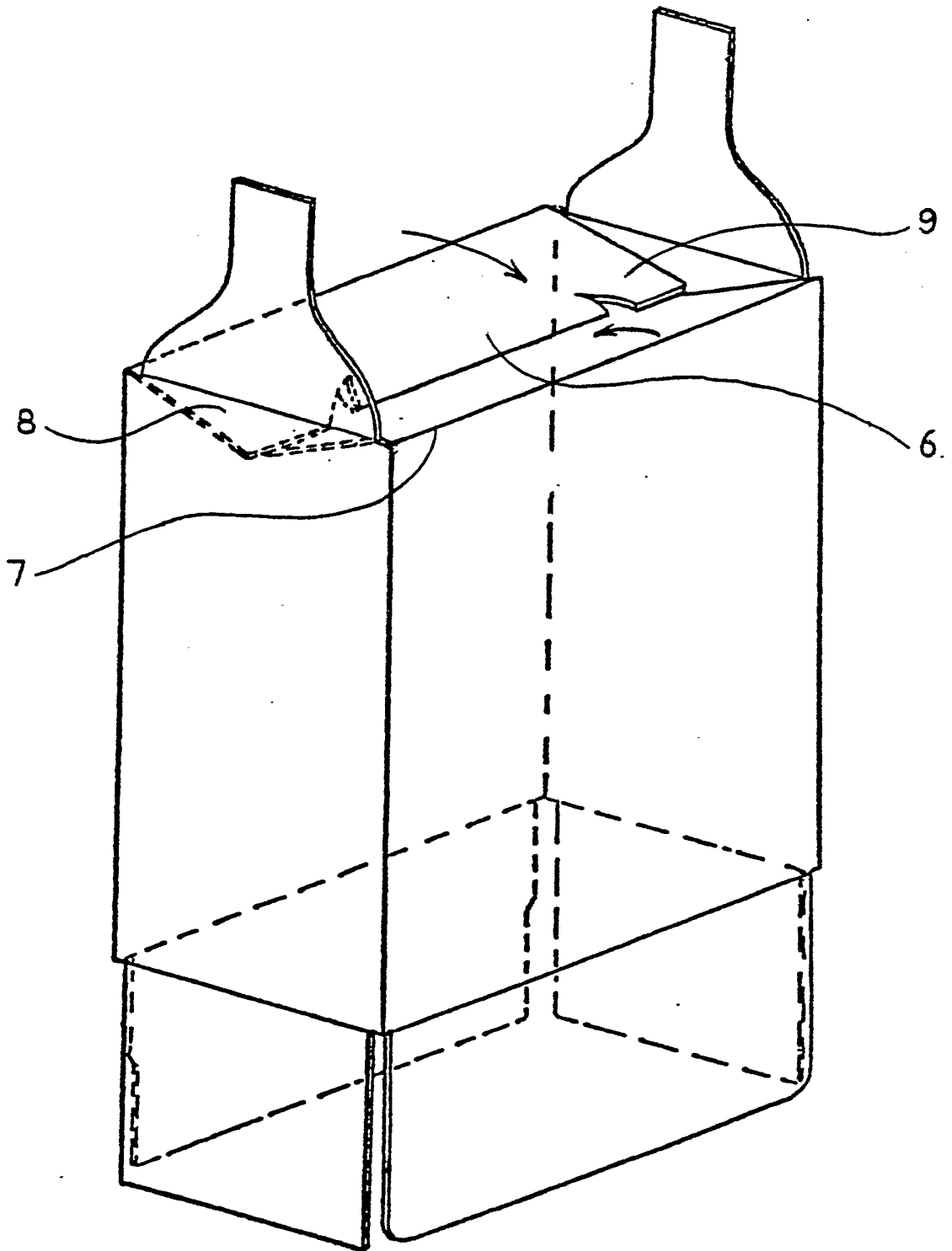


Fig. 8



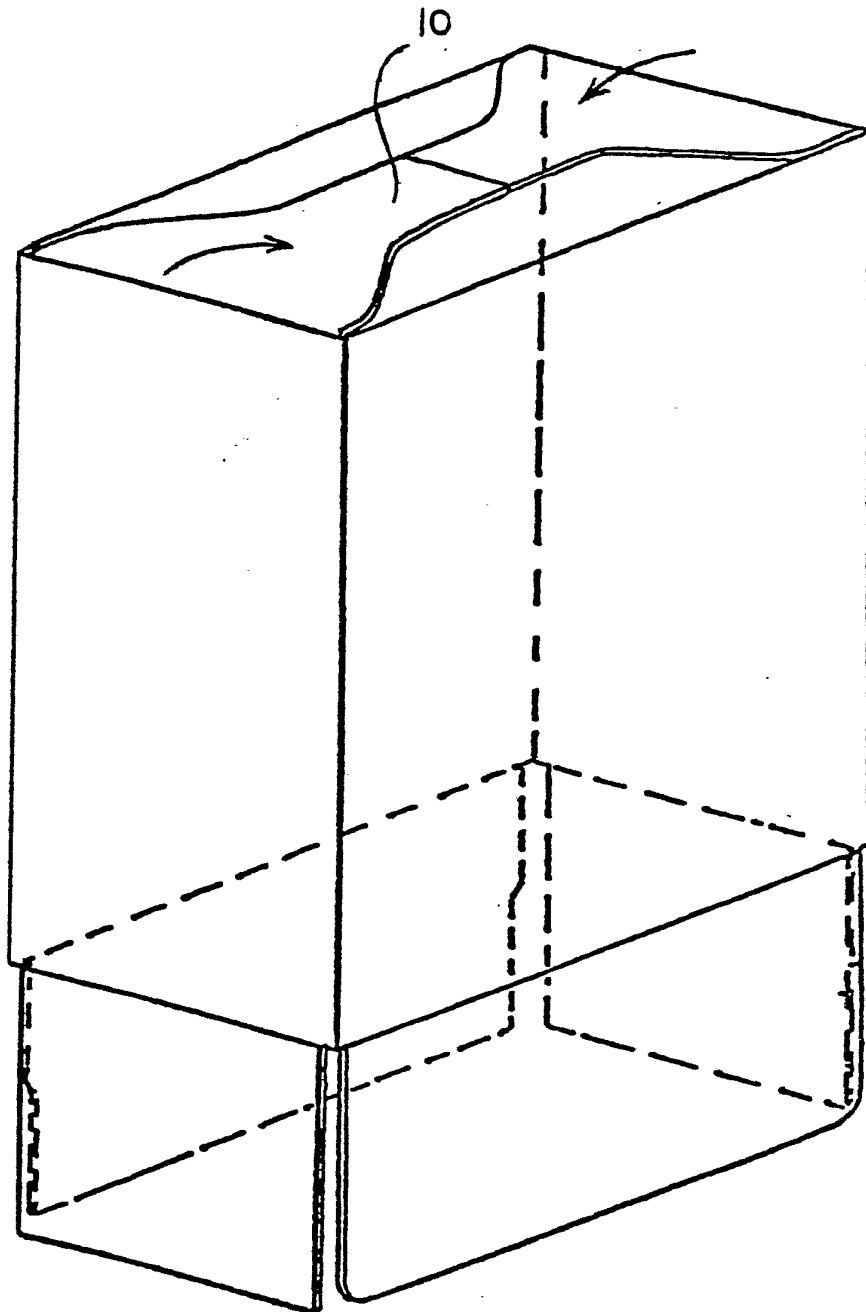


Fig. 9

ALTERNATIVE NO. 1

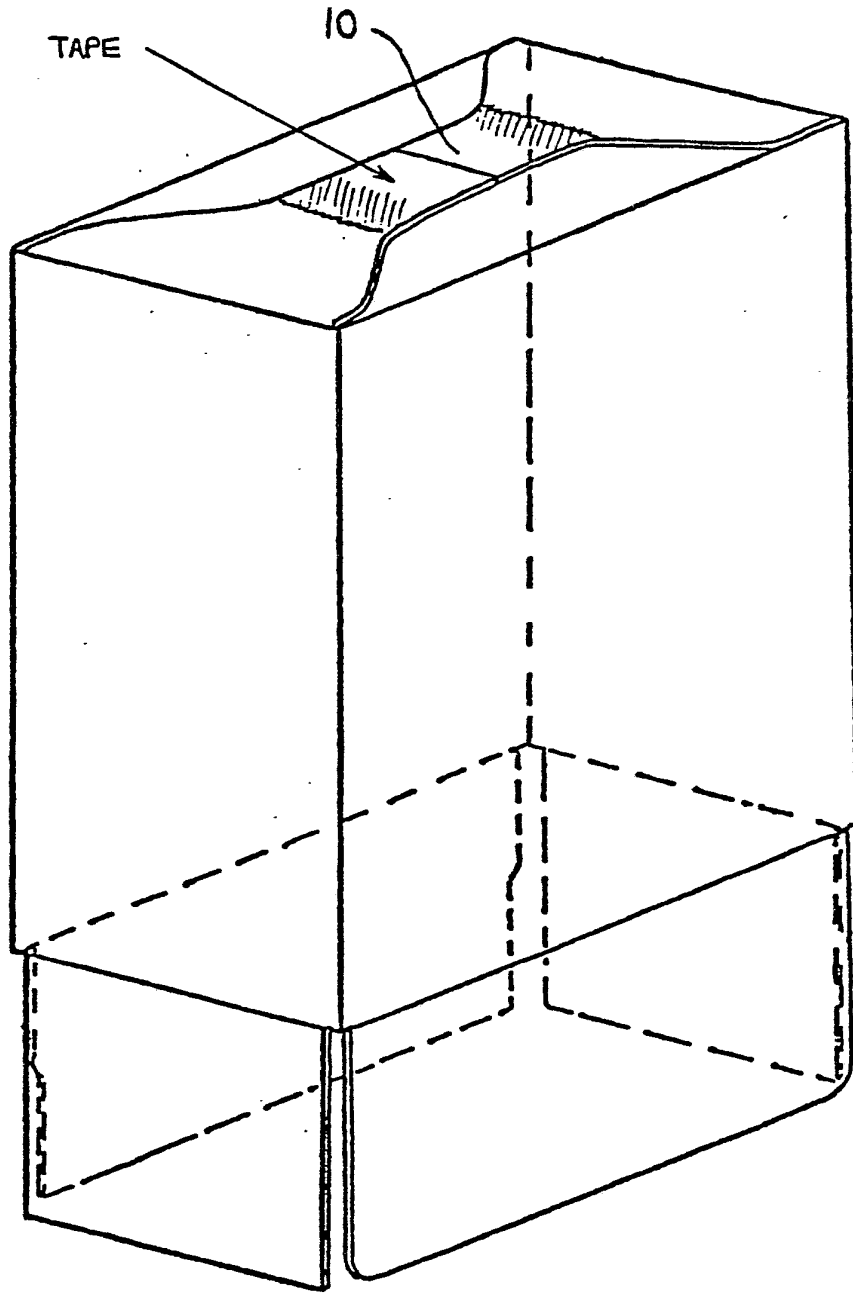


Fig. 10

ALTERNATIVE NO. 2

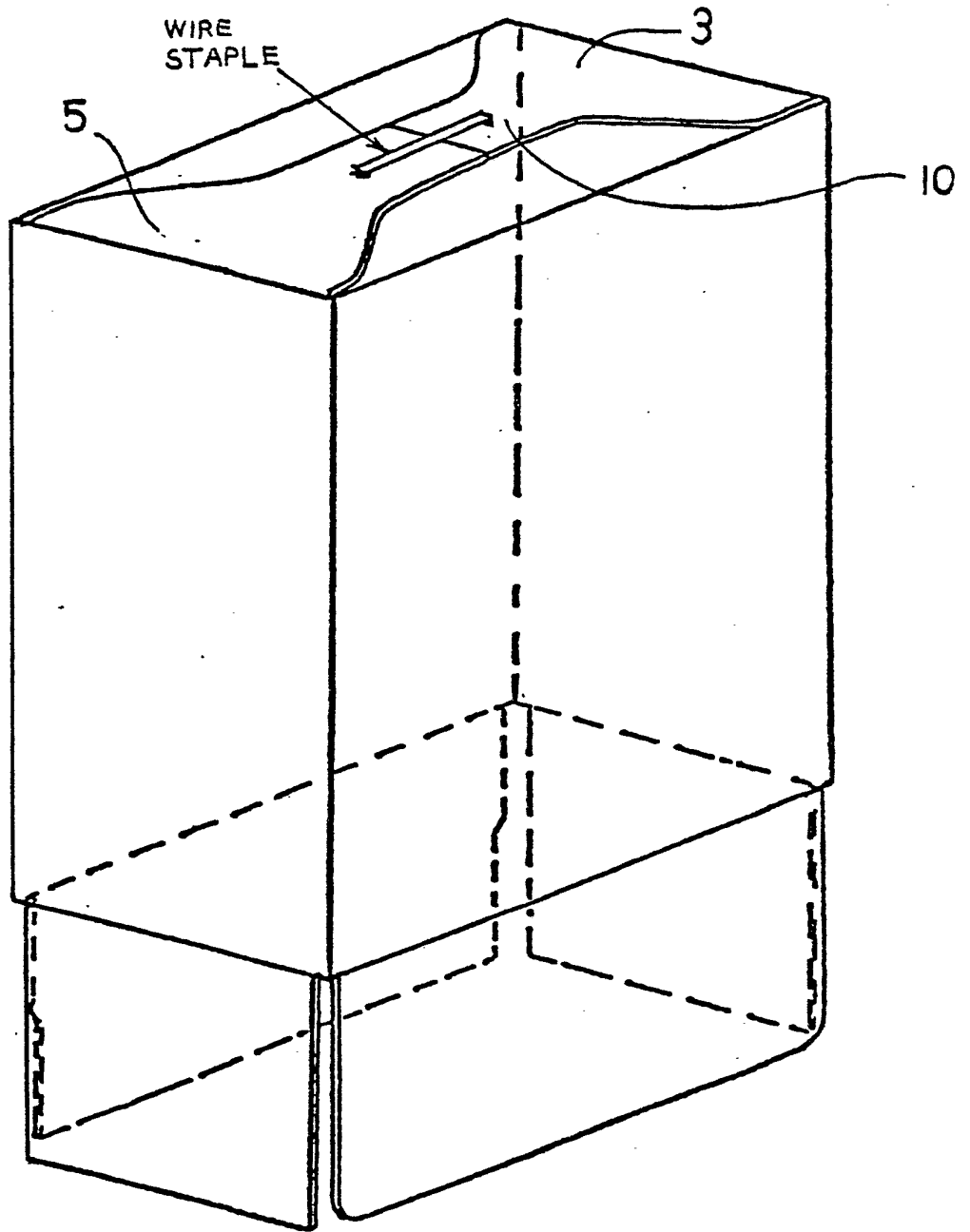


Fig. 11

ALTERNATIVE NO. 3

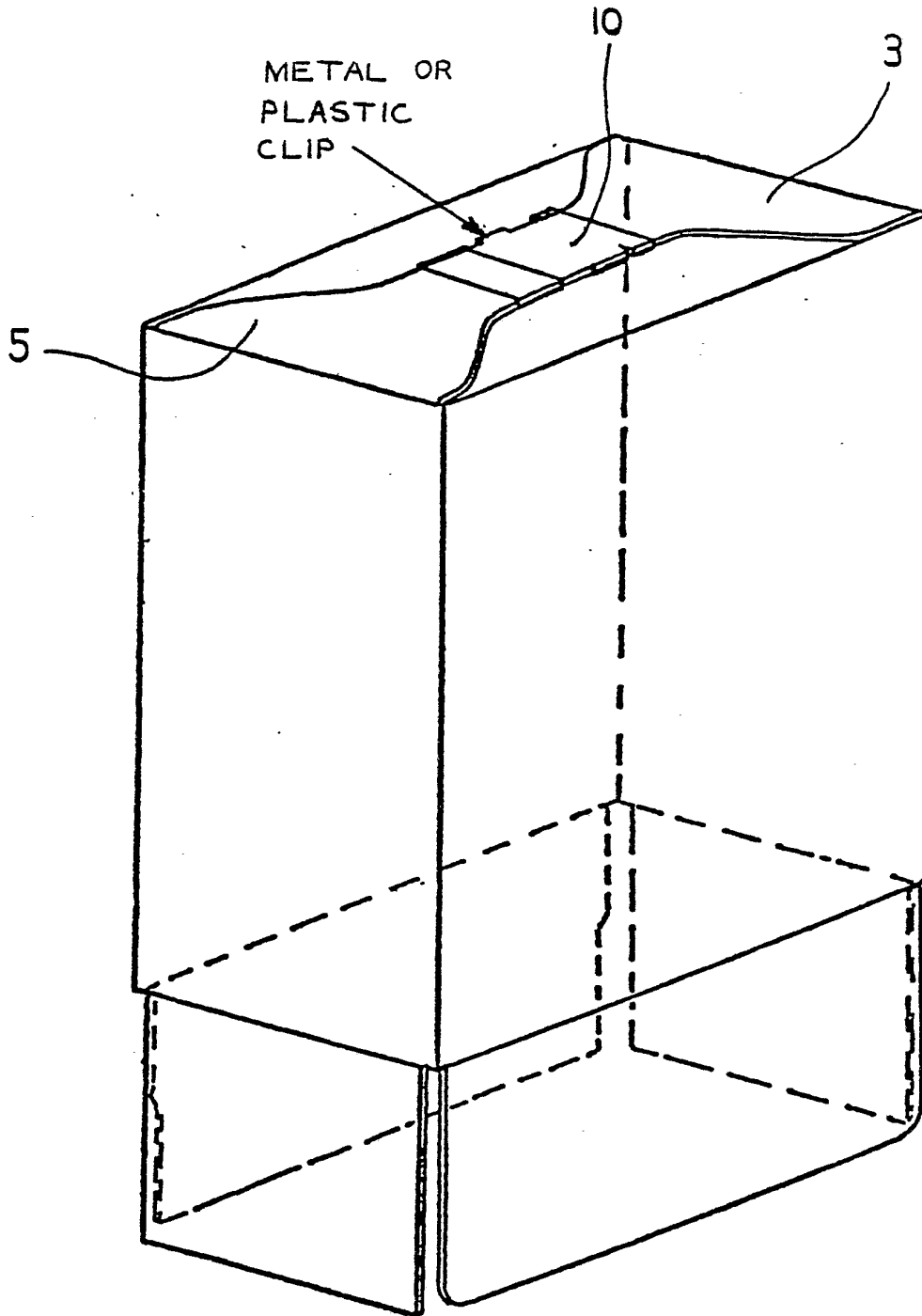


Fig. 12

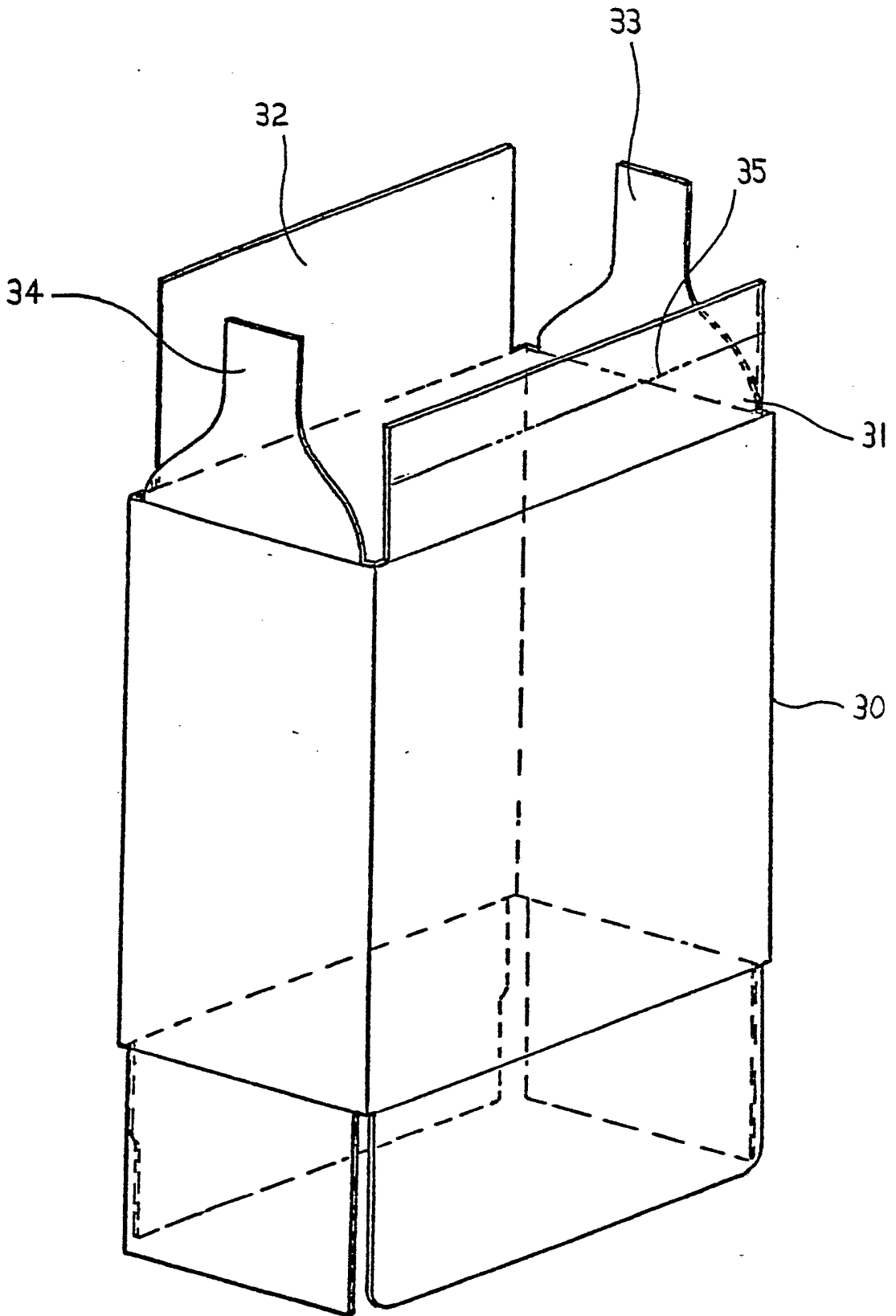


Fig. 13



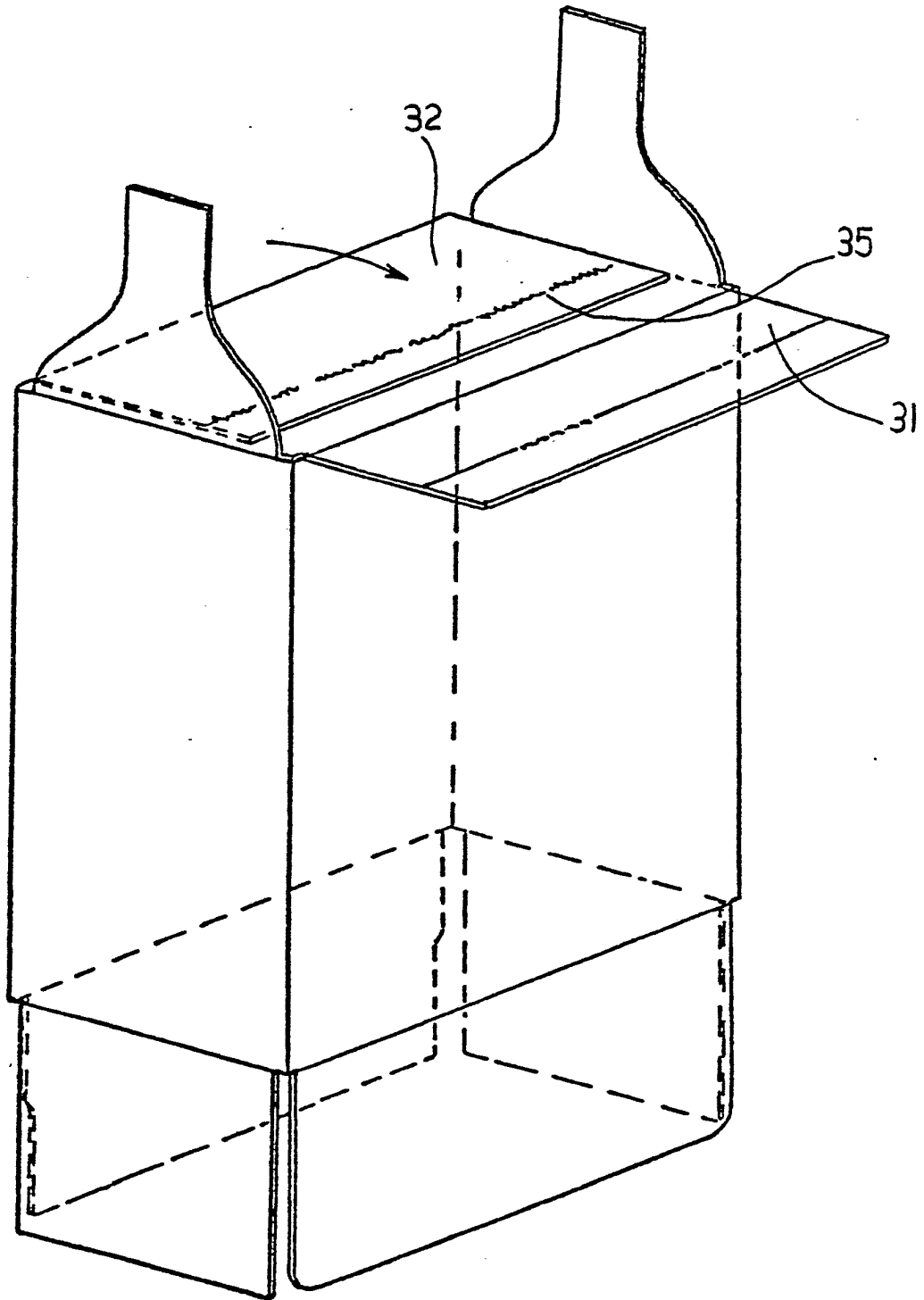


Fig. 14

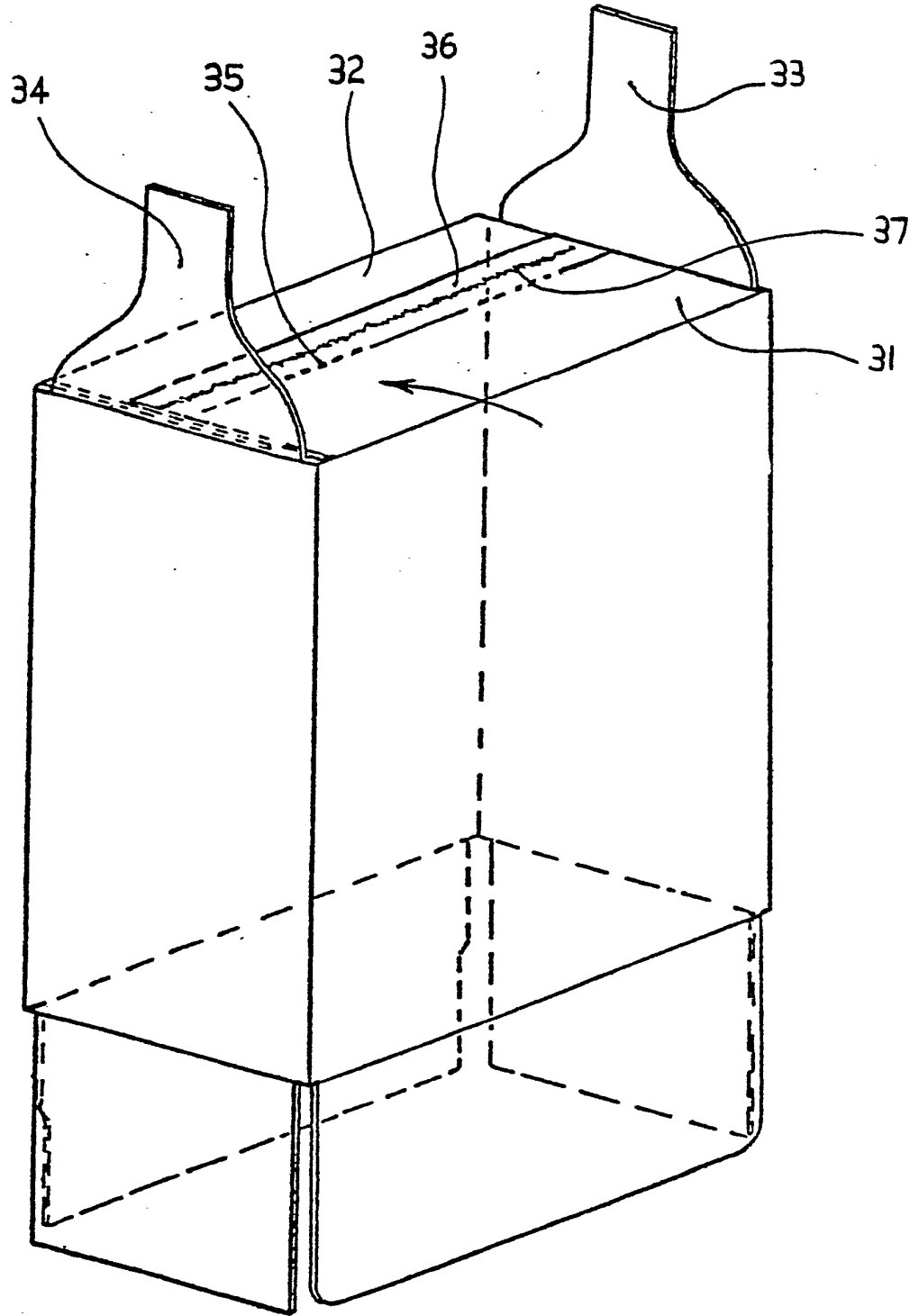


Fig. 15



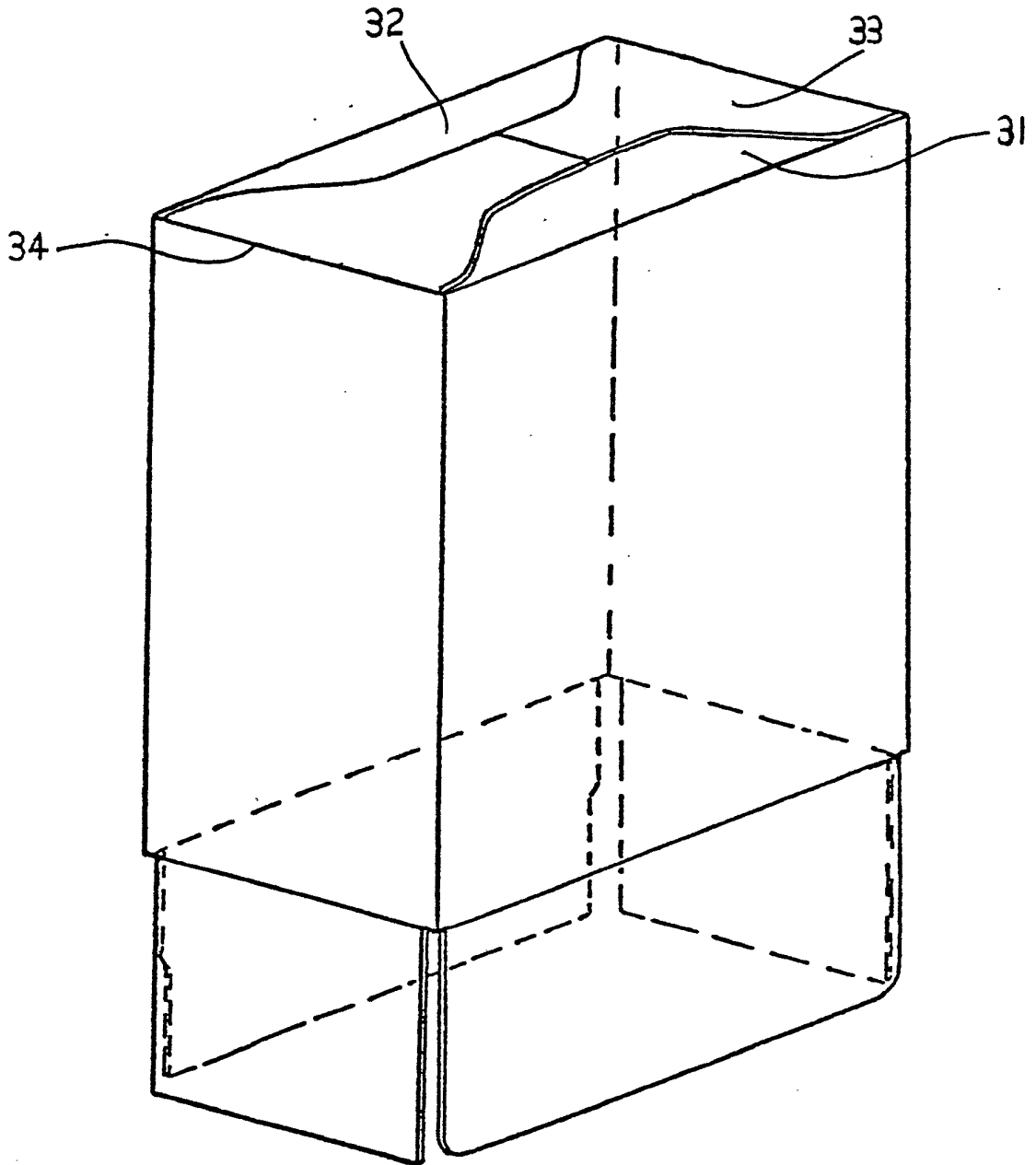


Fig. 16

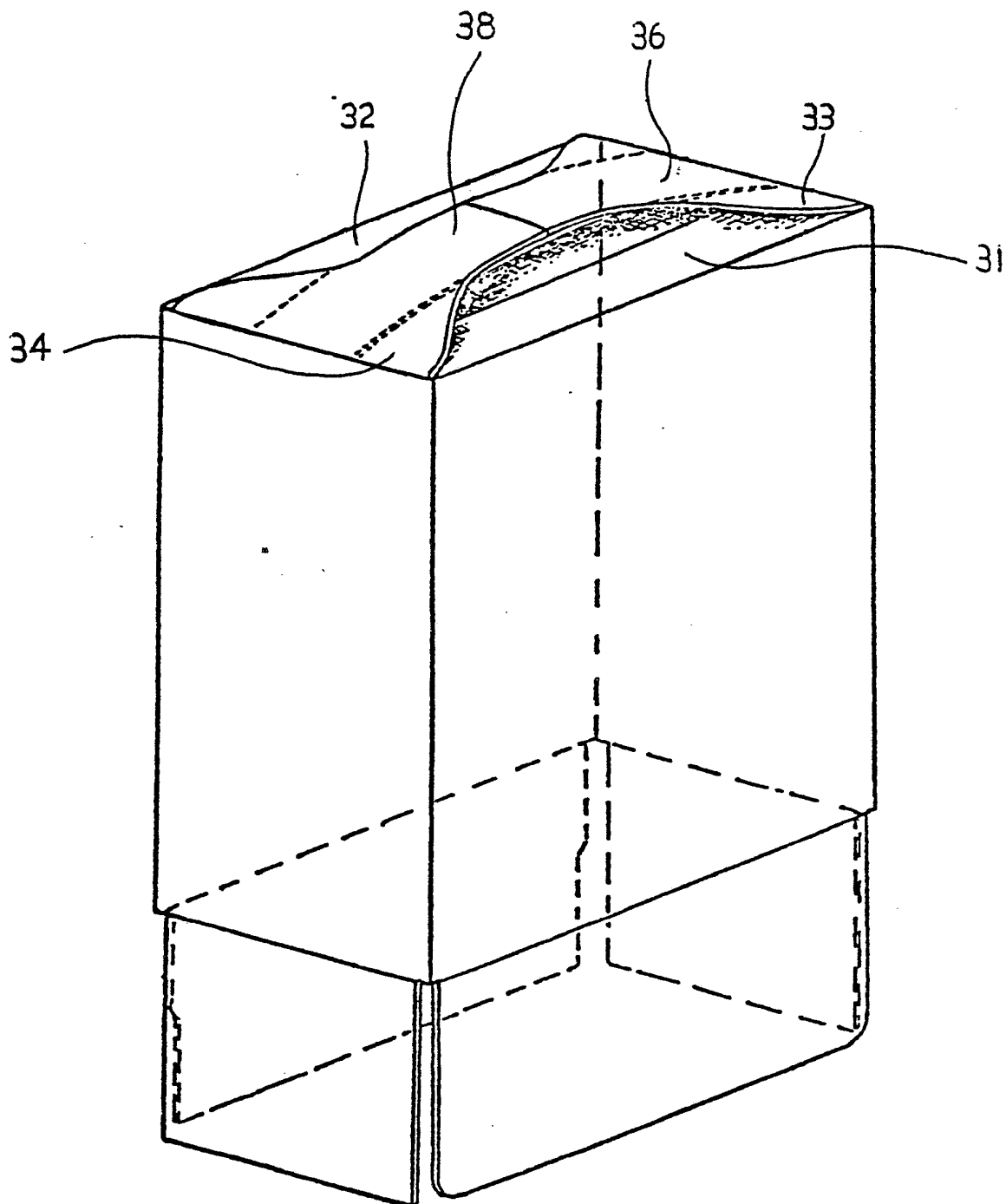
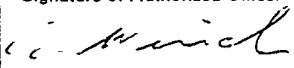


Fig. 17

INTERNATIONAL SEARCH REPORT

International Application No PCT/AU80/00027

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ³				
According to International Patent Classification (IPC) or to both National Classification and IPC				
Int. Cl. ³ B65D 5/46				
II. FIELDS SEARCHED				
Minimum Documentation Searched ⁴				
Classification System	Classification Symbols			
IPC	B65D 5/46			
US Cl.	229-52A, 229.52B			
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁵				
AU: IPC as above				
AUSTRALIAN CLASSIFICATION 57s (M049 48/07* 55/09)				
III. DOCUMENTS CONSIDERED TO BE RELEVANT ¹⁴				
Category *	Citation of Document, ¹⁶ with indication, where appropriate, of the relevant passages ¹⁷	Relevant to Claim No. ¹⁸		
X	US, A, 2,986,324, (fig 3) (60) (51) col. 4 lines 31 to 42, published 1961, May 30, Anderson.	(6 & 18)		
X	US, A, 2,797,856, published 1957, July 2, see fig. 3 (32), (15) JAESCHKE.	(1 to 6 & 18)		
X	US, A, 2,453,286, published 1948, Nov 9, see figs 2, 3 (32), (40), (31), (47) Von Clemm.	(1 to 6 & 18)		
X	US, A, 3,197,116, published 1965, July 27, see fig 2 (27), (29) Zastrow.	(1 to 5)		
X	US, A, 4,134,534, published 1979, Jan 16, see figs 4, 6 (52) Scott et al.	(1 to 5, 7 to 14)		
XP	GB, A, 2,014,547, published 1979, Aug 30, see figs 4, 6 (52) Scott et al.	(1 to 5, 7 to 14)		
X	FR, A1, 2,288,680, published 1976, May 21, see fig 1 (13), (15) J Langenbach.	(1 to 5)		
X	DE, A, 2,619,265, published 1976, Nov 11, see fig 2 (5), (12), (6) Wolfensburg Kartonagen.	(1 to 5)		
XP	FR, A1, 2,422,555, published 1979, Nov 9, see fig 1, 4 (26), (30), (40) Hughes Nicollet S.A.	(1 to 5, 7 to 14)		
<p>* Special categories of cited documents: ¹⁵</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <p>"A" document defining the general state of the art</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document cited for special reason other than those referred to in the other categories</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> </td> <td style="width: 50%; border: none;"> <p>"P" document published prior to the international filing date but on or after the priority date claimed</p> <p>"T" later document published on or after the international filing date or priority date and not in conflict with the application, but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance</p> </td> </tr> </table>			<p>"A" document defining the general state of the art</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document cited for special reason other than those referred to in the other categories</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p>	<p>"P" document published prior to the international filing date but on or after the priority date claimed</p> <p>"T" later document published on or after the international filing date or priority date and not in conflict with the application, but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance</p>
<p>"A" document defining the general state of the art</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document cited for special reason other than those referred to in the other categories</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p>	<p>"P" document published prior to the international filing date but on or after the priority date claimed</p> <p>"T" later document published on or after the international filing date or priority date and not in conflict with the application, but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance</p>			
IV. CERTIFICATION				
Date of the Actual Completion of the International Search ²	Date of Mailing of this International Search Report ²			
23 JULY 1980 (23.07.80)	30 JULY 1980 (30-07-80)			
International Searching Authority ¹	Signature of Authorized Officer ²⁰			
AUSTRALIAN PATENT OFFICE	 A.W. WINCH			

FURTHER INFORMATION CONTINUED FROM THE SECOND SHEET

A	US, A, 2658661, published 1953, Nov 10, see fig 2 (30) AQUINO ET AL.	(1 to 5)
X	GB, A, 1514462, published 1978, June 14, see fig 4 (26) Unilever.	(7 to 14)
A	CA, A, 1036562, published 1978, Aug 15, see fig 2 (28), (29) Labatt Breweries.	(7 to 14)
A	US, A, 3794239, published 1974, Feb 26, see fig 3 (15).	(1 to 18)
A	US, A, 3078032, published 1974, Feb 26, see fig 2 (29) Robinson et al.	(1 to 18)
A	US, A, 2955739, published 1960, Oct 11, see fig 3 (28) Collura.	(1 to 18)

V. OBSERVATIONS WHERE CERTAIN CLAIMS WERE FOUND UNSEARCHABLE ¹⁰

This international search report has not been established in respect of certain claims under Article 17(2) (a) for the following reasons:

1. Claim numbers, because they relate to subject matter¹² not required to be searched by this Authority, namely:

2. Claim numbers, because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out¹³, specifically:

VI. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING ¹¹

This International Searching Authority found multiple inventions in this international application as follows:

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims of the international application.
2. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims of the international application for which fees were paid, specifically claims:
3. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim numbers:

Remark on Protest

- The additional search fees were accompanied by applicant's protest.
- No protest accompanied the payment of additional search fees.

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)

Category *	Citation of Document, ¹⁶ with indication, where appropriate, of the relevant passages ¹⁷	Relevant to Claim No. ¹⁸
A	US, A, 2,682,990, published 1954, July 6, see figs 1,3 (11) Gary.	(1 to 18)
A	CH, 536757, published 1973, June 29, see fig 1 (9) Zeiler A.G.	(1 to 18)
A	AU, B, 444659, published 1969, May 29, see fig 4 (10) Nordisk Plaster Industri.	(1 to 18)
A	AU, B, 492310, published 1977, May 4, see figs 1,2 (27), (28) Mead Corp.	(1 to 18)
A	AU, A, 55876/69, published 1970, Dec 10, see fig. 2 (12) Northwest-Druck Muhlmann Co.	(1 to 18)