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(12) # EUROPEAN PATENT SPECIFICATION

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(54) **Display package, display carton and blank therefor.**

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US-A- 4 109 786
US-A- 4 848 563
US-A- 4 957 202

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Description

The present invention relates to display packages and cartons and blanks therefore, and in particular to cartons which can hold one article in their interior and display another article at the same time. Such cartons, for example, may be used to house a tube of toothpaste whilst also displaying a box, e.g. of tubular form, preferably rectangular in cross-section containing a toothbrush, or a blister pack containing a toothbrush; for ease of reference these will be referred to herein as a tube.

We have attempted to produce such an article by modifying a conventional generally cuboidal cardboard carton of rectangular cross section. However we found that when we formed slits transverse to and crossing an edge fold line interconnecting two panels with fold lines along the carton joining the ends of the slits so that the carton when pushed-in-between the slits would invert around the fold lines and produce a rectangular shelf like recess, this resulted in the ends of the slits tearing. Quite apart from being unsightly this meant that when a tube designed to slide as a close fit into the rectangular recess was so inserted it was not held closely in place. Such a carton is shown in US-A-4 848 563.

After some experimentation we have found that the tearing problem can be solved and a more attractive appearance produced by replacing the slits with slots, preferably of fairly wide dimensions, and having rounded ends. The wide dimension facilitates insertion of the tubular article into the end of the recess.

In addition, we have found that if the recess is made of slightly different cross section to the tube it has the advantage of exerting some gripping effect on the tubular article and makes a package of more secure appearance. Thus, e.g. when the recess is non-rectangular the rear wall of the recess can act as a soft biasing spring holding a rectangular article closely against the carton walls.

Thus, according to the present invention a display package comprises a display carton and a display tube adapted to be housed in the display carton, the display carton affording a recess in one edge thereof, characterised in that the ends of the recess are formed by slots, preferably with rounded ends, the cross sectional dimensions of the display tube and the recess being such that the tube is a sliding fit in the recess.

Preferably the recess is non-rectangular in cross section and the tube is rectangular in cross section.

The invention also extends per se to the display carton and to a blank adapted to be folded to form the said display carton, the blank having two or more apertures joined by fold lines, at least one primary fold line (which may form an edge of the carton) extending through the apertures so that folding the blank around the said primary fold line and pushing the region between the fold lines inwardly out of the plane of the blank will cause the said region to fold inwardly and form a recess extending between the said apertures, characterised in that the apertures are slots preferably with rounded ends.

The apertures are preferably joined by three or more fold lines.

The spacing of the fold lines and the spacing of the ends of the apertures from the primary fold line are preferably such as to result in a recess of non-rectangular cross-section.

The invention can be put to practice in various ways and two specific embodiments will be described to illustrate the invention with reference to the accompanying drawings in which:

Figure 1 is a plan view of a blank of a carton in accordance with the first embodiment,

Figure 2 is a cross section of the carton assembled from the blank of Figure 1,

Figure 3 is a perspective view of the carton in Figure 2,

Figure 4 is a side elevation of the carton shown in Figure 3,

Figure 5 is a plan view from above of the carton shown in Figure 3,

Figure 6 is a view similar to Figure 3 but showing a toothpaste tube inserted into the recess visible in Figure 3,

Figure 7 is a plan view of a blank of carton in accordance with the second embodiment, and

Figure 8 is a cross section of the carton assembled from the blank of Figure 7.

Referring first to Figure 1 the blank 61 has four side panels, two wide ones 10 and 12, and two narrower ones 14 and 16.

The panel 10 is attached to the panel 12 via a fold line 17, the panel 12 to the panel 14 via a fold line 19 and the panel 14 to the panel 16 via a fold line 21.

The panel 10 is connected to an edge flap 22 via a fold line 23, the flap being adapted to be glued to the remote margin of the panel 16. The panel 10 has an end panel 24 at one end provided with a tuck-in flap 25. The panel 14 has a similar end panel 26 and flap 27 at the other end. The panels 12 and 16 are each provided at each end with fold-in flaps 28.

Two slots 30 and 32, each having rounded ends 34 and 36, are cut out of the panels 12 and 14 lying transversely across the fold line 19, which will be referred to as the primary fold line, so as each to be disposed partly in the panel 12 and partly in the panel 14. In this embodiment the slots extend further into the narrower panel 12 than they

do into the wider panel 14. The slots are preferably parallel to each other. The width of the slots is typically about 5% of the length of the carton. They could be narrower e.g. 2% or much wider e.g. 10 or 20% but a width of about 5% is convenient and provides sufficient rounding of the ends to avoid tearing on assembly. Put another way, the width of the slots is about 7 or 8% of the distance between the slots or more broadly 5 to 15%. The aspect ratio of the slots, i.e. length to breadth, is about 25%, broadly it could be as low as 10% or as high as 50% or even 100% or more, 20% to 40% being preferred.

The rounding of the ends is preferably hemispherical, i.e. the radius of curvature of the rounding is half the width of the slots. More broadly, the radius of curvature of the rounding could be as low as 15%, 10% or 5% of the width of the slot. The criteria to be fulfilled however is that tearing is to be effectively inhibited. The radius of curvature to be used will thus need to be related to the material which is being used for the carton and the nature of the fold lines.

More than two slots can be provided if desired, e.g. four slots would enable two separate recesses to be formed and two different articles to be secured end-to-end.

The primary fold line 19 extends between the two slots and in this region 35 is scored or creased so that it will fold in on itself readily. The ends of the slots ate also connected by similar scored or creased fold lines 37 and 39.

A further scored fold line 41 extends between the slots disposed just under halfway from the line 35 to the line 37 in the panel 12 and will define the base of the shelf which will be formed in the recess when the carton is assembled as described below.

This scored fold line is also cut with four slits 43 disposed symmetrically along the line and occupying about 40-50% of its length.

These slits ensure that this fold line folds the easiest of all the four lines 35, 37, 39 and 41.

Figure 2 shows the effect of this cut fold line. The view is in the same orientation as Figure 4. The fold line 41 having the least resistance to folding allows the rear wall 45 of the recess or shelf made up of the areas between the fold lines 39, 35 and 41 to adopt an almost planar configuration or one with only a slight bending at the fold line 35. This results in the rear wall sloping down from the fold line 39, slightly towards the panel 12, rather than parallel to it. Similarly the bottom wall or shelf 47 between the lines 37 and 41 slopes down from the line 37 towards the panel 10 rather than extending parallel to it. A non rectangular opening is thus formed. This has the advantage of gripping a rectangular article pushed into the opening.

The carton (60) is erected by folding the flap 22 inwardly and the panels 10, 12 and 14 inwardly around the fold lines 17, 19 and 21. The flap 22 is then glued to the inside of the panel 16 along its free edge. The flaps at one end e.g. flap 26, 27 and 28, are then all folded inwardly and that end closed. A tube of toothpaste is then inserted in the carton. The blank will have been printed as necessary prior to folding.

The carton at this stage does not have the recess shown in Figure 2 or Figures 3, 4 or 5 yet formed.

The carton is then pushed inwardly at the line 41 in the region between the slots 30 and 32. This region then inverts around the line 41 forming the recess having the rear wall 45 and the bottom wall or shelf 47, the rear wall extending between the lines 39 and 41 and the shelf between the lines 41 and 37.

It will be appreciated that if a rectangular recess is desired, e.g. for use with a non-rectangular tube, the distance between the lines 37 and 41 should be equal to that between the lines 39 and 19 (and 35 if present). When as is preferred, as mentioned above, for the gripping function it affords the recess is to be non rectangular this condition is avoided. Clearly the recess can be made more or less close to being rectangular as desired.

Continuing the description of the assembly process a tube, e.g. a rectangular cross section transpatent tube housing a toothbrush, of dimensions such to be a close sliding fit in the recess, is now slid in from the open end past the flap 24, firstly through the end opening to the recess afforded by the slot 32. The tube at this stage may be inclined at an angle to the axis of the carton to facilitate entry to the recess. It thus passes the edge of the opening nearest the end of the carton first and then the other edge. It must then be straightened up and slid along the recess until its leading end passes through the opening afforded by the other slot 30. The flaps 24, 25 and 28 are then folded in and tucked into place to close the end of the carton and complete the assembly process.

Clearly in order to insure that the tube will not fall out of the recess it must be long enough so that when one end of the tube abuts one end of the carton its other end is located between the fat slot 30 or 32 and the other end of the carton.

The tube need not be rectangular and need not be rigid so long as the contents are rigid. Thus a difference in cross section between the recess and the tube can afford some gripping action.

Figure 3 shows the recess in perspective view before the tube is inserted but with both ends closed. Figures 4 and 5 are side elevations and plan views. Figure 6 is a view similar to Figure 3

showing a toothbrush tube 50 located in the recess.

The second embodiment shown in Figures 7 and 8 differs only slightly from the first. The difference is that the lines 35, 37, 39 and 41 ate all scored or creased in the same way. Thus the line 41 does not have the cuts 43 in it. Accordingly it folds in the same way as the lines 35, 37 and 39. This results in the cross section of the recess changing as shown in Figure 8.

The rear wall 45 of the recess now tends to be parallel to the narrower panels 12 and 16 and the bottom wall or shelf 47 tends to be parallel to be wider panels 10 and 14. The region 52 between the lines 35 and 41 slope between the front and rear wall. This region 52 again will perform a gripping function on rectangular or non-matching tubular articles slid into the recess assuming of course that the cross section of the tubular article is such that it will be braced between the panels 14 and 12 and the region 52.

In further modifications (not shown) the fold line 35 may also be provided with slits 43 in the same way as the line 41. Alternatively or in addition a further creased or scored fold line may be provided between the lines 35 and 39 and this may, if desired, also have the slits 43. These arrangements facilitate "popping-in" the carton between the slots 30 and 32, i.e. inverting it to form the recess.

Claims

1. A display package comprising a display carton (60) and a display tube (50) adapted to be housed in the display carton, the display carton affording a recess (62) in one edge thereof formed by pushing inwardly a region between two apertures, characterised in that the ends of the recess are formed by slots (30, 32), the cross sectional dimensions of the display tube (50) and the recess (62) being such that the tube (50) is a sliding fit in the recess.

2. A display package as claimed in claim 1 in which the recess (62) is non-rectangular in cross section.

3. A display package as claimed in claim 1 or claim 2 in which the tube (50) is rectangular in cross section.

4. A display carton as defined in claim 2.

5. A blank adapted to be folded to form a display carton (60) as claimed in claim 4, the blank having two or more apertures joined by fold lines (35, 37, 39, 41), at least one primary fold line (19) extending through the apertures, so that by folding the blank (61) around the said primary fold line pushing the region between the fold lines inwardly out of the plane of the blank will cause the said region to fold inwardly and form a recess (62) extending between the said apertures, characterised in that the apertures are slots.

6. A blank as claimed in claim 5 in which the slots (30, 32) have rounded ends (34, 36).

7. A blank as claimed in claim 5 or claim 6 characterised in that the slots (30, 32) are joined by three or more fold lines (35, 37, 39, 41).

8. A blank as claimed in claim 5, 6 or 7 characterised in that the spacing of the fold lines (35, 37, 39, 41) and the ends of the apertures from the primary fold line (19) is such as to result in a recess (62) of non-rectangular cross section.

Patentansprüche

1. Displayverpackung mit einem Displaykarton (60) und einer Displayröhre (50), die in dem Displaykarton unterbringbar ist, wobei der Displaykarton eine Vertiefung (62) in einer Kante aufweist, die durch Eindrücken eines Bereichs zwischen zwei Öffnungen gebildet ist, **dadurch gekennzeichnet,** daß die Enden der Vertiefung von Schlitzen (30, 32) gebildet sind, wobei die Querschnittsabmessungen der Displayröhre (50) und die Vertiefung (62) derart sind, daß die Röhre (50) im Gleitsitz in der Vertiefung sitzt.

2. Displayverpackung nach Anspruch 1, wobei die Vertiefung (62) im Querschnitt nicht rechteckförmig ist.

3. Displayverpackung nach Anspruch 1 oder 2, wobei die Röhre (50) im Querschnitt rechteckförmig ist.

4. Displaykarton gemäß Anspruch 2.

5. Zuschnitt, der zur Bildung eines Displaykartons (60) gemäß Anspruch 4 gefaltet werden kann, wobei der Zuschnitt zwei oder mehrere Öffnungen aufweist, die durch Faltlinien (35, 37, 39, 41) miteinander verbunden sind, wobei sich mindestens eine Hauptfaltlinie (19) durch die Öffnungen derart erstreckt, daß durch Falten des Zuschnitts (61) um diese Hauptfaltlinie der Bereich zwischen den Faltlinien nach innen aus der Ebene des Zuschnitts gedrückt werden kann und diesen Bereich nach Innen faltet

und eine Vertiefung (62) bildet, die zwischen den Öffnungen liegt, **dadurch gekennzeichnet,** daß die Öffnungen Schlitze sind.

6. Zuschnitt nach Anspruch 5, wobei die Schlitze (30, 32) abgerundete Enden (34, 36) haben.

7. Zuschnitt nach Anspruch 5 oder 6, **dadurch gekennzeichnet,** daß die Schlitze (30, 32) durch drei oder mehrere Faltlinien (35, 37, 39, 41) verbunden sind.

8. Zuschnitt nach Anspruch 5, 6 oder 7, **dadurch gekennzeichnet,** daß der Abstand der Faltlinien (35, 37, 39, 41) und die Enden der Öffnungen der Hauptfaltlinien (19) derart ist, daß sich eine Vertiefung (62) von nicht-rechtwinkeligem Querschnitt ergibt.

Revendications

1. Emballage de présentation comprenant une boîte en carton de présentation (60) et un tube de présentation (50) adapté pour être logé dans la boîte en carton de présentation, la boîte en carton de présentation présentant un évidement (62) sur un de ses bords formé en poussant vers l'intérieur une zone comprise entre deux ouvertures, caractérisé en ce que les extrémités de l'évidement sont formées par des fentes (30,32), les dimensions en section transversale du tube de présentation (50) et de l'évidement (62) étant telles que le tube (50) soit ajusté glissant dans l'évidement.

2. Emballage de présentation selon la revendication 1, dans lequel l'évidement (62) est non rectangulaire en section transversale.

3. Emballage de présentation selon la revendication 1 ou 2, dans lequel le tube (50) est rectangulaire en section transversale.

4. Boîte en carton de présentation telle que définie dans la revendication 2.

5. Flan adapté pour être plié afin de former une boîte en carton de présentation (60) selon la revendication 4, le flan comportant deux ouvertures ou plus reliées par des lignes de pliage (35,37,39,41), au moins une première ligne de pliage (19) s'étendant à travers les ouvertures, de manière qu'en pliant le flan (61) autour de cette première ligne de pliage et en poussant la zone entre les lignes de pliage vers l'intérieur en l'éloignant du plan du flan on provoque le pliage de cette zone vers l'intérieur et on forme un évidement (62) s'étendant entre les ouvertures, caractérisé en ce que les ouvertures sont des fentes.

6. Flan selon la revendication 5, dans lequel les fentes (30,32) comportent des extrémités arrondies (34,36).

7. Flan selon la revendication 5 ou 6, caractérisé en ce que les fentes (30,32) sont reliées par trois lignes de pliage (35,37,39,41) ou plus.

8. Flan selon la revendication 5,6 ou 7, caractérisé en ce que l'espacement des lignes de pliage (35,37, 39,41) et des extrémités des ouvertures par rapport à la première ligne de pliage (19) est tel que l'on obtienne un évidement (62) de section transversale non-rectangulaire.

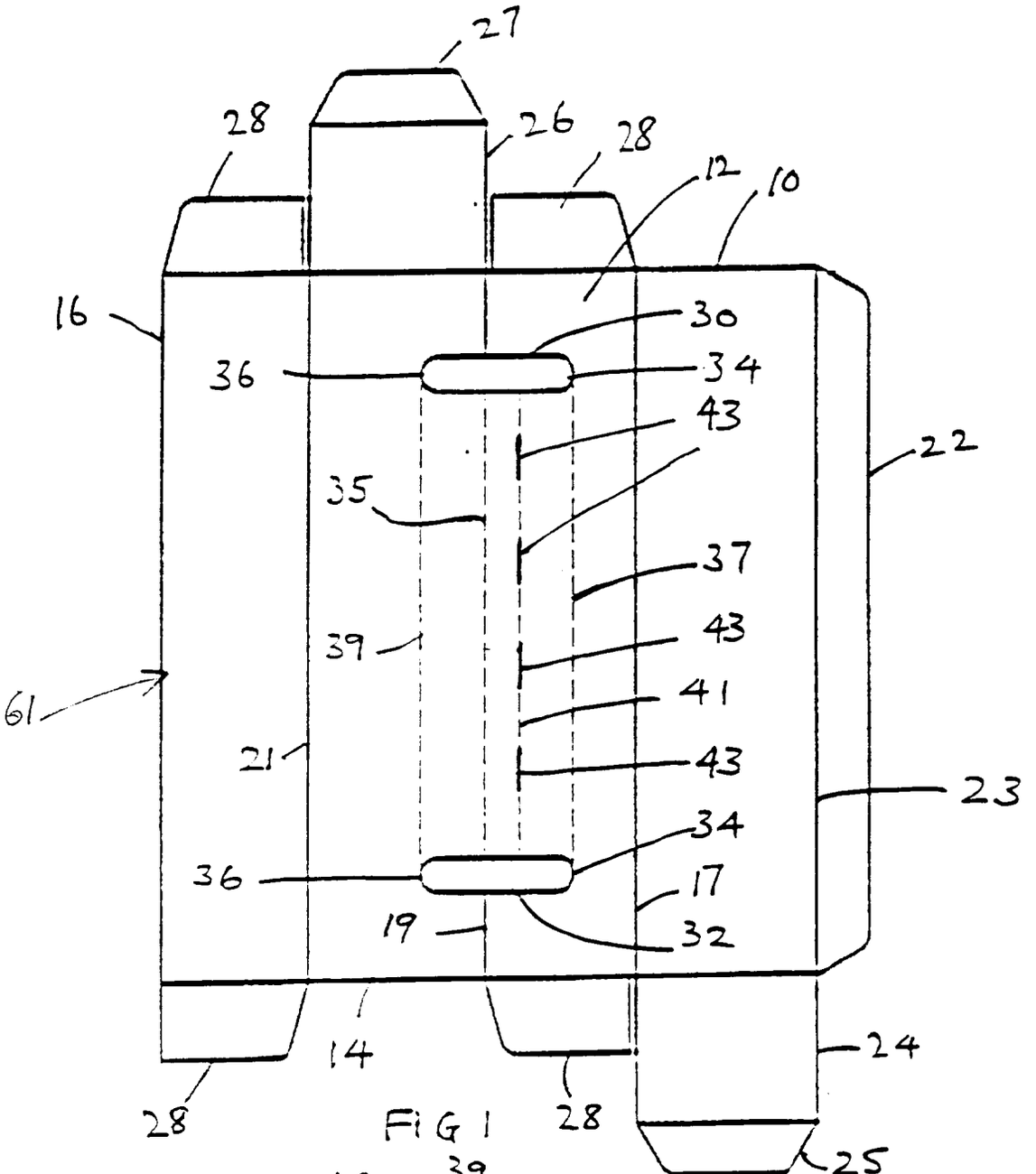
27
28
26
28
12
10
16
30
36
34
43
22
35
37
39
43
61
41
21
43
23
34
36
17
19
32
14
24
28
28
25

FIG 1

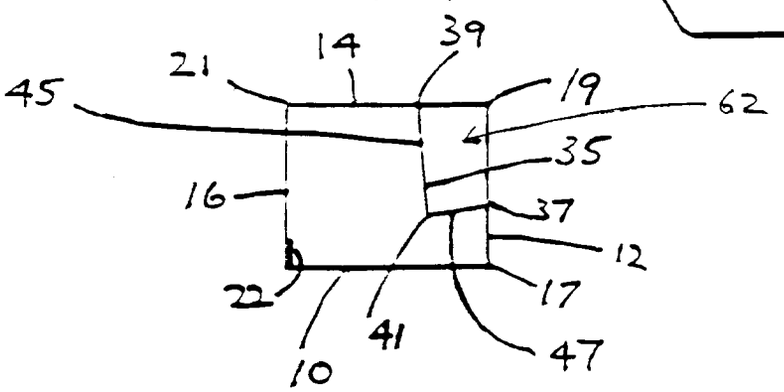
14
39
21
19
45
62
35
16
37
12
22
17
41
47
10

FIG 2

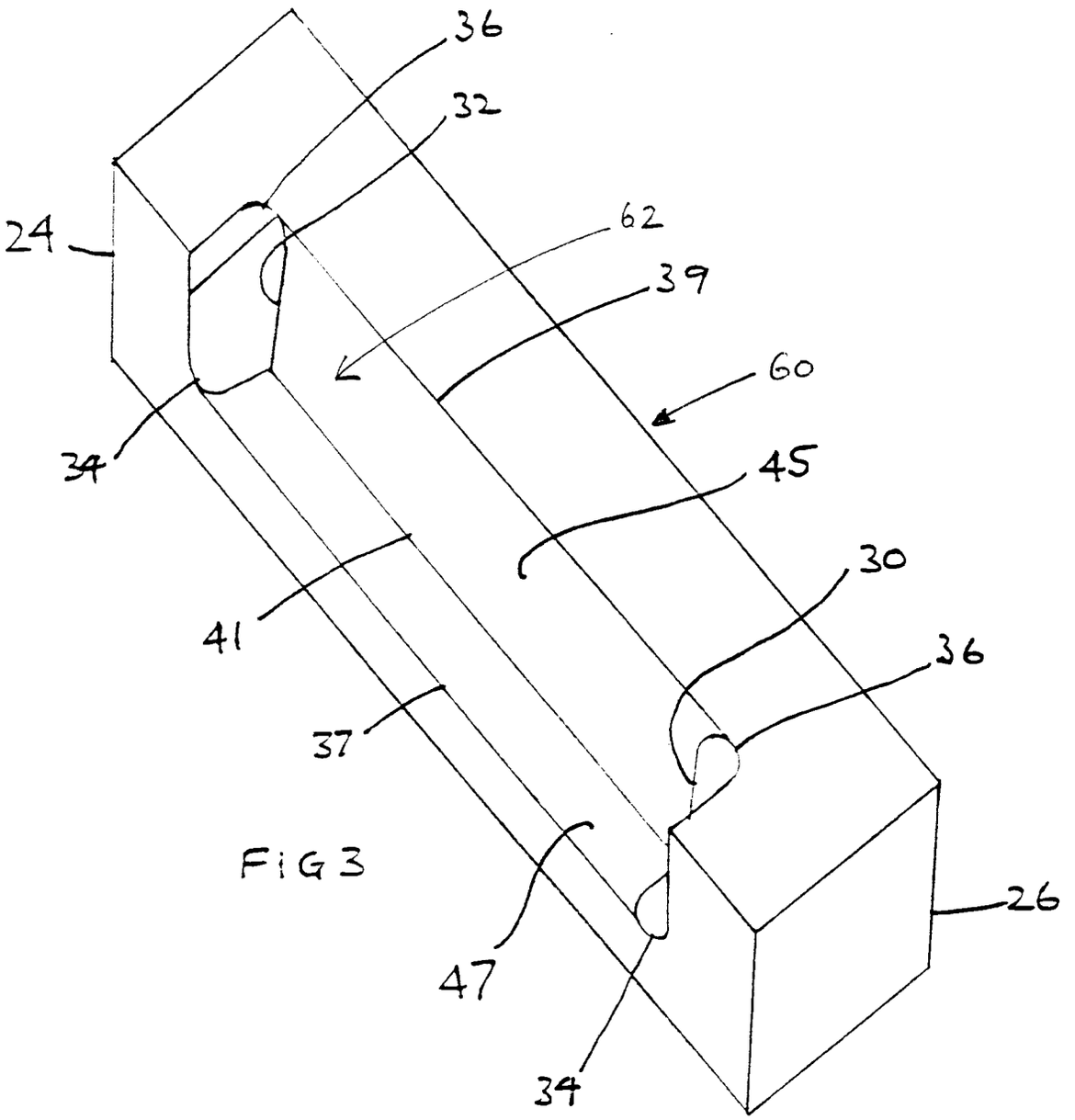

FIG 3

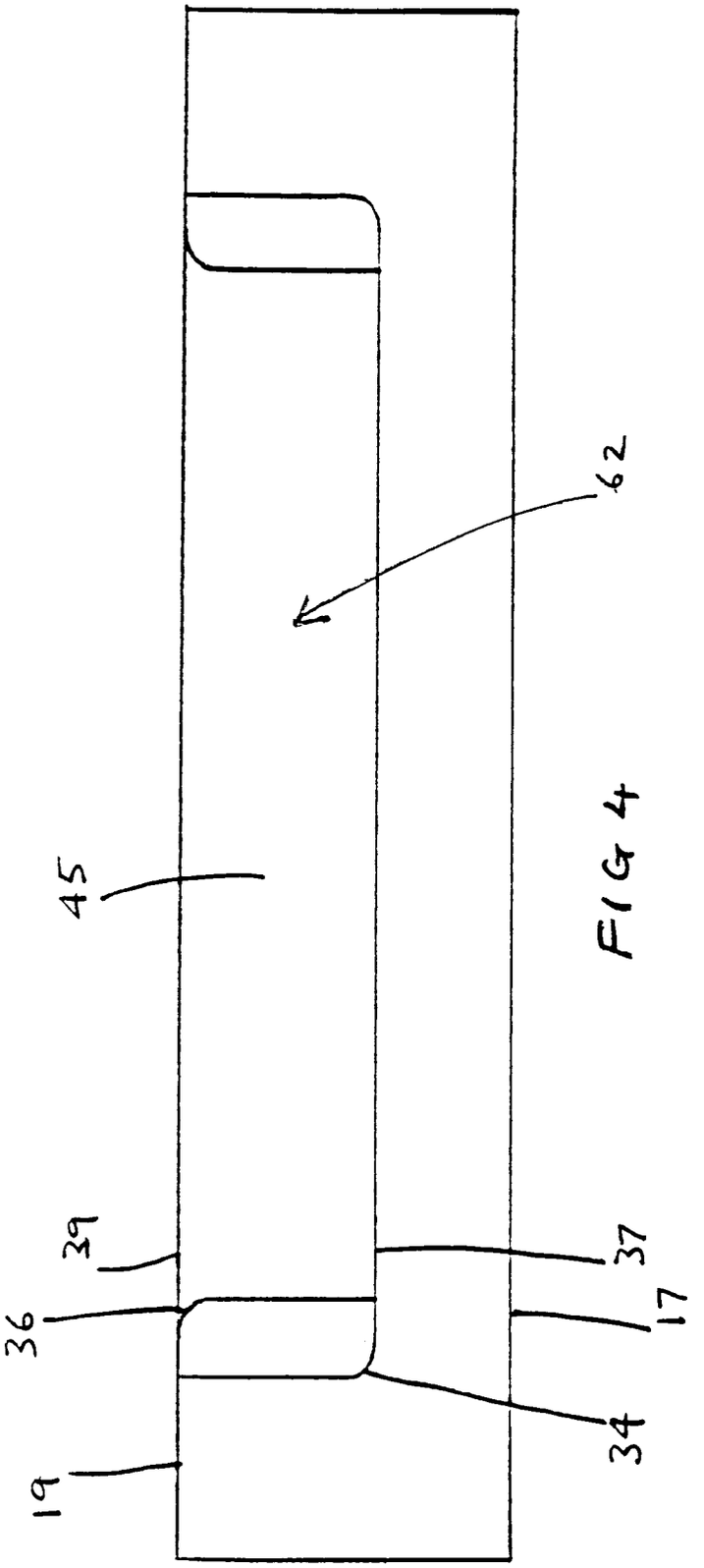

FIG 4

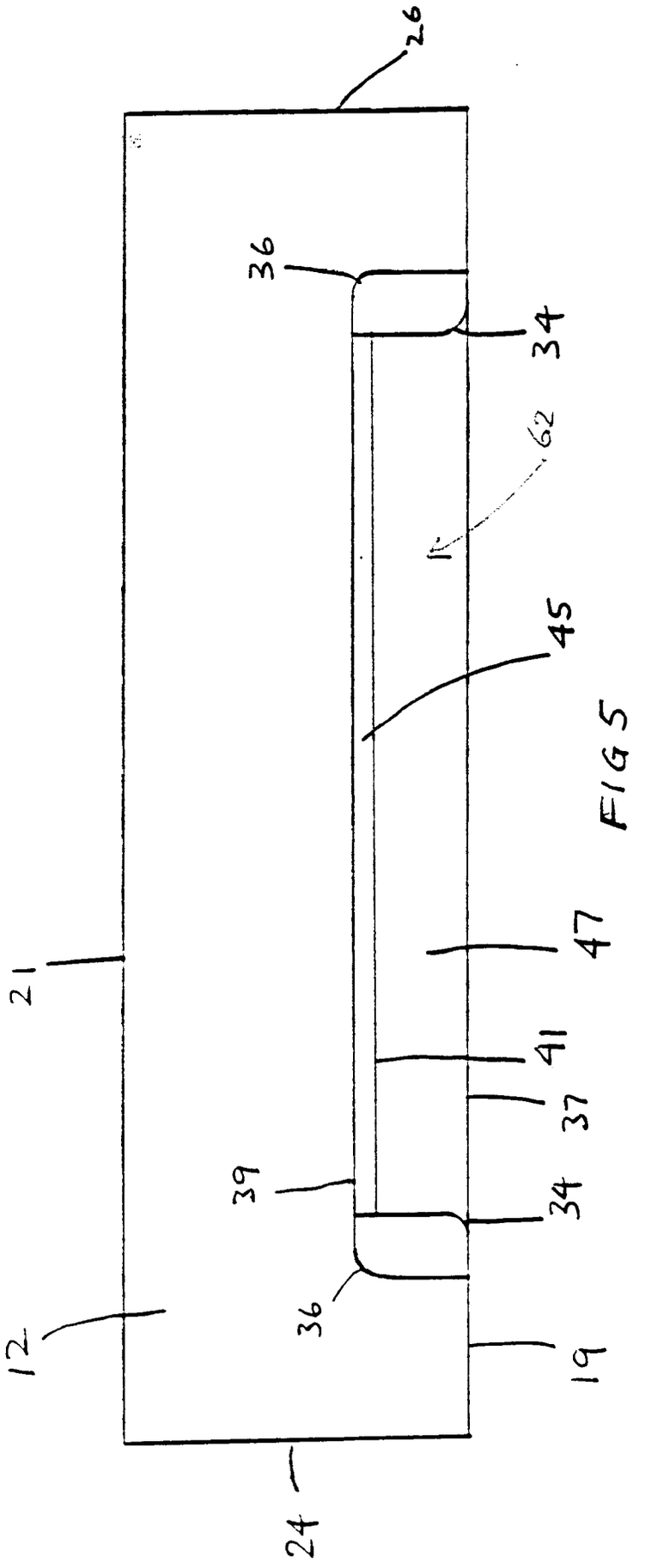

FIG 5

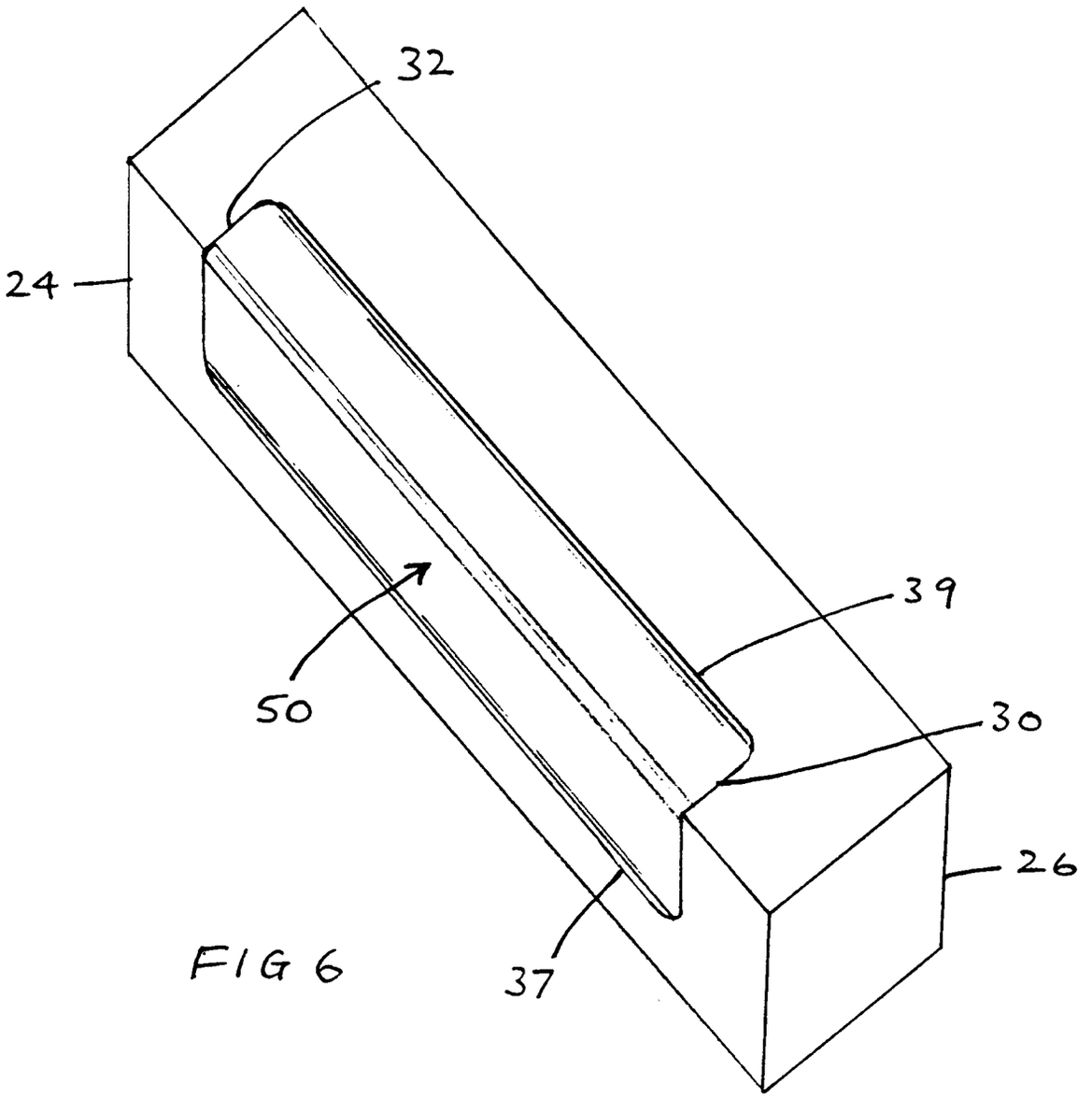

FIG 6

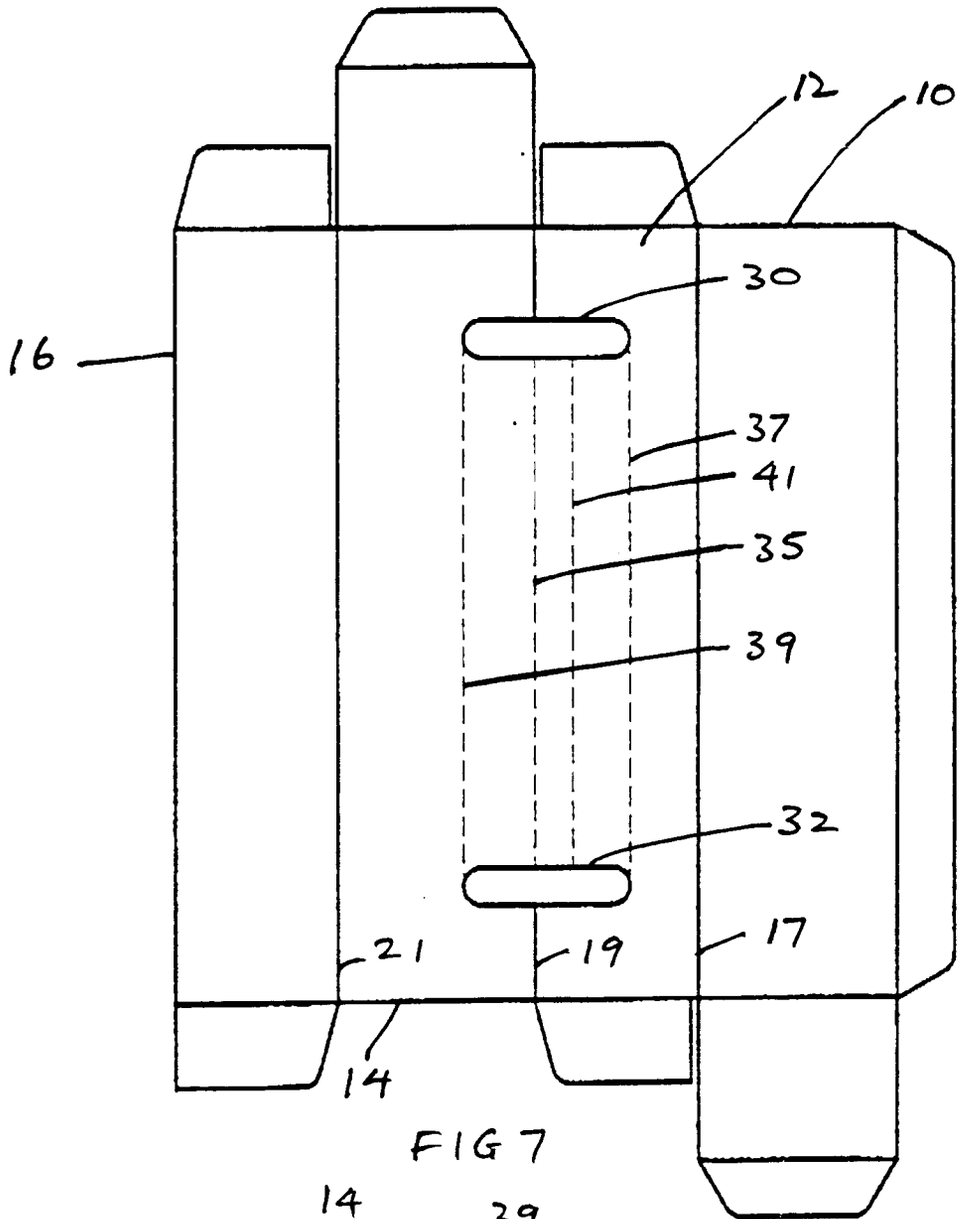

FIG 7

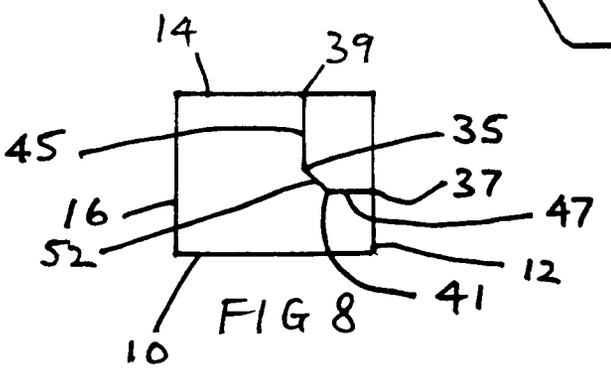

FIG 8