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(54) **Storage box**

Aufbewahrungsbox

Boîte de stockage

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(56) References cited:  
**GB-A- 434 215** **US-A- 1 090 592**  
**US-A- 3 161 315**

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## Description

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention:

[0001] The present invention relates to a storage box and more particularly, to a folding collapsible storage box.

#### 2. Description of the Related Art:

[0002] Various storage boxes of different materials are known and commercially available for storing things. In order to save storage space, collapsible storage boxes are developed. A known collapsible storage box comprises a rectangular box body made of soft fabric, horizontal and vertical rod members respectively fastened to the four sides of each of the vertical lateral panels and bottom panel of the box body, and a hard bottom plate attached to the bottom panel inside the box body for supporting storage items. This design of collapsible storage box is functional. However, it is not attractive to consumers.

[0003] GB 434,215 discloses a display box according to the preamble of appended claim 1, and comprising an upper tray and a lower tray hinged together about a vertical axis, for example, the one tray hinged on a wall extending from the other tray, so that the trays may be disposed the one under the other or opened out, as well as locking means to hold the trays in their respective positions. However, the trays consist of rigid material and cannot be folded.

### SUMMARY OF THE INVENTION

[0004] The present invention has been accomplished under the circumstances in view. According to the present invention, the storage box comprises a lower box body, the lower box body defining a top open chamber for storage items, an upper box body, the upper box body defining a top open chamber for storage items, and having an angled extension wall vertically downwardly extended from the outer lateral side and the back side, means connecting between the upper box body and the lower box body so that the upper box body can be turned horizontally relative to the lower box body between a received position where the upper box body and the lower box body are vertically arranged in a stack and the top open chamber of the lower box body is closed by the upper box body, and an extended position where the upper box body and the lower box body are set in an offset relationship and the upper box body defines with the lower box body and said angled extension wall a bottom open chamber below the top open chamber of the upper box body for storage items, characterised in that the upper body and the lower body are made of soft fabric such as canvass, each having a plurality of vertically extended folding lines, and that at least one hard connecting plate

for fastening to the upper box body and the lower box body is provided to hold the upper box body and the lower box body in the extended position. According to a further aspect of the present invention, each hard connecting plate comprises two male fastening elements, and the upper box body and the lower box body each comprise at least one female fastening element adapted to receive the male fastening elements of the at least one connecting plate. Further, the upper box body and the lower box body can be made having a rectangular or cylindrical configuration.

### BRIEF DESCRIPTION OF THE DRAWING

#### [0005]

FIG. 1 is an elevational view of a storage box constructed according to the present invention.

FIG. 2 is an exploded view of the storage box shown in FIG. 1.

FIG. 3 is a schematic drawing showing folding of the storage box shown in FIG. 2 after removal of the top cover and the hard bottom plates from the upper box body and the lower box body.

FIG. 4 is corresponding to FIG. 3, showing the storage box fully collapsed.

FIG. 5 is an elevational view of an alternate form of the storage box according to the present invention.

FIG. 6 is an elevational view of another alternate form of the storage box according to the present invention.

FIG. 7 is an elevational view of still another alternate form of the storage box according to the present invention.

FIG. 8 is corresponding to FIG. 7, showing the storage box set in the extended position.

FIG. 9 is an extended view of still another alternate form of the storage box according to the present invention.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0006] In FIG. 1, a storage box is shown constructed according to one embodiment of the present invention and covered with a top cover 42.

[0007] FIG. 2 is an exploded view of the storage box shown in FIG. 1, showing the upper box body 10 horizontally turned outwards from the lower box body 20. The upper box body 10 and the lower box body 20 are made of soft fabric (for example, canvass) with the respective four horizontal top sides and four horizontal bottom sides and four vertical angles respectively supported with a respective rigid rod member to maintain the shape. A hard bottom plate 40 is attached to the top surface of the bottom panel of the box body 10 or 20 for supporting storage items. The upper box body 10 defines a top open chamber 12 for storing things. The upper box body 10

further has an angled extension wall vertically downwardly extended from the outer lateral side and the back side, thereby defining a bottom open chamber 14 after the upper box body 10 has been extended out of the lower box body 20. The upper box body 10 further has vertically extended folding lines 16, and is provided with a fastening device 18. A support 28 is hinged to the outer surface of the inner lateral side of the lower box body 20, and can be turned relative to the lower box body 20.

[0008] The lower box body 20 is symmetrical to the upper box body 10, having an angled extension wall vertically upwardly extended from the outer lateral side and the back side, thereby defining a top open chamber 22 for keeping things. The lower box body 20 further comprises folding lines 24 in the front, and is provided with a fastening device 36 corresponding to the fastening device 18 of the upper box body 10. A flexible hinge 38 is connected between one vertical angle of the upper box body 10 and one vertical angle of the lower box body 20 so that the upper box body 10 and the lower box body 20 can be horizontally turned relative to each other between the received position where the upper box body 10 and the lower box body 20 are arranged in a stack (see FIG. 1), and the extended position where the upper box body 10 and the lower box body 20 are in an offset relationship (see FIG. 2). After the upper box body 10 has been extended out of the lower box body 20, the support 28 is turned outwards from the lower box body 20 to stop the top side against the bottom side of the upper box body 10, giving a support to the upper box body 10 (see FIG. 2). When set in the extended position, the top open chamber 12 and bottom open chamber 14 of the upper box body 10 as well as the top open chamber 22 of the lower box body 20 are opened for storing things.

[0009] After removal of the hard bottom plates 40 from the upper box body 10 and the lower box body 20, the support 28 is turned inwards and closely attached to the lower box body 20, and then the upper box body 10 and the lower box body 20 are folded up along the respective folding lines 16, 24 and received in a flat condition as shown in FIGS. 3 and 4.

[0010] Further, the extension wall of the upper box body 10 and the extension wall of the lower box body 20 are so arranged that the four vertical lateral sides of the storage box are maintained in a flush manner after the upper box body 10 and the lower box body 20 have been set in the received position. The upper box body 10 and the lower box body 20 may be respectively provided with a handle 34 for carrying.

[0011] FIGS. 5 and 6 show two different alternate forms of the storage box. As illustrated, a number of vertically linked upper box bodies 10 and a number of vertically linked lower box bodies 20 are hinged together and can be turned between the received position and the extended position like the embodiment shown in FIGS. 1-4. Further, connecting plates 30 may be used to connect the respective upper box bodies 10 to the respective lower box bodies 20 in the extended position. Each con-

necting plate 30 has male (female) fastening elements 32 at the ends for fastening to respective female (male) fastening elements (not shown) at the upper box bodies 10 and the lower box bodies 20.

[0012] FIGS. 7 and 8 show still another alternate form of the storage box according to the present invention. According to this embodiment, the upper box body 10 and the lower box body 20 have a cylindrical configuration. The upper box body 10 has a part of the bottom side connected to a part of the top side of the lower box body 20 in such a manner that the upper box body 10 can be turned horizontally relative to the lower box body 20 between the received position as shown in FIG. 7 and the extended position as shown in FIG. 8.

[0013] FIG. 9 shows still another alternate form of the storage box according to the present invention. According to this embodiment, the upper box body 10 and the lower box body 20 are respectively made of bamboo strips, and fastened together with a metal hinge 26.

[0014] Although particular embodiments of the invention have been described in detail for purposes of illustration, various modifications and enhancements may be made without departing from the invention as defined by the appended claims.

## Claims

1. A storage box comprising a lower box body (20), said lower box body defining a top open chamber (22) for storage items, an upper box body (10), said upper box body defining a top open chamber (12) for storage items and having an angled extension wall vertically downwardly extended from the outer lateral side and the back side, means (38) connecting between said upper box body and said lower box body so that said upper box body can be turned horizontally relative to said lower box body between a received position where said upper box body and said lower box body are vertically arranged in a stack and the top open chamber of said lower box body is closed by said upper box body, and an extended position where said upper box body and said lower box body are set in an offset relationship and said upper box body defines with said lower box body and said angled extension wall a bottom open chamber (14) below the top open chamber of said upper box body for storage items, **characterized in that** said upper body and said lower body are made of soft fabric such as canvass, each having a plurality of vertically extended folding lines (16; 24), and that at least one hard connecting plate (40) for fastening to said upper box body and said lower box body is provided to hold said upper box body and said lower box body in said extended position.
2. The storage box as claimed in claim 1, wherein said at least one hard connecting plate (40) each com-

prises two male fastening elements (32); said upper box body (10) and said lower box body (20) each comprise at least one female fastening element adapted to receive the male fastening elements of said at least one connecting plate.

3. The storage box as claimed in claim 1, wherein said upper box body (10) and said lower box body (20) have a rectangular configuration.
4. The storage box as claimed in claim 1, wherein said upper box body (10) and said lower box body (20) have a cylindrical configuration.

#### Patentansprüche

1. Aufbewahrungsbox mit einem unteren Boxen-Hauptteil (20), der eine nach oben offene Kammer (22) zur Aufnahme von Gegenständen umschließt, einem oberen Boxen-Hauptteil (10), der eine nach oben offene Kammer (12) zur Aufnahme von Gegenständen umschließt und eine winklige Verlängerungsfläche aufweist, die von der äußeren seitlichen und der rückseitigen Fläche aus vertikal abwärts vorsteht, und Einrichtungen (38) zwischen dem oberen und dem unteren Boxen-Hauptteil derart, dass der obere relativ zum unteren Boxen-Hauptteil zwischen einer eingeschwenkten Lage, in der der obere und der untere Boxen-Hauptteil vertikal übereinander liegen und der untere vom oberen Boxen-Hauptteil verschlossen wird, und einer ausgeschwenkten Lage verdrehbar ist, in der der obere und der untere Boxen-Hauptteil gegeneinander versetzt sind und der obere mit dem unteren Boxen-Hauptteil und der winkligen Verlängerungsfläche zusammen unter der nach oben offenen Kammer des oberen Boxen-Hauptteils eine untere offene Kammer (14) zur Aufnahme von Gegenständen bildet; **dadurch gekennzeichnet, dass** der obere und der untere Boxen-Hauptteil aus weichem Tuchmaterial wie bspw. Placentuch hergestellt sind und jeweils eine Vielzahl vertikal verlaufender Faltlinien (16; 24) enthalten und dass mindestens eine harte Verbindungsplatte (40) zum Befestigen am oberen und unteren Boxen-Hauptteil befestigbar vorgesehen ist, um den oberen und den unteren Boxen-Hauptteil in der Ausschwenklage zu halten.
2. Aufbewahrungsbox nach Anspruch 1, bei der die mindestens eine harte Verbindungsplatte (40) jeweils zwei Steck-Befestigungselemente (32) und der obere und der untere Boxen-Hauptteil (10; 20) jeweils mindestens ein Buchsen-Befestigungselement zur Aufnahme der Steck-Befestigungselemente der mindestens einen Verbindungsplatte aufweisen.

3. Aufbewahrungsbox nach Anspruch 1, bei der der obere und der untere Boxen-Hauptteil quaderförmig sind.

4. Aufbewahrungsbox nach Anspruch 1, bei der der obere und der untere Boxen-Hauptteil zylindrisch sind.

#### 10 Revendications

1. Boîte de stockage comportant un corps de boîte inférieur (20), ledit corps de boîte inférieur définissant une chambre à ouverture supérieure (22) pour des articles à stocker, un corps de boîte supérieur (10), ledit corps de boîte supérieur définissant une chambre à ouverture supérieure (12) pour des articles à stocker, et ayant une paroi de prolongement angulaire se prolongeant verticalement vers le bas à partir du côté latéral extérieur et du côté arrière, des moyens (38) raccordant entre eux ledit corps de boîte supérieur et ledit corps de boîte inférieur de sorte que ledit corps de boîte supérieur peut être tourné horizontalement par rapport audit corps de boîte inférieur entre une position de réception dans laquelle ledit corps de boîte supérieur et ledit corps de boîte inférieur sont disposés verticalement en une pile et la chambre à ouverture supérieure dudit corps de boîte inférieur est fermée par ledit corps de boîte supérieur, et une position de prolongement dans laquelle ledit corps de boîte supérieur et ledit corps de boîte inférieur sont placés en relation de décalage et ledit corps de boîte supérieur définit avec ledit corps de boîte inférieur et ladite paroi de prolongement angulaire une chambre à ouverture inférieure (14) en dessous de la chambre à ouverture supérieure dudit corps de boîte supérieur pour des articles à stocker, **caractérisée en ce que** ledit corps supérieur et ledit corps inférieur sont fabriqués à partir d'un tissu souple tel qu'une grosse toile, ayant chacun une pluralité de lignes de pliage s'étendant verticalement (16 ; 24), et qu'au moins une plaque de raccordement rigide (40), destinée à être fixée sur ledit corps de boîte supérieur et ledit corps de boîte inférieur, est fournie pour maintenir ledit corps de boîte supérieur et ledit corps de boîte inférieur dans ladite position de prolongement.
2. Boîte de stockage selon la revendication 1, dans laquelle ladite au moins une plaque de raccordement rigide (40) comporte chacune deux éléments de fixation mâles (32) ; ledit corps de boîte supérieur (10) et ledit corps de boîte inférieur (20) comportent chacun au moins un élément de fixation femelle adapté pour recevoir les éléments de fixation mâles de ladite au moins une plaque de raccord.
3. Boîte de stockage selon la revendication 1, dans la-

quelle ledit corps de boîte supérieur (10) et ledit corps de boîte inférieur (20) ont une configuration rectangulaire.

4. Boîte de stockage selon la revendication 1, dans laquelle ledit corps de boîte supérieur (10) et ledit corps de boîte inférieur (20) ont une configuration cylindrique.

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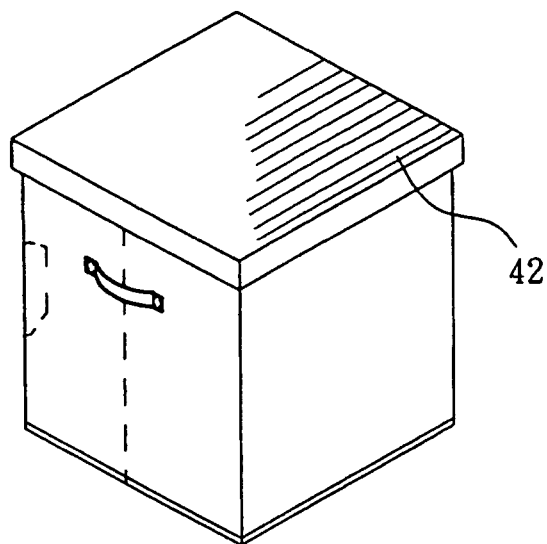


FIG. 1

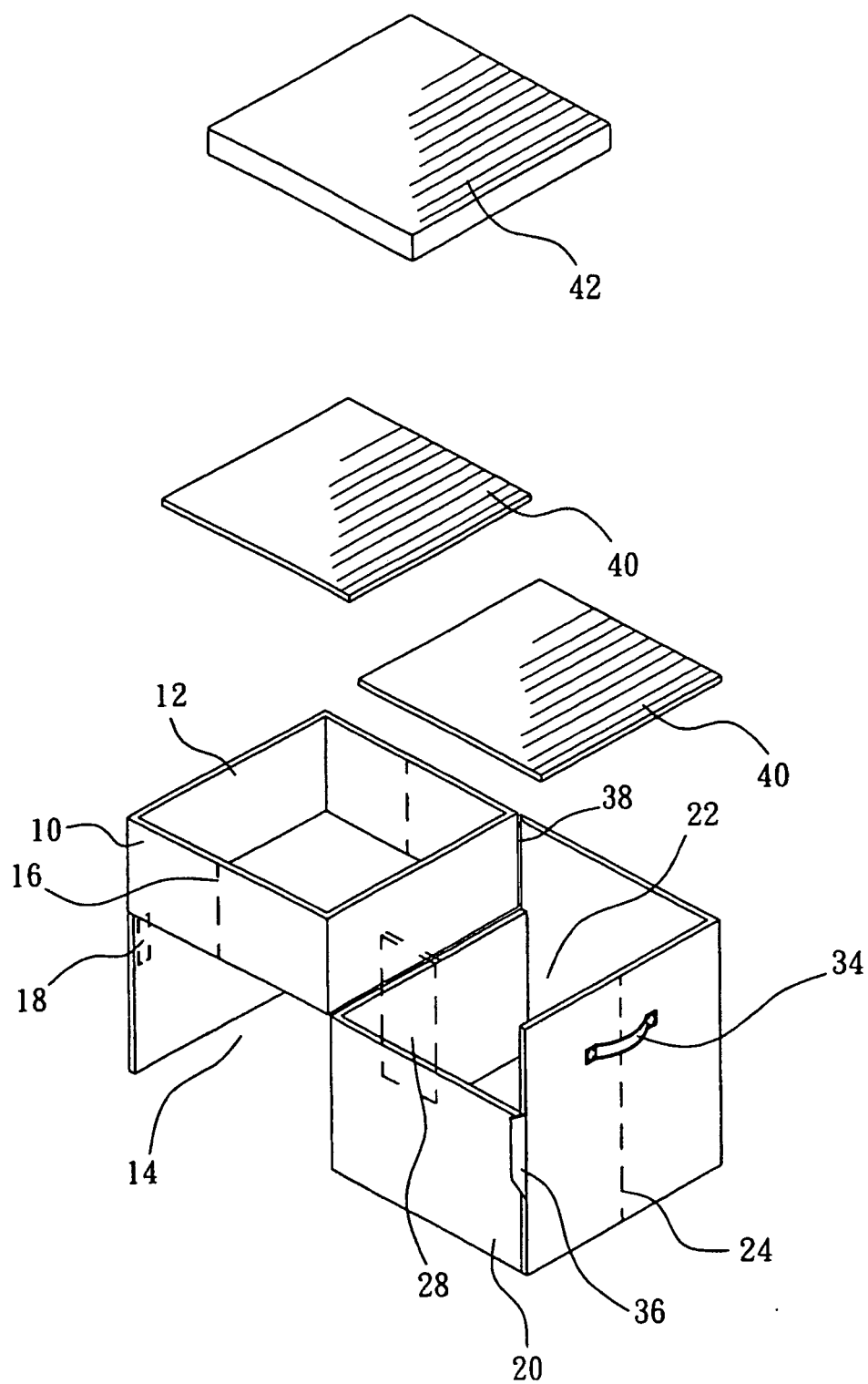


FIG. 2

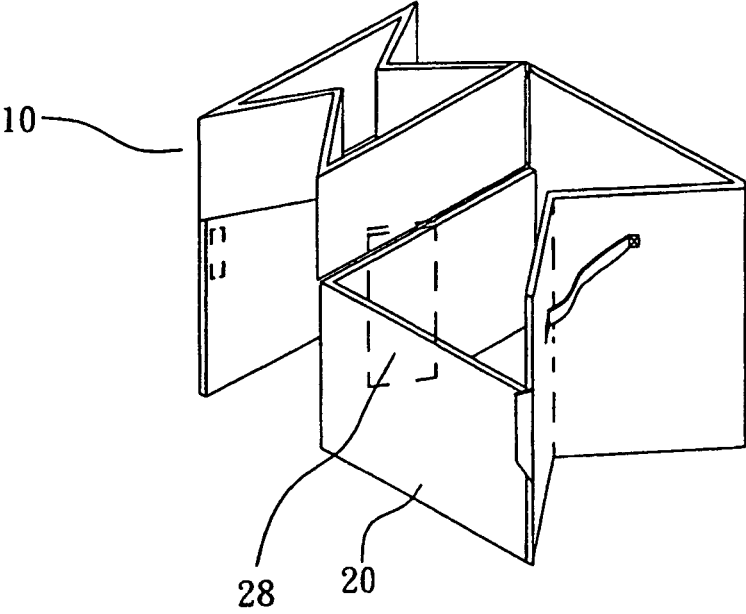


FIG. 3



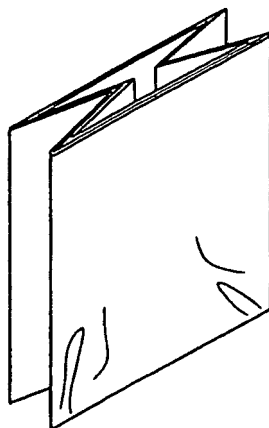


FIG. 4

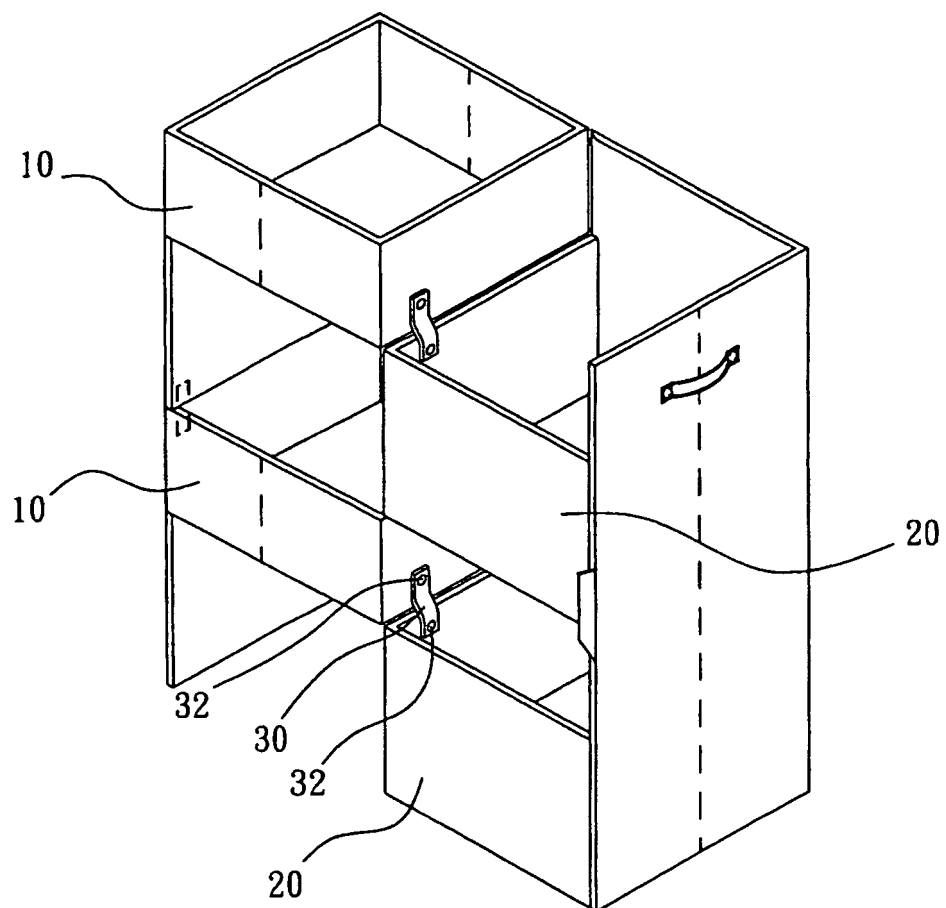


FIG. 5

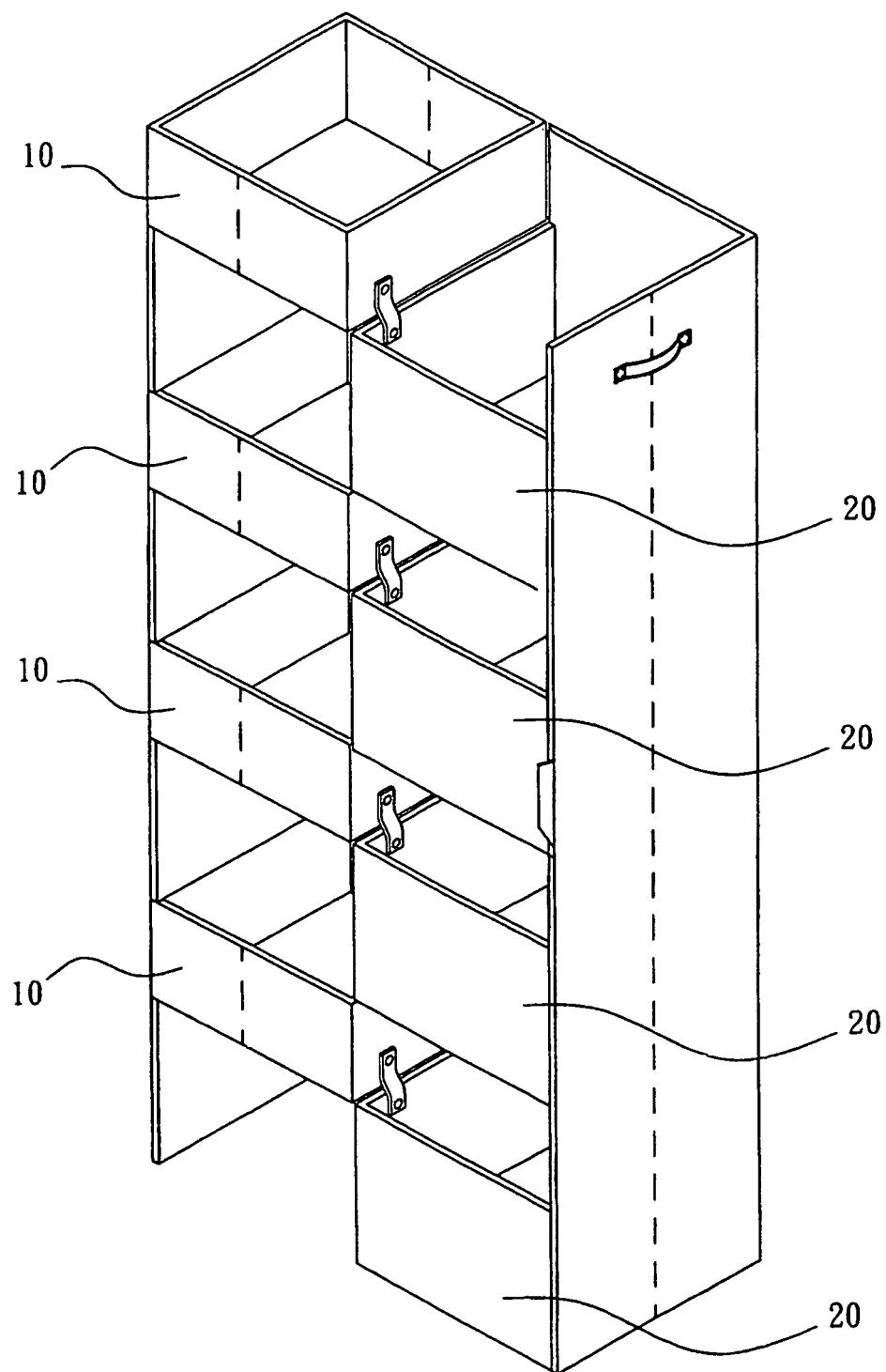


FIG. 6

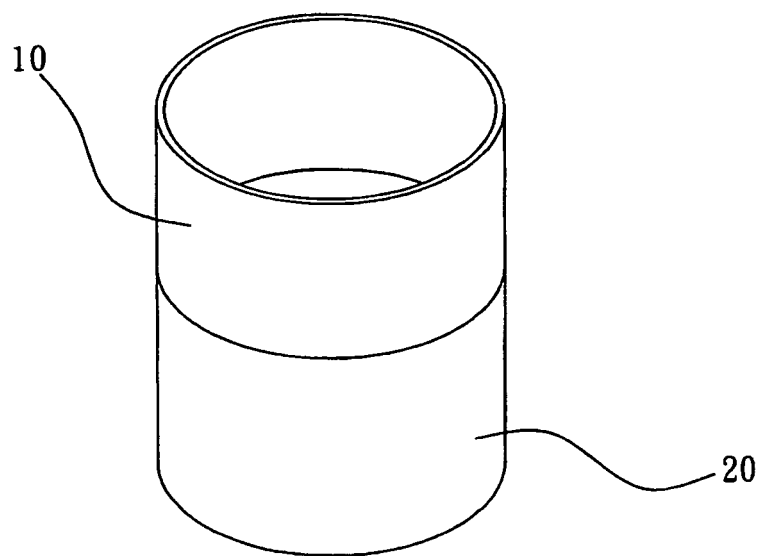


FIG. 7

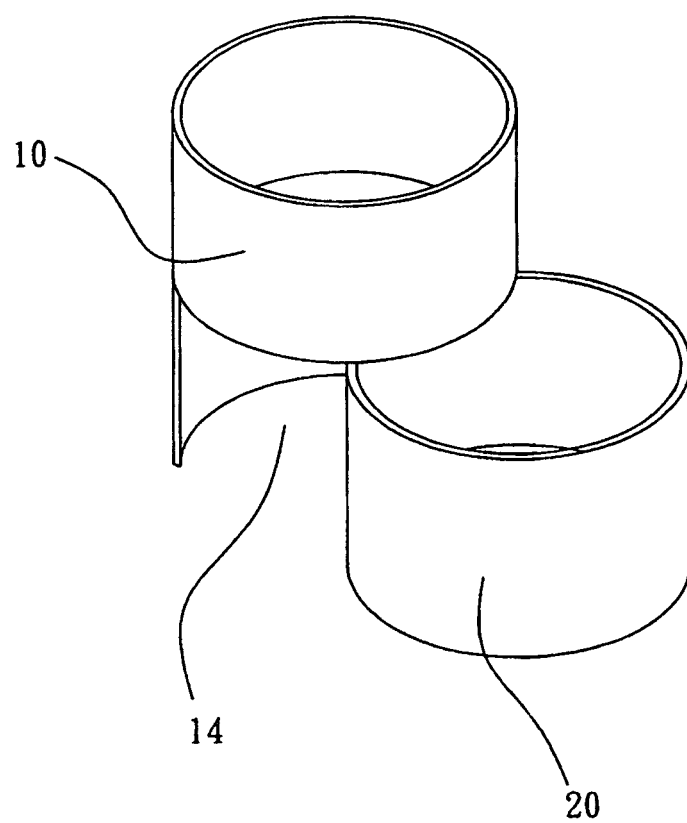


FIG. 8

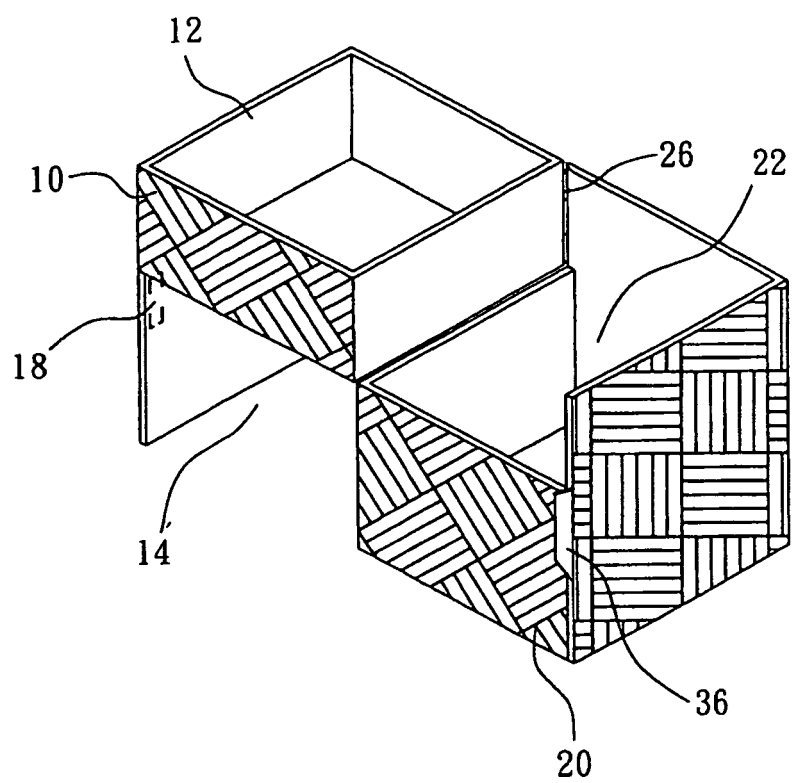


FIG. 9