A double structure cup is disclosed, which is characterized in that a plurality of polygonal male protrusions are protruded from a bottom surface of the inner cup in a downward direction, and a plurality of concave protrusions are formed and engaged with the male protrusions on a bottom surface of the outer cup in an upward direction, so that as the male protrusions are engaged with the concave protrusions, the inner cup does not rotate along with the lid when the lid is rotated for opening and closing.
DOUBLE STRUCTURE CUP


TECHNICAL FIELD

[0002] The present invention relates to a double structure cup, and in particular to a double structure cup in which an inner cup and an outer cup are engaged in a polygonal protrusion engagement structure. So, when a lid is opened or closed by rotating the lid, an inner cup does not rotate along with the lid while keeping an engaged state with the outer cup.

BACKGROUND ART

[0003] Generally, a cup is used as a receptacle for storing beverage or liquid food or being used when drinking something. It has a certain thickness and an open upper side.

[0004] The above cup stores hot coffee, tea or milk or stores cold beverage.

[0005] The conventional cup has problems that a user may be damaged by hot heat as the heat of the stuff of the cup is transferred to the hands of a user. The user may drop a hot cup, thereby causing a burn.

[0006] In the conventional cup, an exclusive mold is made for forming various patterns or designs on an outer surface of the cup. A cutting process may be performed for forming a certain advertisement character. Once a certain pattern or design is formed on an outer surface of the cup, it is impossible to change the same. It costs too much for manufacturing a mold and forming a pattern and design.

[0007] In order to overcome the above problems, an adiabatic layer is formed between an inner cup and an outer cup by using air. Namely, a double structure cup is developed for blocking a heat transfer from the hot stuffs of the cup to the hands of a user.

[0008] In addition, the outer cup is transparent, and a decoration sheet or advertisement sheet (insertion sheet) with various patterns and designs is inserted between the inner and outer cups for manufacturing various types of products. In the above double structure cup, it is possible to change the insertion sheet.

[0009] In the conventional double structure cup, as the inner and outer cups rotate, the double structure cup is assembled or disassembled. An insertion sheet is inputted into a space between the inner cup and a transparent outer cup, and the upper side of the inner cup is opened and closed through a lid.

[0010] When opening or closing the conventional double structure cup by rotating the lid, the inner cup is not fixed to the outer cup, namely, it rotates idle, so that opening and closing the lid are not easy. In order to overcome the above problems, the inner and outer cups are assembled while being not well rotated. In this case, exchanging the insertion sheet is not easy, and assembling and disassembling works are not easy.

DISCLOSURE OF THE INVENTION

[0011] Accordingly, it is an object of the present invention to provide a double structure cup in which an inner cup and an outer cup are engaged in a polygonal protrusion engagement method, and when a lid thread-engaged to an inner cup is rotated to open or close, the inner cup does not rotate along with the lid while keeping engaged to the outer cup, so that it is easy to open and close the lid, and an advertisement insertion sheet may be inserted into a space between the inner and outer cups.

[0012] To achieve the above objects, in a double structure cup which includes an inner cup for storing a certain stuff with its upper side being open, an outer cup which is spaced apart from the inner cup while surrounding the same and being engaged thereto, and a lid thread-engaged to an upper side of the inner cup for opening and closing the same, there is provided a double structure cup characterized in that a plurality of polygonal male protrusions are protruded from a bottom surface of the inner cup in a downward direction, and a plurality of concave protrusions are formed and engaged with the male protrusions on a bottom surface of the outer cup in an upward direction, so that as the male protrusions are engaged with the concave protrusions, the inner cup does not rotate along with the lid when the lid is rotated for opening and closing.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The present invention will become better understood with reference to the accompanying drawings which are given only by way of illustration and thus are not limitative of the present invention, wherein;

[0014] FIG. 1 is an assembled cross sectional view of a double structure cup according to an embodiment of the present invention;

[0015] FIGS. 2A and 2B are front cross sectional and bottom views of an inner cup of FIG. 1;

[0016] FIGS. 3A and 3B are front cross sectional and bottom views of an outer cup of FIG. 1;

[0017] FIG. 4 is a front view of a lid of FIG. 1;

[0018] FIG. 5 is an assembled cross sectional view of a double structure cup according to another embodiment of the present invention; and

[0019] FIG. 6 is a perspective view of the protrusion of FIG. 5.

MODES FOR CARRYING OUT THE INVENTION

[0020] The construction and operation of the present invention will be described with reference to the accompanying drawings.

[0021] FIG. 1 is an assembled cross sectional view of a double structure cup according to an embodiment of the present invention, FIGS. 2A and 2B are front cross sectional and bottom views of an inner cup of FIG. 1, FIGS. 3A and 3B are front cross sectional and bottom views of an outer cup of FIG. 1, and FIG. 4 is a front view of a lid of FIG. 1.

[0022] As shown therein, the double structure cup according to the present invention comprises an inner cup 100, an outer cup 200, a lid 300 and an insertion sheet 400.

[0023] The inner cup 100 is cylindrical and has a side surface 110 and a bottom surface 120 with an upper side of the same being open for storing a certain stuff. The side surface 110 is gradually narrowed in a downward direction.

[0024] The inner cup 100 stores a certain stuff such as hot coffee, tea, milk or something or stores a certain stuff such as cold beverage.

[0025] The side surface 110 of the inner cup is provided with a female thread part 111 formed along an inner circum-
ferential surface and thread-engaged with the lid 300, a step part 112 inwardly formed at the upper end of the same, and a bent part 113 formed on the upper side of the same and bent in an upside down cup shape in an outward direction.

A certain space 114 is formed between the side surface 110 of the inner cup and the bent part 113 with its lower end being open. The upper end of the side surface 210 of the outer cup is inserted into the space 114.

A male protrusion 121 is protruded from a lower side in the bottom surface 120 of the inner cup in a polygonal shape. The male protrusion 121 is formed of an outer protrusion 121a and an inner protrusion 121b, and a contraction prevention groove 122 is formed between the outer and inner protrusions 121a and 121b for preventing contraction during an ejection molding work. An engaging groove 123 is formed at the center of the inner protrusion 121b, and the outer wall surface of the outer protrusion 121a is gradually narrowed in a downward direction.

The inner cup 100 is preferably made of a synthetic resin, stainless steel, china, glass, wooden or something. More preferably, a ceramic hollow ball capable of preventing a heat conduction is mixed with resin and is foam-molded. A material combined with the ceramic hollow balls and paint is coated on the surface of the inner cup for thereby obtaining an adiabatic effect.

The outer cup 200 includes a side surface 210 and a bottom surface 220 and is formed in a cylindrical shape with its upper side being open. The side surface 210 is gradually narrowed in a downward direction and surrounds the inner cup 100 while being spaced by a certain space 510 from the inner cup 100. The upper side of the outer cup 200 is inserted into the space 114 formed by means of a bent part 113 of the inner cup 100.

A step part 211 is outwardly formed on an upper side of the side surface 210 of the outer cup. When the upper side of the outer cup 200 is inserted into the space 114 formed between the side surface 110 of the inner cup and the bent part 113, the step part 211 supports the end of the bent part 113.

A polygonal concave protrusion 221 is formed on the upper side of the bottom surface 220 of the outer cup, and a male protrusion 121 is formed on the bottom surface 120 of the inner cup for thereby being engaged with the concave protrusion 221.

The outer side surface of the concave protrusion 221 is gradually narrowed in a downward direction corresponding to the outer surface of the outer protrusion 121a formed in the bottom surface 120 of the inner cup 100.

In the drawings of the present invention, the male protrusion 121 and the concave protrusion 221 are formed in rectangular shapes. Any shape such as a triangle shape, a cross shape, a tooth shape or something is possible only when it is possible to prevent the rotation of the inner cup 100 during the rotation of the lid 300 in a state that the inner and outer cups 100 and 200 are engaged.

The bottom surface 220 of the outer cup 200 is formed of an engaging groove 222 and an engaging hole 223 so that it is vertically matched with the engaging groove 123 of the inner surface 120 of the inner cup.

The bottom surface 220 of the outer cup 200 and the bottom surface 120 of the inner cup 100 are fixedly engaged with an engaging member 500. Here, as the engaging member 500, a bolt/nut, screws or something may be used. In case that they are engaged using a bolt/nut, the nut is positioned in the engaging groove 123 of the inner cup 100 and is engaged with a bolt which is externally inserted through the engaging hole 223. Here, the head of the bolt is protruded from the engaging groove 123 through the engaging hole 223 in a state that it is positioned in the engaging groove 222 of the outer cup 200.

When they are engaged using screws without using the nut, a female thread part (not shown) is formed on the inner circumferential surfaces of the bottom surfaces 220 and 120 in which the engaging hole 223 and the engaging groove 123 are formed. At this time, the head of the thread is positioned in the engaging groove 222 of the outer cup 200.

In a state that the inner and outer cups 100 and 200 are engaged with each other, a hollow space 510 is formed between the inner cup 100 and the outer cup 200. A heat conduction of the stuffs stored in the inner cup 100 is disconnected by means of the hollow space 510, so that it is possible to keep beverage such as coffee hot for a long time. Since the heat is not transferred to the outer cup 200, a user can easily hold the cup.

An insertion sheet (advertisement sheet or personal photo or image) is rolled and inserted into the hollow space 510 between the inner cup 100 and the outer cup 200. When the outer cup 200 is made of a transparent synthetic resin or a glass material, since the stuffs of the insertion sheet 400 can be seen from the outside, it is possible to obtain an advertisement effect.

An engaging part 310 having a packing groove 311 is downwardly protruded in the lid 300 for engaging a packing 520 wherein the lid 300 is opened or closed by rotating the same on the upper side of the inner cup 100. A male thread part 312 is formed along an outer circumferential side of the engaging part 310, so that it is engaged with the female thread part 111 of the inner cup 100.

The inner cup 100 is pushed into the upper side of the outer cup 200, and the insertion sheet 400 with an advertisement or photo is rolled and inserted into the space between the inner cup 100 and the outer cup 200.

The upper side of the outer cup 220 is inserted into the space 114 of the upper side of the inner cup, and a polygonal male protrusion 121 is protruded on the bottom surface 120 of the inner cup is inserted into the interior of the polygonal concave protrusion 221 protruded upwardly, and the bottom surface 120 of the inner cup and the bottom surface 200 of the outer cup are engaged through the engaging hole 223 and the engaging grooves 222 and 123 by using the engaging member 500 such as bolt/nut or screws. So, even when the lid 300 is rotated, the inner cup 100 does not rotate along with the lid 300.

The packing 520 is inserted into the engaging groove 222 of the outer cup 200 in which the engaging member 500 is inserted, and the space 114 of the inner cup 100 engaged with the upper side of the side surface 210 of the outer cup for thereby obtaining a waterproof effect.

The lid 300 is thread-engaged to the upper side of the side surface 110 of the inner cup 100 after the inner and outer cups 100 and 200 are engaged for thereby finishing an assembling work of the double structure cup. Here, the packing 520 is inserted between the packing groove 311 and the step part 112 corresponding to the engaging portion of the lid 300 for thereby obtaining a waterproof effect.

In the double structure cup according to the present invention, since the space 510 is formed between the inner and outer cups 100 and 200, it is possible to prevent a heat conduction, and when the cup is opened or closed by rotating the lid 300, the inner and outer cups 100 and 200 are engaged
with the polygonal protrusions 121 and 221 and are further secured by means of the engaging member 500, so that the inner cup 100 does not rotate idle, whereby it is possible to easily open and close the lid 300.

The size of the concave protrusion 221 is equal to or smaller than the male protrusion 121, so that the male protrusion 121 is tightly inserted into the concave protrusion 221 for thereby engaging the inner and outer cups 100 and 200. If necessary, the engaging member 500 may be omitted. The same functions as the above described function may be obtained by allowing the male protrusion 121 and the concave protrusion 221 to be opposite to each other.

FIG. 5 is a partial assembled cross sectional view illustrating a double structure cup according to another embodiment of the present invention.

In case that the inner cup 100 is made of stainless steel, not a synthetic resin, since it is impossible to form the male protrusion 121 on the bottom surface 120, a polygonal male protrusion 131 is formed for separately manufacturing a stainless steel plate 130 and inserting into the concave protrusion 221 of the outer cup 200. The engaging groove 133 is formed at the center of the same, and the flange 132 is fixed at the bottom surface 120 of the inner cup 100 by means of a welding method. The polygonal male protrusion 131 is seen in FIG. 6.

The inner and outer cups 100 and 200 are engaged using the engaging member 500 such as bolt/nut or screws.

As described above, the present invention is directed to double structure cup which is able to effectively store a certain amount of beverage or liquid stuff, while substantially preventing a heat conduction, for thereby obtaining a heat and cold storing effect.

In addition, in the present invention, when the lid thread-engaged to the inner cup is rotated for opening or closing the cup, the inner cup does not rotate along with the lid while keeping being fixed to the outer cup, so that it is possible to easily open and close the lid. The inner and outer cups can be easily assembled or disassembled, and a certain insertion sheet can be inserted into a space between the inner and outer cups for an advertisement, and the inserted sheet can be easily exchanged with new one.

As the present invention may be embodied in several forms without departing from the spirit or essential characteristics thereof, it should also be understood that the above-described examples are not limited by any of the details of the foregoing description, unless otherwise specified, but rather should be construed broadly within its spirit and scope as defined in the appended claims, and therefore all changes and modifications that fall within the means and bounds of the claims, or equivalences of such meets and bounds are therefore intended to be embraced by the appended claims.

What is claimed is:

1. A double wall cup, comprising:
   an inner cup made of stainless steel;
   a lid thread engaged to an upper side of the inner cup for opening and closing the inner cup by rotating the lid;
   an outer cup made of transparent material for visibly seeing a printed content of an insertion sheet inserted between the inner cup and the outer cup and detachable from the inner cup for easily exchanging the insertion sheet;
   a couple of flanges made of a material being able to be welded to a bottom surface of the inner cup, the flanges welded to the bottom surface;
   a stainless steel plate including a main protrusion having a rectangular bottom surface bent and downwardly protruded from between the flanges, and an engaging hole formed at a center portion of the male protrusion;
   a nut engaged by matching with the engaging hole in an inner side of the male protrusion;
   a rectangular concave groove protrusion formed in an inner bottom portion of the outer cup and accommodating the main protrusion for thereby prevent rotation of the inner cup; and
   an engaging member which is thread engaged to a lower side of the outer cup through the engaging hole.

2. A double wall cup, comprising:
   an inner cup having a sidewall and a bottom wall;
   a first protrusion extending downwardly from the inner cup bottom wall, the first protrusion having at least one straight wall;
   an outer cup having a sidewall and a bottom wall, the outer cup surrounding the inner cup; and
   a second protrusion extending upwardly from the outer cup bottom wall, the second protrusion having a recess, the first protrusion fitting within the recess to prevent rotation of the inner cup relative to the outer cup.

3. The double wall cup of claim 2, wherein the first protrusion is formed by a U-shaped member having a bottom wall and a pair of sidewalls extending upwardly from the bottom wall of the U-shaped member.

4. The double wall cup of claim 3, wherein the first protrusion further comprises a flange extending from each sidewall to attach the first protrusion to the bottom of the inner cup.

5. The double wall cup of claim 3, further comprising:
   a first aperture in the bottom wall of the first protrusion;
   a second aperture in the bottom wall of the outer cup; and
   a fastener extending through the first aperture and the second aperture.

6. The double wall cup of claim 5, further comprising a nut secured to the fastener.

7. A double wall cup, comprising:
   an inner cup having a sidewall and a bottom wall;
   a first protrusion extending from the inner cup bottom wall, the first protrusion having at least one straight wall;
   an outer cup having a sidewall and a bottom wall, the outer cup surrounding the inner cup; and
   a recess formed in the outer cup bottom wall, the first protrusion fitting within the recess to prevent rotation of the inner cup relative to the outer cup.

8. The double wall cup of claim 7, wherein the first protrusion is formed by a U-shaped member having a bottom wall and a pair of sidewalls extending upwardly from the bottom wall of the U-shaped member.

9. The double wall cup of claim 8, wherein the first protrusion further comprises a flange extending from each sidewall to attach the first protrusion to the bottom of the inner cup.

10. The double wall cup of claim 8, further comprising:
    a first aperture in the bottom wall of the first protrusion;
    a second aperture in the bottom wall of the outer cup; and
    a fastener extending through the first aperture and the second aperture.

11. The double wall cup of claim 10, further comprising a nut secured to the fastener.

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