



US 20100282826A1

(19) **United States**

(12) **Patent Application Publication**
Wang

(10) **Pub. No.: US 2010/0282826 A1**

(43) **Pub. Date: Nov. 11, 2010**

(54) **COLLAPSIBLE BOX**

(52) **U.S. Cl. 229/117.01**

(76) **Inventor: Chun-Song Wang, Fuqing (CN)**

(57) **ABSTRACT**

Correspondence Address:
SAM CHEN
7F-1, 293, ROOSEVELT ROAD, SEC 3
TAIPEI (TW)

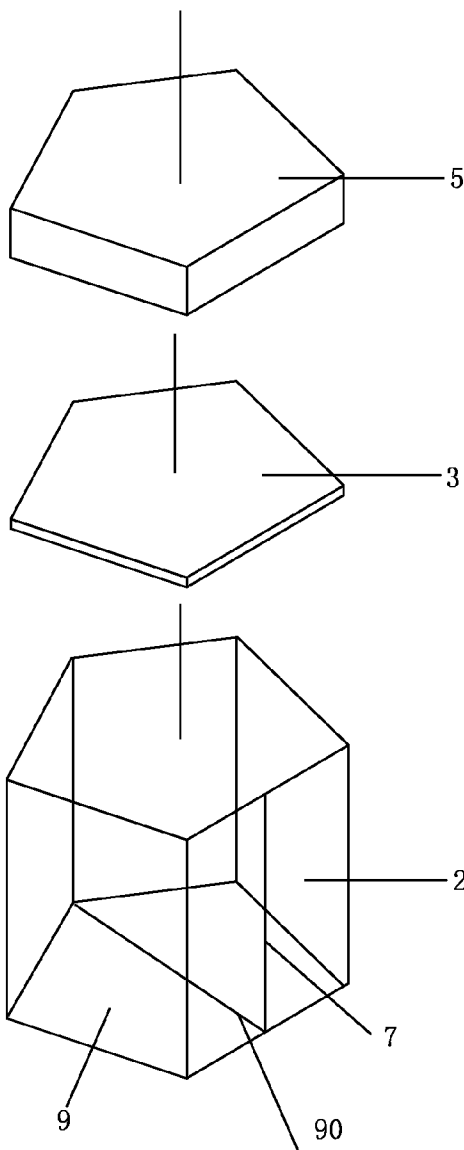
A collapsible box (1) includes a receptacle (2) comprising a bottom (9) having an opening (90), and at least three side panels (8) hingedly secured together; and a cover (5) adapted to put on the receptacle (2) and comprising a hard top (51), a soft interconnection extending from a peripheral edge of the top (51) thereof and comprising at least three sections (50), and at least three separate, flange panels (4) each hingedly secured to the section (50). The flange panels (4) are substantially upright to support the interconnection when the cover (5) is set up or rested upon the interconnection when the cover (5) is collapsed. On side panel (8) has a longitudinal fold line (7) if the number of the side panels (8) is an odd number greater than two.

(21) **Appl. No.: 12/436,801**

(22) **Filed: May 7, 2009**

Publication Classification

(51) **Int. Cl.**
B65D 5/42 (2006.01)



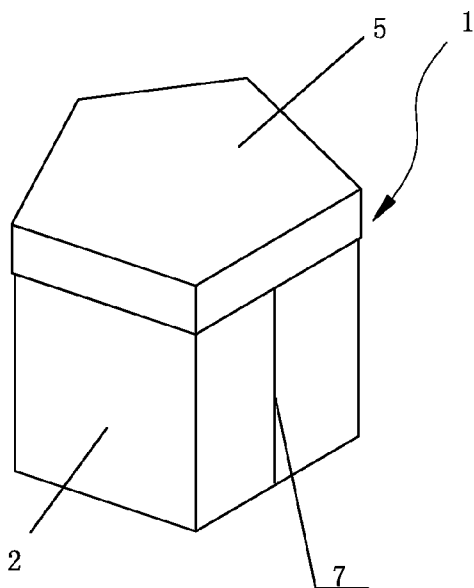


FIG. 1

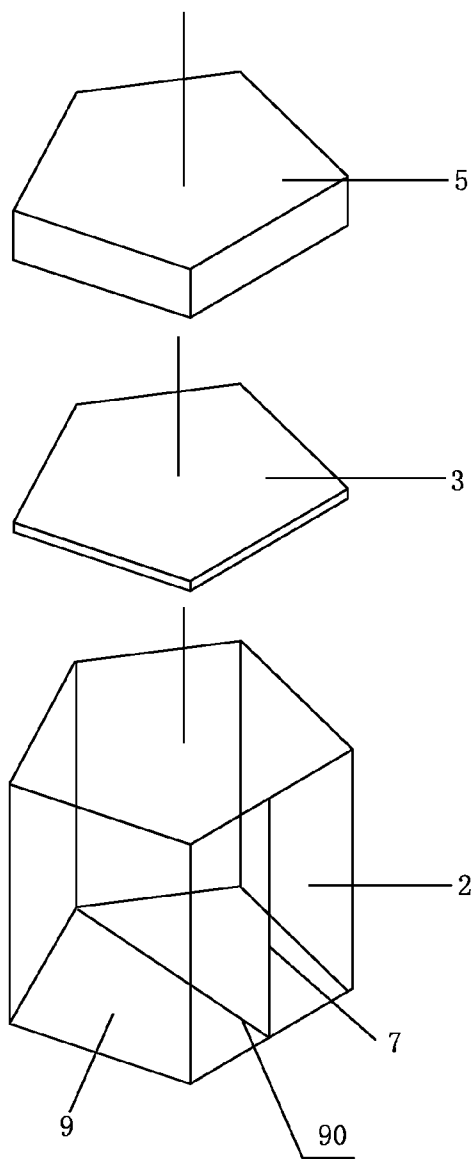


FIG. 2

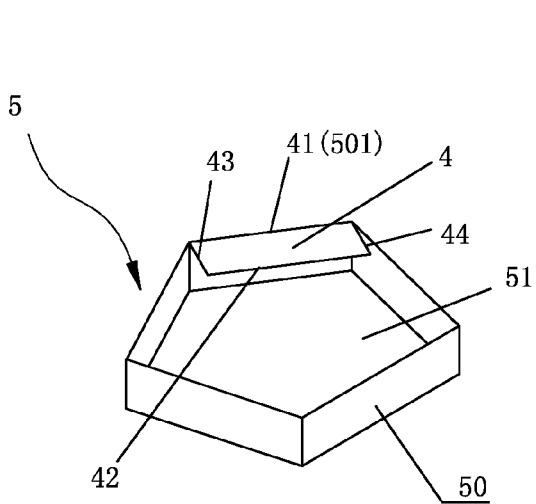


FIG. 3

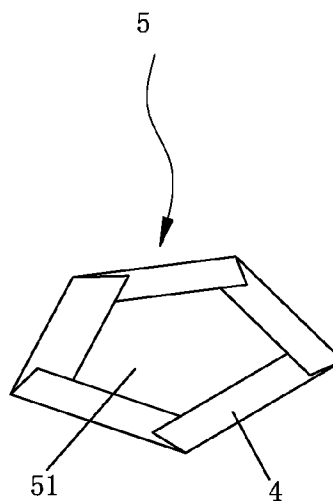


FIG. 4

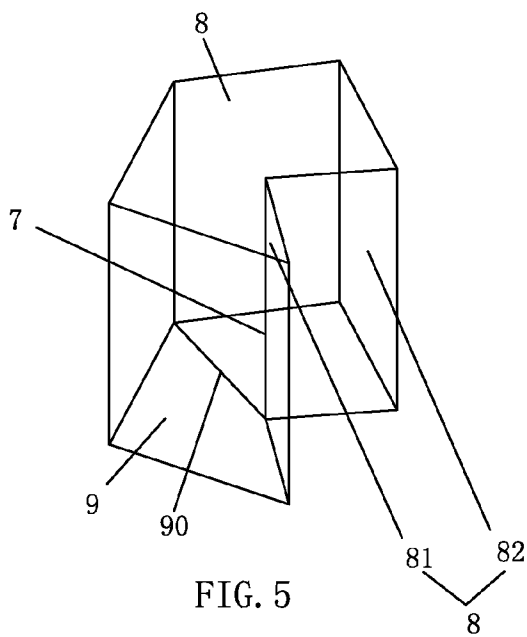


FIG. 5

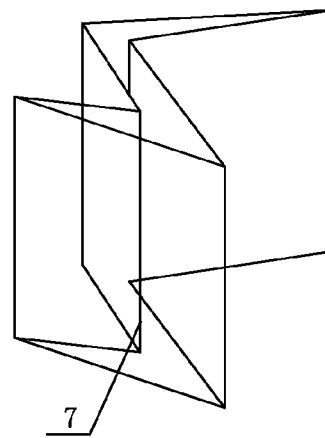


FIG. 6

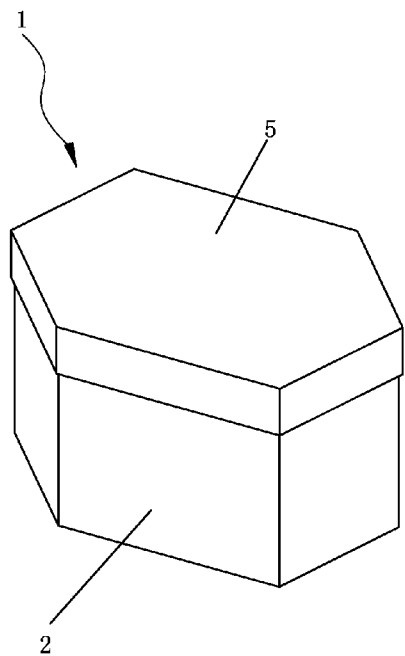


FIG. 7

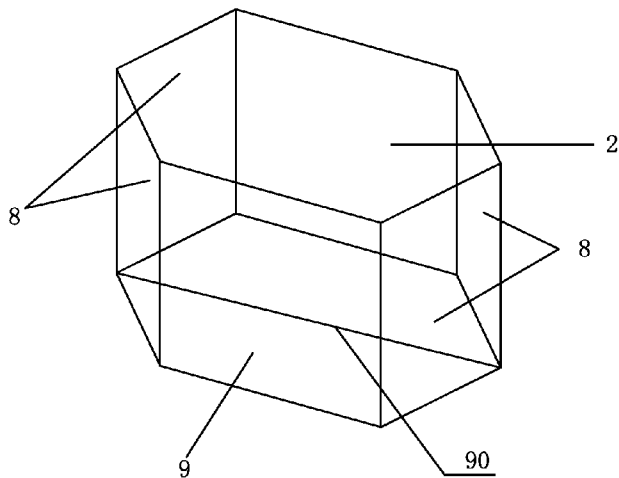
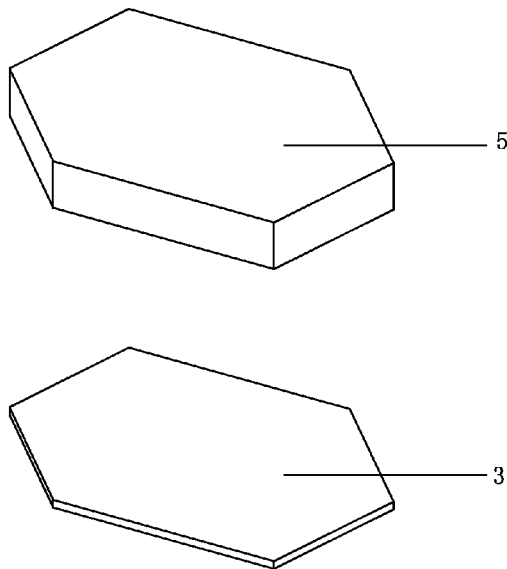


FIG. 8

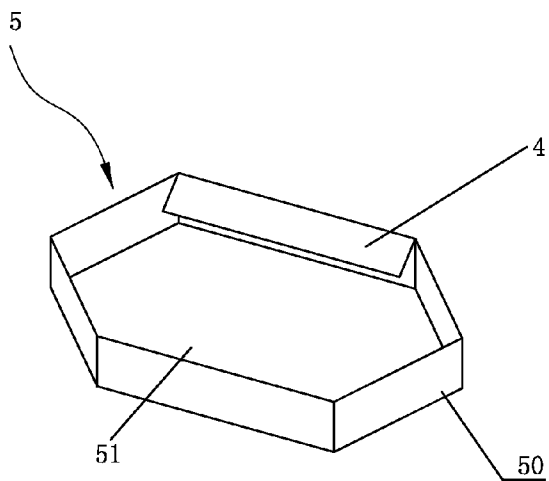


FIG. 9

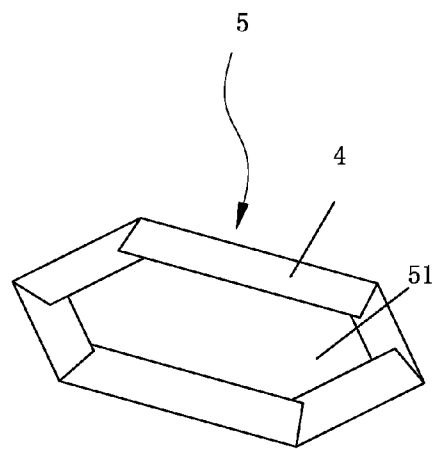


FIG. 10

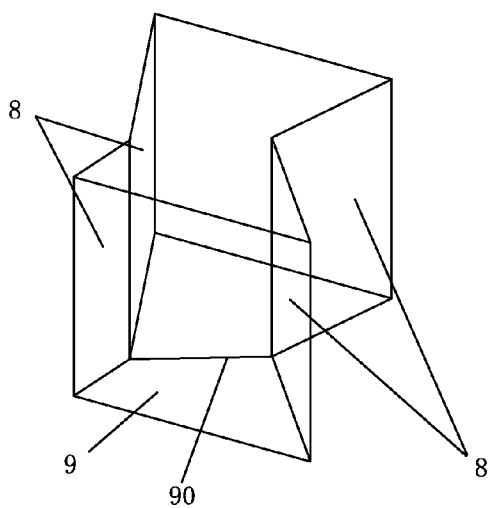


FIG. 11

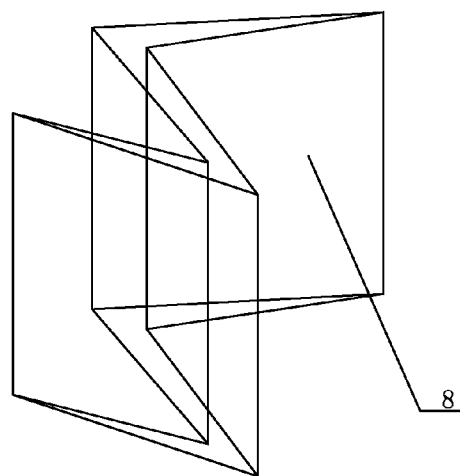


FIG. 12

COLLAPSIBLE BOX

BACKGROUND OF THE INVENTION

[0001] 1. Field of Invention

[0002] The invention relates to collapsible containers and more particularly to a collapsible box with improved characteristics.

[0003] 2. Description of Related Art

[0004] Containers or boxes are widely used in transporting, moving, conveying, sorting, and storing goods and materials. One type of collapsible box can be quickly and easily collapsed for compact storage and quickly and easily set up for use.

[0005] There have been various attempts to provide improved collapsible boxes. However, the conventional collapsible boxes are often difficult to collapse, and even more difficult to change from a collapsed position to a non-collapsed position. Moreover, many types of conventional collapsible boxes often include removable parts that can be easily lost.

[0006] There have been numerous suggestions in prior patents for collapsible box. For example, U.S. Pat. No. 4,693,387 discloses a foldable box for receiving hanging files. It has resilient rails which are removably inserted by flexing the rails and inserting their ends into sockets formed in the sides of the box. The file box has a bottom panel, a top channel frame, and inwardly collapsible side panels. An end panel at each end of the box is hinged to an end piece of the top frame. When they swing down to a vertical position, the end panels lock the collapsible side panels to erect the box. For receiving and maintaining a pair of file rails in a spaced parallel relationship, aligned sockets are provided at the ends of the rails so that the file rails may be inserted therein by flexing.

[0007] U.S. Pat. No. 7,229,001 discloses a folding collapsible rectangular storage box wherein the box body has a flexible bottom panel, two short upright peripheral panels and two long upright peripheral panels perpendicularly extending upward from the four sides of the bottom panel, the two long upright peripheral panels having a respective vertically extending fold line arranged diagonally so that the box body can be folded into a flat one by pushing the long upright peripheral panels toward each other and then respectively turning the short upright peripheral panels toward the attached long upright peripheral panels.

[0008] U.S. Pat. No. 7,431,172 discloses a collapsible for providing access through both its top and front side. When set up, the box comprises a horizontal upper section and horizontal lower section, the sections attached to each other via a pair of opposed vertical sidewalls. When the upper section is gripped by hand and lifted upwardly, the upper section will separate from the lower section and the box will open. Each sidewall comprises a set of upper and lower panels, the panels attached to each other via a hinge that extends horizontally across the approximate center of the sidewall. The top of each sidewall is attached to one end of the upper section via a horizontal hinge. The bottom of each sidewall is attached to one end of the lower section via a horizontal hinge. The lower section comprises the floor of the box. The upper section comprises the top lid and two panels that rest horizontally underneath the top lid.

[0009] Thus, continuing improvements in the exploitation of collapsible box are constantly being sought.

SUMMARY OF THE INVENTION

[0010] It is therefore one object of the invention to provide a collapsible box.

[0011] The above and other objects, features and advantages of the invention will become apparent from the following detailed description taken with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIG. 1 is a perspective view of a first preferred embodiment of collapsible box according to the invention where the collapsible box has a cross-section of pentagon;

[0013] FIG. 2 is an exploded view of the collapsible box;

[0014] FIG. 3 is a perspective view of the cover viewed from a bottom thereof in FIG. 2;

[0015] FIG. 4 is a perspective view of the collapsed cover of FIG. 3;

[0016] FIG. 5 is a perspective view of the receptacle of FIG. 2 being collapsed in a first step;

[0017] FIG. 6 is a perspective view of the receptacle of FIG. 5 where the receptacle is further collapsed;

[0018] FIG. 7 is a perspective view of a second preferred embodiment of collapsible box according to the invention where the collapsible box has a cross-section of hexagon;

[0019] FIG. 8 is an exploded view of the collapsible box of FIG. 7;

[0020] FIG. 9 is a perspective view of the cover viewed from a bottom thereof in FIG. 8;

[0021] FIG. 10 is a perspective view of the collapsed cover of FIG. 9;

[0022] FIG. 11 is a perspective view of the receptacle of FIG. 8 being collapsed in a first step; and

[0023] FIG. 12 is a perspective view of the receptacle of FIG. 11 where the receptacle is further collapsed.

DETAILED DESCRIPTION OF THE INVENTION

[0024] Referring to FIGS. 1 to 6 a collapsible box 1 having a cross-section of pentagon in accordance with a first preferred embodiment of the invention is shown.

[0025] The collapsible box 1 comprises a receptacle 2 with an open top and a closed bottom 9, the receptacle 2 being enclosed by an aesthetic, soft member (e.g., cloth made of fabric) (not shown) and comprising five side panels 8 hingedly secured together by stitching in which one side panel 8 has a longitudinal fold line 7 about halfway between both sides thereof for dividing itself into first and second segments 81, 82 of the same size. Alternatively, the aesthetic, soft member for enclosing the receptacle 2 may be made of flexible plastic, leather or the like in other embodiments. The bottom 9 of the receptacle 2 comprises an opening 90 extending straight ahead from a bottom point of the fold line 7 to a bottom point of two joining side panels 8.

[0026] The collapsible box 1 further comprises a separate bottom panel 3 adapted to fit on the bottom 9 of the set up receptacle 2 for increasing a structural strength of the receptacle 2 if the receptacle 2 is expected to have a heavy load.

[0027] The collapsible box 1 further comprises a separate cover 5 being enclosed by an aesthetic, soft member (e.g., cloth made of fabric) (not shown). The cover 5 comprises a hard top 51, a soft interconnection (not numbered) extending

from a peripheral edge of the top **51** and comprising five interconnected rectangular sections **50**, and five distinct, inner, rectangular, hard, flange panels **4** having two short side edges **43**, **44**, an elongated top edge **42**, and an elongated bottom edge **41** hingedly secured to a bottom edge **501** of each section **50** by means of stitching. Alternatively, the aesthetic, soft member for enclosing the cover **5** may be made of flexible plastic, leather or the like in other embodiments.

[0028] For folding the set up cover **5** (see FIG. 3), a person may first pivot the upright flange panels **4** about the bottom edges **41** thereof about at least 45 degrees. As a result, the sections **50** of the interconnection collapsed to rest upon a bottom of the top **51**. Next, press the flange panels **4** one by one and lay one end of one flange panel **4** over the other end of an adjacent flange panel **4** until they are rested upon the folded sections **50** of the interconnection. As an end, the cover **5** is collapsed (see FIG. 4).

[0029] All of the side panels **8**, the bottom panel **3**, the flange panels **4**, and the hard top **51** of the cover **5** are made of a hard sheet material such as hard plastic, wood, or other suitable materials. The first and second segments **81**, **82** are joined together by means of stitching.

[0030] A zipper, at least one button and buttonhole combination, or a hook and loop fabric fastener (all not shown) may be provided on the opening **90** so as to enable an opening or closing of the bottom **9** of the receptacle **2**. With the provision of the zipper, at least one button and buttonhole combination, or the hook and loop fabric fastener the collapsible box **1** can be quickly and easily collapsed for compact storage and quickly and easily set up for use.

[0031] After setting up the receptacle **2** and closing the opening **90**, a person may put the bottom panel **3** on the bottom **9** of the receptacle **2** for increasing a structural strength of the receptacle **2** if there is such need. Thereafter, the person may store goods in the receptacle **2**. Finally, the person may put the cover **5** on the top of the receptacle **2** to form a complete collapsible box **1** with the goods being protected (see FIG. 1).

[0032] For collapsing the collapsible box **1**, a person may first remove the cover **5** and fold same as described above. Next, the person may remove the bottom panel **3** if any. Next, the person may open the opening **90**. Next, the person may push the fold line **7** inward to fold one side panel **8** which has the first and second segments **81**, **82** (see FIG. 5). Next, the person may push the other four side panels **8** toward each other. Finally, a collapsed receptacle **2** is obtained.

[0033] Referring to FIGS. 7 to 12 a collapsible box **1** having a cross-section of hexagon in accordance with a second preferred embodiment of the invention is shown. The characteristics of the second preferred embodiment are detailed below.

[0034] The collapsible box **1** comprises a receptacle **2** with an open top and a closed bottom **9**, the receptacle **2** being enclosed by an aesthetic, soft member (e.g., clothe made of fabric) (not shown) and comprising six side panels **8** hingedly secured together by stitching. Alternatively, the aesthetic, soft member for enclosing the receptacle **2** may be made of flexible plastic, leather or the like in other embodiments. The bottom **9** of the receptacle **2** comprises an opening **90** extending from a bottom point of two joining side panels **8** at one side to a bottom point of two joining side panels **8** at the other side.

[0035] The collapsible box **1** further comprises a separate bottom panel **3** adapted to fit on the bottom **9** of the set up

receptacle **2** for increasing a structural strength of the receptacle **2** if the receptacle **2** is expected to have a heavy load.

[0036] The collapsible box **1** further comprises a separate cover **5** being enclosed by an aesthetic, soft member (e.g., clothe made of fabric) (not shown). The cover **5** comprises a hard top **51**, a soft interconnection (not numbered) extending from a peripheral edge of the top **51** and comprising six interconnected rectangular sections **50**, and six distinct, inner, rectangular, hard, flange panels **4** hingedly secured to the sections **50** by means of stitching. Alternatively, the aesthetic, soft member for enclosing the cover **5** may be made of flexible plastic, leather or the like in other embodiments.

[0037] For folding the set up cover **5** (see FIG. 9), a person may first pivot the upright flange panels **4** about edges thereof connecting the sections **50** about at least 45 degrees. As a result, the sections **50** of the interconnection collapsed to rest upon a bottom of the top **51**. Next, press the flange panels **4** one by one and lay one end of one flange panel **4** over the other end of an adjacent flange panel **4** until they are rested upon the folded sections **50** of the interconnection. As an end, the cover **5** is collapsed (see FIG. 10).

[0038] All of the side panels **8**, the bottom panel **3**, the flange panels **4**, and the hard top **51** of the cover **5** are made of a hard sheet material such as hard plastic, wood, or other suitable materials.

[0039] A zipper, at least one button and buttonhole combination, or a hook and loop fabric fastener (all not shown) may be provided on the opening **90** so as to enable an opening or closing of the bottom **9** of the receptacle **2**. With the provision of the zipper, at least one button and buttonhole combination, or the hook and loop fabric fastener the collapsible box **1** can be quickly and easily collapsed for compact storage and quickly and easily set up for use.

[0040] After setting up the receptacle **2** and closing the opening **90**, a person may put the bottom panel **3** on the bottom **9** of the receptacle **2** for increasing a structural strength of the receptacle **2** if there is such need. Thereafter, the person may store goods in the receptacle **2**. Finally, the person may put the cover **5** on the top of the receptacle **2** to form a complete collapsible box **1** with the goods being protected (see FIG. 7).

[0041] For collapsing the collapsible box **1**, a person may first remove the cover **5** and fold same as described above. Next, the person may remove the bottom panel **3** if any. Next, the person may open the opening **90**. Next, the person may inward push a fold line between the two side panels **8** at one side and inward push a fold line between the two side panels **8** at the other side (see FIG. 11). Next, the person may push the other two side panels **8** toward each other. Finally, a collapsed receptacle **2** is obtained.

[0042] While the invention herein disclosed has been described by means of specific embodiments, numerous modifications and variations could be made thereto by those skilled in the art without departing from the scope and spirit of the invention set forth in the claims.

What is claimed is:

1. A collapsible box (**1**) comprising:
 - a receptacle (**2**) comprising a bottom (**9**) having an opening (**90**), and at least three side panels (**8**) hingedly secured together; and
 - a cover (**5**) adapted to put on the receptacle (**2**) and comprising a hard top (**51**), a soft interconnection extending from a peripheral edge of the top (**51**) thereof and com-

prising at least three sections (50), and at least three separate, flange panels (4) each hingedly secured to the section (50),

wherein the flange panels (4) are substantially upright to support the interconnection when the cover (5) is set up or rested upon the interconnection when the cover (5) is collapsed; and

wherein one of the side panels (8) has a longitudinal fold line (7) if the number of the side panels (8) is an odd number greater than two.

2. The collapsible box (1) of claim 1, wherein the number of the side panels (8) is five.

3. The collapsible box (1) of claim 1, wherein the number of the side panels (8) is six.

4. The collapsible box (1) of claim 1, further comprising a bottom panel (3) adapted to position on the bottom (9) of the receptacle (2).

5. The collapsible box (1) of claim 1, further comprising a zipper disposed on the opening (91) of the bottom (9) of the receptacle (2) for closing or opening same.

6. The collapsible box (1) of claim 1, further comprising at least one button and buttonhole combination disposed on the opening (91) of the bottom (9) of the receptacle (2) for closing or opening same.

7. The collapsible box (1) of claim 1, further comprising a hook and loop fabric fastener disposed on the opening (91) of the bottom (9) of the receptacle (2) for closing or opening same.

* * * * *