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C. BARBIERI

2,367,749

METHOD OF MAKING CONTAINERS

Original Filed July 3, 1940

Fig. -1.

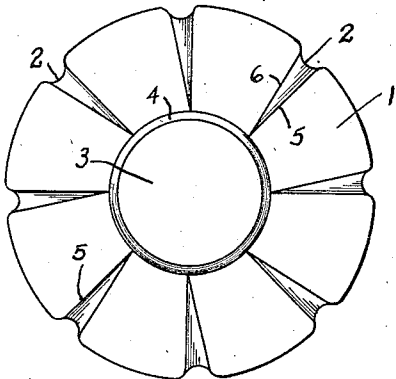


Fig. -2.

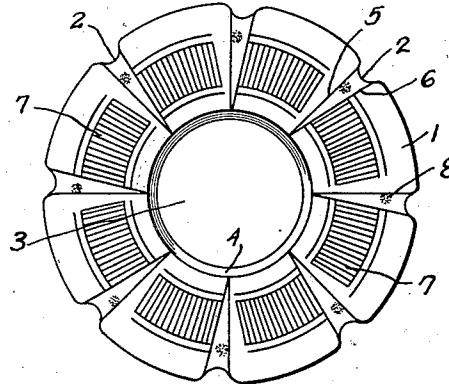


Fig. -3.

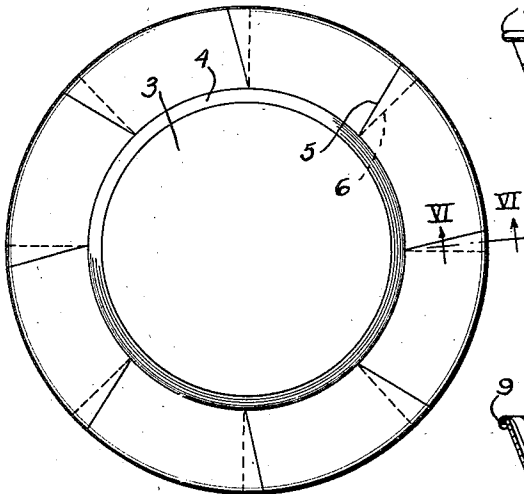


Fig. -4.

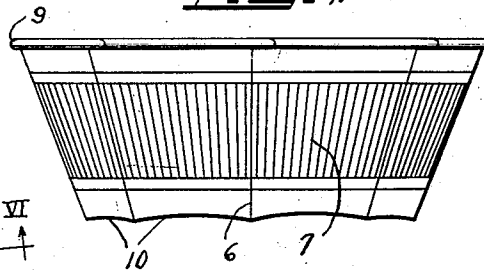


Fig. -5.

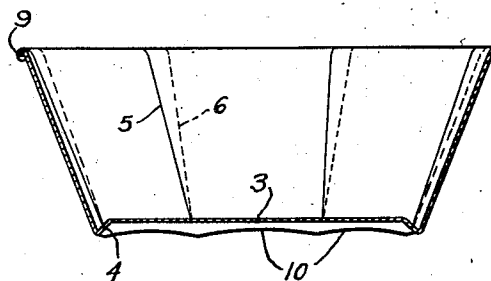
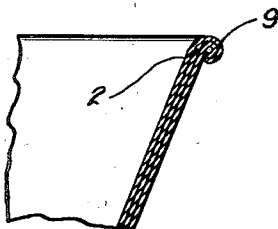


Fig. -6.



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UNITED STATES PATENT OFFICE

2,367,749

METHOD OF MAKING CONTAINERS

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ware

Original application July 3, 1940, Serial No.
343,831. Divided and this application July 23,
1941, Serial No. 403,621

4 Claims. (Cl. 93—60)

This invention relates to improvements in a method of making a container, and more particularly to a container of an economical type usually discarded after a single usage, and where economy is an important factor in the production of the container, such container being highly desirable for use as a dessert or sundae dish, ramekin, and similar purposes.

This application is a division of my application entitled "Container and method of making the same," filed July 3, 1940, Serial No. 343,831, now Patent No. 2,334,805, Nov. 23, 1943.

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 purposes 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 an economical method of making 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 the provision of a novel method of making a pleated container, including the steps of notching the blank, scoring the container adjacent the notches, and then folding the container in a manner to reduce the number of plies of material at the mouth end of the container from the number ordinarily resulting from the formation of pleats.

Still another feature of the invention is the provision of a novel method of making a container having a pleated side wall, including the steps of applying spaced dabs of adhesive to the blank,

and then forming the blank with pleats so that the pleats are effectively held in position by the dabs of adhesive.

It is also a feature of this invention to provide a novel method of making a container having a pleated side wall, which includes the steps of providing the original blank with spaced patches of printing, scoring the blank between the patches of printing, and then forming a pleated side wall so that the spaced patches of printing, in effect, provide the appearance of a continuous arrangement of printing.

Still another object of the invention is the provision of a novel method of making a container in such a manner that a lighter weight of stock than is usual in such containers may be used and still provide a container having ample strength and rigidity.

It is also an important object of this invention to provide a new and novel method of making a flat-bottom paper vessel having pleated side walls, resulting in a simply constructed, economical and strong vessel.

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:

The present method will be described more or less in conjunction with the article resulting from the practice of the method, so that a clear understanding of the invention will be had.

With reference now to the drawing, 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 depressed 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 at 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 triply pleat. Therefore, the variation with the present invention, instead of being one to three, is only one to two in that portion of the sidewall 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 detracting from, actually enhances 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.

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

It will, of course, be understood that after the container has been made in the manner hereinabove described, the completed container may be coated with paraffin or some similar preserv-

ing or stiffening material, depending upon the use for which the container is intended.

I am aware that numerous details of construction may be varied through a wide range while practicing the method steps disclosed herein and without departing from the principles of the present 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. The method of making a paper container, including the steps of cutting a circular blank and providing inwardly extending symmetrical and uniform notches at spaced intervals around the circumference of the blank, scoring the blank to provide pairs of fold lines with a notch included between the lines of each pair for the ultimate formation of pleats in the container side wall, pleating the blank by folding each portion between the fold lines over an adjacent unnotched portion of the blank to form a triple-ply pleat for each pair of score lines with the respective notch reducing the pleat to double-ply near the mouth of the container, and rolling the margin of the blank at the mouth end of the container into a rim bead not exceeding the depth of said notches.

2. The method of making a container which comprises cutting a disc-like blank with spaced inwardly extending notches around the periphery thereof, scoring the blank to provide pairs of fold lines converging inwardly from adjacent each notch, the divergent outer ends of the fold lines of each pair being spaced apart about the width of the adjacent notch, said pairs of fold lines having convergent inner ends terminating around a

central bottom forming portion of the blank, pleating to fold the blank on the fold lines of each pair to position the blank portion between the fold lines of each pair over the next adjacent unnotched blank portion and thus turn up a side wall for the bottom portion of the blank, said side wall having three ply folds extending up to the notches and two ply folds beyond the notches, and rolling a rim bead around the edge of the side wall to a depth not exceeding the depth of the notches.

3. The method of making a container which comprises forming a blank with a plurality of inwardly projecting notches spaced around the periphery thereof, folding portions of the blank lying inwardly of the notches and having outer ends not wider than the notches over the next adjacent unnotched portions of the blank to provide three ply folds up to the notches and two ply folds at the notches, and rolling a rim bead on the thus folded blank to a depth not exceeding the depth of the notches whereby only two plies of each three ply fold will be rolled.

4. The method of making a container which comprises forming a blank with a plurality of inwardly projecting notches in the outer edge thereof, folding portions of the blank lying between lines extending inwardly from the ends of the notches over the next adjacent unnotched portions of the blank to provide three ply folds up to the notches and two ply folds at the notches, and rolling a rim bead on the thus folded blank to a depth not exceeding the depth of the notches whereby only two plies of each three ply fold will be rolled.

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