Nov. 23, 1943. C. BARBIERI 2,334,805

CONTAINER

Filed July 3, 1940

Fig. 1.

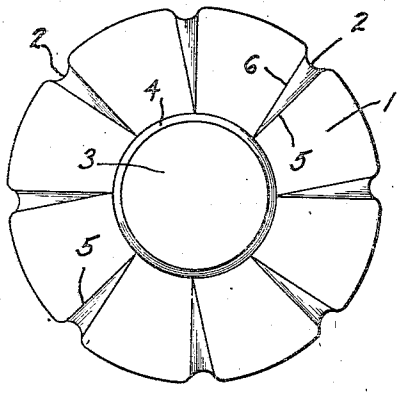


Fig. 2.

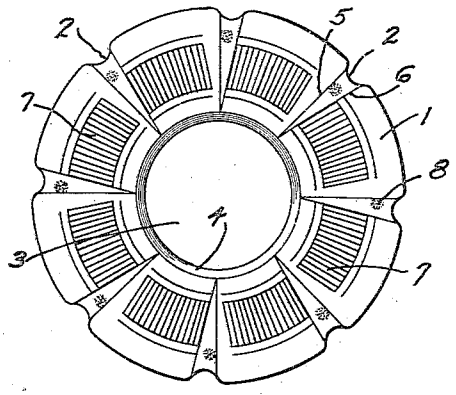


Fig. 3.

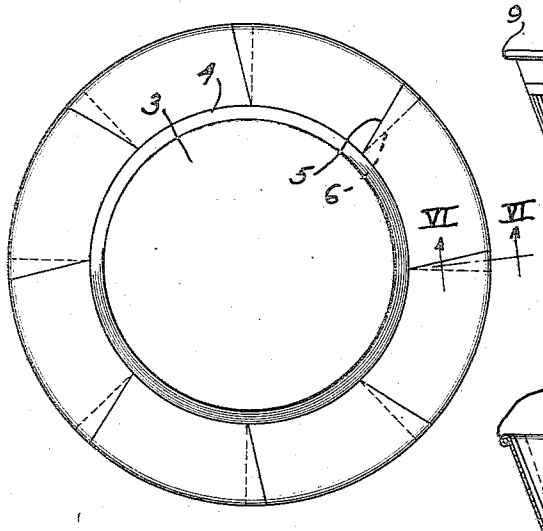


Fig. 4.

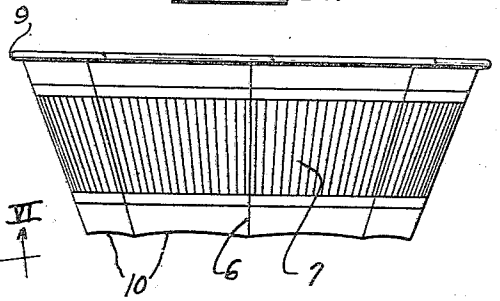


Fig. 5.

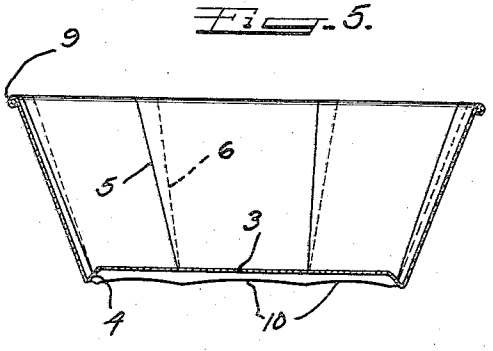
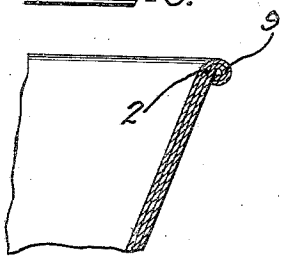


Fig. 6.



Inventor

CESARE BARBIERI.

By Charles G. Wills Atty.

Patented Nov. 23, 1943

2,334,805

UNITED STATES PATENT OFFICE

2,334,805

CONTAINER

Cesare Barbieri, New York, N. Y., assignor to Dixie-Vortex Company, Chicago, Ill., a corporation of Delaware

Application July 3, 1940, Serial No. 343,831

5 Claims. (Cl. 229—5.5)

This invention relates to improvements in a container, and more particularly to a container of an economical type usually discarded after a single usage, the container being highly desirable for use as a dessert or sundae dish, ramekin, or the like, although the invention will have other uses and purposes as will be apparent to one skilled in the art.

I am aware that in the past many and various types of flat-bottom, self-sustaining dessert and sundae dishes and the like have been provided, some made of only one piece of material and others formed of initially separate bottom and body blanks. Usually, in the case of a one-piece dish, the side wall of the dish was formed with pleats, thus providing three thicknesses of material at the mouth end of the vessel and, from a practical standpoint, prohibiting provision of a rolled rim bead at the mouth end. Frequently, such formerly known vessels were objectionably expensive to manufacture, owing to the heavier paper necessary in order to make the vessel self-sustaining and suitable for the purpose intended. It was also necessary to compensate in some manner for the variation in contour at the mouth edge of the resultant vessel, especially if the pleats were not immediately adjacent to each other, since forming the pleats and folding up portions of the blank to form the side wall of the container would result in a series of individual arcs around the mouth edge of the container, rather than a smooth, even edge.

With the foregoing in mind, it is an important object of the present invention to provide a one-piece, flat-bottom container having a pleated side wall with a downwardly rolled rim bead at the mouth end of the container.

Another object of the invention is to provide a novel blank for making a flat-bottom container wherein the blank is so arranged that when pleated only two thicknesses of material will appear at that portion of the mouth edge of the container which is ultimately rolled down to form a smooth rim bead.

A further object of the invention is the provision of a single-piece, flat-bottom container made from a blank so arranged that it is not necessary to pay any attention to the variation in contour at the mouth end of the vessel resulting from the formation of pleats in the side wall, because such variation will be rather slight and taken up or rendered invisible in the formation of a rolled rim bead at the mouth end of the vessel.

It is also an object of the invention to provide a new and novel one-piece, flat-bottom paper vessel so constructed that a lighter weight stock may be used for the same strength and stability formerly secured only with a heavier stock.

A further object of this invention resides in the provision of a pleated paper vessel in which strengthening material is incorporated in the pleats to add to the strength, rigidity and stability of the entire vessel.

A still further object of this invention is the provision of a paper vessel having a pleated side wall, and printing or other decorative matter may be disposed on the vessel in a new and novel way to provide a uniform and symmetrical appearance when the vessel is completed.

The new and novel method of making a flat-bottom paper vessel having pleated side walls, resulting in a simply constructed, economical, and strong vessel, apparent herein is set forth and claimed in my copending application entitled "Method of making a container," filed July 23, 1941, Serial No. 403,621.

While some of the more salient features, characteristics and advantages of the present invention have been above pointed out, others will become apparent from the following disclosures, taken in conjunction with the accompanying drawing, in which:

Figure 1 is a top plan view of a blank embodying principles of the present invention, from which blank a one-piece, flat-bottom paper vessel having a pleated side wall may be made;

Figure 2 is a view of the opposite side of the blank seen in Figure 1;

Figure 3 is an enlarged plan view looking into a completed vessel made from the blank of Figures 1 and 2;

Figure 4 is a side elevational view of the vessel of Figure 3;

Figure 5 is a transverse vertical sectional view through the vessel; and

Figure 6 is an enlarged, fragmentary vertical sectional view through one of the pleats taken substantially as indicated by the line VI—VI of Figure 3.

As shown on the drawing:

In the illustrated embodiment of the present invention, there is seen in Figures 1 and 2 a single-piece blank 1 from which the ultimate vessel is formed. This blank may be paper of the type used in paper drinking cups, paper sundae dishes, and vessels or containers of similar character, although with the features of the present invention the stock need not be as heavy or thick as has been used heretofore to provide a vessel of equivalent strength and stability. The blank 1

as initially cut from a sheet of stock is substantially flat and generally circular or disk-like in contour, except for a number, eight in the illustrated instance, of spaced curvate notches or recesses 2 extending inwardly from the true circumference of the blank.

After the blank is cut from the stock sheet or contemporaneously therewith, if desired, it is diepressed or otherwise shaped to provide an elevated central bottom portion 3 surrounded by an inclined wall 4, which construction adds to the stability of the resultant vessel. Contemporaneously with the shaping of the bottom portion, the blank is scored from one side to provide a plurality of radially extending creases 5 which extend from the outer edge of the wall 4 to the edge of the blank proper adjacent the side of a notch 2. Creases or score-lines 6 are also provided on the opposite side of the blank, and these lines 6 are disposed at an angle to the score-lines 5 to intersect the lines 5 at the outer edge of the wall 4, extending from the opposite side of a notch 2. Accordingly, between a pair of adjacent lines 5 and 6, a V-shaped sector is provided which forms half of an ultimate pleat on the side wall of the container.

On the opposite side of the blank, as seen in Figure 2, spaced patches of printing 7 may be provided. It will be seen that one end of each patch comes flush with a score-line 6, while the other end of the patch is spaced away from a score-line 5 a distance sufficient to provide for the overlap of the sector between the lines 5 and 6 so that when the pleats are formed, the spaced patches of printing are united into a complete continuous pattern, as seen in Figure 4. On the outer side of each of the sectors between adjacent lines 5 and 6, a spot of adhesive 8 is preferably provided. This spot of adhesive is preferably disposed nearer the radially extending score-line 5 than the angularly disposed score-line 6, as seen clearly in Figure 2. When the pleat is formed by overlapping the sector on an adjacent portion of the blank, the spot of adhesive unites two layers of the pleat on the outside of the cup, thereby effectively maintaining the shape of the completed vessel and materially increasing the strength of the completed vessel.

The side wall of the vessel is formed by folding each of the V-shaped sectors defined by adjacent score-lines 5 and 6 on both these score-lines so as to provide a triple-thickness overlap of the blank. If the exposed folds inside the vessel are to appear on a slant, as seen in Figures 3 and 5, the fold is made so that the radially extending score-line 5 appears on the inside of the vessel. On the other hand, if the exposed folds on the outside of the blank are to appear on a slant, the fold will be made so that the radially extending score-line 5 will appear on the outside of the vessel. In either instance, the score-line 6 which is initially at an angle to the score-line 5 will appear straight in the resulting vessel, whether on the outside or the inside. The forming of the series of pleats around the side wall of the vessel results in elevating this portion of the blank with respect to the bottom and providing a sloping wall for the vessel. The paper taken up in the formation of each pleat obviously reduces the original circumference of the blank, and therefore after the formation of the pleats, the mouth of the partially formed vessel will not be a smooth surface, but will in fact be in the nature of a series of elongated scallops between pleats. No attention need be given the formation of these scallops, because the scalloped deviation from a true circular mouth is not too great to be entirely taken up in the formation of a downwardly rolled rim bead 9 around the mouth of the vessel. The rim bead is of such size as to give a smooth, completely circular, and finished appearance to the mouth of the container, and the deviation from a true circumference caused by the formation of the pleats will not be noticed in the rim bead.

The rim bead 9 may be provided by any suitable means, such as beading mechanism. However, beading mechanism as used at present provides an unsatisfactory bead in the event there are three thicknesses of material at one point and a single thickness of material thereadjacent, the sudden variation in thickness between one and three thicknesses being too great for the formation of an even-appearing bead. This, of course, is exaggerated, as in the present instance when there are eight pleats causing sixteen such variations in thickness around the container wall. However, with the present invention, a rim bead may be formed which is substantially perfect in appearance. This is due to the fact that the notches 2 provided at the outer end of each V-shaped segment going to form a part of a pleat results in only two thicknesses of material occurring at the outer or top portion of each triple-ply pleat. Therefore, the variation with the present invention, instead of being one-to-three, is only one-to-two in that portion of the side wall where the rim bead 9 is formed. The variation of one-to-two is not beyond the capabilities of rim-beading mechanism, and a smooth, rolled-down rim bead results.

With the formation of the series of pleats and the consequent elevating of the sloping side wall of the container, the bottom portion of the container at the outer edge of the wall 4 does not remain perfectly round but is forced to assume a shape in the nature of a series of connecting arcs 10 as seen in Figures 4 and 5. The formation of these arcs 10, rather than detract, actually enhance the appearance of the vessel.

The arcs 10 have another function, namely, to provide additional strength and rigidity to the wall. Therefore, with the rolled-down rim bead 9, the spots of adhesive 8 in the pleats, and the series of arcs 10 at the bottom of the container all contributing to the rigidity and stability of the vessel, the container may be formed of a lighter stock than usual and have equivalent strength.

The method of making the container is believed to be sufficiently apparent from the foregoing to dispense with further specific description thereof.

From the foregoing, it is apparent that I have provided a novel container and a novel method of making the same, the practice of the present invention resulting in a very economical, simply constructed, highly durable one-piece flat-bottom pleated container having a rolled rim at the mouth end. It will also be appreciated that the container may be made of lighter material than customary and still have equivalent strength and rigidity.

It will, of course, be understood that if so desired the completed container may be coated with paraffin or some similar preserving or stiffening material, depending upon the use for which the container is intended.

I am aware that numerous details of construc-

tion may be varied through a wide range without departing from the principles of this invention, and it is therefore not the purpose to limit the patent granted hereon otherwise than is necessitated by the scope of the appended claims.

I claim as my invention:

1. A one-piece flat-bottom paper container having a bottom including an elevated central portion outlined by a sloping wall, a series of upwardly bowed adjoining arcs defining the outer edge of said sloping wall, an upwardly sloping side wall having a plurality of pleats therein with overlapping portions of each pleat held together by adhesive therebetween, a portion of the stock of the side wall being cut away adjacent the top thereof in the region of each pleat to reduce the thickness of the upper part of a pleat from triple-ply to double-ply, and a downwardly rolled rim bead at the upper end of the side wall.

2. A blank for a paper container, embodying a disc-like piece of stock having a plurality of substantially radially extending score lines to provide ultimate pleats in the formation of a walled container and having a plurality of spaced inwardly arcuate uniform notches leading in from the circumferential edge and arranged to be substantially coextensive with the top edge of the ultimately formed pleats.

3. A blank for a paper container with a pleated side wall including a disc-like piece of stock scored to provide a plurality of pairs of inwardly converging lines where folds occur in the ultimate formation of pleats, and said blank having spaced uniform arcuate notches, each of said notches extending between said fold lines and being substantially coextensive therebetween.

4. A paper container having a wall provided with a plurality of pleats therein with overlapping portions of each pleat held together, one of the layers of the pleats being cut away to substantially the width of the finished pleats at the top thereof to reduce the thickness of the upper part of each pleat to provide only two thicknesses of material at each pleat adjacent the mouth of the container and said container having a rolled rim bead at the upper end of the side wall thereof, said bead including only substantially that portion of the pleats having reduced thickness provided by said cut away portions.

5. A paper container having a wall provided with a plurality of pleats therein with overlapping portions of each pleat held together, one of the layers of the pleats being cut away to substantially the width of the finished pleats at the top thereof to reduce the thickness of the upper part of each pleat, and said container having a rolled rim bead at the upper end of the side wall thereof, said bead including only substantially that portion of the pleats having reduced thickness produced by said cut away portions.

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