June 5, 1934. D. T. USHER ET AL 1,962,043

CONTAINER

Filed April 30, 1931 2 Sheets-Sheet 1

Fig. 1

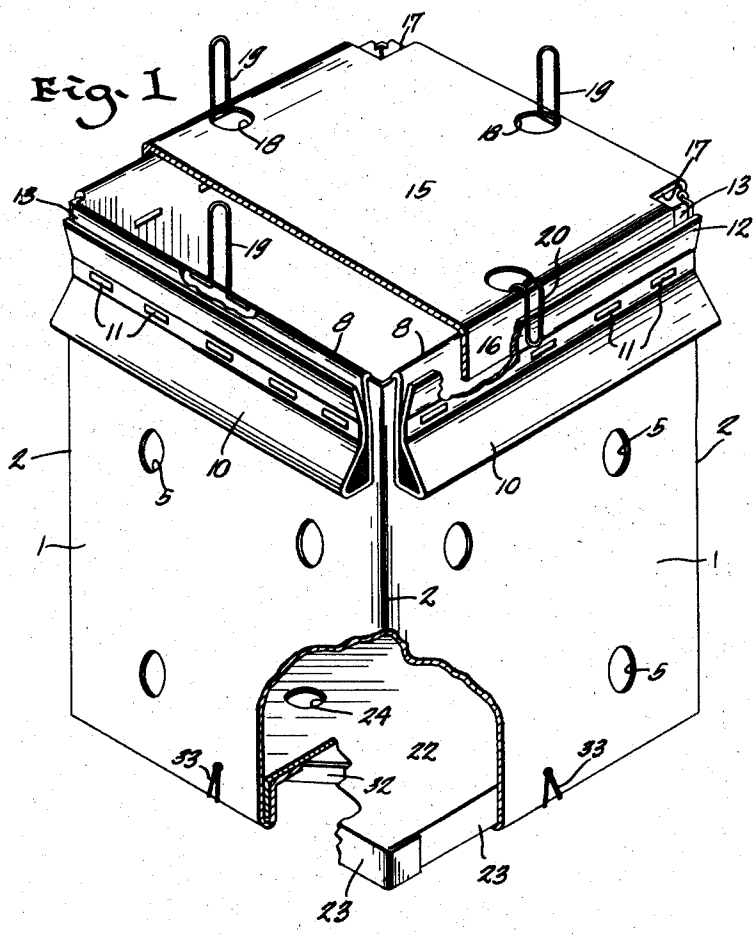

Fig. 3

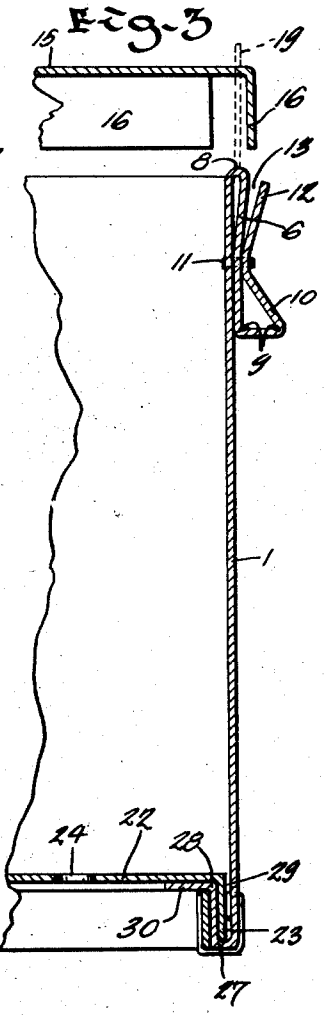

Fig. 2

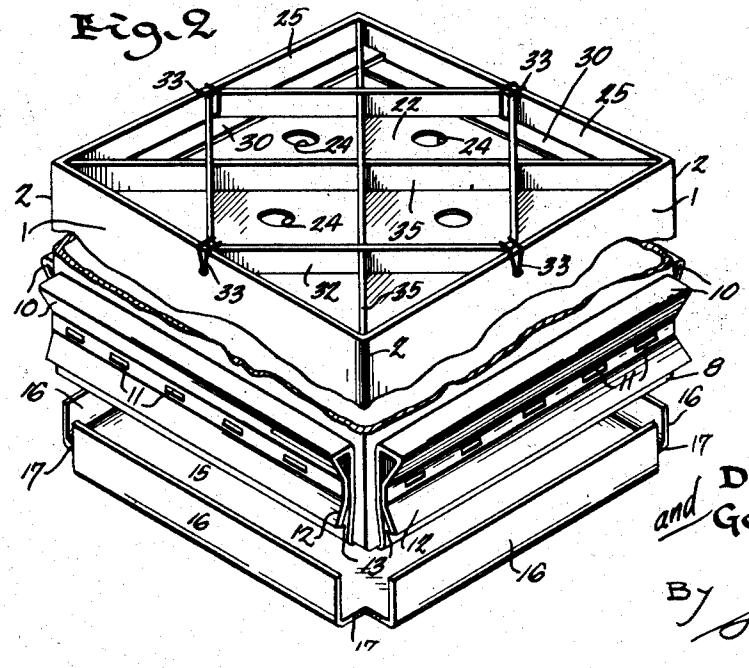

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Fig. 4

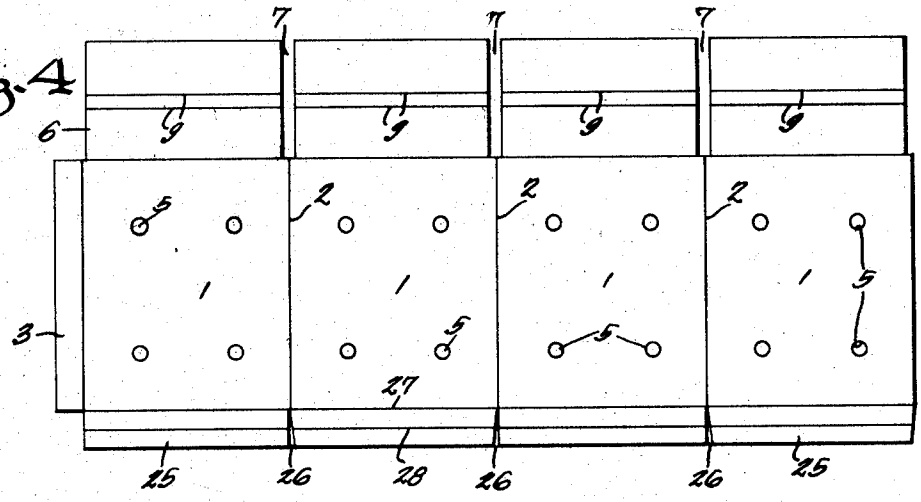


Fig. 5

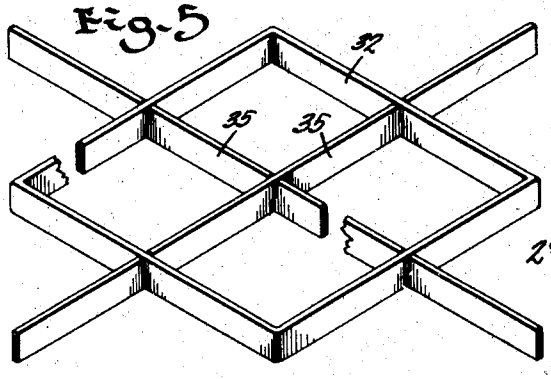


Fig. 6

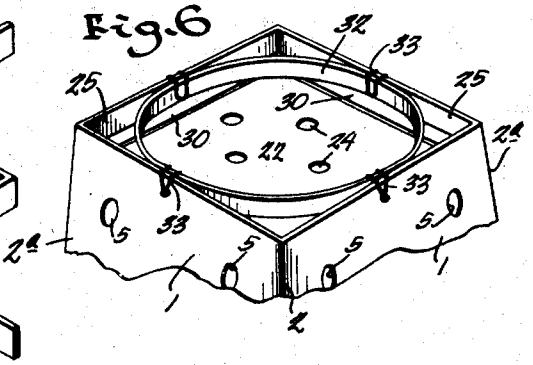


Fig. 8

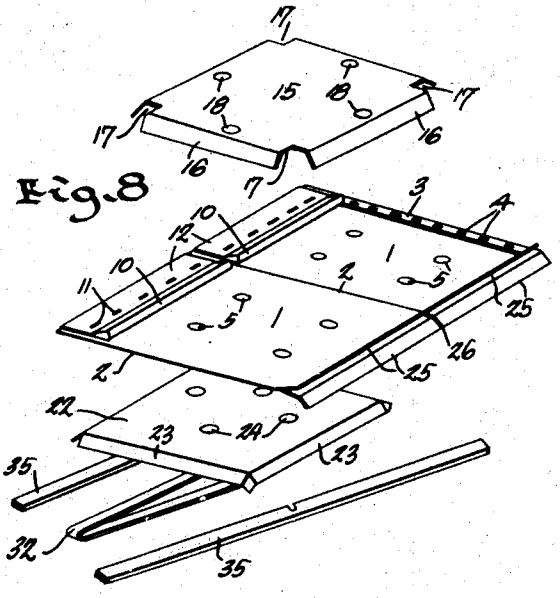
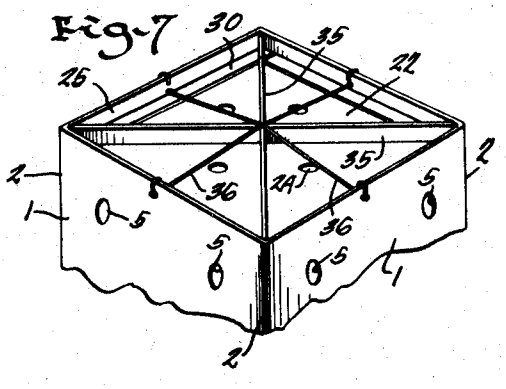


Fig. 7



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Patented June 5, 1934 1,962,043

UNITED STATES PATENT OFFICE

1,962,043

CONTAINER

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Application April 30, 1931, Serial No. 534,006

13 Claims. (Cl. 229—43)

This invention relates to containers and has for its object the provision of a simple, light, compact and ventilated container for the storage and shipment of fruit, vegetables, nuts, eggs, and other products; the provision of a container of this nature which can be very cheaply and rapidly constructed out of inexpensive materials, which can be shipped to the place of use in folded or knocked-down condition, which can be readily and conveniently assembled and which after such assembling shall be firm and rigid; the provision of a ventilated container of such shape as shall cause adjacent containers to be spaced apart sufficiently to enable ventilation at all times while at the same time occupying a minimum of cubic space; the provision of a fiber-board container having a recessed ventilating bottom the better to preserve the contents; the provision of a fiberboard container having a removable top and also having provisions whereby it may be packed and plugged via the bottom; while further objects and advantages of the invention will become apparent as the description proceeds.

In the drawings accompanying and forming a part of this application we have shown certain physical forms in which our inventive idea is embodied, this being the best, though not by any means the only manner of construction and design for such a device. Fig. 1 is a perspective view of a completed and closed container, containing our improvements, parts being broken away to show details of construction; Fig. 2 shows a separated perspective view of the same container bottom upwards; Fig. 3 is a vertical, sectional view through one side, showing the top displaced; Fig. 4 shows a development of the blank from which the sides are made; Fig. 5 is a perspective view, partly in section of the bottom support shown in Fig. 2; Figs. 6 and 7 illustrate other forms of bottom supports; and Fig. 8 illustrates one complete container in knock-down condition.

Our improved container is preferably made of what we here designate by the general term of "fibre-board", meaning thereby to include all types of artificial sheet material made of or containing fibrous substance, such as cardboard, paper board, mill board, pulp board, and the various cellulose or fibre products obtainable in sheet form. The sides 1—1 are formed as panels in a single strip of this material, separated by flexible folds 2—2 which constitute the upright edges of the container, one end of the strip being formed with a flap 3 which is lapped over the opposite end of the strip and stitched or stapled thereto as indicated at 4. Some at least and preferably all sides are formed with apertures 5 for ventilation purposes, and in order to space adjacent containers apart we provide these sides with outwardly projecting portions, preferably by making the containers larger in some way adjacent one end than adjacent the other. Inasmuch as material of this nature exhibits less waste when all the angles are right angles, and inasmuch as square corners are more easily made than oblong or slanted edges, we preferably (but not necessarily) form the panels of rectangular shape with the folds 2—2 perpendicular the length of the blank. (It will be noted in Fig. 6 that the edges 2a flare toward the top of the box.) One way of obtaining this lateral projection of a portion of the container while retaining the rectangular shape of each panel is to form each panel with an integral projecting portion which is folded over and secured to the side panel in such wise as to form a lateral projection. According to the preferred form of our invention each panel is formed at one side of the strip with a projecting tongue 6, spaced by a slot 7 from the similar tongues of adjacent panels. Each of these tongues is first bent over outwardly as shown in Fig 3, thus forming a round-edged fold 8 defining the top of the container and itself producing a smooth, unbroken surface, less likely than otherwise to bruise or injure the fruit for which the container is employed. Preferably also a part of this tongue is scored in spaced lines 9—9 so that, when its extremity is reflexed upwardly, it produces a hollow angular horizontal rib 10 well adapted for holding adjacent containers apart, each fold being secured permanently to its side-panel by stitching with staples 11 or other fastenings. We have also shown the margin of each of these tongues as extending above the staples in the form of a lip 12 terminating preferably slightly below the fold 8 and spaced therefrom to define a channel 13 for the reception of the cover-flange. This tongue may obviously be folded in numerous other ways, but the particular mode here illustrated combines numerous advantages, and is accomplished as easily as any other mode. The folding and stitching of this tongue is the first step in the making of the container and precedes the attachment of the tongue 3.

The top cover consists of a flat sheet of material (preferably the same material as the sides of the box, though metal or other material could obviously be employed), and comprises a rectangular part 15 formed at its margins with depending lips 16 adapted to fit one inside each of the channels 13. These lips may well be spaced

from each other by corner notches 17 in order to facilitate the bending of the lips and also to furnish additional ventilation. Also the portion 15 is formed adjacent to the lips 16 with apertures 18 which have the double purpose of affording ventilation and of admitting the flexible metal fastenings 19 which are carried by the folds 8 and which after the application of the top cover are folded down as shown at 20 to hold that cover in place. These metal fastenings are shown as wire staples, but may take the form of flat sheet-metal ears, and are introduced in place at the time the tongues are folded and stitched.

The top cover just described is larger than the container and slightly overlaps the sides. The bottom cover consists of a rectangular flat sheet 22 of the same or other suitable material of a size to fit within the side walls, and also having downturned flanges 23 around its periphery, and also formed with ventilation apertures 24. To secure this bottom cover in place each side panel is formed with a flexible projecting tongue 25, separated from each adjacent tongue by a notch 26 as shown in Fig. 4, and exhibiting two parallel opposite folds 27 and 28. This tongue is folded inwardly and upwardly to define an upwardly-opening groove 29 receiving the flange 23 and a lip 30 underlying the margin of the cover.

Finally, in order to hold this bottom cover in place and to prevent bulging thereof due to the weight of contents, and also to prevent unfolding of the tongues 25 we introduce a combined locking and reinforcing device into the recessed bottom. A particularly simple form of the device is shown in Fig. 6 and consists of a thin metal hoop 32 which presses against the face of each tongue 25, overlaps the lip 30 and is secured in place by flexible metal tongues 33 inserted in the side-panels and bent so as to embrace the flange and tongue and groove and fastener.

Another form of this combined locking and reinforcing device is shown in Fig. 7 and comprises a pair of crossed sticks 35—35 arranged diagonally so as to engage the corners of the container, brace the same against distortion, hold the tongues from unfolding and support the bottom against sagging, being held in place by a pair of wires 36 which are fastened in the side walls and intersect at the center of the crossed sticks, thereby holding the sides of the container against spreading.

In Figs. 2 and 5 we have shown a combined locking and reinforcing device combining the advantageous features of both the foregoing and comprising an annular member 32 and a pair of straight intersecting members 35—35, each of the same being notched at its intersection with the other member and the annular member 32 engaging the middle points of the bottom folds where it is engaged by the metal clips 33. In Fig. 5 we have shown both the annular member and the crossed sticks as made of fibre board folded along one margin for stiffness, though we do not limit ourselves as regards shape or material.

The mode of constructing and using this container is as follows:

The blanks are cut and stamped; the flexible tongues along that margin which is to be the top are folded over as described, the fasteners introduced and the folds stitched. The end tongues are next stitched to the opposite end of the blank, and the clips 33 attached. This completes the body of the container ready for shipment. The top and bottom covers have merely to be stamped out and the locking and reinforcing devices supplied.

Arrived at its destination the user first fashions each body member into rectangular shape and applies the top cover, fastening it in place. The container is filled from the bottom, thus enabling that layer which is exposed when the cover is removed to be laid smoothly and evenly, and if desired of selected produce. When the box has been filled the bottom cover is introduced, its securing tongues folded in place and the locking device applied as discribed. The lateral projections prevent adjacent containers from sealing the ventilation openings, while the recessed bottoms also prevent danger of the apertures 18 or 24 becoming blocked, especially if the containers in adjacent layers be offset so as to afford a cellular arrangement, which has the further advantage of locking the entire pile together and holding the containers against injuring their contents or each other during transportation. These bottom covers can be removed at any time with ease for the purpose of removing spoiled fruit or replacing shrinkage. As a result of the overlapping of the top cover combined with the interlapping of the bottom cover the container is rigidly held in shape despite its essentially flexible character. The overlapping of the cover also guards the contents against injury due to any pressing in of the same, while the recessing of the bottom cover constitutes a similar protection, though in another way.

These containers may be square or oblong in shape, and of any suitable or desired size, depending upon the nature of the produce for which they are desired, being generally made smaller for berries and soft or delicate fruits than for grape fruit, oranges, apples and similar commodities. Many other changes in form, detail and appearance may be made within the scope of our invention, and we do not limit ourselves to any of the details here illustrated or described except as the same are specifically recited in our several claims which we desire may be construed each independently of limitations contained in other claims.

Having thus described our invention what we claim is:

1. A container for fruits and vegetables, comprising top, bottom, and sides, said sides being made of fiber board and characterized by having smooth inner surfaces and being apertured for ventilation, and each of the sides having its upper margin folded downwardly and stitched to the side wall, each fold having reversely scored portions whereby a part of the fold is caused to project laterally from the side wall and adjacent containers thereby spaced apart.

2. A container for fruit and vegetables comprising top, bottom and four square cornered sides, each side united by a vertical flexible fold to both the adjacent sides, and forming in the absence of any top or bottom a foldable structure, certain at least of said sides having ventilation apertures therein and also having outwardly projecting spacing elements whereby adjacent containers are spaced apart, each said spacing elements being attached to a side wall by a horizontal flexible fold.

3. A container for fruit and vegetables comprising top, bottom and four square-cornered sides, said sides being made of a single piece of fiber board united together integrally and exhibiting vertical flexible folds at their junctions, each of said sides having ventilation apertures

therein and also having adjacent to its upper margin and extending downwardly over only a portion of the height of the side a folded outwardly projecting portion whereby adjacent containers are spaced apart.

4. A container for fruit and vegetables comprising top, bottom and four square-cornered sides, said sides being made of a single piece of fiber board united together integrally and exhibiting vertical flexible folds at their junctions, each of said sides having its upper margin folded downwardly and upwardly and stitched to the side wall to define a reinforcement for the side wall and a spacer for adjacent containers, the upwardly folded portion forming with the downwardly folded portion a top receiving channel, each of such folded portions being distinct and spaced from the folded portions of adjacent side wall sections.

5. A container for fruit and vegetables comprising top, bottom, and four sides, all made of fiber board, the sides having integral, outwardly extending folds at their upper margins which define upwardly opening channels, the channels at each side being separate from each adjacent channel, and the top having a depending marginal lip adapted to fit in said channel.

6. A container for fruit and vegetables comprising top, bottom, and four sides, the sides all made of fiber board and having peripheral, upwardly opening channels surrounding the top of the container, and the top comprising an apertured flat part overlying the container and having a marginal portion located in said channel, in combination with flexible metal elements carried by said sides and projecting through the apertures whereby said top is secured in place.

7. A container of the character described comprising top, bottom, and side walls, the sides being united by a vertical flexible fold to both adjacent sides and forming in the absence of any top or bottom a foldable structure, each of said sides having an integrally formed outwardly and downwardly projecting extension, said extension being curved upwardly and terminating substantially adjacent the upper edge of the side wall to form an upwardly opening channel adapted to receive cooperating parts of the top, the channel adjacent each side being separate from adjacent channels.

8. A container of the character described comprising top, bottom, and sides, each of the sides having its upper margins separate from the margins of adjacent sides, the margin being folded downwardly and then upwardly, terminating in an upwardly opening channel on the outer periphery of the container adapted to receive cooperating parts of the top, the downwardly and upwardly extending portions being integral with and fastened to the adjacent side wall.

9. A container of the character described comprising top, bottom, and sides, the sides having extended marginal portions looped downwardly and terminating in an upwardly opening channel for receiving the depending parts of the top, the downwardly and upwardly extending parts of the margins being fastened to the respective side walls intermediate the ends of the looped portions, and the fastening means being so located that it is free of contact with the depending parts of the top when the top is in position.

10. A container of the character described comprising top, bottom and side walls, said walls being formed with an integral extension, each said extension being separate from the others, and being folded to provide an outwardly projecting portion overlying and attached only to the respective side wall and having a reverse fold forming an upwardly opening top receiving channel, the top having folded lip portions spaced from each other at the corners, whereby adjacent containers are spaced apart.

11. A container of the character described comprising a plurality of side wall sections made of a single piece of material united together integrally and exhibiting vertical flexible folds at their junctions, each of said sides having its upper margin folded downwardly and then upwardly forming a reinforcement for the side wall on the outside of the container and a cover receiving channel for a cover member, each such folded portion being fastened to the adjacent side wall and being distinct and spaced from the folded portion of other side wall sections.

12. A container for fruit and vegetables comprising top, bottom and side walls, the side walls having integrally formed peripheral, upwardly opening channels surrounding the top of the container at the outer periphery thereof, each channel being separate from adjacent channels, and the top comprising a flat part overlying the container and having a marginal lip located in said channel.

13. A container of the character described comprising top, bottom and side walls, each of the side walls having a marginal extension integrally formed at the end thereof, said extension being folded to lie substantially parallel with the adjacent side wall over a portion of the extent of the side wall, said extension then projecting outwardly from the side wall, and being curved back toward the side wall intermediate the ends of said parallel portion and fastened to the side wall, said extension terminating in an upwardly opening channel adapted to receive cooperating parts of the top.

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