

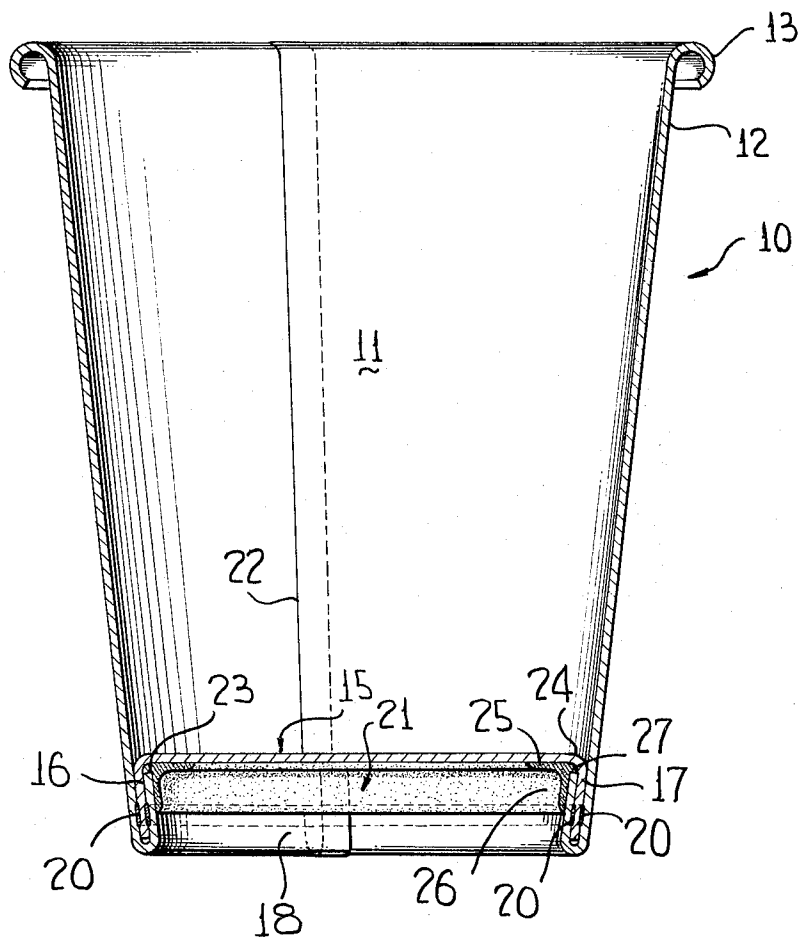
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PAPER CUP WITH OUTSIDE CAULKING ON BOTTOM

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PAPER CUP WITH OUTSIDE CAULKING  
ON BOTTOM

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Original application Sept. 13, 1961, Ser. No. 137,782, now Patent No. 3,202,065, dated Aug. 24, 1965. Divided and this application Nov. 13, 1964, Ser. No. 410,867

1 Claim. (Cl. 229—1.5)

This application constitutes a division of my copending commonly assigned application for U.S. Letters Patent, Serial No. 137,782, filed September 13, 1961, and now Patent No. 3,202,065.

This invention relates in general to new and useful improvements in paper cups, and more particularly relates to the outside caulking of a paper cup to prevent leakage in the bottom seam thereof.

In the manufacture of paper cups, cups that leak through the bottom seams are unacceptable to the trade. Consequently, many cups may be scrapped even though they appear satisfactory. It is difficult to provide cups that definitely will not leak at the bottom seam because of the character of the adhesive employed in the formation of the seam during the conventional manufacture of paper cups. The adhesive so applied to paper cups is relied upon to leakproof the seams, as well as bond them, but, frequently the adhesive shrinks during the setting or curing stage causing the adhesive to break away from the surfaces of the paper bottom and cup body and thereby permit liquid contained in the cup to leak through the bottom seam.

Accordingly, it is a primary object of this invention to provide a novel seal for the bottom seams of paper cups so that the liquid contained in a cup cannot leak through the bottom seams thereof.

A further object of this invention is to provide a novel paper cup having a seam between a bottom wall and a cup body, and the bottom seam being leak-proof due to the presence of caulking compound in a position at which maximum sealing is attained and where the caulking compound is not readily discernible, thus effecting both an efficient and esthetic cup construction.

A further object of this invention is to provide a novel paper cup of the type including a bottom construction and a cup body, the bottom construction including a bottom wall having a depending peripheral flange, the cup body having a reversely turned bottom edge disposed inwardly of the bottom flange and holding the bottom flange against the interior of the cup body, means for adhesively bonding the bottom flange to the cup body, and the cup body bottom edge, and caulking compound sealing the cup body to the cup bottom with the caulking compound being disposed in a corner defined by the cup bottom and the cup body bottom edge.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claim and the single view illustrated in the accompanying drawing, in which the figure is a vertical sectional view of a paper cup constructed in accordance with this invention, and shows the novel bottom construction thereof with caulking compound applied thereto.

Referring to the drawing in detail, it will be seen that there is illustrated in the figure a paper cup generally referred to by the numeral 10. The cup 10 includes the usual cup body 11 terminating at an upper end portion 12 in a curl 13. A lower end portion 14 of the cup body 11 terminates in a cup bottom 15 being provided with a depending peripheral flange 16.

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The cup bottom 15 is telescoped within the lower end portion 14 of the cup body 11 with the peripheral flange 16 in abutting engagement with an inner surface 17 of the cup body 11. A terminal lower edge 18 of the cup body 11 is reversely turned and is disposed inwardly of the peripheral flange 16 of the cup bottom 15. The flange 16 is secured to both the inturned terminal edge 18 and to the inner surface 17 of the cup body 11 by means of a suitable adhesive 20 in a customary manner.

The construction of the cup 10 illustrated in the figure is accomplished in the conventional manner with one difference. The adhesive 20 may be varied, as is deemed advisable, to provide for a more secure mechanical joint between the cup bottom 15 and the cup body 11 without emphasis upon the forming of a complete seal in the seam between the cup bottom 15 and the cup body 11. However, after the cup 10 has been formed in the customary manner and normally, but not necessarily, before it is initially packed, caulking compound 21 is applied to the cup bottom 15 to assure the sealing of the seam between the cup bottom 15 and the cup body 11. The caulking compound 21, as is clearly shown in the figure, is deposited in the corner of the bottom at the intersection of the inturned terminal edge 18 and the cup bottom 15 to assure against any leakage at this point. Thus, any liquid disposed within the cup 10 that should seep pass the seam between the cup bottom 15 and the cup body 11, will be stopped and effectively sealed by means of the caulking compound 21. Also, the caulking compound 21 will seal the extreme end of the lap seam 22 of the cup body 11, as is clearly illustrated in the drawing.

It is to be understood that it is not necessary for the caulking compound 21 to dry or set rapidly upon the application thereof to the cup because its primary purpose is not adhesion. Consequently, the caulking compound 21 may be formulated to remain pliable or plastic for a long period so that there will be little or no tendency for the caulking compound to contract to permit the passage of liquid. Therefore, while the adhesive 20 used in forming the bottom seam of the paper cup 10 may shrink upon setting or driving and thus tend to produce leaks, the caulking compound 21 will remain pliable and seal the paper cup where it would otherwise leak due to the shrinking of the adhesive.

It is preferred that the caulking compound 21 consists of a suitable binder filled with an inert material. Examples of such caulking compound are water based emulsions such as those used in the formation of adhesives presently used in the bottom seams and may include water based emulsions of modified polymers, which may be acrylics, acetates, vinyls, etc. These water based emulsions are filled with inert materials, such as clays, chaulks, silicates, rubber, etc.

The cup 10 is preferably fabricated in the manner disclosed in Patent No. 3,202,065, i.e., by directing the caulking compound 21 onto the cup bottom 15 while the cup 10 is inverted and is rotating. As a result, the caulking compound 21 is directed by means of centrifugal force into the interstices of the seam between the bottom wall 15 and the cup body 10 in the manner generally shown in the figure to assure a satisfactory sealing of the bottom seam. The centrifugal force is particularly effective in directing the caulking compound 21 into an annular area between a free edge 23 of the terminal edge 18 and a radius portion 24 joining the cup body 15 to the peripheral flange 16. The caulking compound 21 is thus disposed in a generally L-shaped configuration in transverse section having leg portions 25, 26 and a portion 27 between the free edge 23 and the radius portion 24. The portion 27 of the caulking compound 21 is thicker than

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either of the leg portions 25, 26 and is respectively parallel and normal to these leg portions.

From the foregoing, it will be seen that novel and advantageous provision has been made for carrying out the desired end. However, attention is again directed to the fact that variations may be made in the example cup disclosed herein without departing from the spirit and scope of the invention, as defined in the appended claim.

I claim:

A cup comprising a tubular body, a bottom received in said body in internal telescopic relationship at an end portion thereof, said bottom including a bottom wall generally normal to the cup body axis and a depending peripheral flange joined by an integral radius portion to said bottom wall, said body edge portion having a reversely turned terminal portion disposed inwardly of said bottom flange, said terminal portion terminating in a free edge, said free edge terminating adjacent and spaced from said bottom wall radius portion, means adhesively bonding said bottom flange to both said cup body end portion and said terminal portion, and an annular band of caulking compound sealing said cup body to said cup bottom, said band of caulking compound being disposed in a corner of said cup defined by said terminal portion and

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said bottom wall, said caulking compound band being generally L-shaped in transverse cross section and having first and second caulking compound leg portions overlying portions of the respective bottom wall and terminal flange portion, and a portion of said caulking compound band in a plane common to said first leg portion being disposed in said space whereby said corner is wholly sealed by said band of caulking compound.

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