(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 296 847**
A2

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **88305722.6**

(51) Int. Cl.[4]: **B65D 5/26**

(22) Date of filing: **23.06.88**

(30) Priority: **24.06.87 GB 8714768**

(43) Date of publication of application:
28.12.88 Bulletin 88/52

(84) Designated Contracting States:
CH DE FR GB LI SE

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(54) Carton.

(57) A carton (10) is formed by cutting and folding a piece of sheet material. The carton has two opposite side faces (14) each bearing a formation (16) adapted to interlock with a corresponding formation on an adjacent similar carton.

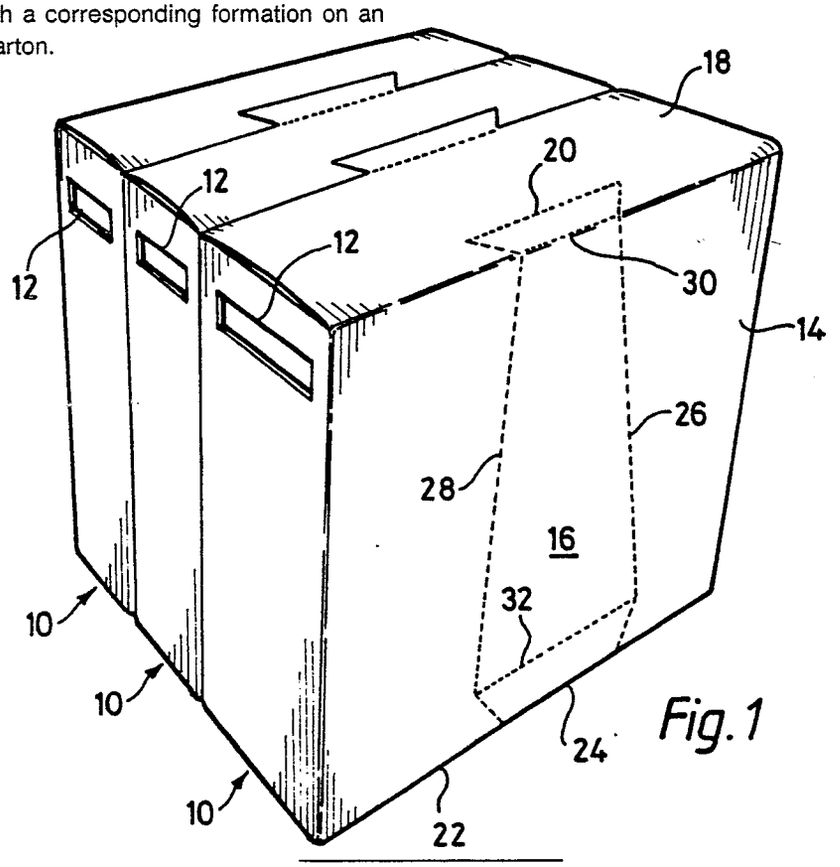

Fig. 1

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Carton

This invention relates to cartons constructed from flat blanks of sheet material and arranged to interlock with each other while standing on their own bases. This invention also relates to a blank for making the carton.

According to the present invention, there is provided a carton constructed by cutting and folding sheet material and having two opposite side faces each bearing a formation adapted to interlock with a corresponding formation on an adjacent similar carton.

In one embodiment, one side face has a male formation formed by cutting and folding the material of the carton, and the opposite side face has a female formation. In an alternative embodiment, each side face has an inclined plane formed over part of its area with one end of the plane lying within the interior of the carton and the other end extending outside the carton. The inclined planes on the opposite faces of one carton will be parallel to one another. The width of the inclined plane portion may be greater at one end than the other, and in this case the direction of taper of the plane on one side will be opposite to that on the other side of the same carton.

The carton is preferably constructed from a single blank made from a single piece of sheet material.

The formations on the side faces are preferably adapted so they can be popped out or popped in relative to the side faces to take up the required shape. In one embodiment, the fold lines are arranged so that the formations take up their "popped out" or "popped in" shapes on making up. On the end carton of a group, the formation on the side face which will form the end face of the group is redundant, and can be repositioned so as to form a continuous side face for the carton, with the formation not being popped out or being popped back as the case may be.

The formation on the side face preferably extends generally vertically, although a horizontal arrangement would also be possible. The formation may extend part or the full height (or width) of the respective side face.

A carton according to the invention can have a ribbon dispensing slot in one vertical edge, and may have a base area substantially smaller than the side area.

The carton, and the blank from which it is made up can be made of cardboard or alternatively other sheet materials such as plastics sheet material.

In another form of the invention, the carton may have one open face.

The invention also provides a blank from which a carton in accordance with the invention can be made up.

The invention will now be further described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 shows a group of three cartons in accordance with the invention with the cartons interlocked with one another;

Figure 2 is a perspective view of one of the cartons of Figure 1 illustrating the interlocking formation;

Figure 3 shows a cardboard blank from which the cartons of Figures 1 and 2 are constructed;

Figure 4 shows two interlocked cartons which constitute a second embodiment of the invention;

Figure 5 illustrates a carton forming a third embodiment of the invention;

Figure 6 shows three cartons of the type illustrated in Figure 5, interlocked with one another; and

Figure 7 shows an open-sided carton forming a fourth embodiment of the invention.

Figure 1 shows three cartons each for containing and dispensing material in the form of a tape. A roll of tape is stored inside each carton, and the end of the tape can be withdrawn through a dispensing slot 12. Cartons or boxes of this type are not very stable on their own because their base area is substantially smaller than the area of their side faces and unless they have some means of support, they tend to fall over when stored on a shelf. However the cartons as shown are interlocked with one another, so that they form a single structural unit which is inherently stable.

The cartons each have opposite side faces of which only one face 14 is directly visible in the drawing. The other face however will be similar to the face 14, but with the interlocking formation inverted.

On the side face 14 there is a pop-out panel 16. This panel is formed directly from the material of the carton and is connected to the top face 18 along a fold line 20 and to the bottom edge 22 along a fold line 24. The panel 16 is then separated from the side face 14 along cut lines 26 and 28 which also extend into the top face 18, up to the fold line 20. Furthermore, the panel 16 is provided with further fold lines 30 and 32.

As a result of this construction, the panel 16 can be popped out from the position shown in Figure 1 to the position shown in Figure 2. It should be noted that the panel does not have to be

popped out; if it is left in the condition shown in the visible end face on Figure 1, then the group of cartons presents a smooth end face.

The opposite side face of the carton (which is not visible in Figure 1 or Figure 2) will also have a pop-out panel which will be identical to that shown in Figures 1 and 2, but will be inverted. This inverted panel is indicated at 16a in Figure 3. Note that the blank shown in Figure 3 is a mirror image of the blank which would be required to produce the carton shown in Figures 1 and 2.

Once the pop-out panels 16 have been popped out on the adjacent sides of two cartons to be interlocked, then the interlocking can take place by bringing the two cartons together along the direction of the planes of the panels 16.

It will be noted in Figure 3 that the panels 16 have shoulders 34 towards their wide end. This enables the cartons to be initially engaged with one another with about one third of the area of their side faces overlapping. Thereafter the cartons are slid into their correct relative positions along the plane of the panels 16 which are in contact with each other.

It will also be noted from Figure 3 that there are no fold lines corresponding to the lines marked 30 and 24 in Figure 1. The fact that there are no such fold lines means that when the carton is assembled, because of the offset between the fold lines 20 and the top edge 36 of the carton and the offset between the lines 32 and the bottom edge 22 of the carton, the panels 16 will automatically pop out.

The other components of the blank shown in Figure 3 are routine in the cardboard carton art and comprise two end faces 38 and 40, a second side face 42, a top panel 44 and a bottom panel 46. Top and bottom inner panels 48 and 50 have slits 52 at their inner edges to receive locking tabs 54 on the panels 44 and 46. The panel 46 and the panel 48 both have edge cutouts 56 (of slightly different shape) to allow the inwardly directed portion of the panels 16 to enter the interior space of the carton and to leave the necessary end opening unobstructed.

A tab 58 is provided for attachment to the inner face of the end 40, and additional closure tabs 60 are mounted on the ends of the faces 38 and 40.

Figure 4 shows a construction which is very similar to that shown in Figure 3, but here the popout panel 16b occupies only part of the area of the side face 14b. Here the next carton will be interlocked from above with the right hand carton shown in Figure 4.

In Figure 6, a slightly different construction is shown with the side wall 70 having a permanently present dovetail projection 72 extending parallel to the wall 70 and along the full height of the wall. A corresponding dovetail recess will be formed on the opposite side wall 74. The manner of construction of the carton lid 76 will be apparant from Figure 5 and includes a dovetail projection 78 and an opposite dovetail recess 80. A bank of these cartons, interconnected with one another is shown in Figure 6.

The invention is not restricted to the type of cartons shown in Figures 1 to 6, all of which are intended for the dispensing of tape or ribbon products. Indeed the invention could also be applied to cartons with an open face such as, for example, cassette sleeves for video cassettes. In this application a construction as shown in Figure 7 can be used where the carton has an open end 90 which remains open and through which the cassette can be inserted, and walls 92 which are folded from plastic sheet material to produce a tapering dovetail socket 94 on one side and a corresponding tapering dovetail projection 96 on the other side.

Although the carton construction described does interfere to an extent with the interior space of the carton, careful design can minimise this interference and/or the overall dimensions of the carton can be increased slightly to compensate if necessary.

Claims

1. A carton (10) adapted to interlock with another carton, characterised in that the carton is constructed by cutting and folding sheet material and having two opposite side faces (14) each bearing a formation (16) adapted to interlock with a corresponding formation on an adjacent similar carton.

2. A carton as claimed in claim 1, characterised in that the carton is generally rectilinear and that one side face has a male formation formed by cutting and folding the material of the carton, and the opposite side has a female formation.

3. A carton as claimed in claim 1, characterised in that each side face has an inclined plane formed over part of its area with one end (30) of the plane lying within the interior of the carton and the other end (32) extending outside the carton.

4. A carton as claimed in claim 3, characterised in that the width of the inclined plane portion is greater at one end (32) than at the other (30) and the direction of taper of the plane on one side will be opposite to that on the other side of the same carton.

5. A carton as claimed in any preceding claim, characterised in that it is constructed from a single blank made from a single piece of sheet material.

6. A carton as claimed in any preceding claim, characterised in that the formations (16) on the side faces (14) are adapted so that they can be popped out or popped in relative to the side faces to take up the required shape.

7. A carton as claimed in claim 6, characterised in that the formations on the side faces are defined by cut lines and fold lines and the fold lines are arranged so that the formations take up their 'popped out' or 'popped in' shapes when the carton is made up.

8. A method of constructing a carton which has two opposite side faces (14) each bearing a formation (16) adapted to interlock with the corresponding formation on a adjacent similar carton, characterised in that the carton is constructed by cutting and folding a sheet material blank.

9. A blank of sheet material which is cut and scored to enable it to be folded to form a carton having two opposite side faces (14) characterised in that each side face bears a formation (16) adapted to interlock with a corresponding formation on an adjacent similar carton.

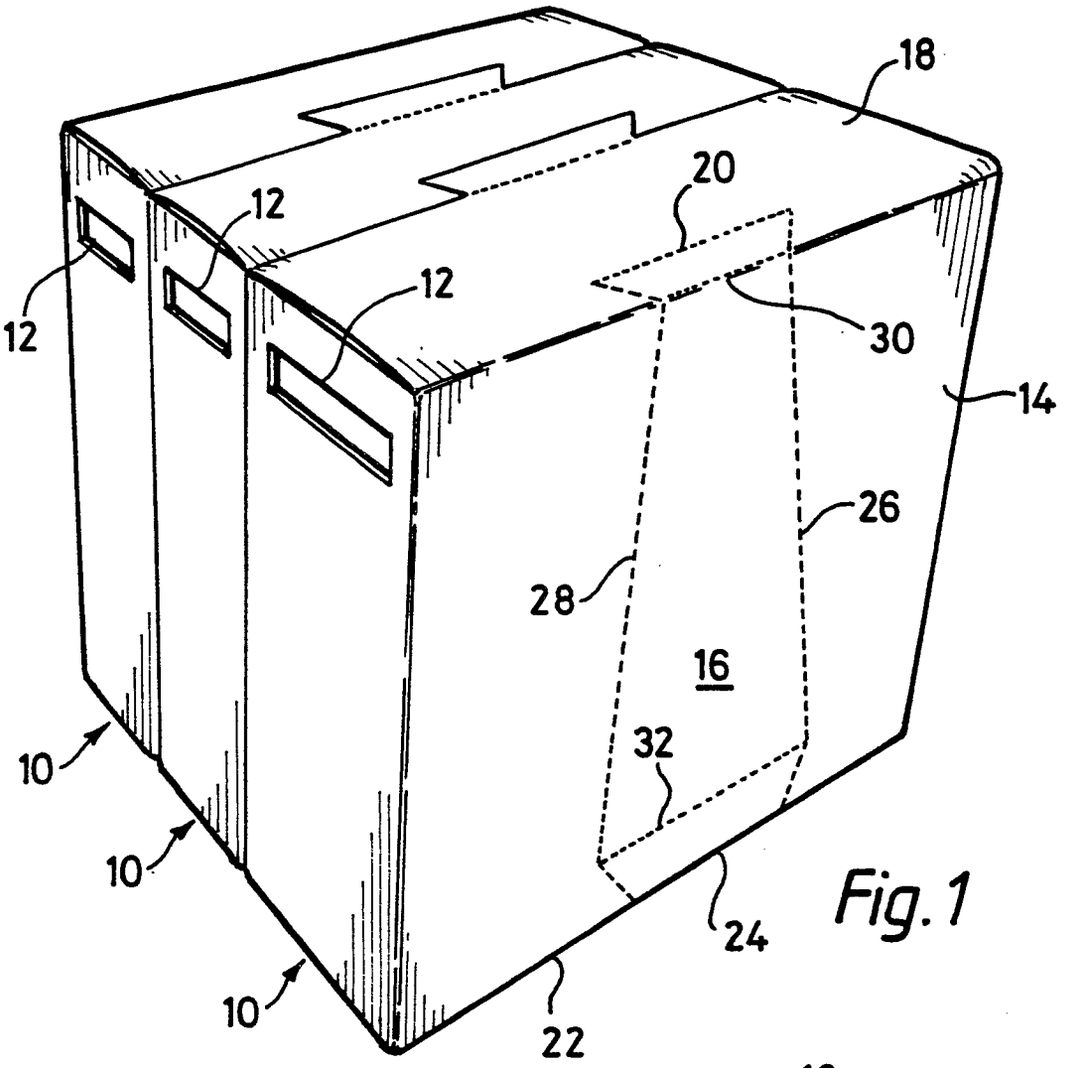

Fig. 1

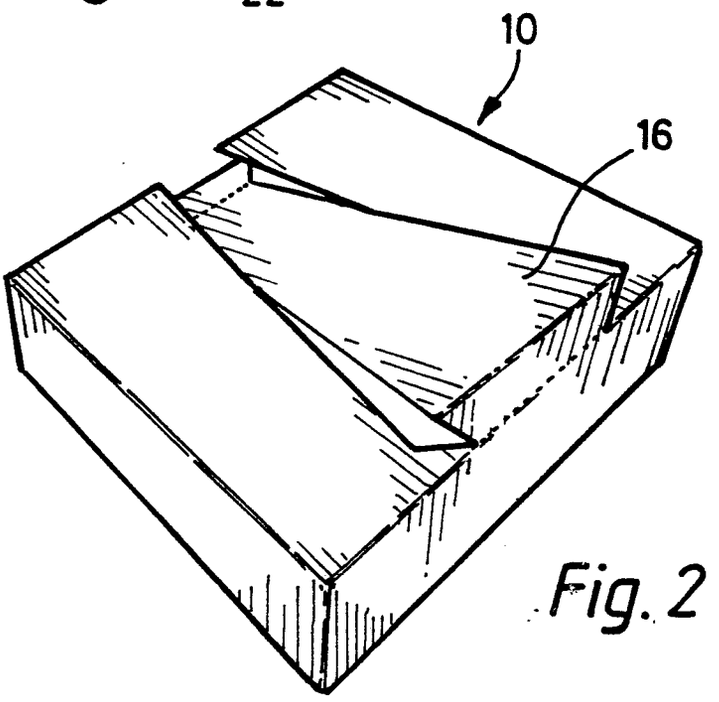

Fig. 2

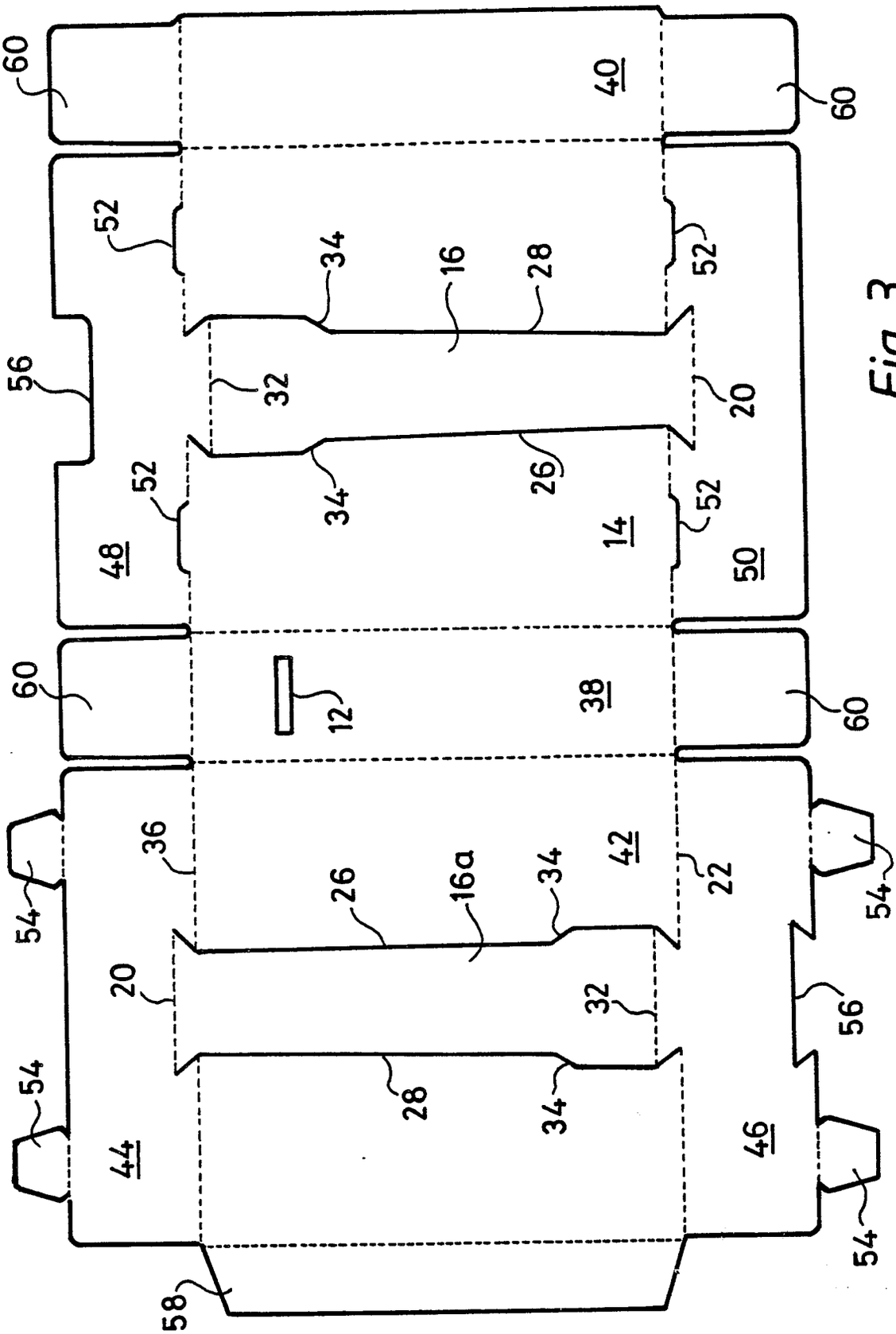
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Fig. 3

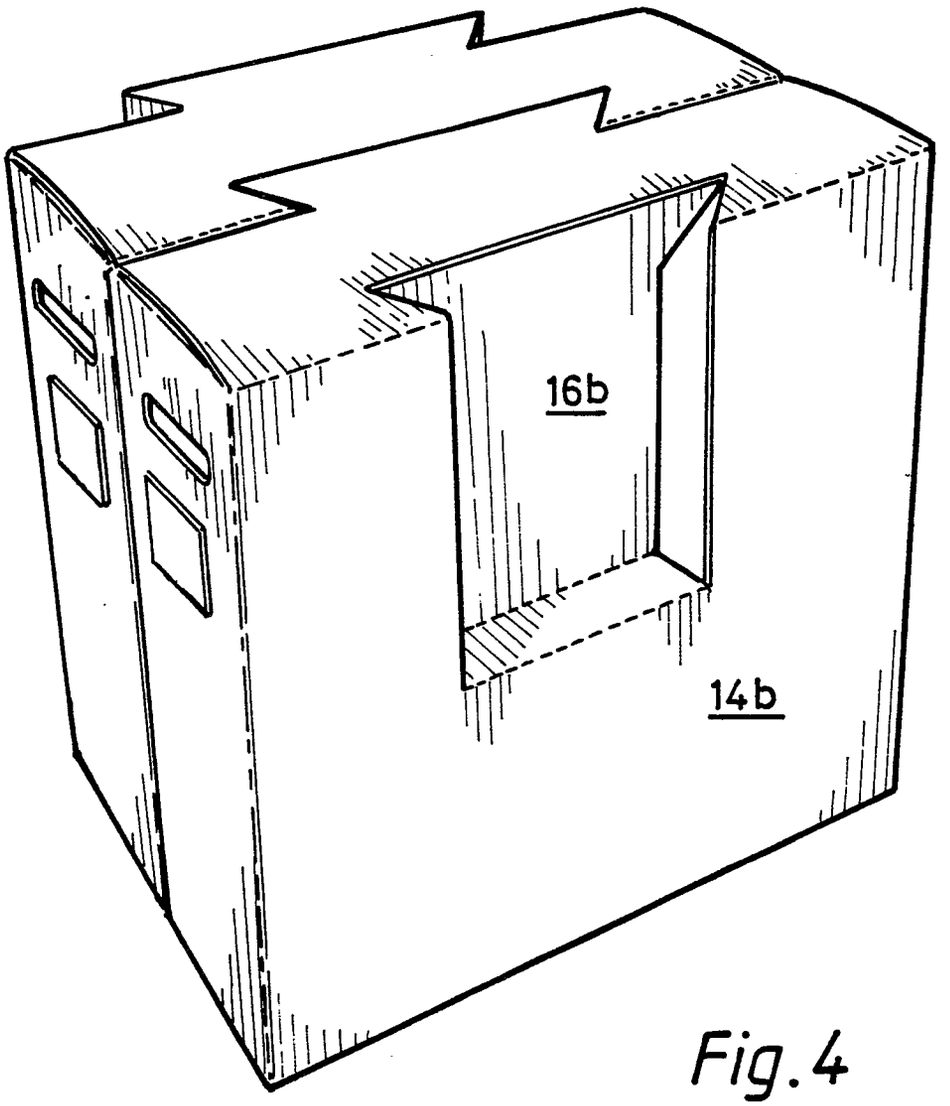

Fig. 4

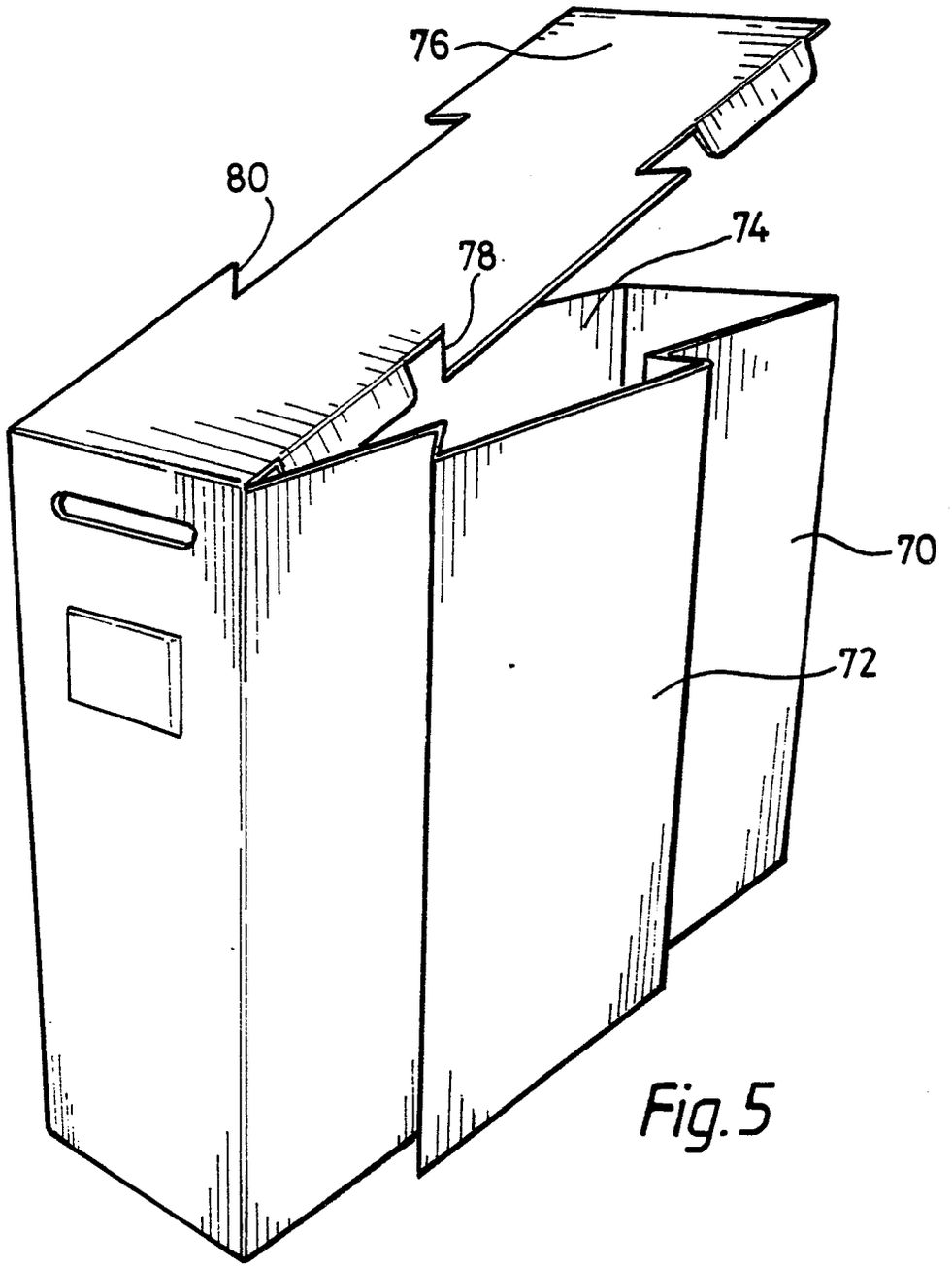

Fig. 5

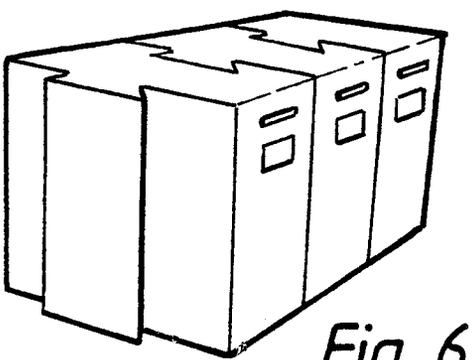

Fig. 6

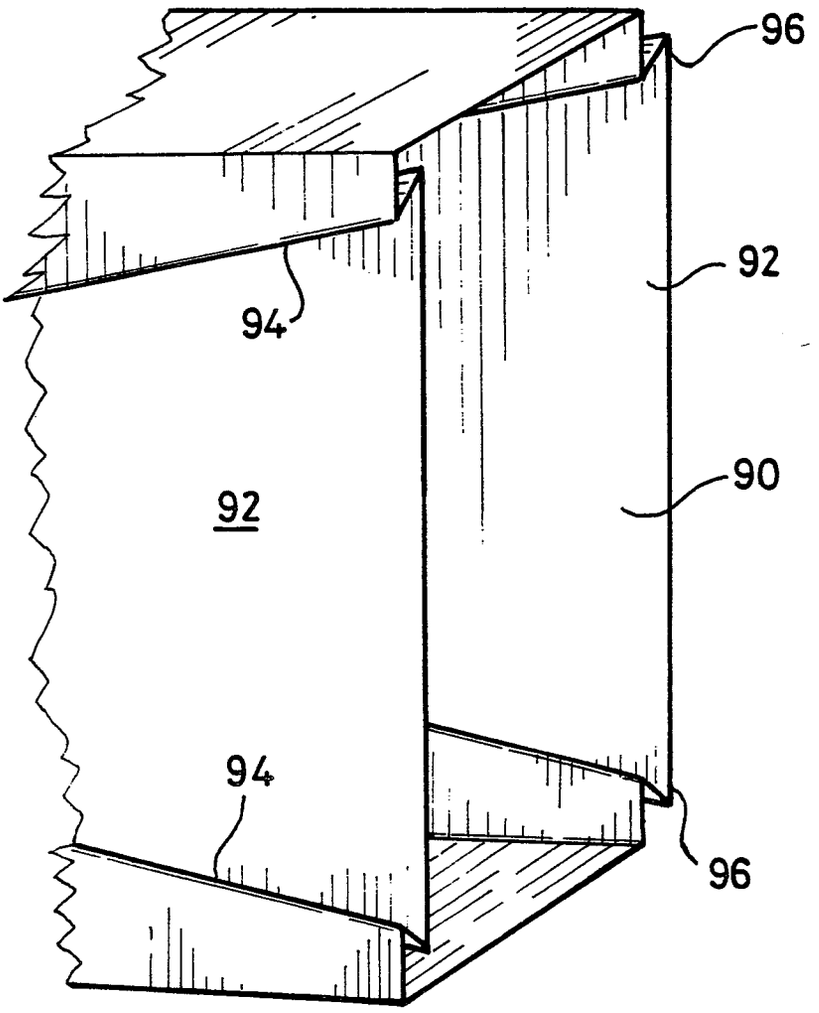

Fig.7