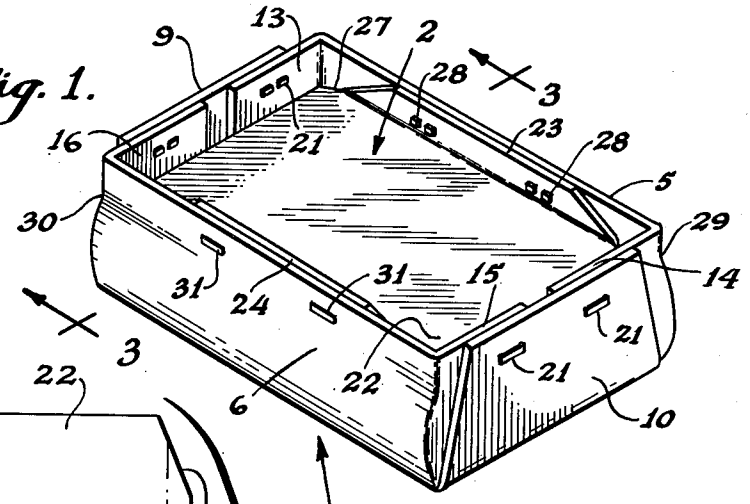
July 31, 1951 G. F. O'BRIEN 2,562,570

PAPER CONTAINER

Filed Feb. 10, 1948

Fig. 1.



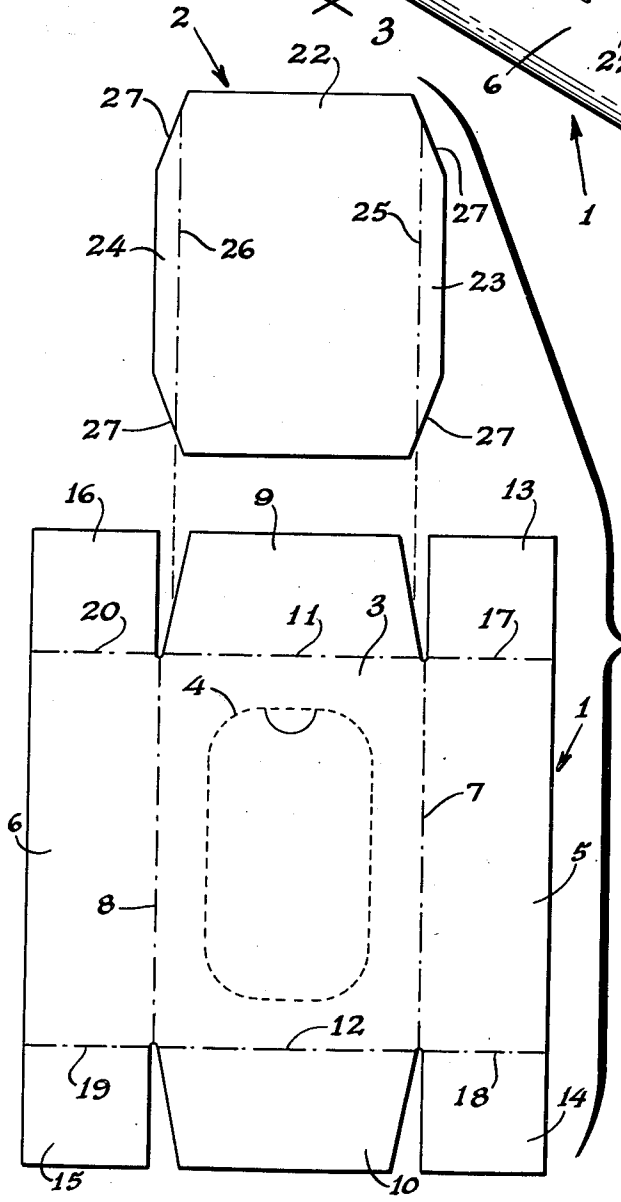


Fig. 2.

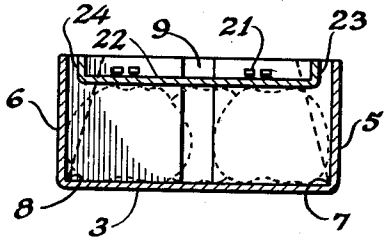
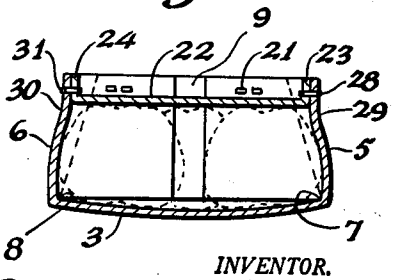


Fig. 4.

Fig. 3.



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PAPER CONTAINER

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10 Claims. (Cl. 229—23)

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This invention relates to paper containers, or cartons, and more particularly to such containers, or cartons, employed for the packaging and distribution of non-manufactured articles such as fruits and vegetables, which vary in size and shape but are sorted into selected size ranges for packaging.

The particular carton, or containers, of my invention is of the type employed for the packaging of the commodity at, or close to, its source and for the continuous containing of such commodity until the same is used by the ultimate consumer. I am aware that attempts have been made in the past to provide containers, or cartons, for the same purpose but I believe that the container of my invention simplifies the packaging procedure, introduces economy into the packaging operation, materially reduces waste in the blanking of the container elements and precludes damage to the commodity during the packaging. Furthermore, my carton does for the fresh fruit and vegetable industries what the canning industry has done for canned goods for some time. In other words, it presents a carton which, when the housewife or other consumer gets acquainted with it, will indicate to such consumer that a carton of particular size will always contain just so much weight of the particular fruit or vegetable desired. Thus the consumer will know just how much of the particular commodity is going to be available when a full package of desired size is purchased.

Considering the invention from the standpoint of the packer of fruit, for example, it is well understood that nature produces fruit of various sizes. The amount of each particular size from a crop is unpredictable, but by proper selection of the placement pattern of a fruit, such as apples, the packer is able to pack all sizes of such fruit in the selected unit size carton. Such pattern selection, coupled with the flexibility of the carton, eliminates the need of a variety of cartons, but assures that the weight of the carton contents will be the same regardless of the size of the fruit packaged.

I have determined that all the flexibility needed for the packaging of various sized commodities is readily attained by the outward bulging of the top of the carton to the extent necessary. Thus the bottoms of the containers in accordance with my invention can always be located in the same position. This greatly simplifies the securing of the bottom, after the container is filled, and enables that securing to be affected at positions where there is no likelihood

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of bruising the commodity. Furthermore, the bottoms are always inset the same amount so the consumer knows he is getting full measure. This inset is sufficient to receive any bulge in the top of an adjacent container, so unit cartons of the invention can be stacked within a larger shipping container without waste space and with additional assurance against damage of the packaged fruit.

By making my container, or carton, out of two pieces, instead of one, I effect a marked saving in materal employed. Both the main blank, which provides top, sides and ends of the carton and the smaller blank providing the bottom are substantially rectangular in shape. Thus waste in cutting them out of larger sheets is practically nil. Considering the large number that would be needed for packing just a year's crop of apples, the saving effected over prior practices is enormous.

It is accordingly a principal object of my invention to improve upon the unit packaging of non-uniform articles which fall into standard size ranges.

Another object of my invention is to economize on the material employed in the making of such unit packages.

Another object is to expedite the closing of filled packages of the character referred to while at the same time safe-guarding the packaged commodity from damage.

Still another object is to provide packages of the character referred to which will be substantially uniform when filled and closed regardless of variations in size and number of contents.

A further object is to employ the action of closing such packages to impart a reasonable pressure to the contents thereof in order to prevent movement of such contents in handling and transit without pressing the contents to a damaging degree.

A still further object is to provide for uniform stacking of such packages regardless of variations in content.

Further and more detailed objects of the invention will appear from a consideration of the following description taken in conjunction with the accompanying drawing, in which

Figure 1 is a perspective view of a filled carton in accordance with my invention looking at the same in the upside down position.

Figure 2 is a vertical section of my carton, in upside down position, showing the same filled with the bottom about to be secured in place.

Figure 3 is a vertical section taken on lines 3—3 of Figure 1.

Figure 4 is a composite view of the two parts of the blank from which my carton is formed.

The carton of my invention, as shown in finished filled condition in Figure 1, is formed from two blanks the principal one of which, generally shown at 1, includes the top, sides, and ends of the carton. The bottom blank is generally shown at 2. These blanks, 1 and 2, are formed as shown in the composite view in Figure 4, where the panel 3 for the top of the carton is shown as having its center section scored at 4, so that a substantial section of the top may be readily removed for display of the contents of the filled carton. The sides 5 and 6 of the carton form integral extensions of the top 3, but are designed to be bent laterally with respect thereto on the score lines 7 and 8. Similarly, the principal end portions 9 and 10 extend integrally from the top 3 and are designed to be bent laterally with respect thereto about the score lines 11 and 12.

The main part 1 of the carton is completed by means of the flaps 13, 14, 15, and 16 which extend outwardly from the ends of the sides 5 and 6, and are bendable with respect thereto on the score lines 17, 18, 19, and 20. Thus when the sides 5 and 6 are bent downwardly at right angles to the top 3, and the flaps 13, 14, 15 and 16 are bent inwardly at right angles to their respective sides, 5 and 6, the body part of the carton can be assembled in complete condition. This is done by bending the portions 9 and 10 upwardly to overlie the pairs of flaps 13—16, 14—15, and by securing the respective portions and pairs of flaps together by some means such as the staples 21, shown in Figures 1, 2, and 3. This results in the formation of the main part of the carton having a straight top with sides and ends extending downwardly at right angles with respect thereto, as shown in Figure 2.

Before passing from a consideration of the principal or main blank, it is important to note that, when in the flat, the same is substantially a rectangle with only small pieces removed therefrom, such being the triangular sections between the ends 9 and 10 and their adjacent pairs of flaps 14—16 and 14—15. Hence it is clear that the waste encountered in the making of this part of the container is quite small.

The bottom 2, shown in a blank form in Figure 4, is generally formed of the same material and of the same weight as that of the principal, or main, blank 1. This may be any suitable type of paperlike material, though faced kraft, corrugated board appears, at present, to be preferable. The bottom 2 has a center section 22 and side flaps 23 and 24, which are integral extensions of the center section 22, but are designed to be folded downward with respect thereto about the score lines 25 and 26. Obviously, then, the overall width of the center section 22 will be the distance between the score lines 25 and 26, plus the slight thickness of the laterally extending flaps 23 and 24.

From the Figure 4 showing it is apparent that the bottom 22 is somewhat narrower than the top 3. This is well illustrated by the extensions of the score lines 25 and 26 which are seen to lie within the score lines 7 and 8. The thickness of the flaps 23 and 24, when they are extended laterally, makes little difference in this regard.

The ends of the flaps 23 and 24 are shown as inclined at 27. This facilitates the application of the bottom to the body of the carton, since it

eliminates any bunching at the corners and makes the application of the bottom to the body portion somewhat easier than would be the case were the flaps extended the full length of the bottom. Also, these inclined portions add a little to the air space initially provided by the fact that the bottom 2 is not only made narrower than the top 3, but is also somewhat shorter than the same.

Like the principal blank 1 there is very little waste in the formation of the bottom blank 2. The only waste is the small V-shaped sections which would come out between adjacent bottom blanks. Thus by making the body and bottom portions separate and blanking large numbers of them out of large pieces of the material used, the waste is kept to the barest minimum, for the gaps between adjacent blanks are practically eliminated.

The carton of my invention is intended to be filled while mounted in upside down position. Thus the blank 1 first has its sides 5 and 6 turned down, its end flaps 12, 14, 15, and 16 turned inward and its ends 9 and 10 turned downward to overlie said flaps. The said ends and flaps are then secured together by some means such as the staples 21. This stapling, as can be seen from Figures 1 and 3, is effected at a position far enough down on the ends to be below the part of the carton which will receive the commodity. Thus the likelihood of the staples protruding on the inside of the carton and even slightly bruising the contents thereof is eliminated.

Once the principal blank has been converted into the main part of the carton, with sides and ends extending at right angles to the top, as shown in Figure 2, it is ready to be filled. Assuming then, that it is to be filled with apples, the packer knowing the particular size of apples available and, accordingly, the pattern which will be needed to pack the proper weight of apples of that size in the carton, proceeds with the filling.

The filled main part of the carton is next ready for closing by application of the bottom. Thus the bottom with its side flaps 23 and 24 extending upwardly, as seen in upside down position of Figure 2, is applied over the apples and one side flap 23 is stitched, or stapled, to the adjacent side 5 of the main part of the carton. Here it is important to note that not only is the stapling 28 below the bottom 22, and thus out of contact with the portion of the carton containing the fruit, but also that the bottom edge of the flap 23 is substantially aligned with the bottom edge of the side 5. Furthermore, the workers applying the bottoms to the cartons of my invention are not strictly limited to any exact longitudinal positioning for the staples. This freedom makes for speed in the application of the bottoms and results in a substantial saving of labor.

To complete the closing, the sides 5 and 6 of the carton are drawn in at their lower portions, as shown at 29 and 30 in Figures 1 and 3. This inward draw exerts just the right pressure on the apples to hold them sufficiently tight to prevent their movement and injuring one another in transit. Should there be insufficient space within the carton to accommodate the apples when the sides are so contracted, this is taken care of by the apples themselves effecting an outward bulge to the top 3 to the extent necessary. This manner of accommodation has another important aspect, for it enables the bottoms of the cartons to be located in the same

vertical position within the main part of the carton, regardless of variations in size of the apples packed. Thus when the carton of my invention is employed there can be no question regarding the quantity of the contents, such as would arise were the bottoms located in a variety of positions over a number of cartons.

With the sides pulled in at 29 and 30 and the tops bulged to the extent necessary for proper accommodation of the contents, the closing of the carton is completed by the stitching, or stapling, of the other bottom flap 24 to its adjacent side 6. This flap 24, like the flap 23, will have its bottom edge substantially aligned with the bottom edge of the side wall 6. Thus the packer is not burdened with the necessity of locating the bottom at varying, special, vertical positions within the carton. He merely locates it in the same position every time, and applies the staples 31 at suitable longitudinal positions in which, as already pointed out with respect to the staples 28, he has substantial latitude. Here again, he need not be concerned by the bruising of the fruit by the stapling action.

By comparing Figures 2 and 3 it can be seen that though the sides 5 and 6 are drawn in somewhat in the securing of the bottom, they are still not so far in as to be affected by the bulge of the top 3, when one carton is stacked upon the other. In fact, the bulge of the top 3 seats very nicely within the inside of the bottom of an overlying carton. Additional protection of the contents of the lower carton is provided by its top being received within the recess in the carton overlying it.

As will be understood by one skilled in the art, the flexibility of the type of material proposed for the manufacture of my cartons is sufficient that the width of the bottom need not be restricted to too exact limits. I have found that when the carton is of the two-pound size, having a top width of substantially six and one quarter inches and a top length of substantially nine inches, satisfactory results can be achieved by employing bottoms which are between one-quarter of an inch and one inch narrower than the said top of the carton. Hence the bottom width can run between five and one-quarter inches and six inches. Any greater variation than this in either direction fails to give satisfactory results.

Besides expediting the initial packing and saving carton material, the carton of my invention furnishes fool proof protection when stacked for shipment in larger cartons. It fully protects the contents from packer to consumer, gives assurance to the consumer that the desired quantity is present and eliminates labor and possible spoilage in re-packing. It also fully eliminates the necessity of the packer keeping a variety of similar sizes of cartons on hand since it accommodates itself to variations in sizes of fruits and vegetables in a crop. This accommodation, through flexibility of the carton walls, particularly the top thereof, still enables the display of the contents by the retailer through the means of the removable panel in the top, around the score line 4. My carton, accordingly, meets all the requirements of the trade as well as introducing a number of advances over prior practices.

It will be obvious to those skilled in the art that various modifications in detail can be made in the foregoing exemplification of my invention without departing from the spirit or scope of the invention. It is accordingly intended that the details of the foregoing example shall be considered in an illustrative rather than a limiting sense.

Having described my invention what I desire to claim and secure by Letters Patent is:

1. A two-piece paper package for the packaging of objects of non-uniform, though generally similar size comprising, a main portion including a top, side walls and ends and presenting an open mouth of substantially the same area as said top, and a separate bottom for reception in said open mouth, said bottom being formed with laterally downwardly extending flanges along its side edges and being of appreciably less width between its flanged sides than the normal distance across said open mouth before said bottom is secured in place therein, said bottom being seated in said open mouth in inverted manner, means securing said flanges of said bottom to said side walls at different positions along said side walls with said flanges and side walls in substantially face to face relation, the securing in place of said bottom serving to draw the lower portions of said side walls inwardly to place the objects within said package under sufficient compression to prevent movement and damage of the same while in transit.

2. A two-piece paper package for packaging of objects of non-uniform, though generally similar size comprising, a main portion including a top, side walls and ends and presenting an open mouth of substantially the same area as said top, and a separate bottom for reception in said open mouth, said bottom being formed with short laterally downwardly extending flanges along its side edges and being of appreciably less width between said flanged sides than the normal distance across said open mouth before said bottom is secured in place therein, said bottom being seated in said mouth in inverted manner, means for securing the bottom flanges to the lower portion of the inner side of said side walls in face to face relation therewith and with the free edges of the flanges substantially aligned with the bottom edges of the side walls, the securing in place of said bottom serving to draw the lower portions of said side walls inwardly to place the objects within said package under sufficient compression to prevent movement and damage of the same while in transit.

3. A two-piece paper package for the packaging of objects of non-uniform though generally similar size comprising, a main portion including a top, side walls, and ends, and presenting an open mouth initially of substantially the same area as said top, said top being flexible and expandable in response to the pressure of the objects within the package, and a separate bottom received in said open mouth, said bottom being laterally downwardly flanged along its side edges and being of appreciably less width than the normal distance across the open mouth of said main portion before said bottom is secured in place, securing means securing said flanges and side walls together in substantially face to face relation at spaced positions along said flanges, the lower portions of said side walls, when said bottom is secured in place, being drawn inwardly to place the objects within said package under sufficient compression to prevent movement and damage of the same while in transit.

4. A two-piece paper package containing objects of non-uniform though generally similar size comprising, a principal portion and a bottom portion, said principal portion being formed

out of a single blank of material and including a top, side and end walls extending downwardly from said top, and overlapping portions secured to said side and end walls to secure the same together, the free bottom edges of said side and end walls, when said walls are secured together, presenting an open mouth initially of substantially the same area as said top, said bottom including a base portion and flange portions extending downwardly along the sides of said base portion, the width of said bottom being from one-quarter of an inch to one inch less than the width of said open mouth prior to the securing of said bottom therein, said bottom being received within said open mouth with said flange portions extending downwardly and having their free edges substantially aligned with the free edges of said side walls, said flanges and side walls being stapled together in substantially face to face relation, and the lower portions of said side walls being drawn in to substantially the width of said bottom whereby the commodities filling the normal area of said principal portion will be placed under compression to prevent their movement and damage in transit.

5. A two-piece paper package containing objects of non-uniform, though generally similar size comprising, a principal portion and a bottom portion, said principal portion being formed out of a single blank of material and including a top, side walls and ends, said side walls and ends extending laterally downwardly with respect to said top, means to secure said side walls and ends together in said downwardly and laterally extended position, said means including overlapping portions of said side walls and ends and fastening elements extending through said overlapping portions, said fastening elements being located adjacent the bottom of said side walls and ends, said side walls and ends, before the bottom is secured in place, presenting an open mouth opposite to and of substantially the same area as said top, said bottom including a base portion and downwardly extending flange portions along the sides thereof, the width of said bottom across said flanges being from one-quarter inch to one inch less than the width of said mouth, said bottom being received within said open mouth with the free bottom edges of said side flanges aligned with the free bottom edges of said side walls, said side flanges abutting against the inner sides of said side walls and being tightly secured thereto at spaced positions therealong, the lower portions of said side walls being drawn in to substantially the width of said bottom whereby the commodities within the normal area of said principal portion will be placed under compression to prevent their movement and damage in transit.

6. A two piece paper package for the packaging of objects of non-uniform, though generally similar size comprising, a main portion including a top, side walls and ends and presenting an open mouth of substantially the same area as said top, and a separate bottom for reception in said open mouth, said bottom being formed with laterally downwardly extending portions along its side edges and being of appreciably less width between said downwardly extending portions than the normal distance across said open mouth before said bottom is secured in place therein, said bottom being seated in said open mouth in inverted manner, means securing said downwardly extending portions of said bottom to said side walls at different positions along said side walls with said downwardly extending portions and side walls in

substantially face to face relation, the securing in place of said bottom serving to draw the lower portions of said side walls inwardly.

7. A paper package for the packaging of objects of non-uniform, though generally similar size comprising, a main portion including a top, side walls and ends and presenting an open mouth of substantially the same area as said top, and a bottom for reception in said open mouth, said bottom being formed with laterally downwardly extending flanges along its side edges and being of appreciably less width between its flanged sides than the normal distance across said open mouth before said bottom is secured in place therein, said bottom being seated in said open mouth in inverted manner, with said flanges extending downwardly therefrom, means securing said flanges and said side walls together at different positions along said side walls and with said flanges and said side walls in substantially face to face relation, the securing in place of said bottom serving to draw the lower portions of said side walls inwardly to place the objects within said package under sufficient compression to prevent movement and damage of the same while in transit.

8. A two-piece paper package for the packaging of objects of non-uniform though generally similar size comprising, a substantially rectangular container having a main portion including a top, side walls and ends, and, prior to the filling of said main portion, presenting an open mouth of substantially the same area as said top, said top being flexible and expandable in response to the pressure of the objects within the package, and a separate bottom received in said open mouth, said bottom being laterally downwardly flanged along its side edges and being of appreciably less width between the flanges than the normal width of the top of said main portion, securing means securing said flanges and side walls together in substantially face to face relation at spaced positions along said flanges, the lower portions of said side walls, when said bottom is secured in place, being drawn inwardly to place the objects within said package under sufficient compression to prevent movement and damage of the same while in transit.

9. Paper container components consisting of a main unit including a rectangular inner portion adapted to form a top, and side and end wall portions bordering said rectangular top portion, said side and end wall portions being adapted to be folded down with respect to said top to form an enclosure with an open mouth opposite said top of substantially the same area as the area of said top, two of said wall portions along opposite borders of said top having end flap portions adapted to be folded to overlap the other two wall portions; and a separate bottom closure unit including an inner rectangular closing portion, and flange portions bordering two opposite sides of said closing portion, said flange portions adapted to be folded down with respect to said closing portion to form wall attachment flanges paralleling opposite wall portions of said main unit, the distance between said flanges being appreciably less than the width of the open mouth of said main unit when said main unit is formed into an enclosure.

10. A two-piece paper package for the packaging of objects of non-uniform though generally similar size comprising, a substantially rectangular container having a main portion including a substantially rectangular top, side walls extend-

ing downwardly from the borders of said top and, prior to the filling of said main portion, said side walls, at the ends thereof opposite said top, presenting an open mouth of substantially the same area as said top, said top being flexible and expandable in response to the pressure of the objects in the package, and a separate bottom received in said open mouth, said bottom being laterally downwardly flanged along a pair of its opposite edges and the distance between said flanges being appreciably less than the normal distance across said open mouth before said bottom is secured in place therein, securing means securing said flanges and an opposed pair of said side walls together in substantially face to face relation at spaced positions along said flanges, the lower portions of said opposed side walls, when said bottom is secured in place, being drawn inwardly to place the objects within said package

under sufficient compression to prevent movement and damage of the same while in transit.

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