COLLAPSIBLE STORAGE BOX

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ABSTRACT

The storage box contains a box member, a cover member having an edge joined to a top edge of the box member, and a base plate placed in the box member. The cover member has three side pieces extended downward from the other three edges. Two fastening elements are configured on the inner sides of the box member's corners adjacent to the cover member, respectively. A first support piece and a second support piece are pivotedly configured on the base plate. After the base plate is placed in the box member, the first and second support pieces are raised, and fastening elements on the first and second support pieces are locked by the fastening elements of the box member. A first side piece of the three side pieces extends further inward to form angle so as to tightly cover the box member.
COLLAPSIBLE STORAGE BOX

TECHNICAL FIELD OF THE INVENTION

[0001] The present invention is generally related to storage boxes, and more particularly to a collapsible storage box that is strong enough when unfolded to function as a chair.

DESCRIPTION OF THE PRIOR ART

[0002] Collapsible storage boxes are widely popular as they could be folded and stored easily. For some storage boxes, soft clothes are used to make the cubical body. Lateral beams are arranged along the four edges of the body’s top and bottom four edges. Vertical columns are arranged at the four corners. Appropriate gaps are reserved between the ends of adjacent top beams, the ends of adjacent bottom beams, and the ends of adjacent top and bottom beams and vertical columns. Diagonal folding lines are also configured on the walls of the body. As such, the body could be expanded and sustained by the beams and columns into a storage box and, when not in use, could be folded into a flat object.

[0003] Even though the foregoing storage box is supported by the columns, the walls are still made of soft clothes. The storage box is not strong enough to sustain the weight of an ordinary person.

[0004] There are some improved storage boxes capable of functioning as chairs. Usually a cover is provided on the cubical body and the cover has sides wrapping the circumference of the body, in addition to the columns supporting the corners of the body.

[0005] For these storage boxes, some have the cover joined to a top edge of a wall of the body with the other wall wrapped by the cover’s sides. However, the wall joining the cover is lack of cover support and, when a person sits on the storage box, the storage box often breaks apart from where the cover and the body are joined. Some use reinforcing beams to provide additional support. However, this will add to the cost and the reinforcing beams are often misplaced and lost.

SUMMARY OF THE INVENTION

[0006] A major objective of the present invention is to provide a collapsible storage box with enhanced weight support capability so as to function as a chair as well.

[0007] A feature of the present invention is that two support pieces are provided on a base plate that could be raised after the base plate is placed inside a box member of the storage box to support the two corners of a cover member that are joined to the box member. When the storage box is not in use, the support pieces could be conveniently and flatly lowered onto the base plate for stacking.

[0008] Another feature of the present invention is that the cover member has downward extended side pieces from the edges of the cover member except the edge joining the box member. A first side piece opposing the edge joining the box member is further inclined inward to form an angle so that, after the cover member is closed, the first side piece wraps more tightly around the box member, thereby enhancing the weight support capability of the storage box.

[0009] Therefore, a storage box according to the present invention contains a box member, a cover member having an edge joined to a top edge of the box member, and a base plate. The cover member has a first side piece, a second side piece, and a third side pieces extended downward in parallel from the other three edges of the cover member. The base plate is placed at the bottom of the box member. Two fastening elements are configured on the inner sides of two adjacent wall pieces forming the corners adjacent to the cover member, respectively. At two neighboring corners of the base plate, a first support piece and a second support piece are pivotally configured, respectively. After the base plate is placed in the box member, the first and second support pieces are raised, and two first and second fastening elements on the first and second support pieces are locked by the fastening elements of the box member. The first and second support pieces therefore provide additional support at where the cover member and the box member are joined. The three side pieces tightly cover the circumference of the box member with the first side piece extended inward to form angle.

[0010] Preferably, Velcro fasteners are used as the fastening elements on the wall piece and the first and second support pieces.

[0011] Optionally, the base plate could have four support pieces at the four corners of the base plate, respectively. After the base plate is placed inside the box member, the four support pieces are raised to support the four corners of the cover member so as to sustain even greater weight.

[0012] The foregoing objectives and summary provide only a brief introduction to the present invention. To fully appreciate these and other objects of the present invention as well as the invention itself, all of which will become apparent to those skilled in the art, the following detailed description of the invention and the claims should be read in conjunction with the accompanying drawings. Throughout the specification and drawings identical reference numerals refer to identical or similar parts.

[0013] Many other advantages and features of the present invention will become manifest to those versed in the art upon making reference to the detailed description and the accompanying sheets of drawings in which a preferred structural embodiment incorporating the principles of the present invention is shown by way of illustrative example.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] FIG. 1 is a perspective break-down diagram showing the various components of a storage box according to an embodiment of the present invention.

[0015] FIG. 2 is a perspective diagram showing the base plate is placed inside the box member of the storage box of FIG. 1.

[0016] FIG. 3 is a perspective diagram showing the support pieces are raised in the storage box of FIG. 1.

[0017] FIG. 4 is a side-view diagram showing the storage box of FIG. 1 after the cover member is closed.

[0018] FIG. 5 is a perspective diagram showing the storage box of FIG. 1 after the cover member is closed.

[0019] FIG. 6 is a perspective diagram showing the storage box of FIG. 1 after being collapsed.

[0020] FIG. 7 is a perspective diagram showing four support pieces are raised inside the box member according to another embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0021] The following descriptions are exemplary embodiments only, and are not intended to limit the scope, applicability or configuration of the invention in any way. Rather, the following description provides a convenient illustration for
implementing exemplary embodiments of the invention. Various changes to the described embodiments may be made in the function and arrangement of the elements described without departing from the scope of the invention as set forth in the appended claims.

[0022] As shown in FIG. 1, a storage box 1 according to an embodiment of the present invention contains a box member 11, a cover member 12, and a base plate 13. The box member 11 is preferably of a cubical or rectangular shape containing four wall pieces extended upward from the four edges of a bottom piece 14. Two opposing wall pieces are rigid and cannot be collapsed. The other two wall pieces are also rigid but are foldable along a vertical folding line 111 in the middle. Two fastening elements 112, such as the Velcro fasteners, are configured on the inner sides of two adjacent wall pieces, respectively, across and next to the interfacing edges near the top edges. The four wall pieces are made of a material of appropriate hardness wrapped and connected by a soft material such as canvas and plastic cloth with an appropriate gap reserved between two adjacent wall pieces. As such, two adjacent wall pieces are also foldable along their interfacing edges. To make the box member 11 collapsible, the bottom piece 114 is also made of a soft material.

[0023] The cover member 12 has four edges and one of the edges joined to a top edge 113 of the box member 11 so that the cover member 12 could swing along the top edge 113, and close the top of the box member 11. From the other three edges of the cover member 12, a first side piece 121 is extended downward from an edge opposing the edge 113, and a second side piece 122 and a third side pieces 123 are extended downward in parallel from the other two edges of the cover member 12. The three side pieces 121, 122, and 123 are made of a material of appropriate hardness wrapped and connected by a soft material such as canvas and plastic cloth with an appropriate gap reserved between two adjacent side pieces. As such, two adjacent side pieces are also foldable along their interfacing edges. As shown in FIG. 4, preferably, the first side piece 121 is extended further inward to form angle 0 so that the side pieces 121, 122, and 123 could tightly cover the circumference of the box member 11.

[0024] To make the box member 11 steady after unfolding, the base plate 13 is a hard plate and is placed on the bottom piece 114 of the box member 11. As shown in FIG. 2, the four edges of the base plate 13 press against the wall pieces of the box member 11. At two neighboring corners of the base plate 13, a first support piece 131 and a second support piece 132 are configured, respectively. The first support piece 131 has a first connecting end 1312 pivotally connected to the base plate 13 in two first fastening elements 1311 at the other end. Similarly, the second support piece 132 has a second connecting end 1322 pivotally connected to the base plate 13 and two second fastening elements 1321 at the other end. After the base plate 13 is placed in the box member 11, the first and second support pieces 131 and 132 are raised, and the first and second fastening elements 1311 and 1321 are locked by the fastening elements 112.

[0025] As shown in FIG. 3, the first and second support pieces 131 and 132 as such provide additional support to the cover member 12 at the two corners along the top edge 113. Then, as shown in FIG. 5, after the cover member 12 is flipped to seal the box member 11, the storage box 1 is robust enough to sustain the weight of a person so as to function as a chair.

[0026] To collapse the storage box 1, the cover member 12 is flipped open and the base plate 13 is removed from inside of the box member 11. The wall pieces of the box member 11 and the side pieces of the cover member 12 are then folded so that the box and cover members 11 and 12 turn into a flat object as shown in FIG. 6. The base plate 13 then could be stacked along with the flat object after the first and second support pieces 131 and 132 are lowered onto the surface of the base plate 13.

[0027] FIG. 7 shows another embodiment of the present invention where four, instead of two, support pieces are employed. As illustrated, four support pieces, a first support piece 131, a second support piece 132, a third support piece 133, and a fourth support piece 134 are provided at the four corners of the base plate 13, respectively. After the base plate 13 is placed inside the box member 11, the four support pieces are raised to support the four corners of the cover member 12 so as to sustain even greater weight.

[0028] While certain novel features of this invention have been shown and described and are pointed out in the annexed claim, it is not intended to be limited to the details above, since it will be understood that various omissions, modifications, substitutions and changes in the forms and details of the device illustrated and in its operation may be made by those skilled in the art without departing in any way from the spirit of the present invention.

1. A collapsible storage box comprising:
   a box member, in an erected mode of said storage box, having a first wall piece, a second wall piece opposite to said first wall piece, a third wall piece having two opposite sides connecting with a side of said first wall side and a side of said second side wall, a fourth wall piece having two opposite sides connecting with the other opposite side of said first side wall and the other opposite side of said second side wall, wherein said third wall piece is opposite to said fourth wall piece, wherein each of said third and fourth wall pieces has a vertical folding line in the middle thereof and is foldable along said vertical folding line;
   a base plate detachably placed at the bottom of said box member;
   a first support longitudinal piece pivotally secured onto said base plate and at a corner close to an end of a side of said base plate, wherein said first support longitudinal piece, in said erected mode of said storage box, fastens at a corner between said first and third wall pieces and extends along a first side of said first wall piece; and
   a second support longitudinal piece pivotally secured onto said base plate and at another corner close to the other end of said side of said base plate, wherein said second support longitudinal piece, in said erected mode of said storage box, fastens at a corner between said first and fourth wall pieces and extends along a second side of said first wall piece, wherein said first and second support longitudinal pieces, in a collapsed mode of said storage box, intersect on said base plate.

2. The storage box of claim 1 further comprising a cover member pivotally joining a third side of said first wall piece, wherein said third side of said first wall piece has an end joining said first side of said first wall piece and the other end joining said second side of said first wall piece.

3. The storage box of claim 2, wherein said cover member, in said erected mode of said storage box, comprises a first side
piece configured to cover a top portion of said second wall piece and a second side piece configured to cover a top portion of said third wall piece.

4. The storage box of claim 3, wherein said first side piece extends inward with an angle toward said second wall piece.

5. The storage box of claim 1 further comprising a Velcro fastener fastens said first support longitudinal piece, in said erected mode of said storage box, at said corner between said first and third wall pieces.

6. The storage box of claim 1 further comprising a third support longitudinal piece, in said erected mode of said storage box, fastening at a corner between said second and third wall pieces and extending along a first side of said second wall piece, and a fourth support longitudinal piece, in said erected mode of said storage box, fastening at a corner between said second and fourth wall pieces and extending along a second side of said second wall piece opposite to said first side of said second wall piece.

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