March 29, 1938. P. F. BOEYE 2,112,433

BOX

Filed March 27, 1936 2 Sheets-Sheet 1

Fig. 1

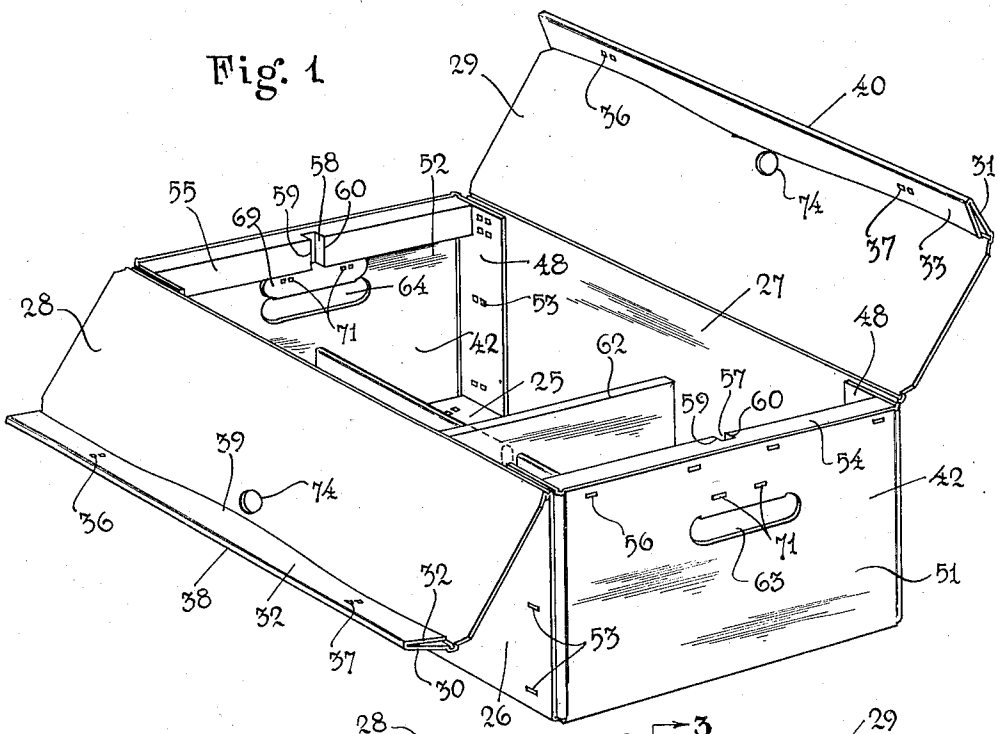


Fig. 2

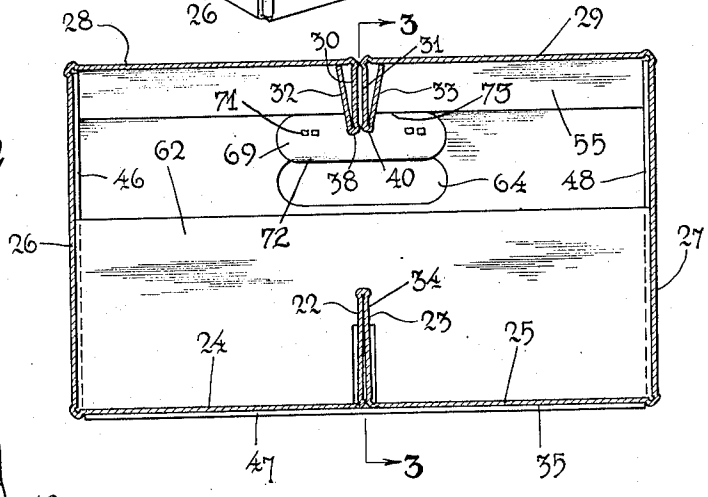
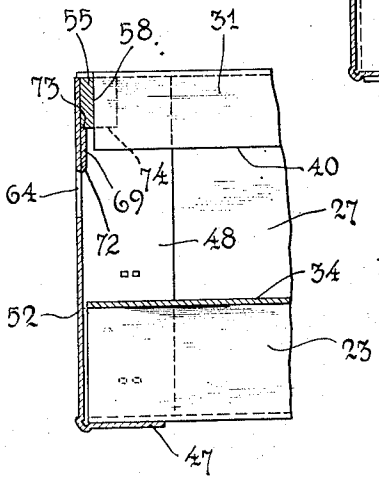


Fig. 3



Inventor

Paul F. Boeye

By Caswell & Lagaard

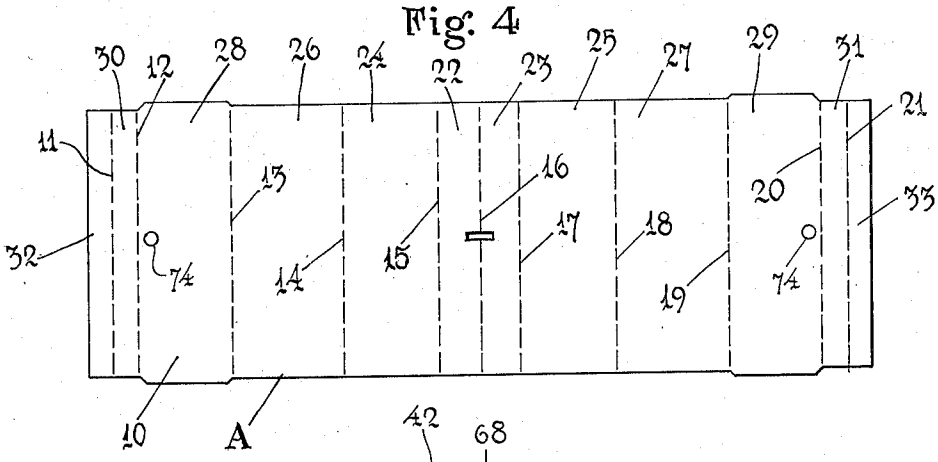
Attorneys

March 29, 1938. P. F. BOEYE 2,112,433

BOX

Filed March 27, 1936 2 Sheets-Sheet 2

Fig. 4



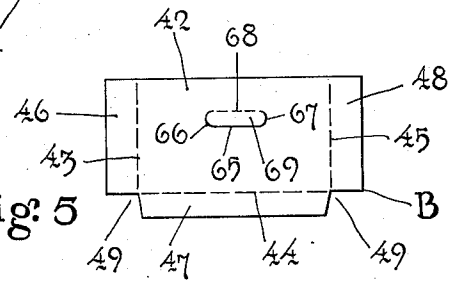
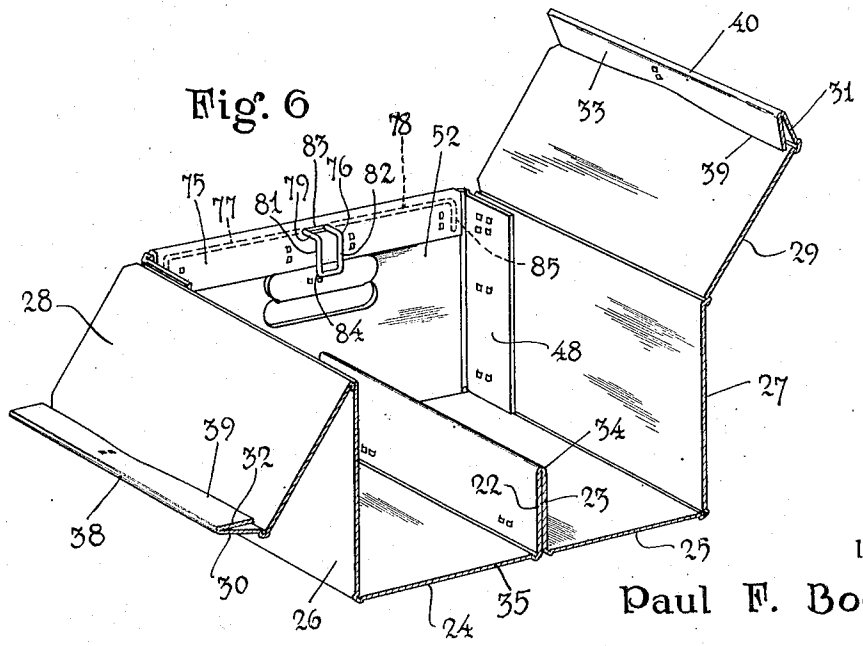


Fig. 5

Fig. 6



Inventor

Paul F. Boeye

By Caswell & Lagaard

Attorneys

Patented Mar. 29, 1938 2,112,433

UNITED STATES PATENT OFFICE

2,112,433

BOX

Paul F. Boeye, St. Paul, Minn., assignor to Waldorf Paper Products Company, St. Paul, Minn., a corporation of Minnesota

Application March 27, 1936, Serial No. 71,206

19 Claims. (Cl. 229—23)

My invention relates to boxes and has for an object to provide a box which is extremely rigid and substantial in construction and which can be repeatedly shipped and handled.

Another object of the invention resides in forming a simple and practical box having a closure adapted to be frequently opened and reclosed.

An object of the invention resides in providing a box with a cover comprising cover flaps adapted to be jointly folded into closing position.

Another object of the invention resides in providing locking means for holding the adjacent portions of the cover flaps in proper relation with respect to one another.

An object of the invention resides in hinging the cover flaps to two of the opposite walls of the box and in attaching the locking means to the other walls of the box.

Another object of the invention resides in hinging the cover flaps to two of the walls and in applying cleats to the other walls upon the inner edges thereof, said cleats serving to support the cover flaps when in closing position.

A feature of the invention resides in constructing the locking means so as to form facing abutments and in providing members on the cover flaps for engagement with said abutments.

An object of the invention resides in providing reinforcing members applied to the walls of the box between the cover flaps and in constructing said reinforcing members to form the abutments.

A specific form of the invention resides in constructing said reinforcing members from wire and in bending the same to provide reaches lying along the walls of the box to which the reinforcing members are attached.

Another object of the invention resides in constructing the walls of the box between the cover flaps with flanges overlying the reaches of the reinforcing members for holding the same attached to the box.

A feature of the invention resides in constructing each of the reinforcing members with a U-shaped portion providing spaced abutments extending inwardly into the box and in further constructing the cover flaps with depending flanges adapted to engage said abutments.

Another object of the invention resides in bending the ends of said portions downwardly to receive said flanges.

An object of the invention resides in using as reinforcing members cleats having vertical slots therein forming the spaced abutments for engagement with the cover flaps.

A still further object of the invention resides in providing handholds in the walls of the box between the cover flaps, said handholds being constructed by severing from the walls of the box portions thereof along the lower and lateral edges of said handholds and folding said severed portions inwardly and upon the interiors of said walls, said portions being of sufficient height to engage the undersides of the cleats and reinforce the same.

An object of the invention resides in constructing the box from a blank providing side walls, bottom sections hinged thereto and divider sections hinged to the bottom sections and adapted to extend upwardly therefrom in close position relative to one another.

A feature of the invention resides in providing end walls and in attaching the same to said bottom sections and side walls so as to maintain said divider sections in proper position.

Another object of the invention resides in constructing said divider sections, bottom sections and side walls from a single blank and in hingedly connecting said divider sections together at their upper edges.

Other objects of the invention reside in the novel combination and arrangement of parts and in the details of construction hereinafter illustrated and/or described.

In the drawings:

Fig. 1 is a perspective view of a box illustrating an embodiment of my invention.

Fig. 2 is a transverse sectional view of the box shown in Fig. 1 illustrating the same in closed position.

Fig. 3 is a fragmentary longitudinal elevational sectional view taken on line 3—3 of Fig. 2.

Fig. 4 is a developed view of the blank from which the bottom, side wall and cover flaps of the box are constructed.

Fig. 5 is a developed view of the blank from which the end walls of the box are constructed.

Fig. 6 is a perspective view of a portion of a modification of the invention.

My invention as best shown in Figs. 1, 4, and 5 is constructed from fiber board or any other suitable material and is formed from blanks A and B shown in detail in Figs. 4 and 5.

The blank A consists of a single sheet of fiber board or other suitable material 10 of a width substantially equal to the length of the box which is scored transversely along spaced lines 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, and 21. By means of the various score lines the blank is divided into two divider sections 22 and 23 at the center of

the blank, two bottom sections 24 and 25 connected to the divider sections, two side walls 26 and 27 connected to the bottom sections, two cover flaps 28 and 29 connected to the side walls, two flange sections 30 and 31 connected to the cover flaps and flange sections 32 and 33 connected to the flange sections 30 and 31. These various parts are adapted to be folded as shown in Fig. 2 and when folded the two divider sections 22 and 23 form a divider indicated in its entirety by the reference numeral 34. When the parts of the blank are properly folded the lowermost portions of these divider sections abut one another and are so held, thereby causing the two bottom sections 24 and 25 to lie in continuation of one another in the same plane to form a bottom for the box indicated in its entirety by the reference numeral 35. The flange sections 30 and 32 are folded so that the section 32 overlies the section 30 and so that the section 33 overlies the section 31. These sections are secured together by means of staples 36 and 37 and form flanges indicated in their entireties by the reference numerals 38 and 40. The two staples 36 and 37 are disposed near the ends of the said flanges so that the intermediate portions 39 of the flange sections 32 and 33 bow outwardly as best shown in Fig. 1. This greatly stiffens and reinforces the flanges 38 and 40 and also assists in further supporting the cover flaps 28 and 29.

The blank B is constructed with a body portion 42 and is scored along lines 43, 44, and 45 to provide flanges 46, 47, and 48 connected to the body portion 42. The blank B is notched at its corners as indicated at 49 to free the various flanges from one another and to permit of all of the said flanges being bent out of the plane of the body portion 42 in the same direction. With my invention two blanks B are used which are attached to the side walls and bottom of the box and the body portions 42 of said blanks form the end walls for the box, which are indicated by the reference numerals 51 and 52. Since the end walls 51 and 52 are attached to the box in the same manner, the method of attaching end wall 51 only will be described. The flanges 46, 47, and 48 of blank B forming said end wall are bent outwardly from the body portion 42 of said blank and at right-angles thereto. The blank A is then folded into the form shown in Fig. 2. Flange 47 of blank B is next applied upon the underside of the bottom sections 24 and 25 and these sections moved together to bring the divider sections 22 and 23 into juxtaposition. While the parts are so held the bottom sections 24 and 25 are stitched to the flange 27. Flanges 46 and 48 are next placed upon the interior of the box and the side walls 26 and 27 stitched thereto by means of staples 53. The end wall 52 is thereafter attached in the same manner.

In the form of the invention shown in Fig. 1, cleats 54 and 55 are secured to the end walls 51 and 52 by means of staples 56 which are driven through said walls and into said cleats. These cleats are at the uppermost edges of the said walls and reinforce the same at such locality. Cleats 54 and 55 are constructed with grooves 57 and 58 which extend vertically throughout the height thereof and which are shallower than the thickness of said cleats. These grooves are adapted to jointly receive the flanges 38 and 40 formed on the cover flaps 28 and 29 and form abutments indicated at 59 and 60, which engage said flanges and which prevent spreading apart of said flanges and the side walls 26 and 27 to which the cover flaps 28 and 29 are attached. The cleats 54 and 55 in addition form supports for the cover flaps 28 and 29, whereby considerable weight may be placed upon the box when the same is closed.

The divider 34 is notched at the upper portion of the same intermediate its ends to receive a notched partition 62. This partition fits in between the walls 26 and 27 and serves in conjunction with divider 24 to divide the interior of the box into four compartments.

For the purpose of handling the box two handholds 63 and 64 are formed in the two end walls 51 and 52 and both of these being identical in construction, only the handhold 64 and the method of forming the same will be described in detail. As shown in Fig. 5 the blank B is severed along the lower edge 65 of handhold 64, the lateral edges 66 and 67 thereof and is scored along the upper edge 68 to provide a tab 69 hinged to the body portion 42 of the blank along the score line 68. This tab is bent inwardly and secured to the body portion 42 by means of staples 71. This construction provides a rounded edge 72 at the uppermost portion of the handhold 64 which is convenient to grasp and which eliminates sharp corners. The tab 69 is of such a height and the position of the handhold 64 is such that the upper edge 73 of said tab engages the lower edge 74 of the cleat 55 which serves to reinforce said cleat and distribute the pressure on said cleat to the staples 71 as well as the staples 56.

For the purpose of opening and closing the cover flaps 28 and 29 said cover flaps may be constructed with finger holes 74 disposed near the flanges 38 and 40 thereof. Suitable wire seals may be inserted through these holes for the purpose of sealing the box cover in closing position. Such construction forming no particular feature of the invention has not been shown in the drawings.

In Fig. 6 I have shown a modification of the invention in which the locking and reinforcing means is constructed from wire instead of wood. The remainder of the box being almost identical with that shown in Fig. 1, the description thereof will not be repeated and the same reference characters will be used to indicate identical parts. In this form of the invention the end wall 52 is constructed with a flange 75 turned inwardly and downwardly therefrom and overlying said wall upon the inner surface thereof. Instead of the cleat 55 a wire reinforcing member 76 is used which is bent to provide two aligning reaches 77 and 78 which lie in between the flange 75 and the end wall 52. This member is further constructed with a U-shaped portion 79 having spaced legs 81 and 82 which form two spaced abutments which take the place of abutments 59 and 60 of the other form of the invention. The U-shaped portion 79 extends outwardly through a hole 83 in the flange 75 and the extreme end 84 thereof is bent downwardly as illustrated. This forms a sort of a cradle in which the two flanges 38 and 40 of the cover flaps 28 and 29 are disposed and holds the said cover flaps in proper relation similar to the grooves 58 of the other form of the invention. The ends 85 of the reaches 77 and 78 of the member 76 are bent downwardly and are also disposed between the flange 75 and the end wall 52. These bent ends prevent twisting of the wire member between the flange and end wall and maintain the member 76 in proper position. It will be noted that the member 76 is situated near the upper edge of the end wall 52 so that the same

lends support to the cover flaps 28 and 29 in a manner similar to the cleats 54 and 55.

My invention is highly advantageous in that an extremely simple and practical box is provided which may be repeatedly used without appreciable wear or tear. The box can be constructed at an extremely economical cost and by ordinary machinery now available for the purpose. The box is light in weight so that economy in freight will result where goods are shipped in boxes embodying the features of my invention. By means of the handholds the box is readily manipulated and due to the construction of the handholds smooth rounded surfaces are presented which are readily grasped by the person handling the box. By the use of the cleats or equivalent structure support is given to the cover flaps of the box so that a greater number of boxes may be piled one upon the other without injury to the lowermost box. With my invention the flanges at the lowermost edges of the end walls engage the bottom sections and firmly hold the partition sections in proper position. By means of the divider and partition the box is divided into four separate compartments. By constructing the flanges of the cover flaps in the manner specified greater strength is procured and greater rigidity results.

Changes in the specific form of my invention, as herein disclosed, may be made within the scope of what is claimed without departing from the spirit of my invention.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising cover flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closing position to effect a closure for the box, reinforcing members extending across the other walls upon the interior of the box and near the upper edges thereof and being constructed to form spaced abutments disposed within the interior of the box, and flanges bent downwardly from said cover flaps and engaging said abutments said flanges falling short of said walls.

2. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising cover flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closing position to effect a closure for the box, wire reinforcing members attached to the other walls and having reaches lying along said walls and U-shaped members extending outwardly from said reaches and providing spaced abutments and complemental members on said cover flaps for engagement with said abutments.

3. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising cover flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closing position to effect a closure for the box, the other walls being provided with flanges extending downwardly from the upper edges thereof and into the interior of the box, wire reinforcing members having reaches disposed between said flanges, and U-shaped portions extending outwardly therefrom into the interior of the box and providing spaced abutments and complemental members on said cover flaps for engagement with said abutments.

4. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising cover flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closing position to effect a closure for the box, the other walls being provided with flanges extending downwardly from the upper edges thereof and into the interior of the box, wire reinforcing members, each constructed with a pair of reaches extending substantially in alignment, and angular portions at the ends thereof, said reaches and angular portions being disposed between said end walls and flanges, said reinforcing members having U-shaped portions extending therefrom and inwardly into the box and provided with spaced abutments, and complemental members on said cover flaps for engagement with said abutments.

5. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising cover flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closing position to effect a closure for the box, wire reinforcing means attached to the walls and having U-shaped portions extending therefrom inwardly into the box and provided with spaced abutments, and complemental members on said cover flaps for engagement with said abutments.

6. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising cover flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closing position to effect a closure for the box, wire reinforcing means attached to the walls and having U-shaped portions extending therefrom inwardly into the box and provided with spaced abutments, said U-shaped portions being bent downwardly at their ends, and flanges on said cover flaps adapted to jointly engage said abutments and to engage the ends of said U-shaped portions.

7. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising cover flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closing position to effect a closure for the box, wire reinforcing means attached to the walls and having U-shaped portions extending therefrom inwardly into the box and provided with spaced abutments, said U-shaped portions being bent downwardly at their ends, and flanges on said cover flaps adapted to jointly engage said abutments and to engage the ends of said U-shaped portions, said U-shaped portions being disposed at the uppermost portions of said walls and forming supports for said cover flaps.

8. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising cover flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closing position to effect a closure for the box, wood cleats secured to the other walls upon the interior thereof and at the upper edges of the same, said cleats having grooves therein forming facing abutments, and complemental members on said cover flaps for engagement with said abutments.

9. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising cover flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closing position to effect a closure for the box, wood cleats secured to the other walls upon the interior there-

of and at the upper edges of the same, said cleats having grooves therein forming facing abutments, and flanges on said cover flaps entering said slots and engaging said abutments.

10. A box open at the top comprising a blank provided with integral side walls and bottom sections, said bottom sections being provided with upstanding divider sections adapted to be disposed in juxtaposition, end walls secured to said bottom sections and side walls, said end walls holding said divider sections from spreading at the locality of said bottom sections.

11. A box open at the top comprising a blank scored transversely to provide integral divider sections hingedly connected together at their outer edges, bottom sections hingedly connected to said divider sections, and side walls hingedly connected to said bottom sections, and end walls attached to said side walls and to said bottom sections for holding said divider sections in juxtaposition.

12. A box open at the top comprising a blank scored transversely to provide integral divider sections hingedly connected together at their outer edges, bottom sections hingedly connected to said divider sections and side walls hingedly connected to said bottom sections, end walls, means for securing said end walls to said side walls and flanges formed on said end walls overlying said bottom sections and secured thereto for holding said divider sections from spreading.

13. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising cover flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closing position to effect a closure for the box, flanges formed on said cover flaps by bending over the marginal portions thereof and doubling back said marginal portions upon themselves and upon the interior surface thereof, and fasteners securing the doubled-over portions of said flanges together, said fasteners being disposed outwardly of the medial portions of said flanges to cause the doubled-over portions to bow and reinforce said flanges.

14. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising cover flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closing position to effect a closure for the box, cleats extending across the upper edges of the other walls of the box and secured thereto, said cover flaps resting upon said cleats, handholds formed in the walls having the cleats attached thereto, said handholds being constructed by striking out portions of the said walls along the lateral and lower edges of said handholds and by folding the portions struck out upwardly upon the interior of said walls, said struck-out portions engaging said cleats and reinforcing the same.

15. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising cover flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closing position to effect a closure for the box, reinforcing members extending across the other walls upon the interior of the box and near the upper edges thereof and being constructed to form spaced abutments disposed within the interior of the box, and flanges bent downwardly from said cover flaps and engaging said abutments, said flanges falling short of said walls, said walls to which the reinforcing members are attached extending across said reinforcing members at the locality of said abutments to reinforce the same.

16. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising cover flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closing position to effect a closure for the box, cleats extending across the other walls upon the interior of the box and near the upper edges thereof and being formed with spaced vertical cuts forming facing abutments, and flanges bent downwardly from said cover flaps and engaging said abutments, said walls to which the cleats are attached extending in back of said cuts to reinforce said cleats at the locality of said abutments.

17. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising cover flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closing position to effect a closure for the box, cleats extending across the other walls upon the interior of the box and near the upper edges thereof and being formed with facing grooves extending outwardly from the inner surfaces of said cleats and falling short of the outer surfaces thereof, said grooves providing facing abutments, and flanges bent downwardly from said cover flaps and engaging said abutments.

18. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising cover flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closing position to effect a closure for the box, cleats extending across the other walls upon the interior of the box and near the upper edges thereof and being formed with facing grooves extending outwardly from the inner surfaces of said cleats and falling short of the outer surfaces thereof, said grooves providing facing abutments, and flanges bent downwardly from said cover flaps and engaging said abutments, said walls to which the cleats are attached extending across the portions of the cleats having the grooves therein.

19. A box open at the top comprising side and end walls and a bottom connected therewith, a cover for the box comprising cover flaps hinged to two opposite walls of the box and extending substantially in a common plane when in closing position to effect a closure for the box, cleats extending across the upper edges of the other walls of the box and secured thereto, said cover flaps resting upon said cleats, handholds formed in the walls having the cleats attached thereto, said handholds being constructed by striking out portions of the said walls along the lateral and lower edges of said handholds and by folding the portions struck out upwardly upon the interior of said walls, said struck out portions extending below said cleats.

PAUL F. BOEYE.