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(54) **FOOD CONTAINER WITH POP-OPEN LID**

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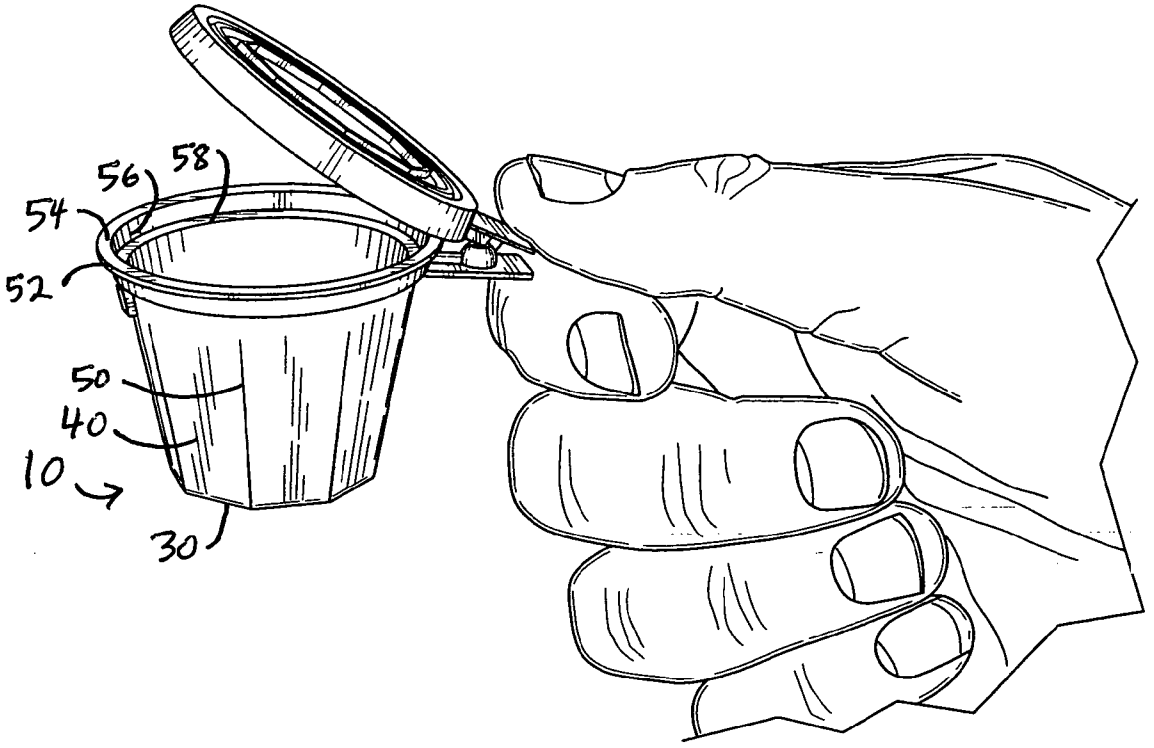
(57) **ABSTRACT**

A plastic food container has a body and a removable lid. In a closed position, the lid forms a watertight seal to contain food or liquids. The lid is easily removed in a "pop-open" fashion using two fingers of one hand to squeeze outwardly-protruding tabs. Upon squeezing, the tabs operate as levers to open the lid.



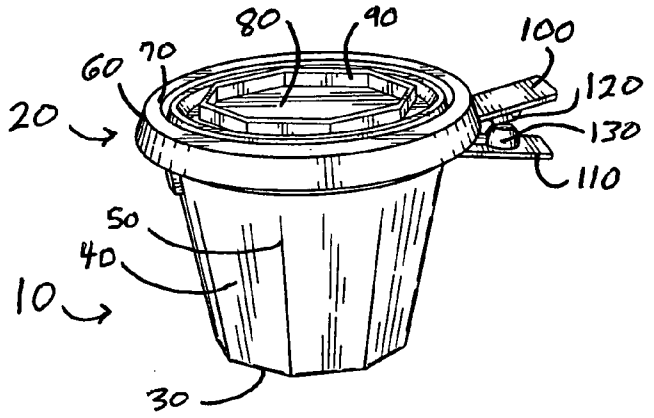


FIG. 1

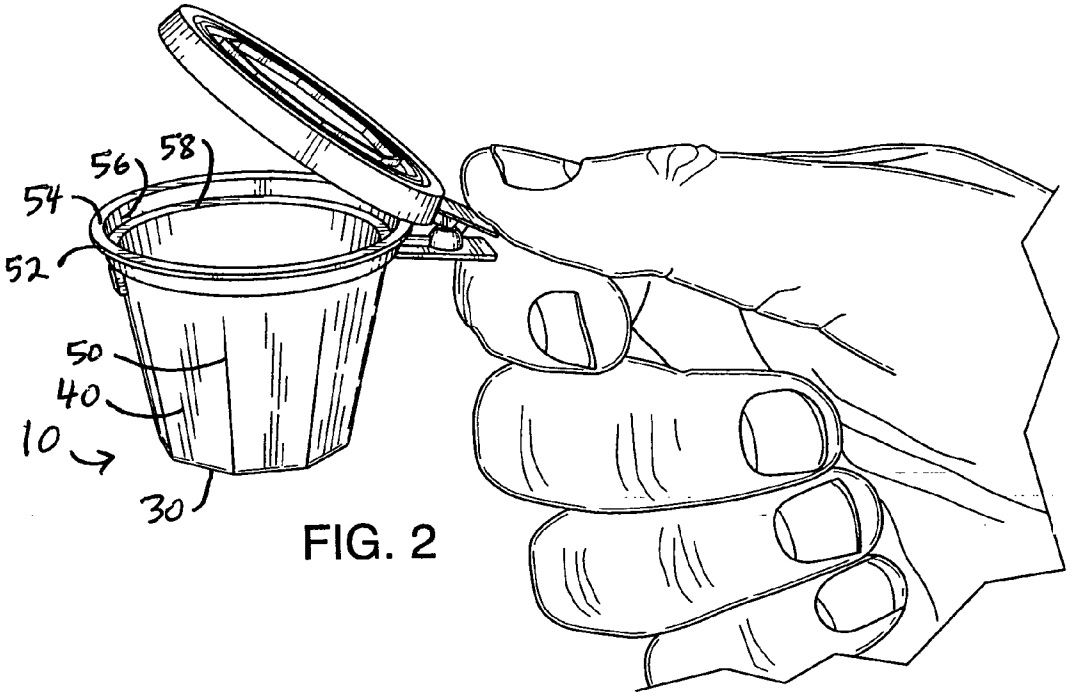


FIG. 2

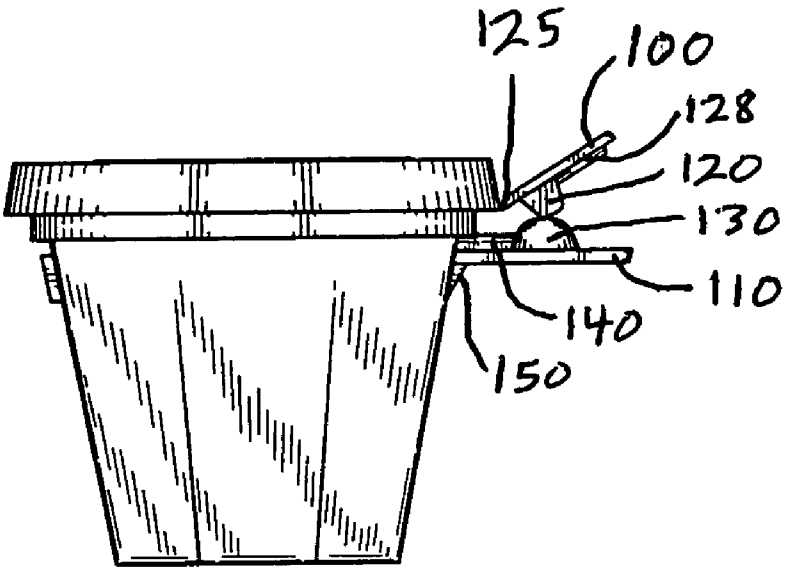


FIG. 3

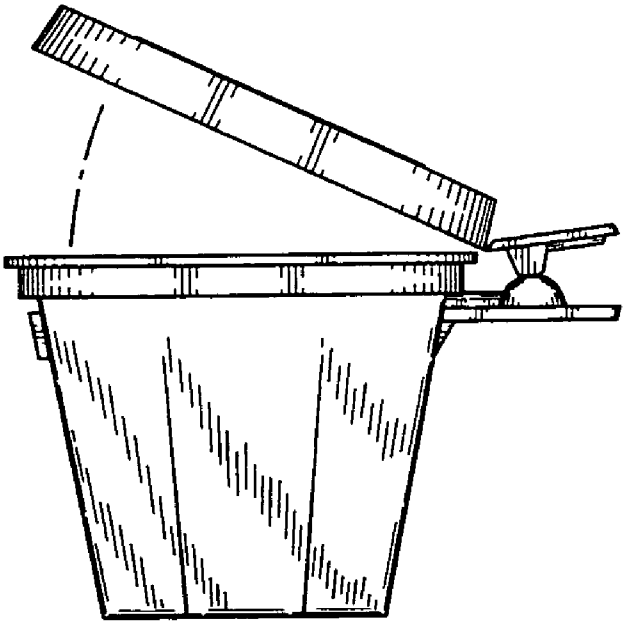


FIG. 4

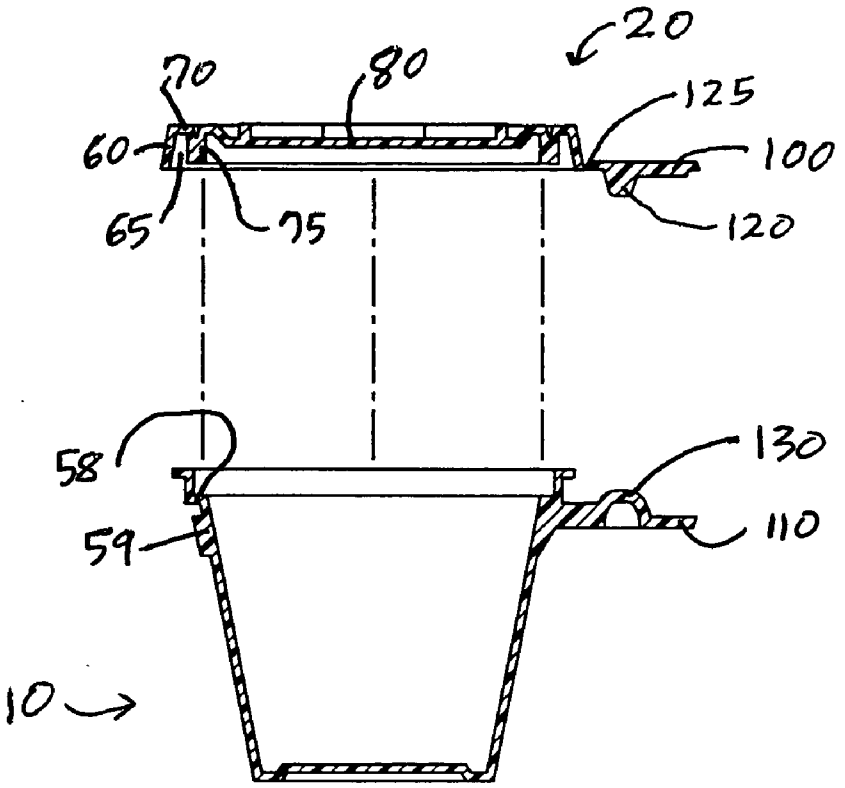


FIG. 5

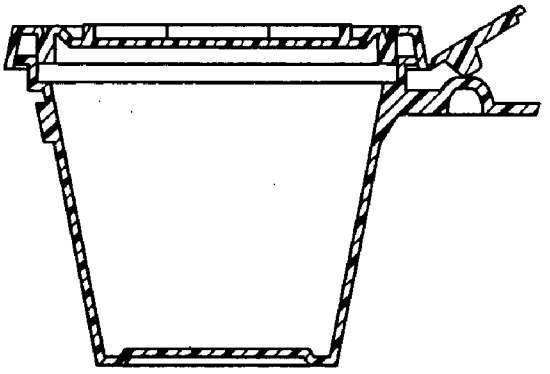


FIG. 6

FOOD CONTAINER WITH POP-OPEN LID

FIELD OF THE INVENTION

[0001] This invention relates to containers and, more particularly, to food containers which are made from molded plastic and include a pop-open lid for easy opening.

BACKGROUND OF THE INVENTION

[0002] Food containers commonly used by restaurants and food packaging companies typically have a container body with side walls having a top rim and a lid having a bottom rim. The two are adapted to mate along their respective rims to form a watertight seal. They are commonly made in a simple molding process from plastic and, although reusable by the customer, are generally not returned to the restaurant.

[0003] Preferably, these containers must be reusable or resealable so that leftovers can be stored in the same container. The seal must be flexible enough to allow for easy opening and closing, yet tight enough to provide a secure seal against either leakage of food from the container or introduction of air and microbes into the container to prevent spoiling. Thus, there is a balance between providing a strong solid seal and a removable seal.

[0004] Generally, two types of these containers are employed, depending upon the amount of food to be stored. For heavy food items, such as an entire meal that may weigh two pounds or more, the seal between the container body and the lid needs to be very tight, to prevent the weight of the food from forcing open the lid if the container is tilted or inverted. For smaller amounts of food or liquids, such as sauces, condiments and spices, which may weigh only a few ounces, an extremely tight seal is not required. In fact, it is a disadvantage. For example, soy sauce and similar containers in common use today in the take-out food industry are often sealed so tightly that a user must use two hands to force open the lid, and the force is often large enough to spill out the contents of the container prematurely. Thus, a need exists for a food container that is easily opened, preferably with only one hand, and preferably with only two fingers of one hand.

[0005] It is also important that both the container bodies and the lids be completely removable from each other and independently stackable, one on top of the other, to permit easy and low-cost bulk manufacture, packaging, shipping and storage.

[0006] Arrangements for closing and opening various types of containers are known. See, for example, U.S. Pat. Nos. 6,460,716; 5,273,177; 4,805,790; and 1,850,606. These various arrangements, however, are generally intended either for non-food items such as shampoo, toothpaste or paint, or for relatively heavy food items.

SUMMARY OF THE INVENTION

[0007] A unique sealing and opening arrangement has now been discovered for use with a plastic molded food container. Specifically, the invention comprises a molded plastic food container body or cup, open at the top, that is especially useful for holding sauces, condiments, spices and the like. The invention also comprises a top lid or cap that is adapted to be mated with the container top, is completely removable from the container, is easily removed in a "pop-open" fashion with two fingers of one hand in a single motion, is reclosable, and which, in the fully closed position, provides a watertight seal for food or liquid contents within the container.

[0008] In a preferred embodiment, the container body and the lid each include a tab that protrudes outwardly from the container. Each tab includes a small inner protuberance on opposing faces thereof. When the lid is properly fitted onto the container body, the tabs line up, one above the other, so that the protuberances are forced into each other as the lid is closed. To open the lid, the user grasps one tab with a thumb and the other with a forefinger of the same hand, and squeezes the ends of the tabs together. This causes the tabs to operate as levers, with the protuberances acting as fulcrums. The lever action forces the lid up and away from the container body in a single motion.

[0009] Broadly, the plastic molded food container of the present invention can be characterized as comprising a plastic food container with a pop-open lid, comprising:

[0010] a container body having a lower tab protruding outward from the body;

[0011] a removable and reclosable lid adapted to fit over and seal the top of the body in a closed position, the lid having an upper tab protruding outward from the lid, aligning with the lower tab in the closed position;

[0012] the lower and upper tabs including protrusions facing each other and arranged to contact each other in the closed position;

[0013] whereby, when outside edges of the upper and lower tabs are squeezed together by fingers of a user, the upper tab lifts the lid away from the body so as to open the container.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] These and other aspects of the present invention may be more fully understood by reference to one or more of the following drawings, wherein:

[0015] **FIG. 1** illustrates a perspective view of the container of the present invention, with the lid in a closed position;

[0016] **FIG. 2** illustrates a perspective view of the container of the present invention, with the lid in an open position;

[0017] **FIG. 3** illustrates a side external view of the container of the present invention, with the lid in a closed position;

[0018] **FIG. 4** illustrates a side external view of the container of the present invention, with the lid in an open position;

[0019] **FIG. 5** illustrates a side cutaway view of the container of the present invention, with the lid completely removed from the container; and

[0020] **FIG. 6** illustrates a side cutaway view of the container of the present invention, with the lid in a closed position.

DETAILED DESCRIPTION OF THE INVENTION

[0021] In a preferred embodiment, and as best seen in **FIGS. 2 and 5**, the invention comprises a molded plastic cup or other hollow container body **10**, comprising a base **30**, side walls **40**, a side rim **52**, a top rim **54**, an inner rim **56**, a ledge **58** and a lower tab **110**, formed in a one-piece construction and having an open top. The container body is particularly useful for holding relatively small or light quantities of foods or liquids such as sauces, creams, dips, condiments, spices and the like.

[0022] In a feature of the invention, base **30** is preferably polygonal in shape. In this embodiment, the base forms an octagon when viewed from below, although any other polygonal shape may be used. The side walls **40** are flat near the base, are also arranged polygonally around the edges of the base, and meet along rigid edges **50**. Near the top of the body, the side walls assume a smooth cylindrical shape, and the open top of the body is preferably circular or oval in shape when viewed from above. One purpose of the polygonal geometry of the base is to provide greater strength and rigidity for the base and walls than would otherwise be possible using a smooth cylindrical geometry along the entire length of the walls. This permits less material to be used in the manufacture of the body, thus saving costs.

[0023] The invention also includes a lid **20** that is adapted to be mated with the top of the container body when sealing of the container is desired. Lid **20** comprises a side portion **60**, a top portion **70**, a planar surface **80**, an inner wall **75**, a polygon structure **90** and an upper tab **100**, formed in a one-piece construction of molded plastic. Side portion **60**, top portion **70** and inner wall **75** together define a circular or oval channel **65** on the underside of the lid **(FIG. 5)** that is adapted to fit snugly over rims **52**, **54** and **56** of body **10**, so as to form sealing surfaces when the lid is mated with the body **(FIG. 6)**. Lid **20** is completely removable from container body **10**, as can be seen in **FIG. 5**.

[0024] Another feature of the invention is a unique opening mechanism and operation, described below. Starting first with the lid **20** in its preferred closed position, best shown in **FIGS. 1, 3** and **6**, it can be seen that upper tab **100** of the lid protrudes away from the lid and is aligned with the lower tab **110** of the container body. The top surface of upper tab **100** is flat, and the bottom surface of the upper tab has a protuberance **120** that is located approximately mid-way between the front of the upper tab (farthest from the lid) and the back of the upper tab.

[0025] Similarly, in the preferred closed position, lower tab **110** protrudes away from the container body and is aligned with the upper tab **100**. The bottom surface of lower tab **110** is flat, and the top surface of the lower tab has a protuberance **130** that is located approximately mid-way between the front of the lower tab and the back of the lower tab.

[0026] Closing the lid is accomplished by a user pressing down on the lid. The operation of closing the lid goes through several steps. First, the user places the lid onto the top of the container body, in approximate alignment with the top. Then, the user presses down on the lid with a thumb or finger. The lid starts to slide down into alignment with the body toward the closed position. As best seen in **FIGS. 1 and 3**, when the lid is entering into a partially closed position, the protuberances **120** and **130** begin to touch each other. As the lid is pressed further into a fully closed position, the protuberances force the upper tab to rotate upward so that it projects outwardly from the lid at an upward angle when closure is complete.

[0027] The lower tab also has a protuberance on its top surface that is approximately mid-way between the front and back of the tab and positioned so as to come into contact with the protuberance on the upper tab when the cap is nearing the closed position. As the cap is pushed further down over the container and into the sealing channel, the two protuberances force the upper tab to bend upward slightly. As best shown in **FIGS. 3 and 6**, in the fully closed position, the two tabs take on a sideways-V-shaped appearance when the container is viewed from the side.

[0028] To open the container, the user simply squeezes the outside ends of the two tabs between the thumb and a finger of one hand. The squeezing force causes the tabs to operate as opposable levers, with the outside end of the upper tab rotating downward and the lower tab acting as a fixed support. With the protuberances acting as fulcrums, the inner neck end of the upper tab, being flexibly attached to the lid, rotates upward in reaction to the downward force of the thumb, so as to force the lid up and away from the container body. As the upper tab is further squeezed downward, the protuberance on the upper tab begins to slide toward the container body, which further increases the leveraging force applied upward to the lid. Before the ends of the tabs have been squeezed together, the leveraging force has exceeded the frictional sealing force between the lid and the container body, which was keeping the container closed. At this point, the lid "pops open" quickly. Thus, in one motion, using only two fingers of one hand, a user can pop open the lid. After popping open the lid, the user can then take away the lid using the same two fingers.

[0029] The lever action force supplied by the tabs is strong enough that even a child or elderly user can easily open the container in one motion using only two fingers of one hand. It is not necessary to grab the entire container with many fingers of both hands in order to open it.

[0030] In order to make the container bodies stackable, one on top of the other, base **30** is smaller in horizontal dimension than the top portion of body **10**. In order to make the lids also stackable, independently of the bodies, the bottom edge of side portion **60** is wider than the top portion, so that the lids may fit one inside another.

[0031] Stacking ability for the container bodies is further enhanced by a plurality of levelers **59 (FIG. 5)** spaced horizontally around the inside periphery of the body. In normal orientation, the bottom edge of each leveler is adapted to rest on the top of ledge **58**. In this way, as another container body is placed on top of another container body, the tops of all stacked container bodies are kept horizontal, so as to maximize the number of container bodies that may be stacked together without the stack gradually tilting over to one side.

[0032] The polygonal shape of the container base is also advantageous in that it enables the base to fit snugly into the polygon structure **90** of the lid. The inner dimension of the base polygon is slightly less than the inner dimension of the lid polygon structure. This permits the user to secure the base onto the top of a lid, to help prevent the container body from spilling the food contents.

[0033] Container **10** and lid **20** are preferably made of plastic in a conventional way using conventional equipment. Good results have been obtained by injection molding. The container has a thin wall, suitably about 0.5 mm or less thick.

[0034] It will be understood that the claims are intended to cover all changes and modifications of the preferred embodiments of the invention herein chosen for the purpose of illustration which do not constitute a departure from the spirit and scope of the invention.

What is claimed is:

1. A plastic food container with a pop-open lid, comprising:

a container body having a lower tab protruding outward from the body;

a removable and reclosable lid adapted to fit over and seal the top of the body in a closed position, the lid having an upper tab protruding outward from the lid, aligning with the lower tab in the closed position;

the lower and upper tabs including protrusions facing each other and arranged to contact each other in the closed position;

whereby, when outside edges of the upper and lower tabs are squeezed together by fingers of a user, the upper tab lifts the lid away from the body so as to open the container.

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