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GB 2345902 A GB 2331291 A
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(54) Abstract Title
Packaging sandwiches

(57) A sandwich carton (fig 1), formed from a blank, comprises a pair of oppositely disposed triangular side walls 3, 5, a pair of quadrilateral bottom walls 7, 9, and a further panel 11 or lid which further comprises a viewing window (fig 1, 13). The sandwich carton has a trough shape defined by the triangular side walls and bottom walls of trapezoidal shape, and the lid further comprises a flap 15 provided by a tongue 17, adapted to be received in a cut-out 21 in one of the triangular walls. Flaps may be provided on the triangular and quadrilateral walls, and may be glued in place, or the flaps may have tongues to be received in slots. A plurality of cartons may be provided in a stack with the cartons nested, the sandwiches may also be wrapped before being placed within the carton.

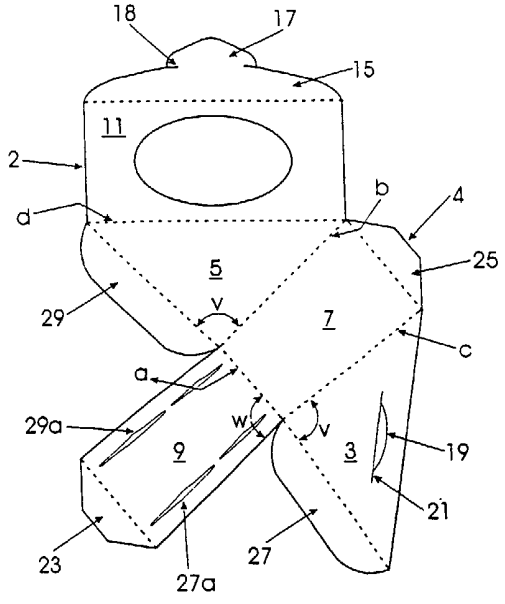
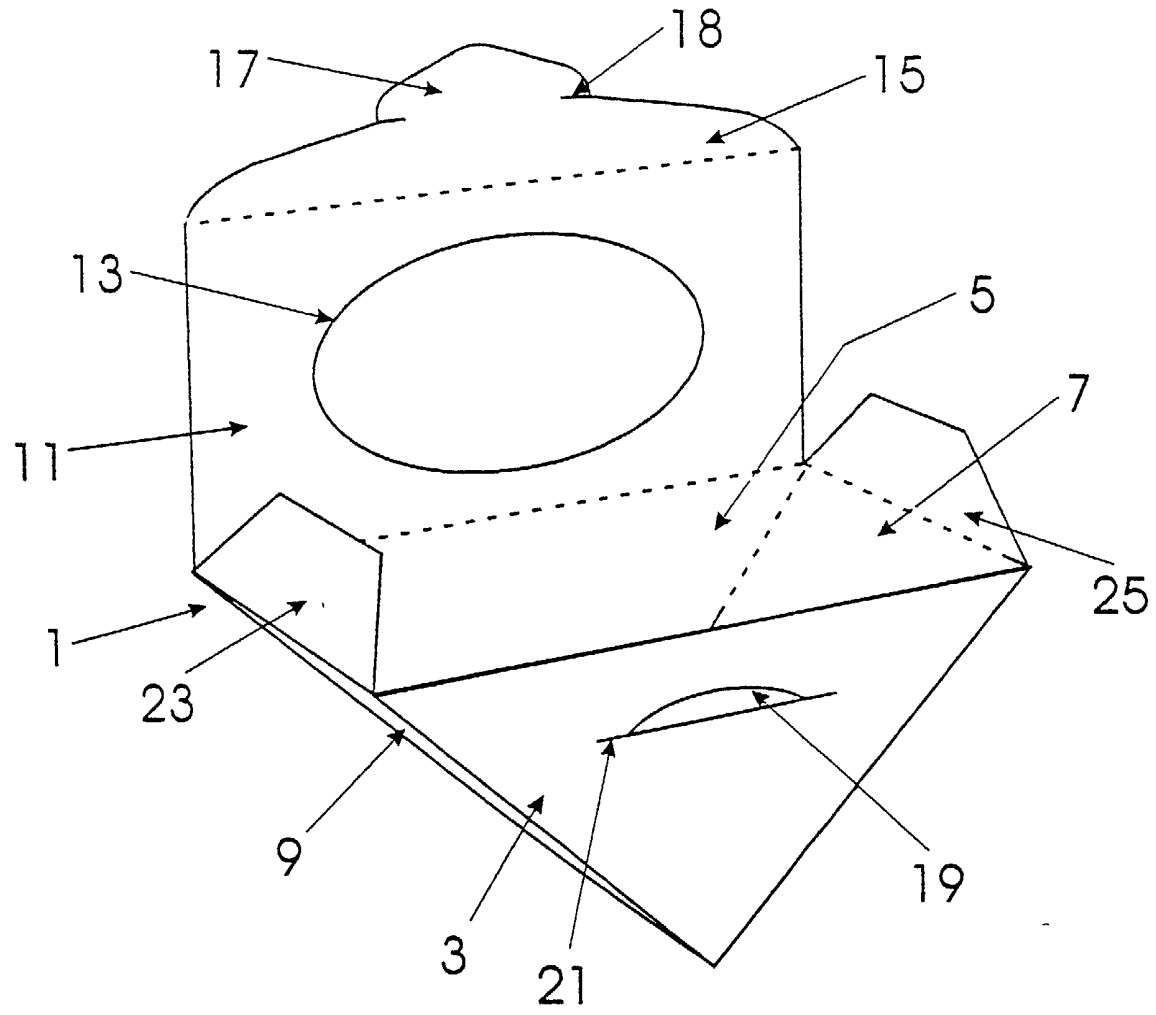


Fig 2.

GB 2 364 998 A

Fig 1



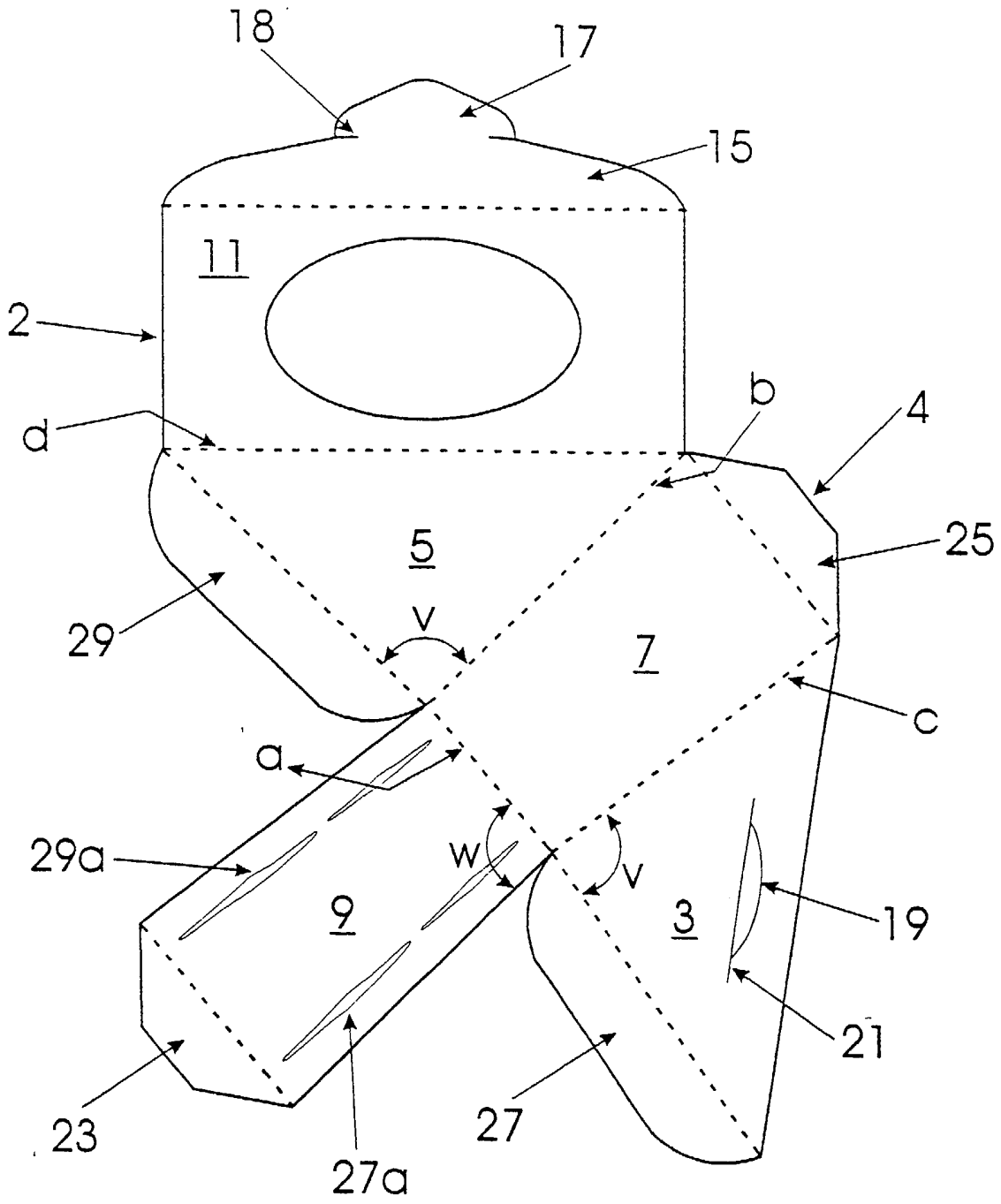


Fig 2.

Fig 3

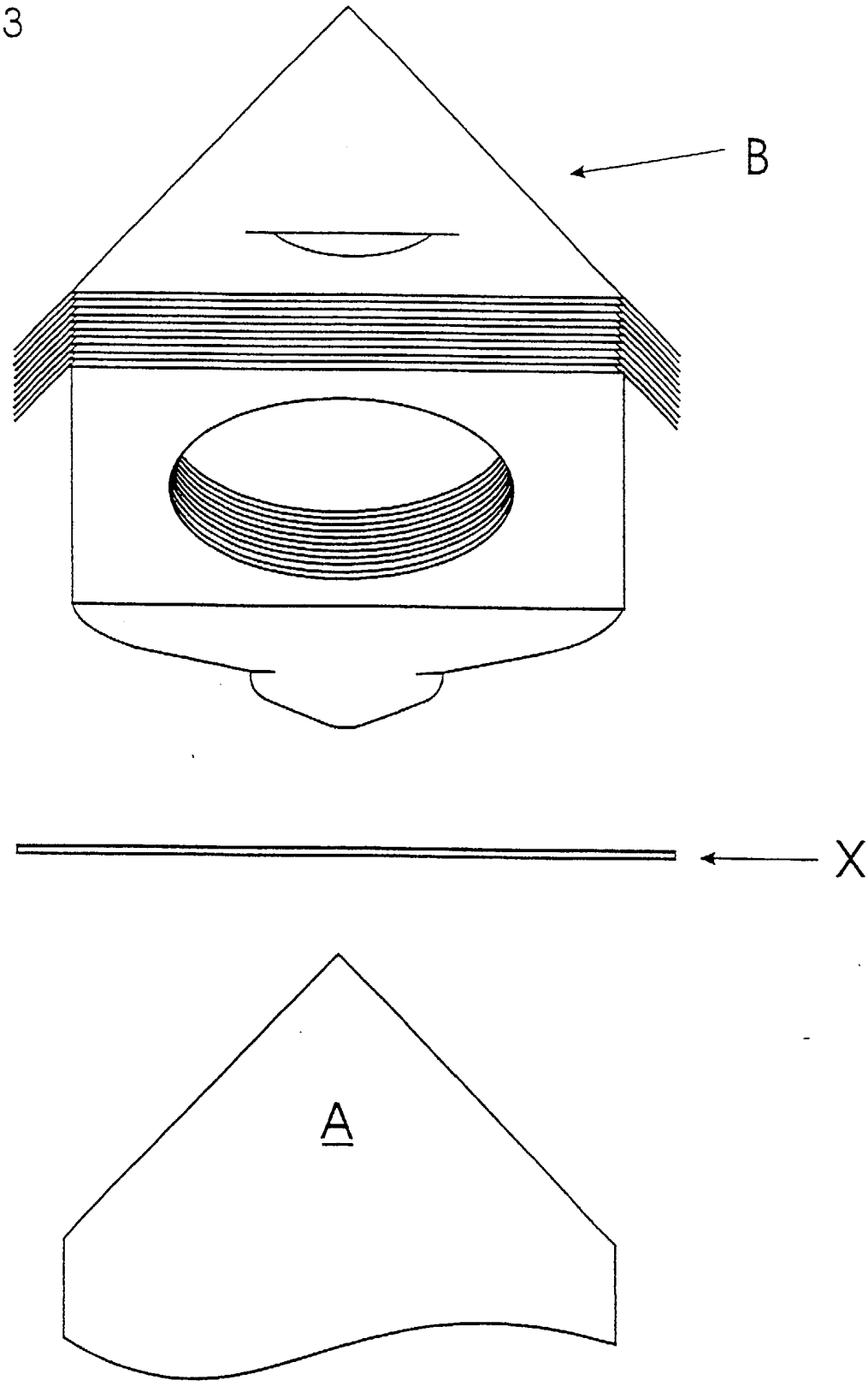
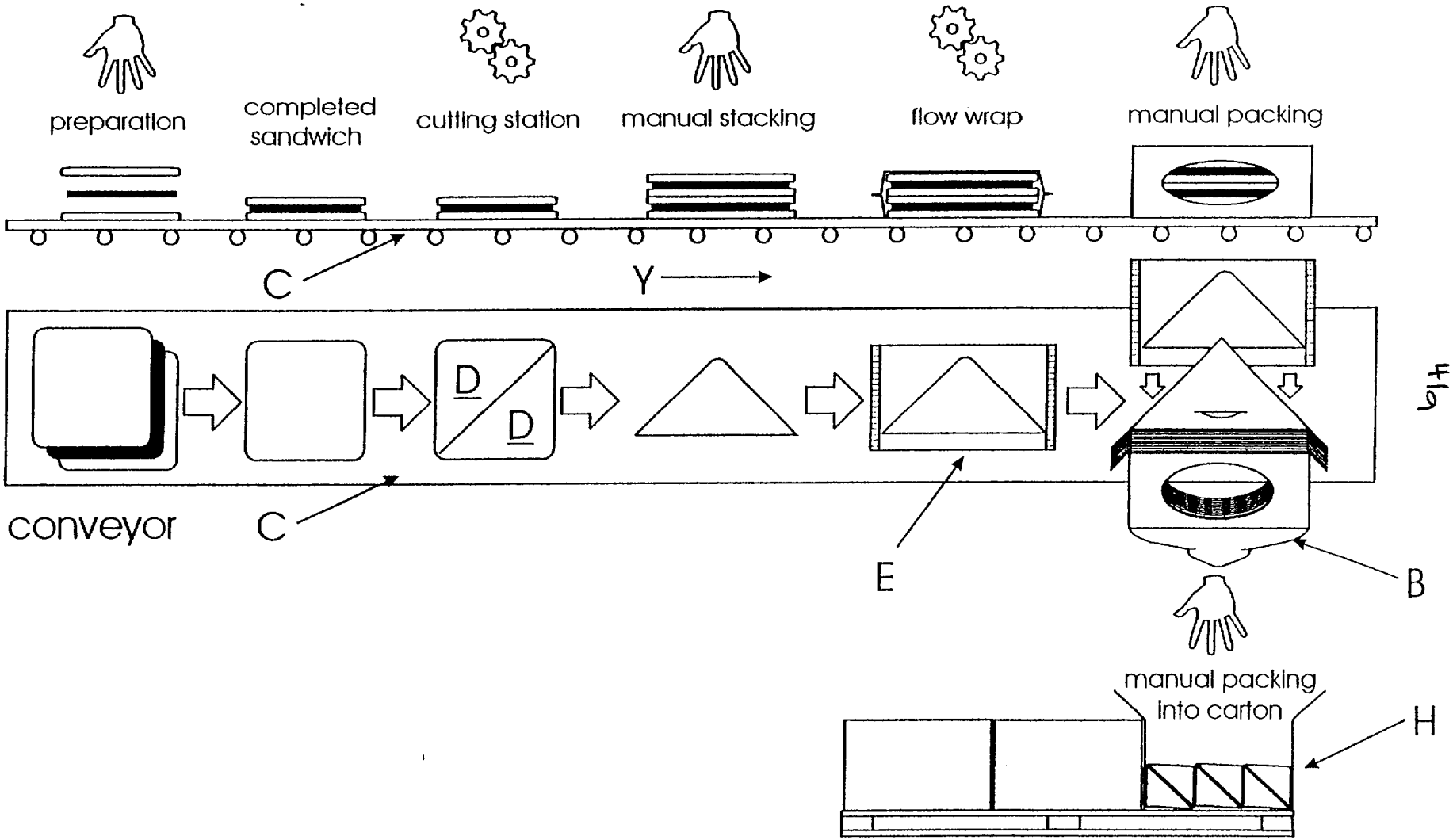


FIG 4A


preparation
completed sandwich
cutting station
manual stacking
flow wrap
manual packing
C
Y
D
D
conveyor
C
E
B
manual packing into carton
H
4/6

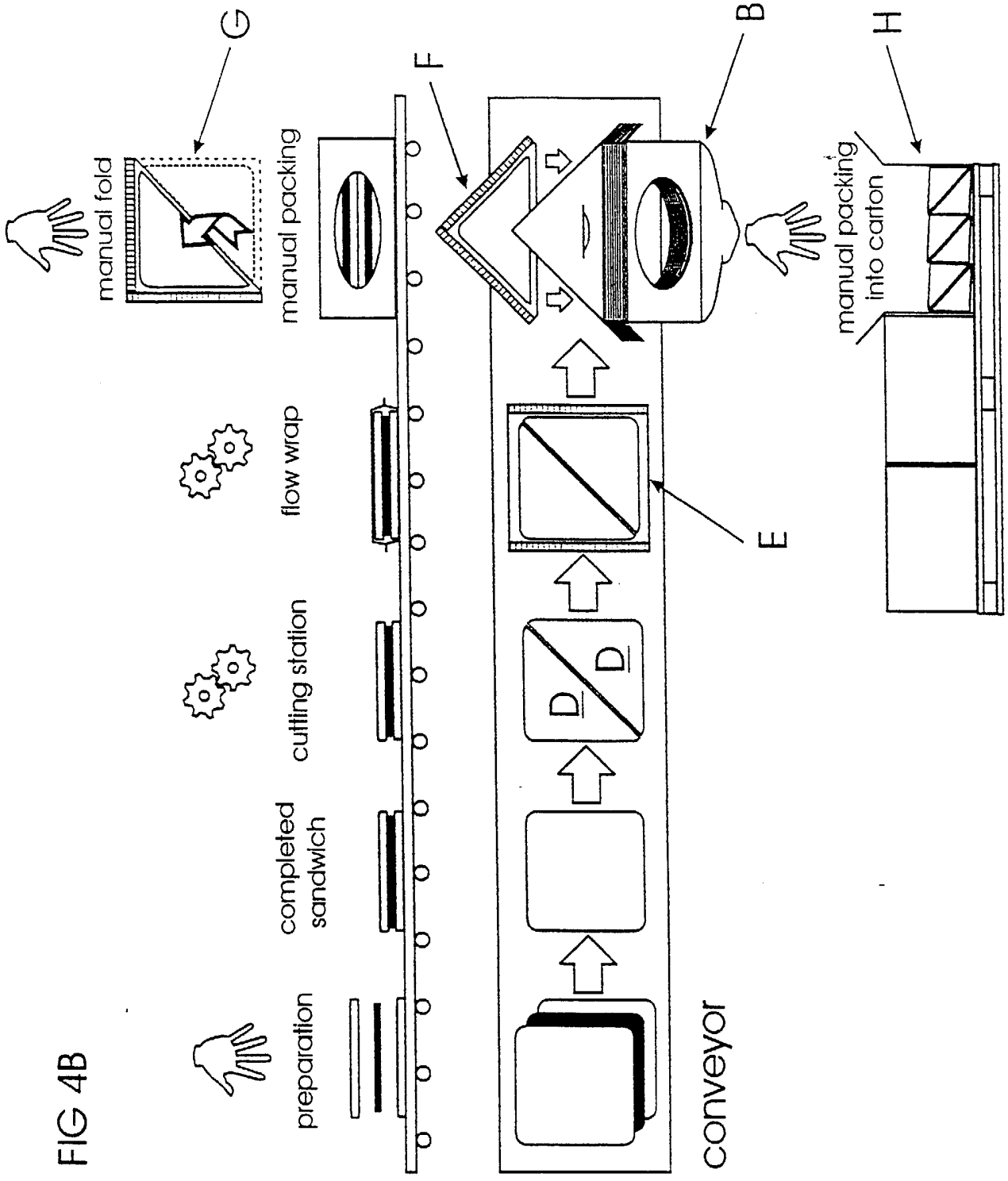

manual fold
G
manual packing
F
B
H
flow wrap
cutting station
completed sandwich
preparation
D
D
E
conveyor
manual packing into carton

FIG 4B

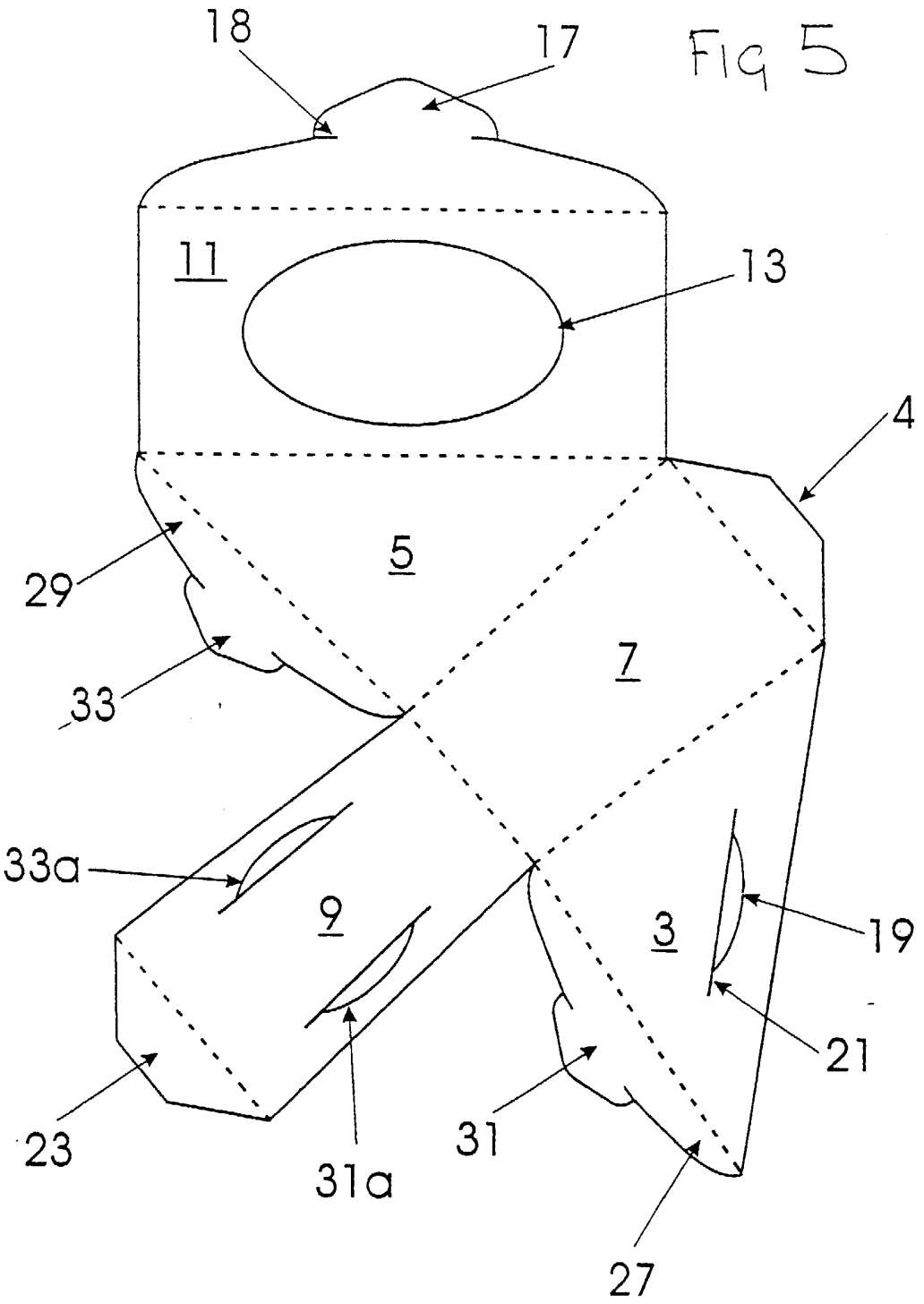


Fig 5

Fig 6

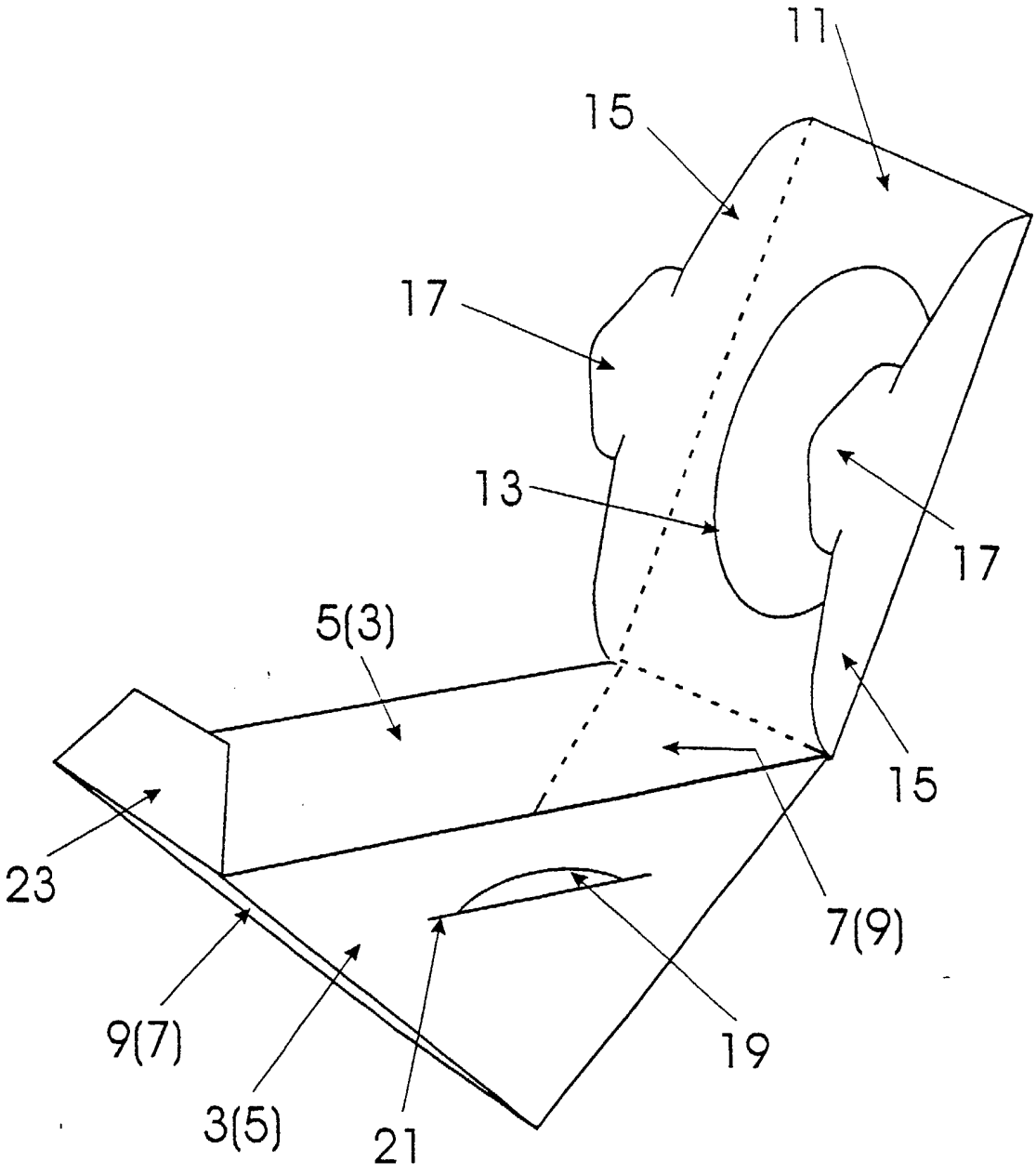


Fig 7

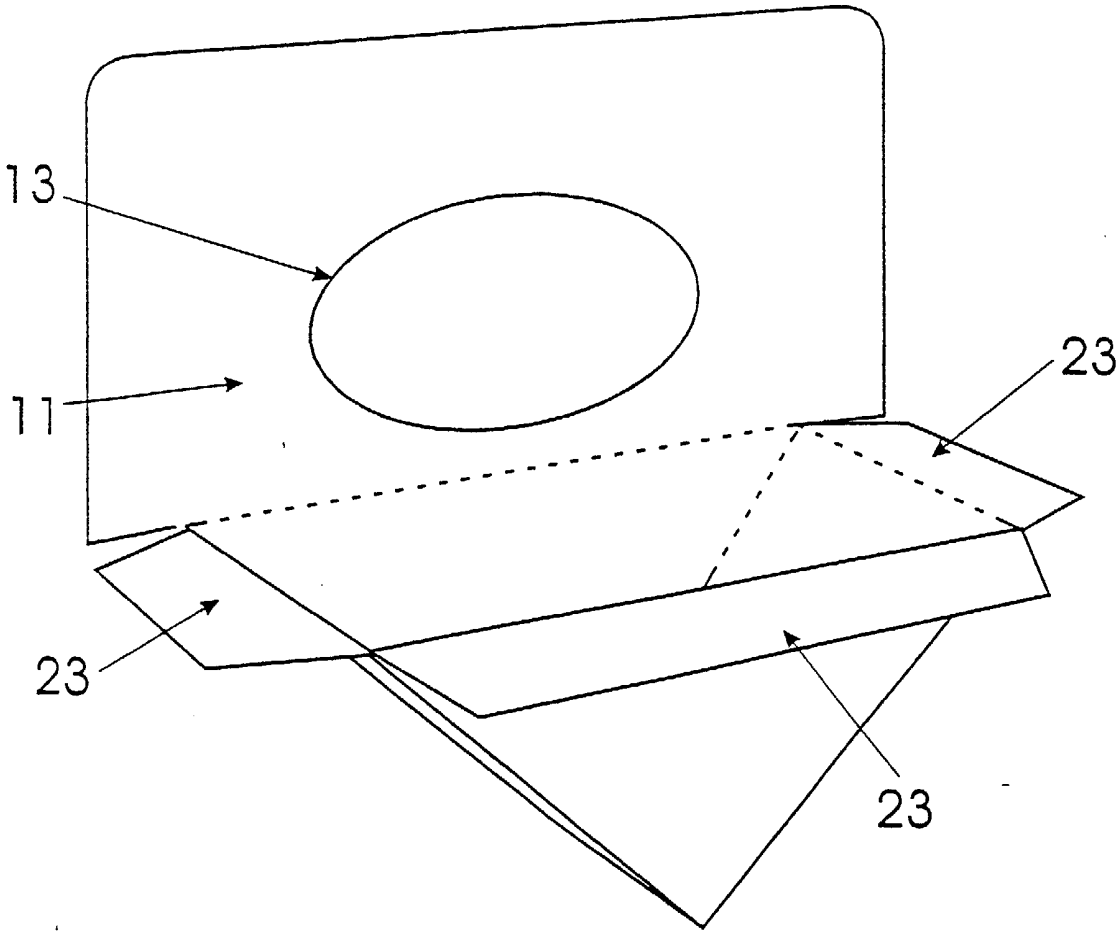
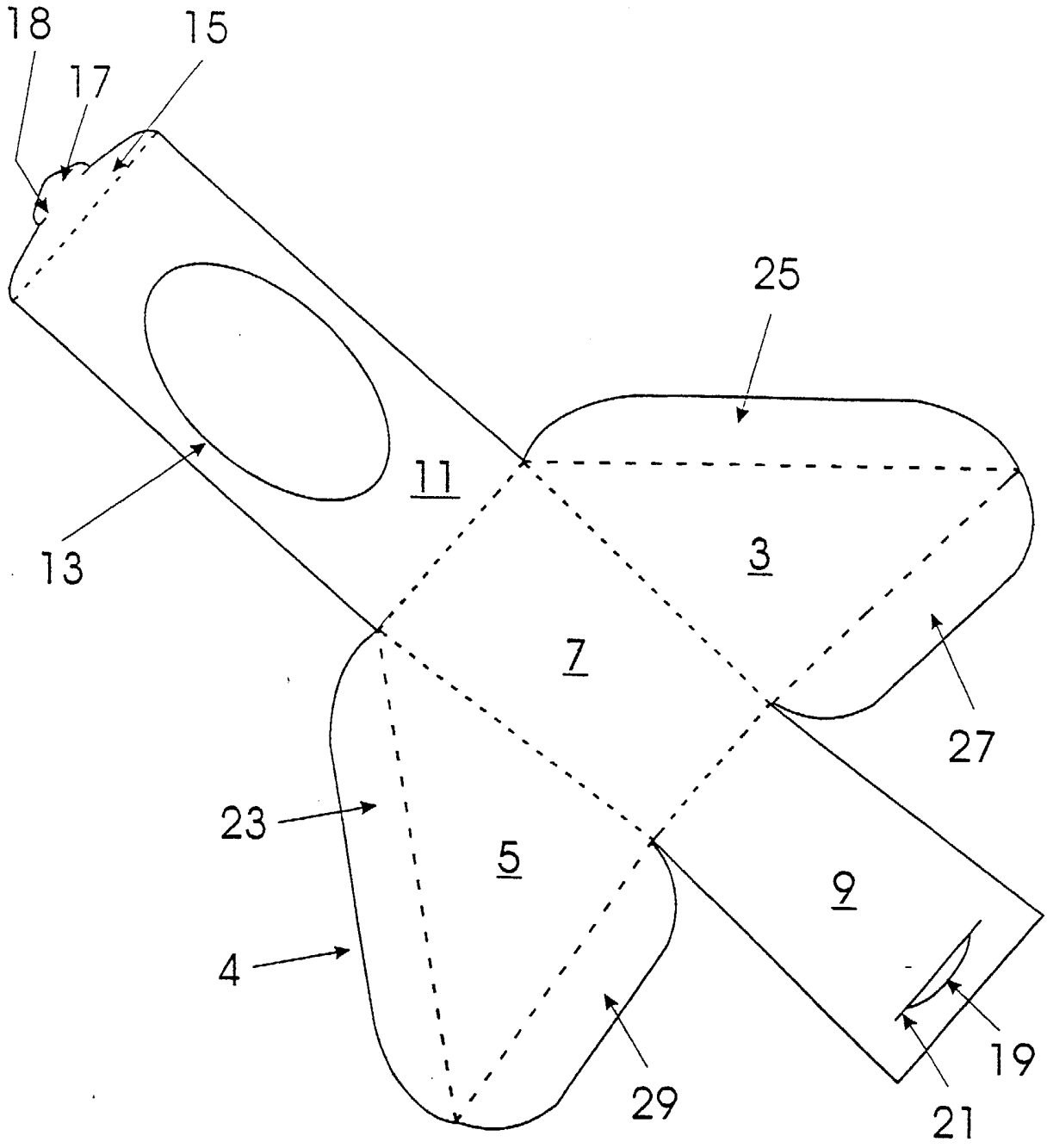


Fig 8.



PACKAGING SANDWICHES

This invention relates to a carton for use in packaging sandwiches, a blank for making the carton, and a method of packaging using the carton.

During recent years, sandwiches have increased in importance as a take-away food item. Originally sandwiches were supplied in paper bags, but these do not provide resistance to crushing. For some years, most sandwiches sold by retail have been packed in vacuum-formed plastics packs. Although robust and light in weight, plastics packs are environmentally unfriendly and cannot be disposed of easily because of their elastic memory. These packs do not have a surface on which details of ingredients may be printed, and for this reason it is difficult to develop brands of sandwiches. The plastics packs are also shaped so as to occupy more shelf space than required by sandwich volume. Sandwiches may also be wrapped in transparent plastics film, but this too cannot be printed with details and the sandwiches remain at risk of crushing.

One example of a carton designed specifically for triangularly-shaped sandwiches is that disclosed in patent specification GB No 2 221 449A. This carton is assembled from a blank which has a relatively complicated arrangement of side panels and flaps adjoining a triangular face panel which forms one side of the carton. The sandwich is inserted into the carton from the other side, and the remaining side panel closed over it. A window in a rectangular panel between the two face panels is covered in transparent film and allows the edge of the sandwich to be viewed. The sandwich is in contact with the interior of the carton, which must therefore be made from card provided with a grease-resistant coating.

Another example of carton intended for sandwiches is that disclosed in patent specification GB No. 2 331 291A, which has triangular end walls connected by rectangular side walls. One side wall of the carton is hinged to another wall of the carton to provide an opening for insertion of a sandwich and to form a lid for closing the opening. The edges of the lid and edges of the carton extending from the hinge

have integral tabs connected by a fold line whereby the tabs fold inwardly beneath the lid as it is closed over the opening to assist in retaining foodstuff in the carton. A window covered by transparent film is preferably provided and a fold line may facilitate flattening of the carton. The appearance of the lid and one of the triangular end walls suffers from the fold line which passes through them, while the appearance of the other triangular side wall suffers from a dividing line between two panels from which it is formed. The legibility of printing on the carton is therefore adversely affected and the area available for printing effectively reduced.

According to one aspect of the invention there is provided a sandwich carton comprising a pair of oppositely disposed triangular side walls, a quadrilateral bottom wall extending between first edges of the triangular walls, a second bottom quadrilateral wall extending between second edges of the triangular walls, and a lid adjoining an edge of one of the walls and covering the free edges of the remaining walls, the lid having therein a viewing window.

According to another aspect of the invention there is provided a blank for a sandwich carton having a pair of trapezium-shaped panels arranged with the parallel sides of one panel parallel to those of the other, a pair of triangular panels, and a substantially rectangular panel adjoining one of the other panels, fold lines separating each panel from that or those adjoining it.

A carton made from a blank according to this latter aspect may be stacked and is therefore more suitable for automated packing, whether or not sandwiches are wrapped before packing. The proposed design also allows cartons to be erected without the use of adhesive flaps, thereby simplifying assembly, and allowing the lid to be closed without applying an adhesive label.

Other aspects of the invention reside in a method of using a carton to package sandwiches, and a pack of sandwiches produced thereby.

Preferred forms of carton and carton blank and methods of assembly and packing will be described in more detail with reference to the drawings and have the advantages explained below. In particular, except for the space occupied by the viewing window, substantially the entire surface area of the carton may be printed with information concerning the brand and type of sandwich, as well as nutritional information. Because no fold lines pass through the lid and triangular sides, which are each formed in one piece, the clarity of the printing is not adversely affected.

The carton is economical to produce, light in weight, and environmentally friendly using sustainable and fully recyclable materials. The carton is also user friendly and tamper evident. Extras may readily be placed in the packaging, including collectibles, napkin, lemon, salt, pepper, etc.

The proposed carton occupies 14.5% less shelf space than comparable plastics pack products. Distribution costs are therefore reduced.

The proposed packaging is more robust than the known sandwich carton and gives greater security during transit and handling. By packing the carton with sandwiches wrapped in plastics film, their shelf life is increased and they are protected against crushing, ensuring that they reach the consumer in the best possible condition.

In the drawings:

Figure 1 is a perspective view showing an erected carton for sandwiches, with the lid open,

Figure 2 shows a blank for use in forming the carton shown in Figure 1,

Figure 3 illustrates diagrammatically one method of forming the cartons,

Figure 4A illustrates diagrammatically one method of forming and using the cartons, viewed both in elevation and plan,

Figure 4B illustrates diagrammatically another method of forming and using the cartons, viewed both in elevation and plan,

Figure 5 shows a modified blank,

Figure 6 shows a carton having a modified lid,

Figure 7 shows a carton having another modified lid,

Figure 8 shows a blank for modified carton similar to that shown in Figure 6.

Referring to Figure 1, a carton 1 for use in retailing sandwiches is formed in one piece from cardboard with triangular front and rear side walls 3 and 5 respectively, joined by trapezium-shaped bottom walls 7 and 9. The walls 3, 5, 7 and 9 define a trough of triangular profile, dimensioned to receive one or more rounds of sandwiches cut diagonally. A lid 11 extends from the rear wall 5. The lid has an opening or viewing window 13 through which the contents of the carton may be seen and which, as shown, is oval in shape but can have any other shape. A carton intended to contain salmon sandwiches might, for example, have an opening 13 in the shape of a fish, whilst one intended for sandwiches to be sold at a tennis match might have an opening 13 shaped to represent tennis racquets. Extending along the longer, free edge of the lid 11 is a flap 15 formed with a tongue 17. The tongue is undercut by slits 18. The triangular front wall 3 has a segment shaped opening 19 from which slits 21 extend in line with its straight edge. The lid may be folded down to cover the trough formed by the walls, the flap 15 folded over to cover the upper edge of the front wall 3, and the tongue 17 inserted into the opening 19 and slits 21 wherein it is held firmly in place. Dust flaps 23 and 25 on the free edges of the walls 7 and 9 underlie the shorter edges of the lid.

A preferred blank 2 for assembly into the carton 1 is shown in Figure 2 wherein corresponding reference numerals are employed to indicate corresponding parts.

Fold lines are indicated by broken lines. The blank includes a main portion 4 divided by fold lines b and c into a tapering, trapezium shaped panel 7 disposed between triangular panels 3 and 5. A panel 9 of tapering, trapezium shape is separated from the panel 7 by a fold line a. A rectangular panel 11, which will serve as the lid, is separated from the triangular panel 5 by a fold line d. Flaps 27 and 29 are provided on the blank panels 3 and 5. Fold lines between panel 3 and flap 27 on the one hand, and between panel 5 and flap 29 on the other, form extensions to the fold line a between panels 7 and 9. To assemble the carton, the panel 9 is folded into a position at an angle to panel 7 and the flaps 27 and 29 are glued to the edges of the panel 9 in the regions 27a, 29a. The angle V between the fold lines b and c separating the panels 3 and 5 from the panel 9 is between 90° and 94° and is preferably 92° so that the walls 7 and 9 in the erected carton meet at an angle slightly greater than a right angle. The angle W between each edge of the panel 7 and the fold line a separating panels 7 and 9 is between 92° and 96° and preferably 93.75°. A stack of cartons assembled from blanks 2 and in the erected condition shown in Figure 1 may therefore be nested with the lids arranged in parallel planes behind one another.

Because of the illustrated arrangement of the panels and the fact that only two flaps (27, 29) need to be glued in place in order to assemble the carton, the blank lends itself to automated assembly. In one method of assembly depicted in Figure 3, blanks 2 are fed successively in the direction of arrow X into a position in line with a triangular former A. During this movement, the flaps 27, 29 are coated with hot melt adhesive. The former reciprocates vertically and carries a blank with it during each upwards movement. The former cooperates with guides to cause the panels 7 and 9 to be positioned at the desired angle relative to each other. The flaps 27, 29 engage guides arranged in their path and are folded into positions in which they are made to adhere to panel 9. A stack B of cartons is thus formed, with the trough portions nested one within the other, and the lids extending vertically downwards, one behind the other.

The stack of cartons may be supplied to a user who makes and wraps sandwiches by hand in cellophane and packs them by hand into each carton as it is removed from the stack. The user then folds down and fixes the lid using tongue 17. The cartons may be supported on a conveyor belt and passed through a station at which the sandwiches are packed into them. The window 13 is left open and the sandwiches viewed through the cellophane wrapper.

Sandwiches may be packed unwrapped. In this case, the board used for the carton blanks may be coated on the side intended to be in contact with the sandwiches. The viewing window 13 is in this case covered with a film of acetate or other transparent film material glued to the inner side of the lid 11.

Alternatively, sandwiches to be deposited in the cartons may be flow wrapped in a film of cellophane or other transparent material, and the viewing window left uncovered and the board uncoated.

Items, such as a napkin and packets of salt and pepper or collectibles, may be inserted into the carton before closing.

The outer side of the carton provides adequate surface area for printed matter relating to ingredients, manufacturer, brand and so on, without the printing area being obscured by fold lines or lines of separation.

Alternatively, blanks may be supplied to the user in flat condition and erected immediately before packing. As depicted in Figure 4A, a conveyor C (illustrated in elevation and plan) travels in direction Y. In successive stations, a sandwich is prepared, cut diagonally to form two triangular portions D which are stacked one on top of the other, and flow wrapped in cellophane or other transparent foil. Flow wrapping produces a rectangular package E containing the triangular sandwiches. The empty wings of the package are folded over and the package inserted into a carton drawn from the stack B. The filled triangular cartons are then packed into rectangular cartons H for transportation.

In the modified method shown in Figure 4B, after cutting, the two half-portions D are moved slightly apart and left side by side on the conveyor and flow wrapped in this configuration. The spacing between the sandwich halves allows the resulting package E to be folded in half along the line of separation between the sandwich halves, as illustrated at G to form a triangular package F which is deposited in a carton drawn from the stack B. The filled cartons are packed into the rectangular cartons H.

Modifications may be made. In particular, the tongue 17 and slot 19/21 may be omitted and flap 15 secured to the wall 3 by an adhesive label or gluing. Flaps 27, 29 may be provided on the panel 9 instead of on the triangular panels. Alternatively one flap may be on panel 9 and the other on one of the triangular panels. The flaps 23, 25 may be provided on the lid.

In an alternative mode of assembly, the flap 15 is glued to the longer, free edge of panel 3, and the flap 23 glued to the lid. The panel 9 is initially left unaffixed, thereby providing an opening through which the sandwiches may be inserted, before gluing the flaps 27, 29 in place. A similar effect may be achieved by providing the triangular panel 3 on the lid, in place of flap 15.

Figure 5 shows a blank for a second embodiment of carton which may be erected without the use of adhesive and may be supplied in a flat condition to a retailer for him to erect. The flaps 27, 29 are provided with tongues 31, 33 which are inserted into slots 31a, 33a in the panel 9. In a variant of this modification, one flat is provided on the panel 9, and the other on the main portion 4.

Figure 6 shows a third embodiment of carton assembled from a blank generally as shown in Figure 2 but in which the panel 11 intended to constitute the lid adjoins the edge of panel 7 opposite to panel 9, or the edge of panel 9 opposite to panel 7. Other arrangements may be used to secure the lid. It also falls within the invention for one triangular panel to adjoin one trapezium-shaped panel, and for the other

triangular panel to adjoin the diagonally opposite side of the other trapezium-shaped panel. Figure 7 illustrates a further embodiment in which the upper edges of three of the four walls have folded over flaps 23 to which the lid 11 is glued in order to close it. In this case the lid need not be rectangular in shape and may be wider than the carton when closed. In an embodiment, such as that shown in Figure 7, in which the lid is glued to flaps on the walls of the carton (or flaps on the lid are glued to the walls of the carton), tear strips formed by lines of weakening may be provided in order to allow the lid to be torn open. Alternatively, the lid may be held to the flaps 23 shown in Figure 7 by a peelable adhesive which permits the lid to separate from the flaps when force is applied.

The blank shown in Figure 8 may be used to assemble a carton similar to that shown in Figure 6 but having a tongue 17 arranged to be retained in a slot 19/21 in the bottom wall panel 9, and with dust flaps 23, 25 arranged along the edge of the triangular panels 3, 5.

The panels 7 and 9 may be rectangular if it is desired to produce a non-nesting carton. The lid need not have a window opening if it is not desired to allow inspection of the contents of the carton.

It will, of course, be understood that the arrangements of flaps and tongues described and illustrated above in the context of any one embodiment of carton or blank, or the use of adhesive labels to secure the lid, may be used in connection with any other embodiment of carton described above.

Also, although the preparation, stacking (when carried out) and packing steps illustrated in Figures 4A and 4B are depicted as being carried out manually, it will be understood that these steps may be carried out by automated machinery, as may the folding-over of the package shown in Figure 4B. The flow wrapping of the sandwiches in Figures 4A and 4B may be carried out using a flow wrapping machine of conventional construction in which each package is sealed and severed from the foil strip along a transverse line.

Reference letters and numerals mentioned in the claims are for convenience only and are not intended to have any limiting effect.

5

CLAIMS

1. A sandwich carton comprising a pair of oppositely disposed triangular side walls, a quadrilateral bottom wall extending between first edges of the triangular walls, a second bottom quadrilateral wall extending between second edges of the triangular walls, and a lid adjoining an edge of one of the walls and covering the free edges of the remaining walls, the lid having therein a viewing window.

2. A carton as claimed in claim 1, wherein the quadrilateral walls are trapezium shaped.

3. A carton as claimed in claim 1 or claim 2, wherein the lid has a flap provided along one edge for attachment to a triangular wall.

4. A sandwich carton having a trough defined by triangular side walls and bottom walls of trapezoidal shape, a lid adjoining an edge of one of the said walls, the lid having at least one flap for attachment to one of the triangular walls.

5. A sandwich carton having a trough of triangular profile defined by a pair of triangular side walls, a first quadrilateral bottom wall which extends between first edges of the triangular walls and a second quadrilateral bottom wall which extends between second edges of the triangular walls; the carton further including a lid provided with a viewing window and adjoining one of the walls and covering the free edges of the remaining walls, the lid having a flap provided with a tongue adapted to be received in a cut-out in the other triangular wall.

6. A carton as claimed in claim 5, wherein the quadrilateral walls are shaped as trapeziums and the angles at the apex of each triangular wall is greater than 90°.

7. A carton as claimed in claim 5 or claim 6, wherein flaps attaching the quadrilateral walls to the triangular walls are glued in place.

8. A carton as claimed in claim 5 or claim 6 wherein flaps attaching the quadrilateral walls to the triangular walls have tongues received in slots.

9. A plurality cartons as claimed in any of claims 1 to 8, arranged in a stack, with the cartons nested and the lids arranged one behind the other in parallel planes.

10. A blank for a sandwich carton having a pair of quadrilateral panels arranged with the parallel sides of one panel parallel to those of the other, a pair of triangular panels, and a substantially rectangular panel adjoining one of the other panels, fold lines separating each panel from that or those adjoining it, the rectangular panel having therein a viewing window.

11. A blank for a sandwich carton comprising:

first and second trapezium-shaped panels (7, 9), the parallel sides of each panel being parallel to those of the other,

first and second triangular panels (3, 5),

a further panel (11) having therein a viewing window, wherein:

the trapezium-shaped panels adjoin each other along a first fold line (a), those edges of the first trapezium-shaped panel which intersect the first fold line being defined by second and third fold lines (b) and (c);

first edges of each of the first and second triangular panels are defined by the second and third fold lines (b) and (c), respectively,

the further panel (11) adjoins one of the triangular panels or one of the trapezium-shaped panels and being divided therefrom by a fold line, the second trapezium-shaped panel (9) is in the form of a flap extending from

that part of the blank incorporating the first trapezium-shaped panel and the triangular panels, and further including,

flaps (27, 29) for affixing second edges of the triangular panels (3, 5) to edges of the first trapezium-shaped panel (7) to form a receptacle of a triangular profile.

12. A blank for a sandwich carton comprising:

first and second quadrilateral panels (7, 9),

first and second triangular panels (3, 5),

a further panel (11), wherein:

the quadrilateral panels adjoin each other along a first fold line (a), those edges of the first quadrilateral panel which intersect the first fold line being defined by second and third fold lines (b) and (c);

first edges of each of the first and second triangular panels are defined by the second and third fold lines (b) and (c), respectively,

the second quadrilateral panel (9) is in the form of a flap extending from that part of the blank incorporating the first quadrilateral panel and the triangular panels,

the further panel (11) adjoins one of the triangular panels or one of the quadrilateral panels and is divided therefrom by a fold line, the further panel having therein a viewing window and being provided on at least one of its edges with a flap, and further including,

flaps (27, 29) serving to affix the second edges of the triangular panels (3, 5) to edges of one of the quadrilateral panels to form a receptacle of a triangular cross-section,

13. A blank for a sandwich carton comprising:

first and second quadrilateral panels (7, 9),

first and second triangular panels (3, 5),

a further panel (11), wherein:

the quadrilateral panels adjoin each other along a first fold line (a), those edges of the first quadrilateral panel which intersect the first fold line being defined by second and third fold lines (b) and (c);

first edges of each of the first and second triangular panels are defined by the second and third fold lines (b) and (c), respectively,

the triangular panels have second edges which form extensions of the first fold line (a),

the second quadrilateral panel (9) is in the form of a flap extending from that part of the blank incorporating the first quadrilateral panel and the triangular panels,

a third edge of the second triangular panel (5) is defined by a fourth fold line (d) between that triangular panel and the further panel (11),

flaps (27, 29) are provided on the second edges of the triangular panels or on edges of the second quadrilateral panel (9), or one flap is provided on a triangular panel and one flap is provided on a quadrilateral panel,

whereby the flaps may serve to affix the second edges of the triangular panels (3, 5) to edges of the first quadrilateral panel (7), and form a receptacle of a triangular cross-section.

14. A blank as claimed in claim 11, wherein the quadrilateral panels are each in the shape of a trapezium.

15. A blank as claimed in claim 14, wherein the included angle between the first fold line (a) and each of the second and third fold lines (b, c) is between 90° and 94°.

16. A blank as claimed in claim 15, wherein the angles of the vertices of each triangular panel are substantially 92°, 44° and 44°.

17. A blank as claimed in any of claims 13 to 16, wherein the further panel has therein a viewing opening.

18. A blank as claimed in any of claims 12 to 17, wherein each of the panels is in one piece and untraversed by an internal fold line.

19. An article of commerce comprising a triangular package consisting of one or more sandwiches wrapped in transparent film, the package being contained with a carton comprising a pair of triangular side walls and quadrilateral bottom walls extending between two edges of the triangular walls, and a lid extending between the third edges of the triangular walls, the lid having a viewing opening through which the film-wrapped package may be seen.

20. An article as claimed in claim 19, wherein each quadrilateral bottom wall is shaped as a trapezium.

21. An article as claimed in claim 19 or claim 20, wherein the lid is in one piece with one of the triangular walls and is secured by a tongue interlocked with a slit in the other triangular wall.

22. A carton or blank therefore substantially as hereinbefore described with reference to and as illustrated in the drawings.

23 A method of packaging sandwiches, comprising drawing a carton from a stack of nested cartons, each carton in which comprises a pair of triangular side walls and quadrilateral bottom walls extending between two edges of the triangular walls, depositing one or more triangular sandwiches in the carton, and closing a lid of the carton extending between the third edges of the triangular walls.

INVESTOR IN PEOPLE

Application No:	GB 0114147.2	**Examiner:**	Darren Williams
Claims searched:	1-3, 5-10, 12, 22	**Date of search:**	22 November 2001

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.S): B8C (CP10, CPA, CWA1); B8P (PB3, PB4, PK3, PK13)

Int Cl (Ed.7): B65D 5/00, 5/02, 75/28, 77/02

Other: Online: JAPIO, WPI, EPODOC

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 2345902 A	(FISHER-MATTHEWS) see whole disclosure	1-3,5,7, 10-12,14, 17-21
X	GB 2331291 A	(RAPID ACTION) see whole disclosure	1-3,7
X	GB 2221449 A	(CHEVERTON) see whole disclosure	1-3,7

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.