ABSTRACT

The lid for a cup has a flange, an outer retainer, an inner retainer, a mounting groove and a protrusion. The cap covers on a cup and has a rim. The flange protrudes from the rim of the cap and has an outer edge and an inner edge. The outer retainer protrudes perpendicularly from the outer edge of the flange and has an inside surface. The inner retainer protrudes perpendicularly from the flange near the inner edge of the flange and is slanted toward the outer retainer. The mounting groove is formed in the flange and defined between the outer retainer and the inner retainer. The protrusion is formed on and protruding from the inside surface of the outer retainer and extends into the mounting groove.
FIG. 8
PRIOR ART
LID FOR A CUP

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention
[0002] The present invention relates to a lid, and more particularly to a lid having an inner retainer and an outer retainer respectively clamping a top edge of a cup from inner and outer sides to hold the lid on the cup tightly.
[0003] 2. Description of Related Art
[0004] With reference FIG. 8, a conventional lid 90 is mounted on a top edge of a cup 92 to cover an opening of the cup 92 and prevent the liquid from sprinkling over. The conventional lid 90 has a cap 91, a flange 93, an outer retainer 94 and an abutting ring 95. The cap 91 covers and is disposed on the opening of the cup 92 and has an outer rim. The flange 93 is annular in shape, protrudes from the outer rim of the cap 91 and is attached on the top edge of the cup 92 and has a bottom surface. The outer retainer 94 protrudes from the bottom surface of the flange 93 and surrounds and covers the top edge of the cup 92. The outer retainer 94 has an inner surface. The abutting ring 95 protrudes from the inner surface of the outer retainer 94 and abuts on an outer surface of the cup 92 to hold the lid 90 on the cup 92 tightly.
[0005] However, the cup 92 may be made of paper generally and is not strong enough to resist a pressing force. When the user takes the cup 92 with the lid 90, a holding force presses the cup 92 and changes the shape of the cup 92 easily. Therefore, a part of the abutting ring 95 of the lid 90 leaves from the top edge of the cup 92 and shapes intervals between the abutting ring 95 and the top edge of the cup 92. The liquid contained in the cup 92 is easily sprinkled out from the intervals. Furthermore, the lid 90 loses a covering effect and might fall off from the cup 92.
[0006] To overcome the shortcomings, the present invention intends to provide a lid to mitigate or obviate the aforementioned problems.

SUMMARY OF THE INVENTION

[0007] The main objective of the present invention is to provide a lid with an inner retainer and an outer retainer respectively clamping a top edge of a cup from inner and outer sides and keeping the lid mounted on the cup tightly.
[0008] The lid has a cup, a flange, an outer retainer, an inner retainer, a mounting groove and a protrusion. The cap covers on a cup and has a rim. The flange protrudes from the rim of the cap and has an outer edge and an inner edge. The outer retainer protrudes perpendicularly from the outer edge of the flange and has an inside surface. The inner retainer protrudes perpendicularly from the flange near the inner edge of the flange and is slanted toward the outer retainer. The mounting groove is formed in the flange and defined between the outer retainer and the inner retainer. The protrusion is formed on and protruding from the inside surface of the outer retainer and extends into the mounting groove.
[0009] Other objectives, advantages and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 is a perspective view of a first embodiment of a lid for a cup in accordance with the present invention;
[0011] FIG. 2 is a cross sectional side view of the first embodiment of the lid in FIG. 1;
[0012] FIG. 3 is a bottom view of a second embodiment of a lid for a cup in accordance with the present invention showing multiple abutting segments;
[0013] FIG. 4 is a perspective view of a third embodiment of a lid for a cup in accordance with the present invention showing the cap having a cover and a cover mount;
[0014] FIG. 5 is a perspective view of a fourth embodiment of a lid for a cup in accordance with the present invention showing the cup having a pressing cover;
[0015] FIG. 6 is a perspective view of a fifth embodiment of a lid for a cup in accordance with the present invention showing the cap being a hole-free cup;
[0016] FIG. 7 is a side view in partial cross section of the first embodiment of the lid in FIG. 1 showing the lid mounted on the cup; and
[0017] FIG. 8 is a cross sectional side view of a conventional lid mounted on a cup.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

[0018] With reference to FIGS. 1 to 6, a lid for a cup in accordance with the present invention has a cap 10, a flange, an outer retainer 11, an inner retainer 12, a mounting groove 13, a protrusion 14 and a top groove 15. The cap 10 is circular in shape and has a top surface and a rim. With reference to FIG. 1, the cap 10 in a first embodiment may have a drinking hole 16 formed through the top surface of the cap 10.
[0019] With reference to FIG. 4, the cap 10 in a third embodiment may have a drinking hole 16, a cover 17 and a cover mount 18. The drinking hole 16 is formed through the top surface of the cap 10. The cover 17 is mounted on the top surface of the cap 10 and covers the drinking hole 16. The cover mount 18 is formed in the top surface of the cap 10 near the cover 17, when the cover 17 is pivoted and lifted to open the drinking hole 16, the cover 17 is mounted and fixed in the cover mount 18. With reference to FIG. 5, the cap 10 in a fourth embodiment may have a pressing cover 19 formed on the top surface of the cap 10. The pressing cover 19 has a splitting edge shaped flimsy and linking to the top surface of the cap 10. When the pressing cover 19 is pressed, the splitting edge of the pressing cover 19 is split and separated from the top surface of the cap 10 to form a drinking hole allowing the liquid to flow out.
[0020] With reference to FIG. 6, the cap 10 in a fifth embodiment may be shaped with no drinking hole and is a hole-free cup.
[0021] The flange is annular in shape and protrudes from the rim of the cap 10 and has an outer edge and an inner edge. The outer retainer 11 shapes annular and protrudes substantially perpendicularly from the outer edge of the flange opposite to the cap 10 and has an inside surface. The inner retainer 12 shapes annular and protrudes from the flange opposite to the cap 10 near the inner edge of the flange. The inner retainer 12 is slanted toward the outer retainer 11. With reference to FIG. 3, in a second embodiment of the lid, the inner retainer 12 may be implemented as multiple abutting segments arranged in a circle.
[0022] The mounting groove 13 is formed in the flange and defined between the outer retainer 11 and the inner retainer 12 and has a diameter. The protrusion 14 is formed on and protrudes from the inside surface of the outer retainer 11 and extends into the mounting groove 13. The protrusion 14 may
be annular in shape. The top groove 15 is annular in shape and is formed in the flange and has a diameter smaller than the diameter of the mounting groove 13 and has multiple connecting ribs 151. The connecting ribs 151 are radially arranged in the top groove 15 and each connecting rib 151 connects the cap 10 and the flange and provides sufficient strength to the cap 10 and the flange.

With reference to FIG. 7, in use, the lid is mounted on a cup 20 to prevent the liquid in the cup 20 from sprinkling out. The cup 20 has a top edge mounted in the mounting groove 13 of the lid. The inner retainer 12 and protrusion 14 are respectively abutted on an inner surface and an outer surface of the cup 20.

As the inner retainer 12 protrudes substantially perpendicularly from the outer retainer 11 and is slanted toward the outer retainer 11, the inner retainer 12 presses on the inner surface of the cup 20 and clamp the top edge of the cup 20 with the protrusion 14 to make the lid mounted on the cup 20 tightly.

When a user takes the cup 20 with the lid to drink something, the user gives a holding force to the cup 20 and may cause the cup 20 deformed in shape. The inner retainer 12 is abutted and pressed on the inner surface of the cup 20 to provide a resisting force to resist the holding force and overcome the deformation of the cup 20. Furthermore, the inner retainer 12 and the protrusion 14 clamp on the top edge of the cup 20 to keep the lid mounted on the cup 20 tightly and prevent the lid from falling off from the cup 20.

Even though numerous characteristics and advantages of the present invention have been set forth in the foregoing description, together with details of the structure and function of the invention, the disclosure is illustrative only. Changes may be made in detail, especially in matters of shape, size and arrangement of parts within the principles of the invention to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

What is claimed is:

1. A lid for a cup comprising:
   a cap having a rim;
   a flange protruding from the rim of the cap and having an outer edge and an inner edge;
   an outer retainer protruding from the outer edge of the flange and having an inside surface;
   an inner retainer protruding from the flange near the inner edge of the flange and slanted toward the outer retainer;
   a mounting groove formed in the flange and defined between the outer retainer and the inner retainer; and
   a protrusion formed on and protruding from the inside surface of the outer retainer and extending into the mounting groove.
2. The lid as claimed in claim 1, wherein the outer retainer shapes annular.
3. The lid as claimed in claim 2, wherein the inner retainer is implemented as multiple abutting segments arranged in a circle.
4. The lid as claimed in claim 3, wherein the cap has a top surface; and
   a top groove is annular in shape and formed in the flange and has multiple connecting ribs arranged radially in the top groove, and each connecting rib connects the cap and the flange.
5. The lid as claimed in claim 4, wherein the cap is a hole-free cap.
6. The lid as claimed in claim 4, wherein the cap has a drinking hole formed through the top surface of the cap.
7. The lid as claimed in claim 4, wherein the cap further has
   a drinking hole formed through the top surface of the cap; and
   a cover mounted on the top surface of the cap and covering the drinking hole.
8. The lid as claimed in claim 4, wherein the cap has a pressing cover formed on the top surface of the cap.
9. The lid as claimed in claim 1, wherein the inner retainer is implemented as multiple abutting segments arranged in a circle.
10. The lid as claimed in claim 1, wherein
    the cap has a top surface; and
    a top groove is annular in shape and formed in the flange and has multiple connecting ribs arranged radially in the top groove, and each connecting rib connects the cap and the flange.
11. The lid as claimed in claim 1, wherein the cap is a hole-free cap.
12. The lid as claimed in claim 1, wherein the cap has a drinking hole formed through a top surface of the cup.
13. The lid as claimed in claim 1, wherein the cap further has
    a drinking hole formed through a top surface of the cap; and
    a cover mounted on the top surface of the cap and covering the drinking hole.
14. The cup's lid as claimed in claim 1, wherein the cap has a pressing cover formed on a top surface of the cap.

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