Aug. 25, 1931. C. AUGUSTIN ET AL 1,820,523

COLLAPSIBLE FRUIT AND NOVELTY BOX

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Fig. 1.

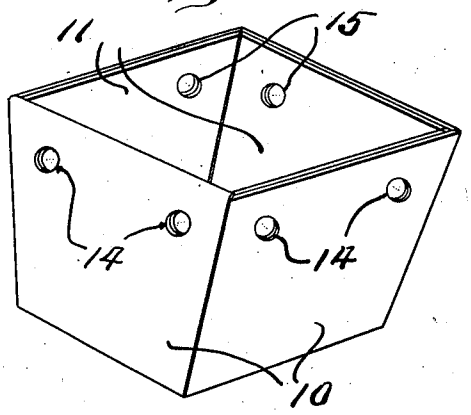


Fig. 2.

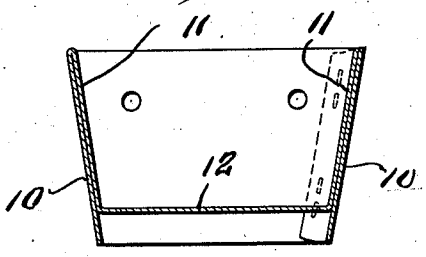


Fig. 3.

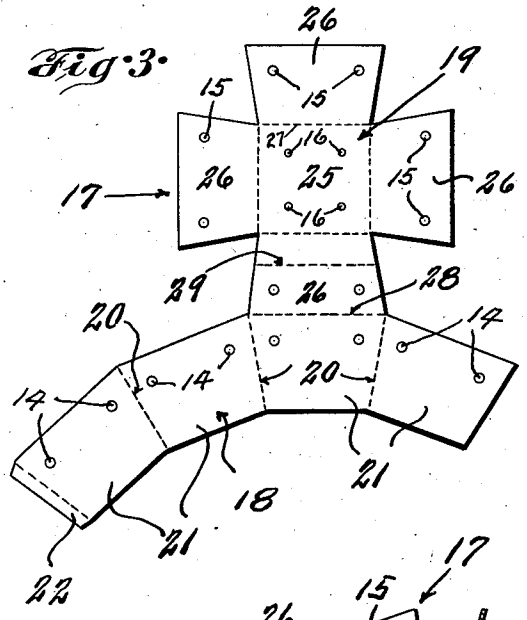


Fig. 4.

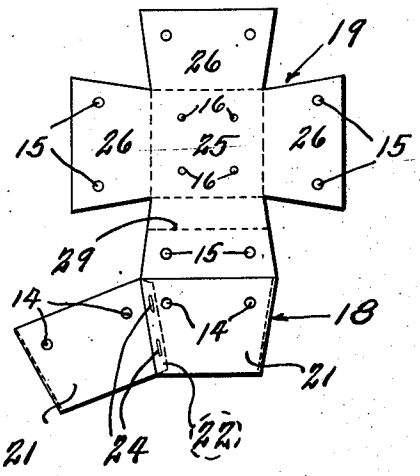
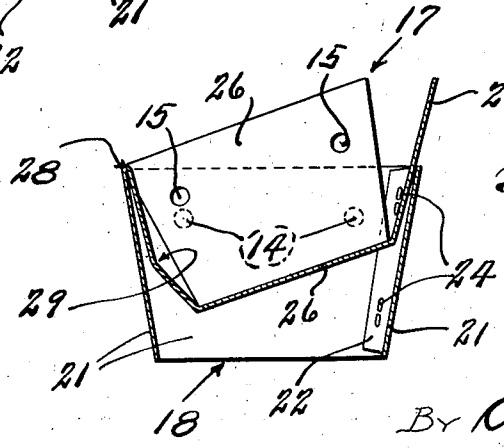


Fig. 5.



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Fig. 6.

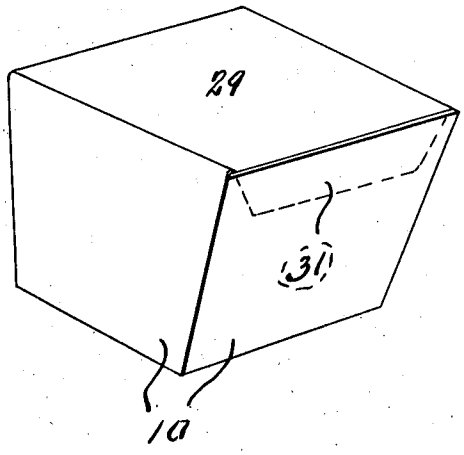


Fig. 7.

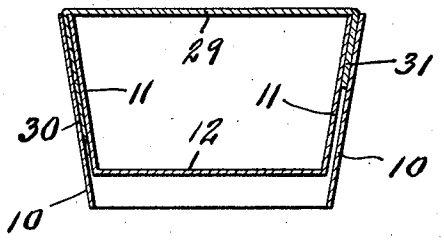
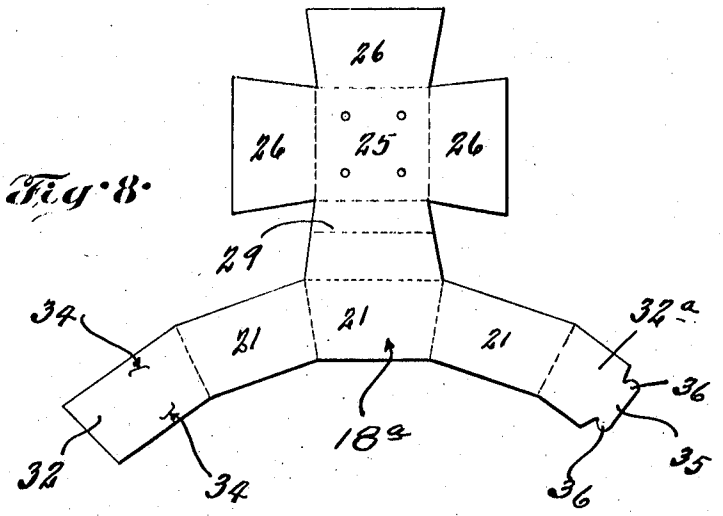


Fig. 8.



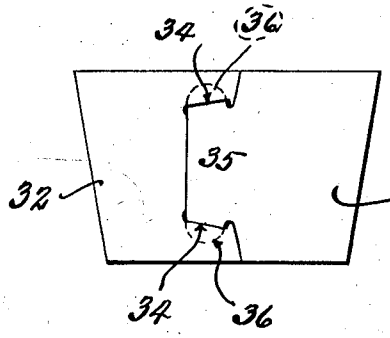


Fig. 9.

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UNITED STATES PATENT OFFICE

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COLLAPSIBLE FRUIT AND NOVELTY BOX

Application filed July 3, 1928. Serial No. 290,087.

This invention relates to a new and useful improvement in berry boxes and a novel method of manufacturing the same.

Heretofore, berry boxes have been made generally from thin sections of wood folded into proper shape and having the upper edges of their side walls bound and reinforced either by means of narrow wooden strips bent into rectangular shape and secured by metal stitches to both sides of the edges, or by a single piece of metallic strip of inverted U-shape in cross section placed over the edges of the side walls and crimped in position. This type of box is unsatisfactory as the wood has tendency to split due to the extreme thinness of the walls and to the sudden changes in temperature and humidity to which the boxes are subjected. Furthermore, the wood being untreated is easily soiled and absorbs juices from the fruit, thereby causing discoloration of the walls of the box and detracting from the appearance thereof. In the shipment of this type of boxes, a great deal of shipping space is wasted as the boxes have to be shipped nested and accordingly a great deal of space during shipment and storage thereof. Expensive machinery is required in the manufacture of such boxes.

The objects of the present invention are to provide a box of the type described which is formed of cardboard or fiber blank or blanks so shaped that it can be shipped or stored in flat position and can be formed into a complete box by an inexperienced person without requiring extraneous securing means to retain the box in formed position.

Further objects of the invention are to pro. de a berry box formed of a single piece blank of cardboard or fiber, said blank being foldable into box-shape having double side walls and in which the inner walls are supported by the outer walls by virtue of the fact that all of the side walls are obliquely disposed whereby the inner walls are caused to be wedged against the outer walls.

Still further objects of the invention are to stamp a single piece blank out of cardboard or fiber material, said blank consisting of two sections, namely, an outer section comprising a strip transversely divided into side wall panels, each of which is angularly disposed to the adjacent panel, the free edges of the two outer panels being adapted to be secured together by a suitable adhesive or metal stitches and the inner section consisting of a rectangular bottom and a series of inner wall panels corresponding in size and shape to the outer wall panels, one of said wall panels being integrally connected along its outer edge with the corresponding edge of one of the outer panels.

Other objects of the invention are to provide a box blank of suitable material adapted to be folded to form a box having obliquely disposed and downwardly tapering double side walls, the bottom of the box being formed integral with the inner walls and preferably held in spaced relation with the lower supporting edges of the outer walls, the side walls and said bottom being provided with a series of ventilating apertures.

Additional objects of the invention are to provide a blank of suitable material, said blank being adapted to be shipped in flat disassembled condition, thereby effecting a great saving in the cost of shipping and storage, and said blank being foldable into a box form without the use of machinery or the use of attaching means.

With these and other objects in view, our invention consists in certain novel features of construction and arrangement of parts, hereinafter more fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of our improved box.

Figure 2 is a vertical cross section through the box.

Figure 3 is a top plan view of the blank.

Figure 4 is a similar view but showing the free edges of the outer wall section secured together.

Figure 5 is a sectional view showing the inner section being folded within the outer section.

Figure 6 is a perspective view of the box provided with a detachable cover.

Figure 7 is a vertical cross section through same.

Figure 8 is a blank of a modified form of our box.

Figure 9 is a side elevational view of the modified box.

Briefly stated, the box preferably consists of a single piece blank which is so shaped that when properly folded the box thus formed is provided with double side walls. The outer wall consists of four panels arranged side by side with the contiguous edges integrally connected. The outer edges of the outermost panels are secured together so as to form an open-ended rectangular box having obliquely disposed side walls. The inner sections consist of a rectangular bottom and four side walls connected at their lower edges with the bottom and having their outer faces in surface contact with the inner faces of the outer section. Thus the inner section is supported within the outer section by the wedging action produced between the side panels of the two sections by the oblique disposition of said panels.

Referring by numerals to the accompanying drawings, 10 indicates the outer side walls, 11 the inner side walls, and 12 the bottom of the box. The outer side walls or panels 10 are each provided with a series of apertures 14 and the inner side walls or panels are provided with a series of apertures 15. The apertures in the inner panels are adapted to register with the apertures 14 in the outer panels when the box is formed. The bottom 12 is provided with a series of apertures 16. In this manner a series of air or ventilating openings are provided through which the air is admitted to the interior of the box, thereby maintaining the fruit in fresh condition.

The box is preferably formed of a single piece blank 17 comprising an outer section 18 and an inner section 19 as shown in Figure 3. The outer section is in the form of a strip which is transversely divided by score lines 20 into a series of panels 21 which correspond to the outer side walls 11. As the side edges of the outer side walls 11 are tapered downwardly, the panels 21 are angularly disposed to each other instead of being disposed in a straight line. The outer edge of one of the end panels is provided with a flap as indicated at 22 which, when the strip is folded on score lines 20, is adapted to be applied against the inner side of the opposite panel and is adapted to be secured thereto either by metallic stitches 24, as indicated in the drawings, or by suitable adhesive. When thus secured together the blank occupies the position shown in Figure 4.

The inner section 17 is of cruciform shape and consists of a central member 25 which forms the bottom wall 12 of the box and of cross arms 26 which are integrally formed along their inner edges with the edges of member 25 as indicated by score lines 27. The shape and surface area of each member 26 is substantially the same as that of panels 21 with the exception of depth which is slightly less in the case of members 26 in order to space the bottom member 25 a suitable distance upwardly from the lower edges of panels 21 when the box is formed. Thus the completed box is supported by the lower edges of the outer panels only and the bottom of the box instead of resting on a solid surface is spaced therefrom and is therefore allowed a certain amount of flexibility which safeguards the lower layers of fruit contained in the box and prevents crushing of said layers. This feature in itself is a vast improvement over the old style boxes wherein the bottom formed the support for the box and consequently all the weight of the fruit was carried by the lower layer which generally was rendered unusable. Furthermore, the spacing of the bottom from the supporting surface enables circulation of air therein and through the perforated bottom, thereby further increasing the usefulness of the box and reducing the wastage of the fruit.

The inner section 17 can be formed separate from outer section 18. However, when said sections are formed in a single piece, the outer edge of one of the panels 26 is integrally connected to the outer or wide edge of one of the panels 21 as indicated by a score line 28.

The box blanks are shipped and stored in collapsed condition as shown in Figure 4. When it is desired to form the box, the panels 21 are opened into extended or rectangular positions as shown in Figure 5. The inner section 17 is bent along line 28 and each member 26 is bent along line 27 so as to present members 26 upwardly with respect to bottom panel 25. Section 17 is then inserted within section 18, line 28 being used as a hinge in forcing the inner section within section 18. When section 17 is in position, panels 26 bear against the inner faces of panels 21 and the oblique side edges of panels 26 bear against the correspondingly inclined faces of the adjacent panels whereby said inner section is held in predetermined position within said outer section 18 as shown in Figure 2. Thus the box can be formed without the use of additional securing means or the application of adhesive and the box can be assembled by an inexperienced person without requiring any machine operations. Where one of the panels 26 is joined with one of the panels 21, this line of connection further supports the inner section in position. In this case in order to facilitate the positioning of the inner section 17 within outer section 18 a

score line 29 is formed in panel 26 so that a sort of double hinge is provided to enable the insertion of said section 17 in position as is clearly shown in Figure 5.

The box being made of cardboard, the outer faces of walls 10 can be printed in colors or otherwise suitably decorated so as to enhance the appearance of the box and the material contained therein.

While the box is primarily intended as a fruit box, it may be used to contain vegetables and may be used as a novelty box or candy box.

When so desired, a cover 29 may be used with the box. This cover is provided with a rear end flap 30, which is adapted to be inserted between the rear side walls 10 and 11, and a front flap 31 which is adapted to be inserted between the front side walls 10 and 11. Flap 30 may be considerably longer than the front flap 31 so as to hold the cover in position on the box when the cover occupies open position.

In the modified form shown in Figures 8 and 9, the outer section 18^a terminates in complementary side wall portions 32 and 32^a, respectively. Portion 32 is provided with spaced-apart slits 34 and portion 32^a is provided with an extension 35 having projections 36 which are adapted to be entered into slits 34 and thus hold the outer section 18^a in folded position. In this manner it is not necessary to glue the ends of the strip together or to use metallic stitches, thereby eliminating the expense connected with such operations and enabling the manufacturer to ship the blank in flat position as it comes from the blanking machine, as the user can readily fold the blank into box form. This particular type of box is particularly adapted for use as a novelty box or candy box.

A box of our improved construction can be cheaply manufactured, can be shipped and stored in collapsed or flat position, thereby effecting a great saving in the storage space and the shipping charges, and can be readily assembled by an inexperienced person without the use of machinery or tools.

While we have shown and described the preferred forms of our box, it is obvious that various changes in the construction and arrangement of the parts forming the box can be made without departing from the spirit of our invention.

We claim:

1. A collapsible box of the class described comprising a single piece blank of cardboard and consisting of an outer wall section and an inner wall section, said outer wall section having a plurality of trapezoid wall sections integrally connected along their adjacent side edges and said inner wall section consisting of a plurality of trapezoid wall members and a bottom member, said inner wall members being integrally connected along their base edges with the adjacent edges of said bottom member, the outer edge of one of said inner wall sections being integrally connected to the upper edge of one of said outer wall sections, said interconnected inner wall section being scored and foldable along a line spaced from the parallel edges thereof and parallel therewith to enable the insertion of the inner wall section within the formed outer wall section whereby the formed inner wall section is supported within the outer wall section frictionally and by virtue of the integral connection between said inner and outer wall sections.

2. A collapsible fruit box of the class described formed of a single piece blank and consisting of an outer wall section and an inner wall section each of said sections comprising a plurality of trapezoid wall members, the inner wall members being of less height than the outer wall members, the wall members of the outer section being integrally connected at their side edges and having the outer edges of the outermost wall members connected together to form an open-ended inverted frustum of a pyramid, the wall members of the outer section being integrally connected at their narrow ends to the corresponding sides of a bottom member and one of said wall members being integrally connected at its wide end to the top edge of one of said outer wall members, said inner wall member scored and foldable along a line spaced from the ends thereof and parallel therewith to enable the insertion of the inner wall section within said outer wall section, the trapezoid of the inner wall section being of less height than the wall members of the outer wall section whereby said bottom member is spaced from the lower edges of said outer wall section and said inner wall section is frictionally held in position within said outer wall section without the use of interlocking projections.

In testimony whereof we hereunto affix our signatures this 28th day of June, 1928.

CHARLES AUGUSTIN.
THOMAS P. CARROLL.