

TITLE: FOLDING COLLAPSIBLE, DISPOSABLE PAPER CUP

This invention relates to paper cups, and relates more particularly to a folding collapsible, disposable paper cup.

5 Disposable paper cups are commonly used in public places to prevent contamination. Figure 1 shows a cylindrical paper cup according to the prior art. This structure of paper cup is not collapsible, therefore it is not convenient for carrying. Figure 2 shows another
10 structure of paper cup which is made by cutting a paper into two linked side panels, and then the border areas of the side panels are adhered together. This structure of paper cup is arranged in a flat manner convenient for carrying. However, because the bottom of this structure of paper cup
15 has a linear configuration, the paper cup cannot be placed on the table or a flat surface when containing water.

This invention relates to paper cups, and relates more particularly to a folding collapsible, disposable paper cup.

20 It is one aspect of the present invention to provide

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a paper cup which is can be collapsed into a flat manner convenient for carrying. It is another object of the present invention to provide a paper cup which can stand without support. According to the present invention, the

5 paper cup is made by folding and sealing a rectangular paper board into shape, the rectangular paper board having a top side and a bottom side, wherein the rectangular paper board comprises two symmetrical side panels adapted for the periphery of the paper cup, a base panel

10 longitudinally connected between the side panels and adapted for the bottom of the paper cup, two longitudinal folding lines along two opposite long sides across the length of the paper board, a first transverse folding line and a second transverse folding line respectively disposed

15 across the width of the paper board between the base panel and the side panels, a third transverse folding line disposed in the middle of the base panel between the transverse folding line and the second transverse folding line across the width of the paper board, two curved

20 folding lines symmetrically disposed at the base panel at

two opposite sides of the third transverse folding line and respectively connected between two connecting points between the transverse folding line and the longitudinal folding lines, two symmetrical pairs of first adhesion
5 border areas at the top side of the paper board within the side panels beyond the longitudinal folding lines respectively covered with a layer of adhesive for adhesion, a second adhesion border area at the top side of the paper board within the base panel outside the curved
10 folding lines and covered with a layer of adhesive, and two third adhesion border areas at the bottom side of the paper board within the base panel outside the longitudinal folding lines.

Other objects of the invention will in part be
15 obvious and in part hereinafter pointed out.

The invention accordingly consists of features of constructions and method, combination of elements, arrangement of parts and steps of the method which will be exemplified in the constructions and method hereinafter
20 disclosed, the scope of the application of which will be

indicated in the claims following.

FIG. 1 shows a disposable paper cup according to the prior art;

FIG. 2 another structure of disposable paper cup
5 according to the present invention;

FIG. 3 is an extended out view of a paper board adapted for folding up into a paper cup according to the present invention;

FIG. 4 shows the border areas of the base panel and
10 side panels of the paper board of Figure 3 respectively coated with a layer of adhesive;

FIG. 5 shows the border areas of the back side of the base panel of the paper board of Figure 3 respectively coated with a layer of adhesive;

15 FIG. 6 shows the base panel of the paper board of Figure 5 folded up;

FIG. 7 shows the side panels of the paper board of Figure 6 folded up;

FIG. 8 is an elevational view of a paper cup made
20 from the paper board of Figure 7;

FIG. 9 is a cutaway view of the paper cup of Figure 8;

FIG. 10 shows the paper cup of Figure 9 turned upside down;

5 FIG. 11 shows an alternative folding method of the present invention; and

FIG. 12 is an elevational view of a paper cup made from Figure 11.

For the purpose of promoting an understanding of the
10 principles of the invention, reference will now be made to the embodiment illustrated in the drawings. Specific language will be used to describe same. It will, nevertheless, be understood that no limitation of the scope of the invention is thereby intended, such
15 alterations and further modifications in the illustrated device, and such further applications of the principles of the invention as illustrated herein being contemplated as would normally occur to one skilled in the art to which the invention relates.

20 Referring to Figure 3, a folding collapsible,

disposable paper cup in accordance with the present invention is made by folding and sealing a rectangular paper board 1 into shape. The paper board 1 comprises two symmetrical side panels 11, 12, a base panel 13 between the
5 side panels 11, 12, two longitudinal folding lines 14, 15 along two opposite long sides across the length of the paper board 1, a first transverse folding line 134 and a second transverse folding line 135 respectively disposed across the width of the paper board 1 between the base panel 13 and
10 the side panels 11, 12, a third transverse folding line 131 disposed in the middle of the base panel 13 between the first transverse folding line 134 and the second transverse folding line 135 across the width of the paper board 1, and two curved folding lines 132, 133
15 symmetrically disposed at the base panel 13 at two opposite sides of the third transverse folding line 131 and connected between the two connecting points between the transverse folding line 131 and the longitudinal folding lines 14, 15. The curved folding lines 132, 133
20 can have any of a variety of shapes, for example smoothly

arched shape, so that the curved folding lines 132, 133 define a 90 degree contained angle at each end and, the distance between the centers of the curved folding lines 132, 133 is equal to the diameter of the bottom of the
5 cup.

Referring to Figures from 4 to 8, the border areas 16 of the side panels 11, 12 outside the longitudinal folding lines 14, 15 and the border area 17 of the base panel 13 outside the curved folding lines 132, 133 are coated with a
10 layer of adhesive (see Figure 4), then the border areas 18 of the back side of the base panel 13 outside the longitudinal folding lines 14, 15 are coated with a layer of adhesive (see Figure 5), and then the paper board 1 is backwardly folded up along the transverse folding line 131,
15 permitting the border areas 18 to be adhered together (see Figure 6), and then the side panels 11, 12 are forwardly folded up along the first transverse folding line 134 and the second transverse folding line 135, permitting the border areas 16 to be adhered together (see Figure 7). When
20 the adhesive is hardened, the cup is finished.

Referring to Figures 8, 9, and 10, when the side panels 11, 12 are stretched outwards to extend out the base panel 13, the side panels 11, 12 are smoothly curved, forming a cylindrical cup body. When the paper cup is stretched into
5 shape, the base panel 13 smoothly curves downwards, and defines with the side panels 11, 12 a bottom open chamber 19 (see Figure 9).

Referring to Figure 11, the center area of the base panel 13 between the curved folding lines 132, 133 are
10 depressed downwards, causing the base panel 13 to curve downwards, then the paper board 1 is folded up to let the border areas 16, 17, 18 to be adhered together. When the adhesive is hardened, a cylindrical paper cup is obtained, then the middle area of the third transverse folding line
15 131 is pushed upwards, permitting the paper cup to be collapsed into a flat status. When in use, the side panels 11, 12 are stretched outwards to extend out of the base panel 13.

Furthermore, the border areas 16 may be adhered
20 together by overlapping instead of abutting, so as obtain

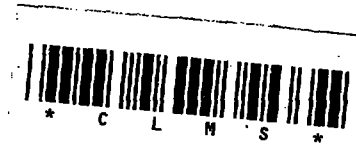
a paper cup having not projecting flange at the periphery.

Because the paper cup is arranged in a flat manner when not in use, it needs less storage space and is convenient for carrying. When in use, the paper cup can
5 be easily set into the operative condition simply by stretching the side panels outwards.

The present invention can be used in the manufacturing of instant food packages. For example, when instant coffee compound is filled into the paper cup, the
10 opening of the paper cup is sealed. When in use, the sealing strip of the paper cup is removed, and hot water is poured into the paper cup to mix with instant coffee compound for service. Because the paper cup has a bottom open chamber 19, less heat is transmitted to the hand.
15 The paper cup may be printed with advertising words, patterns, etc.

The invention is naturally not limited in any sense to the particular features specified in the forgoing or to the details of the particular embodiment which has been
20 chosen in order to illustrate the invention.

Consideration can be given to all kinds of variants of the particular embodiment which has been described by way of example and of its constituent elements without thereby departing from the scope of the invention. This invention
5 accordingly includes all the means constituting technical equivalents of the means described as well as their combinations.

**CLAIMS:**

1. A folding collapsible, disposable paper cup made by folding and sealing a rectangular paper board into shape, said rectangular paper board having a top side and a bottom side, wherein said rectangular paper board comprises two symmetrical side panels adapted for the periphery of the paper cup, a base panel longitudinally connected between said side panels and adapted for the bottom of the paper cup, two longitudinal folding lines along two opposite long sides across the length of the paper board, a first transverse folding line and a second transverse folding line respectively disposed across the width of the paper board between said base panel and said side panels, a third transverse folding line disposed in the middle of said base panel between said transverse folding line and said second transverse folding line across the width of the paper board, two curved folding lines symmetrically disposed at said base panel at two opposite sides of said third transverse folding line and respectively connected between two connecting points between said transverse folding line and said



longitudinal folding lines, two symmetrical pairs of first
adhesion border areas at the top side of the paper board
within said side panels beyond said longitudinal folding
lines respectively covered with a layer of adhesive for
5 adhesion, a second adhesion border area at the top side
of the paper board within said base panel outside said
curved folding lines and covered with a layer of adhesive,
and two third adhesion border areas at the bottom side of
the paper board within said base panel outside said
10 longitudinal folding lines.

2. The folding collapsible, disposable paper cup as
claimed in claim 1 wherein said curved folding lines are
smoothly arched, defining a 90° contained angle at each
end.

15 3. The folding collapsible, disposable paper cup as
claimed in claim 1 wherein said first adhesion border
areas are adhered together by abutting the first adhesion
border areas of one of said two symmetrical side panels
against the first adhesion border areas of the other
20 respectively.



4. The folding collapsible, disposable paper cup as claimed in claim 1 wherein said first adhesion border areas are adhered together by overlaying the first adhesion border areas of one of said two symmetrical side
5 panels with the first adhesion border areas of the other respectively.

5. The folding collapsible, disposable paper cup as claimed in claim 1 which is filled with an instant food compound and sealed with a sealing strip.