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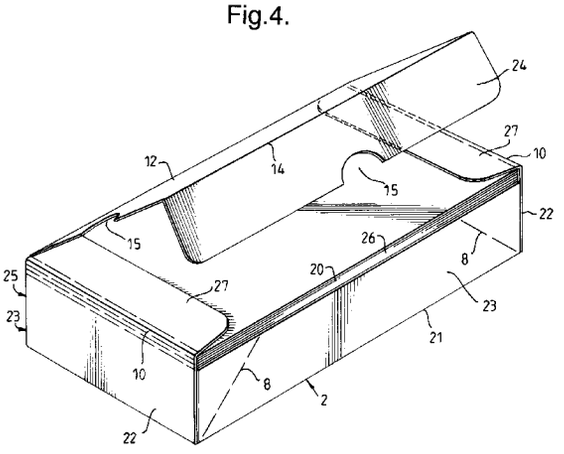
(54) Variable capacity packaging container for stacks of paper.

(57) A variable capacity packaging container for stacks of paper (20) of different heights comprising a rectangular tray portion (21) having first and second pairs of upstanding side walls (22), and a top cover having two or more downwardly dependent sides characterised in that, the dimensions of the first pair of upstanding side walls (23) are sufficient to accommodate and cover first opposed sides of the maximum height of stack with a portion which can be bent over the top of the stack (20), and the downwardly dependent sides (24,25) being of sufficient depth to engage the second pair of upstanding side walls (23) with the same maximum height of stack (20) when said cover is located on said tray portion.

Fig.4.



EP 0 646 530 A1

This invention relates to a variable capacity packaging container for stacks of paper of different heights.

Paper sheets are generally supplied by the manufacturers in stacks consisting of a standard number of sheets, for example a ream of 500 sheets. However, different grades of paper have different weights or substances, typically measured in grammes per square metre. As a result, a sheet of one grade will have a different thickness (or caliper) to a sheet of another grade. A stack of a standard number of sheets for a range of paper grades will therefore vary in height in dependence on the thicknesses of the individual sheets in each stack.

It is known to package such stacks in containers comprising a base with upstanding side walls and a lid with downwardly projecting walls. However, if a stack of a given height is placed in a box intended for a stack of smaller height, the box lid may not adequately enclose and afford sufficient protection to the stack. It is therefore necessary to provide containers of different sizes in order to accommodate stacks of different grades of paper.

It is also known to provide boxes in which a lid is provided which can be opened upwardly by being hinged along one side. The disadvantage with such constructions is that if the boxes are made from a single blank it is expensive or impractical to print one form of decoration on the lid, which could carry advertising material, and a different less expensive pattern on the remainder or to use a different material for the lid to the remainder of the box.

The present invention is intended to overcome some of the difficulties referred to above and to provide a container which has a variable capacity and can thus accommodate sheets of different heights. Moreover, a top cover can be provided which, if desired, can be separate from the lower portion and can thus be printed separately.

According to the present invention a variable capacity packaging container for stacks of paper of different heights comprises a rectangular tray portion having first and second pairs of upstanding side walls, and a top cover having two or more downwardly dependent sides, the dimensions of the first pair of upstanding side walls being sufficient to accommodate and cover first opposed sides of the maximum height of stack with a portion which can be bent over the top of the stack, and the downwardly dependent sides being of sufficient depth to engage the second pair of upstanding side walls with the same maximum height of stack when said cover is located on said tray portion.

Thus, the container has the ability to accept stacks of paper of different heights merely by adjusting the dimensions of the first pair of upstanding side walls.

The downwardly dependent sides of the top cover can either be merely inserted between the second pair of upstanding side walls or they can alternatively be tack glued or held with a piece of tape.

The effect of the construction is that all the side walls of the stack of paper sheets are covered thus protecting them.

The top cover is preferably separate from said tray portion prior to loading the container.

The invention also includes a pair of blanks which are suitably cut to shape and scored to provide bend lines from which the container can be constructed.

Also included in the invention is a container as set forth above or made from the blanks set forth above containing a stack of paper.

A method of assembling a container to provide a package as set forth above is also included within the invention.

The invention can be performed in various ways and some embodiments will now be described by way of example and with reference to the accompanying drawings in which :

Figure 1 is a plan view of a blank from which a rectangular base tray portion container can be made;

Figure 2 is a plan view of a blank from which a top cover for the container can be made;

Figure 3 is a perspective view of the blanks shown in Figures 1 and 2 with the rectangular tray portion blank assembled and ready for use;

Figure 4 is a perspective view of a container loaded with a stack of paper sheets and assembled from the blanks shown in Figure 3;

Figure 5 is a plan view of a blank for forming a rectangular tray portion of another construction according to the invention;

Figure 6 is a blank for forming a top cover for use with the blank shown in Figure 5;

Figure 7 is a perspective view of the blank shown in Figure 5 partly assembled together with the blank shown in Figure 6 ready for use;

Figure 8 is a perspective view of a container made up from the blanks shown in Figure 7; and,

Figure 9 is a perspective view of another construction according to the invention.

Figures 1 and 2 are plan views of blanks made from cardboard which can be made up to form a variable capacity packaging container for stacks of paper of different heights. The blank 1 shown in Figure 1 comprises a rectangular centre portion 2 opposed end flaps 3 and opposed side flaps 4. Each side flap 4 has extensions 5. As will be seen from the drawing bend lines 6 are provided between the centre portion 2 and the end flaps 3 and bend lines 7 between the centre portion and the side flaps 4. The material is scored at these points to facilitate bending. Angled bend lines 8 are provided at each corner of the side flaps 4 and further bend lines 9 extend between the ends of the side flaps 4 and the extensions 5.

A row of defined bend lines 10 extend across each of the end flaps 3.

The blank 11 shown in Figure 2 is for making up the top cover of the container and has a rectangular centre portion 12 and end flaps 13 which are defined from the centre portion 12 by bend lines 14. Cut outs 15 are provided on two side edges of the blank.

The dimensions of the centre portion 12 of the blank 11 are similar to the dimensions of the centre portion 2 of the blank 1.

Figure 3 shows how the blank 1 is made up into a ready for use assembly. Thus each of the fold lines 8 has been bent so that the end of each of the side flaps 4 has been bent inwardly and the end flaps 3 have also been bent upwardly and inwardly along the fold lines 6 so that the extensions 5 can be glued in the positions shown on the inside of each the end flaps 3. The remainder of the side flaps 4 are still aligned with the centre portion 2.

With the blank glued together in this way it is still relatively flat and can be stacked and packaged ready for use. The design of the pack is such that it can be used in a packaging machine in this folded assembly, the machine opening the assembly and loading it with a pre-cut stack of paper.

Figure 4 shows how the opened assembly is loaded with a stack of paper 20. The various parts of the blank 1 have now become parts of the container which thus comprises a rectangular tray portion 21 having a first paid of upstanding side walls 22 which have been formed by the end flaps 3 of the blank. There is also a second pair of upstanding side walls 23 which have been formed by the side flaps 4 of the blank. The centre portion 2 of the blank 1 becomes the base of the rectangular tray portion.

A top cover is provided by the blank 2, the centre portion 12 thereof providing the top and the flaps 13 are bent downwardly along the bend lines 40 to provide two downwardly dependent sides 24 and 25.

In the package shown in Figure 4 the rectangular tray portion is loaded with a stack of sheets which are made of relatively thick paper and it will be seen that the height of the stack exceeds the height of the second pair of upstanding side walls 23. Thus the front face 26 of the pack is exposed. The upper ends 27 of the upstanding side walls 22 are bent inwardly over the stack of sheets 20 using the appropriate bend lines 10. With the stack of thick sheets as shown the upper bend lines will be used so that the height of the lower part of the first pairs of upstanding side walls 22 are at a maximum. The end faces of the stack of sheets is thus covered.

In order to complete the package the top cover is now placed in position, the downwardly depending sides 24, 25 thus extending over the exposed surfaces 26 of the sheets. The sides can be spot glued by previously applying suitable spots of adhesive on the side walls 23 or they could be held with a strip of tape. Alternatively the sides 24, 25 can be pushed down between the stack of sheets and the upstanding side walls 23.

In the arrangement shown one side of the package has been released, for example by pulling apart the spot glue adhesive or releasing the tape and the upper cover of the package has been raised to provide access to the stack of sheets.

The same container can however also be used with a stack of sheets which, due to the their individual thicknesses, is of a lower height than that shown in Figure 4.

With the sheets in position the upper parts 27 of the side walls 22 are bent along different fold lines 10 so that once again the end surface of the stack of sheets is covered but downwardly dependent sides 24, 25 of the top cover now extend further down the upstanding side walls 23.

If desired contact adhesive could be provided on the top cover so that it is held firmly in position and suitable fold or tear lines could be provided on one or both of the upstanding side walls 22, 23, 24, 25. Suitable adhesive would be a band of hot melt adhesive.

It will be appreciated that as the package is made up from two separate blanks the blanks can be preprinted appropriately. Thus an expensive form of printing could be employed on the top to provide an attractive package whereas the rectangular tray portion could be printed with a less expensive form of printing or it can be manufactured from a different material.

In an alternative construction they package is intended to be machine erected around the stack of paper 20. The blanks are the same as those shown in Figures 1 and 2, but the angled bend lines 8 are omitted because the intermediate stage of construction where the blank 1 is partly assembled, as shown in Figure 3, is unnecessary.

The blank 1 is therefore erected and the flaps 5 glued in position by a suitable folding and gluing machine around the stack of paper.

The blank 11 is the same as that shown in Figure 2 and it is again assembled over the made up and loaded tray portion and glued in position by the same or a different machine.

Figures 5 and 6 shown blanks for another form of construction according to the invention in which the various flaps are provided on the opposite sides.

Thus, the blank 30 shown in Figure 5 comprises a rectangular centre portion 31, opposed end flaps 32 and opposed side flaps 33. Each end flap 32 has extensions 34 and bend lines 35 are provided between the centre portion 31 and the end flaps 32, and bend lines 36 between the centre portion 2 and the side flaps 33. The material is scored in a similar way to that described with regard to Figure 1. Angled bend lines 37 are provided at each corner of the end flaps 32 and further bend lines 38 extend between the ends of the

end flaps 32 and the extensions 34.

A row of defined bend lines 39 extend across each of the side flaps 33.

A cut-out 40 is provided in one of the end flaps 32.

The blank 45 shown in Figure 6 is for making up the top cover of the container and has a rectangular centre portion 46 and end flaps 47 which are defined from the centre portion 46 by bend lines 48.

Once again the dimensions of the centre portion 46 are similar to the dimensions of the centre portion 31 of the blank 30.

Figure 7 shows how the blank 1 is made up into a ready for use assembly. In this case each of the fold lines 37 has been bent so that the end of each of the end flaps 32 has been bent inwardly and the side flaps 33 have also been upwardly and inwardly along the fold lines 36 so that the extensions 34 can be glued in the position shown on the inside of each of the side flaps 33. The remainder of the end flaps 32 are still aligned with the centre portion 2.

Figure 8 shows how the opened assembly of the blank 30 is loaded with a stack of paper, again indicated by reference numeral 20, and it will be appreciated that this package works in a similar manner to that described with regard to Figure 4.

Figure 9 shows a similar package to that shown in Figure 8 and the same reference numerals are used to indicate similar parts, in this construction however the cut-out 40 is replaced by a cut-out 50 of different shape and a bend line 51 is provided on the centre portion 46 of the blank which is angled so that the top cover can be bent open in the manner shown.

The construction shown in Figures 5 to 9 can also be made up by machine as described with regards to the construction shown in Figures 1 and 2, and in this case the angled bend lines 37 on the blank 30 can again be omitted, the blanks 31 and 46 again being erected and folded around the stack of paper.

Claims

1. A variable capacity packaging container for stacks of paper of different heights comprising a rectangular tray portion having first and second pairs of upstanding side walls, and a top cover having two or more downwardly dependent sides characterised in that, the dimensions of the first pair of upstanding side walls are sufficient to accommodate and cover first opposed sides of the maximum height of stack with a portion which can be bent over the top of the stack, and the downwardly dependent sides being of sufficient depth to engage the second pair of upstanding side walls with the same maximum height of stack when said cover is located on said tray portion.

2. A container as claimed in claim 1 characterised in that said top cover is separate from said tray portion prior to loading the container.

3. A container as claimed in claim 1 or claim 2 characterised in that two or more bend lines are provided on each of the first pair of upstanding side walls to accommodate stacks of paper of different heights.

4. A container as claimed in claim 1 or claim 2 characterised in that the top cover is scored with a bend line to enable only part of the cover to be opened when the package has been assembled.

5. A container as claimed in claim 4 characterised in that said bend line is arranged in relation to opposed side edges thereof.

6. A container as claimed in any one of the preceding claims 2 to 5 characterised in that the top cover and tray portion are provided as a pair of blanks which have been pre-shaped and scored to provide bend lines.

7. A container as claimed in any one of preceding claims 2 to 6 characterised in that the top cover is printed with a different form of printing to the tray portion.

8. A container as claimed in any one of preceding claims 2 to 7 characterised in that the top cover is made from a different material to the tray portion.

9. A pair of blanks for constructing the container set forth in any one of preceding claims 2 to 8 characterised in that said blanks are suitably cut to shape and scored to provide bend lines.

10. A container as set forth in any one of claims 2 to 8 characterised by being made from the blanks set forth in claim 9 and containing a stack of paper.

11. A method of assembling a package containing a stack of paper characterised by including bending the blanks as set forth in claim 9 about the stack of paper to form the container set forth in any one of claims 1 to 8.

Fig.1.

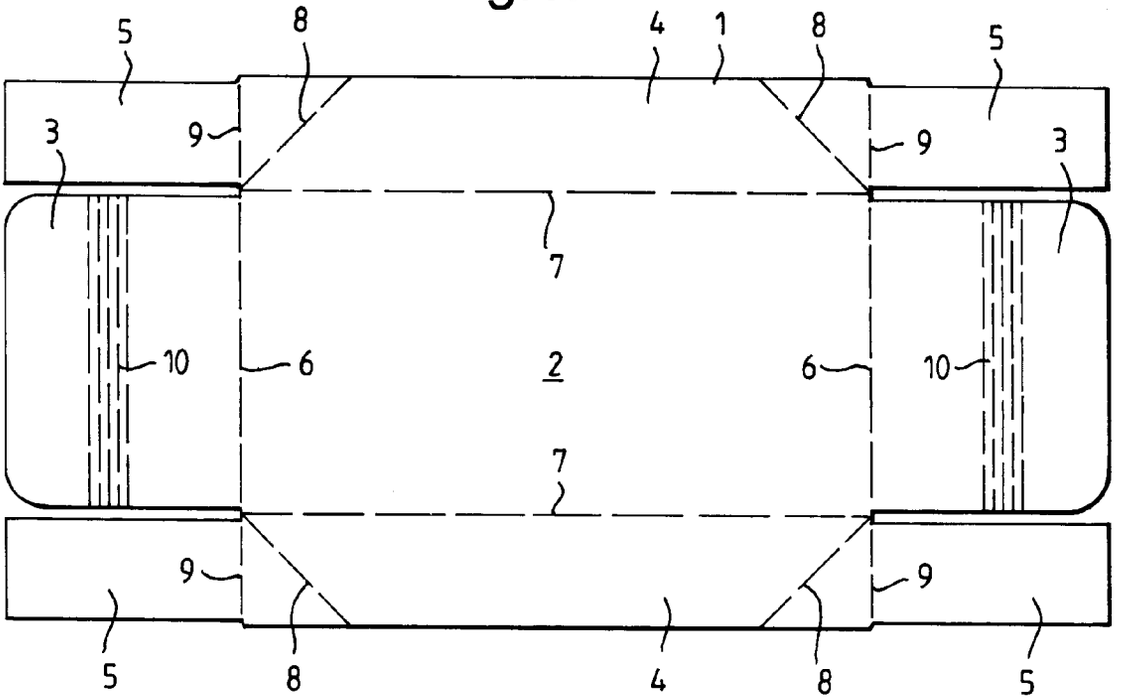


Fig.2.

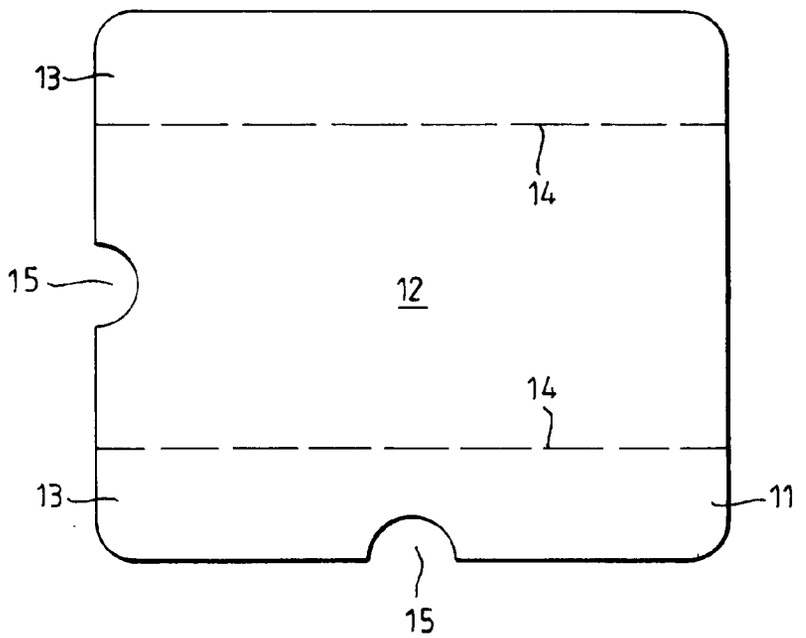


Fig.3.

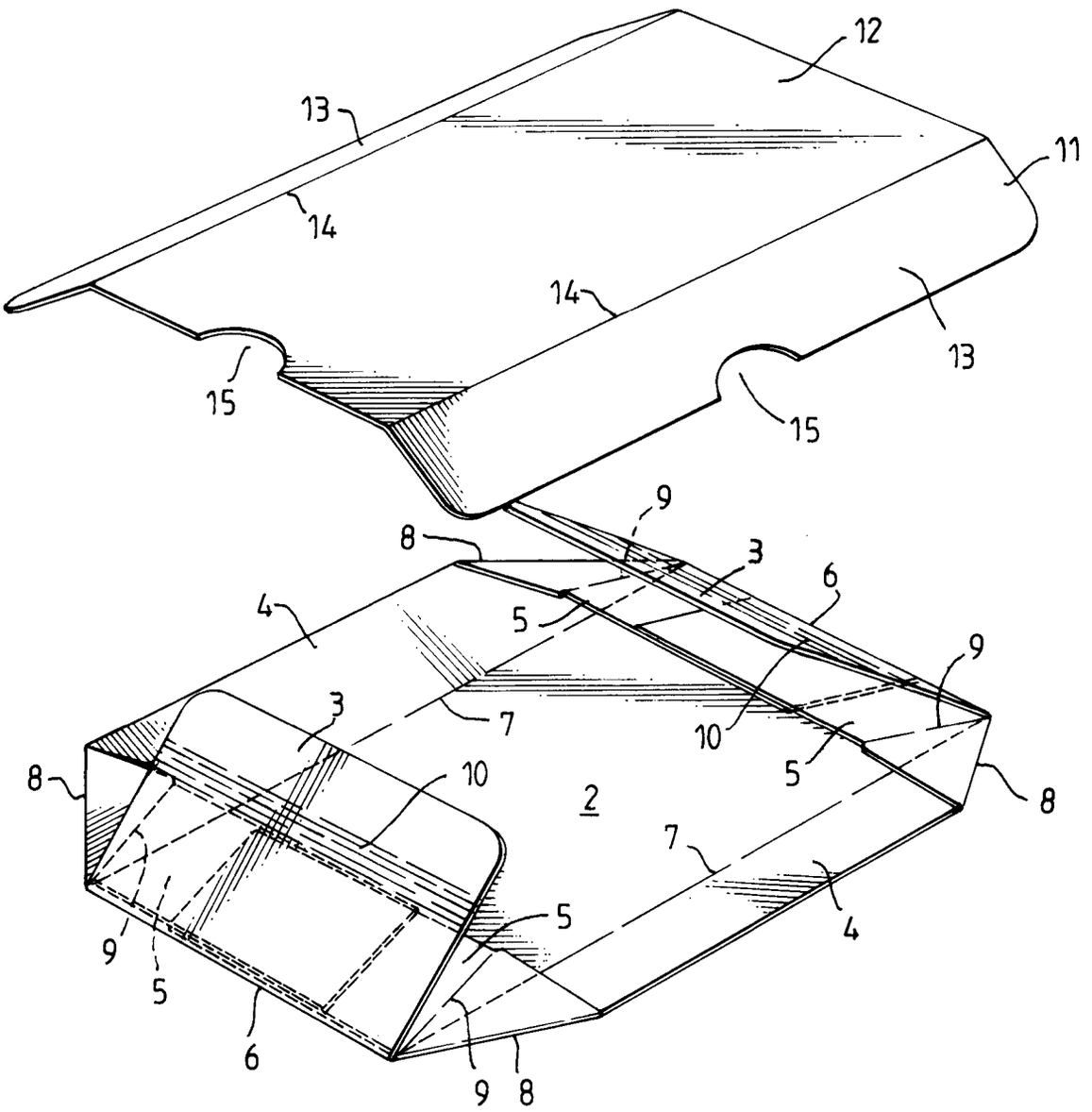


Fig.4.

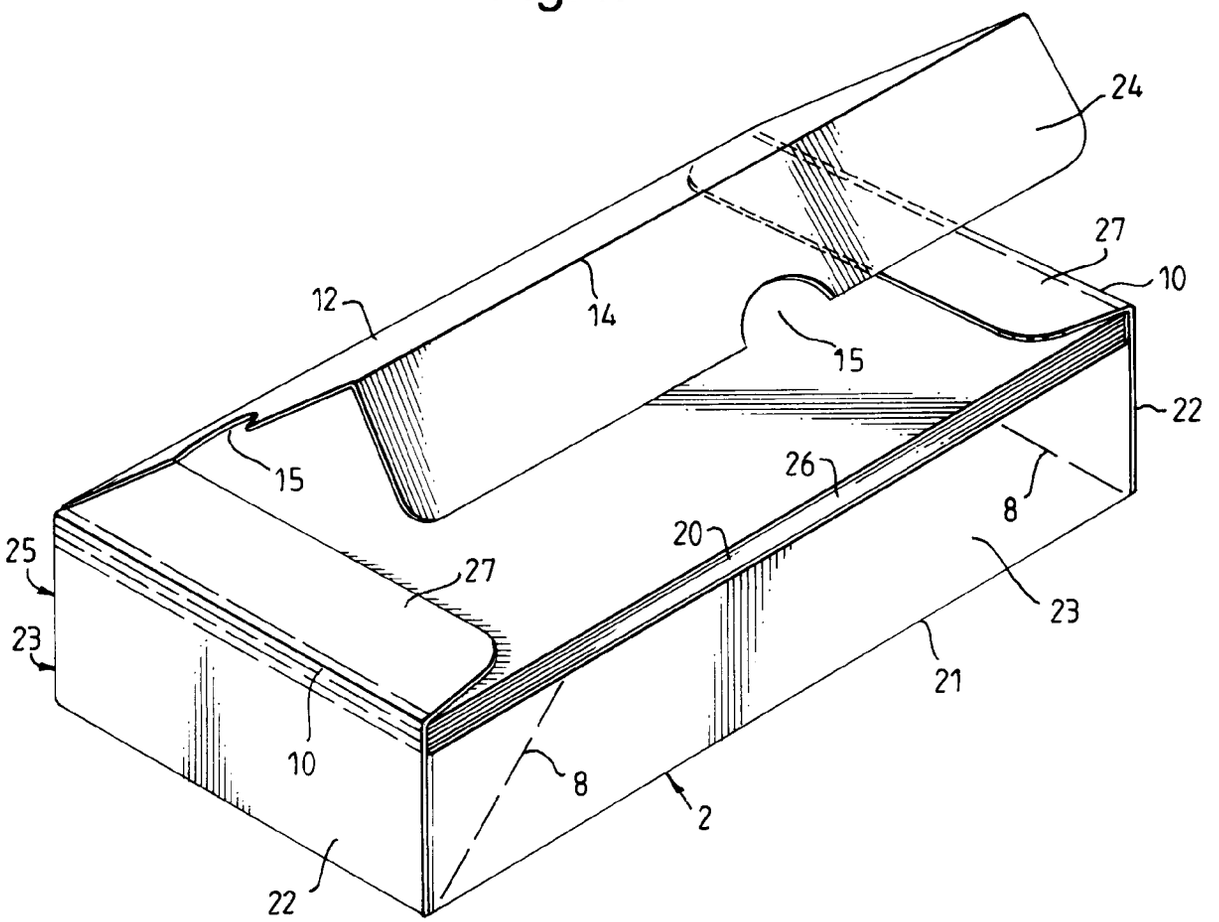


Fig.5.

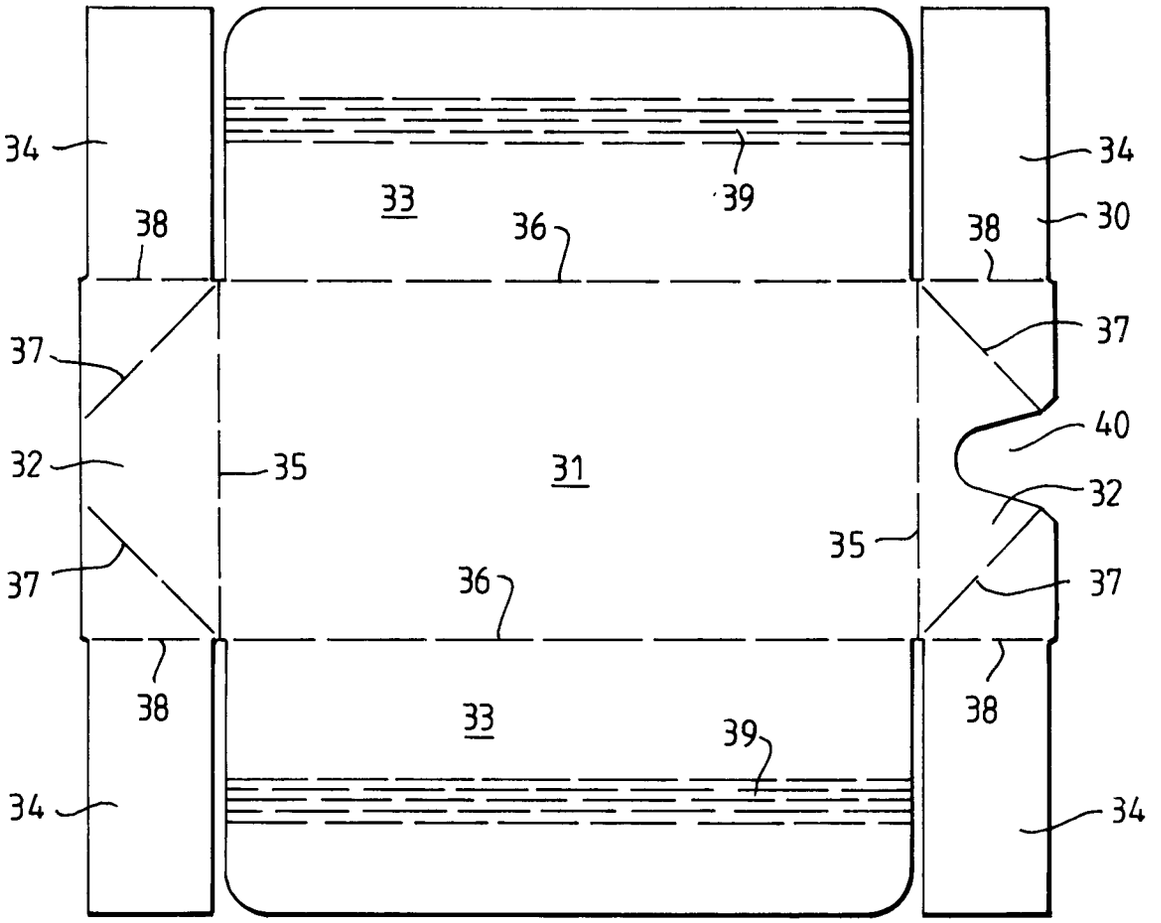

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Fig.6.

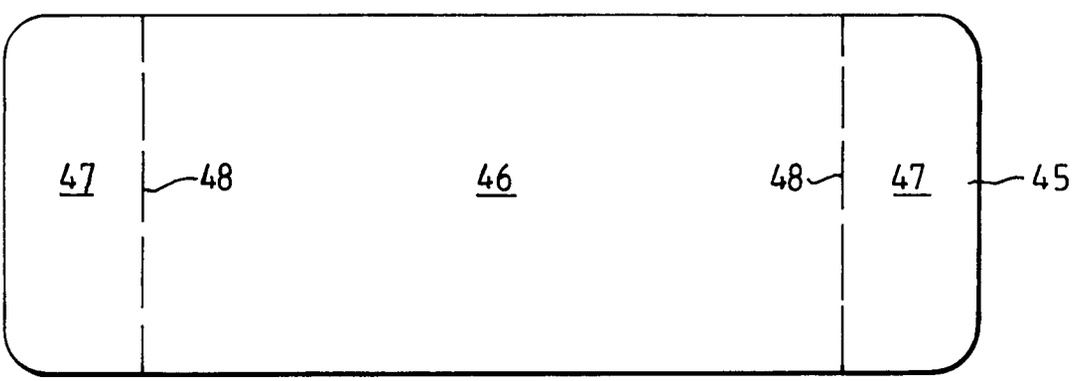
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Fig.7.

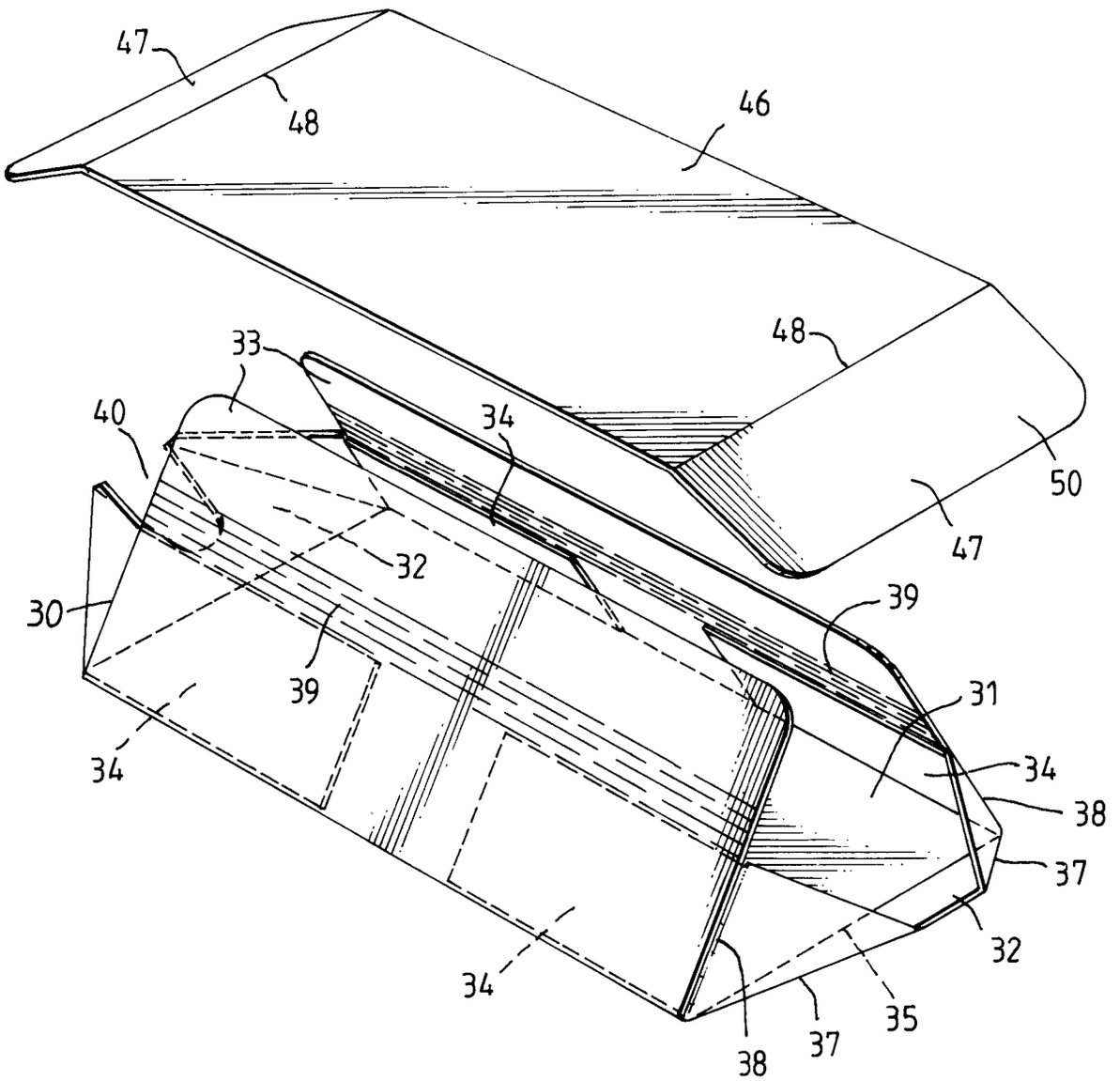


Fig.8.

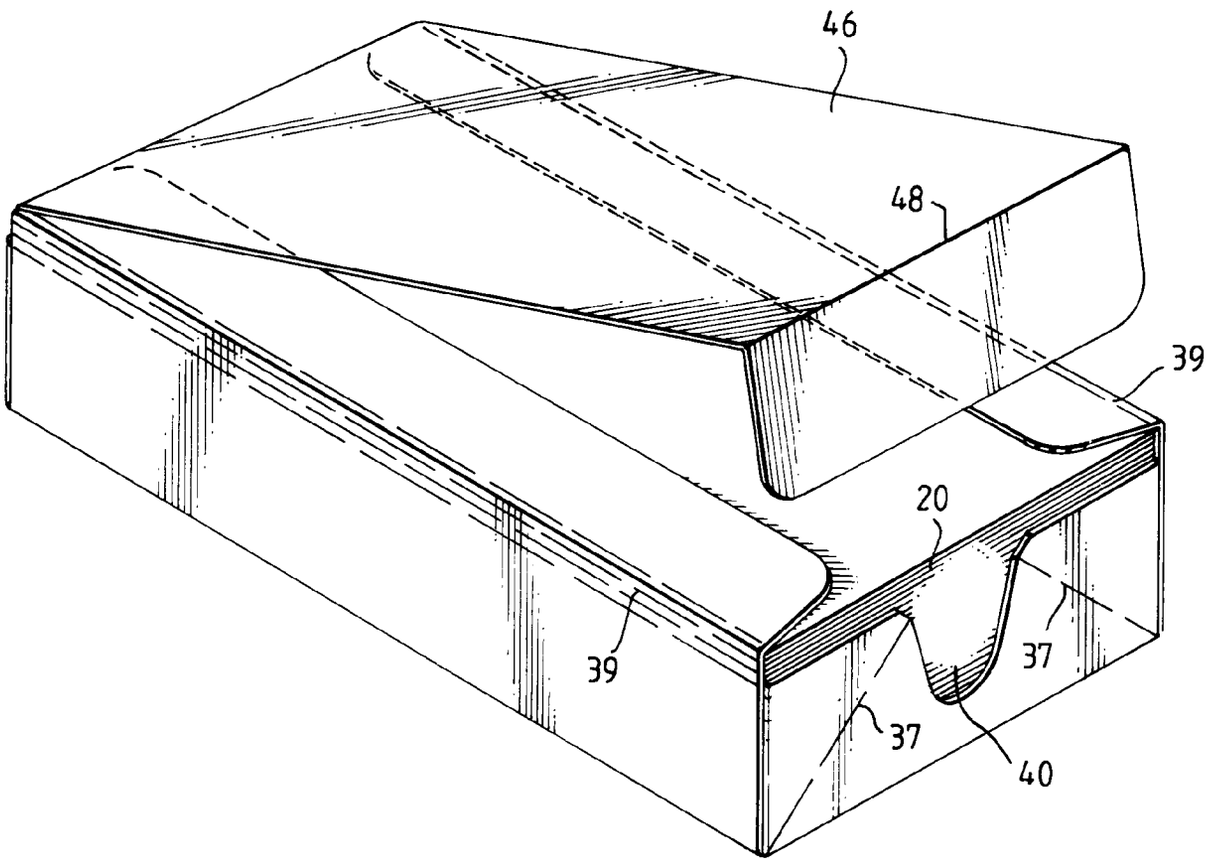
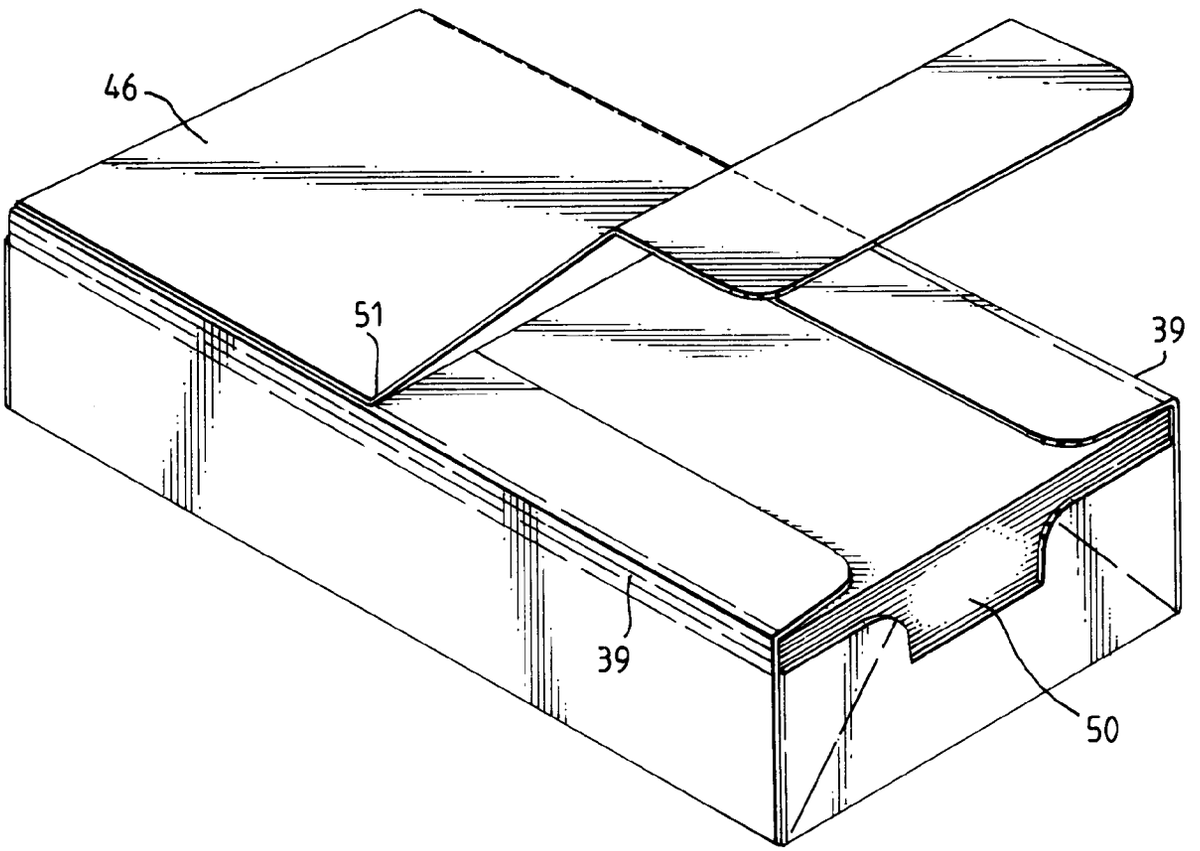


Fig.9.



European Patent Office

EUROPEAN SEARCH REPORT

Application Number EP 94307053.2

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 6)
A	US - A - 2 077 694 (HINTON) * Totality * --	1,3	B 65 D 21/08
A	US - A - 3 313 467 (ANDERSKOW) * Fig. 1,2 * --	1,3	
A	GB - A - 371 751 (MONTAGUE) * Totality * --	1,3	
A	FR - A - 2 240 157 (CHAMPION) * Totality * ----	1,3	

TECHNICAL FIELDS SEARCHED (Int. Cl. 6)

B 65 D 5/00
B 65 D 21/00

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
VIENNA	22-12-1994	WANKMÜLLER

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

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