

July 31, 1934.

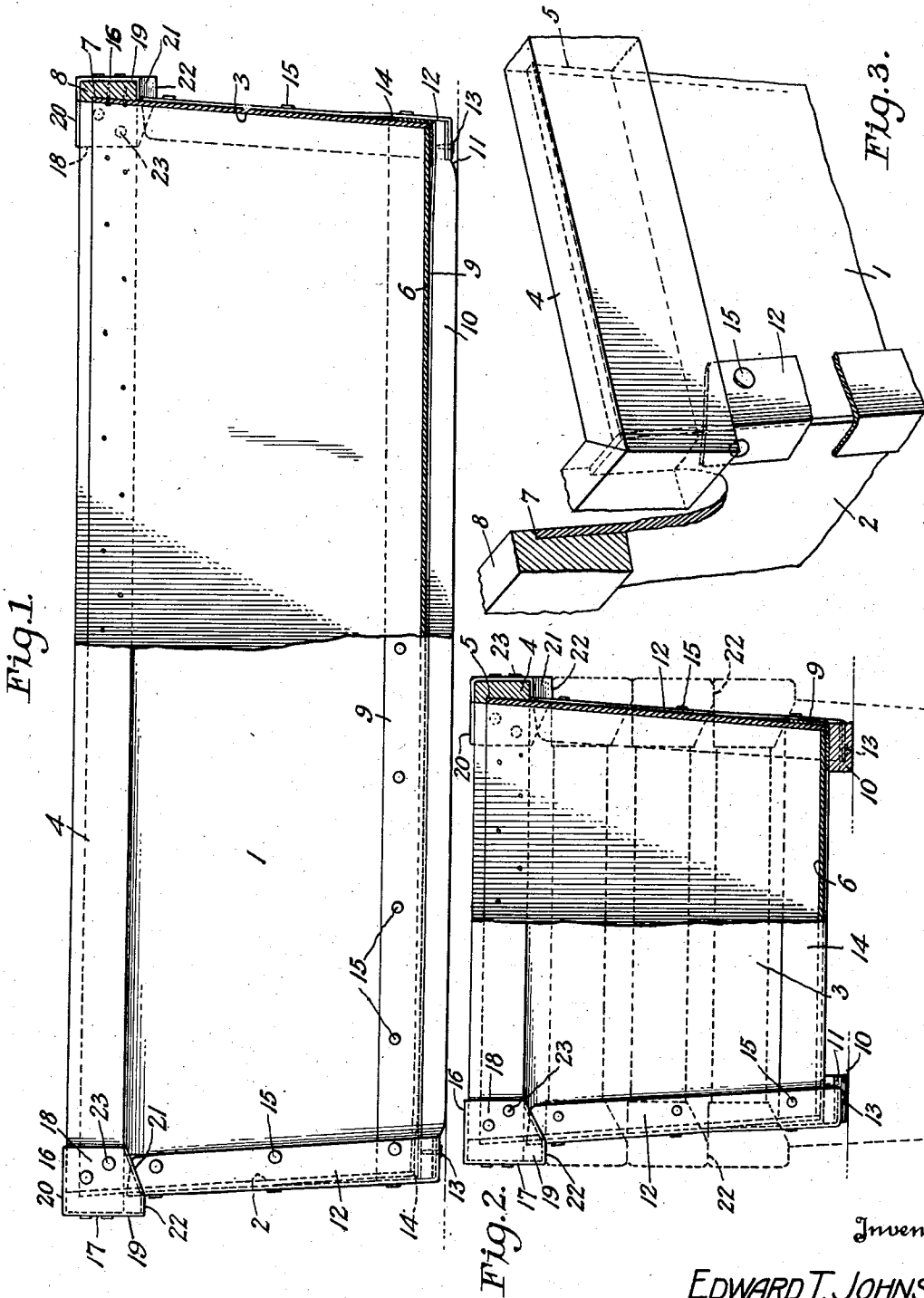
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1,968,042

NESTING BOX

Filed March 31, 1931

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

Fig. 4.

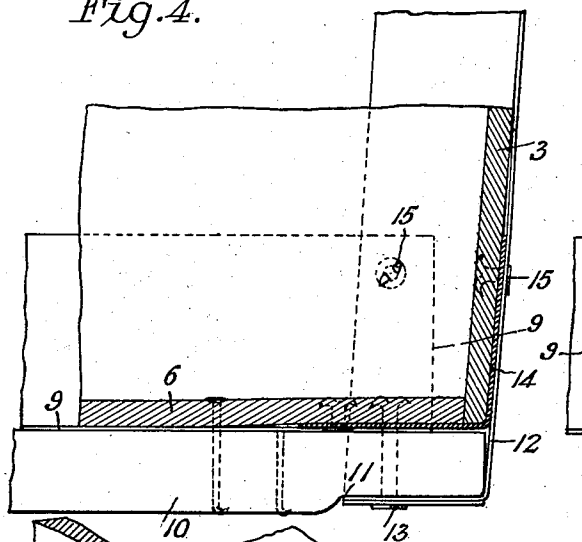


Fig. 5.

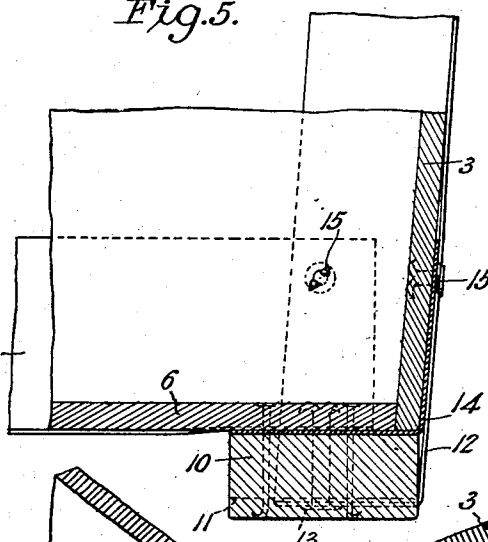
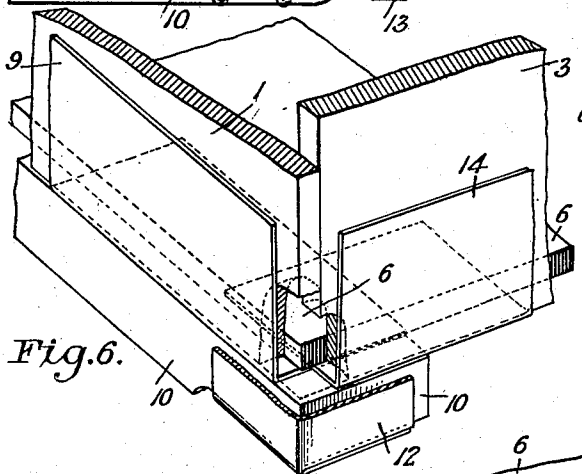
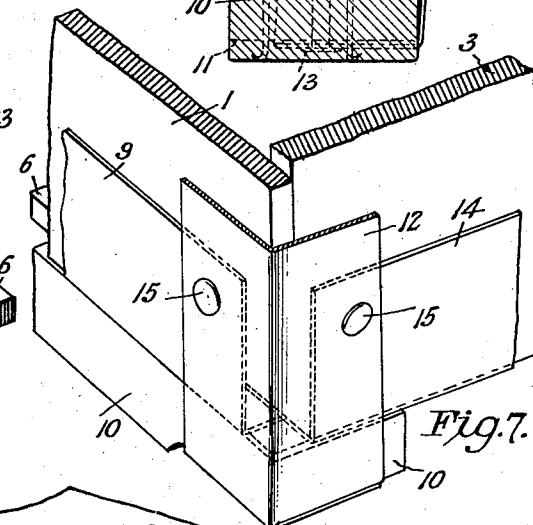


Fig. 6.

Fig. 7.

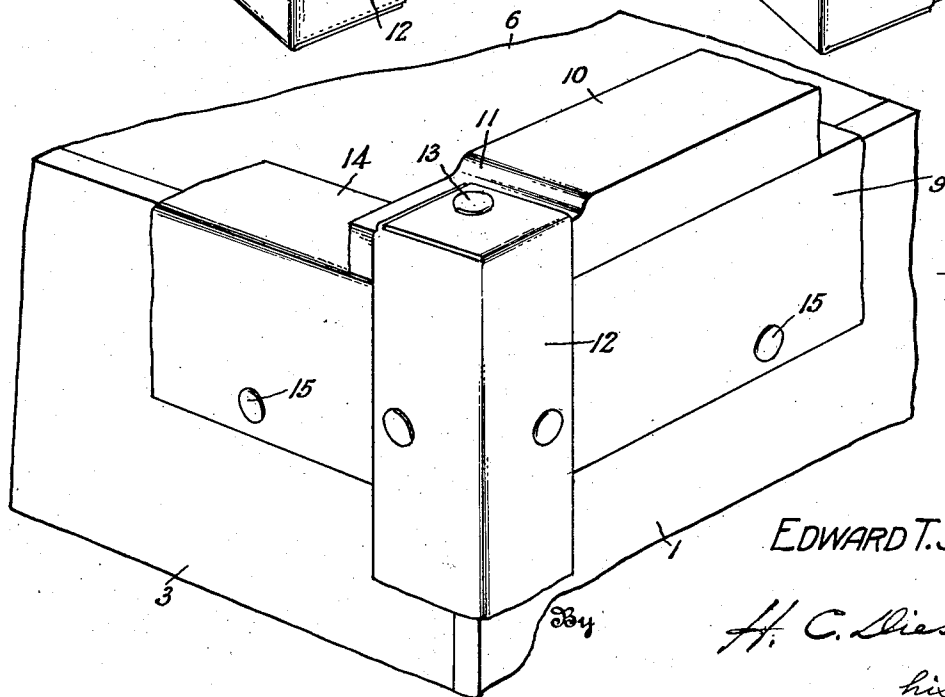


Fig. 8.

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Fig. 9.

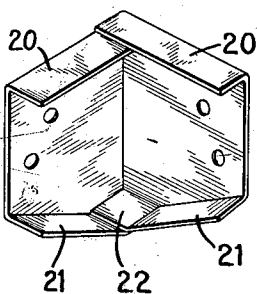


Fig. 10.

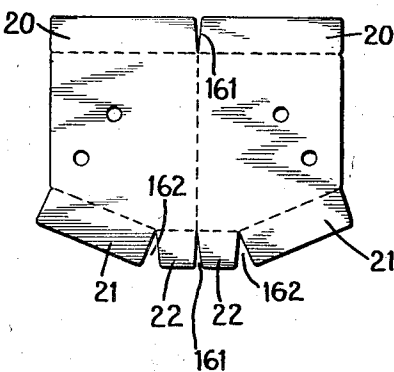
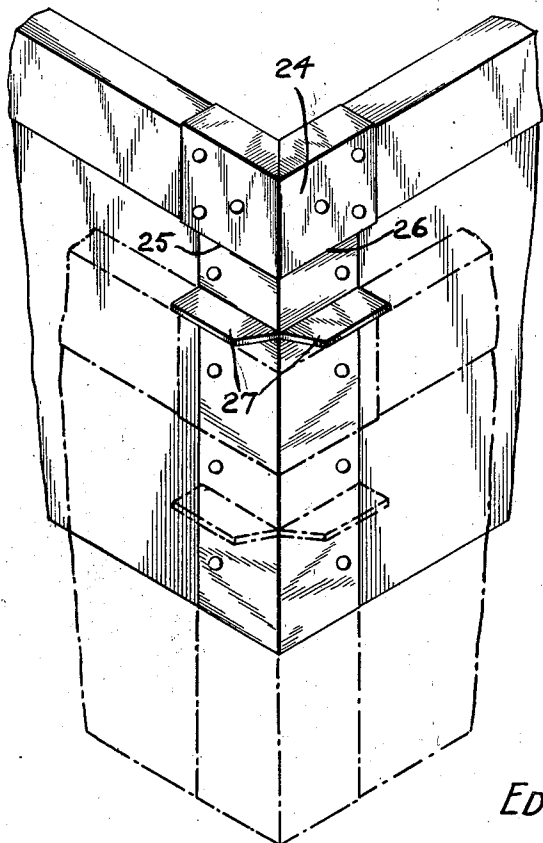


Fig. 11.



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1,968,042

NESTING BOX

Edward T. Johnson, Greenfield, Mass., assignor
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Application March 31, 1931, Serial No. 526,621

12 Claims. (Cl. 217-5)

My invention relates to new and useful improvements in boxes, and more particularly to boxes of the nesting type. Boxes of the sort contemplated are especially suited to the shipment of bananas in their bunched state.

One of the objects of the invention is to provide a box that will be extremely light in weight and very rigidly and strongly constructed, so that the same may be used over a long period of time. The box, having these characteristics, which the invention particularly has in view is of the "nesting" type, it being so constructed and arranged that when the boxes are returned empty they may be "nested" or placed one inside of the other so as to take up as little room as possible.

Another object of the invention is to provide a box made up principally of a thin material such as a veneer wood, plywood or laminated boards or fibreboard or the like, and provided with top rails that are so cut and arranged that they will not only add the necessary rigidity to the box but will overhang the top edges so as to prevent any moisture or water from leaking down onto these edges, which in time would soon rot them.

A further feature of the invention is in the provision, in a box of the character mentioned, of bottom rails or rockers and reinforcing and binding elements over the meeting edges of the walls and bottom, so as to provide an extremely sturdy, rigid and tight construction.

The reinforcing elements are preferably in the form of metal strips, which, in addition to the other functions mentioned, serve to keep moisture from attacking the lower and side edges of the various wood or other thin sections of the box.

To add further rigidity and durability to the box it is preferably provided with corner brackets which may be secured thereto in such a way as to enclose the joints between the top rails previously mentioned. These corner brackets, preferably formed of metal, may be suitably constructed so as to provide a space between a pair of adjacent nested boxes of sufficient width to permit the fingers of a person to be inserted. In this way a group of nested boxes may be readily separated. A feature of the corner brackets is the simplicity of their construction and ease of application to the upper corners of the box. If desired the construction of the corner brackets may be simplified somewhat by the provision of other means such as bulges or tabs sticking out

from the edge reinforcing member to hold the nested boxes in spaced relation.

With these and other features and objects in view, the invention consists in certain new and improved arrangements and combinations of parts, as will be hereinafter more fully described and pointed out in the claims.

Referring now to the drawings showing a preferred embodiment,

Figure 1 is a side elevation partly in section of my new and improved box;

Figure 2 is an end view thereof also partly in section and showing in dotted lines a number of the boxes in "nested" position;

Figure 3 is a perspective view of a corner of the box, parts being removed for the sake of clearness and other parts being broken away for the same reason;

Figure 4 is an enlarged sectional view of a corner at the right hand end of the box, as shown in Figure 1;

Figure 5 is an enlarged transverse sectional view taken at a lower corner of the box;

Figure 6 is an enlarged detail perspective of a corner of the box with parts removed and parts broken away for the sake of clearness of illustration;

Figure 7 is a fragmentary perspective of one corner of the box;

Figure 8 is an enlarged fragmentary perspective of one corner and the bottom of the box, which is shown upside down;

Figure 9 is a perspective view of a corner cap which joins the top rails at a corner of the box;

Figure 10 is a detail view of a sheet of metal from which the corner cap of Figure 9 is formed; and

Figure 11 is a detail view in perspective showing a modified form of corner reinforcement with additional means for holding the nested boxes in spaced relation.

Referring now more specifically to the drawings, and to Figure 1 in particular, there is shown the improved box consisting of a side wall 1 which is preferably made of a thin veneer, although it may be made, if desired, of other thin materials such as plywood or laminated board or fibreboard or the like. It will be understood that the opposite side wall is of the same construction and likewise the two end walls 2 and 3 will preferably be made of the same sort of material.

Now looking for the moment at what I term the topside rail 4, it will be seen (Figure 2) that it is cut away or rabbeted, as at 5, so that the upper edge of the veneer side wall 1 will fit within the

rabbet 5 to thereby protect the upper edge of this side wall. It will be noticed that the rabbet or cut-away portion extends slightly angularly with respect to the outer surface of the rail 4. This will permit it to properly receive the upper end of the side wall 1 which, it will be noticed, (Figure 2) tapers or slopes inwardly toward the bottom 6 of the box. In the same way the opposite side wall will fit within a rabbet provided in its top rail and this wall will slope inwardly toward the bottom 6. This is desirable in order to permit the boxes to be nested. The ends 2 and 3 of the boxes in a like manner fit within a rabbet 7 angularly formed in the end top rails 8 and they extend downwardly and inwardly toward the respective edges of the bottom 6, terminating in line with or slightly beneath these edges, as may be seen in Figures 1 and 2. The bottom, side walls and end walls are preferably all formed of a relatively thin material and the upper edges of the side and end walls are protected by the rabbeted side and end rails in the manner explained.

Now, to securely fasten say the side wall 1 in place with respect to the bottom of the box, I utilize a long, substantially right-angled metal strip 9 and rivet one leg of the same to the side wall 1 and the other leg to the bottom 6. The angle of the strip 9 is slightly greater than 90° to conform with the angle between the side and bottom. In the same manner, this construction is repeated on the other side, so that both longitudinal edges of the box will be metal bound. Also extending longitudinally of the box, as may be seen in Figure 2, there are two runners 10, these runners being cut away slightly at their opposite ends, as at 11, and a corner strip 12 (see Figure 8) which is also substantially right angular in construction is secured to a side and end wall and down under the cut-away portion of the runner, the two legs of the corner strip being overlapped and riveted, as shown at 13, to form the bottom section. It will also be understood that there is a similar construction at all of the four corners of the box.

These metal corner strips 12, it will be seen, also overlap the metal strips 9 that are placed along the sides of the box at the lower edge, and also overlap similar substantially right angled strips 14 that extend across the end walls of the box, one leg extending partly up the end wall and the other leg extending beneath the bottom 6 of the box. Therefore, these corner strips 12 in reality form a tie between the metal strips 14 and the metal strips 9 and also tie the runners to the bottom of the box, thus tying and bracing the several parts tightly at the four corners. Rivets or nails or similar fastening devices 15 will be placed at desired points along the strips 9, 12 and 14, as may be seen in the several views, and tacks may be supplied when needed to properly secure the parts together.

Now to provide space beneath the top rails of the "nested" boxes, to permit insertion of the fingers to separate the boxes, I provide bracing and spacing metal corner elements or brackets 16. These elements are preferably formed from a blank of sheet metal bent along the median line 17 to form one leg 18 and another leg 19 adapted to fit along the side and end top rails while their upper edges 20 are bent over to overlap the upper edges of the adjacent top and side rails. The lower edges of the two legs 18 and 19 are bent under and are each preferably provided with a portion tapered downwardly, as may be seen at 21, to a corner portion 22 which is parallel

with the edges 20. The portions 22 are in a plane below that of the lower edge of the top, side and end rails. These metal corner elements 16 may be riveted or nailed in position, as shown at 23. It will be seen from Figure 1 that when several of the boxes are "nested", the lower points or edges 22 of each metal corner element will rest on the top edge of the corresponding corner element of the next lower "nested" box, thus providing room between the lower edge of one top rail and the upper edge of the top rail of the next lower "nested" box.

Each corner element may be suitably formed from a flat metal sheet of the form shown in Figure 10 having slits 161 at the upper and lower ends of the median line and having triangular portions cut out at the points 162 to permit the desired bending operations to produce the final form illustrated in Figure 9. As here shown the bent-over portions 20 of the legs 18 and 19 of the corner elements are overlapped to a certain extent and in a similar way the bent under portions 22 of the two legs are overlapped. These overlapping portions may be suitably soldered or otherwise secured to form a more rigid unitary structure, if desired, before the elements are nailed or otherwise fastened to the top rails.

In Figure 2, I have shown in dotted lines a plurality of these "nested" boxes indicating that the points of contact between the adjacent boxes are at the metal corner elements above mentioned.

From the foregoing, it will be seen that I have provided a box that is extremely light in weight, although very rigid in construction, while the rails, sides ends and reinforcing members are so arranged that moisture will be kept from penetrating into the interior of the box or from coming into contact with the edges of the thin material of the box. Furthermore, the boxes are capable of "nesting" and, at the same time, may be readily separated and conveniently lifted from their "nested" positions, as sufficient finger room is provided between the top rails of the several boxes. It will also be seen that thin veneer or similar material of relatively cheap quality may be utilized, while the four top rails may be made from ordinary strips of wood without any special cutting, except for the mitering at the corners and the rabbeting of the inner surfaces for the reception of the upper edges of the sides and ends as explained.

In Figure 11 a slightly modified form of upper corner construction is illustrated. As here shown the corner elements 24 may have their lower edges 25 and 26 turned under beneath the lower edges of the top rails. These portions of the elements, therefore, will be similar and completely parallel to the upper edges of the elements and they will not serve to hold the boxes in spaced relation. For this latter purpose tabs 27 may, for example, be welded onto or cut and bent outwardly at right angles from the corner strips 28 which correspond with the strips 12 of the first form. When the boxes are nested, these tabs will rest upon the top rails of the box next below. A slight bulge protruding from each of the corner strips would serve the same purpose.

While an illustrative form of the invention has been disclosed in considerable detail, it will be apparent that various changes may be made without departing from the general spirit and scope of the invention.

What I claim is:

1. A box of the nesting type having inwardly

- sloping side and end walls formed of relatively thin material, a bottom, top rails extending about the said walls, said rails having their inner faces rabbeted to provide shoulders extending over the tops of said walls and faces parallel with and adjacent said walls to thereby strengthen the same and protect the upper edges of said walls from moisture, metal corner pieces joining the top rails, and encircling metal pieces tying the bottom to the side and end walls.
2. A box of the nesting type made up of relatively thin side and end walls and bottom, said walls sloping inwardly toward the bottom, separate metal angled strips overlying all of the adjacent meeting edges of the said side and end walls and bottom, said strips having overlapping portions, top rails overlying the upper edges of the side and end walls, said rails extending downwardly along said walls and having inner surfaces cut on a slant to lie parallel to the respective side and end walls of the box, and metal corner pieces at the upper four corners of the box for tying together the adjacent ends of the top rails, said pieces extending down over portions of certain of said angle strips.
3. A box comprising thin side and end walls and bottom, metal strips extending along the lower edge of the side and end walls and tying the bottom and the said walls together, upright, angled corner strips for also tying the parts together, runners on the bottom of the box and tied to the bottom by said corner strips, top rails around the upper edges of the side and end walls and overhanging these edges, and corner pieces secured to the corners of the top rails and joining the same to thereby more rigidly secure the parts together, said corner pieces extending down over a portion of said corner strips.
4. A box of the nesting type comprising thin side and end walls and bottom, top rails extending around the side and end walls and overhanging the respective upper edges of the same, angular metal corner strips tying the side and end walls together, and tying the bottom to the said side and end walls, metal angle strips bridging the meeting edges of the walls and bottom, runners on the bottom of the box held between portions of the metal angle strips and the metal corner strips and metal corner reinforcements joining said top rails and extending down over a portion of said corner strips.
5. A box of the class described having side and end walls, top rails surrounding the upper edges of said walls, and corner elements at the joints between the top rails, each of said elements comprising a piece of sheet metal having portions bent at right angles to lie adjacent said top rails, and having overlapping portions bent over and under said rails.
6. A box of the class described having side and end walls, top rails surrounding the upper edges of said walls, and corner elements at the joints between the top rails, each of said elements comprising a piece of sheet metal having portions bent at right angles to lie adjacent said top rails, and having overlapping portions bent over and under said rails, said overlapping portions of said elements being soldered together to form rigid, unitary cap structures.
7. A box of the class described having top rails surrounding its upper edge and corner elements at the joints between the top rails, each of said elements comprising a piece of sheet metal having portions bent at right angles to lie adjacent said top rails, and having overlapping portions bent over and under said rails, the portions bent under said rails being spaced below the lower edges of said rails for the purpose set forth.
8. A box of the class described having side and end walls, top rails surrounding the upper edges of said walls, and corner elements at the joints between the top rails, each of said elements comprising a piece of sheet metal having portions bent at right angles to lie adjacent said top rails, and having portions bent over and under said rails, said last mentioned portions being overlapped and secured together adjacent the median line of the element.
9. A box of the class described having top rails surrounding its upper edge and corner elements at the joints between the top rails, each of said elements comprising a piece of sheet metal having portions bent at right angles to lie adjacent said top rails, and having overlapping portions bent over and under said rails, the portions bent under said rails being inclined from a point immediately below said rails to a section spaced therefrom, said section serving to support the box on an adjacent nested box.
10. A box of the class described comprising side and end walls and a bottom, reinforcing angle strips joining the meeting edges of said walls and bottom, runners on the bottom of said box exterior of said strips and angle members for reinforcing the corners between said side and end walls, said members having portions extending under said runners.
11. A box of the class described comprising side and end walls and a bottom, said walls being inclined inwardly toward the bottom to permit nesting, angled reinforcing strips joining the meeting edges of said walls and bottom, and laterally extending projections carried by said reinforcing strips joining said walls adapted to support the box on a similar box in which it is nested and prevent wedging of the walls of said boxes together.
12. A nesting box comprising a bottom and inclined side and end walls each including a top rail, metal reinforcing members having angled portions to enclose the meeting edges of said walls, and means integral with certain of said members near the top of the box adapted to cooperate with the top of a lower box when a plurality of boxes are nested to hold them in spaced relation and prevent the inclined walls and reinforcing members of the box from becoming wedged in the lower box.

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