Aug. 26, 1952 J. S. DONNELL 2,608,340

CONTAINER

Filed July 28, 1949 2 SHEETS—SHEET 1

FIG. 1

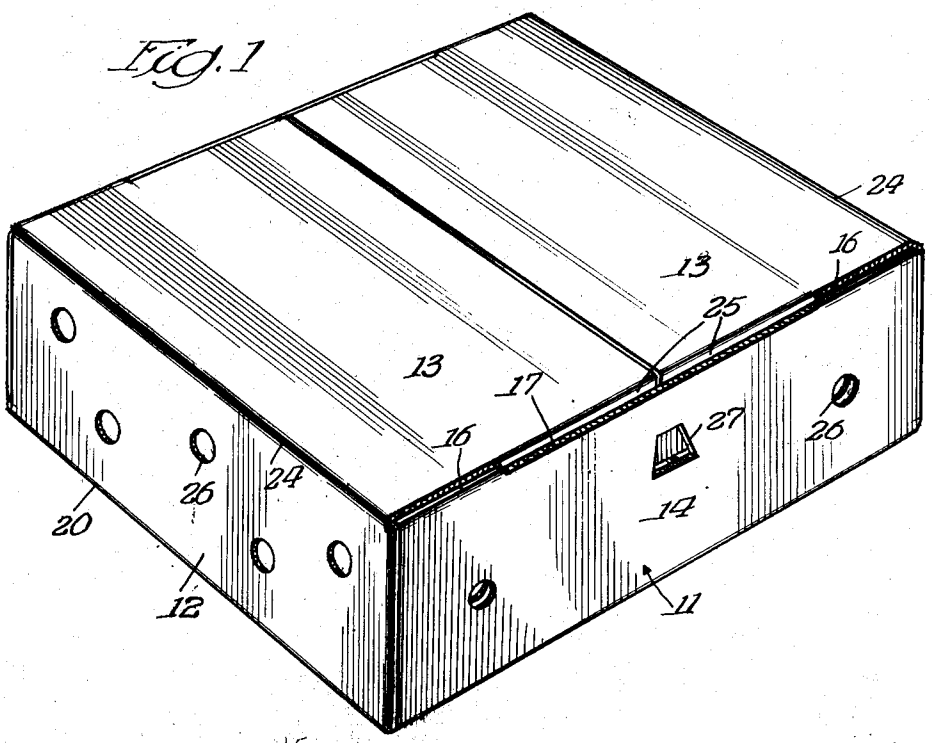
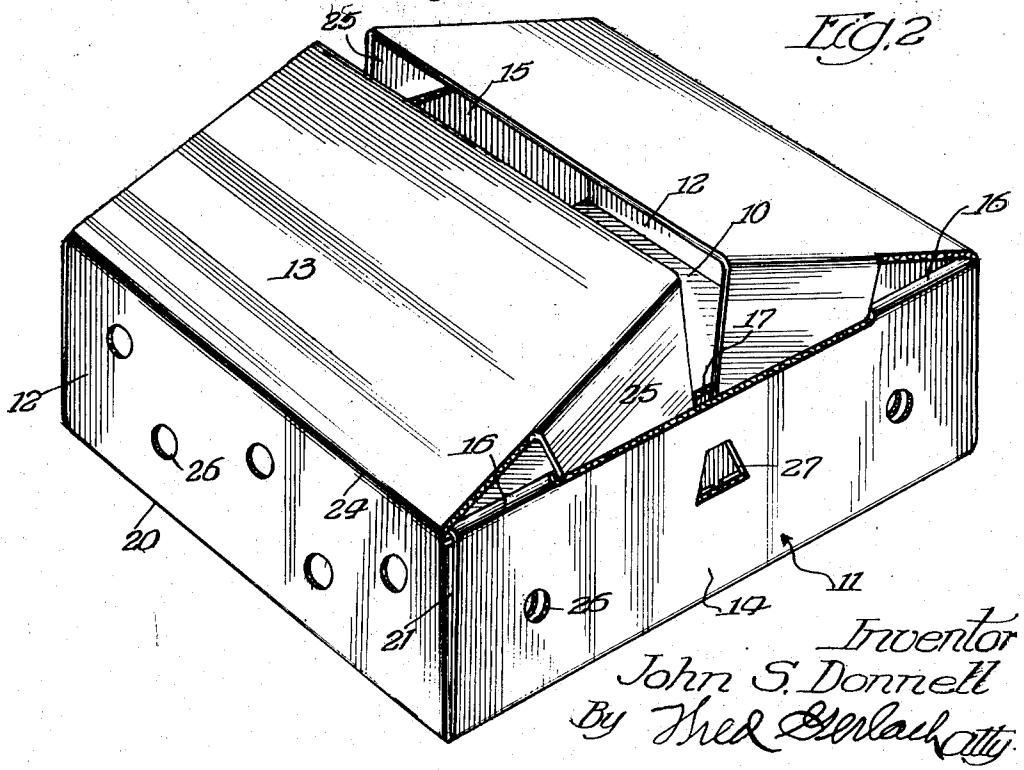



FIG. 2




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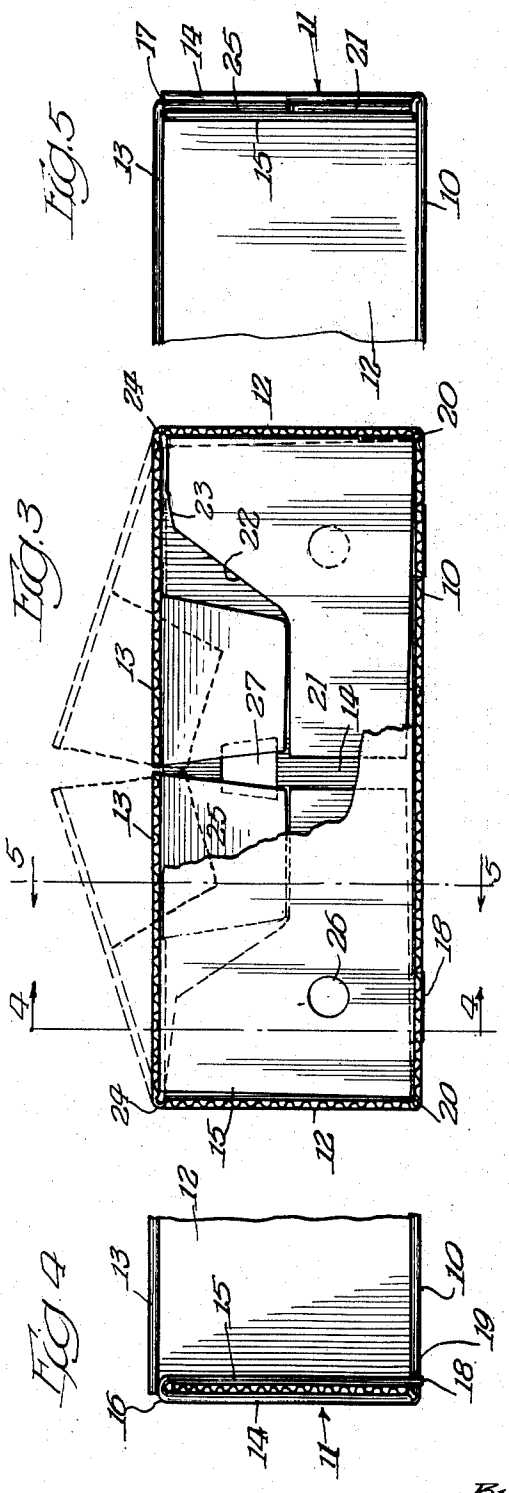


FIG. 5

FIG. 3

FIG. 4

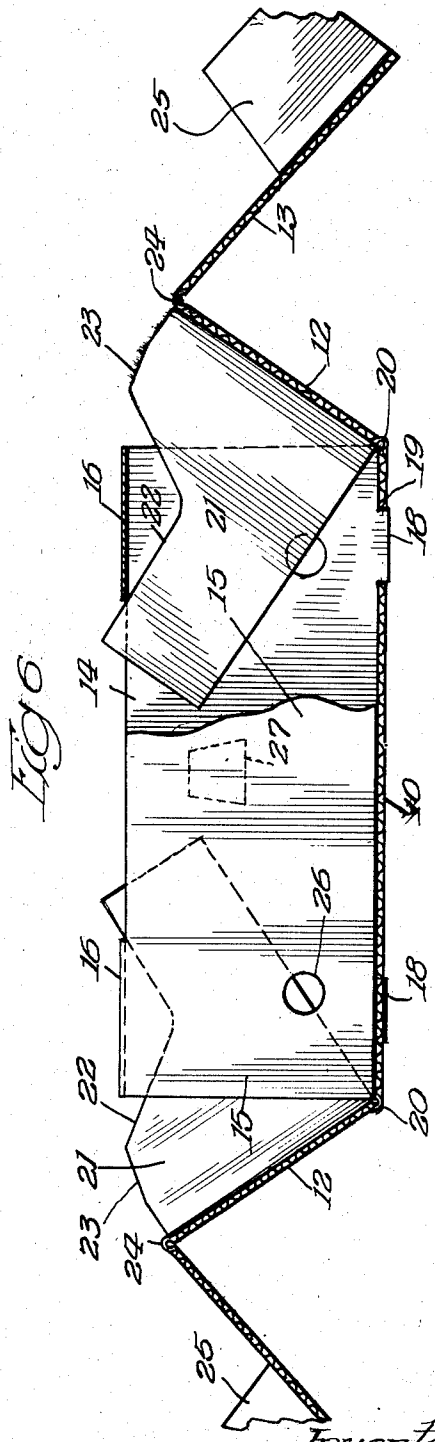


FIG. 6

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# UNITED STATES PATENT OFFICE

2,608,340

## CONTAINER

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Application July 28, 1949, Serial No. 107,292

1 Claim. (Cl. 229—33)

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The present invention relates generally to containers. More particularly the invention relates to that type of container which is designed primarily for use in shipping fruit and vegetables, is formed of comparatively stiff material, such as double faced corrugated board, and comprises a rectangular bottom, a pair of opposed, single thickness end walls extending upwards from the end margins of the bottom and a pair of opposed, double thickness side walls extending upwards from the side margins of the bottom, consisting of spaced apart outer and inner parts and having the upper margins of their parts joined together by inverted U-shaped folds.

One object of the invention is to provide a shipping container of this type which is an improvement upon, and has certain inherent advantages over, previously designed containers of the same general character and is so constructed or designed that it has a high degree of strength and may be manufactured at a low cost and assembled with facility.

Another object of the invention is to provide a shipping container of the type under consideration in which the inverted U-shaped folds whereby the upper margins of the outer and inner parts of the double thickness side walls are connected together have longitudinally extending slots intermediate their end portions, the single thickness end walls have hinged to their upper margins complemental cover-forming members, and such members have on the outer portions of their side margins downwardly extending flaps which are adapted to extend through the slots and fit between the outer and inner parts of the side walls and serve not only to reenforce the side walls but also to hold the cover-forming members either in a flat position when the container is provided with a so-called flat pack or in an upwardly inclined position when the container is provided with a so-called bulged pack.

Another object of the invention is to provide a shipping container of the last mentioned type and character in which the single thickness end walls are hinged to the end margins of the bottom in order that when the flaps on the cover-forming members are removed from inserted relation with the outer and inner parts of the side walls they may be swung outwards into a position wherein they extend at approximately a 45° angle with respect to the horizontal and convert the container into a display package for counter use.

Another object of the invention is to provide a shipping container of the last mentioned character in which the hinged end walls have on the side margins thereof inwardly extending flaps which fit between the end portions of the outer and inner parts of the side walls and are so shaped that in connection with outward swinging of the end walls their free ends swing into abutment with the edges of the inverted U-shaped folds that define the ends of the aforementioned slots, and coact with such edges to limit outward swinging of the end walls to approximately a 45° angle with respect to the horizontal.

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A further object of the invention is to provide a shipping container of the type and character under consideration in which the inwardly extending flaps on the side margins of the end walls have the upper free corners thereof cut away in order to accommodate the depending flaps on the outer portions of the side margins of the cover-forming members when the last mentioned flaps are inserted downwards through the slots in connection with closing of the cover-forming members.

A still further object of the invention is to provide a shipping container which is generally of new and improved construction, effectively and efficiently fulfills its intended purpose and is both durable and light in weight.

Other objects of the invention and the various advantages and characteristics of the present container will be apparent from a consideration of the following detailed description.

The invention consists in the several novel features which are hereinafter set forth and are more particularly defined by the claim at the conclusion hereof.

In the drawings which accompany and form a part of this specification or disclosure and in which like numerals of reference denote corresponding parts throughout the several views:

Figure 1 is a top perspective showing a shipping container embodying the invention with the cover-forming members in their fully closed position wherein they are flush or coplanar and serve to close the container when the latter is provided with a flat pack;

Figure 2 is a top perspective showing the container with the cover-forming members inclined upwards and forming a partial closure when the container is provided with a bulged pack;

Figure 3 is an enlarged vertical longitudinal section of the container, certain parts being broken away for purposes of illustration;

Figure 4 is a vertical transverse section taken on the line 4—4 of Figure 3 and illustrating in detail the design and construction of the side walls and the manner in which the connected end portions of the flaps on the side margins of the end walls fit between the outer and inner parts of the side walls;

Figure 5 is a vertical transverse section taken on the line 5—5 of Figure 3 and showing in detail the manner in which the flaps on the side margins of the cover-forming members fit within the cutouts in the flaps on the end walls when

the cover-forming members are in their fully closed position; and

Figure 6 is a vertical longitudinal section showing the end walls of the container swung outwards and illustrating in detail the manner in which the free end portions of the flaps on the side margins of the end walls coact with the inverted U-shaped folds between the end portions of the upper margins of the outer and inner parts of the side walls to limit outward swinging of the end walls to approximately a 45° angle with respect to the horizontal.

The container which is illustrated in the drawings constitutes the preferred embodiment or form of the invention. It is primarily designed as a medium or instrumentality for shipping fruit and vegetables and as its principal components comprises a bottom wall 10, a pair of opposed double thickness side walls 11, a pair of opposed single thickness end walls 12, and a pair of complemental cover forming members 13. These components are preferably formed of double faced corrugated board in order that the container as a whole possesses the desired rigidity and strength. Generally speaking, the container is rectangular and its height is materially less than its width. It is formed of a one-piece blank in order that it may be manufactured and produced at a low cost and also assembled or handled with facility.

The bottom 10 of the container is flat. It is rectangular in shape and, except for the slots specifically referred to hereafter, is imperforate.

The opposed double thickness side walls 11 are the same in height, extend upwards from the side margins of the bottom 10 and are disposed at a 90° angle with respect to the bottom. They are of uniform height from end to end and consist of outer parts 14 and inner parts 15. The lower margins of the outer parts 14 are formed integrally with the side margins of the container bottom and are connected to the last mentioned margins by right angle folds or bends. The inner parts 15 of the side walls are substantially the same in shape as the outer parts and have the upper margins thereof joined to the upper margins of the outer parts by inverted U-shaped folds 16. The latter serve to space the inner parts small distances inwards from the outer parts and have intermediate their end portions longitudinally extending slots 17. The lower margins of the side wall inner parts 15 are provided with integral downwardly extending tongues 18 and these, as best shown in Figure 6 of the drawings, fit within slots 19 in the side margins of the container bottom 10. Preferably the tongues 18 are located directly inwards of the ends of the inner parts 15 of the container side walls. In assembling the container the outer parts 14 are first bent upwards with respect to the bottom. Thereafter the inner parts 15 are swung downwards throughout arcs of approximately 180°. In connection with folding of the inner parts 15 into place the tongues 18 on the lower margins of the inner parts snap into interfitting or interlocked relation with the slots 19 in the side margins of the container bottom. As soon as the tongues snap into place they serve to hold the inner side wall parts 15 in their operative position wherein they are spaced inwards small distances from the outer parts 14.

The opposed single thickness end walls 12 have the lower margins thereof connected to the end margins of the container bottom by hinge variety folds 20 in order that they are capable of being



swung outwards from a normal vertical position into a position wherein they are inclined upwards at approximately a 45° angle with respect to the horizontal and serve to convert the container into a display package for counter use, as shown in Figure 6. The side margins of the end walls 12 are provided with integral inwardly extending flaps 21 which fit between the end portions of the outer and inner parts of the side walls. Such flaps are of greater length than the outer and inner parts of the side walls are high and have the upper free corners thereof cut away in order to form or provide cutouts 22. They have a threefold purpose in that they serve to reenforce the double thickness side walls 11, serve frictionally to hold the end walls 12 in place when the latter are in their normal position wherein they extend upwards as shown in Figure 3, and also serve to limit outward swinging movement of the end walls when the latter are swung outwards in order to convert the container into a display package. As shown in Figure 6, when the end walls 12 are swung outwards so that they extend at approximately a 45° angle with respect to the horizontal the lower free corners of the flaps 21 are brought into abutment with the edges of the inverted U-shaped folds 16 that define the ends of the longitudinally extending slots 17 and coact with such edges to limit further outward swinging of the end walls. The upper portions of the flaps 21 have inclined edges 23 adjacent the cutouts 22 in order to swing clear of the inverted U-shaped folds 16 when the end walls 12 are swung outwards. In assembling the container the end walls 12 are swung upwards before the inner parts 15 of the side walls are swung into place. After upward swinging of the end walls with respect to the container bottom 10 the flaps 21 are folded into lapped relation with the inner surfaces of the end portions of the side wall outer parts 14. Thereafter the side wall inner parts are swung downwards and locked in place by insertion of the tongues 18 into the slots 19.

The complemental cover forming members 13 are connected by hinge type folds 24 to the upper margins of the conainer end walls 12 in order that they may be swung inwards into closed position and upwards into open position. The combined size or area of the cover forming members 13 is such that when the members are folded inwards and downwards into their fully closed position as shown in Figure 3, they form a substantially complete cover for the compartment that is formed by the bottom, side and end walls of the container. The outer portions of the side margins of the cover forming members 13 are provided with integral downwardly extending flaps 25. When the end walls 12 of the container are in their vertical position and the cover forming members 13 are swung inwards and downwards these flaps 25 are adapted to extend through the longitudinally extending slots 17 in the inverted U-shaped folds 16 and fit between the inner upper portions of the outer and inner parts 14 and 15 of the end walls 11 as shown in Figures 1, 2, 3 and 5. The flaps 25 have a twofold purpose in that they serve not only to reenforce the side walls 1, but also to hold the cover forming members 13 either in a flat position when the container is provided with a so-called flat pack (see Figures 1 and 3), or in an upwardly and inwardly inclined position when the container is provided with a bulged pack (see Figure 2). Preferably the flaps 25 are downwardly tapered

in order to facilitate insertion into the slots 17. When the flaps are in place within the upper central portions of the outer and inner parts of the container side walls they fit in the cutouts 22 in the flaps 21, as shown in Figure 3.

The side and end walls of the container are provided with holes 26 for purposes of ventilating the container interior. If desired, the upper central portions of the outer parts 14 of the side walls may be provided with trapezoidal cutouts 27 to accommodate the platen of a stapling device in the event that it is desired to staple the flaps 25 to the side wall outer parts in accordance with the method that is disclosed in, and forms the subject matter of my pending United States patent application Serial No. 90,577, filed April 30, 1949 and entitled "Art of Packaging."

When it is desired to use the container in connection with a so-called flat pack. i. e., a pack that is disposed wholly within the container compartment that is defined by the bottom, side and end walls, the cover forming members 13, after packing of the container, are swung inwards and downwards into a flat or coplanar position as shown in Figures 1 and 3. In connection with swinging of the cover forming members into place the flaps 25 are inserted into the slots 17 so that in connection with completion of swinging of the cover forming members into place they swing into a position between the upper central portions of the outer and inner parts of the side walls 11. As heretofore pointed out, the flaps 25, when in place, not only reenforce the side walls, but also maintain the cover forming members in place. When the container is packed with a so-called bulged pack, i. e., a pack which projects to some extent above the container side walls, the cover forming members 13 are swung but partially inwards and downwards, as shown in Figure 2. It is contemplated, however, that in connection with partial closing of the cover forming members portions of the flaps 25 will extend through the slots 17 and between the central upper portions of the outer and inner parts of the side walls in order that the flaps 25 will frictionally but releasably hold the cover forming sections in place. After the container has been used for shipping purposes and it is desired to convert it into a display package for use on a counter the flaps 25 are released from the container side walls and the complemental cover forming members 13 are swung outwards. Thereafter the end walls 12 are swung outwards until the inner ends of the flaps 21 arrest further outward movement as the result of abutment against the edges of the inverted U-shaped folds 16 that define the ends of the slots 17.

The herein described container, due to its particular design and construction, may be manufactured at a low cost and assembled with facility. It effectively and efficiently fulfills its intended purpose and is characterized by a high degree of strength. Due to the flap arrangement on the complemental cover forming members such members may be retained either in a fully closed position when the container is provided with a flat pack or in a partially opened position when the container is provided with a bulged pack. By providing the end walls of the container with the flaps 22 the end portions of the outer and inner parts of the container side walls are reenforced and there are simple and novel means for limiting outward swinging movement of the end walls when the latter are swung outwards in connection with conversion of the container into a display package.

The invention is not to be understood as restricted to the details set forth since these may be modified within the scope of the appended claim without departing from the spirit and scope of the invention.

Having thus described the invention what I claim as new and desire to secure by Letters Patent is:

As a new article of manufacture, a shipping container formed of comparatively stiff material and comprising a rectangular bottom, a pair of opposed double thickness side walls of materially greater length than height, connected to, and extending upwards from, the side margins of the bottom, consisting of spaced apart substantially coextensive outer and inner parts, and having the upper margins of their outer and inner parts joined together by inverted U-shaped folds with longitudinal slots intermediate their end portions, a pair of opposed end walls of the same height as the side walls, having the lower margins thereof hinged to the end margins of the bottom so as to permit them to swing back and forth between a position wherein they extend upwards at right angles to the bottom and a position wherein they extend outwards at an obtuse angle to the bottom, flaps of greater length than the side and end walls are high, connected to, and extending inwards from, the side margins of the end walls, fitting between the end portions of the outer and inner parts of the side walls, having the upper free corners thereof cut away so as to form cutouts and cause the subjacent end portions to be of reduced height, and adapted when the end walls are swung outwards into the second mentioned position to have the upper margins of their subjacent end portions abut against the edges of the inverted U-shaped folds that define the ends of the slots and coact with said edges to limit outward swinging of said end walls to a predetermined obtuse angle, and a pair of complemental cover forming members hinged to the upper margins of the end walls and embodying on the outer portions only of the side margins thereof depending flaps which are of materially less length than the members, are adapted when the end walls extend upwards at right angles to the body to extend downwards through the aforesaid slots and fit within said cutouts and between the upper central portions of the outer and inner parts of the side walls, and serve when in place not only to reenforce the side walls but also to hold the members frictionally but releasably either in a flat fully closed position or an upwardly inclined partially closed position.

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