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C. F. RICHARD

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CARTON STRUCTURE

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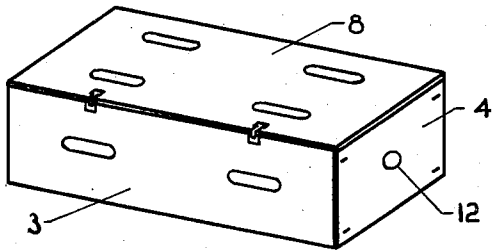


FIG. 1

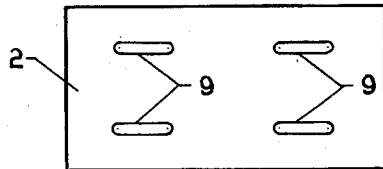


FIG. 2

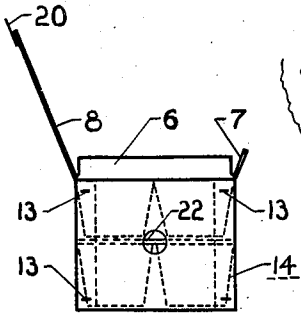


FIG. 3

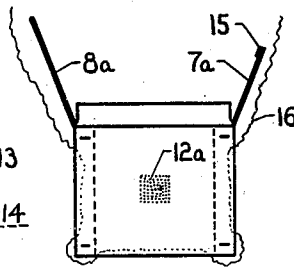


FIG. 4

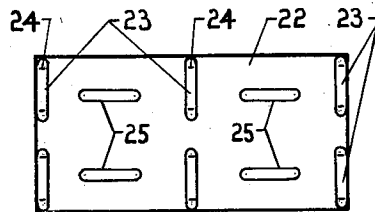


FIG. 7

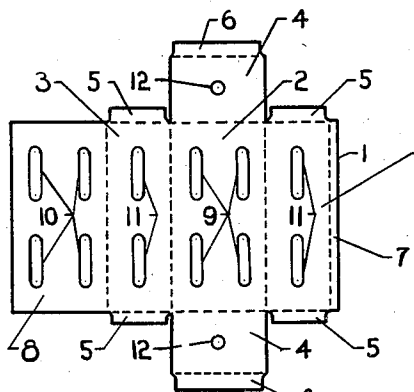


FIG. 6

FIG. 12

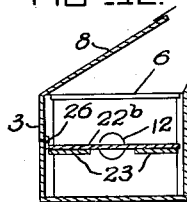


FIG. 8

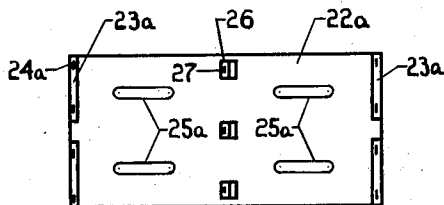


FIG. 9

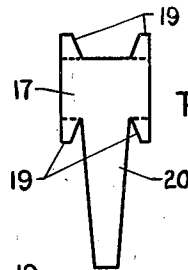


FIG. 10

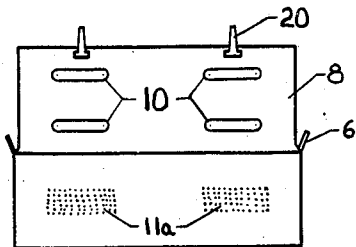


FIG. 5

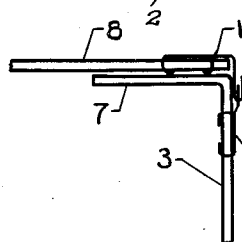


FIG. 11

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CARTON STRUCTURE

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3 Claims. (Cl. 229—6)

The present invention relates to fiber containers made from fiber stock or other disintegrated fibrous material in sheet form which may be plain, corrugated, or the like, together with means for fastening the container in closed position, and is particularly adapted for the handling of perishables such as berries, and the like.

In the past small fruits, vegetables, and berries which are commonly sold in small containers such as quarts and pints have been handled, shipped, and stored in wooden crates of standard size such as 16 quart size, 24 pint size, et cetera. These wooden crates are not only heavy, but are relatively uneconomical of space, and are costly. The cost of transportation and cost of containers are becoming more and more elements of serious consideration, and particularly so when it is recognized that these expenses are on the increase and that any extra expense must be added to the final selling price of the product. In the face of these conditions, the fruit and berry industries have continued to use wooden crates, due in part at least to the fact that heretofore no one has produced a paper or fiber container which would satisfactorily handle fruits, vegetables, and berries in standard quantities such as 16 one-quart baskets, 24 one-pint baskets, or the like. The present invention has been devised to overcome this difficulty, answer the long felt want of such a container, and produce a paper or fiber container or crate suitable for the handling, shipping, and storing of vegetables, fruits and berries.

Accordingly, among the objects of the present invention is the provision of a fiber container to replace the wooden crates of the type now employed for the transportation and storage of vegetables, fruits, berries, and the like.

Another object is to provide a paper or fiber board container that may be shipped in collapsed form to the point of use.

Another object is to provide an improved receptacle formed from sheet material and so constructed that the stacking of such receptacles is facilitated and the danger of collapse is minimized.

Another object is to provide means whereby the contents of the container may be readily inspected.

A further object is to provide a receptacle or crate provided with ventilation openings to permit the circulation of air through the receptacle to minimize the mildewing or spoilage therein of perishable foods such as berries, or the like.

A further object is to provide a receptacle or

crate formed from a fibrous material, the surface at least of which is moisture resisting.

A further object is the provision of a receptacle or crate formed with a single thickness unit bottom, having sides and ends of the same material hinged thereto along the edges thereof.

A still further object is the provision of a spacer for use in the container between tiers of individual baskets of berries, or the like, said spacer being provided with openings for ventilation and with raised portions or elevators adapted to rest on the top edge of the lower tier of individual baskets of berries, or the like.

A still further object is to provide a fiber container or crate which is simple in construction, light in weight, economical of storage space, strong, durable, cheap, and easily constructed.

Further objects and advantages will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, the invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims, the annexed drawing and the following description setting forth in detail certain means for carrying out the invention, such disclosed means illustrating, however, but several of various ways in which the principle of the invention may be used.

In said annexed drawing:

Figure 1 is an isometric assembly view of one form of the container embodying the present invention.

Figure 2 is a bottom view of the container shown in Figure 1.

Figure 3 is an end view of the container shown in Figure 1.

Figure 4 is an end view of a container of modified construction.

Figure 5 is a rear side view of a modified form of the container shown in Figure 1.

Figure 6 shows the blank used in forming the container shown in Figure 1, the clips for fastening the cover being omitted.

Figure 7 is a view of one form of spacer usable between tiers in the receptacle.

Figure 8 shows a modified form of spacer.

Figure 9 shows a clip with tongue member for use in fastening the cover in closed position.

Figure 10 shows an anchoring clip member adapted to cooperate with the tongue of the clip member shown in Figure 9.

Figure 11 is a section through the upper edge of the receptacle of Figure 1 showing in diagrammatic manner the interlocking of the clips shown in Figures 9 and 10.

Figure 12 is a central section through one form of the present invention with the spacer fastened along one edge to the container body.

While the invention is described herein as being specifically applicable to a container or crate for the handling of fruits, vegetables, and berries wherein such container is of standard size and formed from suitable paper or fiber stock, it is not intended to limit the scope of the invention to such specific article, since some of the features are obviously more generally applicable to other types of containers adapted for various classes of service.

As illustrated in Figure 6, the improved container or crate may be formed from a single blank 1 of corrugated board, fiber board, or the like, this blank 1 comprising a bottom member 2, side members 3, end members 4, side and end member connecting flaps 5, top end flaps 6, top side flap 7, and top cover flap 8.

The bottom member 2 is preferably provided with a series of symmetrically located openings 9 for ventilation purposes. The top cover flap 8 is likewise preferably provided with symmetrically located openings 10 so placed that when a series of these containers are piled directly one above the other, the openings 10 on the top of one container will coincide with the openings 9 on the bottom of the next adjacent higher container. Side members 3 are also preferably provided with symmetrically located openings 11 for cross-ventilation. End members 4 are each likewise preferably provided with a symmetrically located opening 12 as a further aid to the ventilation of the container contents. When perishables, such as berries, are placed in a closed container, they quickly mildew and spoil. This makes the ordinary paper box unsuitable for handling this type of product. The use of symmetrically located openings in all panels of the container, as specified herein, not only permits ventilation of the contents of a single container, but permits the stacking of containers without blocking off the ventilation, since the symmetric openings will permit air to flow from container to container in the stack.

The container blank 1, shown in Figure 6, has the points of folding or hinging shown in dotted lines. One of the many convenient ways that the carton or crate may be assembled consists of turning side members 3 upward about the hinge lines with the bottom so that they stand at a 90 degree angle therewith. Flaps 5 are then turned in so that they form a 90 degree angle with said side members 3. End members 4 are then folded up against flaps 5 and fastened thereto in conventional manner, for instance, by means of staples 13. The carton thus formed, in general, takes on the outline appearance shown in Figures 3 and 5. In this condition, the baskets 14 containing berries, or the like, may be placed in tiers in the carton, with a spacer between tiers, whereupon flaps 5 and 7 are turned in and top cover flap 8 folded down and fastened in conventional manner to complete the closing operation.

The construction of the container or crate from a blank, such as shown in Figure 6, results in a product having a single thickness unit bottom. This has the distinct advantage of not only eliminating the expenditure of labor and material in folding and gluing the bottom, but also overcomes the disadvantage of having the glue on folded and glued flaps loosen in the presence of moisture in manner permitting the contents of

the container to fall out of same when lifted for re-location. To further minimize the effect of moisture on the container, it is preferable to moisture-proof the stock used in forming same. This may be done by spraying the container or blank with a paraffin solution or other water-resisting or repellent material. A convenient way to accomplish this end is to form the container blank from a fiber or corrugated sheet which has been given a moisture-resisting treatment in the course of production. One such sheet which has been found suitable for this purpose consists of a double-faced corrugated board wherein both faces have been treated to resist moisture.

Where the container or crate is formed from double-faced corrugated fiber board with side and end member joining flaps 5 as a unit part of the side members, it is preferable to have the corrugations run vertically of the side members in the finished product. This not only produces a rigid unit bottom with cross corrugations, but very stiff side walls with reinforced corners, which results in relatively high stacking capability.

Berries, such as strawberries, blackberries, dewberries, and raspberries, in general, do not shake out of the quart baskets, or the like, in crates under normal transportation conditions. Huckleberries, and blueberries, on the other hand, do tend to jar over the edges of the baskets in the crates. In order to prevent loss due to such berries jarring out of the individual baskets, the container or crate may have the ventilation openings in the bottom, sides, and ends thereof modified to prevent the berries from escaping from the crate. This may be accomplished by covering the openings with screen or gauze, but in simplest construction, these ventilation areas, instead of being completely cut out, will be in the form of perforated areas permitting free access of air through small holes. Side openings 11a and end openings 12a (Figures 5 and 4) diagrammatically represent any of these forms wherein ventilation is attained without the loss of berries through the openings.

The container or crate shown in Figure 4 has a modified cover construction. The top side flap 7a is provided on its free edge with an elevator fold 15 which may be stapled or otherwise fastened in place. This top side flap 7a is preferably of such a size that when it is folded in, the center of fold 15 will rest on the center row of edges of baskets in the crate. This type of construction causes top side flap 7a and top cover flap 8a to be slightly elevated above the berries in the baskets and hence decreases the berry-crushing tendency, so far as full baskets are concerned.

It is normally desirable, and in some cases necessary, to have the top of the container or crate openable for purposes of inspection. This may be accomplished in several ways. For instance, as is shown in Figure 4, the crate may be provided with a tying cord 16, the ends of which are adapted to be tied together over the folded cover members and thus permit ready closure or access to the goods. A simplified fastening member for the container cover consists of tongued clip 17 and anchoring clip 18 (Figures 9 and 10). The tongued clip 17 and anchoring clip 18 may be fastened to the container or crate in any suitable manner, but one of the most convenient ways of doing so is to provide these clips with piercing and clinching projections 19. These projections

19 in use would be bent along the dotted lines at right-angles to the backs of the clips. They are then in position to be forced through the side member and cover flap of the container and clinched on the inside thereof, as is diagrammatically shown in Figure 11. In use the tongue 20 of clip 17 is passed through opening 21 in anchoring clip 18 and then bent back to hold the cover in place. These clips may be made of various materials, for instance, from relatively thin bronze, copper, or zinc-aluminum alloy. The particular metal used and its thickness, however, should be such that the tongue 20 can be bent and re-bent without breaking, and yet have sufficient strength and rigidity to facilitate the installation of the clips and make them hold when once installed. While in Figure 11 the clips have been shown with the tongued clip 17 fastened to the top cover flap 8 and anchoring clip 18 fastened to side member 3, it is to be understood that the invention is not limited to this particular type of assemblage, since the clips may be reversed, may be entirely on the top of the container or crate, or otherwise, as desired, so long as they act as closure fasteners.

Where several tiers of baskets containing berries, or the like, are to be placed in a container or crate, it is desirable to provide a spacer 22 (Figure 7) to be placed between the tiers. In order to facilitate circulation of air through the container and at the same time elevate the spacer slightly above the top edge of the baskets in the crate, it is desirable to provide the spacer 22 with elevator pieces 23 which should be so located that they will rest on the upper edges of the baskets in the lower tier in the crate. One of the many convenient ways of fastening these elevator pieces 23 to spacer 22 is by means of staples 24. To conserve material, the punchings obtained in perforating blank 1 may be used as elevator pieces 23. In order to facilitate the ventilation of the contents of the crate, spacer 22 is preferably provided with perforations 25 which, if desired, may be symmetrical with the holes in the top of the crate. Where the spacer 22 is formed from double-faced corrugated board, the corrugations may run in any direction. However, when spacer 22 is assembled as shown in Figure 7, it is preferable to have the corrugations run lengthwise, since this will stiffen same against sagging under load.

A modified form of spacer 22a is shown in Figure 8. This spacer has its end edges turned to form elevators 23a which are fastened in place in conventional manner such as by means of staples 24a. The center row of elevators are formed by cutting U-shaped slits to form a tongue 26 which is forced through, turned back, and fastened in place, for instance, by means of staples 27 to form a center row of elevators on the same side as the end elevators 23a and adapted to rest on the edges of the baskets. The spacer 22a is also preferably provided with suitable ventilation perforations 25a. The spacer may be fastened to the blank 1 in manner such that when the crate is folded and stapled to shape, the spacer will be in position ready for use. This is diagrammatically shown in Figure 12 where the spacer 22b is provided with a flap 26 fastened by means of staples or the equivalent to side member 3 at desired elevation. If desired, however, the spacer may be loose and adapted to be dropped into the crate, with elevator face down, after the first tier of baskets have been placed therein.

Other modes of applying the principle of my invention may be employed instead of those explained, change being made as regards the article herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:

1. In a fruit and berry crate of the character described, the combination which consists of a single thickness unit bottom panel, side and end panels contiguous with and hingedly joined to said bottom panel, a flap on each side edge of each side panel, staple means for rigidly anchoring the end panels to said side panel flaps to form a container, short top flaps on the two end panels and on one side panel, a long top flap contiguous with and hinged to the upper edge of the other side panel, at least two tongued clips at and extending over the free edge of the top flap opposite the hinge, two anchor clips fastened to the side panel carrying the short flap, said clips being located at points on said side panel where they are engageable with the tongued clips on the top flap when same is folded to closed position, symmetrically and identically located ventilating passageways in the top and bottom panels, symmetrically and identically located ventilating passageways in the side panels, a symmetrically and identically located ventilating passageway in each of the end panels, a spacer member within said container and adapted for placing between horizontal tiers of goods to be handled thereby, said spacer having ventilating passageways symmetrically arranged and identically located with those of the top and bottom panels of the container, said spacer further having narrow elevators on the underface thereof, and means for supporting said spacer member at desired elevation.

2. In a fruit and berry crate of the character described, the combination which consists of a single thickness unit bottom panel, side and end panels contiguous with and hingedly joined to said bottom panel, a flap on each side edge of each side panel, staple means for rigidly anchoring the end panels to said side panel flaps to form a container, short top flaps on the two end panels and on one side panel, a long top flap contiguous with and hinged to the upper edge of the other side panel, at least two tongued clips at and extending over the free edge of the top flap opposite the hinge, two anchor clips fastened to the side panel carrying the short flap, each of said anchor clips having an opening therethrough for the tongue of the tongued clips and being located at points on said side panel where they are engageable with the tongued clips on the top flap for anchoring same when it is folded to closed position, symmetrically and identically located ventilating passageways in the top and bottom panels, symmetrically and identically located ventilating passageways in the side panels, a symmetrically and identically located ventilating passageway in each of the end panels, a spacer member within said container and adapted for placing between horizontal tiers of goods to be handled thereby, said spacer having ventilating passageways symmetrically arranged and identically located with those of the top and bottom panels of the container, said spacer further having narrow elevators on the under face thereof, means for fastening said spacer to said crate and supporting same at desired elevation, and means for waterproofing said crate.

3. In a single unit covered container of the character described formed from corrugated board, the combination of a single thickness unit bottom, side and end panels joined to the respective edges of said bottom, flaps on the side edges of said side panels for joining same to the end panels, means for anchoring each of said flaps on the side edges of the side panels to the end panel adjacent and parallel thereto to form the body of the container, a pair of top cover flaps, the under flap of the pair being narrower than the upper flap, an elevator on the under face of the free edge of said under flap, the corrugations of said

corrugated board running across the top and bottom panels and up the side panels and corner flaps of the container to make the top, bottom, and sides relatively stiff and at the same time produce reinforced corners, metal clips for anchoring said top flaps in place, said clips being in male and female pairs with the end of the male clip bendable to accomplish said anchoring after passing through the opening in the female clip, and symmetrical ventilation passageways for said container.

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