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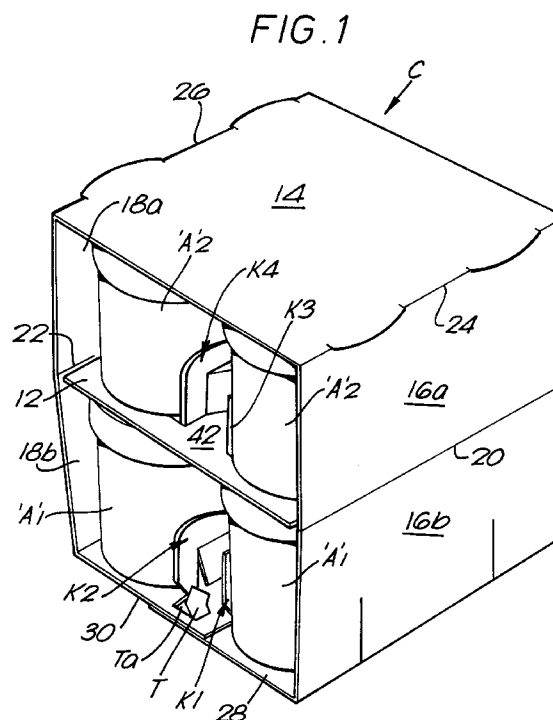
(71) Applicant : **THE MEAD CORPORATION**
Mead World Headquarters Courthouse Plaza
Northeast
Dayton Ohio 45463 (US)

(72) Inventor : **Chaussadas, Jean**
4250 Cours Saint Luc
F-36000 Chateauroux (FR)

(74) Representative : **Hepworth, John Malcolm**
Hepworth Lawrence Bryer & Bizley, 36 Regent
Place
Rugby Warwickshire CV21 2PN (GB)

(54) **Carton with braced article separating structures.**

(57) A carton accommodating a plurality of articles has an internal keel structure (K) which protrudes inwardly of the carton to form a separator to space apart adjacent articles on either side of the keel structure. The keel structure comprises carton panel portions pairs arranged in spaced relationship with respect to each other. Each panel portion comprises bracing flaps effective to maintain the portions in an upstanding attitude and to create an article retention aperture with which wall portions of an article cooperates to resist dislodgment of the article from the carton.



This invention relates to a carton accommodating a plurality of articles which includes a braced article separating construction upstanding internally of the carton to provide both separating and retaining means for the packaged articles. Typically the articles comprise tubs, pots or jars containing e.g. food-stuff.

The invention provides a carton accommodating a plurality of articles which carton comprises an internal structure which protrudes inwardly of the carton to form a separator to space apart adjacent articles on either side of the structure, said internal structure comprising carton panel portions arranged in spaced relationship with respect to each other, each of which panel portions is provided by at least one carton panel, characterized in that said panel portions each comprise bracing means effective to maintain said portions in an upstanding attitude and to create article retention means with which wall portions of an article cooperates to resist dislodgement of the article from the carton.

According to a feature of the invention, said panel portions may be integral hinged parts of said one carton panel. In such constructions where the panel portions are integrally hinged parts of the one carton panel, the bracing means may comprise at least one flap hinged out of coplanar relationship with each said panel portion to brace said panel portion against said one carton panel thereby to form an upright keel element.

According to another feature of the invention, said article retention means may comprise an article retention aperture created by displacement of the or each flap out of said coplanar relationship.

According to yet another feature of the invention, a pair of like keel elements may be provided, one keel element being formed in one base panel of a wrap-around type carton and the other keel element being formed in complementary relationship in the other base panel of the carton.

According to a still further feature of the invention, a pair of like keel elements may be formed in complementary relationship in an intermediate partition panel separating two tiers of articles in a two tier carton.

An embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:-

FIGURE 1 is a perspective view of a formed carton incorporating an internal structure according to the invention;

FIGURE 2 is a plan view of an unformed wrap-around type blank for forming the carton shown in Figure 1;

Figure 3 is a perspective view of two complementary portions of the internal structure of the blank shown in Figure 2;

FIGURE 4 is a perspective view similar to Figure

4 but in which the complementary portions are shown braced in an upright attitude;

FIGURE 5 is a plan view of a partition panel used intermediate the top and bottom panels of the carton as shown in Figure 1;

FIGURE 6 is a perspective view two complementary portions of the internal structure of the partition panel shown in Figure 3; and

FIGURE 7 is a view similar to Figure 6 but in which the complementary portions are shown braced in an upright altitude.

Referring to the drawings, there is shown a carton C of the wraparound type formed from a blank 10 of paperboard or like foldable sheet material and a paperboard partition panel 12. Carton C is adapted to accommodate two tiers of articles 'A1' and 'A2' arranged in two rows of two articles in each tier. The tiers of articles A are separated by the partition panel 12.

Figure 2 is a plan view of carton blank 10 which comprises top panel 14 and side panel portions 16a and 16b and 18a and 18b. Side panel portions 16a and 16b are hingably interconnected by fold line 20 and side panel portions 18a and 18b are interconnected by fold line 22. Side panel 16a is hinged to top panel 14 along interrupted fold line 24 and side panel 18a is hinged to top panel 14 along interrupted fold line 26. The blank further comprises base panels 28 and 30 which are interconnected adjacent their end margins in overlapping relationship by panel interlocking means which comprise locking tabs T and locking apertures defined by tabs Ta. Keel elements which form an internal structure are struck from base panels 28 and 30. These keel elements K are all similar and comprise main panel 32 which is foldably connected to its respective base panel (28) along interrupted fold line 34, and a keel flap 36 which is hingably connected to main panel 32 along fold line 38.

Referring to Figures 3 and 4 there is shown a schematic perspective view of part of base panels 28 and 30 a pair of complementary keel elements K₁, K₂. In order to set up a keel element (say K₂), main panel 32 is rotated upwardly out of the plane of panel 30 about hinge line 34 whilst keel flap 36 is rotated about hinge line 38 which connects it to main panel 32. Flap 36 can be seen to support the keel since it abuts the base panel 30 and thereby provides a brace to maintain the keel element in its upright attitude. There is also created an article receiving aperture 40 in the keel main panel due to the displacement of flap 36 out of plane of keel panel 32. Keel element K₁ is similarly formed and erected.

Figure 5 is a plan view of intermediate partition panel 12 which comprises a central panel 42 and marginal panels 44 and 46 hinged to the central panel along interrupted fold lines 48 and 50 respectively. Partition panel 12 comprises two pairs of keel elements K₃, K₄ and K₅, K₆ which are struck from central

panel 42. All the keel elements K_3 - K_5 are similar and comprise (K_3) a main panel 52 and keel flaps 54 and 54a. Keel K_3 is set up (Figs 6 and 7) rotating its main panel 52 upwardly out of the plane of central partition panel 42 about interrupted hinge line 56. Keel flaps 54 and 54a are then rotated about fold lines 58 and 60 respectively out of the plane of keel main panel 52 thereby creating article receiving aperture 62. Thus keel flaps 54, 54a support the keel structure since they abut the partition panel 42 and thereby provide a brace to maintain keel element K_3 in its upright attitude. Keel elements K_4 , K_5 and K_5 are similarly formed and erected.

It is envisaged in an alternative embodiment (not shown) that the lowermost edges of keel flaps 54, 54a are not cut colinearly with hinge line 56 (unlike the arrangement illustrated in which the bases of flaps 54, 54a are cut along a line colinear with hinge 56) but instead are cut at an angle such that upon rotating side wall 52 and flaps 54, 54a and into their erected position there remains a tab of material comprising a portion of panel 42 which helps minimise the contact between the bottom of articles which rest on partition panel 42 and the tops of the articles in the tier below the partition panel.

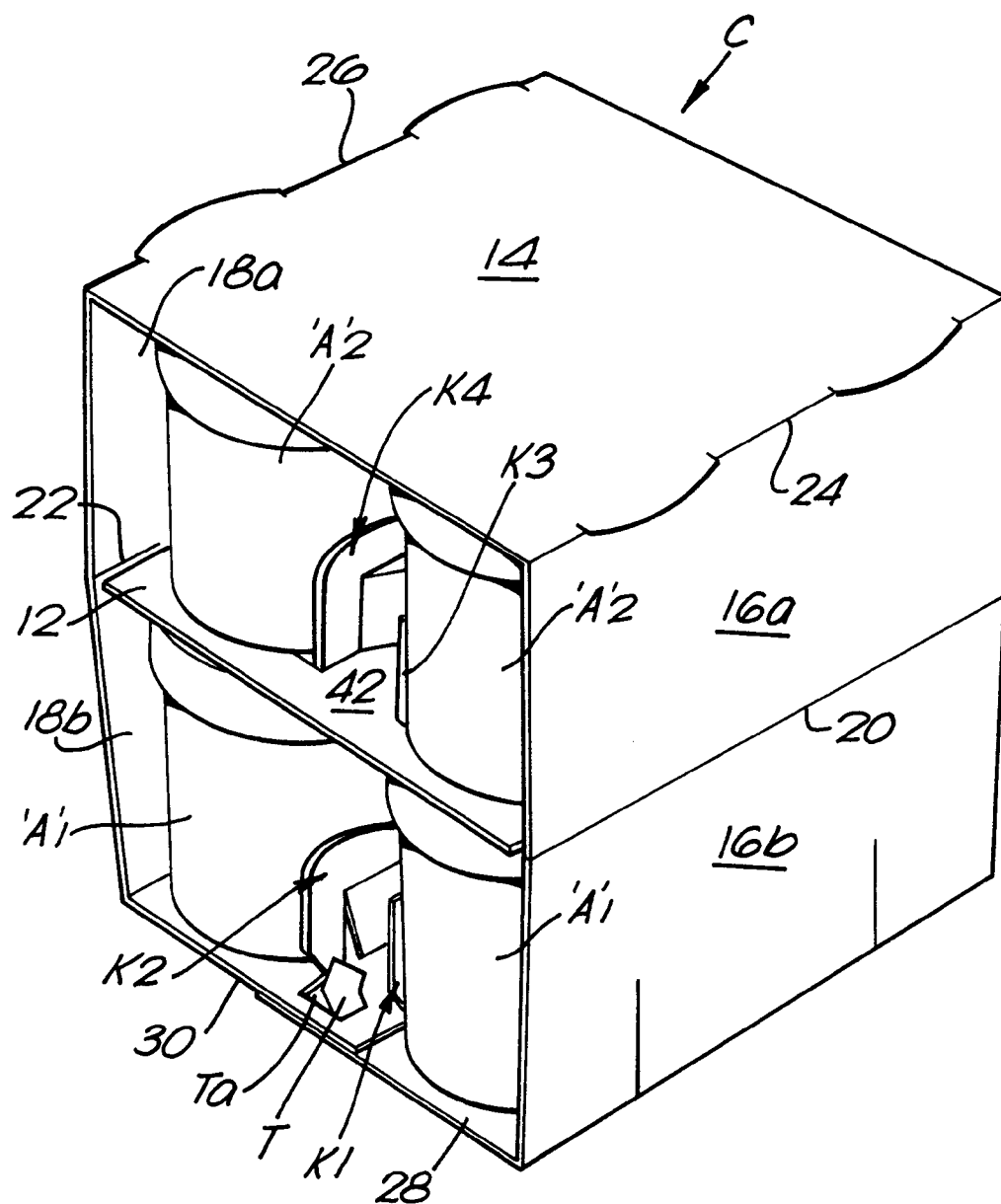
It is further envisaged that the construction of the keel element in the base panels and the intermediate panel could be interchanged, or indeed one such construction could be used throughout.

Claims

1. A carton accommodating a plurality of articles comprises an internal structure which protrudes inwardly of the carton to form a separator to space apart adjacent articles on either side of the structure, said internal structure comprising carton panel portions arranged in spaced relationship with respect to each other, each of which panel portions is provided by at least one carton panel, characterized in that said panel portions each comprise bracing means effective to maintain said portions in an upstanding attitude and to create article retention means with which wall portions of an article cooperates to resist dislodgement of the article from the carton.
2. A carton according to claim 1 wherein said panel portions are integral hinged parts of said one carton panel.
3. A carton according to claim 2 wherein said bracing means comprises at least one flap hinged out of coplanar relationship with each said panel portion to brace said panel portion against said one carton panel thereby to form an upright keel element.

4. A carton according to claim 3 wherein said article retention means comprises an article retention aperture created by displacement of the or each flap out of said coplanar relationship.
5. A carton according to claim 3 or claim 4, wherein a pair of like keel elements are provided, one keel element being formed in one base panel of a wraparound type carton and the other keel element being formed in complementary relationship in the other base panel of the carton.
6. A carton according to any of claims 3 to 5, wherein a pair of like keel elements are formed in complementary relationship in an intermediate partition panel separating two tiers of articles in a two tier carton.

FIG. 1



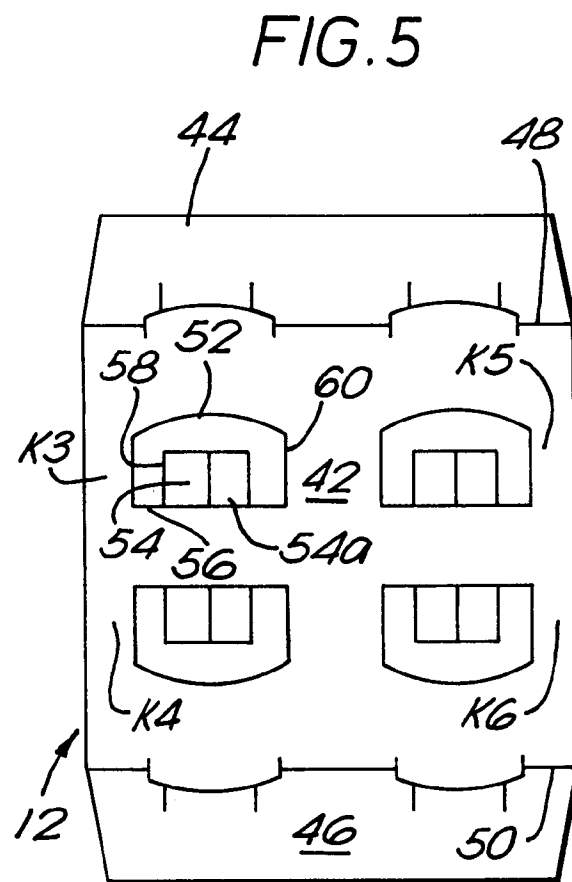
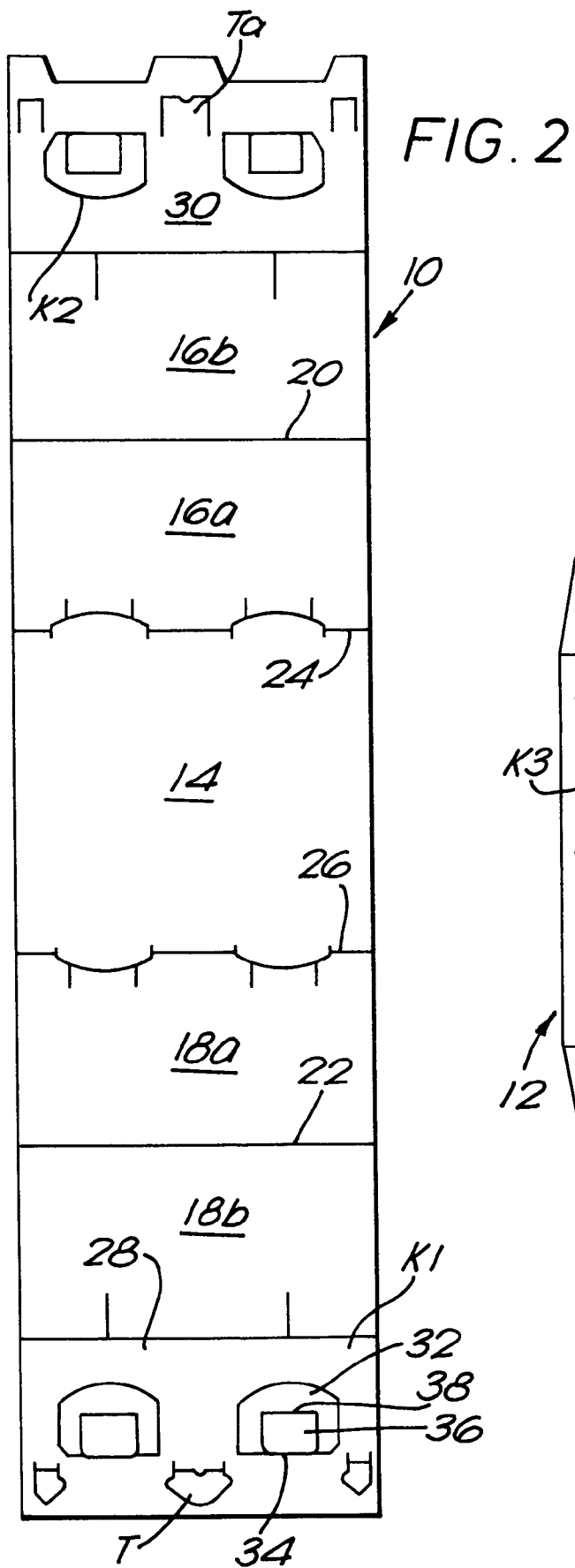


FIG. 3

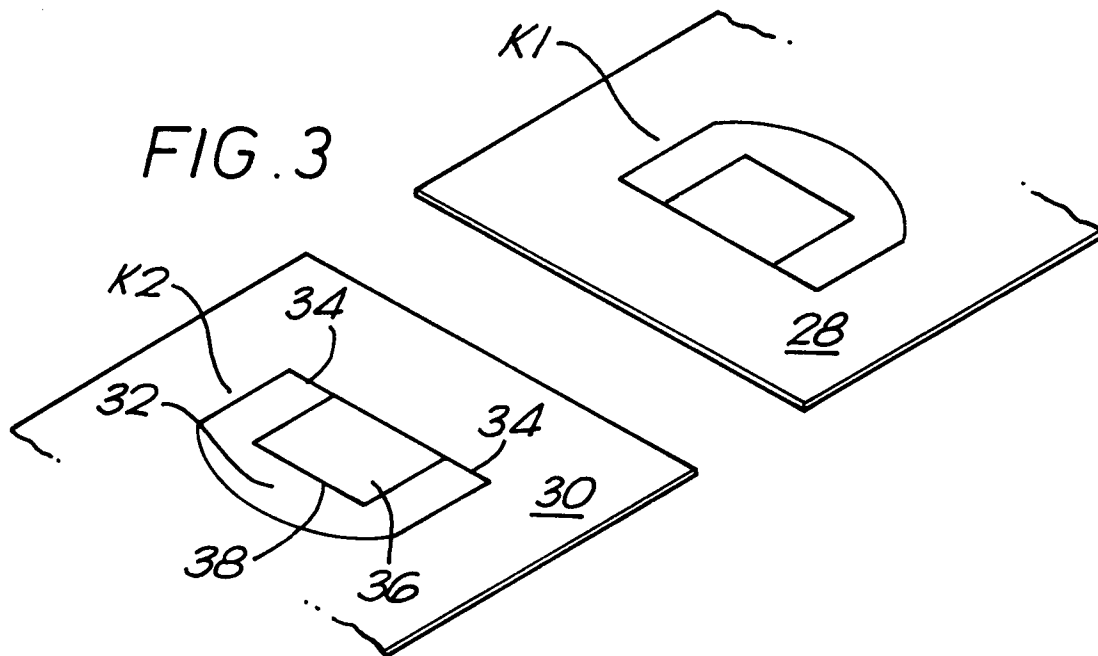
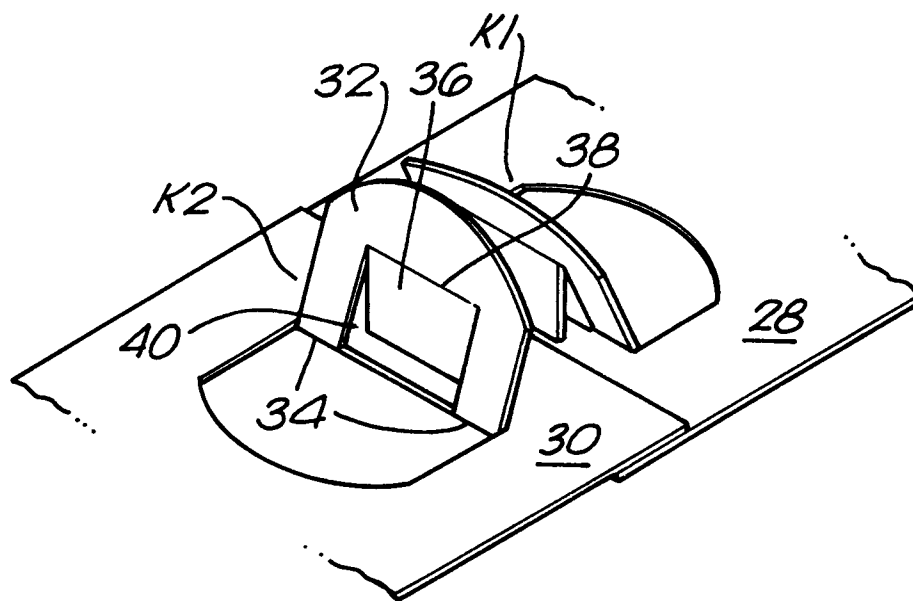
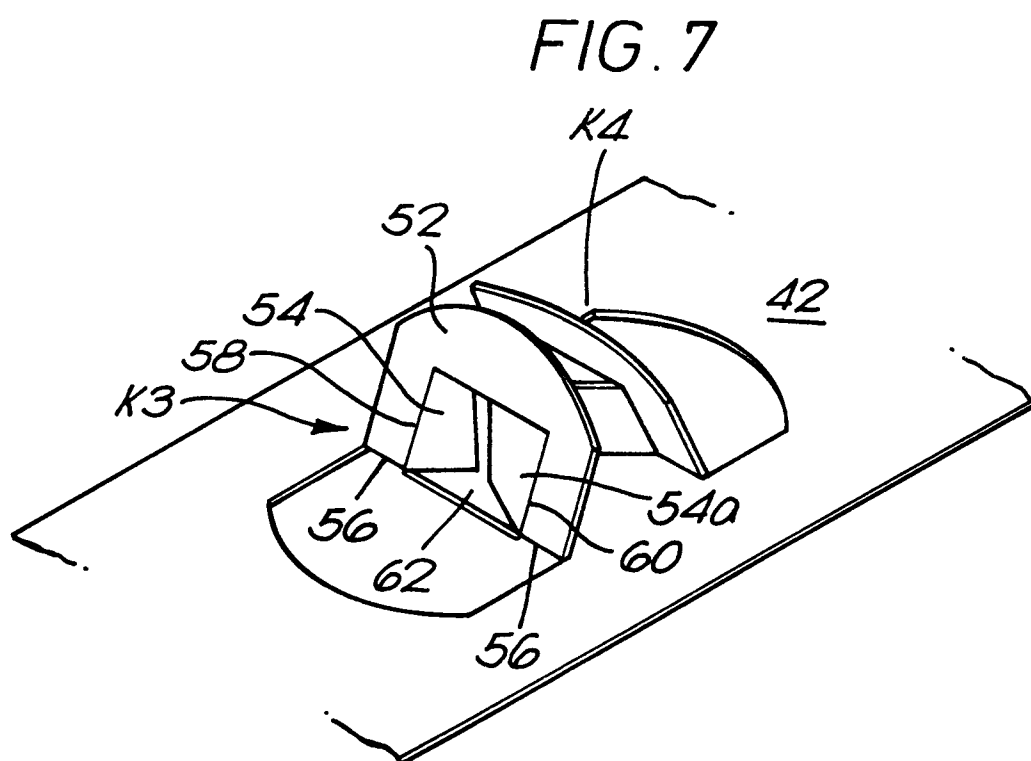
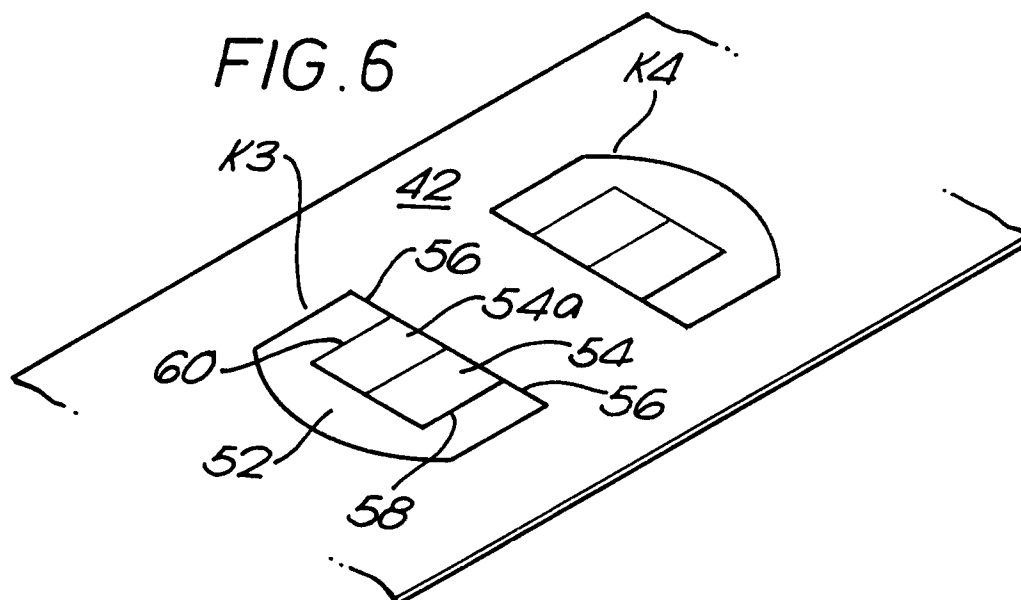


FIG. 4







European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 92 31 0173

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.5)
A	EP-A-0 250 237 (THE MEAD CORPORATION) * the whole document *	1-3,6	B65D71/26
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B65D
The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 09 FEBRUARY 1993	Examiner SMITH C.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention 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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