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DOUBLE-WALL PAPER CONTAINER

Original Filed March 17, 1944

Fig. 1.

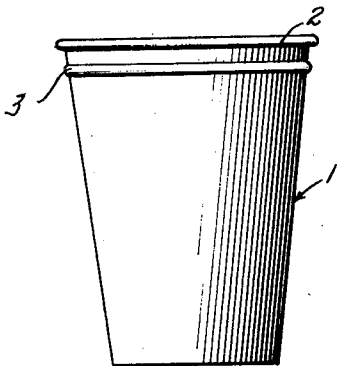


Fig. 4.

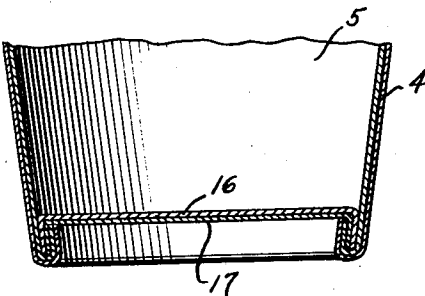


Fig. 2.

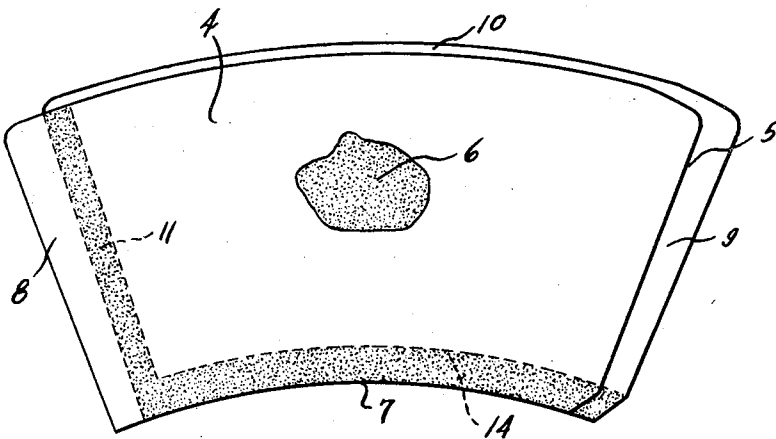
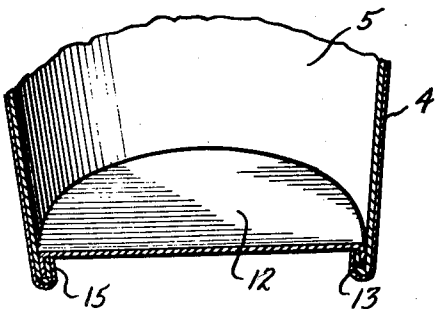


Fig. 3.



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## UNITED STATES PATENT OFFICE

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## DOUBLE-WALL PAPER CONTAINER

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Original application March 17, 1944, Serial No.  
526,874. Divided and this application Febru-  
ary 27, 1947, Serial No. 731,222

3 Claims. (Cl. 229-5.5)

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This invention relates to improvements in a double-wall paper container of the general character of a flat bottomed paper drinking cup, the invention being highly desirable for use in connection with the serving or carrying of hot or cold liquid or substances, such for example as coffee, ice cream, cottage cheese, etc., although the invention will have other uses and purposes as will be apparent to one skilled in the art.

This application is a division of my copending application entitled "Container," filed March 17, 1944, Serial No. 526,874, issued in Letters Patent No. 2,416,813, March 4, 1947.

More particularly, the invention relates to a container having a multi-thickness wall and a bottom construction that adds strength to the container so as to enable the carrying of hot or cold substances for a comparatively long time without material weakening of the container and without objectionable or unexpected change in the temperature of the substance carried, even though the container may be left standing upon a table with the full weight of the contents on the bottom of the container.

In the past, many and various types of containers for hot or cold substances have been developed, but in the main such containers have proved objectionable in that if the substance were left in the container, especially a hot substance, for a considerable length of time objectionable weakening of the container occurred so that it was difficult to ultimately consume the contents directly from the container when desired. In many instances this weakening occurred adjacent the bottom of the container enhancing the possibility of leakage through the bottom of the container and in some cases rendering the wall adjacent the container bottom somewhat flabby.

With that in mind, it is an important object of the instant invention to provide a container in the nature of a flat bottom paper cup of substantially truncated conical shape, having a multi-thickness wall, and a special bottom construction of a materially stronger character than containers of this type heretofore known.

Another object of the invention is the provision of a container having a multi-thickness wall and a multi-thickness bottom.

It is also an object of this invention to provide a flat bottom paper container having a multi-thickness wall and incorporating a flanged bottom member, with the lower margin of the multi-thickness wall turned around the flange of the bottom member to give added strength to the container.

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In the manufacture of a paper container, economy is an essential, both as to the amount of material used and the manner in which the material is formed into a container. Accordingly, it is an object of the instant invention to provide a composite blank for a multi-thickness container which blank may be made up of initially separate pieces, each too small to provide the same type of container body of single thickness, and the composite blank may be formed into container shape on the same type of machines that are now in use for forming single-walled containers.

A further object of the invention resides in the provision of a composite blank for forming a double-walled container body, which blank is made up of initially separate pieces secured together in face-to-face relationship and so disposed relatively to each other as to provide a heavy double bottom margin while permitting the rolling of a rim bead around the mouth end of the container from single thickness stock.

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

Figure 1 is a side elevational view of a container embodying principles of the instant invention;

Figure 2 is a front view of a composite blank from which the container of Fig. 1 might be made, also embodying the principles of this invention, and illustrated with the parts broken away to better show structure therebeneath;

Figure 3 is an enlarged fragmentary projection view shown in vertical section of the lower portion of the container of Fig. 1; and

Figure 4 is a fragmentary vertical sectional view of the same form of container, utilizing the same composite body blank, but illustrating the use of a double thickness bottom.

As shown on the drawings:

In that illustrated embodiment of this invention seen in Figs. 1, 2 and 3, there is shown a truncated conical paper container generally indicated by numeral 1 (Fig. 1). This container has a rim bead 2 formed on the mouth which not only reinforces that end of the container, but also renders it easy to drink from the container if so desired. Below the rim bead there is another external circumscribing bead 3 which provides a groove on the inside of the container for the reception of a cap or cover pressed into the open

end of the container to seal in the contents until it is desired to remove them.

The body portion of the container 1 is of double thickness, and this body portion is made from a composite blank seen more clearly in Fig. 2. The composite blank comprises two initially separate pieces 4 and 5 which are secured together in face-to-face relationship by adhesive 6 disposed therebetween or equivalent means. Preferably, the pieces 4 and 5 are undersized to the extent that neither of these pieces is of sufficient size to form a similar container having a single thickness wall, but by arranging the pieces substantially in echelon as seen in Fig. 2, the composite blank is of sufficient overall size to provide a container having a double thickness wall.

The pieces are preferably so relatively arranged that their bottom edges are flush or coincidental as indicated at 7, and the pieces are of substantially the same lateral width and laterally offset with respect to each other so that on one side a marginal portion 8 of the piece 4 projects beyond the piece 5, and at the other side a marginal portion 9 of the piece 5 projects beyond the piece 4. It will also be noted that the piece 5 is higher than the piece 4 and accordingly projects thereabove to the extent of a marginal portion 10 which is ultimately rolled into the aforesaid rim bead 2. In manufacture, it is much more feasible to roll a rim bead from single thickness stock than to utilize double thickness stock, and the bead when rolled from the margin 10 is of ample strength.

The composite blank may be shaped into the cup body by means of known cup forming machinery of the same character that handles single piece blanks. The composite blank is treated as though it were merely a single thickness blank. When rolled into cup body formation, the piece 4 will be the external piece and the piece 5 will be the internal piece. Two different joints in the cup wall may be provided, either a lapped joint or a butt joint. If a lap joint is provided a stripe of adhesive 11 is preferably applied along a marginal portion of the inner piece 5 to secure overlapping parts together and provide a side seam in the finish container wall. It is deemed preferable, however, to provide a butt joint or seam because the blank pieces may be of less size with such a joint and thus results in a further saving of paper. In that event, the stripe of adhesive 11 is omitted and the adhesive applied on the lower face of the piece 4 may be relied upon to secure the pieces together. In that event, the margin 8 will overlap the margin 9 so that the side edges of each piece are in abutment with each other, thus leaving the seam only of double thickness the same as the rest of the container wall.

Obviously, only a single winding of the composite blank is necessary to form the body portion of the container. The blank is rolled around a bottom member 12 (Fig. 3) having a depending flange 13. A stripe of adhesive 14 is provided along the lower margin of the composite blank and then this double thickness lower margin is rolled around the depending flange 13 of the bottom member as indicated at 15 in Fig. 3, the adhesive 14 securing the double margin to the flange 13. In this manner, an exceptionally strong bottom construction for the container is provided.

From the showing in Fig. 3 it will be noted that the two blank pieces need not be of the same thickness nor need they be of the same paper

stock. One of these pieces may be a different color than the other, and the outside piece may be decorated in any desirable manner as by printing or other decorative embellishment.

Where a still stronger bottom construction is desired, a double thickness bottom may be employed as illustrated in Fig. 4. In this instance, there are two bottom members 16 and 17 each having a depending flange, and the bottom member 17 is nested within the bottom member 16. The double thickness lower margin of the composite blank is then rolled around both flanges of the two bottom members and secured to the flanges by means of the adhesive 14. With this construction, it is not necessary to glue or otherwise secure the two bottom members 16 and 17 together, but obviously they may be so secured together if desired.

From the foregoing, it is apparent that I have provided a novel paper container having a multi-thickness wall made from a composite blank that effects a decided saving in paper. The container may be constructed on any suitable machinery of the character used in making single thickness paper containers and the actual forming operations are just as economical as though a single thickness paper container were being made. It will be further noted that the container set forth herein has an exceptionally strong and substantial bottom construction affording a solid base for the seating of the container, especially if hot or cold substances are to be maintained in the container for a considerable length of time. That bottom construction may be further strengthened by the utilization of a double thickness bottom, if so desired.

It will, of course, be understood that various details of construction 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 necessitated by the scope of the appended claims.

I claim as my invention:

1. A flat-bottom paper cup having a double-ply wall, including a flanged bottom member, and a body part comprising a composite blank made up of a pair of initially separate pieces secured together before forming and coinciding at the lower edges with a side margin of one extending beyond the other and the opposite side and upper margins of the other extending beyond the first, the lower margins of both pieces being turned into a bottom fold around the flange on the bottom member.

2. A composite blank for forming a flat bottom conically shaped paper cup having a double ply wall, comprising a pair of initially separate pieces secured together in overlapped relationship, each of said pieces having arcuate top and bottom edges and side edges converging toward said bottom edges, said pieces being of substantially equal width and being positioned in said overlapped relationship with their bottom edges coinciding so as to present a composite blank having a single-thickness margin along all but the bottom edge thereof, and said blank being rollable into a cup in the same manner and by the same means as a single-piece blank.

3. A composite blank for forming a paper container having a double-ply wall, comprising a pair of initially separate pieces each of which is shorter than required for a single wall container of the same size and one of which is higher than the other, each of said pieces having an

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arcuate top edge and arcuate bottom edge with side edges converging toward said bottom edge, said pieces being of substantially equal width and being secured together face to face with the bottom edges thereof flush with each other and with the lateral converging edges in echelon relationship, leaving a single thickness margin at the top and converging edges of the composite blank, and said blank being rollable into a cup in the same manner and by the same means as a single-piece blank.

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