

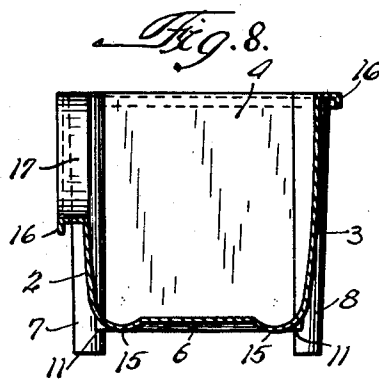
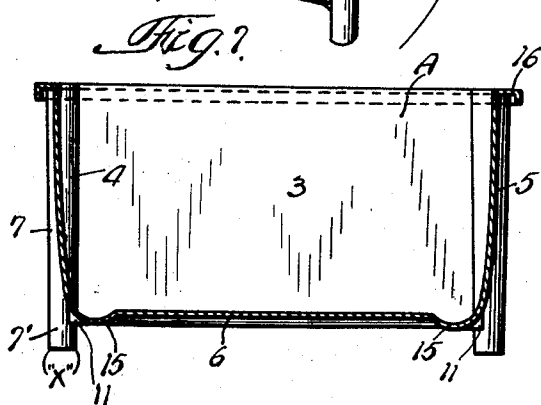
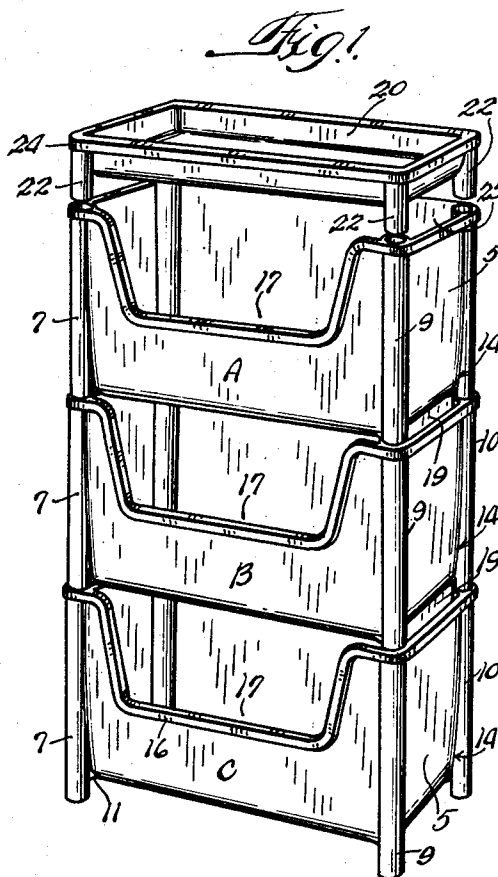
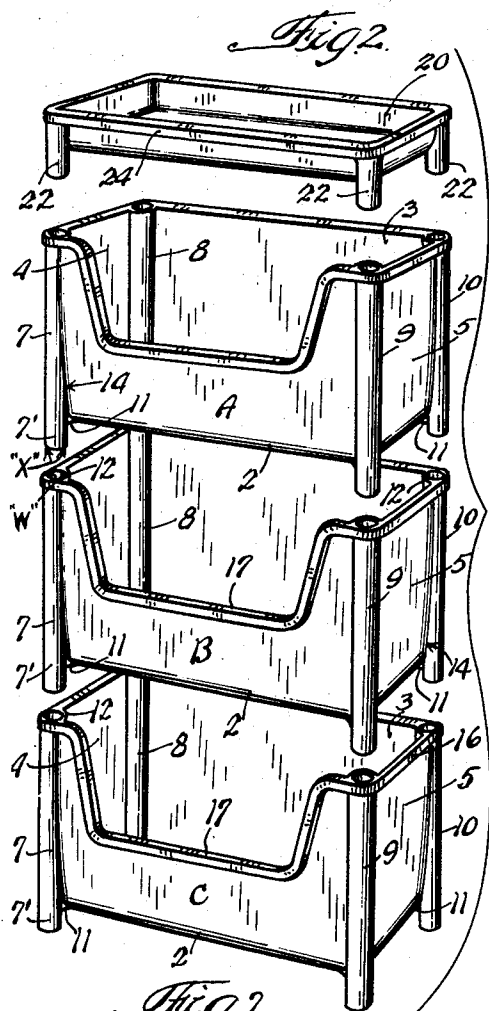
Dec. 8, 1959

R. L. SCHAEFER  
UTILITY CONTAINERS

2,916,161

Filed June 15, 1959

2 Sheets-Sheet 1



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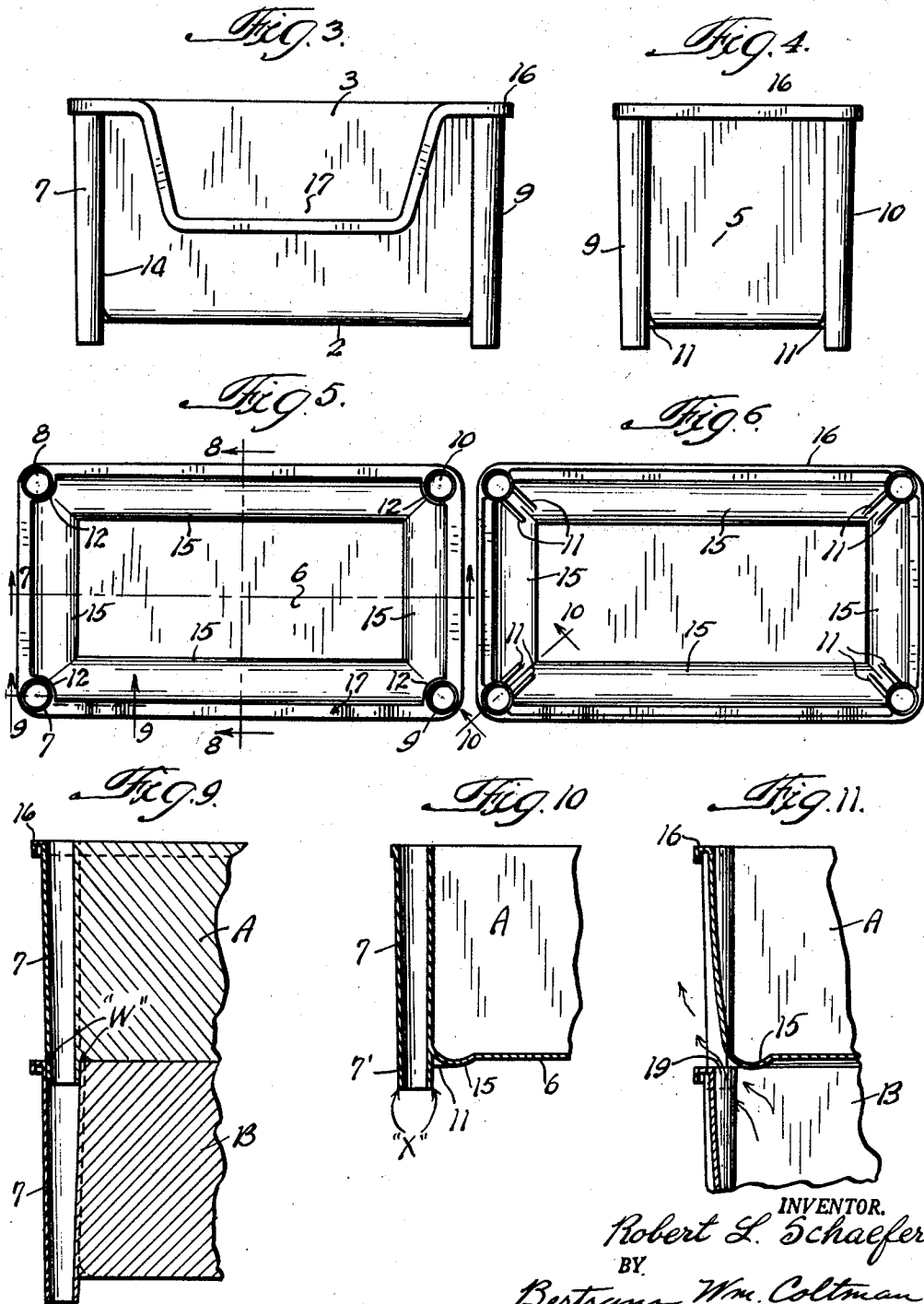
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2 Sheets-Sheet 2



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2,916,161

UTILITY CONTAINERS

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Application June 15, 1959, Serial No. 820,259

12 Claims. (Cl. 211—126)

This invention relates to utility containers and more particularly to a new and improved type of construction for use particularly as vegetable bins although suitable for many other uses.

An object of the invention is to provide a new and improved type of construction that is compact and of a capacity substantially equal to the space it occupies but still accessible generally from the front or one side of the unit.

A further object of the invention is to provide a new and improved type of bin construction in the form of readily stackable units that provide access at the front side while stacked and are compactly arranged with a combined capacity substantially equal to the entire space occupied when so stacked in multiples of two or more bins.

A still further object of the invention is to provide a new and improved bin construction in the form of compact units that are of a simple, integrally-molded construction capable of being readily stacked in desired multiples and still accessible from the front or one side.

A still further object of the invention is to provide a new and improved bin construction in the form of compact units that are of a simple, integrally-molded construction capable of being readily stacked and still accessible from the front or one side, the structure being of a design to provide exceptional strength.

A still further object of the invention is to provide a new and improved bin construction in the form of compact, easily stackable units and, although occupying a space no greater than the combined capacity of the number that are stacked together, the units are so constructed as to provide for circulation of air therebetween.

A still further object of the invention is to provide a new and improved bin construction in the form of compact and easily stackable units that are accessible from one side when in this stacked relation and have space between the units to provide for air circulation, there being means to limit the spacing of the units without sacrificing compactness and easy assembly.

A still further object of the invention is to provide a new and improved bin construction in the form of readily stackable units, each being simple and of an integrally-molded construction utilizing a series of hollow post-like members that lend substantial strength and are tapered from top to bottom and extend below the bottom to be received by another unit disposed therebelow, the arrangement in one of the more specific embodiments having the lower ends of these integral posts received in the hollow tops of the posts of this other unit disposed therebelow.

Other objects and advantages of the invention will be apparent from the following description when taken in connection with the accompanying drawings.

In the drawings:

Figure 1 is a perspective view of a number of bins in assembled relation and illustrating the manner in which a top cover tray is placed in position;

Fig. 2 shows the units in separated relation and how these units, including a top cover tray, will stack one above the other;

Fig. 3 is a front view of one of the units;

Fig. 4 is an end view of the unit;

Fig. 5 is a top view of the unit;

Fig. 6 is a bottom view of the unit;

Fig. 7 is a longitudinal sectional view taken along line 7—7 of Fig. 5;

Fig. 8 is a transverse sectional view taken along line 8—8 of Fig. 5;

Fig. 9 is a detailed sectional view taken through integrally-molded corner posts and along line 9—9 of Fig. 5, the view showing how adjacent units are compactly stacked together and provide an exceptionally strong structure;

Fig. 10 is a detailed sectional view taken along line 10—10 of Fig. 6 through one of the corner posts of a single unit but at a different angle than Fig. 9; and

Fig. 11 is a sectional view taken through walls intermediate the corner posts of adjacent units to show the compact stacking relation but still providing air space therebetween.

By referring to the drawings, each box or unit may comprise a front wall 2, a back wall 3, two side walls 4 and 5, and a bottom wall 6. These walls are joined in an integrally-molded construction made of any suitable plastic that may easily be kept clean and will not rust or corrode from the moisture of vegetables or fruit held therein if the units are used as vegetable bins.

To secure unusual strength and stability, as well as stackability, without requiring more than a single integrally-molded unit, I preferably employ a series of posts 7, 8, 9 and 10 that join the walls 2, 3, 4, 5 and 6 together, preferably along a substantial portion of the length of the posts and at the corners of the units. These posts may be hollow and may taper from top to bottom, as illustrated, so that the lower ends projecting below bottom walls 6, which may be designated as feet, will be of smaller outer diameter than the inner diameter of the hollow tops of posts of a unit disposed therebelow. By referring specifically to Figs. 2, 9 and 10, the foot 7' of post 7 of unit designated A will have an outer diameter "X" that is smaller than the inner diameter "W" at the top of post 7 of unit B disposed below unit A. Each post may be hollow its entire length, if so desired, to secure maximum strength in construction but when maximum structural strength is not necessary, this feature may be varied. If each post is hollow the entire length, the internal diameter may also taper from top to bottom.

The feet of unit A will therefore readily fit into the socket-like hollow tops of the posts of unit B, and in the same manner the feet of the posts of unit B will readily fit into the hollow tops of the posts of unit C. Each unit will seat and rest upon a lower unit. One or more connecting members 11 extend from the posts of each unit to bottom wall 6. These members 11 limit the extent each foot may enter the top of the post of the unit below, and at the same time they firmly tie the bottom wall 6 to the corner posts. When unit B is seated upon unit C, for example, the members 11 will rest upon the top ledge at 12 along the inside of each of the four posts. This arrangement prevents the units from being jammed into each other when stacked and also prevent the weight of the contents of each bin gradually pressing the same against a lower bin. With members 11 being provided to keep the upper bins raised slightly, these upper bins may be easily removed without clinging together although they may be filled. I prefer that the feet of posts 7, 8, 9 and 10 fit frictionally tight in the hollow tops of the corresponding posts of the unit dis-

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posed therebelow so that there will be no looseness in the interlocking relation between units. However, this feature may vary if so desired and the feet of the unit above rest in the socket-like receiving portion of the unit disposed therebelow.

It will be observed also that the lower portion of each side wall 4 and 5 and also the front and back walls 2 and 3 taper slightly inwardly, as indicated at 14, and merges into a circular portion 15 that extends about the bottom wall 6. This circular portion 15 serves to reinforce not only bottom wall 6 but also the side, back and front walls. Extending about the top edges of these walls is a ledge 16 that reinforces the same along the top and ties the four posts together into a sturdy structure as well as gives a finished appearance. Ledge 16 also acts as a convenient gripping means when handling the individual units. Front wall 2 is cut away at 17 to provide a door or opening so that when the units are stacked one on top of the other access may be readily had to the interior of these units from the front thereof.

If the boxes or units A, B and C in stacked relation are used as vegetable or fruit bins, ventilation is desirable in order to prevent spoilage of the contents. This ventilation is uniquely provided by the openings 17 and additional openings 19 provided between upper and lower bins by reason of the inwardly tapering lower portions 14 of side walls 4 and 5 and front and back walls 2 and 3. It is to be noted that by inwardly tapering these lower portions 14, it is possible to bring adjacent bins closely together in their stacked relation without losing the benefit of ventilating openings 19. This feature may be expressed in terms of a bin construction that has a capacity substantially equal to the entire space it occupies. The arrangement is compact and there is no waste space. Consequently, a set of stacked bins may readily fit into cabinets and other small spaces so as to be conveniently accessible to the user. They are sturdy and well-balanced and are not easily tipped by an unintentional side blow or other force tending to dislodge one or more of the units from the stack.

Another feature of the structure disclosed herein is that the hollow posts very uniquely allow the use of a top tray 20 having hollow downwardly tapering short feet 22 at the corners that readily fit into the openings of the hollow posts 7, 8, 9 and 10 of the top unit A. This tray 20 may have any depth but it is open across the top so as to have whatever it carries readily accessible for use. A top circumferential ledge 24 may also be provided for strengthening this top edge as well as give a finished appearance. This ledge 24 also acts as a convenient gripping means when handling the top tray 20. If so desired, the lowermost portion of the side and back walls of this tray may likewise be inwardly turned or tapered so as to provide a ventilating opening 25 between the top tray and unit A along these side and back walls in a manner similar to openings 19 between units A, B and C.

The number of units that may be stacked and still obtain perfect stability need not be limited to three because as many as fifteen have been stacked in the manner disclosed herein without the units tilting or without affecting the sturdiness to carry the contents of each bin.

From the foregoing description, it will be noted that the various structural features of the units disclosed are so designed and related with respect to each other that each unit may be made as a single molding without requiring the use of additional parts. The units readily stack and are compactly set up so that there is no waste space. The interior of each unit is readily accessible from one or more sides and the necessary ventilation between units is provided if used to store edibles. Each unit rests easily but sturdily upon the unit below with or without a frictional fit. This allows the units to be readily lifted from the unit below without sticking and without requiring the contents to be first removed. This is quite important because the uses for these containers

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are numerous. When used in shops for small parts, weight is a factor and it is not always desirable to empty a unit before it is removed from a stack containing other units. As a single molding, each unit may be easily kept clean.

Without further elaboration, the foregoing will so fully explain the character of my invention that others may, by applying current knowledge, readily adapt the same for use under varying conditions of service, without eliminating certain features, which may properly be said to constitute the essential items of novelty involved, which items are intended to be defined and secured to me by the following claims.

I claim:

1. A bin assembly comprising a series of boxes positioned one above the other in stacked relation, each box being an integrally molded construction comprising side walls and a bottom wall, the side walls adjacent each other being integrally joined by a tubular corner post extending below said bottom wall, each said post being tapered from top to bottom so that the outer dimensions at the bottom thereof are slightly less than the corresponding internal dimensions at the top thereof so that the downwardly extending portion of the posts of one box fits into the hollow tops of the posts of another box disposed therebelow.

2. A bin assembly comprising a series of boxes positioned one above the other in stacked relation, each box being an integrally molded construction comprising side walls and a bottom wall, the side walls adjacent each other being integrally joined by a tubular corner post extending below said bottom wall, each said post being tapered from top to bottom so that the outer diameter at the bottom thereof is slightly less than the internal diameter at the top thereof so that the downwardly extending portion of the posts of one box fits into the hollow tops of the posts of another box disposed therebelow, said side walls also tapering from top to bottom to provide a space between the lower part of said one box and said other box disposed therebelow.

3. A bin assembly comprising a series of boxes positioned one above the other in stacked relation, each box being an integrally molded construction comprising side walls and a bottom wall, and a plurality of integral hollow posts forming a part of said side walls and extending below said bottom wall, each said post being tapered from top to bottom so that the outer dimensions at the bottom thereof are slightly less than the corresponding internal dimensions at the top thereof so that the downwardly extending portion of the posts of one box fits into the hollow tops of the posts of another box disposed therebelow.

4. A bin assembly comprising a series of boxes positioned one above the other in stacked relation, each box being an integrally molded construction comprising side walls and a bottom wall and a plurality of hollow posts integrally forming a part of said side walls and extending below said bottom wall, each said post being tapered from top to bottom so that the outer dimensions at the bottom thereof are slightly less than the corresponding internal dimensions at the top thereof so that the downwardly extending portion of the posts of one box fits into the hollow tops of the posts of another box disposed therebelow, said side walls also tapering from top to bottom to provide a space between the lower part of said one box and said other box disposed therebelow.

5. A bin assembly comprising a series of boxes positioned one above the other in stacked relation, each box being an integrally molded construction having hollow posts, side walls and a bottom wall supported by said hollow posts, said posts extending below said bottom wall and being tapered from top to bottom so that the outer dimensions at the bottom thereof are less than the corresponding internal dimensions at the hollow top thereof so that the downwardly extending portion of said posts of one box extend downwardly into the hollow

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tops of the posts of another box disposed therebelow, and means to limit the distance said downwardly-extending portion of said posts extends into the hollow tops of the posts of said box disposed therebelow, said means resting upon the top ledge of hollow tops of said box disposed therebelow so that said boxes are readily separable without the said downwardly-extending portion of the posts of the upper box bindingly engaging in said hollow tops of said box below.

6. A bin assembly comprising a series of boxes positioned one above the other in stacked relation, each box being an integrally molded construction having hollow posts, side walls and a bottom wall supported by and integrally formed with said hollow posts, said posts extending below said bottom wall and being tapered from top to bottom so that the outer dimensions at the bottom thereof are less than the corresponding internal dimensions at the hollow top thereof so that the downwardly extending portion of said posts of one box fits into the hollow tops of the posts of another box disposed therebelow, said side walls also tapering from top to bottom to provide a space between the lower part of said one box and the upper part of said other box disposed therebelow, and means to limit the distance said downwardly-extending portion of said posts extends into the hollow tops of the posts of said box disposed therebelow, said means resting upon the top ledge of hollow tops of said box disposed therebelow so that said boxes are readily separable without the said downwardly-extending portion of the posts of the upper box bindingly engaging in said hollow tops of said box below.

7. A bin assembly comprising a series of boxes positioned one above the other in stacked relation, each box being an integrally molded construction having a plurality of hollow posts, side walls and a bottom wall supported by and integrally formed with said hollow posts, said posts extending below said bottom wall and being tapered from top to bottom so that the outer diameter at the bottom thereof is less than the internal diameter at the top thereof so that the downwardly extending portion of said posts of one box fits into the hollow top of the posts of another box disposed therebelow, said side walls and bottom wall joining the walls of said hollow posts so that the former are carried in suspended relation with said hollow posts but spaced above a box disposed therebelow to provide ventilation between adjacent boxes and so that the load of each said box may be carried by said posts, and means to limit the distance said downwardly-extending portion of said posts extends into the hollow tops of the posts of said box disposed therebelow, said means resting upon the top ledge of hollow tops of said box disposed therebelow so that said boxes are readily separable without the said downwardly-extending portion of the posts of the upper box bindingly engaging in said hollow tops of said box below.

8. A bin assembly comprising a series of boxes positioned one above the other in stacked relation, each box being an integrally molded construction having a plurality of hollow posts, side walls and a bottom wall supported by and integrally formed with said hollow posts, said posts extending below said bottom wall and being tapered from top to bottom so that the outer dimensions at the bottom thereof are less than the internal dimensions at the top thereof so that the downwardly extending portion of said posts of one box fits into the hollow top of the posts of another box disposed therebelow, said side walls and bottom wall joining the walls of said hollow posts so that the former are carried in suspended relation with said hollow posts so that the load of each

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said box may be carried by said posts, said side walls also tapering from top to bottom to provide a space between the lower part of said one box and said other box disposed therebelow, and means to limit the distance said downwardly-extending portion of said posts extends into the hollow tops of the posts of said box disposed therebelow, said means resting upon the top ledge of hollow tops of said box disposed therebelow so that said boxes are readily separable without the said downwardly-extending portion of the posts of the upper box bindingly engaging in said hollow tops of said box below.

9. A bin assembly comprising a series of boxes positioned one above the other, each box being an integrally molded construction having a plurality of side walls and a bottom wall, a plurality of posts projecting downwardly below said bottom wall to carry said walls in suspended relation with respect thereto, said posts being integrally formed with said side walls and tapering from top to bottom, each box having means to receive the lower part of the downwardly projecting posts of another box disposed thereabove.

10. A bin assembly comprising a series of boxes positioned one above the other, each box being an integrally molded construction having a plurality of side walls and a bottom wall, a plurality of posts projecting downwardly below said bottom wall, said posts being integrally formed with said side walls and tapering from top to bottom, each box having means to receive the lower part of the downwardly projecting posts of another box disposed thereabove, the arrangement of the parts including means to hold the bottom of the box disposed thereabove a predetermined distance above said box disposed below.

11. A bin assembly comprising a series of molded plastic boxes positioned one above the other, each box being an integrally molded construction having a plurality of side walls and a bottom wall, a plurality of posts projecting downwardly below said bottom wall, said posts being integral with said side walls and tapering from top to bottom, each box having means to receive the lower part of the downwardly projecting posts of another box disposed thereabove in a relatively tight but nonbinding frictional fit, the arrangement of the parts including means to hold the bottom of the box disposed thereabove a predetermined distance above said box disposed below, and means limiting the distance said lower part of the downwardly-projecting posts is received by the box disposed below, said means preventing a binding engagement of said lower part of said downwardly-projecting posts with said lower box so that said boxes may be readily separated without binding.

12. A bin assembly comprising a series of molded plastic boxes positioned one above the other, each box being an integrally molded construction having a plurality of side walls, a front wall, a back and a bottom, a plurality of hollow corner posts projecting downwardly below said bottom wall and extending upwardly along said side walls and said back and said front as an integral continuation of said walls at the corners, the hollow posts of each box having means receiving the lower part of the downwardly projecting posts of another box disposed thereabove, one of said walls of each box having an opening to provide access to the interior of said boxes.

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