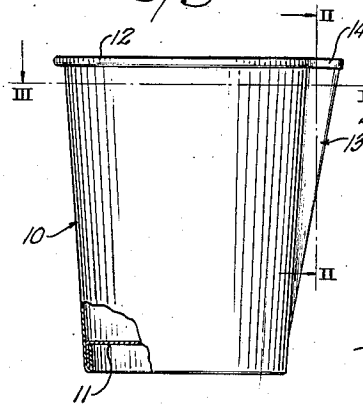
Jan. 11, 1949. K. C. HAMILTON 2,459,073

PAPER CUP HAVING A POURING LIP EXTENDING OUTWARDLY FROM SIDEWALL

Filed Nov. 4, 1944

Fig. 1.



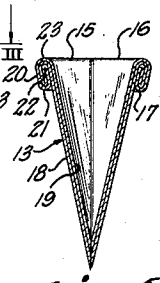


Fig. 2.

Fig. 3.

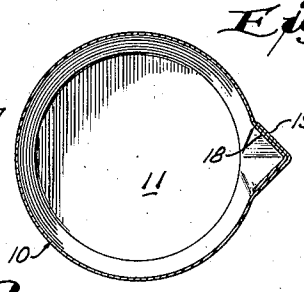


Fig. 4.

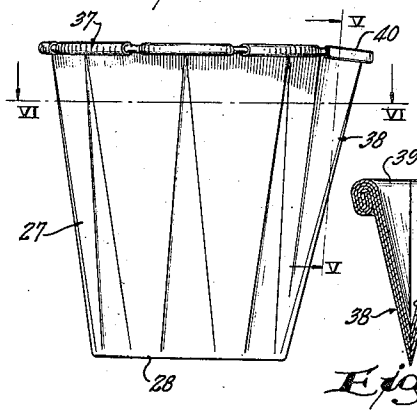


Fig. 5.

Fig. 6.

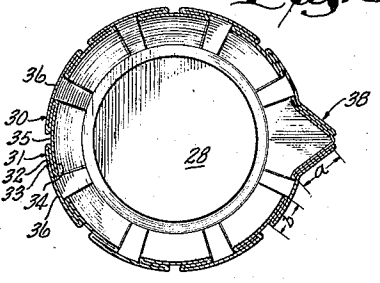
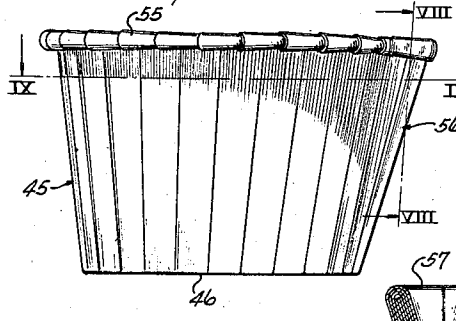


Fig. 7.



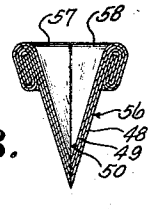
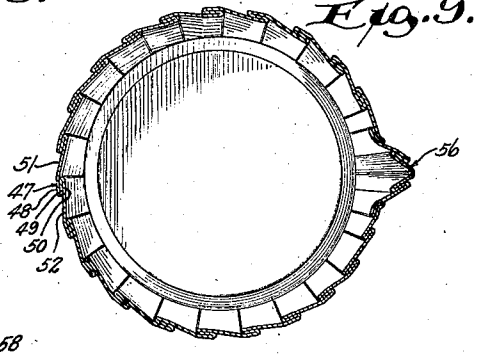


Fig. 8.

Fig. 9.



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PAPER CUP HAVING A POURING LIP EXTENDING OUTWARDLY FROM SIDE WALL

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6 Claims. (Cl. 229—4.5)

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This invention relates to improvements in containers made of fibrous material such as paper, and particularly to paper cups formed with a lip or spout for pouring liquids or comminuted solids therefrom.

It is therefore one object of the present invention to provide a container made of material, such as paper, which is formed with a pouring lip or spout in the side wall of the container.

Another object of the invention is to provide a paper cup having a beaded rim, with a pouring lip formed in the side wall of the cup in such manner as to secure a plurality of thicknesses of material in the lip portion of the bead.

Another object of the invention is to provide a paper cup with a pouring lip, the cup being so formed as to provide a plurality of thicknesses of material at least in the portions of the cup side wall forming the lip.

Another object of the invention is to provide a paper cup with a pouring lip formed therein, preferably as the last step of the cup-forming process, and merely by utilizing another position of known cup-forming machines for pressing the lips in the cups, thus providing a structure which will serve a multiplicity of purposes without materially increasing the cost thereof and with retention of all of the prior advantages thereof such as nesting for shipping, and all of the prior uses of the cups.

Objects and advantages other than those above set forth will be apparent from the following description when read in connection with the accompanying drawing, in which:

Fig. 1 is a side elevation of one embodiment of the present invention in a two piece cup with a single thickness jointed side wall;

Fig. 2 is a vertical cross section taken on the plane of the line II—II of Fig. 1;

Fig. 3 is a horizontal cross sectional view taken on the plane of the line III—III of Fig. 1;

Fig. 4 is a second embodiment of the invention shown in side elevation and illustrating a one piece cup having the side wall thereof formed as box plaits;

Fig. 5 is a vertical cross section taken on the plane of the line V—V of Fig. 4;

Fig. 6 is a horizontal cross sectional view taken on the plane of line VI—VI of Fig. 4;

Fig. 7 is a side elevational view of a third embodiment of the present invention showing a one piece type of cup in which the side wall thereof is pleated;

Fig. 8 is a vertical cross sectional view taken on the plane of the line VIII—VIII of Fig. 7; and

Fig. 9 is a horizontal sectional view taken on the line IX—IX of Fig. 7.

Referring to the drawing by reference numerals, the numeral 10 designates the side wall of

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a cup formed of a single thickness having the ends thereof joined in overlapping relation. The cup is shaped generally as a frustum of a hollow cone and the smaller end of the frustum is flanged inwardly to form a groove in which a flange of a separate piece is placed and fastened in liquid-tight relation to close such end of the frustum and thus form the bottom 11 of the cup, as is well known, such structure not being part of the present invention and accordingly not being further disclosed herein. The larger end of the frustum is open and the edge of the cup side wall 10 is folded or rolled outwardly to form a bead 12 of multiple thickness and of generally cylindrical shape which increases the circumferential or hoop strength of the open end of the cup structure and prevents cutting of the lips of the user on the edge of the paper. The cup 10, 11 is formed with a pouring lip or spout generally indicated at 13, which is formed by extending or forming the side wall 10 of the cup outwardly from the periphery of the major portion of the side wall in such manner as to define a space in conjunction with the continuation of such periphery, which is substantially triangular in cross section and which extends from closely adjacent the bottom of the cup through the bead 12 thereof and flares outwardly from the cup with a substantially constant change in size from the bottom end to the pouring end of the lip.

The bead portion 14 forming the pouring edges of the spout 13 is flattened or pressed from its former cylindrical shape to form double layers 15 and 16 of material which lie flat against each other in such manner that the fold of the material forms the actual rim of the lip and the edge 17 of the paper is pressed adjacent the outer surface of the cup side wall lip. Such flattening of the bead retains the lip in its substantially triangular shape and avoids the tendency of pressure on the lip to change the shape thereof. If desired, the edge 17 of the lip bead portion 16 may be kept in spaced relation with the outer surface of the walls of the lip 13 to provide a free edge from which drops of the liquid being poured may fall freely rather than adhering to the lip wall and running down the outside of the cup, as is usual with smooth-lipped pouring containers.

The pouring lip 13 is preferably but not necessarily formed in that portion of the side wall 10 at which the vertical edges of the wall are secured in liquid-tight, overlapping relation to form the joint in the cup side wall. Overlapping is then carried to such extent as to provide double thicknesses 18 and 19 of material for the entire extent of the lip and particularly at the beaded end thereof. With such overlapping construction of the lip, it will be seen (Fig. 2) that

the lip portions 15 and 16 of the bead are formed with four layers 20, 21, 22, and 23, which accordingly increase the resistance of the lip to deformation.

In the second embodiment of the invention illustrated in Figs. 4, 5, and 6, a cup of the box-plait type and of frusto-conical form is shown in which the side wall of the cup, generally designated at 27, and the bottom of the cup 28 are formed from a single piece of material. The separate plaits in the side wall are formed by folding the material back on itself, so that each plait has two portions 30 and 31 with triple wall thicknesses 32, 33, and 34, and the two triple thickness wall portions are spaced from each other by a single thickness wall portion 35. The several pleats are also spaced from each other by a single wall thickness, indicated at 36. The upper edge of the cup side wall 27 is folded or rolled outwardly to form a multiple thickness and generally cylindrical bead, designated 37, to strengthen the cup against distortion and to turn the edge of the material out of possible contact with the lips of the user.

Cup 27, 28 is formed with a pouring lip, generally designated 38, and formed from or in the cup side wall 27 and extending laterally therefrom. The lip 38 is again formed to define a space which is substantially triangular in cross sectional area and which extends from adjacent the bottom 28 of the cup through the bead 37 and increases in size from a point adjacent the bottom of the cup to the upper edge of the bead portions 39 and 40 forming the edge of the lip. The bead portions 39 and 40 are flattened and are formed by double the thickness of each of the plait wall portions 30 and 31, thus providing six thicknesses of material for each side of the lip bead portions. It will be seen that the apex of the triangular lip space falls between two of the multiple thickness plait portions, thus utilizing either the single thickness plait wall 35, and hence only a double thickness bead portion, or the single thickness 36 of the cup wall, to form the apex of the pouring lip.

The third embodiment of the invention shown in Figs. 7, 8 and 9 involves the use of a cup of the pleated type formed from a single piece of material providing a side wall, generally designated 45, and a bottom 46 integral therewith, the cup being again substantially frusto-conical in shape. The side walls are formed with pleats, generally designated 47, and formed by folding the material on itself to provide three thicknesses of material 48, 49, and 50 extending from practically a point adjacent the cup bottom 46 and increasing in width taken in a horizontal direction toward the upper edge of the cup side wall. The pleats are spaced from each other by single thickness side wall portions 51 and 52 of substantial width at the bottom of the cup and becoming narrower as the upper edge of the cup is approached. The pleats 47 are of such width at the upper edge of the cup as to be in edge-to-edge relation, or even in overlapping relation, and are folded or rolled outwardly to form a bead, generally designated 55, which is substantially of triple thicknesses of material throughout its entire periphery.

The cup 45, 46 is formed with a pouring lip, generally designated 56, and also extending or being formed outwardly from the cup side wall 45 to define a substantially triangular space varying in size from practically a point adjacent the bottom 46 of the cup to a substantial size at the bead 55. The bead portions 57 and 58, forming the edge or rim of the lip, are again flattened. Due to the pleated construction of the cup side wall, the apex of the bead falls on one of the single thickness wall portions 50, and one of the pleats 47 falls on each of the sides of the lip so at least a portion of the lip bead is formed by double the three thicknesses of the pleats themselves which provides a rim of substantial rigidity.

In manufacturing the cups, the lips are preferably formed by a pressing operation as the last step in manufacture before the cups are placed in shipping packages in nested relation. If it is desired to have the lip of the first embodiment of the invention fall on the overlapping portions of the cup side wall, it is necessary to place the cups in a predetermined position in the dies either by the use of an indexing device, such as is well known, or by manual positioning of the cups. Such placement, however, is not necessary with the second or third embodiment of the invention to secure the construction of lip described.

Although but a few embodiments of the present invention have been illustrated and described, it will be apparent to those skilled in the art that various changes and modifications may be made therein without departing from the spirit of the invention or from the scope of the appended claims.

I claim:

1. In a container made of fibrous material and having a bottom and a substantially conical side wall, a lip formed in the container side wall and extending therefrom for pouring the container contents therefrom, the lip extending from substantially the bottom of the container through the rim thereof and defining a space substantially triangular in cross sectional area in conjunction with the continuation of the line of the container side wall, the space increasing in area from the end of the lip adjacent the container bottom to the rim of the container.

2. In a container made of fibrous material and having bottom and side wall portions with the edge of the side wall portion formed as a substantially cylindrical bead, a pouring lip formed in the container side wall and extending laterally therefrom, the lip portion of the bead being flattened.

3. In a container made of fibrous material and having bottom and side wall portions with the edge of the side wall portion rolled back on itself to form a substantially cylindrical bead, a pouring lip formed in the container side wall and extending therefrom, the lip portions of the bead being flattened to provide a plurality of thicknesses of material extending adjacent each other.

4. In a container made of fibrous material and having bottom and side wall portions with the edge of the side wall portion rolled back on itself to form a substantially cylindrical bead, a pouring lip formed in the container side wall and extending therefrom, the lip portions of the bead being flattened to provide a plurality of thicknesses of material extending in spaced relation to and adjacent the side wall.

5. A paper cup having a unitary side wall formed as box plaits, the plaits having portions of multiple thickness spaced by a portion of single thickness, a lip substantially triangular in cross sectional area extending from the cup side wall and formed by one of the plaits, the multi-

ple thickness portions of the plait severally forming the side walls of the lip and the single thickness portion of the plait forming the lip apex.

6. A paper cup comprising a unitary side wall pleated to provide a plurality of thicknesses of material about substantially the entire rim of the cup rolled over to form a bead, and a lip extending from the cup side wall and formed by a plurality of adjacent pleats, the lip bead portions being flattened to provide a plurality of thicknesses of paper about the entire rim of the lip.

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