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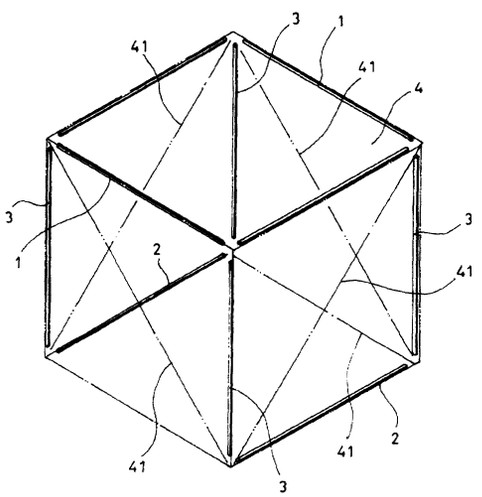
(54) Folding collapsible storage box

(57) A folding collapsible storage box, which includes a collapsible rectangular cloth box body (4), four horizontal top rod members (1) respectively horizontally embedded in the four peripheral side walls of the box body at the top, two horizontal rod members (2) embedded in two opposite peripheral side walls of the box body at the bottom, and four vertical rod members (3) respectively embedded in the box body and vertically arranged in between each two adjacent peripheral side walls of the box body, the vertical rod members having respective ends respectively spaced from respective ends of the horizontal top rod members and horizontal bottom rod members at a distance for enabling the folding collapsible storage box to be collapsed by twisting one corner of the box body. In an embodiment of the invention the box body has horizontal top and bottom sides, and a hard bottom board mounted inside the box body at the bottom, wherein the rectangular horizontal top side of the box body is formed of a rectangular top panel and a zip fastener, the rectangular top panel having one side formed integral with the box body, and three other sides separably connected to the box body by the zip fastener. In a further embodiment hanging straps are detachably fastened to the box body by turn-locks at the rectangular vertical peripheral sides of the box body for hanging.



F I G. 1

EP 1 136 376 A1

Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to a folding collapsible storage box, particularly to such a folding collapsible storage box which has a simple structure, and can easily be collapsed into a flat condition and more particularly to such a folding collapsible storage box that is strong when stretched up and, that can be conveniently collapsed by twisting one corner.

[0002] Regular storage boxes, either made of plastics, wood, or metal, are commonly not collapsible. These storage boxes occupy the same storage space in use and when not in use. Further, because these storage boxes are not collapsible, the transportation of these storage boxes is inconvenient. There are also known certain storage boxes that can be collapsed into a flat manner when not in use. However, it is complicated to set up these collapsible storage boxes into the operative condition, or to arrange these collapsible storage boxes into a collapsed condition.

SUMMARY OF THE INVENTION

[0003] The present invention has been accomplished to provide a folding collapsible storage box, which at least ameliorates the aforesaid problems. According to a first embodiment of the present invention, there is provided a folding collapsible storage box comprising: a collapsible cloth box body, said box body having a bottom wall (5) and four peripheral side walls and a top opening, said four peripheral side walls each having two crossed diagonal folding lines; four horizontal top rod members respectively horizontally embedded in said four peripheral side walls of said box body at a top side, said horizontal top rod members having respective ends spaced from one another at a distance; two horizontal bottom rod members embedded in two opposite peripheral side walls of said box body at a bottom side; and four vertical rod members respectively embedded in said box body and vertically arranged in between each two adjacent peripheral side walls of said box body, said vertical rod members having respective ends respectively spaced from the respective ends of said horizontal top rod members and said horizontal bottom rod members at a distance.

[0004] According to a second embodiment of the invention, there is provided a folding collapsible storage box comprising: a fabric box body, said fabric box body comprising a rectangular horizontal top side, a rectangular horizontal bottom side, and four rectangular vertical peripheral sides connected to one another between said rectangular horizontal top side and said rectangular horizontal bottom side along the border of said rectangular horizontal bottom side and said rectangular horizontal top side; four horizontal rods respectively fastened to said rectangular vertical peripheral sides of said fabric box body and arranged along said rectangular open top side of said fabric box body; four vertical rods respectively fastened to said rectangular vertical peripheral sides of said fabric box body, and arranged between each two adjacent rectangular vertical peripheral sides of said fabric box body; and a hard bottom board mounted inside said box body and supported on said rectangular horizontal bottom side of said box body; wherein the rectangular horizontal top side of said box body is formed of a rectangular top panel and a zip fastener, said rectangular top panel having one side formed integral with said box body, and three other sides separably connected to said box body by said zip fastener; said vertical rods and said horizontal rods support said box body in shape, and enable said box body to be collapsed into a flat condition by twisting the rectangular horizontal top side of said box body.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] Figure 1 is a perspective view of a first embodiment of a folding collapsible storage box of the present invention.

[0006] Figure 2 illustrates one corner of the folding collapsible storage box of Figure 1 twisted.

[0007] Figure 3 illustrates the folding collapsible storage box of Figure 1 twisted and lowered down.

[0008] Figure 4 illustrates the folding collapsible storage box of Figure 1 collapsed.

[0009] Figure 5 illustrates a second embodiment of a folding collapsible storage box of the present invention.

[0010] Figure 6 is an exploded view of a third embodiment of a folding collapsible storage box of the present invention, showing a zip fastener unfastened, and a rectangular top panel collapsed.

[0011] Figure 7 is a perspective view of the folding collapsible storage box of Figure 6.

[0012] Figure 8 shows the folding collapsible storage box of Figure 6 twisted, the vertical peripheral sides of the box body folded up and lowered.

[0013] Figure 9 shows the folding collapsible storage box of Figure 6 fully collapsed.

[0014] Figure 10 shows a fourth embodiment of a folding collapsible storage box of the present invention.

[0015] Figure 10A is an enlarged view of a part of Figure 10.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0016] Referring to Figure 1, a first embodiment of a folding collapsible storage box of the present invention is generally comprised of a collapsible box body **4**, four horizontal top rod members **1**, two horizontal bottom rod members **2**, and four vertical rod members **3**. The box body **4** is made of strong coarse cloth, for example, canvas, having a bottom wall and four peripheral side walls and a top opening. Two crossed diagonal folding lines

41 are provided at each of the four peripheral side walls of the box body **4**. The horizontal top rod members **1** and the horizontal bottom rod members **2** are equal in length, and shorter than the horizontal length of the peripheral side walls of the box body **4**. The four horizontal top rod members **1** are respectively horizontally embedded in the canvas of the box body **4** and disposed along the top side of each of the four peripheral side walls of the box body **4**, permitting a gap to be left between each two adjacent horizontal top rod members **1**. The two horizontal rod members **2** are embedded in the canvas of the box body **4** and disposed along the bottom side of each of two opposite peripheral side walls of the box body **4**. The four vertical rod members **3** are respectively embedded in the canvas of the box body **4**, and vertically arranged in between each two adjacent peripheral side walls of the box body **4**. After installation of the rod members **1, 2** and **3**, the top and bottom ends of each of the vertical rod members **3** are respectively spaced from the horizontal top rod members **1** and the horizontal bottom rod members **2** at a distance.

[0017] Referring to Figure 2 and Figure 1 again, when the box body **4** is stretched up, the folding collapsible storage box is supported by the rod members **1**, **2** and **3** into shape, and a hard bottom board **5** is put into the inside of the box body **4** to support storage items in the folding collapsible storage box.

[0018] Referring to Figures 3 and 4, when not is use, the hard bottom board **5** is taken away from the box body **4**, then one corner of the box body **4** is twisted to tile the respective vertical rod member **3** (see Figure 2), and the folding collapsible storage box is collapsed into a flat manner when continuously twisting the corner of the box body **4** (see Figures 3 and 4).

[0019] Figure 5 shows a second embodiment of the present invention. According to this embodiment, four hard triangle plates **7** are arranged at each of the four peripheral side walls of the box body **4**, and separated from one another by the respective crossed diagonal folding lines **41**. The hard triangle plates **7** reinforce the structural strength of the peripheral side walls of the box body **4**, and allow the box body **4** to be twisted into a collapsed manner.

[0020] Referring to Figures from 6 through 9, a folding collapsible storage box in accordance with a third embodiment of the present invention is comprised of a box body **101**, four horizontal rods **102**, four vertical rods **103** and a hard bottom plate **104.** The box body **101** is made of fabric, for example, canvas, having a horizontal top side, a horizontal bottom side, four vertical peripheral sides connected between the horizontal top side and the horizontal bottom side. The top side of the box body **101** is formed of a rectangular top panel **111** and a zip fastener **112**. The rectangular top panel **111** has one side formed integral with the box body **101**, and the other three sides separably connected to the box body **101** by the zip fastener **112**. When the zip fastener **112** is unfastened, the top panel **111** is collapsed, and an opening is shown at the top side of the box body **101**. The four horizontal rods **102** are respectively fastened to the box body **101** and wrapped in the fabric of the box body **101**, and horizontally arranged along the topmost edge of each of the four vertical peripheral sides of the box body **101**. The horizontal rods **102** are slightly shorter than the width of each of the vertical peripheral sides of the box body **101**. The four vertical rods **103** are respectively fastened to the box body **101**, and wrapped in the fabric of the box body **101** along the connecting area between each two adjacent vertical peripheral sides of the body box **101.** The length of the vertical rods **103** is slightly shorter than the height of the vertical peripheral sides of the box body **101.** After installation of the horizontal rods **102** and the vertical rods **103**, the rods **102** and **103** are prohibited from touching one another.

[0021] Referring to Figures 6 and 7 again, after installation of the rods **102** and **103** in the box body **101**, the box body **101** is stretched out and supported in shape by the vertical rods **103,** then the hard bottom board **104** is put inside the box body **101** and stopped below the vertical rods **103.** When storage items are put in the box body **101,** the zip fastener **112** is fastened up to close the top panel **111**.

[0022] Referring to Figures 8 and 9, when not in use, the top side of the box body **101** is twisted by hand through 90°, causing the four vertical peripheral sides of the box body **101** to be lowered and folded up (see Figure 8), and therefore the storage box is collapsed into a flat condition (see Figure 9).

[0023] Referring to Figures 10 and 10A in a fifth embodiment of the invention, two first hanging straps **113** and two second hanging straps **114** are respectively provided on two opposite vertical peripheral sides of the box body **201** at different elevations. the first hanging straps **113** each have two elongated mounting slots **116** respectively provided at two distal ends, and detachably coupled to a respective turn-lock **115** at the box body **201**. The second hanging straps **114** each have one end (the fixed end) fixedly fastened to the box body **201** by stitches, and an opposite end (the free end) provided with an elongated mounting slot **116** and detachably connected to a respective turn-lock **115** at the box body **201.** By means of the first hanging straps **113** and the second hanging straps **114**, a plurality of folding collapsible storage boxes can be arranged in a string and hung on a rod.

[0024] It is to be understood that the drawings are designed for purposes of illustration only, and are not intended for use as a definition of the limits and scope of the invention disclosed. For example, handle means may be provided at the peripheral side walls of the box body **4** for holding by hand.

Claims

1. A folding collapsible storage box comprising:

a collapsible cloth box body (4), said box body having a bottom wall (5) and four peripheral side walls and a top opening, said four peripheral side walls each having two crossed diagonal folding lines (41);
four horizontal top rod members (1) respectively horizontally embedded in said four peripheral side walls of said box body at a top side, said horizontal top rod members having respective ends spaced from one another at a distance;
two horizontal bottom rod members (2) embedded in two opposite peripheral side walls of said box body at a bottom side; and
four vertical rod members (3) respectively embedded in said box body and vertically arranged in between each two adjacent peripheral side walls of said box body, said vertical rod members having respective ends respectively spaced from the respective ends of said horizontal top rod members and said horizontal bottom rod members at a distance.

2. The folding collapsible storage box of claim 1 further comprising four sets of hard triangle boards respectively fastened to the four peripheral side walls of said box body, each set of hard triangle boards including four hard triangle boards (7) fastened to one peripheral side wall of said box body and separated from one another by the respective crossed diagonal folding lines (41).

3. A folding collapsible storage box comprising:

a fabric box body (101), said fabric box body comprising a rectangular horizontal top side, a rectangular horizontal bottom side, and four rectangular vertical peripheral sides connected to one another between said rectangular horizontal top side and said rectangular horizontal bottom side along the border of said rectangular horizontal bottom side and said rectangular horizontal top side;
four horizontal rods (102) respectively fastened to said rectangular vertical peripheral sides of said fabric box body (101) and arranged along said rectangular open top side of said fabric box body;
four vertical rods (103) respectively fastened to said rectangular vertical peripheral sides of said fabric box body, and arranged between each two adjacent rectangular vertical peripheral sides of said fabric box body; and
a hard bottom board (104) mounted inside said box body and supported on said rectangular horizontal bottom side of said box body;
wherein the rectangular horizontal top side of said box body is formed of a rectangular top panel (111) and a zip fastener (112), said rectangular top panel having one side formed integral with said box body, and three other sides separably connected to said box body by said zip fastener; said vertical rods (103) and said horizontal rods (102) support said box body (101) in shape, and enable said box body (101) to be collapsed into a flat condition by twisting the rectangular horizontal top side of said box body.

4. The folding collapsible storage box of claim 3 wherein said box body (201) comprises two pairs of turn-locks (115) symmetrically disposed at two opposite vertical peripheral sides near said rectangular horizontal top side, and two hanging straps (113) respectively and detachably fastened to the turn-locks, said hanging straps each having two elongated mounting slots (116) at two distal ends for coupling to said turn-locks

5. The folding collapsible storage box of claim 4 wherein said box body (201) comprises two second hanging straps (114) respectively provided at two opposite vertical peripheral sides near said rectangular horizontal bottom side, said second hanging straps each having a first end fixedly fastened to said vertical peripheral sides by stitches and a second end made with an elongated mounting slot detachably fastened to a respective turn-lock at said rectangular vertical peripheral sides of said box body.

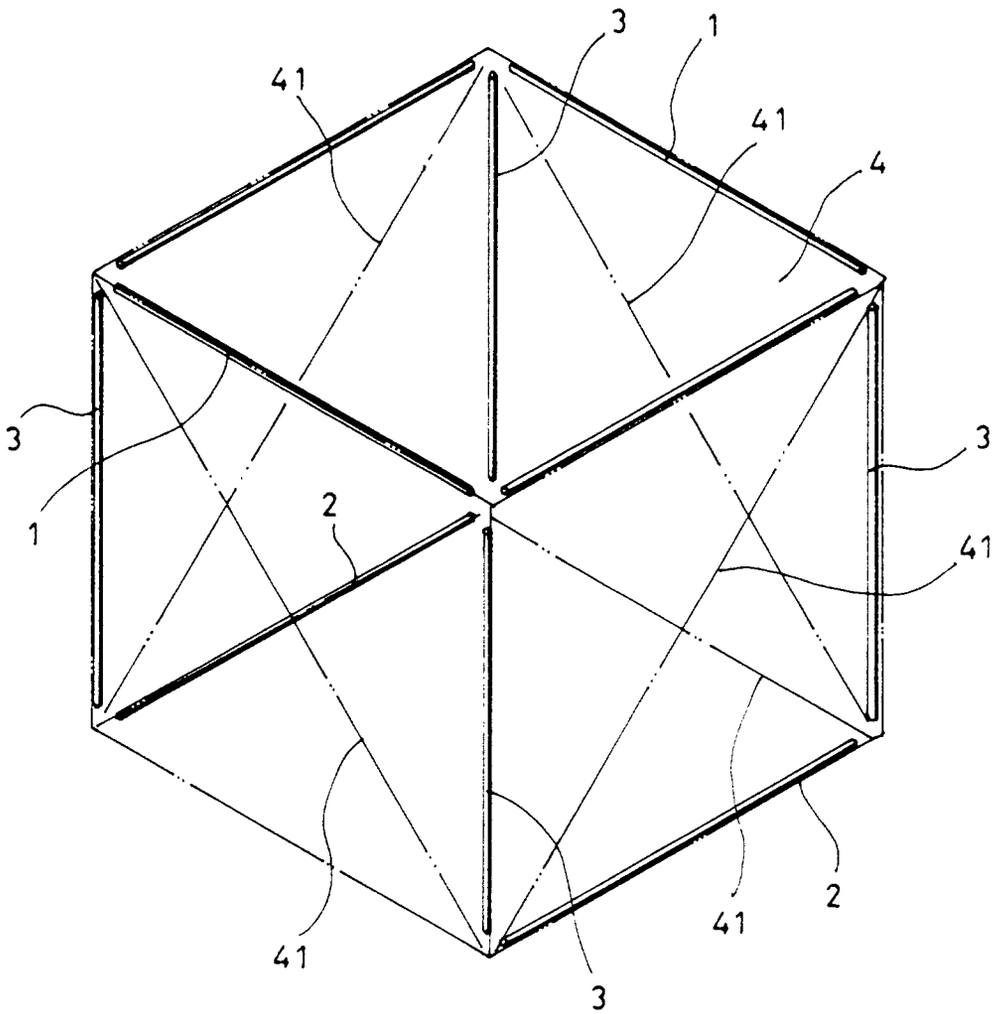


FIG. 1

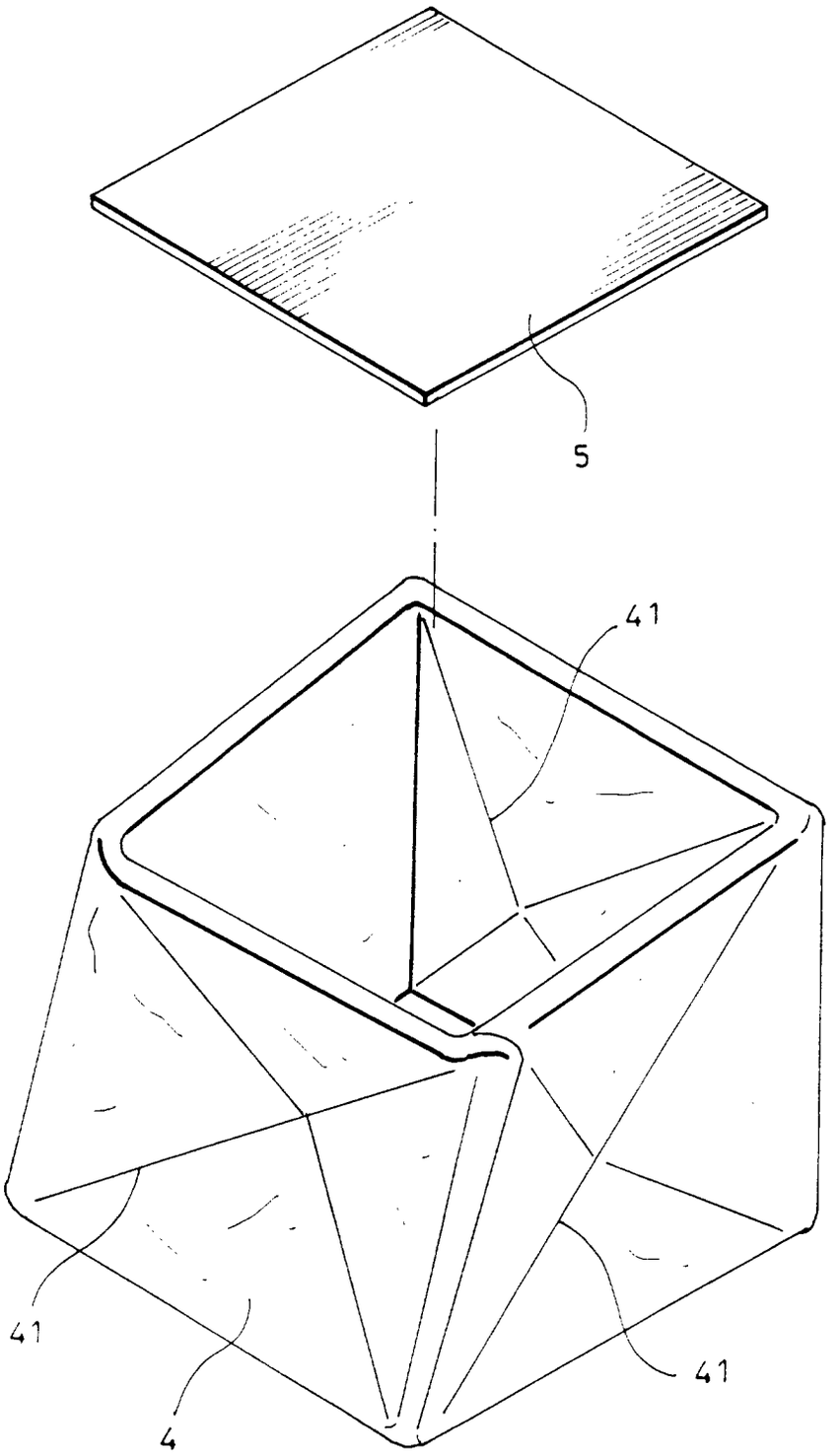


FIG. 2

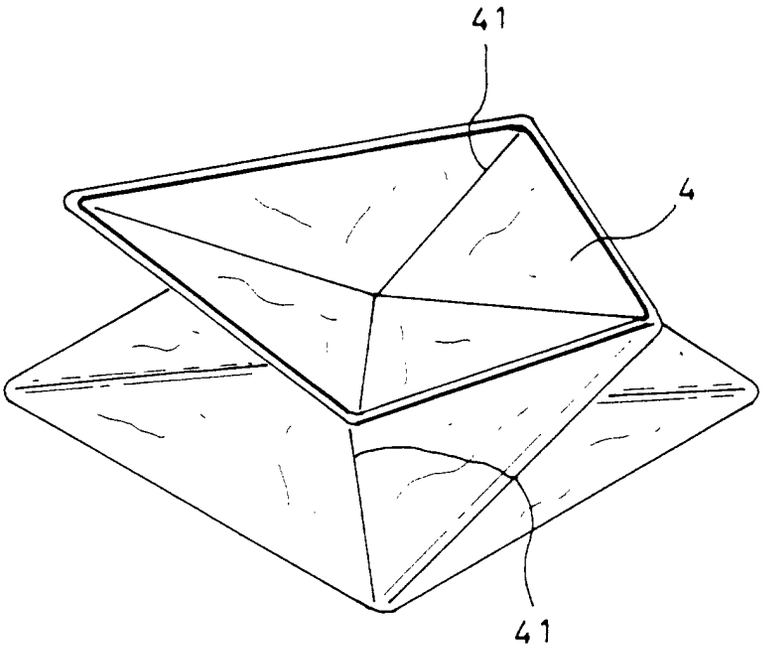


FIG. 3

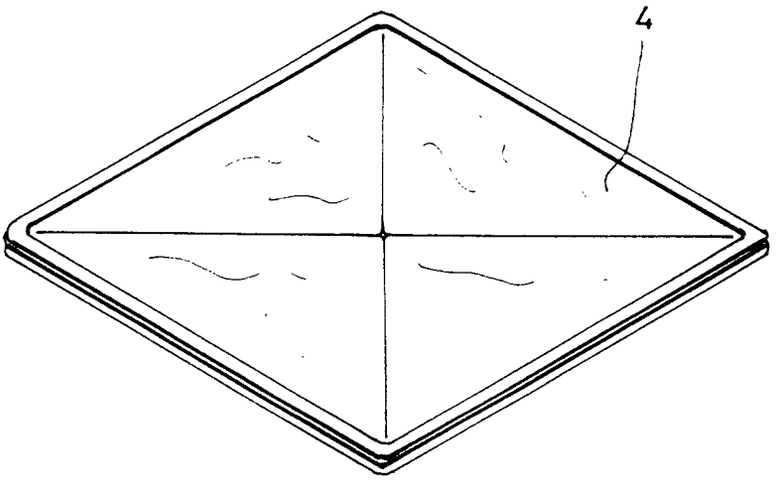


FIG. 4

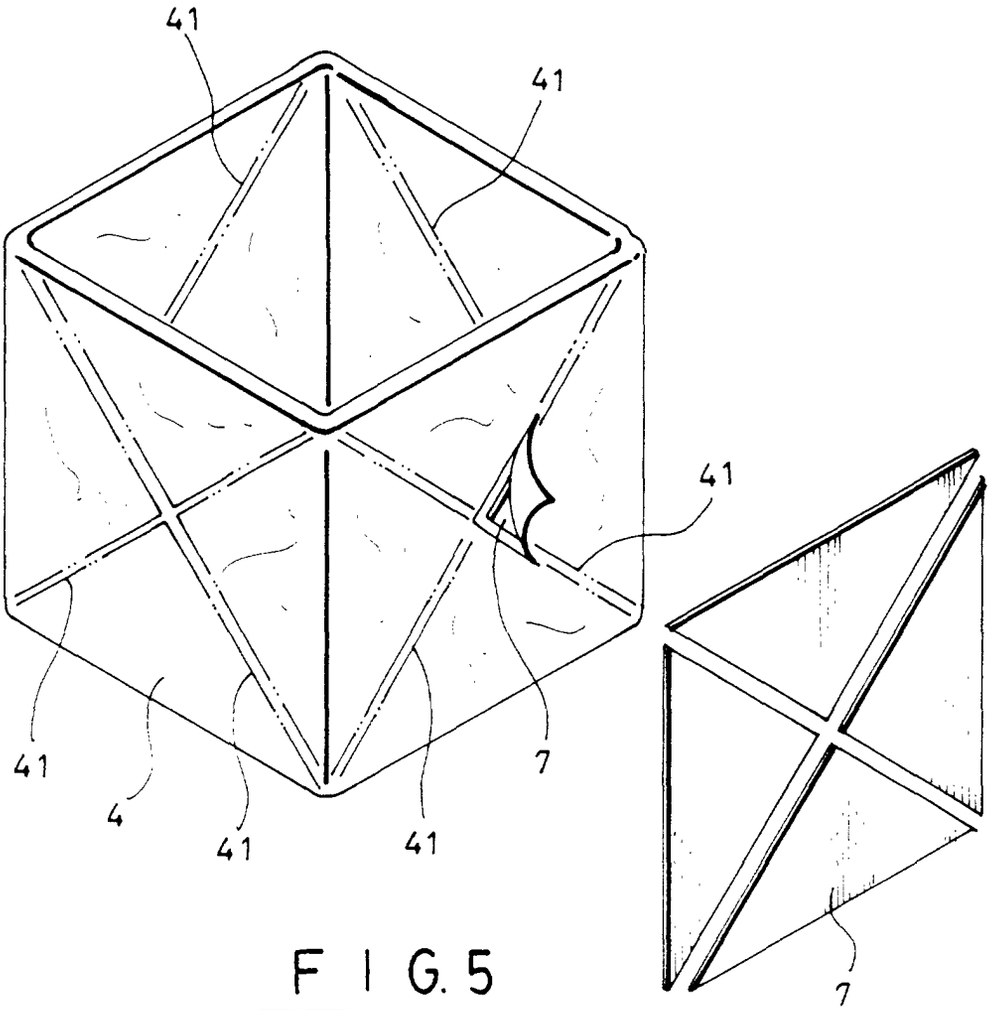


FIG. 5

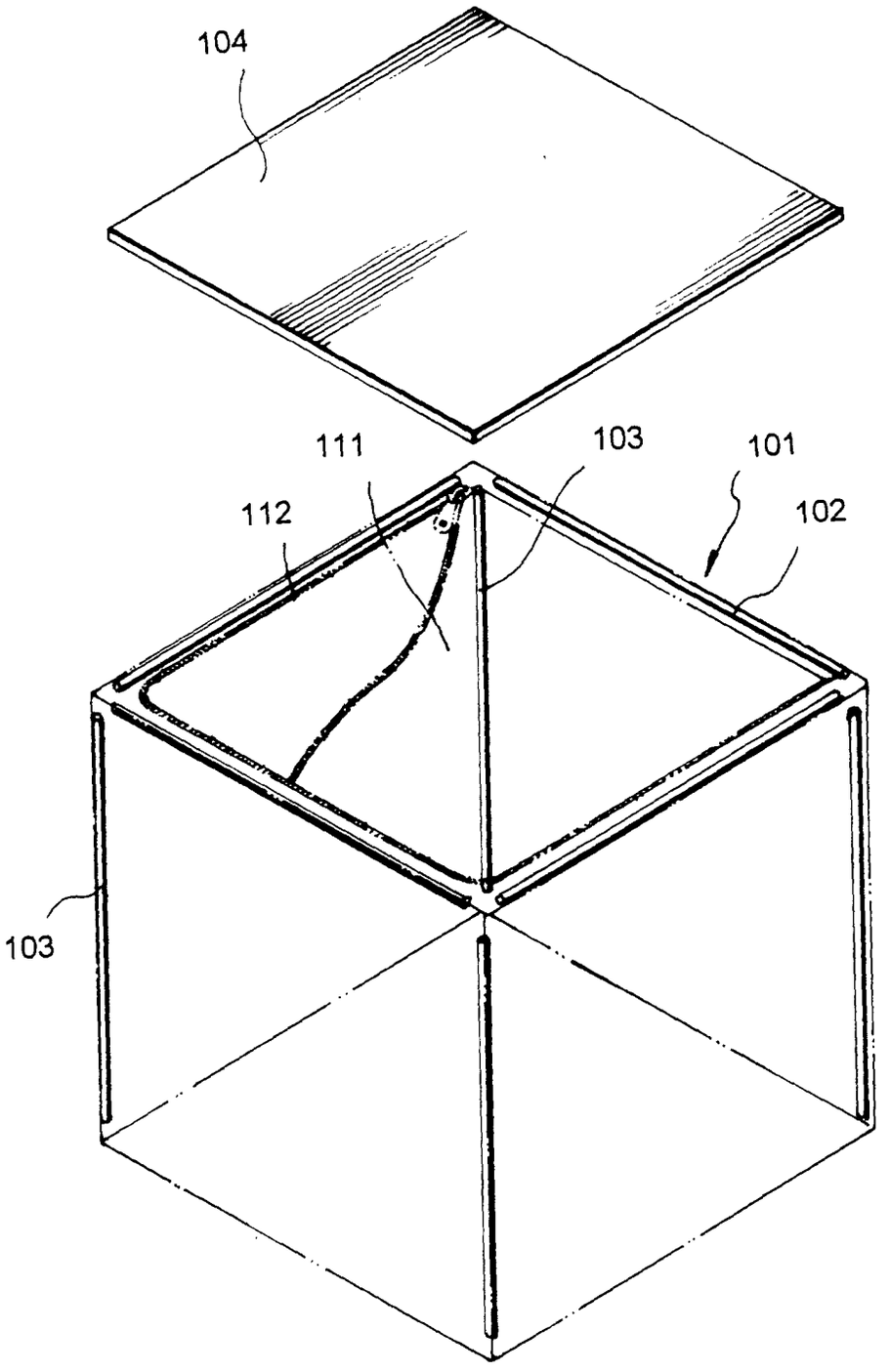


FIG. 6

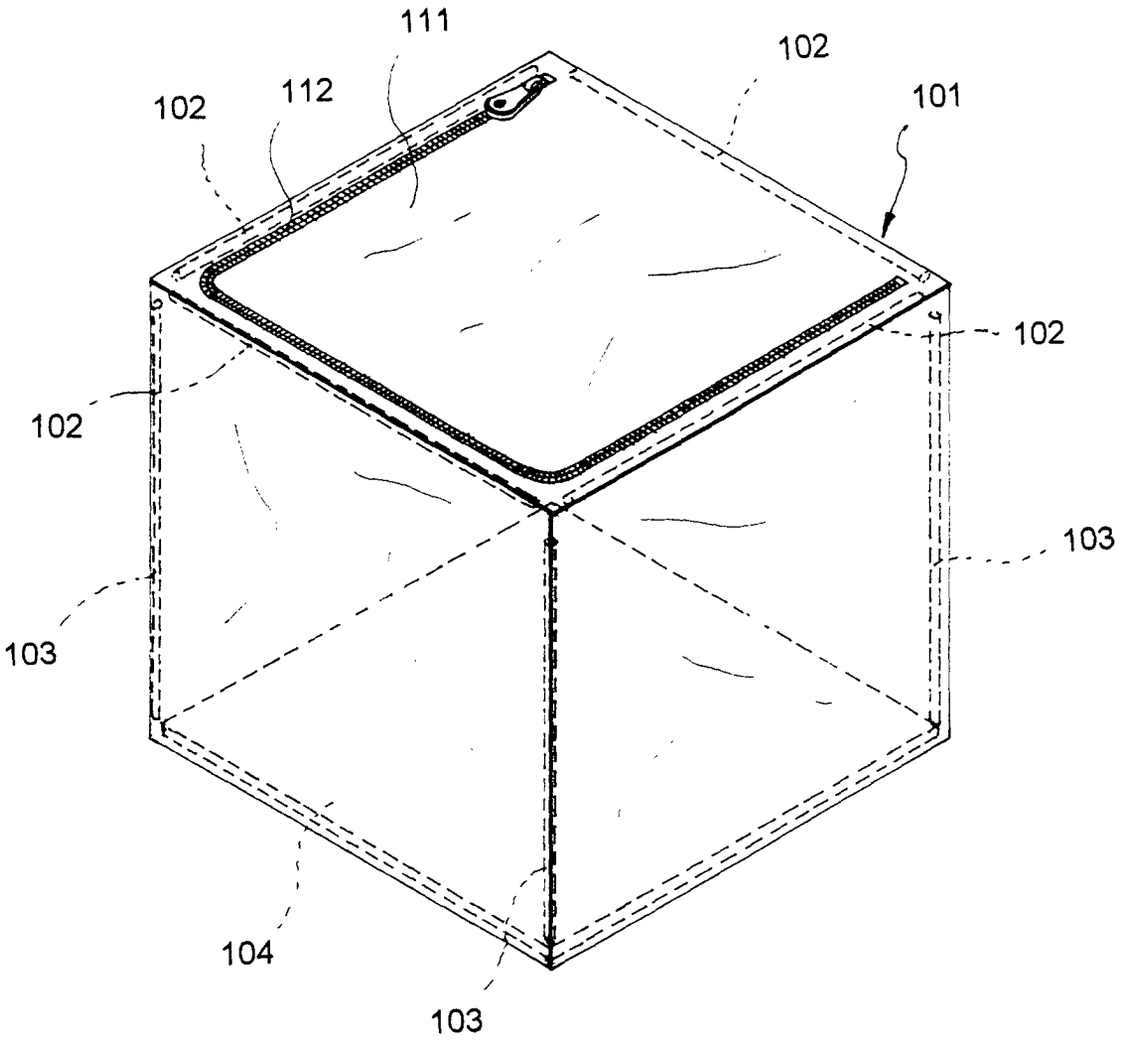


FIG. 7

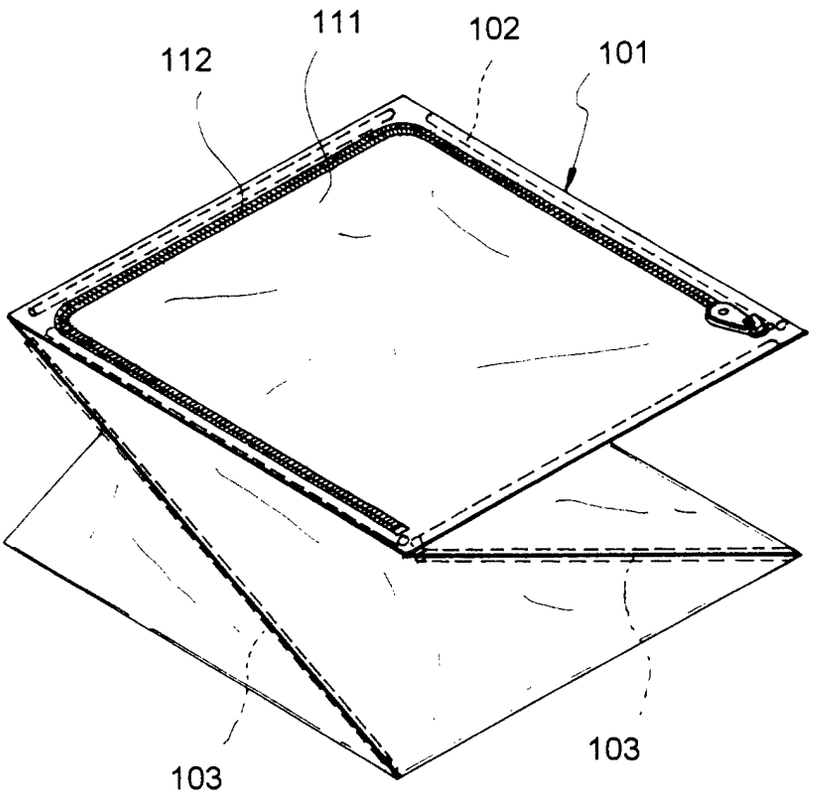


FIG. 8

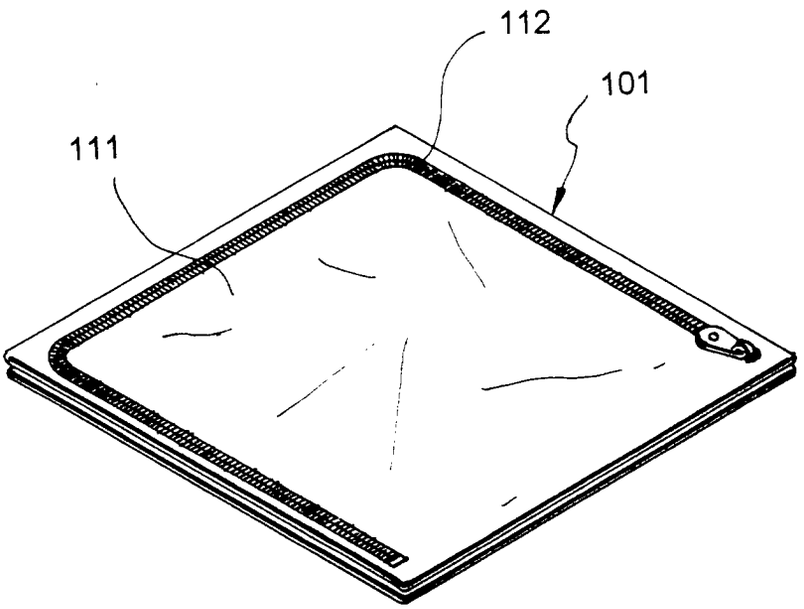


FIG. 9

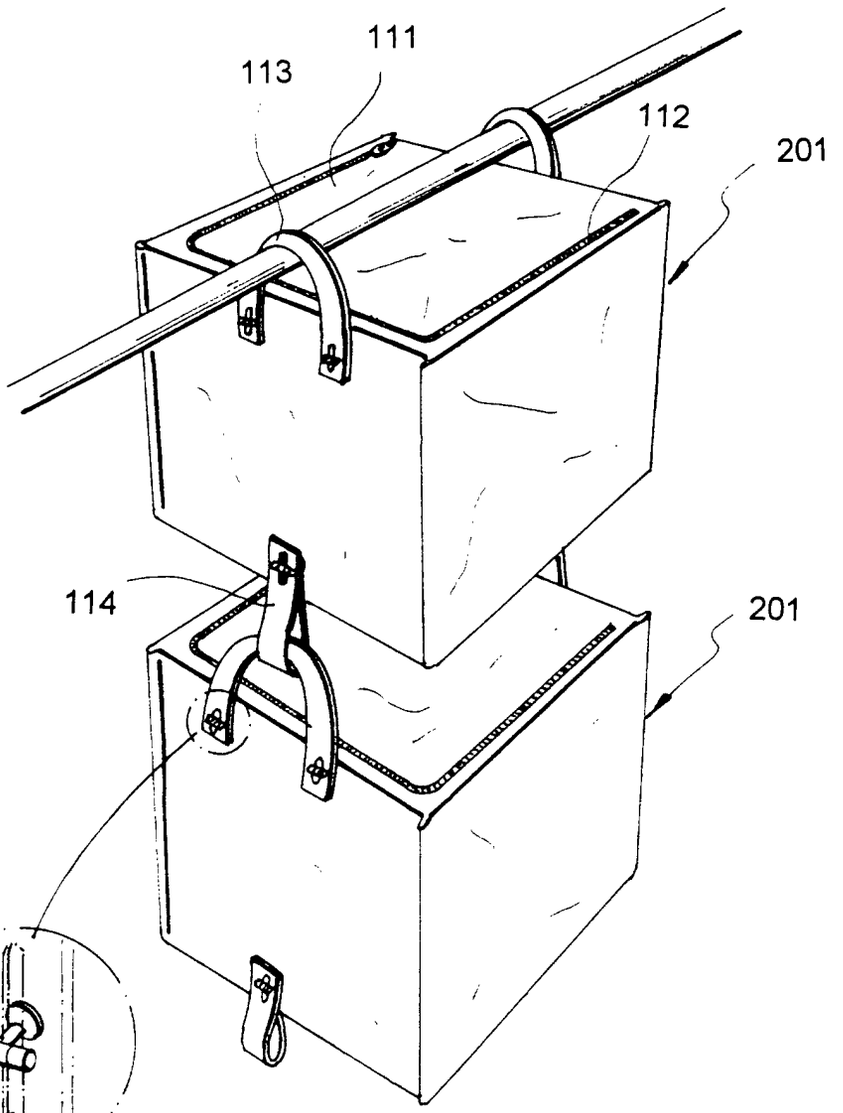


FIG. 10

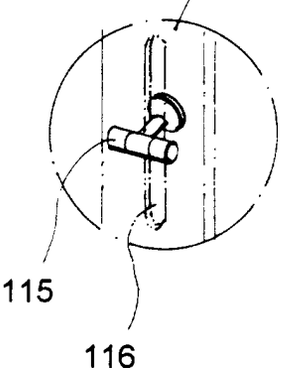


FIG. 10A

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 00 30 2047

DOCUMENTS CONSIDERED TO BE RELEVANT

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Y	EP 0 266 923 B (GALLAHER LTD) 12 June 1991 (1991-06-12) * column 4, line 42 - line 50 * * figures 1,3 *	3	
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TECHNICAL FIELDS SEARCHED (Int.Cl.7)

B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	15 August 2000	Martin, A

CATEGORY OF CITED DOCUMENTS

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