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(54) **ANTI-SPILL DISPOSABLE
DRINK-THROUGH CUP LID**

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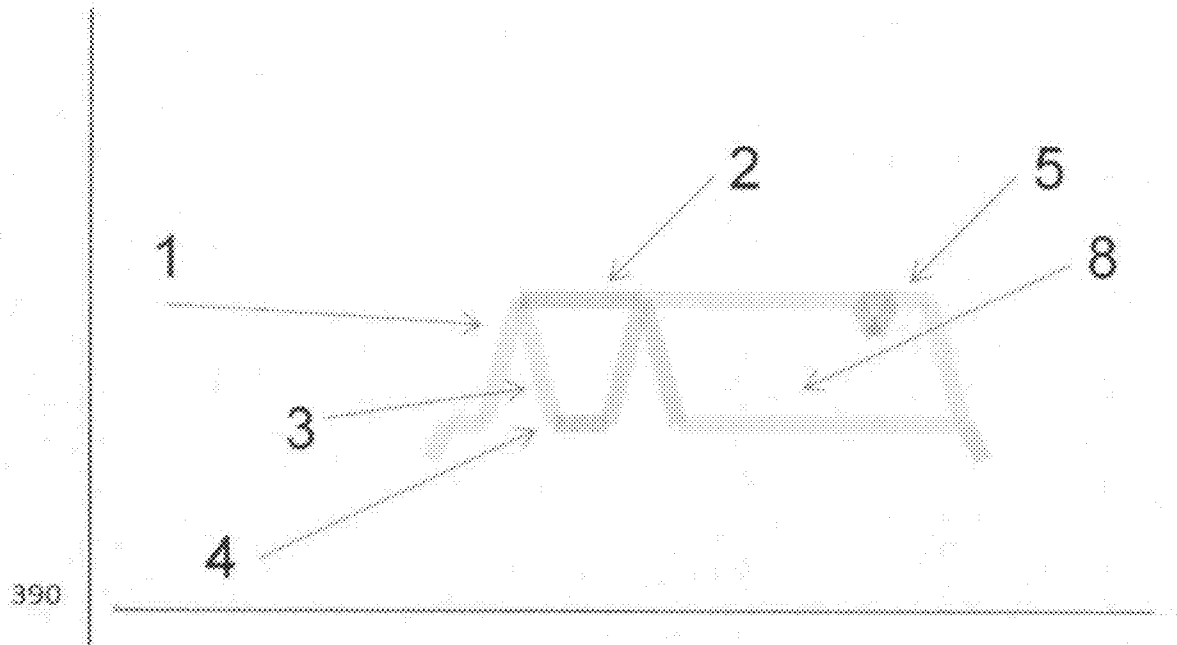
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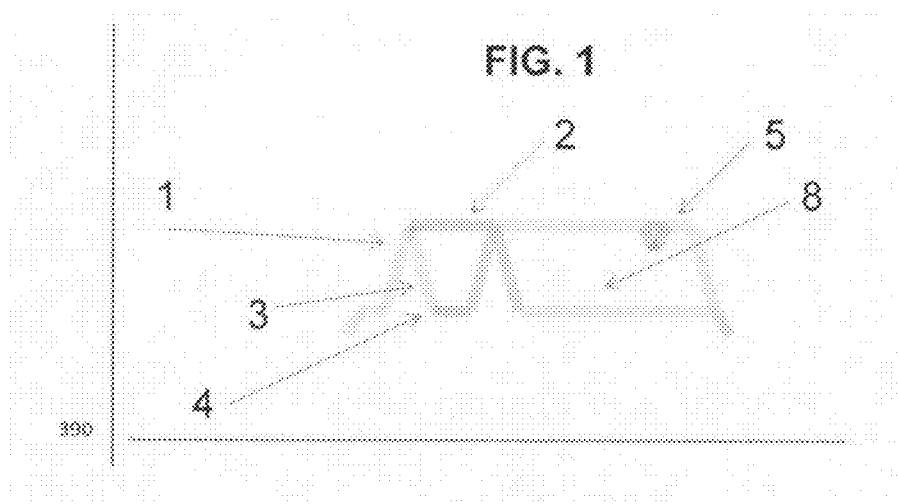
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(57) **ABSTRACT**

This invention relates to anti-spill disposable and reusable drink-through lids for hot and cold disposable and reusable beverage cups. The present invention is directed to drink-through lids which may be placed over and attached to disposable and reusable beverage cups and which provides a drink-through opening near the perimeter of the lid's top surface for easy drinking. The drink-through lid can accommodate a consumer's lips or a beverage disposable or reusable straw. When used with a straw, the lid and straw combination creates a spill-proof seal.





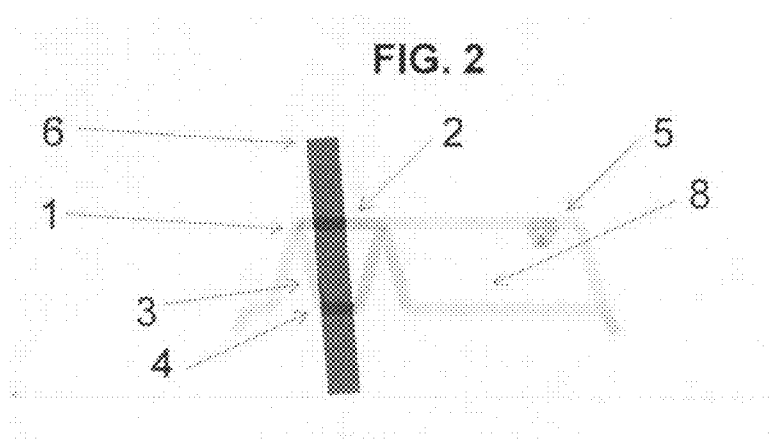
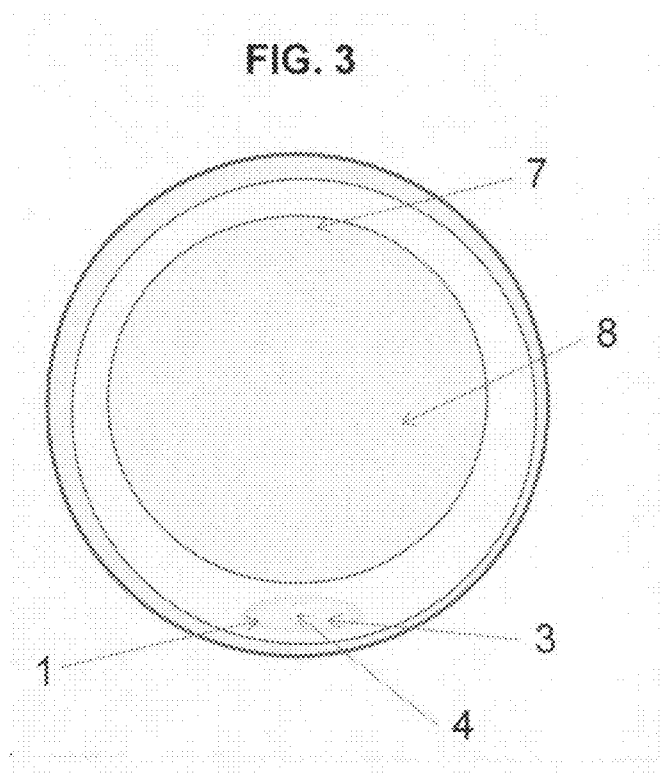
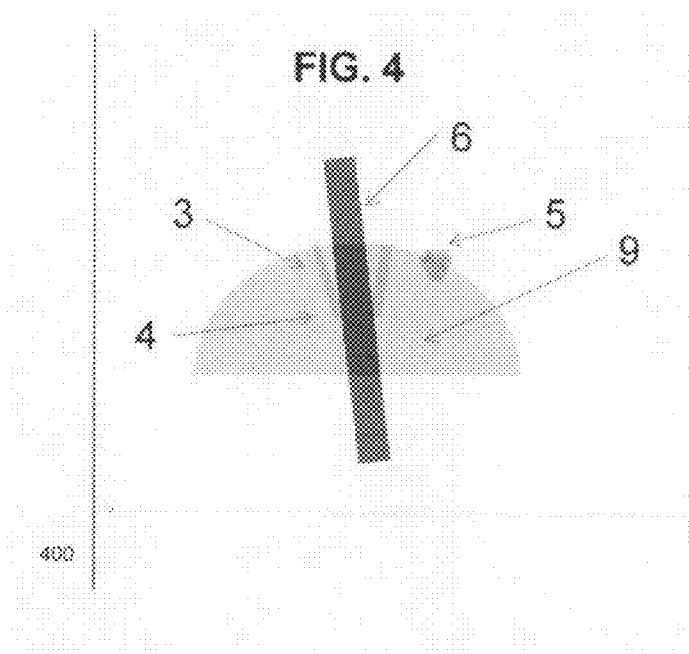


FIG. 3





ANTI-SPILL DISPOSABLE DRINK-THROUGH CUP LID

FIELD OF THE INVENTION

[0001] This invention relates to disposable and reusable lids for disposable and reusable beverage cups; and, more particularly, the present invention is directed to the use of the disposable and reusable lids with disposable and reusable drinking straws for easy drinking access to the beverage and the elimination of beverage spillage.

BACKGROUND OF THE INVENTION

[0002] Disposable and reusable beverage lids with drink-through openings have been described in detail within prior art and are well-known to the general public.

[0003] It is an object of the present invention to provide a disposable or reusable beverage cup lid which overcomes the disadvantages of the previously known closures. Many prior art covers use openings on the tops of the lids in order to allow drinking of the beverage either by lips or by straw. Drinking flaps, releasable flaps, hinged openings and other configurations address the spillage issues, but the prior art does not eliminate the spillage. There is a need for an effective drink-through disposable or reusable lid that eliminates beverage spillage.

[0004] More than ever, beverages are consumed “on the go.” Although the mobile beverage consumption conveniences are many, the spillage associated with using disposable or reusable beverage cups and drink-through disposable or reusable lids continue to negatively impact the overall consumer experience. Beverage vendors and consumers are at risk from the moment the beverage is poured into the beverage cup to the time the consumer disposes of the beverage cup and the drink-through lid (assuming the cup and lid are disposable). With the previously known closures, spillage can happen when the beverage cup is accidentally jostled, bumped or tipped.

[0005] In fact, many consumers continue to multitask while they hold and drink their beverages. Often, the beverage cup and the beverage become real distractions and expose the consumer to dangerous situations. Many beverages are consumed in a car during work commutes. Consumers are creative and use knees, crotches, hands and cup holders to hold their beverage cups during the drive. For example, while driving along a poorly paved road and drinking her morning coffee from a disposable coffee cup, a consumer drives over a deep pothole. Just finishing a sip, the pothole causes the consumer to jerk the beverage cup. The action causes coffee to spill on her new white blouse. Blotting the blouse with a napkin, she takes her eyes off of the road, hits the curb with her front tire and suffers a tire blowout. Unfortunately, similar accidents happen frequently with far greater negative consequences.

[0006] Previously known lids are varied and attempt to solve the spillage issues associated with moving beverages in disposable and reusable cups. Numerous attempts have been made to solve the spilling problem by providing lids which remain in place while drinking. Some such lids are provided with many small holes through which the beverage may be consumed, the idea being if the cup is accidentally jostled, bumped or tipped with such a drink-through lid, there will be at least a limiting of the amount of liquid spilled. Other lids have been designed with depressible flaps, tear out flaps and

other arrangements designed to serve the same purpose. While such lids to provide a certain amount of limitation of the spillage, the presence of holes in the lid and other flap related gaps nevertheless permits an unacceptable amount of spillage in the event that beverage cup is accidentally jostled, bumped or tipped. Because the beverage cup lids to date are unable to stop spillage, many beverage vendors and consumers seem to accept the fact that spillage is just an inherent aspect of the disposable and reusable beverage cup drinking experience. Internet blogs and other communication channels highlight the issues associated with beverage consumption “on the go,” disposable and reusable beverage cups and drink-through lids. Ruined neckties and silk blouses, soaked automobile seats and cup holders and burned fingers, crotches and knees are all casualties of the previously known drink-through lids.

[0007] Through-slits of a perforated straw opening aperture are common although the through-slits’ function is limited. Often, the straw is not strong enough to break through the perforated straw aperture and the straw can break or crack. Many perforated straw apertures are so strong that it takes two hands to create an appropriate straw opening. During this process, fingers are often exposed to the liquid and can cause skin burns, spillage or both. If the consumer does not want to use a finger to open the perforated straw aperture, a ballpoint pen or other like device can be used to puncture the perforated straw aperture. As with the fingers, the ballpoint pens are often exposed to the liquid creating messes and unnecessary distractions. Both scenarios negatively impact the overall user experiences for the thirsty consumer.

[0008] The invention supports a drink-through lid that eliminates the need for plastic devices that plug the sipping holes. These plastic plugs are provided by coffee and tea houses at no cost to the consumers. However, these plastic plugs are expensive and serve only one purpose. These plastic plugs simply plug the sipping holes. When the consumer wants to drink the beverage, the plastic plug must be removed and placed to the side. If desired, the consumer can place the plastic plug back into the sipping hole after each sip or series of sips. This process is impractical and a distraction when the consumer is multitasking (walking, driving a car, etc.) and “on the go.”

[0009] It is a further object of this invention that it is an economical design which can be produced on a mass basis and which permits drinking of the beverage through the lid while eliminating or effectively limiting the amount of beverage spillage in the event the beverage cup is upset, jostled or otherwise moved. This invention can be manufactured using thermoforming techniques. Thermoforming is a manufacturing process where a plastic sheet is heated to a pliable forming temperature, formed to a specific shape in a mold, and trimmed to create a usable product. The sheet, or “film” when referring to thinner gauges (usually used for disposable products) and certain material types, is heated in an oven to a high-enough temperature that it can be stretched into or onto a mold and cooled to a finished shape.

[0010] In its simplest form, a small tabletop or lab size machine can be used to heat small cut sections of plastic sheet and stretch it over a mold using vacuum. This method is often used for sample and prototype parts. In complex and high-volume applications, very large production machines are utilized to heat and form the plastic sheet and trim the formed parts from the sheet in a continuous high-speed process, and

can produce many thousands of finished parts per hour depending on the machine and mold size and the size of the parts being formed.

[0011] Thermoforming differs from injection molding, blow molding, rotational molding, and other forms of processing plastics. Thin-gauge thermoforming is primarily the manufacture of disposable cups, containers, lids, trays, blisters, clamshells, and other products for the food, medical, and general retail industries. Injection molding and other manufacturing processes can be used to make reusable lids, cups, etc.

[0012] The invention includes the following advantages:

[0013] 1. Now coffee, tea and other beverages are truly mobile. Since the invention eliminates on-the-go beverage spills, commuters, walkers and other movers and shakers can finally drink with confidence.

[0014] 2. Dentists recommend our invention for their patients who drink coffee and tea. The invention protects teeth from damaging tannic acids and unattractive stains.

[0015] 3. The invention protects neckties, blouses, car beverage holders and other valuables from damaging coffee spills.

[0016] 4. The invention eliminates finger, hand, face and other bodily hot beverage burns.

[0017] 5. The invention educes spill distractions and creates safer and more relaxed drinking environments.

[0018] 6. The invention is environmentally friendly, recyclable and toxic free.

[0019] 7. The invention improves market share by retaining existing customers and attracting new ones.

[0020] 8. The invention reduces legal liability and exposure. During discovery, McDonald's was required to produce corporate documents of similar cases. Individuals in the industry may recall a customer bought coffee at a McDonald's drive-through, spilled it on herself, and suffered minor burns. She sued McDonald's and won. At the time of this trial, more than 700 claims had been made against McDonald's, and many of the victims had suffered third-degree burns.

DESCRIPTION OF PRIOR ART

[0021] CRUDGINGTON U.S. Pat. No. 7,591,393 teaches disposable dome cup lids describes using flaps to stabilize and partially seal the inserted drinking straw, "The merging of opening 44 with 42 and opening 46 with 42 creates four flaps 47 cable of folding outward thereby permitting the insertion of a drinking straw through drink-through opening 18. Furthermore, the four flaps 47 served to stabilize and practically seal the inserted drinking straw within drink-through opening 18 regardless of the diameter of the drinking straw being used." In addition, When a drinking straw is inserted through the drink-through opening 18, the flaps 47 should be sufficiently flexible to fold outward without collapsing the straw."

[0022] It will thus be seen that the present invention provides a new and improved drink-through disposable lid having a number of advantages and characteristics. CRUDGINGTON relies on flaps that do not form a perfect seal with the straw allowing the beverage to spill. CRUDGINGTON provides only a partial seal. In addition, the flaps can damage the drinking straw. In the present invention the conical opening is round and is engineered to fit with the drinking straw.

This combination ensures that the lid will never damage the drinking straw. CRUDINGTON specifies oval-shaped drink-through openings, not round.

BRIEF SUMMARY OF THE INVENTION

[0023] This invention relates to anti-spill disposable drink-through lids for hot and cold beverage cups. The present invention is directed to drink-through lids which may be placed over and attached to a disposable beverage cup and which provides a drink-through opening near the perimeter of the lid's top surface for easy drinking. The drink-through lid can accommodate a consumer's lips or a beverage straw. When used with a beverage straw, the lid and beverage straw combination creates a spill-proof seal.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

[0024] The basic elements comprising the present invention will be better understood from the following drawings. Whereas the preferred configurations of the improvements relating to the invention have been illustrated and described herein, it should be realized that the preferred embodiments are to be considered in all respects illustrative and not restrictive. Although described as disposable, the lids, cups and straws can be reusable.

[0025] FIG. 1 is a cross sectional side view illustrating the disposable lid with all of the preferred embodiments of the present invention (excluding the drinking straw).

[0026] FIG. 2 is a cross sectional side view illustrating the disposable lid with all of the preferred embodiments including a drinking straw.

[0027] FIG. 3 is a top view illustrating the lid with all the preferred embodiments of the present invention (excluding the drinking straw).

[0028] FIG. 4 is a cross sectional side view illustrating the disposable dome lid used for cold beverages with all of the preferred embodiments including a drinking straw.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0029] FIG. 1 illustrates a cross sectional view of the anti-spill disposable or reusable drink-through lid 8 for hot and cold beverages.

[0030] The anti-spill disposable or reusable drink-through lid 8 includes an integrated and fixed spout 1 that consumers can use to drink hot or cold beverages. The integrated spout 1 includes a spout opening 2, an inverted conical structure 3 and a conical opening 4 at the bottom of the inverted conical structure.

[0031] This integrated spout 1 enables the consumer to use the integrated spout 1 with or without a disposable or reusable straw. The spout opening 2 is designed to comfortably fit consumer lips. The spout opening 2 can be configured in many shapes (round, oval, etc.).

[0032] FIG. 2 illustrates the spout opening 2. The spout opening 2 is larger than the conical opening 4 at the bottom of inverted conical structure 3, the spout opening 2 provides the beverage server or consumer with a generous guide for the straw insertion. The conical opening 4 is round in shape. The conical opening 4 diameter is the exact same size or slightly smaller than the drinking straw 6 diameter depending on the lid and straw materials, composition and other factors. This conical opening 4 and straw 6 relationship is critical. It is this

relationship between the conical opening 4 and the straw 6 which creates a snug and anti-spill seal. The fit between the conical opening 4 and the straw 6 is like “a hand and glove.” Once the straw 6 is placed within the spout opening 2, the beverage server or consumer simply pushes the straw 6 down the inverted conical structure 3 and through the conical opening 4 at the bottom of the inverted conical structure 3. Unlike other inventions, this invention’s straw insertion process can easily be done with just one hand. Beverage servers and consumers appreciate the simple, quick, convenient and efficient straw insertion process. In addition, the risk of damaging the straw 6 or the integrated spout 1 during the process is eliminated.

[0033] Although straws 6 with smaller diameters than the conical opening diameter are possible, the ability to eliminate spills is compromised if smaller diameter straws 6 are used. Smaller straws 6 are unable to create a snug seal.

[0034] If the consumer requires cream, sugar or other condiment for the beverage, the lid 8 can easily be removed allowing the consumer to add the condiments. As with many lids, the lid 8 can be easily replaced once the condiments have been added.

[0035] It is a primary objective of the present invention to overcome the disadvantages of the prior art and provide a spout that dramatically reduces lid spillage. This is accomplished by adding an inverted conical structure 3 to the integrated spout 1. The inverted conical structure 3 extends from the top of the integrated spout 1 downward and into the integrated spout 1. Although consumers can enjoy beverages without straws, the spout opening 2 easily allows beverage servers or consumers to guide a straw 6 through the top of the integrated spout 1, through the spout opening 2, down into the inverted conical structure 3 and through the conical opening 4 at the bottom of the inverted conical structure 3. It is important to note that the conical opening 4 is designed to be the exact same size or slightly smaller than the diameter of the straw 6 so that when the straw 6 is inserted, the conical opening 4 and the straw 6 create a snug and leak proof seal. The advantages of this design include a dramatic reduction and even elimination of beverage spillage.

[0036] FIG. 3 illustrates the top view of the lid 8. This view shows the integrated spout 1, inverted conical structure 3, spout opening 2, conical opening 4 and the vent hole 5.

[0037] FIG. 4 illustrates how the invention can also be incorporated into a dome drink-through lid 9. Unlike the current dome lid configurations, this invention provides significant advantages including a fully sealed beverage. Current dome lids include a large opening on the top of the lid which allows whipped cream, beverage toppings and liquid to spill and create a mess on the exterior of the dome lid, the beverage server hands, the consumer hands and the surrounding area. The disposable drink-through lid 9 may be configured so that the lid 9 extends the volume of the cup it covers. This is desirable when beverages are served with whipped cream, foam and other toppings.

[0038] A small vent hole 5 can be positioned on the lid surface 9 directly across from the conical structure 3. This small vent hole 5 can be similar in structure to the inverted conical structure 3 but at a much smaller scale or a standard vent hole commonly known in the art. This design limits any spillage from the vent hole 5.

[0039] The stacking capability of the drink-through lids of the present invention is very important. The space-saving nesting feature is a beverage industry requirement due to the

large quantities of lids fast food restaurants, coffee houses and other like establishments must stock. In addition, this same space-saving nesting feature is appreciated at the point of use as beverage servers typically work in small and congested areas. The nesting quality reduces the cost of shipping from the drink-through lid manufacturer to the restaurant, coffee house or other establishment.

[0040] Configuration options of the present invention include removable tabs that can easily be removed by the beverage vendor or consumer using fingers for the spout opening tab or a straw for the conical opening tab. While the spout opening tab can be disposed of, the conical opening tab is designed to allow the straw to penetrate the conical opening and form a snug seal, the conical opening tab remains attached to the inverted conical structure so that the tab is not accidentally swallowed by the consumer.

[0041] Although optional, most beverage vendors will not order straws with protective paper wrappers since the beverage server will likely insert the straw into the drink-through lid in a controlled and sanitary beverage pouring environment. Having the beverage server insert the straw makes the invention’s drink-through lid virtually leak proof. This straw wrapper elimination decreases the overall straw costs and is a more environmental aware product.

[0042] The drink-through lid and straw can include advertisements or other content.

What is claimed is:

1. An invention as it relates to anti-spill disposable or reusable drink-through lids for mounting on disposable or reusable drinking cups. The lid comprising of: a circular mounting base that attaches to a disposable drinking cup; an outer sidewall; a top of the lids; a recessed area adapted for drinking with human lips; a recessed area adapted for drinking with a straw.

2. The disposable or reusable lid of claim 1 wherein the disposable or reusable lid can be used for hot and cold beverages and their related disposable or reusable cups.

3. The disposable or reusable lid of claim 1 wherein the integrated spout includes a spout opening, an inverted conical structure and a conical opening at the bottom of the inverted conical structure. The conical opening is round in shape.

4. The disposable or reusable lid of claim 1 wherein the spout opening is designed to comfortably fit consumer lips. The spout opening can be configured in many shapes (round, oval, etc.).

5. The disposable or reusable lid of claim 1 wherein the spout opening is larger than the conical opening at the bottom of inverted conical structure, the spout opening provides the beverage server or consumer with a generous guide for the straw insertion. The straw can be disposable or reusable.

6. The disposable or reusable lid of claim 1 wherein the conical opening diameter is the exact same size or slightly smaller than the drinking straw diameter. Conical opening is dependent on the lid and straw materials, composition, intended use (hot or cold beverage) and other factors. This conical opening and straw relationship is critical. It is this relationship between the conical opening and the straw which creates a snug and anti-spill seal. The fit between the conical opening and the straw is like “a hand and glove.”

7. The disposable or reusable lid of claim 1 wherein the disposable or reusable straw is placed within the spout opening, the beverage server or consumer simply pushes the straw down the inverted conical structure and through the conical opening at the bottom of the inverted conical structure. Unlike

other inventions, this invention's straw insertion process can easily be done with just one hand.

8. The disposable or reusable lid of claim **1** wherein a small vent hole can be positioned on the lid surface directly across from the conical structure.

9. The disposable or reusable lid of claim **1** wherein the disposable or reusable drink-through lid may be configured so that the lid extends above the volume of the cup it covers. This is desirable when beverages are served with whipped cream, foam and other toppings.

10. The disposable or reusable lid of claim **1** wherein the lid can easily be removed allowing the consumer to add condiments (cream, sugar, cinnamon, etc.). The lid can be easily replaced once the condiments have been added.

11. The disposable or reusable lid of claim **1** wherein the space-saving nesting feature of the lid is a beverage industry requirement due to the large quantities of lids fast food restaurants, coffee houses and other like establishments must

stock. The space-saving nesting feature is appreciated at the point of use as beverage servers typically work in small and congested areas.

12. The disposable or reusable lid of claim **1** wherein the nesting quality reduces the cost of shipping from the drink-through lid manufacturer to the restaurant, coffee house or other establishment.

13. The disposable or reusable lid of claim **1** wherein the drink-through lid and straw can include advertisements or other content.

14. The disposable or reusable lid of claim **1** wherein the invention is an economical design which can be produced on a mass basis and which permits drinking of the beverage through the lid while eliminating or effectively limiting the amount of beverage spillage in the event the beverage cup is upset, jostled or otherwise moved.

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