

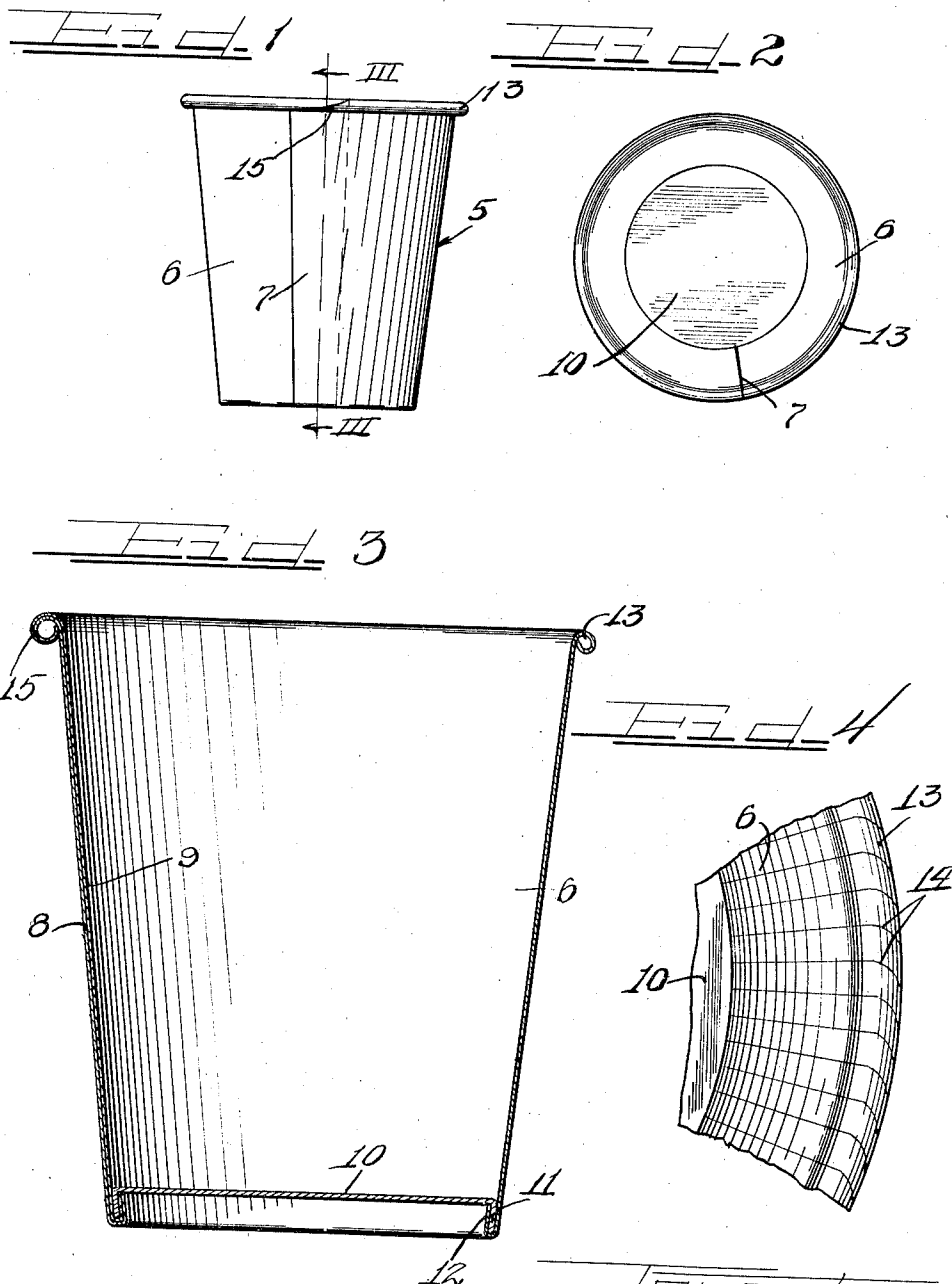
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CONTAINER

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CONTAINER

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613,373. Divided and this application Novem-
ber 26, 1934, Serial No. 754,715

8 Claims. (Cl. 229—5.5)

This invention relates to improvements in containers, and more particularly to a container made from paper or similar flexible sheet material, the invention being highly desirable for use in connection with paper drinking cups of the character commonly disposed of after a single usage, although the invention will have other uses and purposes as will be apparent to one skilled in the art.

Difficulty has been experienced in providing containers, such as drinking cups, from paper and similar sheet material of a desired strength without using material of a character that is prohibitively expensive. Frequently, containers made out of relatively light material begin to sag after containing a liquid for a relatively short length of time, and just as frequently the rim of such containers is radially cracked by pressure of the hands of the user upon the side walls of the container. Especially is the foregoing true in connection with containers heretofore known of the so-called "flat bottom" type; in other words, containers that will stand alone, with or without contents. In addition, in the past the side walls of containers of relatively light material have been objectionably susceptible to both horizontal and vertical pressure, and the containers as a whole were not desirably strong.

With the foregoing in mind, it is an object of the present invention to provide a container of the general character of a paper drinking cup made from a commonly known paper stock, but formed in a manner to greatly enhance the strength of the resultant container with no added parts to the construction.

Another object of this invention is the provision of a container of flexible sheet material having a stronger body portion than containers heretofore constructed of the same material.

It is also an object of this invention to provide a container of flexible sheet material including a peripheral or circumferential rim bead around the mouth thereof, the construction of the bead being such as to render the same less likely to crack under lateral pressure upon the sides of the cup than beads of this type heretofore known.

It is also an object of this invention to provide a container of the general character of a paper drinking cup in which the stock of the body portion of the container is maintained under stretching tension to enhance the strength of the container.

Still another object of this invention is the provision of a container of the general type of

a paper drinking cup having a rolled rim bead around the mouth thereof, the rim bead being spiraled peripherally of the container mouth.

Another object of this invention is to provide a container capable of being made of relatively light sheet material, and of such construction that it is provided with a stiffened rim bead and body portion, and the container as a whole is very substantial and durable.

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.

The invention includes these and other features of construction hereinafter described, and shown in a preferred form in the drawing, as more particularly indicated by the claims.

On the drawing:

Figure 1 is an elevational view of a container embodying principles of the present invention.

Figure 2 is a top plan view of the structure shown in Figure 1.

Figure 3 is an enlarged vertical sectional view taken substantially as indicated by the line III—III of Figure 1.

Figure 4 is a greatly enlarged fragmentary plan view similar to Figure 2.

As shown on the drawing:

At the outset, it may be best to mention that the present invention may be made on suitable cup or container making machinery, such, for example, as that set forth and claimed in my co-pending application for Letters Patent entitled "Cup machine", filed May 25, 1932, Serial No. 613,373. This invention might also be manufactured by a method or process such as set forth and claimed in my other co-pending application entitled "Process of making containers", filed April 26, 1934, Serial No. 722,442.

This application is a division of my aforesaid co-pending application Serial No. 613,373.

In the illustrated embodiment of the present invention, there is seen a container 5 which, in this instance, is shown in the form of a so-called "flat bottom" drinking cup, a drinking cup that is capable of standing by itself with or without contents. It, of course, will be understood that the present invention may, however, be formed in other shapes if so desired. Also, in this instance, the container 5 is preferably made of paper of the character commonly used in paper drinking cups, and with this particular invention a relatively thin grade of paper may be used and yet the resultant cup or container will be more durable, strong and rigid than containers

heretofore made of the same material but embodying a different construction.

The container 5 includes a body portion 6 which is initially formed from a substantially flat blank of material. The blank is first folded or rolled into container form in a shape substantially that of an open-ended cylinder, with tapering side walls. This cylinder has a side seam 7 formed of overlapped marginal portions 8 and 9 (Figure 3) secured together in any desired manner, such as by a suitable adhesive.

One of the major features of the present invention resides in the construction of the body portion. As explained more fully in my aforesaid co-pending application Serial No. 722,442, the stock of the body portion is held under stretching or circumferential tension during the formation of substantially the entire cup, and at least until after the adhesive uniting the overlapped margins 8 and 9 has had ample opportunity to set. After the setting of the adhesive, the stock of the blank cannot relax and assume its original degree of no tension because the adhesive maintains the stock of the body portion of the container under tension substantially permanently or until the container is destroyed. By holding the stock of the body portion of the container under tension, the resultant container is rendered very much stronger and more durable than if the stock was used in its ordinary state of relaxation or unstretched.

As seen best in Figure 3, a bottom member 10 is provided for the container 5, and this bottom member is provided with a depending annular flange 11 thereon. The lower or smaller end of the body portion 6 is folded inwardly, as at 12, to embrace the flange 11. This fold in the structure is preferably ironed and adhesive may be used between the portion 12 of the body and the flange 11 of the bottom. The bottom is placed in the container while the stock of the body portion is maintained under tension, and after the bottom has been ironed into position this bottom or base construction also aids in preventing the stock of the body portion from assuming its normal degree of relaxation.

At the upper end of the container, the margin of the body portion 6, this being the long lateral margin of the initial blank, is rolled downwardly to form a rim bead 13. This rim bead, as more fully explained in my aforesaid co-pending applications, is spun upon the cup while the cup or container itself is relatively stationary and while the bead forming mechanism is also rotated at a relatively high speed. The forming of the rim bead results in a peripheral or circumferential spiraling of the stock in the bead. This spiraling is indicated in Figure 4, wherein the lines 14, which are not visible to the naked eye in the finished container, indicate elements in the container to illustrate how the stock fibres are spiraled upon the formation of the bead.

It will also be noted with reference to Figure 1 that one of the overlapped margins, in this instance the inner margin 9 of the seam 7 is cut or skived along an arcuate line 15 so that this margin will not be completely turned under with the other marginal portion when the bead is formed, thereby giving the bead the appearance of uniform thickness in the finished container.

The bead 13 is preferably formed while the body portion 6 of the container is positively maintained under tension, and while the adhesive securing the overlapped margins 8 and 9 of the body portion may be sufficient to maintain the stock of the body portion permanently under

tension, the bottom construction and the bead construction both aid in maintaining this tension, at least by preventing a relaxation of the stock of the body portion adjacent the ends of the body portion.

From the foregoing, it will be apparent that I have provided a container which is stronger, more durable and capable of withstanding a greater pressure than other containers embodying different construction and made of the same material. It is obvious that the particular construction utilized in the present invention necessitates no increase in the amount of material, nor does it necessitate the use of more expensive material, but the construction is such as to provide more inherent durability in the container. The peculiar construction of the bead 13 eliminates to a great extent the objectionable radial or lateral cracking of the bead due to pressure upon the sides of the container by the hands of a user. The bottom construction is rigid. The body construction is such that, being under tension constantly, it is more capable of withstanding both vertical and lateral pressure. The container as a whole will hold a liquid substance satisfactorily over a great length of time. In addition, it will be noted that the container may be extremely economically manufactured and a plurality of containers may readily be placed in stacked relationship.

I am aware that many changes may be made and numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I, therefore, do not purpose limiting the patent granted hereon otherwise than is necessitated by the prior art.

I claim as my invention:

1. As an article of manufacture, a paper container comprising a body portion formed from an initially substantially flat blank and having meeting portions thereof adhesively secured together, the upper margin of said blank being turned down to form a rim bead the stock of which is spiraled and offset circumferentially relatively to the stock of the container body.

2. As an article of manufacture, a paper container comprising a body portion formed from an initially substantially flat blank, said container having an open end, a peripherally spirally curved rim bead around said open end, a bottom portion securely engaged with the other end of said body portion, the stock of said body portion being held under a stretching tension in excess of the inherent tension resulting from the shaping of the blank to strengthen the container.

3. As an article of manufacture, a container formed of flexible sheet material and having an open end, the material of the body portion adjacent said end being curled downwardly to form a rim bead with the stock thereof spiraled peripherally relatively to the remainder of the stock of the body portion, and the body portion of said container being held under a stretching tension to enhance the stiffness of said container.

4. As an article of manufacture, a cup made from a paper blank having an arcuate outer edge for defining the mouth of the cup and side edges adapted to be overlapped and glued together, the blank defining the wall of the cup being under circumferential tension by reason of its being compressed and stretched circumferentially prior to the gluing of its edges to rigidify the wall, and a bottom member secured to said wall, the rim of said cup at its open end comprising

a peripherally spiraled bead formed on said arcuate edge for also enhancing the rigidity of the cup.

5 5. As an article of manufacture, a paper container having a body part formed of an initially flat blank stretched under a positive tension while being formed into container shape, said body part also having overlapped marginal portions secured together to maintain said tension.

10 6. As an article of manufacture, a paper container having a body part formed of an initially flat blank subjected to a stretching tension prior to being formed into container shape, said body part also having overlapped marginal portions
15 secured together to maintain said tension, and a rim bead formed adjacent an end of said body part, the stock of said bead being spiraled peripherally relatively to the stock of the body part.

7. As an article of manufacture, a container having a body portion of flexible sheet material subjected to a stretching tension in excess of that resulting from the mere shaping of a blank into container form, a peripherally spiraled rim bead on one end of said body portion, and a bottom member secured to said body portion at the other end thereof, said bead and the securement of said bottom member maintaining said tension in said body portion. 5 10

8. As an article of manufacture, a flat bottom cup including a body part made of flexible sheet material, said body part being stretched under a positive tension during its formation into cup shape, said body part having overlapped marginal portions secured together to maintain said tension, and a bottom member engaged with the body part to complete the cup. 15

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