United States Patent [19]

Tanzer

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[54] **LID WITH STRAW POSITIONING MEANS**

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[52] **U.S. Cl.** ..... **220/90.2,** 229/7 S, 229/43

[51] **Int. Cl.** **A47g 19/22,** B65d 41/18

[58] **Field of Search** ..... 229/1.5 B, 7 S, 43; 220/90.2; 215/1 A, 56

[56] **References Cited**

UNITED STATES PATENTS

2,956,721	10/1960	Bennett	229/43
3,048,317	8/1962	Cochrane et al.	229/7 S
3,171,580	3/1965	Davis et al.	229/7 S
3,184,134	5/1965	Cohen et al.	229/7 S
3,387,765	6/1968	Davis	215/56
3,524,566	8/1970	Parks	229/7 S

FOREIGN PATENTS OR APPLICATIONS

9,743	10/1927	Australia	229/7 S
566,676	12/1932	Germany	215/1 A

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Assistant Examiner—Stephen Marcus
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[57] **ABSTRACT**

A lid having a pair of flexible wing elements which are configured, arranged and dimensioned to flexibly engage and automatically incline a straw positioned therebetween.

1 Claim, 5 Drawing Figures

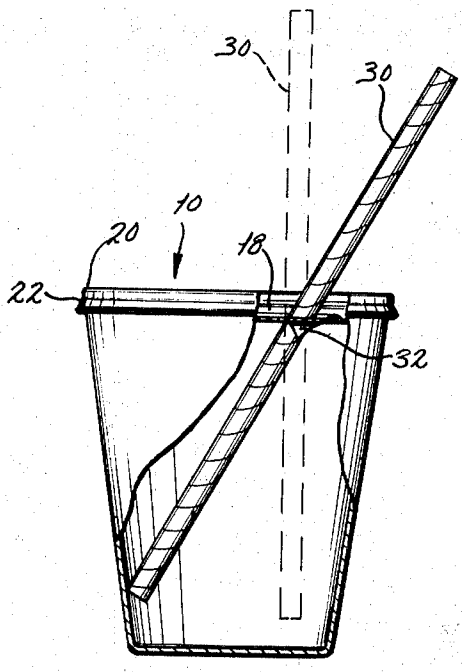


FIG. 1

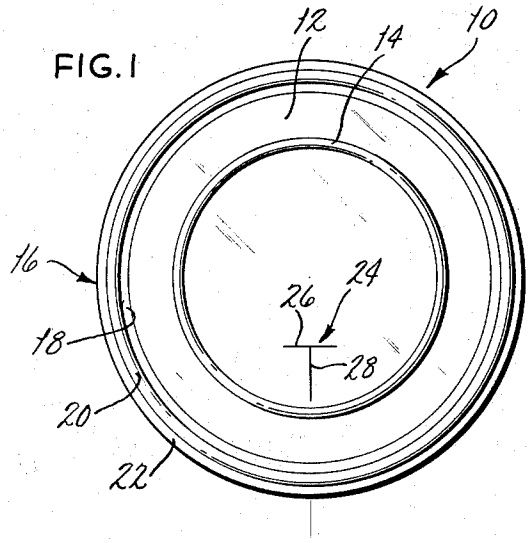


FIG. 2

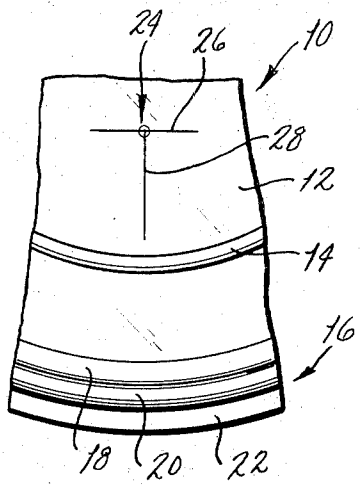


FIG. 3

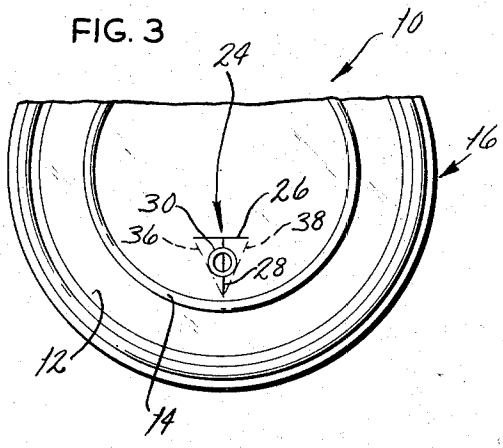


FIG. 5

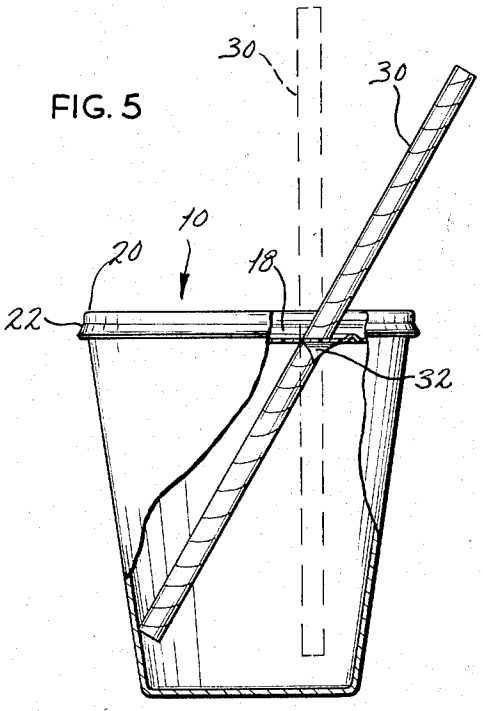
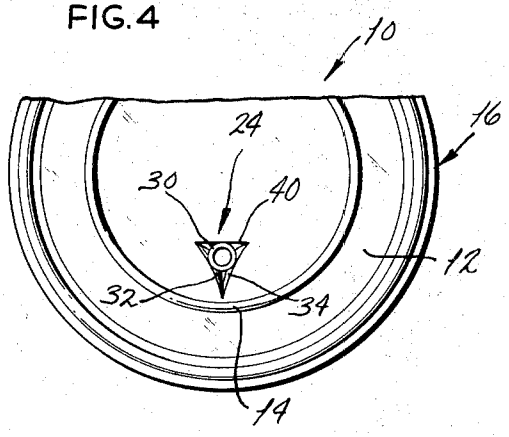


FIG. 4



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LID WITH STRAW POSITIONING MEANS

SUMMARY OF THE INVENTION

Where soft drink beverages and the like are sold over the counter in disposable paper and plastic cups and containers, snap-in paper and over-cap plastic lids are utilized to prevent spillage. At the same time, it is desired that the user be able to drink the contents of the container without removal of the lid. For this purpose, a straw is conveniently inserted through an access opening provided in the lid.

The prior art is replete with many different kinds of straw access openings that can be provided in a lid. Typical examples of this are shown in U.S. Pat. Nos. 3,048,317 and 3,387,765 which represent two types of straw access openings which have been used commercially. These patents suggest that a number of features are desirable in a commercially useful straw access opening. In general, it has been found that the straw access opening is preferably designed to prevent any appreciable spillage of liquid while allowing any pressure built up within he container to be vented and, at the same time, permit the straw to be easily inserted, without deformation, into a container. Additionally, it is also desirable that the straw access opening provide automatic inclination of the straw when inserted through the lid as well as be simple in design to require minimum tooling and fabrication costs. However, the straw access opening designs which are capable of providing the features as are disclosed by the above patents are not also suitable for automatic straw inclination as well as low tooling and fabrication costs.

Accordingly, it is an object of the present invention to provide a lid with a straw access opening which has advantages heretofore unobtainable by prior art designs.

More specifically, it is an object of the present invention to provide a straw access opening for a lid which permits automatic inclination of the straw while being simple in design to require minimum tooling and fabrication expense.

Another object of the present inention is to provide a straw access opening for a lid which, in addition to the aforementioned object, prevents appreciable spillage of the liquid, allows any pressure built up in the container to be vented and permits a straw to be easily inserted through the lid into the container.

The above and other objects and advantages of the present invention are obtained by the provision of a lid which includes a pair of flexible wing elements which are configured, arranged and dimensioned to flexibly engage and automatically incline a straw positioned therebetween.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a top plan view of disposable over-cap plastic lid which incorporates a straw access opening which is constructred in accordance with the teachings of the present invention; FIG. 2 is an enlarged fragmentary top plan view of a portion of the lid shown in FIG. 1 including the straw access opening thereof;

FIG. 3 is a fragmentary top plan view of the plastic lid illustrated in FIG. 1 and depicting a straw just prior to being inserted through the straw access opening;

FIG. 4 is a fragmentary top plan view of the lid similar to FIG. 3 and illustrating a straw inserted through the straw access opening of th lid; and

FIG. 5 is a side elevational view, partly in section, of a container with a lid wherein the lid includes a straw access opening as disclosed herein in order to permit the straw to be moved from the dotted vertical position when inserted through the straw access opening of the lid to the inclined position to facilitate sipping from the straw.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

While the lid shown in the drawing is of the plastic over-cap type, it will be apparent that snap-in paper lids, if sufficiently flexible, may be utilzed with equal facility.

The plastic over-cap lid **10** illustrated in FIGS. **1–5** of the drawing includes a diaphragm-like closure or top covering wall **12** which may be provided with a circular reinforcing rib **14,** if desired. At the periphery of the lid **10,** a rim engaging area **16** is provided with inner, top and outer wall sections **18, 20** and **22** respectively which are suitably configured relative to the rim of the container with which the lid **10** is assocated in order to provide a snap-fit relative thereto. In the case of a paper disc-type lid, whic is adapted to be snapped into a groove formed in the container side wall, the rim engaging area **16** is not required.

Attention is now directed to the straw access opening **24** of the present invention. As is clearly depicted in the drawings, the straw access opening **24** comprises a generally T-shaped slit having a cross-bar section **26** and a leg section **28.** Preferably, the T-shaped slit is formed in the diaphragm-like wall **12** of the closure **10** in an off-center position in order to permit a straw inserted through the T-shaped slit to be disposed, for example, in the full-line position illustrated in FIG. **5** as will become apparent.

The use of a T-shaped **24** in an off-center position with the leg section **28** of the T-shaped slit closer to the periphery of the lid **10** than the cross-bar section **26** provides a number of advantages.

Referring first to FIGS. **3-5** of the drawing, it will be seen that when a straw **30** is positioned above the leg section **28** of the T-shaped slit and then pressure is applied to insert the straw **30,** the T-shaped slit **24** will open up as is seen in FIG. **4** of the drawing to permit the straw **30** to be inserted. As this is done, portions of the diaphragm-like wall **12** on opposite sides of the leg section **28** below the cross-bar section **26** form a pair of flexible wing elements **32, 34** respectively which flexibly engage and automatically incline the straw **30** from the inserted dotted line position illustrated in FIG. **5** to the full line inclined position to facilitate sipping from the straw **30.**

In order to facilitate bending or flexing of the flexible wing elements **32, 34,** hinge or fold lines **36, 38** may be formed between the free ends of the crossbar section **26** and the free end of the leg section **28** as is illustrated in FIG. **3** of the drawing.

In order to provide the automatic inclination of the straw **30** when inserted through the T-shaped slit, the flexible wing elements **32, 34** must be appropriately configured, arranged and dimensioned in order to achieve this. More specifically, the flexible wing elements **32, 34** are designed to flexibly engage the straw **30,** when inserted therebetween, and at the same time, force the straw **30** against the inner edge **40** which is formed by the cross-bar section **26** of the T-shaped slit

24. As the wing elements **32, 34** flexibly engage the straw **30** and force it against the inner edge **40,** the effect will be to incline the straw **30** from the dotted to the full line position illustrated in FIG. **5** of the drawings when the user releases the straw **30** after inserting the same. The action that is produced on the straw **30** by the flexible wing elements **32, 34** may be referred to as a "snubbing" action in that the straw **30** is suddenly checked or brought from a vertical to an inclined position as has been described. The "snubbing" action that is produced is dependent upon a number of factors such as the size and shape of the wind elements, the flexibility of the wing elements, the location of the wing elements relative to the periphery of the lid, etc. It will suffice for the purposes of the present discussion to indicate that the wing element **32, 34** must be appropriately configured, arranged and dimensioned in order to flexibly engage and automatically incline the straw **30** which is positioned therebetween.

In addition to the automatic inclination of the straw **30,** the T-shaped slit of the present invention affords a number of other advantages. It will be apparent that minimum tooling and fabrication costs will be required in order to produce the T-shaped slit **24** in order to achieve the automatic inclination of the straw **30.** Further, the T-shaped slit **24** provides limited egress of liquids from within the container with which the lid **10** is associated while providing a limited vent space in the cross-bar and leg sections **26, 28** of the T-shaped slit to permit the venting of any air or gas pressure built up within the container when the lid is assembled thereto. Where an additional vent opening is required, a small hole may be provided in a number of areas of the T-shaped slit such as, for example, the area in the vicinity of the juncture of the cross-bar and leg sections **26, 28** of the T-shaped slit **24.** It will further be appreciated that the T-shaped slit **24** literally enables the straw **30** to be inserted therethrough without any deformation of the straw.

The straw access opening of the present invention thus provides multifold advantages which heretofore have been unavailable. The shape or configuration of the straw access opening is limited only insofar as there must be provided a pair of flexible wing elements which are adapted to flexibly engage and automatically incline a straw positioned therebetween. Thus, while the T-shaped slit **24** is the preferred form of the invention since it achieves a number of advantages, the shape or configuration of the straw access opening may be modified within the above parameters. For example, the cross-bar section **26** can be bent into either an upright or inverted V-shape which, together with the leg section **28,** will provide the desired features of the present invention.

From the foregoing, it will now be appreciated that the present invention provides a unique straw access opening in a lid which gives many advantages which heretofore were unavailable.

I claim:

1. A plastic lid including a T-shaped slit formed in the top of the plastic lid adjacent the periphery thereof and having a cross-bar section and a leg section, said T-shaped slit defining a single pair of flexible wing elements on each side of the leg section which are hingedly connected to said lid in acute angular relationship to each other, said T-shaped slit being arranged such that the leg section of the T-shaped slit is closer to the periphery of the lid than the cross-bar section of the T-shaped slit, and a straw inserted into the flexible wing elements of the T-shaped slit in the plastic lid, said straw being engaged by the pair of acute angular flexible wing elements to cause said straw to be forced against the marginal portion of the lid adjacent the cross-bar section of the T-shaped slit while being inclined relative to a container with which the lid is associated.

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