



(19)

Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 873 941 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
28.10.1998 Bulletin 1998/44

(51) Int. Cl.⁶: **B65D 5/36**, B65D 5/42

(21) Application number: **98303164.2**

(22) Date of filing: **23.04.1998**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

(72) Inventors:
• **Taylor, Clare Louise**
Stanmore, Middlesex HA7 1LU (GB)
• **Taylor, Michael Gilson**
Stanmore, Middlesex HA7 1LU (GB)

(30) Priority: **24.04.1997 GB 9708378**

(74) Representative:
Beresford, Keith Denis Lewis et al
BERESFORD & Co.
2-5 Warwick Court
High Holborn
London WC1R 5DJ (GB)

(71) Applicants:
• **Taylor, Clare Louise**
Stanmore, Middlesex HA7 1LU (GB)
• **Taylor, Michael Gilson**
Stanmore, Middlesex HA7 1LU (GB)

(54) Container and blank for forming such a container

(57) A container has at least two coupled surfaces (20) each formed with fold lines (5, 6) lying on lines extending from one edge (3) of the surface to the opposite edge to meet at a point (9). The opposite edge has, bounding an opening of the container, edge portions (10, 11) which meet at a point so that the two points coincide or both lie on a line extending perpendicularly from said one edge. The angle between the edge portions (10, 11) is such that, in use, when the surfaces (20) are folded along the fold lines (5, 6) the edge portions (10, 11) of the same surface move together until they meet to close the opening of the container.

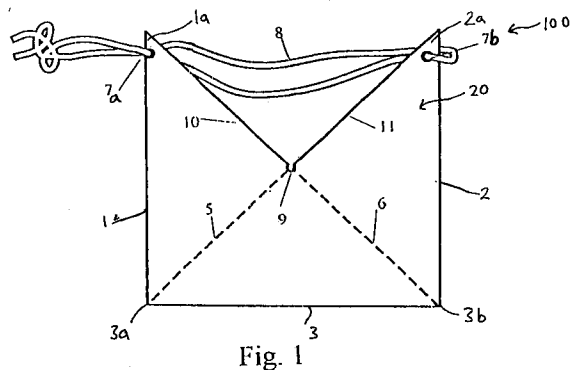


Fig. 1

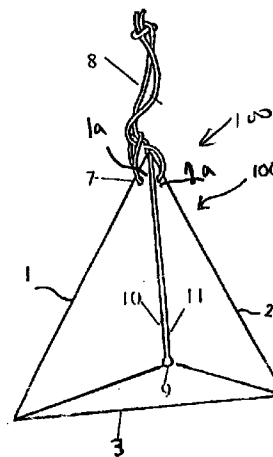


Fig. 3

EP 0 873 941 A1

Description

The present invention relates to a carrier or container and a blank or flat for forming such a carrier or container.

In particular, but not exclusively, the present invention is concerned with the provision of carriers or containers for goods purchased in retail stores, for example goods such as items of clothing, jewellery and the like.

Conventionally, retail stores package purchase goods for transportation by the customer in generally rectangular carrier bags which may either be made of flexible material such as plastics or of relatively rigid material such as card. Both forms of carrier bags are relatively easy to use, cheap to make and can be stored and transported very readily. However, in both types of such carrier bags, the bag has an upper opening which is not satisfactorily closed when the user grasps the carrier bag handles or carrying apertures. Furthermore, even in the case of carrier bags made out of card, the bag is not particularly rigid in use.

Other forms of packaging include boxes which are generally made of cardboard or similar rigid material and are assembled into a substantially rigid three-dimensional shape from a flat-pack form. Although such boxes provide for total enclosure of the packaged goods in a relatively rigid container, once the box has been assembled it is normally glued, stapled or held together by some other manner, such as tape, and cannot be readily transformed back into a flat-pack shape or reused without damage to the box.

According to one aspect of the present invention, there is provided a carrier or container which is readily convertible between a flat-pack or flat shape for storage and transportation and a three-dimensional shape in which the carrier or container can completely enclose goods or other items.

According to one aspect of the present invention, there is provided a container or carrier having at least two coupled surfaces formed with fold lines for enabling the carrier or container to be opened out into a three-dimensional shape, an opening of the carrier or container having edge portions which, when the carrier surfaces are folded about the fold lines, meet so as to close the container. As used herein the term "fold lines" includes any line about which the material forming the container can be folded including, for example, seam lines or weakened or perforated areas.

A carrier or container embodying the invention may have a polygonal shape which can be transformed from a flat shape in which the carrier or container can be readily stored or transported to a three-dimensional shape in which the carrier forms its own lid or closure with the items or goods to be contained within the carrier or container being placed therein as the carrier or container is transformed from its flat configuration before the carrier or container reaches its final three-dimensional configuration in which the opening of the

carrier is fully closed.

A carrier or container embodying the invention may be provided with handles, a carrying cord or the like to enable it to be carried by hand or, for example, hung on a display in a retail store.

Where the carrier or container has a carrying cord this carrying cord will generally pass through respective holes provided at the spaced-apart ends of the edge portions with the cord or rope being doubled back on itself to provide a drawstring type handle which can be used to pull the container into its three-dimensional shape in which the container is fully closed. When such a drawstring type handle is used, the free ends of the cord or rope may be passed through the loop at the other end so as to securely close the container or carrier.

Alternative fastening means can be used, for example a Velcro (registered trademark) fastening mechanism may be used or the edge portions of the container may be provided with respective projections which interlock with one another when the container is shut so as to hold the container in the closed state.

The edges or fold lines of the container may be straight or curved. In addition, the surfaces of the container may be coupled together by additional members such as gussets or the like to increase the dimensions of the container or carrier.

Further arcuate or similar fold lines may be provided running along the surfaces close to the edge opposite the opening so as to enable the container to have a stable base when in its three-dimensional form.

In embodiments of the invention, the container may have two, three, four or more surfaces each having intersecting or meeting fold lines and corresponding edge portions. In such cases, the container may have a base member which has the same number of sides as there are surfaces allowing the container to have any desired polygonal base, for example triangular, square, rectangular or hexagonal.

The sides or edges of the container which extend between the opening and the bottom or base edge may be parallel to one another or may taper either inwardly toward the opening or outwardly toward the opening.

In an embodiment, the angle between the fold lines may be the same as or different from the angle between the edge portions such that the edge portions meet but do not overlap when the container is in its closed condition. The angle between the edge portions is 90°. Also, although the bag will generally be symmetrical about a line extending perpendicularly from an edge opposite the opening to the intersection of the fold lines this need not necessarily be the case. Indeed, the bag may have any overall three-dimensional shape. The points at which the edge portions meet and at which the fold lines meet either coincide or lie on a line extending perpendicularly from the edge of the container opposite to the opening.

The container or carrier may be formed of one or

more of a large number of different materials. Suitable materials are materials such as card, cardboard, rigid or semi rigid plastics materials such as rigid polyolefins such as polypropylene, polyvinyl chloride etc. and other rigid plastics materials. The use of card and cardboard has the advantage that they are relatively cheap and easy to fabricate. In addition, the card or cardboard can be coated with a plastics coating to improve wear and wear resistance and can be printed or covered with other decorative or inscribed materials. The above-mentioned materials are all materials which, when folded, retain the fold lines. The present invention may also be applied to materials such as relatively stiff leather or cloth which would normally retain creases when folded. More flexible or softer materials may be used, if the desired fold lines and edges are reinforced by, for example, simple stitching of a seam or by stitching wires or reinforcing ribs of, for example, resilient material such as plastics along the desired fold lines and edges.

An embodiment of the invention provides a carrier which comprises a sheet of substantially rigid material folded about a base axis or two sheets of substantially rigid material pivotally joined together about a base axis and in either case pivotally joined together along their side edges, each of the sheets having at least one fold line formed in it whereby, when the tops of the edges of the sheets remote from the base axis are moved towards each other, the centre part of the two sheets either side of the base axis move away from each other and the sheets fold about the fold lines to form a receptacle, the sheets being shaped such that when the said tops of the edges are in substantial contact a cover for the receptacle is formed.

Preferably the carrier is formed from a single sheet of material folded about the base axis with the fold acting as a pivotal axis.

By substantially rigid material is meant a material which possesses sufficient rigidity so that when it is folded it will fold about a fold line or lines, suitable materials are card, cardboard, rigid or semi rigid plastics material such as rigid polyolefins such as polypropylene, polyvinyl chloride etc. and other rigid plastics material, preferred materials are card and cardboard which are cheap and easy to fabricate. The card or cardboard can be coated with a plastics coating to improve water and wear resistance and can be printed or covered with other decorative or inscribed material.

Preferably there is a cord passing through suitable holes adjacent the tops of the edges of the container or receptacle so that, by pulling on the cord, the tops of the edges are brought together and the cord can be looped so as to hold the top edges together and hold the cover formed in place or the cover can be held by "Velcro" (trademark).

It is a feature of this embodiment that, due to the rigidity of the folds in the material, the ends of the base axis stay apart when the top edges are moved towards

each other so that the centre parts of the sheets of material folded around the base axis are constrained to move away from each other and to fold about the fold lines, thus forming a three-dimensional structure.

The shape and size of the material used will depend on the chosen shape of the final receptacle or container to be formed and a wide range of different shapes and configurations can be formed with the fold lines in the sheets being positioned accordingly.

In an embodiment the carrier is made from a single sheet of material with tabs along its edges so that the tabs can be easily fixed to the opposite edge to form the structure required e.g. by gluing, sewing, plastic etc. This enables the tabs to act like a pivot or hinge and enables the opposite edges of the two sheets of material to move together and apart easily.

In an embodiment the carrier is a rigid three-dimensional structure and can be of any convenient size and articles can be easily carried within it. When the top edges of the receptacle are moved apart the carrier returns to a flat shape for ease of storage and transportation.

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

Figure 1 shows a side view of a first embodiment of a carrier or container in accordance with the invention with the carrier or container in a flat state;

Figure 2 is a perspective view showing the container of Figure 1 in a partly closed condition;

Figure 3 is a perspective view showing the container of Figure 1 in a fully closed condition;

Figure 4 shows a plan view of a blank or sheet of material from which the container shown in Figures 1 to 3 can be formed;

Figure 5 shows a plan view of a second embodiment of a container in accordance with the invention with the container in a flat condition;

Figure 6 is a perspective view showing the container of Figure 5 in a partly closed condition;

Figure 7 is a perspective view showing the container of Figure 5 in a fully closed condition;

Figure 8 is a plan view showing a blank or sheet of material from which the container shown in Figures 5 to 7 may be formed;

Figure 9 is a plan view showing a third embodiment of a container in accordance with the invention in a flat condition;

Figure 10 is a perspective view showing a fourth embodiment of a container in accordance with the present invention in a condition between the flat and fully closed condition;

Figure 11 is a plan view of a fifth embodiment of a container in accordance with the present invention in a flat condition;

Figure 12 is a perspective view of the container shown in Figure 11 showing the container in a closed condition;

Figure 13 is a plan view of another embodiment of a container in accordance with the invention in a flat condition;

Figure 14 is a plan view of another embodiment of a container in accordance with the present invention in a closed condition;

Figure 15 is a plan view of another embodiment of a container in accordance with the present invention in a flat condition;

Figure 16 is a plan view of another embodiment of a container in accordance with the present invention in a flat condition;

Figure 17 is a side view of the container shown in Figure 16 showing the container in a closed condition;

Figure 18 is a plan view of another embodiment of a container in accordance with the present invention showing the container in a flat condition;

Figure 19 is a plan view of another embodiment of a container in accordance with the present invention showing the container in a flat condition;

Figure 20 is a perspective view of the container shown in Figure 19 with the container in a closed condition and showing a cord or rope holding the container in the closed condition;

Figure 21 is a plan view of a blank or sheet of material for forming the container shown in Figures 19 and 20;

Figure 22 is a perspective view of a further embodiment of the container in accordance with present invention showing the container in a closed condition;

Figure 23 shows a modified form of the container shown in Figure 22 without a closure cord; and

Figure 24 shows a blank or sheet of material for forming the container shown in Figure 22.

Referring now to the drawings, Figures 1 to 3 illustrate a first example of a container or carrier 100 in accordance with the present invention.

This container has two surfaces 20 (only one of which can be seen in Figure 1) each having first and second opposed edges 1 and 2 and a third edge 3 joining the first and second opposed edges. As shown, the first and second edges 1 and 2 are of the same length as the third edge 3, although this need not necessarily be the case.

Fold lines 5 and 6 extend from respective ends 3a and 3b of the third edge to an intersection or meeting point 9.

The edges of the two surfaces 20 opposite the third edge are each formed of first and second edge portions 10 and 11 which extend at an acute angle to their respective first and second edges and have ends meeting at the point 9 at which the fold lines 5 and 6 meet. A hole or recess may be formed at the point 9 to reduce any tendency to cracking, splitting or tearing at the cross point.

Holes 7 are punched through the first and second surfaces 20 near the points where the edge portions 10 and 11 and first and second edges 1 and 2 meet. A cord 8 is passed from the exterior of the container to the interior through one hole 7a then back to the exterior of the container through the corresponding hole 7b in the same surface 20 and is then looped back around the exterior of the container through the hole (not shown) which is provided on the other surface 20 adjacent the hole 7b and then back out through the hole (not shown) on that same surface which is provided adjacent the hole 7a. The ends of the cord may then be knotted in a conventional manner.

Figure 1 shows the carrier in its flat configuration or condition. In order to transform the carrier into its three-dimensional or closed condition, the first and second edges 1 and 2 may be squeezed together by, for example, drawing on the cord 8 so causing, as shown in Figure 2, the container to fold about the fold lines 5 and 6. In the partially closed conditions shown in Figure 2, goods or other items to be carried may be placed in the container.

Once the goods or items to be carried have been placed in the container, the cord 7 may be tightened completely so that the first and second edge portions 10 and 11 of each surface 20 meet, but as shown in Figure 3 do not overlap, so as to fully close the container. The knotted free end of the cord 8 may then be passed through the loop at the other end so as to fasten the container securely. The cord 8 may be used as a carrying handle or may be used, for example, to hang the container from a display stand in, for example, a retail store or on, for example, a Christmas tree.

As will be appreciated, friction provided by the inter-

action of the cord with itself and the holes 7 holds the container shut. Also, the weight of an object or goods within the carrier or container will tend to hold the carrier shut when the carrier is suspended from the carrying handle or cord 8.

In order to undo the container, the cord 8 is loosened and its free end passed through the loop. The container may then be returned to the state shown in Figure 2 by squeezing gently in the region of the points 9 or by pulling the corners 1a and 2a away from one another. Once the carrier reaches the condition shown in Figure 2, any goods or other items contained in the carrier may then be removed and the carrier then completely flattened by continuing the aforementioned process. The carrier may then be reused to contain the same or different goods.

Although the carrier or container shown in Figure 1 may be formed from two sheets of material secured together by stitching, gluing or the like, it is preferred that the container be formed from a single blank or sheet of rigid material as shown in Figure 4 so enabling a number of carriers to be stamped or cut from a larger sheet of material. In order to form the carrier as shown in Figure 1, the blank 200 shown in Figure 4 is first folded about a base axis which forms the third edge 1 and tabs 4a and 4b provided on one of the surfaces 20 are folded inwardly and glued to the inside of the other surface 20. It will, of course, be appreciated that the tabs 4a and 4b may be provided on different ones of the surfaces 20. The fold lines 5 and 6 are formed in each of the surfaces 20 so that, in this example, the angle between the folds 5 and 6 matches the angle between the edge portions 10 and 11 and is 90°.

In this example, the edge portions 10 and 11 of each surface 20 are formed with tabs 16a, 16b, 16c and 16d of generally trapezoidal shape which can be folded back to the inside of the container and, for example, glued in place to provide a double thickness layer to provide additional strength and/or tidy edges for the container or carrier opening. Of course, if this is not required, then the tabs 16a to 16d may be omitted.

Holes 7a, 7b, 7h and 7e are formed adjacent the corners 1a and 2a as discussed above. If the tabs 16a to 16d are provided, then corresponding holes 7c, 7d, 7g and 7f will also be provided in the tabs. In addition, recesses or notches 14a and 14b are provided in the tabs 4a and 4b so that the tabs 4a and 4b do not mask the holes 7 but allow clearance of the tab and the cord 8.

In this example, the blank 200 is formed from a single sheet of card or cardboard. Other materials which hold their shape when folded may be used, for example synthetic rubbers such as neoprene, rigid or semi rigid plastics materials such as rigid polyolefins, for example polypropylene or polyvinyl chloride, and other rigid plastics materials. Where card or cardboard is used, then the card or cardboard may be coated with a plastics coating to improve water and wear resistance and may

be printed or covered with other decorative or inscribed materials.

Figures 5 to 7 illustrate a second embodiment of a carrier or container in accordance with the present invention.

It will be appreciated, if the drawing of Figure 5 is rotated through 45° in the clockwise direction, that the container 101 shown in Figure 5 is based on that shown in Figures 1 to 3 but has been extended or stretched along the direction of the fold line 5 so that the container is no longer symmetrical about a line bisecting the angle between the first and second edge portions 10 and 11 and the third edge 3' and first edge 1' no longer meet at right angles.

In order to transform this container 101 from the flat condition shown in Figure 5 to the three-dimensional closed condition shown in Figure 7, a similar procedure to that adopted above for the first embodiment is followed. Thus, the user either squeezes the corners 1a and 2a together or pulls on the cord 8. This causes the container to fold about the fold lines 5 and 6 to reach the conditions shown in Figure 6. At this stage, items or other goods can be placed inside the container. Continued pulling on the cord 8 causes the container to completely close which, in this case, effectively flattens out the portions of the surfaces 20 bounded by the edge portion 11 and the fold line 6 so as to form a lid 21 with the edge portions 10 and 11 meeting but not overlapping.

Again, the container 101 shown in Figures 5 to 7 may be formed, as illustrated by Figure 8, from a single blank or sheet of rigid material such as card or cardboard.

The blank 201 shown in Figure 8 is folded to form the fold lines 5 and 6 and the edge 1'.

A tab 33 provided on an edge 32b of the blank is coated with an adhesive and secured to the corresponding edge 32a of the blank to form the third edge 3'. The second edge 2 is similarly formed by means of a tab 44 provided on an edge 42 which is glued to a corresponding edge 47. Again, the edge portion 11 and 10 may be provided with tabs 39a to 39d to provide for a double thickness of material around the opening so as to provide for reinforcement. Again, as in the container shown in Figures 1 to 3, holes 7a to 7h are punched out from the blank to allow for passage of the cord and notches 45a and 45b are formed in the tabs 33 and 44 to prevent the tabs from masking the hole. Again, a hole may be punched at the intersection point 9 so as to reduce any tendency to cracking, splitting or tearing.

Figure 9 illustrates a further embodiment of a container or carrier 102 in accordance with the present invention and shows the container in a flat condition. This embodiment is based on that shown in Figure 1. However, in this arrangement, the point 9a at which the fold lines 5 and 6 meet is spaced from the point 9b at which the ends of the edge portions 10 and 11 meet so that the two points 9a and 9b lie on a line extending per-

pendicularly from the third edge 3. A fold line 9c is provided between the points 9a and 9b and, in order to reduce tearing, cracking or the like, a hole may be punched at the point 9b.

The container 102 shown in Figure 9 may be made of any of the materials mentioned above and is, like the embodiments shown in Figures 1 to 8, provided with a cord 8 fastening.

In order to transform the container 102 from its flat condition shown in Figure 9 to a three-dimensional closed condition, again, a user pulls on the cord 8 or squeezes the corners 1a and 1b together. In this example, this causes the surfaces 20 to fold about the fold lines 5, 6 and 9c so that the edge portions 10 and 11 of each surface 20 come together (but do not overlap) to provide a closure or lid for the container.

Figure 10 shows a container 103 which is also a modification of the container shown in Figure 1. The container 103 is shown in a condition between the flat and fully closed condition. In the container shown in Figure 10, the edges 1 to 3 of each surface 20 are not directly coupled together but are coupled by means of gussets 40 each of which has a central fold 41. This increases the overall carrying capacity of the carrier while still allowing the carrier to be brought to a fully closed condition, such that the edge portions 10, 11 meet but do not overlap, by pulling on the cord 8.

Figure 11 illustrates, in the flat condition, a further container 104 which also is a modification of that shown in Figure 1. In this case the fold lines 5 and 6 in each surface 20 are supplemented by further fold lines 42 to 46 so that, when the container 104 is transformed from the flat state shown in Figure 11 to the three-dimensional closed state shown in Figure 12 by pulling on the cord 8, the fold lines 45 and 46 fold inwardly so that areas 21a of the surfaces provide a flat lid or closure and areas 21b of the surfaces carrying the cord 8 project from the lid or closure and the edge portions 10, 11 still meet but do not overlap.

Figure 13 illustrates, in the flat condition, a container 105 which is a further modification of the container shown in Figure 1. This container differs from that shown in Figure 1 in that the third edge 3 is outwardly concave and the fold lines 5 and 6 are similarly curved.

Figure 14 illustrates, in the closed condition, a further container 106 which is based on that shown in Figure 13 but incorporates additional folds 47 and 48 extending from the point 9 to the corners 1a and 1b which enable, as discussed above with reference to Figure 12, the container to be provided with a flat lid when in its closed state with the edge portions 10, 11 still meeting but not overlapping. It will, of course, be appreciated that the fold modification shown in Figure 14 could be applied to the container as shown in Figure 11 and vice versa.

Figure 15 illustrates, in a flat condition, a variation of the container 105 shown in Figure 13. In the container 107 shown in Figure 15, the fold lines 5 and 6 are

convex rather than concave.

In each of the embodiments described above, the container has been closed by means of a cord or draw-string. However, alternative closure mechanisms are possible. One example discussed above is the possibility of using Velcro (trademark). Another possibility is to provide the edge portions 10 and 11 with projections which cooperate with one another so as to secure the opening.

Such projections may be, for example, projections which are shaped similar to a purse clasp so as to hold the edge portions 10 and 11 together. Another possibility is shown in the container 108 shown in a flat condition in Figure 16. In this container one edge portion 10 is provided with three tab-like projections 50 and the other edge portion 11 is provided with two tab-like projections 50 located so that, when the edge portions 10 and 11 are brought together, the tab-like projections 50 on the edge portion 11 interleave with the tab-like projections 50 on the edge portion 10. Although the tab like projections 50 are shown as being square in Figure 16 it will, of course, be appreciated that other shapes may be used. For example, one set of tab-like projections may taper and the other set may flare outwardly so as to form a tongue and groove like arrangement. The corners 1a and 1b of the container shown in Figure 16 may be provided with apertures 7 for receiving cord or ribbon for providing a handle for carrying purposes, if necessary. Figure 17 shows the container 108 of Figure 16 in a closed condition.

In the majority of the embodiments described above, the first and second edges 1 and 2 have been shown to be parallel to one another. This need not, however, necessarily be the case. Figure 18 shows a container 109 wherein the edges 1 and 2 extend at an acute angle to the edge 3 so that the opening is a smaller lateral extent than the edge 3. As an alternative, the edges 1 and 2 could extend at an obtuse angle to the edge 3 so that the opening is longer than the edge 3.

Of course, the edges 1 and 2 need not be straight but could have different curved shape.

Figures 19 to 20 illustrate a further embodiment of a container 110 in accordance with the invention wherein more than two surfaces 20 are used to form the container.

The structure of the container shown in Figures 19 to 21 can be best understood by considering Figure 21 which shows a blank 210 for forming the container 110. It will, of course, be appreciated that although desirable, it is not necessary to form the container from a single blank.

As can be seen from Figure 21, the container 110 comprises four surfaces 20a, 20b, 20c and 20d with the surface 20d being split into two parts 20d' and 20d'' each of the surfaces 20a to 20d is formed with the fold lines 5, 6 with one of the fold lines 6' being formed by the joining of an edge 50 of the part surface 20d' to a tab 51 of the other part surface 20d''. As the container is

formed from an integral blank, the first edge of each successive surface 20 also forms the second edge of the preceding surface 20 and is, in this example, provided by a fold line shown by the large dashed lines.

The container 110 has a square base 60 which is integrally formed with the third edge 3 of one of the surfaces 20, in this case the surface 20b. Two of the free edges of the base 60 are provided with tabs 61 and 62. The third edge 3 of the surface 20c is also provided with a tab 63. Securing tabs 64 and 65 are also provided on the edge portions 10 of the surfaces 20b and 20d.

Apertures 7 and notches 14 may be provided as discussed above for enabling receipt of a securing/carrying cord.

The blank 210 shown in Figure 21 is assembled into the container 110 shown in Figure 19 by applying adhesive to the tabs 61 to 63 to secure each edge 3 of a surface 20a to 20d to a corresponding edge of the base 60 and by applying adhesive to the tab 51 to secure it to the edge 50 and adhesive to the tabs 64 and 65 to secure them to the edge portion 11 of the surface 20b and the edge portion 11 of the surface 20d, respectively.

Figure 19 illustrates the container 110 in its flat condition. In order to transform the container 110 into its three-dimensional closed condition as shown in Figure 20, a user either pulls on the cord 8 if one is provided or pushes the corners 1a, 1b together so that the edge portions 10, 11 of the surfaces 20a and 20c meet, but do not overlap, to close the container.

It will, of course, be appreciated that containers of different polygonal base shape may be formed by changing the number of sides of the base 60 and adding further surfaces 20. For example, a container having a triangular, pentagonal or hexagonal base and the same number of surfaces 20 could be formed.

Figures 22 to 24 illustrate a further container 111 embodying the present invention.

Figure 24 shows a blank 211 for forming the container 111. As can be seen from comparing Figures 24 and 21, this container is similar to that shown in Figures 19 to 21 except that the base 60 is omitted and further fold lines 70 are provided bisecting the angle between the fold lines 5 and 6 on alternate ones of the surfaces 20. In this example, the additional fold lines 70 are provided on the surfaces 20B and 20D.

The folds 70 fold in the opposite direction to the folds 5 and 6, that is inwardly of the container. In order to assemble the container 111 from the blank 211 shown in Figure 24, the tabs are folded inwardly and the blank is folded about the folds 70. The tab 63 is then secured to the edge 3 of the surface 20a while the tab 64 is secured to the edge portion 11 of the surface 20b and the tab 65 is secured to the edge portion 11 of the surface 20d. Again, although not shown in Figure 24, apertures 7 and notches 14 may be provided to enable a cord or drawstring to be provided through the corners 1a and 1b of the surfaces to facilitate transformation of the container 111 to the three-dimensional or closed

state shown in Figure 22 in which the edge portions 10 and 11 of surfaces 20a and 20c meet but do not overlap.

This arrangement provides a carrier or container 111 which is similar to that shown in Figure 1 but which has extensions 71 and 72 formed by the portions 20b' and 20b'' of the surface 20b and the corresponding portions 20d' and 20d'' of the surface 20d. The portions 20b' and 20b'' (and 20d' and 20d'') may be glued or otherwise secured together and one or both of these may be formed with an aperture 80 to facilitate carrying of the container.

Figure 23 shows a modification of the container shown in Figure 20 wherein, after securing together of the portions 20b' and 20b'' (and 20d' and 20d'') the edges of these portions are shaped so as to change the overall shape of the container to provide, in this example, a bell-like shape. Again, a carrying aperture 80 may be provided in one or both of the portions 71 and 72.

It will, of course, be appreciated that the modifications described with reference to the above Figures may be combined so that, for example, gussets such as those shown in Figure 10 may be applied to the embodiments shown in Figures 11 onwards and the meeting point of the edge portions 10 and 11 may be spaced from the meeting point of the fold lines 5 and 6 as shown in Figure 9 in each of the embodiments which follow that embodiment. Also, the closure modifications shown in Figures 12 and 14 may be applied to any of the other embodiments and the fold lines and edges of the other embodiments may be shaped as described with reference to Figures 13 to 15. Also, other forms of securement means such as the projections shown in Figure 16 may be used in the other embodiments.

Each of the above-mentioned containers may be manufactured using any of the materials referred to in the discussion of Figures 1 to 4.

Although a container in accordance with the present invention is primarily intended to be manufactured from materials which hold their shape when folded such as rigid or semi rigid materials, it may also be possible to manufacture the container using other materials. For example, any of the containers discussed above may be manufactured from leather or similar relatively pliant materials by, for example, forming the fold lines as raised or reinforced seams. If necessary, resilient materials such as, for example, strips of plastic or wire, may be provided along the fold and edge lines in such a case so as to increase the structural strength of the bag and to ensure that folding occurs along the required directions when the container is transformed from the flat to the closed three-dimensional shape.

As noted above, the angle subtended by the folds 5 and 6 of the container can be varied to allow for different shapes and configurations and the container need not necessarily be symmetrical. This allows for flexibility in the size and configuration of the space provided with the container so as to adapt it to carry different articles.

As mentioned above, the angle between the edge

portions of each surface forming the opening is selected such that in the three-dimensional closed condition these edge portions meet but do not overlap.

Claims

1. A container having at least two coupled surfaces each formed with fold lines lying on lines extending from one edge of the surface to the opposite edge to meet at a point, said opposite edge having, bounding an opening of the container, edge portions which meet at a point so that the two points coincide or both lie on a line extending perpendicularly from said one edge, the angle between the edge portions being such that, in use, when the surfaces are folded along the fold lines the edge portions of the same surface move together until they meet to close the opening of the container.
2. A container according to claim 1, wherein there are further surfaces having said fold lines and edges of the surfaces opposite the opening are coupled to a base member having the same number of sides as there are surfaces.
3. A container according to claim 1, wherein there are further surfaces having said fold lines and alternate surfaces have a further fold line bisecting the angle between said fold lines and arranged to fold in the opposite direction thereto when the container is being closed.
4. A container, comprising first and second surfaces each having:
 - first and second edges;
 - a third edge extending from one end of the first edge to the corresponding end of the second edge; and
 - a fourth edge extending between the other ends of the first and second edges,
 - the first edge of the first surface being coupled to the first edge of the second surface, the second edge of the first surface being coupled to the second edge of the second surface and the third edge of the first surface being coupled to the third edge of the second surface,
 - each of the first and second surfaces having a first fold line extending from the other end of the first edge towards the fourth edge and a second fold line extending from the other end of the second edge towards the fourth edge so that the first and second fold lines meet at a point, and
 - the fourth edges of each of the first and second surfaces bounding an opening of the container and each having a first edge portion extending from the one end of the first edge toward the

third edge and a second portion extending from the one end of the second edge towards the third edge so that the first and second edge portions meet at a point on a line extending perpendicularly of the third edge and also passing through the point at which the first and second fold lines meet,

the angle between the first and second edge portions being such that, in use, folding of the first and second members along the first and second fold lines causes the first edge portion of the first surface to move towards the second edge portion of the first surface and the first edge portion of the second surface to move towards the second edge portion of the second surface until the first and second edge portions meet to close the container.

5. A container according to claim 4, wherein the first edges are coupled together by a further surface which has:

- first and second edges;
- a third edge extending from one end of the first edge to the corresponding end of the second edge; and
- a fourth edge extending between the other ends of the first and second edges,
- the first edge of the further surface being coupled to the first edge of the first surface, the second edge of the further surface being coupled to the first edge of the second surface and the third edge of the further surface being coupled to the third edges of the first and second surfaces,
- the further surface having a first fold line extending transversely of the other end of the first edge towards the fourth edge, a second fold line extending transversely of the other end of the second edge towards the fourth edge so that the first and second fold lines meet at a point, and a third fold line extending perpendicularly of the third edge and also passing through the point at which the first and second fold lines meet,
- the first and second edges of the first and second surfaces comprising further fold lines with the further fold lines and the third fold line being arranged to fold in the opposite direction to the first and second fold lines such that, in use, the further surface is folded along the first, second and third fold lines to bring the parts bounded by the first and third and second and third fold lines together and folding along the further fold lines causes the first and second edge portions of the first and second surfaces to meet to close the container.

6. A container according to claim 4, wherein the first edges are coupled together by a further surface and the third edges are coupled by an additional surface with the further surface coupling the first edges having:

first and second edges;

a third edge extending from one end of the first edge to the corresponding end of the second edge;

a fourth edge extending between the other ends of the first and second edges,

the first edge of the further surface being coupled to the first edge of the first surface, the second edge of the further surface being coupled to the first edge of the second surface and the third edge of the further surface being coupled to the third edges of the first and second surfaces by means of the additional surface;

a first fold line extending transversely of the other end of the first edge towards the fourth edge;

a second fold line extending transversely of the other end of the second edge towards the fourth edge so that the first and second fold lines meet at a point with the fourth edges bounding the opening of the container,

the angle between the first and second edge portions being such that, in use, folding of the first, second and further surfaces along the first and second fold lines causes the first and second edge portion of each of the first, second and further surfaces to move towards one another until the first and second edge portions of the first and second surfaces meet to close the container.

7. A container according to claim 5 or 6, wherein the second edges are coupled by a further surface which is the same as the further surface coupling the first edges.
8. A container according to any one of claims 4 to 7, which further comprises one or more additional surfaces each the same as the first and second surfaces with the each second edge being coupled to a base member having the same number of sides as there are surfaces.
9. A container according to any one of the preceding claims, wherein the point at which the fold lines meet coincides with the point at which the edge portions meet.
10. A container according to any one of the preceding claims, wherein the angle at which the edge portions meet is 90°.

11. A container according to any one of the preceding claims, wherein opposed edges of the surfaces are substantially parallel to one another.

12. A container according to any one of the preceding claims, wherein the edge portions carry closure means for coupling the edge portions together.

13. A container according to claim 12, wherein the closure means comprise projections provided on the edge portions which are arranged to interlock with one another to couple the edge portions together.

14. A container according to any one of the preceding claims, wherein the surfaces are formed with arcuate fold lines extending from one end to the other of an edge opposite the opening for forming a container base when the container is closed.

15. A container according to any one of the preceding claims, wherein the surfaces are not directly coupled but are coupled by additional surfaces such as gussets.

16. A container according to any one of the preceding claims, wherein the surface edges are straight or curved or a combination thereof.

17. A container according to any one of the preceding claims wherein the surfaces are formed of paper, card, leather, plastics or synthetic rubber.

18. A blank or flat for forming a container having the features recited in any one of the preceding claims.

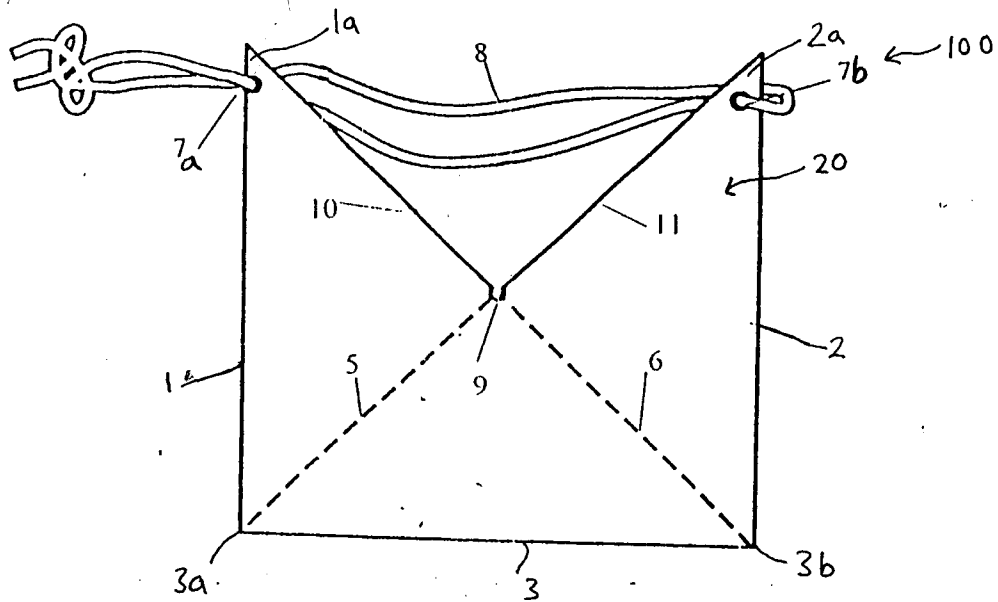


Fig. 1

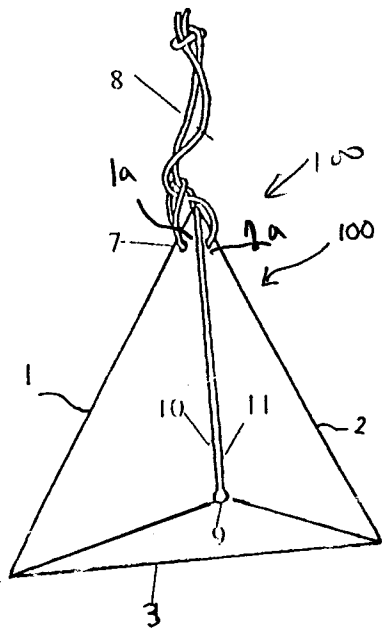


Fig. 3

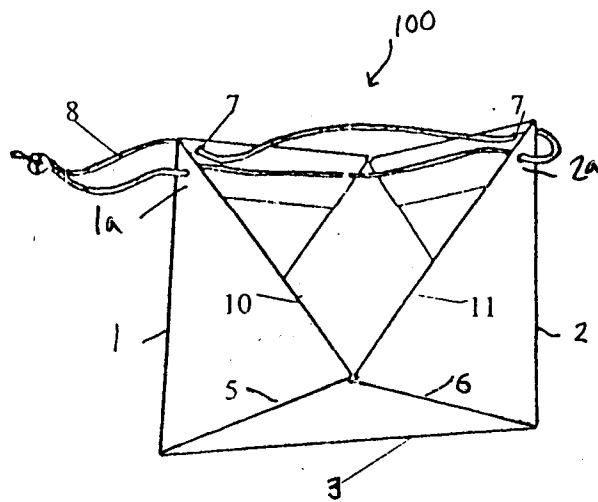


Fig. 2

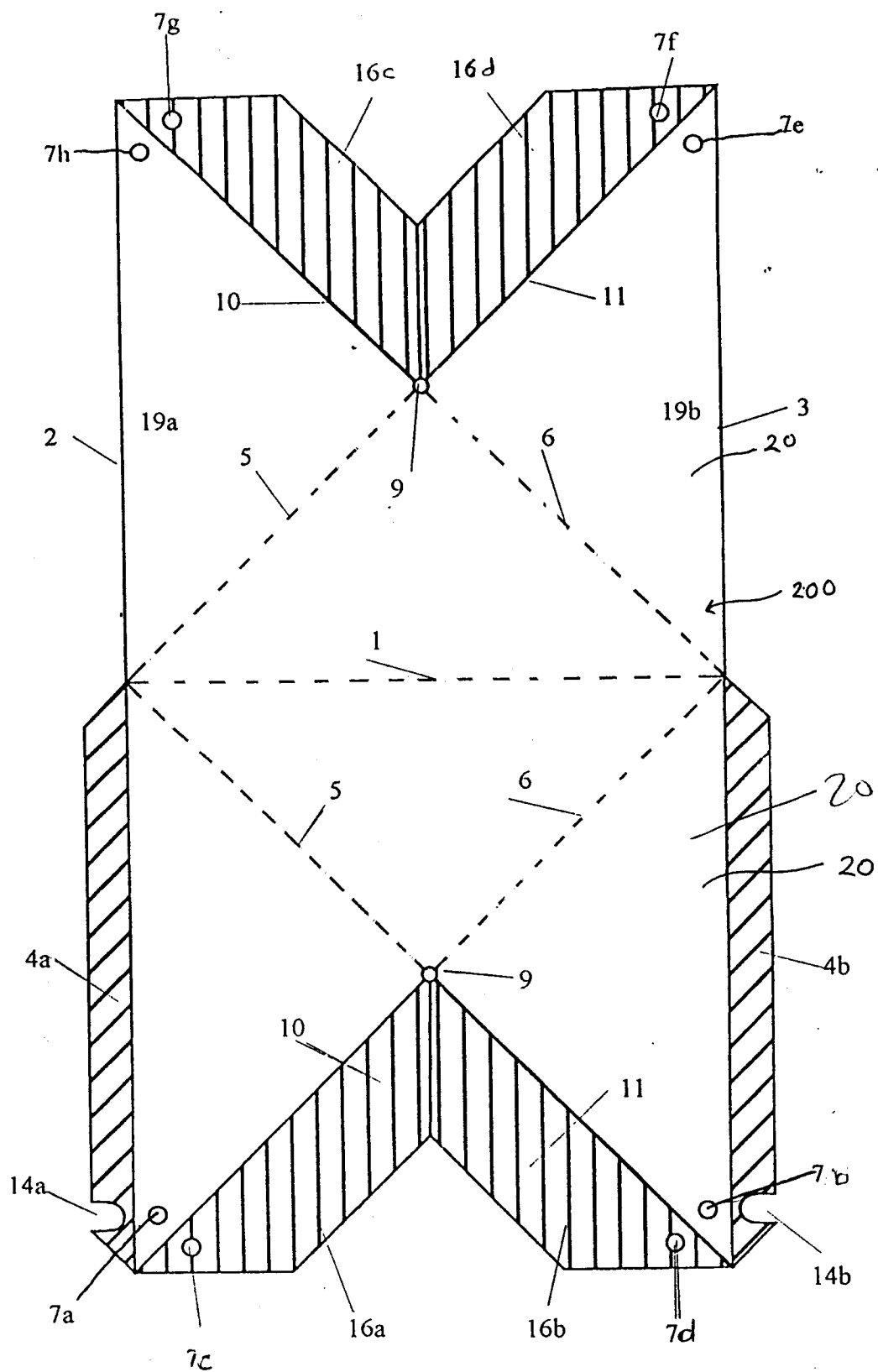


Fig. 4

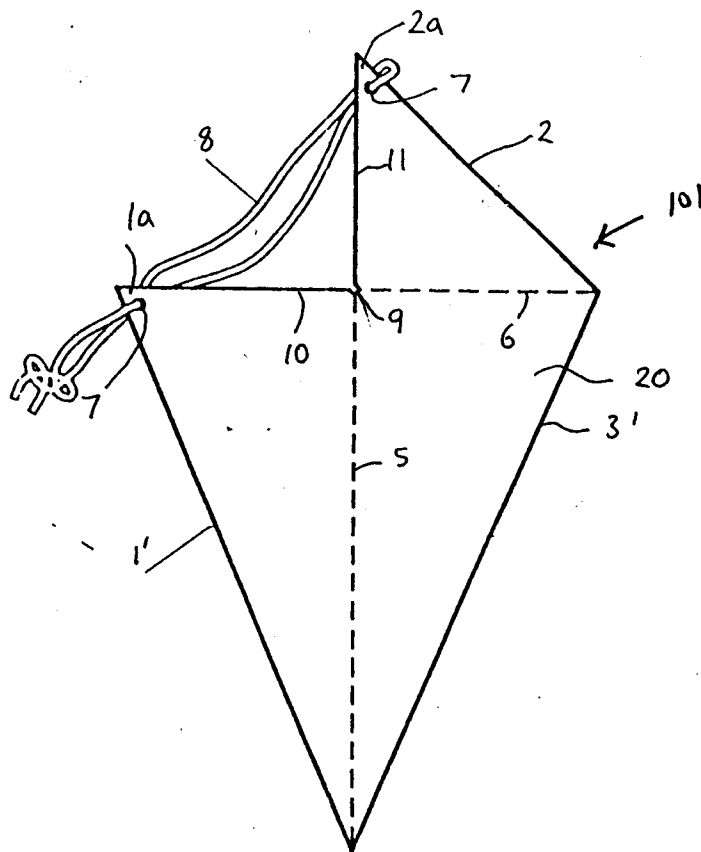


Fig. 5

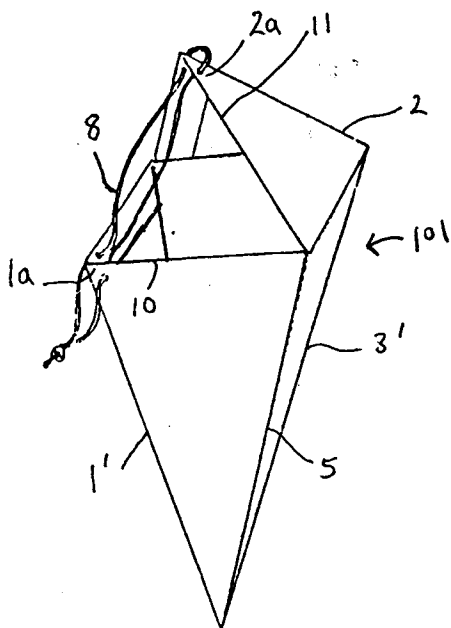


Fig. 6

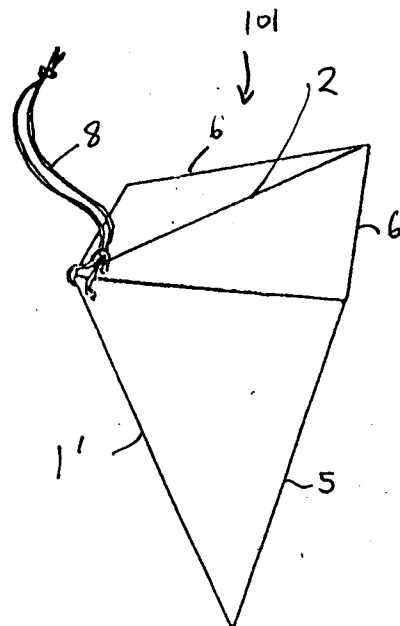


Fig. 7

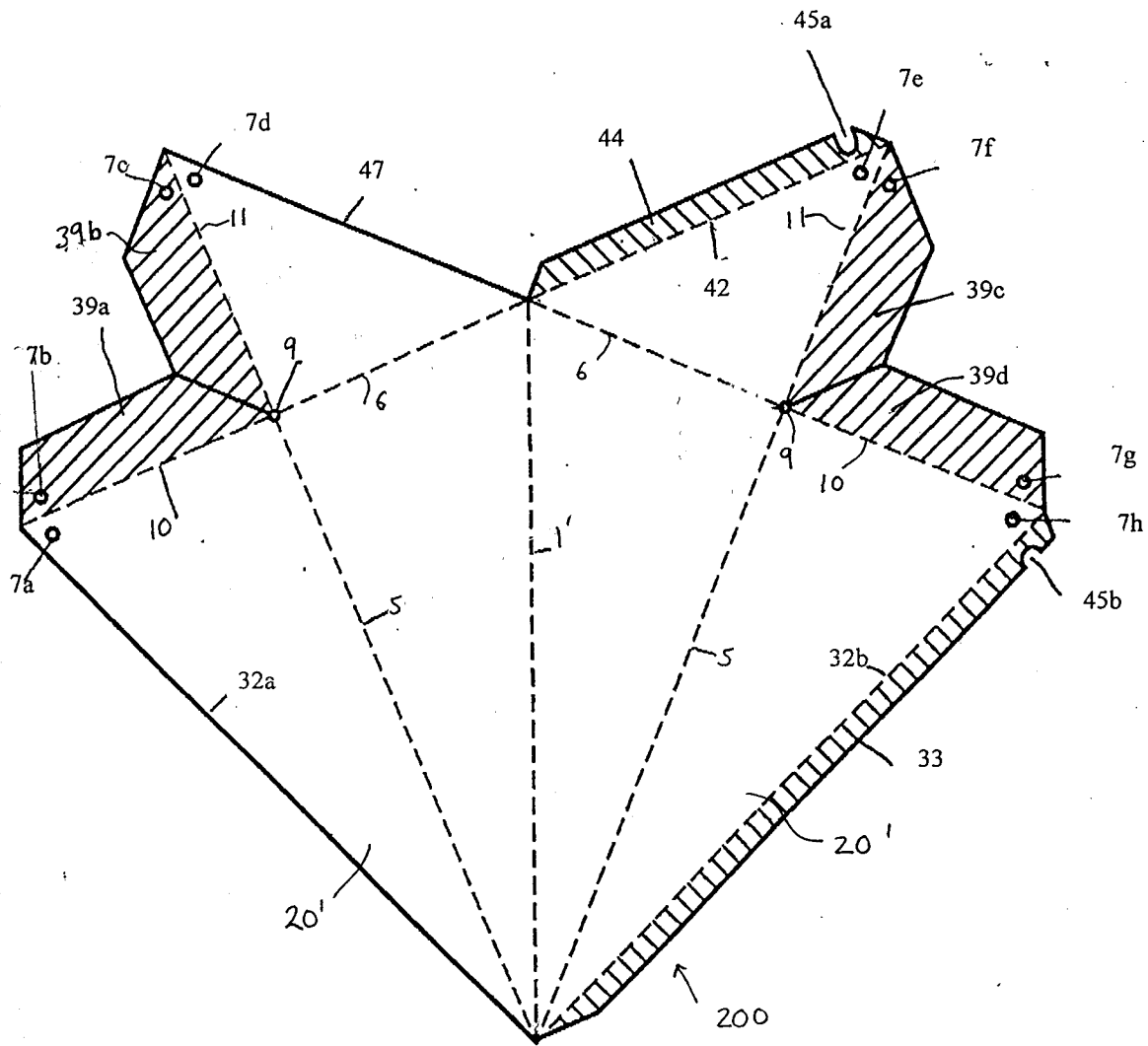


Fig. 8

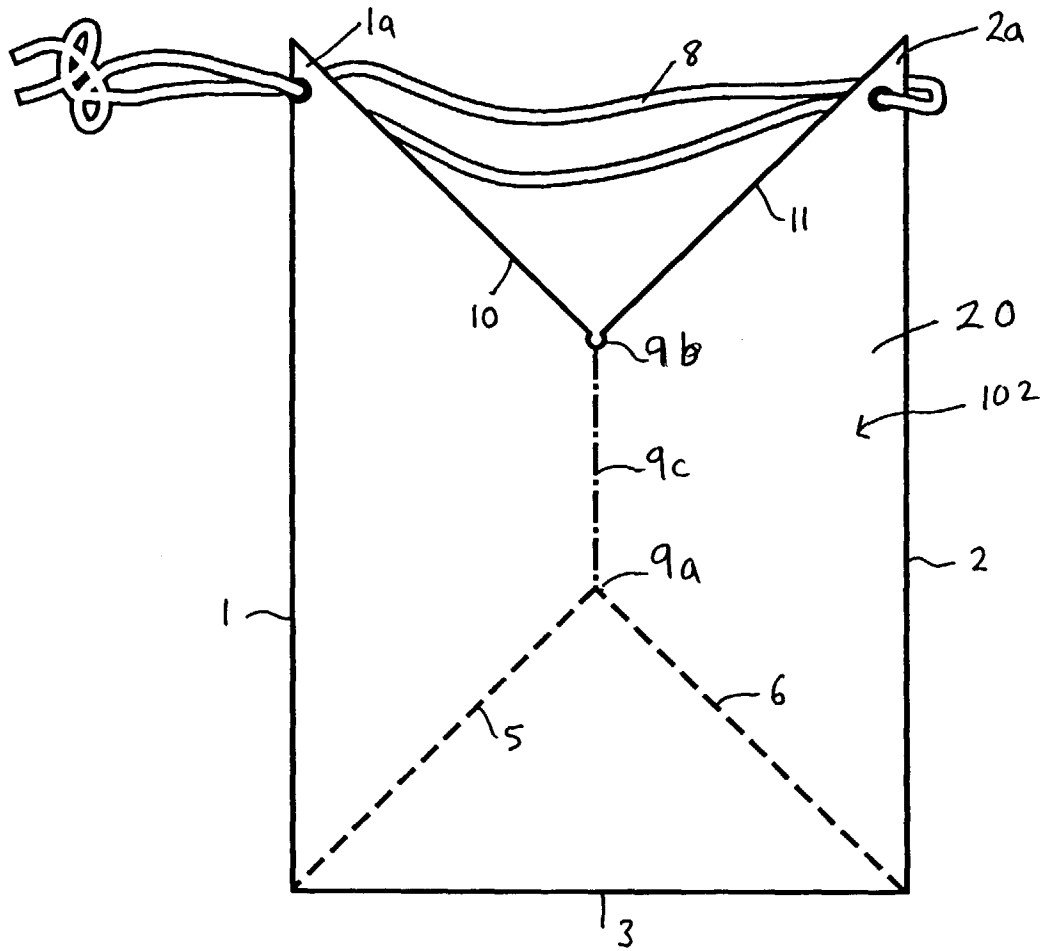


FIG. 9

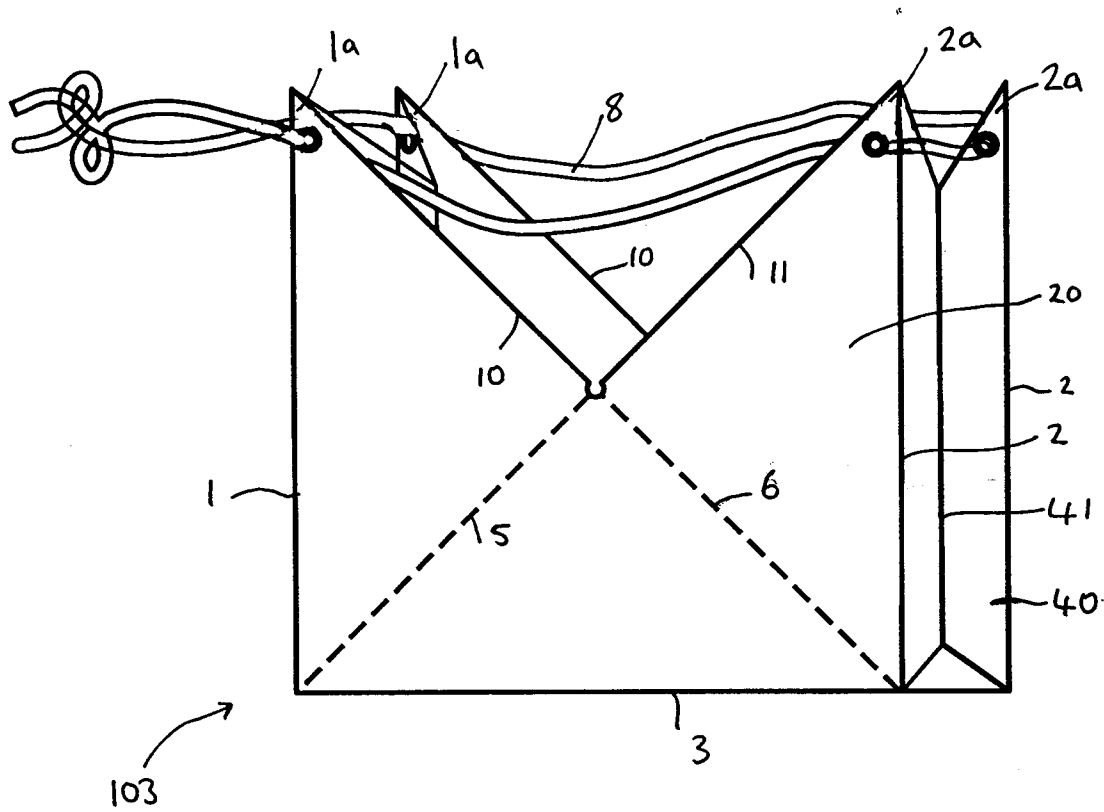
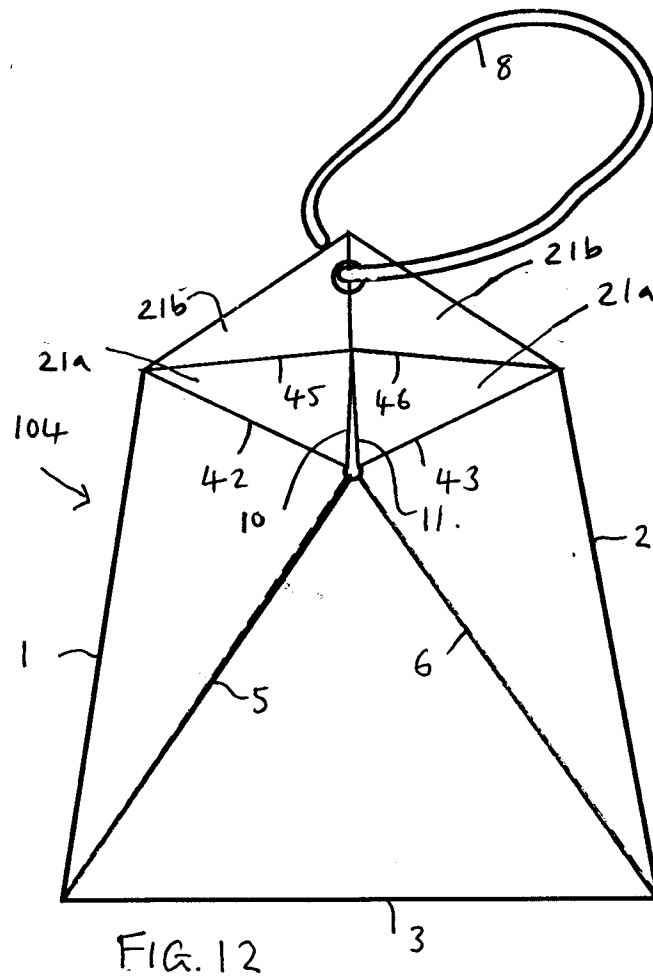
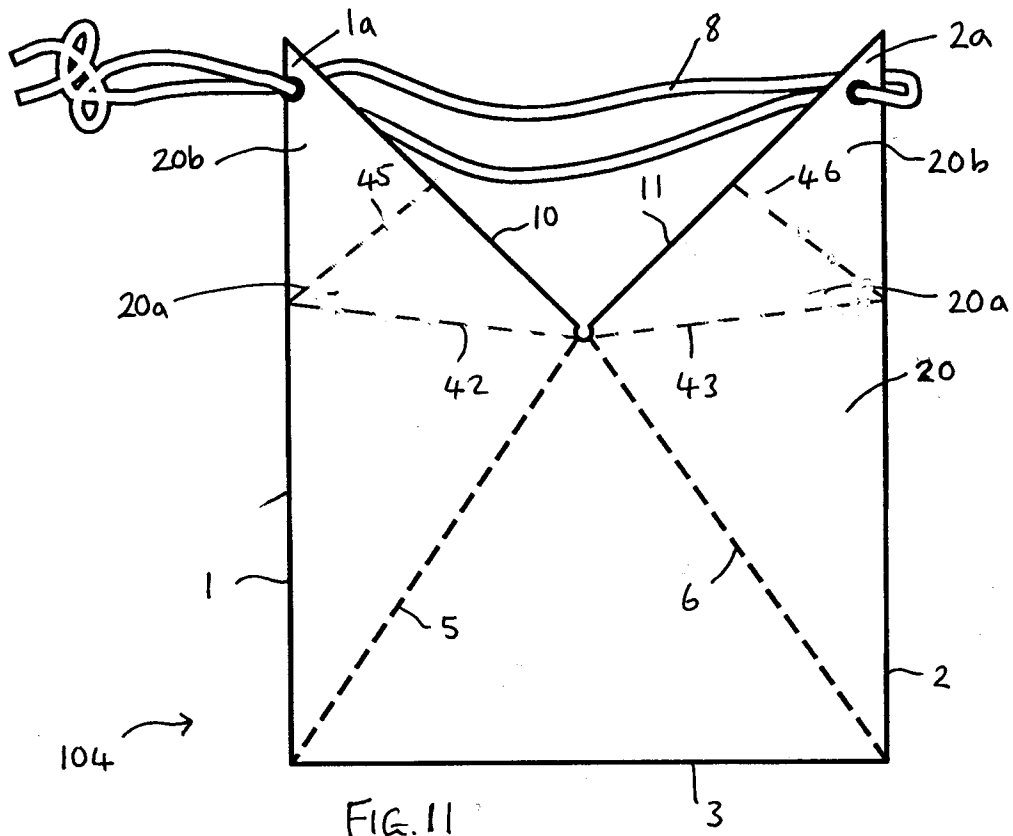


FIG. 10



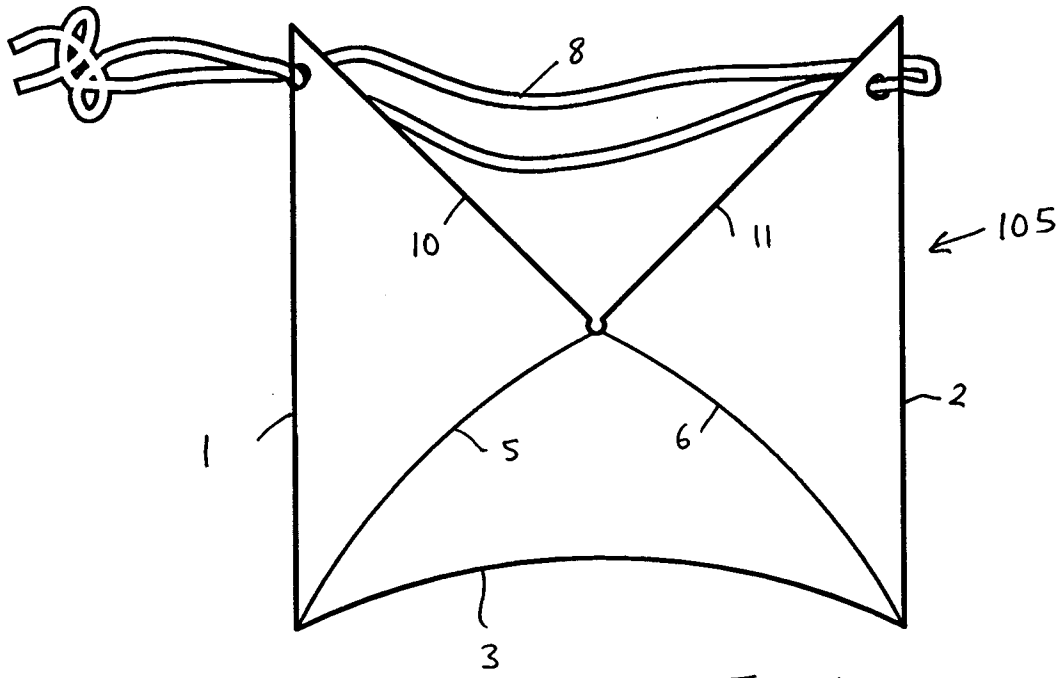


FIG. 13

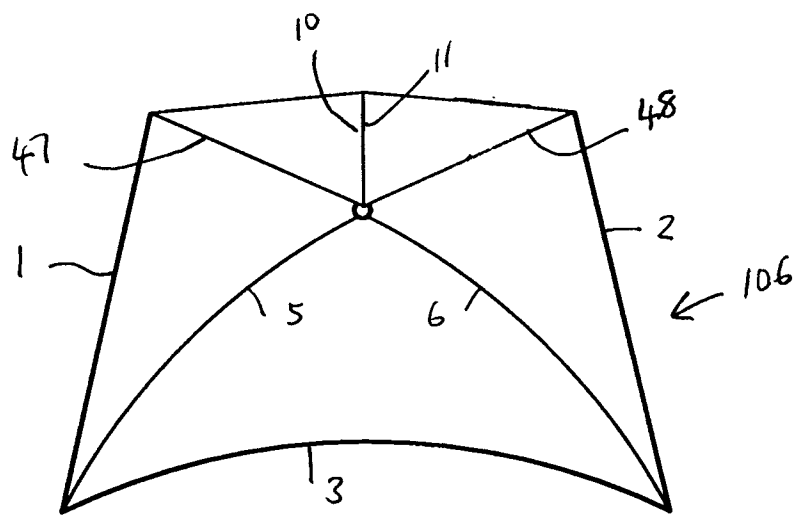


FIG. 14

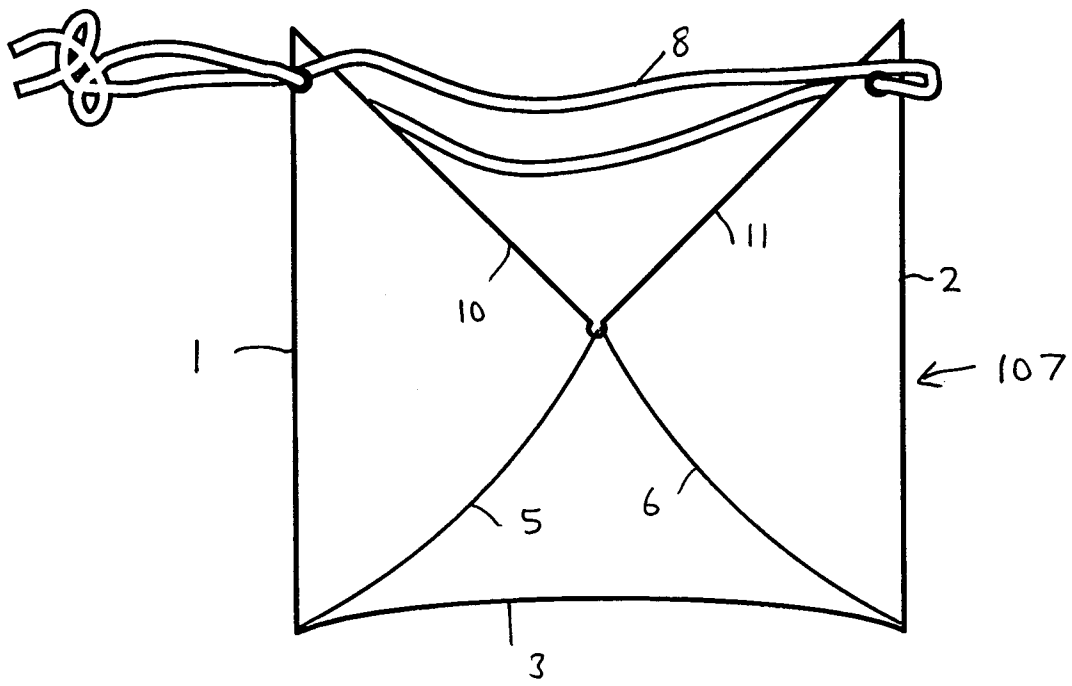


FIG. 15

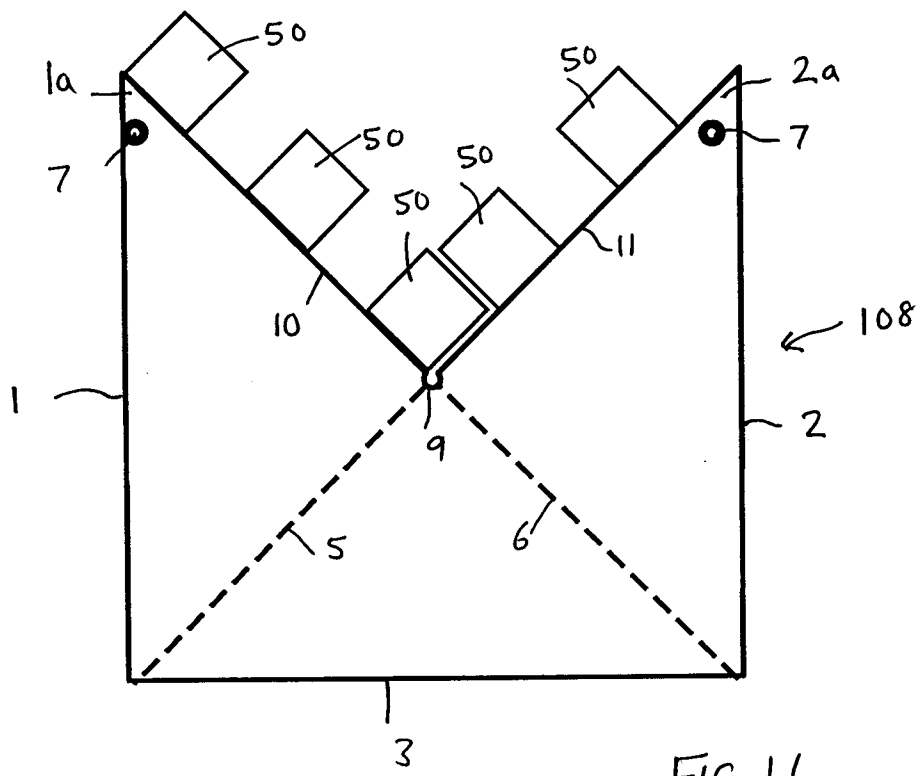


FIG. 16

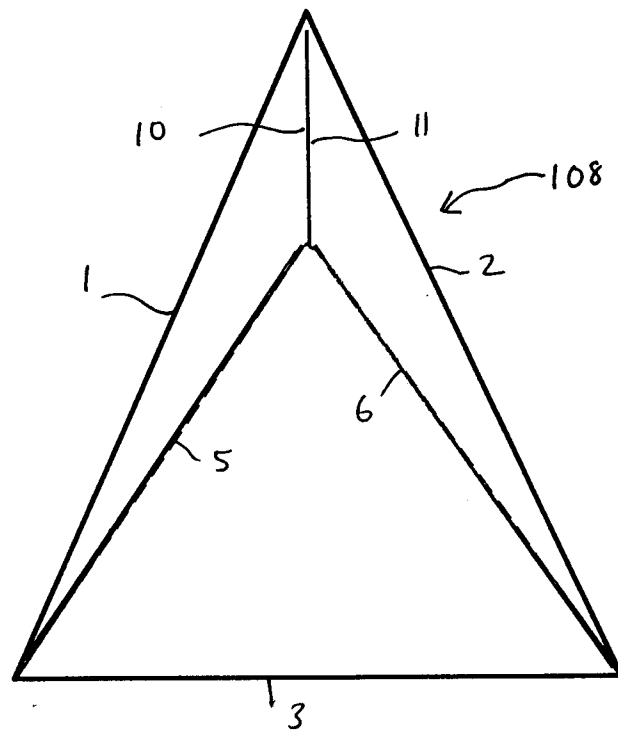


FIG. 17

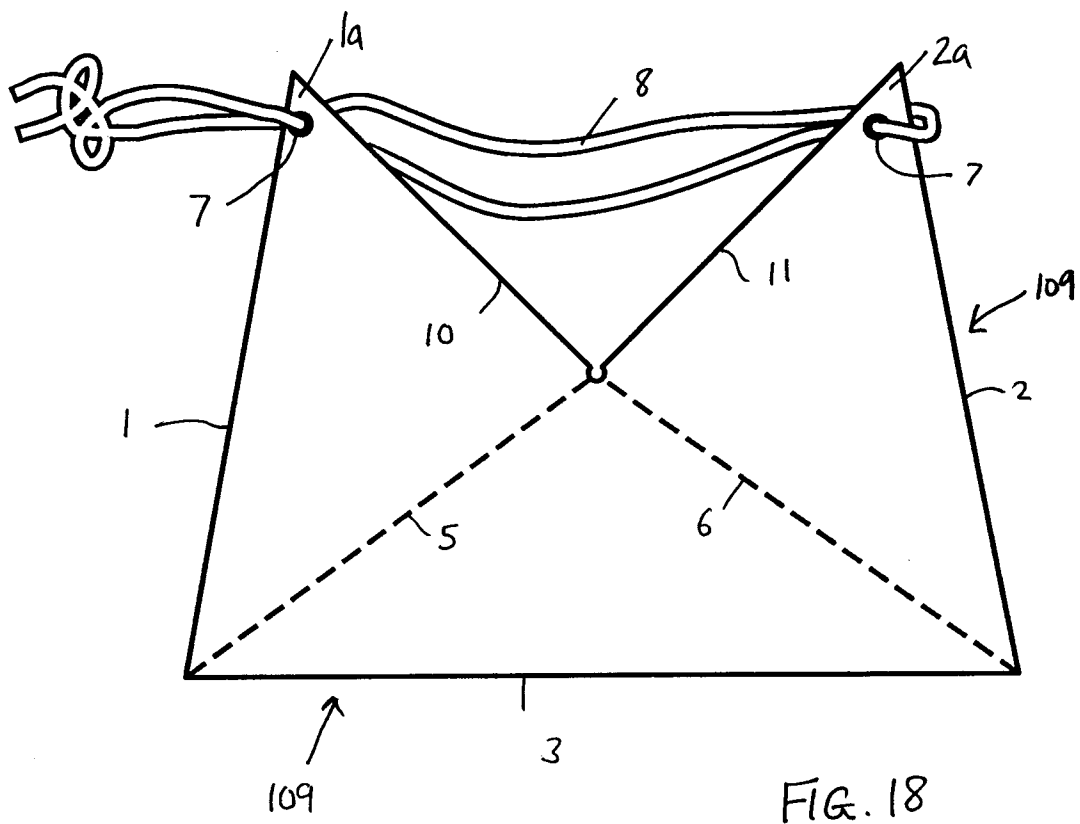


FIG. 18

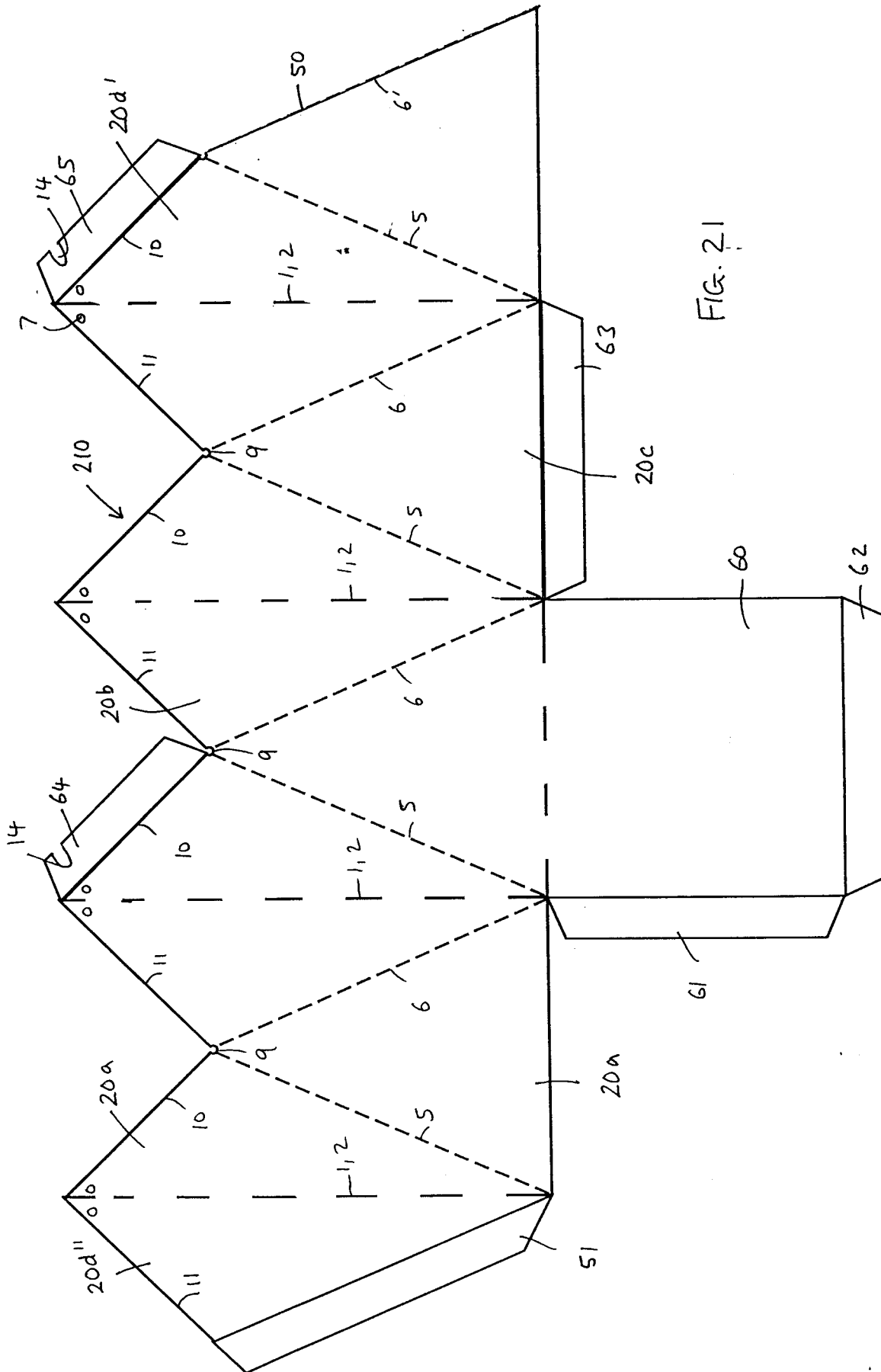
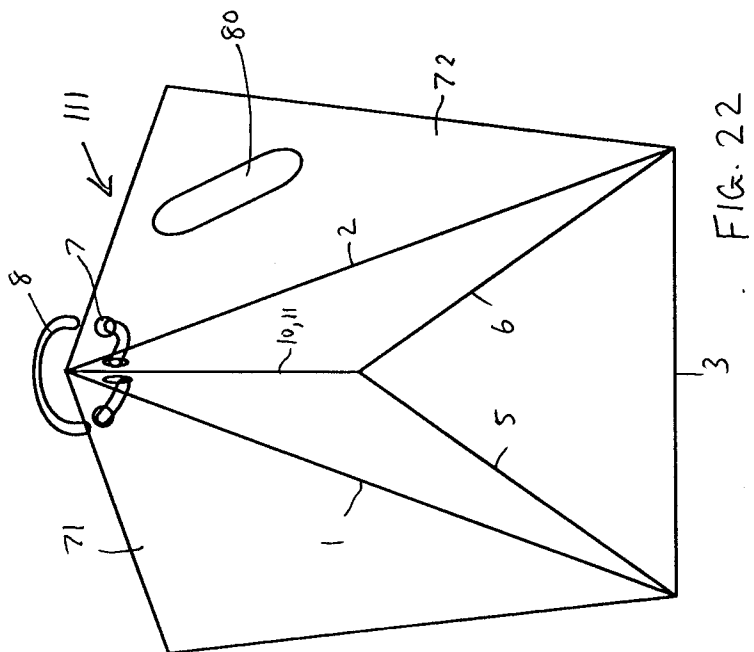
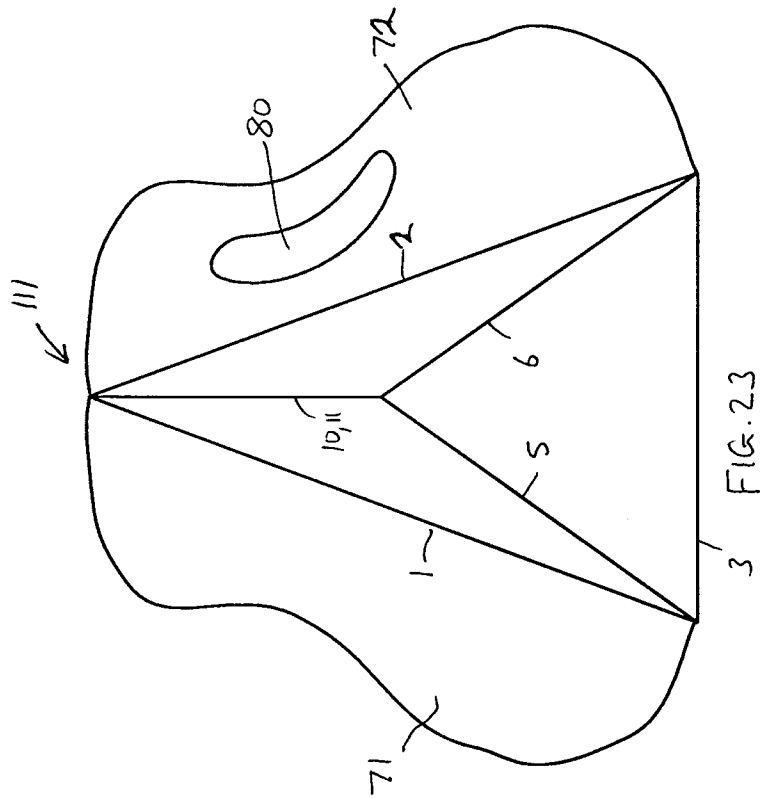


FIG. 21



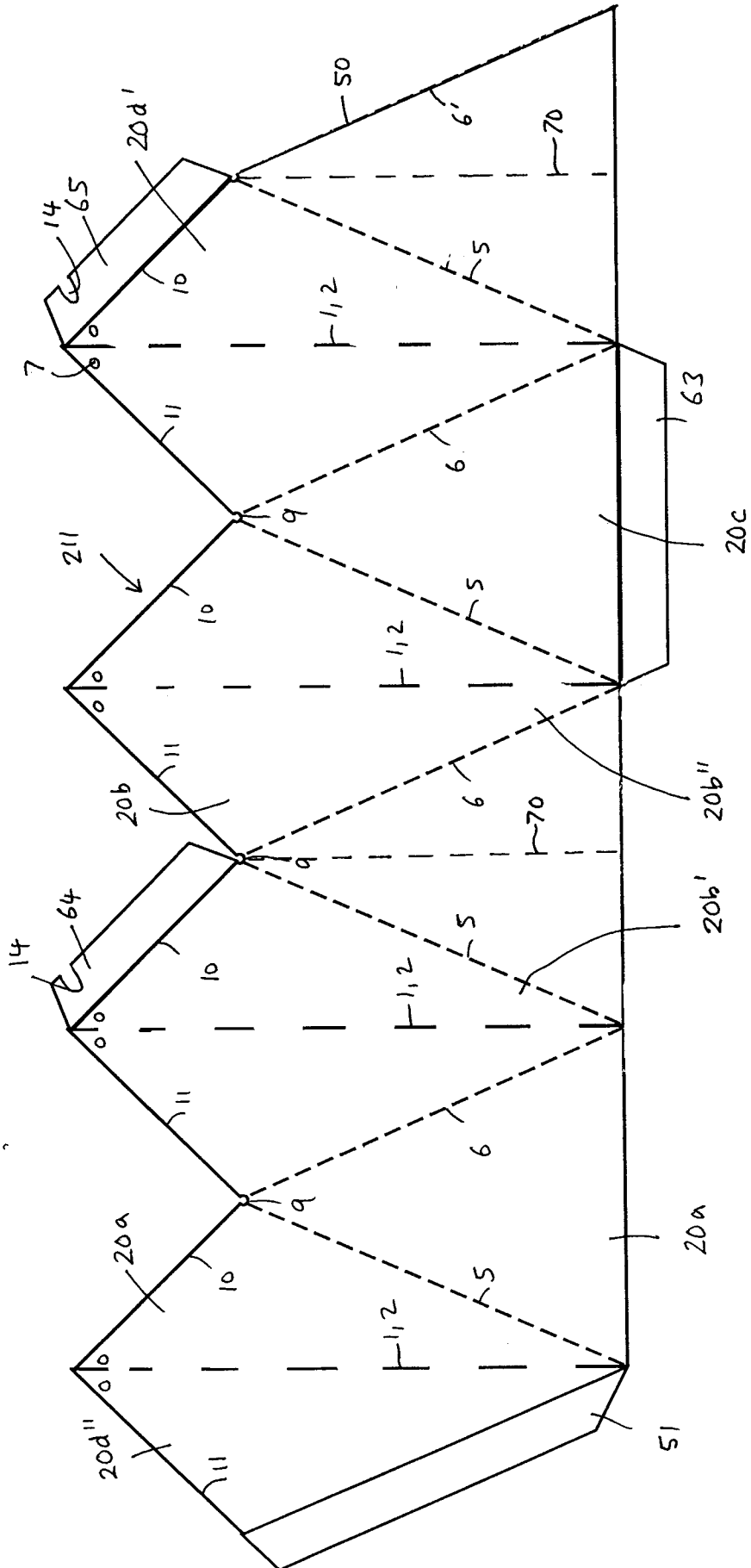


FIG. 24



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 98 30 3164

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)
X	DE 87 09 873 U (BEHRENS) 10 December 1987 * page 1, line 1 - page 2, line 5; figures 1-5 *	1-12, 16-18	B65D5/36 B65D5/42
X	DE 92 17 153 U (MÜLLER) 25 March 1993 * page 2, line 10 - line 28; figures 1-7 *	1	
X	DE 93 11 116 U (KOOS) 21 October 1993 * page 3, line 21 - page 4, line 20; figures 1-3 *	1-13	
X	DE 93 08 106 U (SCHABER) 2 September 1993 * page 10, line 31 - page 13, line 12; figures 4-9 *	1-12, 18	
X	US 1 362 129 A (MORRIS) 14 December 1920 * page 1, line 43 - page 2, line 63; figures 1-4 *	1	
A	DE 20 24 464 A (EDERER) 3 December 1970 * figures 1,2 *	1	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
A	WO 88 01593 A (VAN DEN HOOGEN) 10 March 1988 * figures 1-3 *	1	B65D A45C
A	WO 95 02353 A (CAPY) 26 January 1995 * figures 1-9 *	1	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 4 August 1998	Examiner Berrington, N
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	

EPO FORM 1503 03 82 (P04C01)