

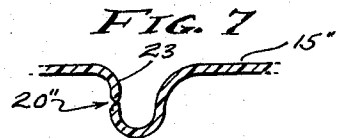
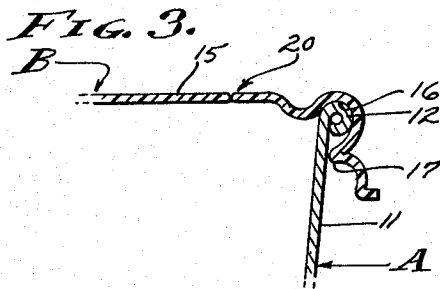
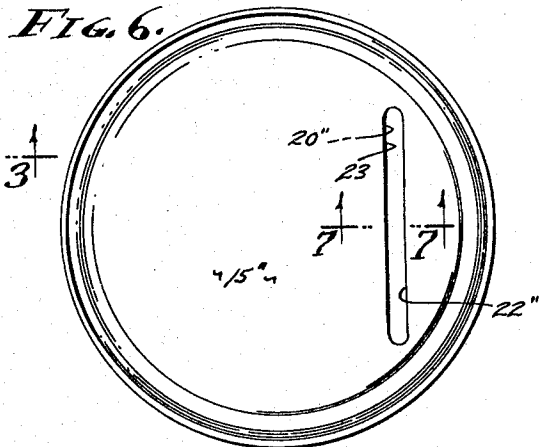
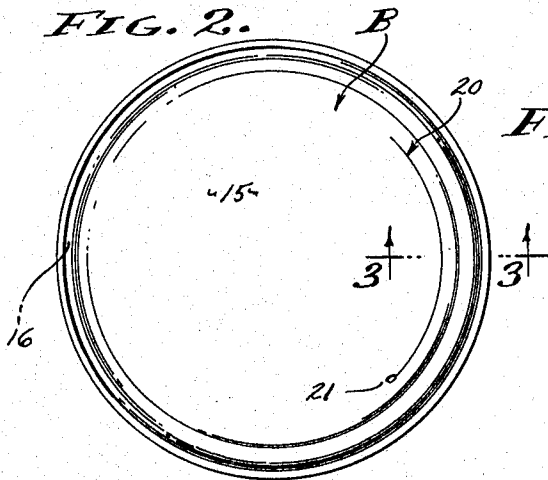
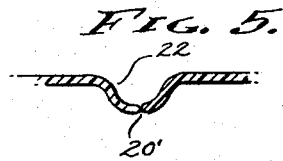
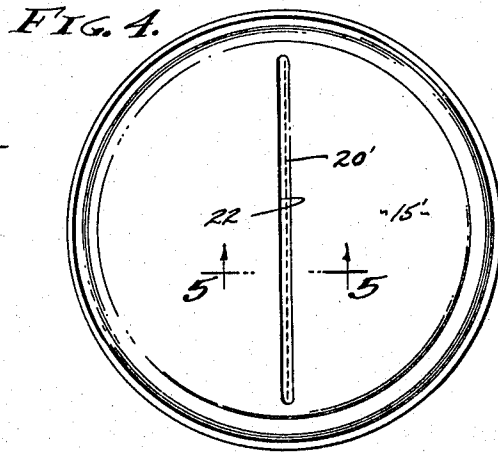
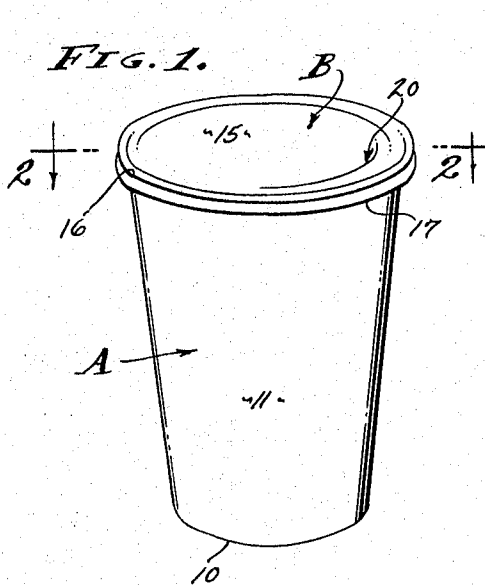
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CLOSURE FOR DRINKING CONTAINERS

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CLOSURE FOR DRINKING CONTAINERS
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This invention has to do with drinking cups or glasses and is particularly concerned with a closure that prevents spillage and that simultaneously permits drinking from the cup or glass, all without the removal of the said closure.

Refreshments and particularly beverages are sold in cups or glasses of varied shapes and sizes, and quite often in paper cups. Said cups are filled by hand and are also dispensed by machine, and in either case spillage is a problem the moment said cups are filled. Although care can be exercised in avoiding spillage, nevertheless there are circumstances where care and prudence does not avoid spillage. For the most part, these circumstances prevail when transportation is concerned, either in carrying the filled cup or in the handling of the filled cup when travelling aboard a vehicle, or the like. In any event, there are circumstances such as those mentioned where a person is jostled while carrying or drinking from a container and in which case a non-spilling container is most desirable.

An object of this invention is to provide a closure for drinking containers, a closure that prevents spillage and that also permits drinking therefrom, all without removal of said closure.

It is an object of this invention to provide a closure for a drinking container that is convertible from a sealed condition to an openable condition. With the structure of the present invention the closure can be applied as an absolute seal but preferably with a vent, or the closure can be altered so as to permit drinking of liquid from a container in which latter case the closure is at least substantially spillproof.

It is another object of this invention to provide a closure of the character referred to and which is adapted to be made of one piece of material, and which is such as to seek a normally closed condition, and which is easily operated to be opened for access to the interior of the container for drinking purposes.

It is still another object of this invention to provide a closure of the character referred to and which includes a valve action that operates to open for drinking and to close with sealed engagement when released from said drinking condition.

The various objects and features of this invention will be fully understood from the following detailed description of the typical preferred forms and applications thereof, throughout which description reference is made to the accompanying drawings, in which:

FIG. 1 is a perspective view of a container and the closure provided by the present invention. FIG. 2 is a plan section taken as indicated by line 2-2 on FIG. 1, and FIG. 3 is an enlarged detailed section taken as indicated by line 3-3 on FIG. 2.

FIG. 4 is a view showing the second form of the invention, similar to FIG. 2, and FIG. 5 is an enlarged detailed section taken as indicated by line 5-5 on FIG. 4.

FIG. 6 is a view showing the third form of the invention, similar to FIGS. 2 and 4, and FIG. 7 is an enlarged detailed section taken as indicated by line 7-7 on FIG. 6.

The container A to which the closure B is applicable can vary and is shown as a typical drinking cup as they are constructed of waxed paper and the like. The container has a bottom 10 and a side wall 11, being substantially cylindrical in form with a slightly tapered configuration. The rim 12 is rolled into a bead or slight

peripheral enlargement, the container structure as a whole being expendable after once used.

The closure B is a cap-like structure that is applicable to the drinking container above described, or any like container, being formed of sheet material having flexibility and resilience. In practice, a pliable plastic sheet material is employed in forming the closure B, preferably polyethylene which can be effectively thermally formed. Thus, the closure B is essentially a disc-shaped element having a flat top 15 and a circumferentially and axially disposed channel 16 for reception of and engagement with the rim 12 of the container. As is common practice, the channel 16 has an internal lip 17 that snaps over the rim 12, the memory of the material forming the closure causing the channel to fit snugly onto the rim of the container.

In accordance with the invention the closure B has incorporated therein at least one line of weakening 20 and which line extends to or along the edge portion of the closure. In the first form of the invention (FIGS. 1, 2 and 3) I have shown an arcuate line of weakening 20 that is concentric with the diameter of the closure and which is uniformly spaced from the channel 16 along one side of the closure. The said line of weakening 20 can vary accordingly to the desired facility with which opening thereof is to be made, the top 15 remaining closed and sealed prior to the said opening. Therefore, a typical line of weakening 20 is established by pressing a knife into engagement with at least one side of the top 15, thereby reducing the material thickness to a minimum as best illustrated in FIG. 3. However, in the event that a vent is required then one or more perforations 21 can be provided along the line of weakening, or if desired the line of weakening 20 can comprise a series of perforations 20'.

In the second form of the invention (FIGS. 4 and 5), the said line of weakening 20' is recessed for the containment of liquid, as by means of capillary attraction. As is shown, there is an elongate recess or well 22 extending diametrically of the top 15', said well presenting rounded edges for engagement with a person's lips and having a collecting function for the liquid being handled.

In the third form of the invention (FIGS. 6 and 7) the said line of weakening 20'' and recess or well 22'' are as above described but related so as to provide re-sealing of the opening that is formed by separating or breaking apart of the top along said line of weakening. In the form now under consideration the recess or well 22'' is of such depth as to present a wall 23 disposed in a plane substantially normal to the plane of the top 15'', and said line of weakening 20'', well 22'' and wall 23 are straight and are disposed transversely of the top as a chord line. In accordance with this form of the invention the said wall 23 is impressed with said line of weakening 20'' and to the end that the broken apart edges of the top 15'' can come together into sealing engagement.

From the foregoing, the closure B is disclosed as a single element structure wherein the plane of the top is interrupted by a line of weakening which in each instance can be entirely imperforate or vented as desired, and which in each instance can be broken so as to permit the adjacent portions of the top to deflect together or oppositely and in which each case results in separation of said portions for the passage of liquid. Further, in each instance the resilience of the material forming the top brings the adjacent broken apart portions back into alignment so as to touch or at least to be closely opposed, in which case wetting by means of the presence of the liquid involved causes a seal to be established as caused by capillary attraction or surface tension of liquid to occupy the interstice between the opposed top portions, and particularly in the form shown in FIGS. 6 and 7 where

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internal pressures act to force the sealing edges into engagement.

Having described only a typical preferred form and application of my invention, I do not wish to be limited or restricted to the specific details herein set forth, but wish to reserve to myself any modifications or variations that may appear to those skilled in the art and fall within the scope of the following claims.

Having described my invention, I claim:

1. A closure for drinking containers of the character described and comprising:

- (a) a top of flexible and resilient material;
- (b) means securing said top to the container to close the same;
- (c) and a line of weakening with at least one open vent perforation and dividing the top into separable and adjacently opposed relatively movable portions, said portions being movable apart for drinking purposes and normally movable together to prevent spillage.

2. A closure for drinking containers of the character described and comprising:

- (a) a top of flexible and resilient material, with an

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elongate recess therein having a wall substantially normal to the plane of said top;

(b) means securing said top to the container to close the same;

(c) and a line of separation disposed parallel with the plane of the said top and at the said normal wall thereof, and dividing the top into opposed adjacently and separably releasable movable portions, said portions being movable apart for drinking purposes and normally movable together to prevent spillage.

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