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(54) Improved carton with dispensing facility

Kartonbehälter mit Spender

Boîte en carton avec dispositif de distribution

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Description

Background of the Invention

This invention relates to a carton erected from a blank of stiff, but foldable, board material which blank incorporates the precursor of a tear strip permitting the carton to be erected into a first closed condition to contain a product (preferably of a flowable nature that can be dispensed by pouring from the carton) but on actuation of the tear strip can be converted into an opened carton for ready dispensing of the contents. According to US-A-5222660 a carton as defined in the first part of claim 1 has a precursor of a hinge extending parallel to side faces.

It is expected that a carton in accordance with the invention will find many commercial applications but it has been specifically designed for the retaining in moisture-proof conditions and the subsequent dispensing of seeds.

Summary of the Invention

According to one aspect Of the invention a carton erected from a blank of stiff, but foldable, board material has a bottom, a top, and side faces delimited by corners and the top, the top being provided with a precursor of a hinge extending from a first line of weakness in one face to a second line of weakness in another face, said lines of weakness being interconnected by the precursor of a tear strip formed in at least said one face and said another face whereby on actuation of the tear strip a closure cap is formed from the top which can hinge between open and closed positions about said precursor of the hinge, characterised in that the precursor of the hinge extends across only one corner of the carton.

Conveniently, the carton is of right parallelepipedic form and the precursor of the tear strip runs from a pull tab adjacent one corner of the carton to a cut formed in the next adjacent side face intermediate the corners that define that side face.

Suitably the lines of weakness in the side faces extend parallel to the corners and in a preferred arrangement one line of weakness is located at or adjacent to one corner and preferably extends down to the pull tab. Either or both lines of weakness can be a cut or a partial cut.

Suitably the top is formed from overlain flaps forming extensions of the side faces, the precursor of the hinge being formed as a line of weakness along at least one of said flaps.

To ensure that when the cap is lifted, following actuation of the tear strip and hinging about the said hinge, the retaining effect of the two side faces is not destroyed, it is desirable to form the two side faces involved in the creation of the cap, at least in part, as double layers, only the outer layer of which is torn by the actuation of the tear strip.

Conveniently the tear strip is created from at least one length of reinforcing tape adhered to, or incorporated in, the board material. For manufacturing convenience, straight lengths of tape can be employed in a right parallelepipedic carton which lengths extend through each of the four side faces and the two double layers provided to supplement the faces torn during opening of the carton, the extent of the tearing open being limited by a cut formed through this reinforcing tape or tapes in the vicinity of the second line of weakness.

The bottom of the carton can similarly be formed from overlain flaps forming extensions of the side faces.

The invention also extends to a blank of stiff, but foldable, board material from which the carton can be erected.

A particular advantage of the invention is that it enables a blank of board material to be partially erected into a knocked-down carton which can be supplied to users as a finished flat blank merely requiring erection by folding in bottom-forming flaps prior to filling and closing of the top subsequent to filling. Erection and filling can be effected using automatically operating machinery.

A variety of different forms of stiff, but foldable, board material can be employed to fabricate a carton in accordance with the invention but a preferred material is double-faced corrugated board, the tear strip incorporating two parallel longitudinally splittable reinforcing tapes one located between layers of the corrugated board and another located on the inside of the inner layer of the board, since experience has shown that tapes of this design will create a very clean tear when they are actuated.

Suitably the pull tab is cut as a tapered piece of board material whose narrow end overlies a central part of two parallel splittable tapes.

To provide a moisture resistant wall to the carton, the facing sheet of double-faced corrugated board destined to be innermost on erection of the blank into a carton can be provided with a moisture-proof barrier layer (e.g. of a plastics material). A sandwich construction of paper/moisture barrier/paper can be used as the inner facing sheet or a barrier layer can be adhered to a paper facing sheet as the board material is being formed on a corrugator.

Brief Description of the Drawings

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

Figure 1 is a plan of a blank for erecting into a carton in accordance with the invention,

Figure 2 shows the closed carton created from the blank of Figure 1,

Figure 3 shows a first stage in the opening of the carton of Figure 2,

Figure 4 shows the carton of Figure 1 fully opened and ready to dispense contents,

Figure 5 shows a first stage in the erection of the carton of Figure 2 from the blank of Figure 1,

Figure 6 shows a further stage in the erecting procedure,

Figure 7 shows the finished blank knocked down flat ready for supply to an end user, and

Figure 8 shows the pull tab of Figures 1 and 2 in greater detail.

Description of Preferred Embodiments

Referring to Figure 1, this illustrates a pre-cut pre-creased blank 10 of stiff, but foldable, double-faced corrugated fibreboard material as seen from the inside and comprises a front panel 11, a first side panel 12, a rear panel 13, a second side panel 14, a secondary front panel 15 and a secondary partial side panel 16 joined side-by-side by parallel crease lines (shown in Figure 1 as dashed lines) which will define the corners of the eventually erected carton. The direction of the flutes in the intermediate web of the three web board material is indicated by the arrow A in Figure 1.

The bottom of the carton is created by integral end flaps 11a, 12a, 13a and 14a and the top of the carton is created by integral end flaps 11b, 12b, 13b and 14b, these end flaps being delimited from the respective panels 11 to 14 by further crease lines also shown dotted.

Extending completely across the width of the blank 10 is a reinforcing tape 17 which terminates in the front panel 11 in a pull tab 18. The tape 17 is cut at the point 20 in the side panel 12 at the location of a line of weakness 24 which extends from the cut 20 to the top of the panel 12 where it meets an inclined line of weakness 21, the purpose of which will be further described. The top flap 14b also includes an inclined line of weakness 22.

Figure 2 shows a carton 30 erected from the blank of Figure 1 and Figures 5 and 6 show how this erection is effected, it being noted that the secondary front panel 15 completely underlies the front panel 11 and the secondary side panel 16 partially underlies the first side panel 12. These secondary panels 15 and 16 are not clearly evident in the erected but unopened carton shown in Figure 2 although the panel 15 can just be seen at the edge of the panel 11 behind the pull tab 18. Following folding-over of the blank in the manner shown in Figures 5 and 6 and a gluing together of lower regions of the secondary panels 15 and 16 to the outer panels 11 and 12 via the glued areas shown at 29 in Figure 5,

the blank 10 forms a knocked-down format 10A as shown in Figure 7 and in this form can be delivered to a user.

The user then opens out the format 10A and folds in the flaps 12a, 11a, 13a, 14a to create a rectangular bottom to the carton and fills the carton with the product through the then-open top. The top is now closed by folding-in the upper flaps in the sequence 14b, 11b, 13b, 12b and adhering at least regions on the underside of flap 12b to flap 14b. In the erected condition of the carton 30 as shown in Figure 2, lines 21 and 22 are collinear and define the precursor of a diagonal hinge extending across the top of the carton from the corner at which the pull tab 18 is located to the region on the side panel 12 where the cut 20 is formed at the lower end of the line of weakness 24.

It will be readily apparent from an examination of Figures 3 and 4 how the carton is opened by actuating the tear strip using the pull tab 18. Figure 3 shows the tape or tear strip 17 partially removed and Figure 4 shows how, on its complete removal, a triangular cap 23 is created from the top which can be lifted by folding back to expose the contents. The purpose of the secondary walls 15 and 16 is now readily apparent, these acting to prevent spillage of contents until the carton 30 is tipped, usually with the exposed corner lowermost, to provide a true dispensing operation of the contents.

The preferred material for the tape 17 is SESAME (Trade Mark) tape, this being a longitudinally splittable fibrous tape that can be incorporated in corrugated fibreboard material as the material is made on the corrugator. Desirably two lengths of this tape are provided one above the other (see Figure 8), one length 17a being located on the back of the front facing web 10a of the corrugated board material used for the blank 10 of Figure 1 and the other length 17b being located on the back of the rear facing web 10c. The corrugated central web is shown at 10b. With this arrangement one tape length (17a) is hidden in the laminations of the board material and is thus invisible from the intended front face of the board material while the other tape length (17b) is visible when viewing the inside face of the carton. The pull tab 18 is cut into the blank 10 in such a way that the cuts defining it only partially sever both tape lengths at the inner narrow end of the pull tab 18, so that when the tab 18 is pulled away from the panel 11 a narrow central strip 17c is torn out of both lengths of tape 17a and 17b leaving a clean cut in all three webs 10a, 10b and 10c of the board material from the location of the tear tab 18 through to the cut line 20. To facilitate grasping of the tab 18 it can project slightly proud of the rest of the edge of the front panel 11 as shown in Figure 8.

The cap 23 can be opened and closed many times about the hinge formed by the lines 21 and 22 so that partial dispensing of the carton contents can also be undertaken many times. The ears 14c shown provided on the flap 14b are an optional feature but when pro-

vided create a finger tab for facilitating opening of the carton 30.

The cutting away of one corner of the flap 11b facilitates the hinging of the cap 23 about the hinge lines 21, 22.

The flap 12b can be of the same height as flap 14b in which case the line of weakness 21 extends all the way up to the left-hand top corner of the flap 12b.

A suitable pourable material for containment in the carton is seeds and to protect these from moisture ingress the board material from which the blank 10 is stamped can be rendered moisture-proof (e.g. by coating, laminating (for example with MELINEX (TM)) or using, as the inner liner 10c of the board, a polythene-lined paper or a paper/polythene/paper sandwich. A thin polythene barrier layer suitable for incorporation in such a sandwich is that known under the Trade Mark PARATEN.

Moisture protection is particularly important in the case of seeds provided with an insecticidal coating based on pva. Prior art cartons to contain coated seed (e.g. sugar beet seeds) have used a separate moisture-proof bag contained within a fibreboard carton but by using a carton in accordance with this invention which has been made from board material moisture-proofed on its inner facing surface in the manner described, the use of a separate bag can be dispensed with making the seeds more readily available for use when required without impairing the protective coating on the seeds which gives them a (near) 100% germination success rate.

Where contents as small as seeds are packaged in a carton according to the invention it can be desirable to apply adhesive to that area 29 of flap 16 which is closest to the free edge thereof so that it extends the full length of the flap 16 and thus bonds the flap 16 to the flap 12 above the line of the tape 17 to the right of the cut 20 shown in Figure 5.

Moisture proofing of board material with a layer of MELINEX (TM) or PARATEN (TM) does not interfere with the actuation of the tear strip required to create the openable cap 23.

In one practical example 100000 sugar beet seeds each protected with a pva layer dusted with insecticide/fungicide could be housed in a parallelepipedic carton of 308 mm x 193 mm x 121 mm.

Claims

1. A carton (30) erected from a blank (10) of stiff, but foldable, board material having a bottom (11a, 12a, 13a, 14a), a top (11b, 12b, 13b, 14b), and side faces (11-14) delimited by corners and the top, the top being provided with a precursor (21, 22) of a hinge extending from a first line of weakness in one face (11) to a second line of weakness (24) in another face (12) said lines of weakness (24) being interconnected by the precursor of a tear strip (17)

formed in at least said one face and said another face (11, 12), whereby on actuation of the tear strip (17) a closure cap (23) is formed from the top (11b, 12b, 13b, 14b) which can hinge between open and closed positions about said precursor (21, 22) of the hinge, characterised in , that the precursor (21, 22) of the hinge extends across only one corner of the carton.

2. A carton according to claim 1, in which the carton (30) is of right parallelepipedic form and the precursor of the tear strip (17) runs from a pull tab (18) adjacent one corner of the carton to a cut (20) formed in the next adjacent side face (12) intermediate the corners that define that side face (12).
3. A carton according to claim 1 or claim 2, in which the lines of weakness in the side faces (11,12) extend parallel to the corners of the carton.
4. A carton according to claim 3, in which one line of weakness is located at or adjacent to one corner.
5. A carton according to any preceding claim, in which the two side faces (11, 12) involved in the creation of the cap (23), at least in part, are formed as double layers, only the outer layer of which is torn by the actuation of the tear strip (17).
6. A carton according to any preceding claim, in which the tear strip (17) is created from at least one length of reinforcing tape adhered to, or incorporated in, the board material.
7. A carton according to claim 6, in which said at least one length of tape (17) extends through each of the four side faces (11-14) and the two double layers provided to supplement the faces torn during opening of the carton, the extent of the tearing open being limited by a cut (20) formed through the or each reinforcing tape (17) in the vicinity of the second line of weakness (24).
8. A carton according to any preceding claim partially erected into a knocked-down carton which can be supplied to users as a finished flat blank merely requiring erection by folding in bottom-forming flaps (11a, 12a, 13a, 14a) prior to filling and closing of the top (11b, 12b, 13b, 14b) subsequent to filling.
9. A carton according to any preceding claim, in which the board material incorporates a moisture-resistant barrier layer.
10. A blank of stiff but foldable board material for erecting into a carton (30) as claimed in any one of the preceding claims.

Patentansprüche

1. Aus einem Zuschnitt (10) aus steifem, aber faltbarem Pappmaterial aufgebauter Karton (30) mit einem Unterteil (11a, 12a, 13a, 14a), einem Ober-
5 teil (11b, 12b, 13b, 14b) und durch Ecken und den Ober-
10 teil begrenzte Seitenflächen (11 - 14), wobei der Ober-
15 teil mit einem Vorläufer (21, 22) eines sich von einer ersten Schwächungslinie in einer Fläche (11) zu einer zweiten Schwächungslinie (24) in einer anderen Fläche (12) erstreckenden Gelenks besteht, wobei die Schwächungslinien (24) durch den Vorläufer eines Reißstreifens (17) verbunden sind, der in mindestens der einen Fläche und der anderen Fläche (11, 12) ausgebildet ist, wobei bei
20 Betätigung des Reißstreifens (17) aus dem Ober-
25 teil (11b, 12b, 13b, 14b) ein Verschußdeckel (23) gebil-
30 det wird, der um den Vorläufer (21, 22) des Gelenks zwischen einer geöffneten und einer geschlossenen Position schwenken kann, dadurch gekennzeichnet, daß sich der Vorläufer (21, 22) des Gelenks nur über eine Ecke des Kartons erstreckt.
2. Karton nach Anspruch 1, wobei der Karton (30) quaderförmig ist und der Vorläufer des Reißstreifens (17) von einer Ziehlasche (18) neben einer Ecke des Kartons zu einem Schnitt (20) verläuft, der in der nächsten benachbarten Seitenfläche (12) zwischen den Ecken, die die Seitenfläche (12) definieren, verläuft.
30
3. Karton nach Anspruch 1 oder 2, bei dem die Schwächungslinien in den Seitenflächen (11, 12) parallel zu den Ecken des Kartons verlaufen.
35
4. Karton nach Anspruch 3, bei dem sich eine Schwächungslinie an oder neben einer Ecke befindet.
40
5. Karton nach einem der vorhergehenden Ansprüche, bei dem die beiden Seitenflächen (11, 12), die an der Bildung des Deckels (23) beteiligt sind, zumindest teilweise als Doppelschichten ausgebildet sind, wobei nur die Außenschicht davon durch die Betätigung des Reißstreifens (17) zerrissen wird.
45
6. Karton nach einem der vorhergehenden Ansprüche, bei dem der Reißstreifen (17) aus mindestens einer Länge Verstärkungsband besteht, die an das Pappmaterial geklebt oder darin enthalten ist.
50
7. Karton nach Anspruch 6, bei dem die mindestens eine Bandlänge (17) durch jede der vier Seitenflächen (11 - 14) und die beiden Doppelschichten verläuft, die zur Ergänzung der beim Öffnen des Kartons zerrissenen Flächen vorgesehen sind, wobei das Ausmaß des Aufreißen durch einen Schnitt (20) begrenzt wird, der durch das oder

jedes Verstärkungsband (17) in der Nähe der zweiten Schwächungslinie (24) gebildet ist.

8. Karton nach einem der vorhergehenden Ansprüche, der teilweise zu einem auseinandergefalteten Karton aufgebaut ist, der dem Benutzer als fertiger, flacher Zuschnitt geliefert werden kann, der lediglich einen Aufbau durch Einfalten von den Unterteil bildenden Klappen (11a, 12a, 13a, 14a) vor dem Füllen und Schließen des Oberteils (11b, 12b, 13b, 14b) nach dem Füllen erfordert.
9. Karton nach einem der vorhergehenden Ansprüche, bei dem das Pappmaterial eine feuchtigkeitsbeständige Sperrschicht enthält.
10. Zuschnitt aus einem steifen, aber faltbaren Pappmaterial zum Aufbauen zu einem Karton (30) nach einem der vorhergehenden Ansprüche.

Revendications

1. Boîte en carton (30) construite à partir d'une pièce (10) de carton rigide mais pliable ayant un fond (11a, 12a, 13a, 14a), un dessus (11b, 12b, 13b, 14b) et des faces latérales (11-14) délimitées par des coins et le dessus, le dessus étant pourvu d'un précurseur (21, 22), d'une charnière s'étendant depuis une première ligne d'affaiblissement dans une face (11) jusqu'à une deuxième ligne d'affaiblissement (24) dans une autre face (12), lesdites lignes de faiblesse (24) étant interconnectées par le précurseur d'une bande de déchirure (17) formée dans au moins ladite une face et ladite autre face (11, 12), l'actionnement de la bande de déchirure (17) entraînant la formation d'un couvercle de fermeture (23) à partir du dessus (11b, 12b, 13b, 14b), qui peut s'articuler entre des positions ouverte et fermée autour dudit précurseur (21, 22) de la charnière, caractérisée en ce que le précurseur (21, 22) de la charnière s'étend en travers d'un seul coin de la boîte en carton.
2. Boîte en carton selon la revendication 1, dans laquelle la boîte en carton (30) a une forme de parallélépipède rectangle, et le précurseur de la bande de déchirure (17) va d'une languette de traction (18), adjacente à un coin de la boîte en carton, jusqu'à une découpe (20) formée dans la face latérale adjacente suivante (12) entre les coins qui définissent cette face latérale (12).
3. Boîte en carton selon la revendication 1 ou la revendication 2, dans laquelle les lignes de faiblesse dans les faces latérales (11, 12) s'étendent parallèlement aux coins de la boîte en carton.
4. Boîte en carton selon la revendication 3, dans

laquelle une ligne d'affaiblissement est située au niveau d'un coin ou est adjacente à celui-ci.

5. Boîte en carton selon l'une quelconque des revendications précédentes, dans laquelle les deux faces latérales (11, 12) mises en jeu dans la création du couvercle (23), sont formées, au moins en partie, en tant que double couche, dont seule la couche externe est déchirée par l'actionnement de la bande de déchirure (17). 5
10
6. Boîte en carton selon l'une quelconque des revendications précédentes, dans laquelle la bande de déchirure (17) est créée à partir d'au moins une longueur de ruban de renfort collé au carton ou incorporé dans celui-ci. 15
7. Boîte en carton selon la revendication 6, dans laquelle ladite au moins une longueur de ruban (17) s'étend à travers chacune des quatre faces latérales (11-14) et des deux doubles couches prévues pour compléter les faces déchirées au cours de l'ouverture de la boîte en carton, l'étendue de la déchirure étant limitée par une découpeure (20) formée à travers le ou chaque ruban de renfort (17) au voisinage de la deuxième ligne d'affaiblissement (24). 20
25
8. Boîte en carton selon l'une quelconque des revendications précédentes, partiellement construite en forme de boîte en carton repliée qui peut être fournie aux utilisateurs sous forme de pièce de carton plate finie, ne nécessitant que la construction par pliage en volets formant le fond (11a, 12a, 13a, 14a) avant le remplissage et la fermeture du dessus (11b, 12b, 13b, 14b) après le remplissage. 30
35
9. Boîte en carton selon l'une quelconque des revendications précédentes, dans laquelle le carton incorpore une couche barrière résistant à l'humidité. 40
10. Pièce de carton rigide mais pliable en vue de construire une boîte en carton (30) selon l'une quelconque des revendications précédentes. 45

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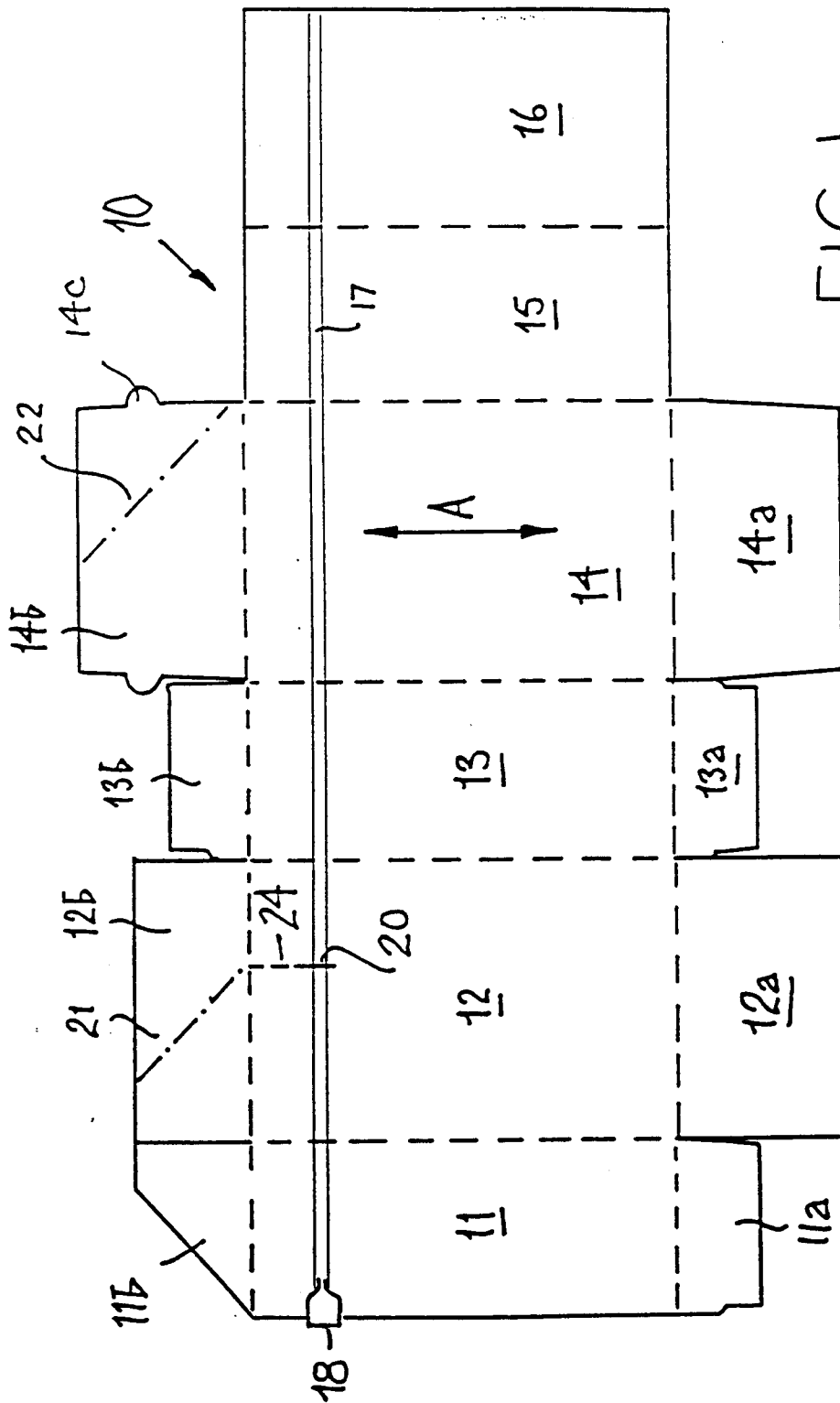
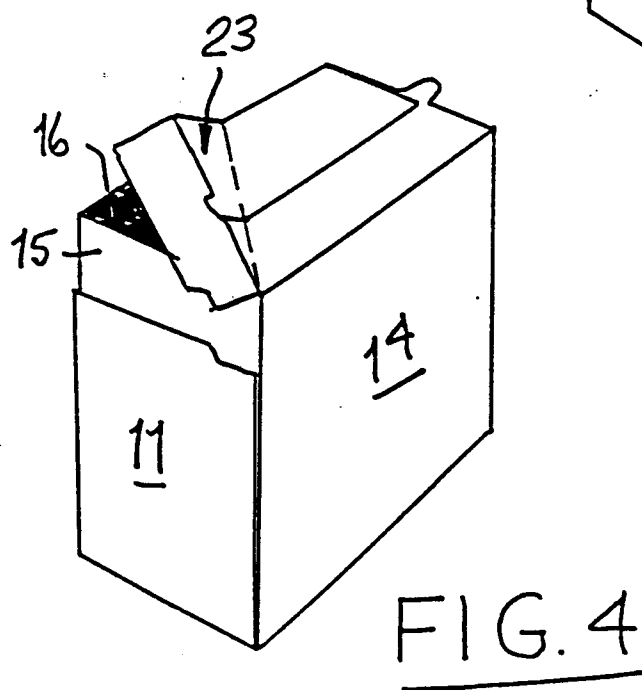
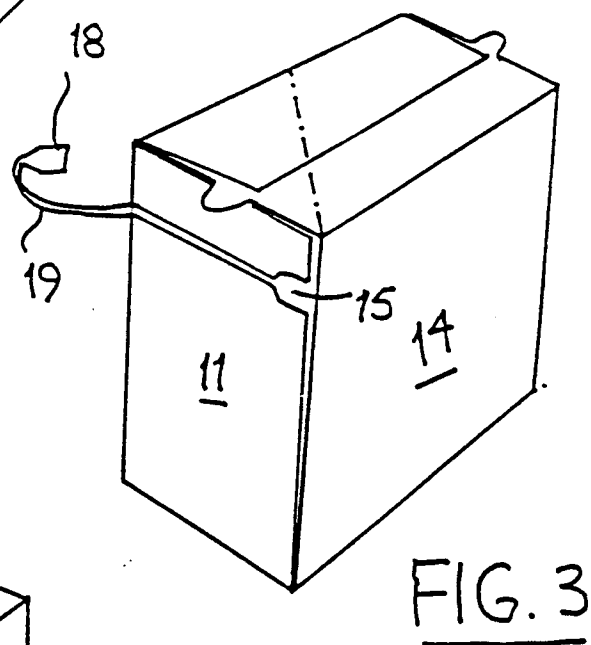
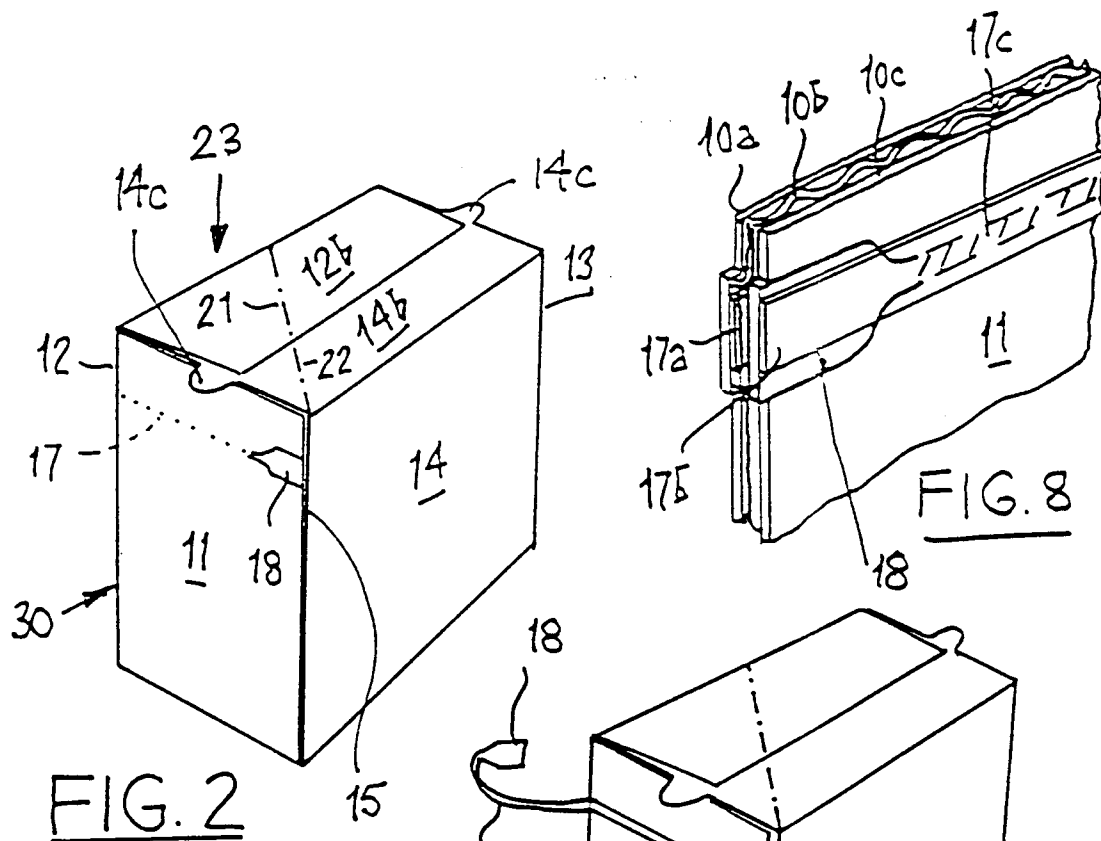


FIG. 1



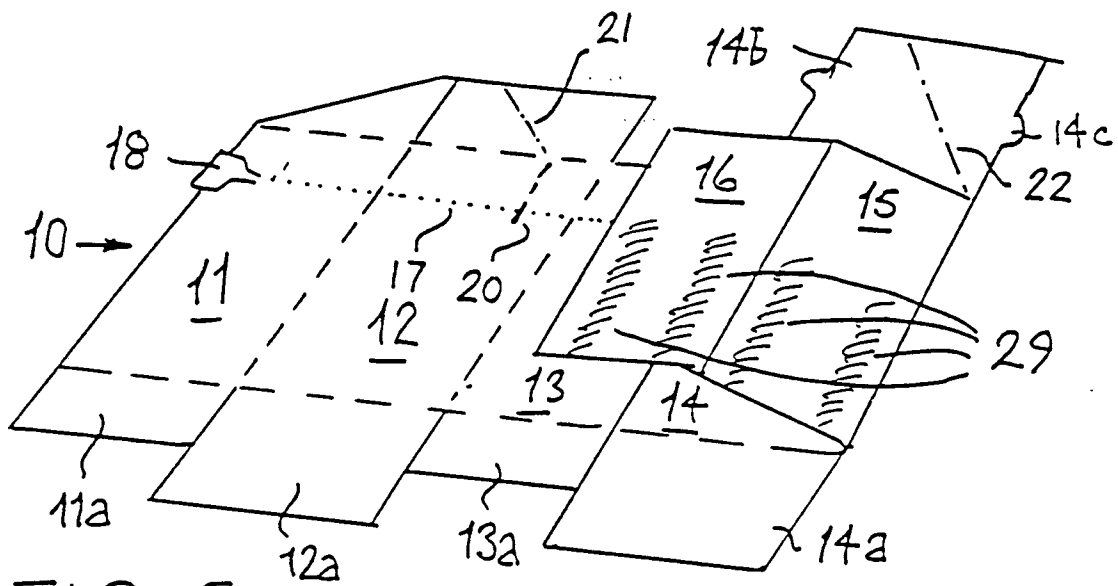


FIG. 5

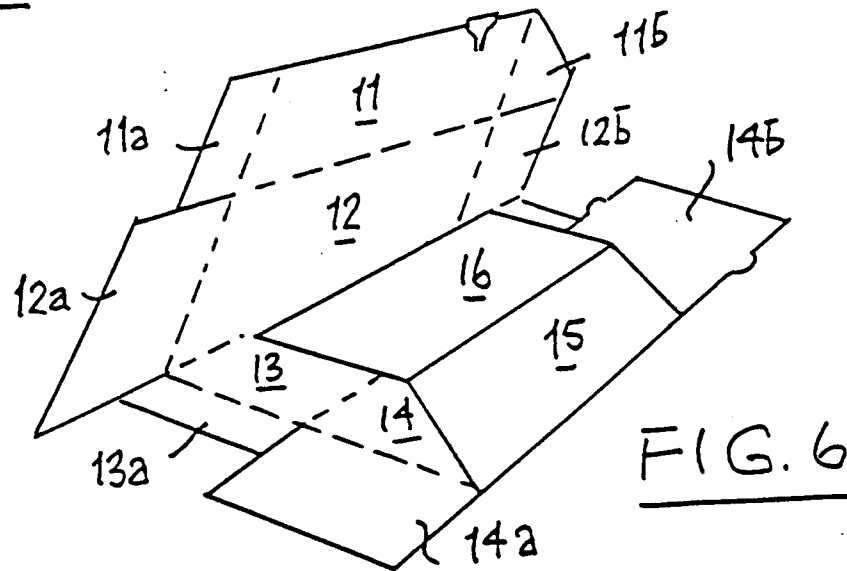


FIG. 6

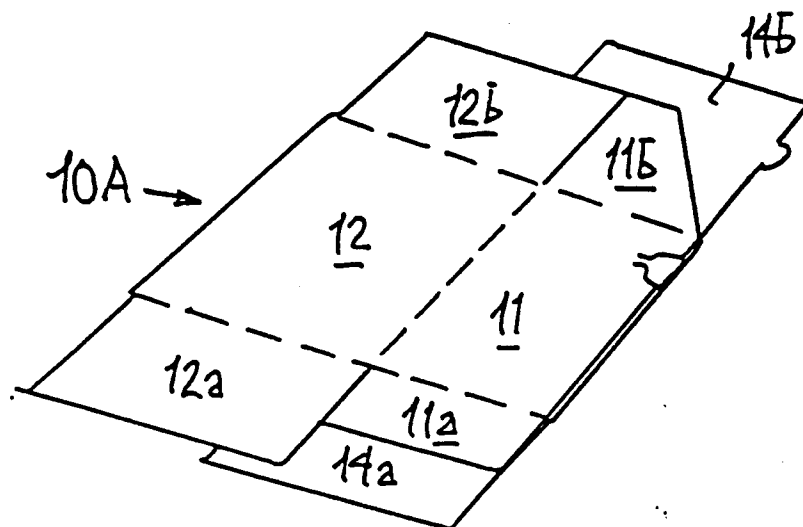


FIG. 7