Disclosed is a lid for a drinking cup, and a nestable drinking cup. The lid has a top wall, an annular side wall depending from the top wall and an annular mounting portion at the bottom of the side wall for sealingly engaging a brim portion of the drinking cup. A first recessed portion is provided in the top wall. A drinking opening is located in the first recesses portion to enable drinking of a beverage from the drinking cup without removal of the lid. The side recess wall in the first recesses portion includes a convexly curved portion near the drinking opening defining a chute-like structure that directs the beverage from the drinking opening to a user's mouth. The nestable drinking cup is made of rigid, injection-molded plastic and includes an upper ribbed portion having a band of vertically-oriented, outwardly extending ribs about the periphery of the drinking cup, wherein the upper ribbed portion reduces heat transfer from hot contents in the cup to a user's hand.
DRINKING CUP AND LID

FIELD OF THE INVENTION

The present invention relates generally to a drinking cup for hot beverages and a lid for use in combination with a drinking cup wherein the lid enables drinking from the cup without removal of the lid.

BACKGROUND OF THE INVENTION

It is known to sell hot beverages in disposable drinking cups and lids for carry-out sale of beverages such as coffee. Many of the lids commonly in use for this purpose must be removed prior to drinking of the beverage to provide access to the beverage. Removal of the lid may result in splashing or spilling of the beverage if the user wants to drink the beverage while walking or traveling in a vehicle.

Some disposable lids have score lines or the like formed in them to define a removable portion which may be punched out or folded to provide a drinking opening from which the beverage may be poured out. One disadvantage of this type of lid is that it may be inconvenient for the user to perform the requisite penetration or folding of the lid, particularly if the user is walking or riding in a vehicle, or has only one hand free.

Some disposable lids have included in them pre-formed openings for drinking rather than have the score lines. However, in some of these lids the position of the opening makes it difficult or uncomfortable for the user to drink the beverage due to the way in which the user's mouth engages the lid.

U.S. Pat. No. 4,589,569 to Clements addresses some of the problems of the prior art lids by providing a disposable lid for a drinking cup having a top wall having a drinking opening formed in it. The top wall has a recess formed in it adjacent the drinking opening to accommodate the upper lid of the user. This arrangement makes it more comfortable for the user. However, the location of the drinking opening on the top wall of the lid still results in spills and splashing in some circumstances, and dribbling of the beverage down the side of the drinker's mouth.

Disposable hot drink cups may insulate the hand of the user from the hot temperature of the beverage in three general ways: (a) by using the insulating qualities of the material used to make the cup, (b) by the manner of fabrication of the cup, or (c) by providing a handle to hold the cup without touching its outer walls.

Examples of the first type are cups made of thermoformed plastic foam or double-walled cups. The insulating properties of foam are good, and nestable cups made therefrom are in wide use despite the lack of a convenient handle. The second type of cups have similar utility and result from the combination of two cup elements to provide an insulating air space between the hot beverage and the user's hand. Cups with handles have been used in which the handles are made of suitably treated paper and attached with glue along the side of the cup. The handle has Unglued flanges which fold out to provide a handle and allow the cups to nest very well because the handle element lies flat against the outside of the cup until folded out.

U.S. Pat. No. 4,049,187 issued to Florian is an example of a hot cup with a handle. The thermoformed cup is nestable in a small space and it has elements adapted to provide a stable handle. The handle includes a tab extending radially from the brim of the cup and a hinged flange at each side of the tab. Another example is U.S. Pat. No. 5,203,400 issued to Roe, in which a cup made of paper has a handle provided with a number of punched out securing tabs. The handle lays flat against the sides of the cup to allow nesting of the cups, and can be pulled away from the sides to form the handle when the cup is in use.

In the case of drinking cups that are made of rigid, injection-molded plastic, the plastic material does not have very good insulating properties and it is difficult to attach a handle to the cup.

These problems are addressed by the present invention. Accordingly, it is an object of one aspect of the present invention to provide a rigid, injection-molded plastic drinking cup for hot beverage having a construction that reduces the amount of heat transmitted to the outside walls and hands of users. It is a further object of the present invention to provide a disposable lid for a drinking cup that minimizes the likelihood of spilling and splashing of the beverage from the drinking opening.

SUMMARY OF THE INVENTION

In one aspect of the present invention, there is provided a lid for a drinking cup, the lid comprising: a top wall having a generally circular periphery; an annular side wall depending from the top wall about its periphery and an annular mounting portion at the bottom of said side wall for sealingly engaging a brim portion of the drinking cup; a first recessed portion in the top wall comprising a bottom recess wall and a side recess wall, wherein the side recess wall is adjacent the periphery of the top wall; a drinking opening in the bottom recess wall proximate the side recess wall to enable drinking of a beverage from the drinking cup without removal of the lid; and a convexly curved portion disposed on the side recess wall and near the drinking opening defining a chute-like structure that directs the beverage from the drinking opening to a user's mouth.

In another aspect of the invention, there is provided a nestable drinking cup made of rigid, injection-molded plastic, comprising: a cup body having a generally circular periphery and a side wall, and comprising a brim portion, an upper ribbed portion, a lower portion and a bottom of smaller diameter than the brim portion; the upper ribbed portion having a band of vertically-oriented, outwardly extending ribs about the periphery of the drinking cup, wherein the upper ribbed portion reduces heat transfer from hot contents in the cup to a user's hand.

BRIEF DESCRIPTION OF THE DRAWINGS

The preferred embodiments of the present invention will be described with reference to the accompanying drawings in which like numerals refer to the same parts in the several views and in which:

FIG. 1 shows a combination of the lid and cup of one preferred embodiment of the present invention;

FIG. 2 is a side view of the preferred embodiment of the cup of FIG. 1;

FIG. 3 is partial cross-sectional view taken at line A-A of FIG. 2;
FIG. 4 is a cross sectional view of a part of the cup of FIG. 2;

FIG. 5 illustrates one cup of FIG. 2 nested into another such cup;

FIG. 6 is a top view of the preferred embodiment of the lid of FIG. 1;

FIG. 7 is a front side view of the lid of FIG. 6;

FIG. 8 is a partial side cross sectional view of the lid of FIG. 6; and

FIG. 9 is another side view of the lid of FIG. 6.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention will be described with reference to its preferred embodiments.

As shown in FIG. 1, one aspect of the present invention provides a combination of drinking cup 10 and lid 100. The lid 100 is adapted to sealingly engage the rim portion 12 of the cup 10. The lid 100 allows a user to drink a beverage contained in cup 10 without having to remove lid 100 while significantly reducing the incidence of spilling and splashing.

Referring to FIG. 2, cup 10 is shown in more detail. It is to be understood that the dimensions referred to in this specification are for the preferred embodiment of the present invention, and not for the invention in its broadest sense. Dimensions of various elements of the cup 10 and lid 100 may vary without departing from the scope of the invention.

Drinking cup 10 is preferably made of rigid, injection-molded plastic, but other suitable construction material may be used. Cup 10 comprises a cup body 14 having a generally circular periphery in cross section and having a rim portion 12 at the top of the cup body 14. Below the rim portion 12 is an upper ribbed portion 16, and below that is a lower tapered portion 18 that preferably has a taper angle relative to vertical of about 3.5°. The cup body 14 includes a bottom 20 of smaller diameter than the rim portion 12.

In a preferred embodiment, the rim portion 12 has a diameter of about 3.50 inches, and the bottom 20 has a diameter of about 2.25 inches. The total height of the cup 10 from the bottom 20 to the rim portion 12 is about 5.50 inches, with the upper ribbed portion 16 having a height of about 1.312 inches.

The rim portion 12 includes an inverted “U”-shaped flange 22 extending outwardly and downwardly. The flange 22 provides a smooth surface to drink from and also provides an area on which a lid, such as lid 100, may be secured into place on the cup 10.

The upper ribbed portion 16 is shown in FIG. 2 as having a generally tapered side wall 24 that includes a lower inwardly curved section 25. Curved section 25 is an area that can be used by the user to grasp and hold the cup 10. A band 26 of vertically-oriented, outwardly extending solid ribs 28 is disposed about the periphery of the side wall 24.

The upper ribbed portion 16 helps to reduce heat transfer from the hot contents in the cup 10 to a user’s hand. As seen in FIG. 2, the upper ribbed portion 16 comprises about 1/4 the total height of the cup 10 (1.937 inches high compared to the total height of the cup 10 of 5.50 inches). The remainder of the height of the cup 10 is made up of the lower tapered portion 18, and an upper section 19. The upper ribbed portion 16 provides insulation without the need of a double-walled construction as is used in the prior art.

FIG. 3 shows a partial cross-section along line A-A of the upper ribbed portion 16. Located on side wall 24 are a plurality of ribs 28 that extend vertically and outwardly from the side wall 24. In cross section as seen in FIG. 3, the ribs 28 are triangular in shape, preferably having a depth (the distance from the tip of the rib to the side wall) of about 0.045 inches. Each rib 28 is preferably spaced about 0.060 inches apart (as measured from tip to tip) and the rib’s walls are angled at about 60°.

FIG. 4 shows a side cross sectional view of the upper ribbed portion 16 that extends from the brim portion 12 downwardly to a point below the upper ribbed portion 16. At its maximum depth, rib 28 is about 0.045 inches deep (the distance from the tip of the rib to the side wall). However, ribs 28 taper at their ends 30 such that the depth of the ribs 28 at the ends decreases to zero, thus avoiding any sharp edges on the outside surface of the cup 10.

The shape, disposition, sizing and spacing of the ribs 28 around the periphery of the cup body 14 creates a layer of insulating air between the tip of the ribs 28, which are grasped by a user’s hand, and the side wall 24. This reduces the heat transfer from the hot contents of the cup 10 to the user’s hands. The need for a special handle is therefore eliminated.

The upper ribbed portion 16 also provides extra strength to the cup body 14, thereby increasing the hoop strength in the area where the cup 10 is typically held by the user. As seen in FIGS. 3 and 4, the inside surface 32 of the cup body 14 is smooth; the ribs 28 are on the outside of the cup 10.

FIG. 5 illustrates a first cup 10 nested within a second cup 40. The tapered side wall 24 and lower tapered portion 18 allow nesting of a plurality of cups into each other, thereby reducing the size of containers needed to store and transport the cups. The smooth inside surface 32 permits the first cup 10 to rotate inside cup 40. Moreover, the upper ribbed portion 16 of cup 10 is located in area 34, thus the upper ribbed portion 16 does not rub against surface 32 when cup 10 rotates. These features, along with the ability to nest one cup into another, allows the cups 10 to be offset printed up to eight colors in one pass in an automatic offset printing press, at high rates of speed. This substantially reduces manufacturing costs.

FIG. 6 is a top view of the lid 100 for use with a drinking cup similar to cup 10, or with other disposable cups. The lid 100 has a top wall 102 with a generally circular periphery 101. As shown in FIG. 7, an annular sidewall 104 depends from the top wall 102 about its periphery 101, and an annular mounting portion 106 is located at the bottom end of the annular sidewall 104 for sealingly engaging the rim portion of a drinking cup.

Referring back to FIG. 6, located on the top wall 102 is a first recessed portion 108 having a bottom recess wall 110 and a side recess wall 112. The side recess wall 112 is adjacent the periphery 101 of the lid 100. As seen from top
plan view, the first recessed portion 108 is generally oval in shape so as to accommodate a user’s upper lip while drinking.

[0038] Disposed on the bottom recess wall 110 is a drinking opening 114 proximate the side recess wall 112 to enable drinking of a beverage from a drinking cup without removal of the lid 100. The side recess wall 112 comprises a convexly curved portion 116 near the drinking opening 114. Preferably, the convexly curved portion 116 extends from the bottom recess wall 110 to the upper end 117 of the side recess wall 112. The convexly curved portion 114 defines a chute-like structure that directs the beverage from the drinking opening 114 to the upper end 117 and into a user’s mouth. This reduces the likelihood of the beverage spilling and/or dribbling down the sides of the user’s mouth.

[0039] Also, the location of the drinking opening 114 on the bottom recess wall 110 in the recess portion 108 allows any beverage that does leak, spill or splash out of the drinking opening 114 to be contained in the recess portion 108 and flow back through the opening 114 and into the cup. The recess portion 108 also accommodates the upper lip of the user while drinking the beverage.

[0040] The lid 100 may, in a preferred embodiment, include a second recessed portion 120 having a depth less than the depth of recess portion 108, as is best seen in FIG. 8. Moreover, the bottom surface 122 of second recessed portion 120 includes a vent hole 124. Preferably, bottom surface 122 slopes towards recess portion 108 so that any liquid that may pass through the vent hole 124 will flow to recess portion 108 and through drinking opening 114 back into the cup.

[0041] The second recessed portion 120 also provides extra space to accommodate the user’s nose while drinking. This second recessed portion 120 may also be dimensioned to provide an area on which the bottom of a second cup may rest, allowing the second cup to be stacked on top of a first cup and lid, for ease of carrying two cups for example.

[0042] As seen in FIG. 6, vent hole 124 is located on the outside perimeter of the bottom surface 122, opposite the drinking opening 114. It will be understood that vent hole 124 can be located anywhere in bottom surface 122.

[0043] The annular mounting portion 106 allows the lid 100 to be snap fitted and sealingly engaged to a cup (as shown in FIG. 1 for example). The lid 100 may include an external tab 126 which the user can grasp to help in removing the lid 100 from a cup. As is typical, the lid 100 may include one or more push down drink tabs 128 to identify the beverage contained in the cup.

[0044] Although the present invention has been shown and described with respect to its preferred embodiments, it will be understood by those skilled in the art that other changes, modifications, additions and omissions may be made without departing from the substance and the scope of the present invention as defined by the attached claims.

We claim:

1. A nestable drinking cup made of rigid, injection-molded plastic, comprising:

(a) a cup body having a generally circular periphery and a side wall, and comprising a brim portion, an upper ribbed portion, a lower portion and a bottom of smaller diameter than the brim portion;
(b) the upper ribbed portion having a band of vertically-oriented, outwardly extending ribs about the periphery of the drinking cup,

wherein the upper ribbed portion reduces heat transfer from hot contents in the cup to a user’s hand.

2. The drinking cup of claim 1, wherein the ribs are solid.

3. The drinking cup of claim 1, wherein the upper ribbed portion comprises about one-third the total height of the cup body.

4. The drinking cup of claim 1, wherein the side wall of the lower portion is tapered at an angle relative to vertical.

5. The drinking cup of claim 1, wherein the upper ribbed portion comprises a lower inwardly curved section that can be used by the user to grasp and hold the cup.

6. The drinking cup of claim 1, wherein the ribs are generally triangular in shape in cross section.

7. The drinking cup of claim 1, wherein the ribs have a depth and two ends, and the depth decreases at the ends.

8. A lid for a drinking cup, the lid comprising:

(a) a top wall having a generally circular periphery;
(b) an annular side wall depending from the top wall about its periphery and an annular mounting portion at the bottom of said side wall for sealingly engaging a rim portion of the drinking cup;
(c) a first recessed portion in the top wall comprising a bottom recess wall and a side recess wall, wherein the side recess wall is adjacent the periphery of the top wall;
(d) a drinking opening in the bottom recess wall proximate the side recess wall to enable drinking of a beverage from the drinking cup without removal of the lid; and
(e) a convexly curved portion disposed on the side recess wall and near the drinking opening defining a chute-like structure that directs the beverage from the drinking opening to a user’s mouth.

9. The lid of claim 8, wherein the convexly curved portion extends from the bottom recess wall to an upper end of the side recess wall.

10. The lid of claim 8, wherein the first recessed portion accommodates an upper lip of the user’s mouth.

11. The lid of claim 10, wherein the first recessed portion is generally oval in shape.

12. The lid of claim 8, further comprising a second recessed portion defined by a bottom surface, wherein the second recessed portion has a depth less than the depth of the first recessed portion.

13. The lid of claim 12, wherein the bottom surface is sloped towards the recessed portion causing any liquid in the second recessed portion to flow to the first recessed portion.

14. The lid of claim 12, wherein the second recessed portion is dimensioned to provide an area on which a bottom of a second cup may rest, allowing the second cup to stack onto a first cup and the lid.

15. In combination, a lid of claim 8 sealingly engaged to a drinking cup of claim 1.

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