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3,355,046

INSULATING TUMBLER

Filed April 22, 1966

2 Sheets-Sheet 1

Fig. 1

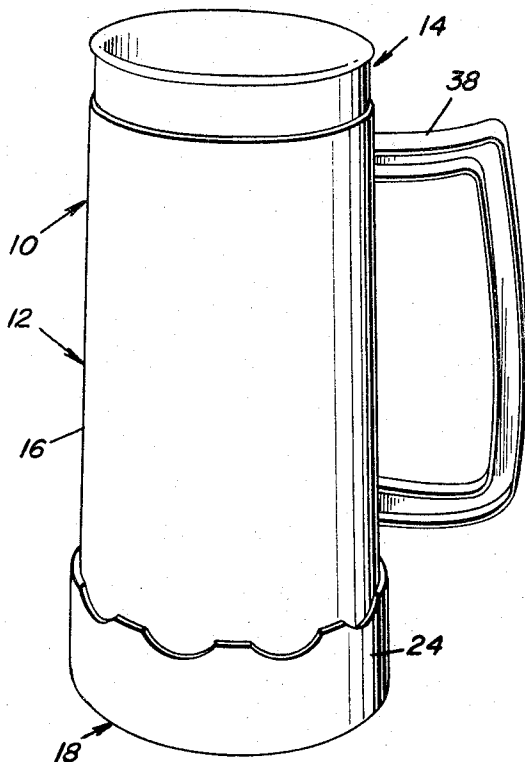


Fig. 3

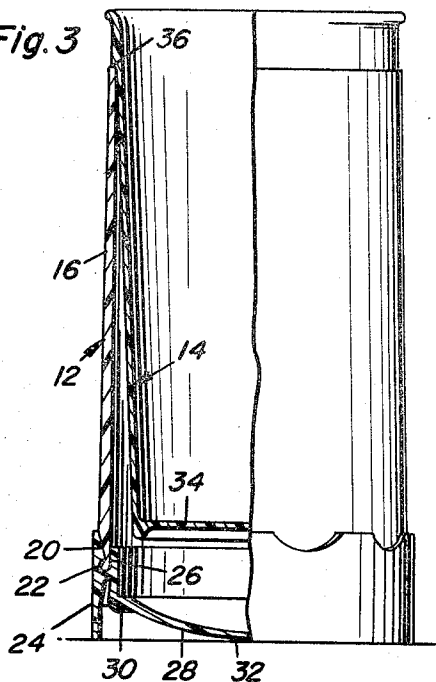


Fig. 4

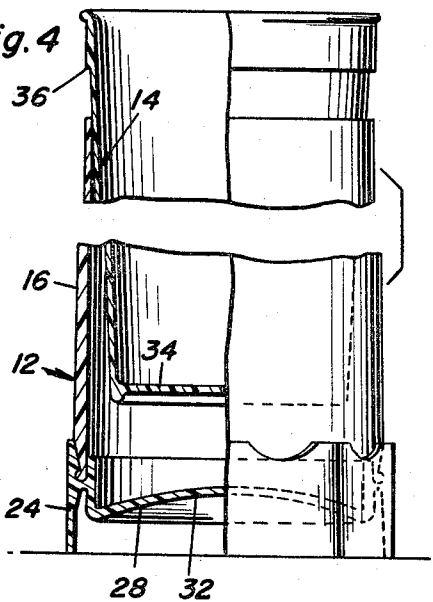
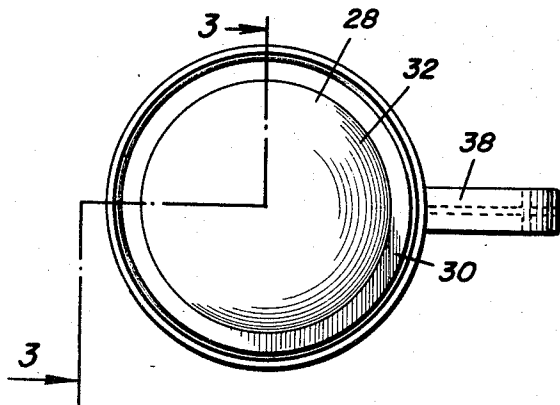


Fig. 2



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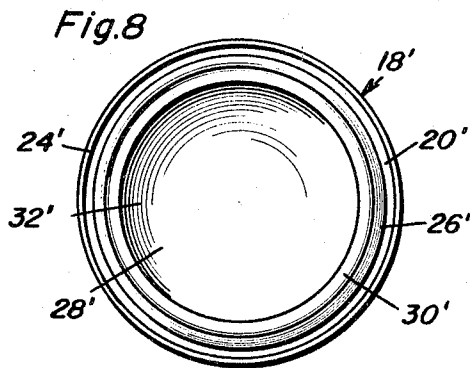
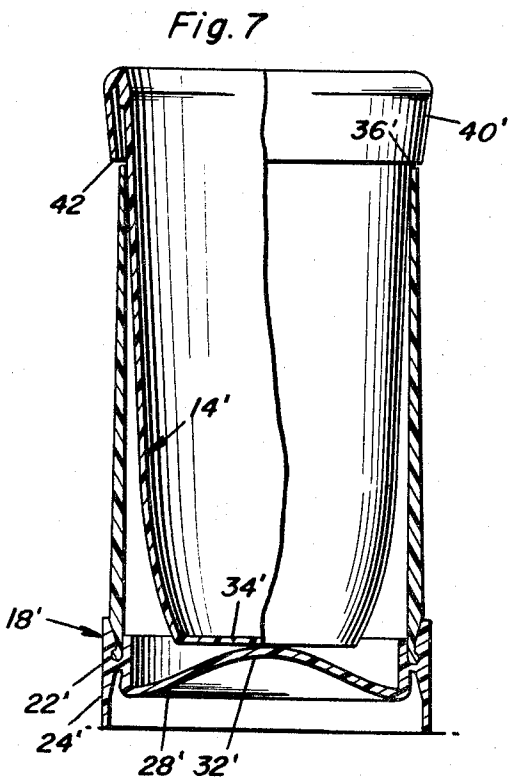
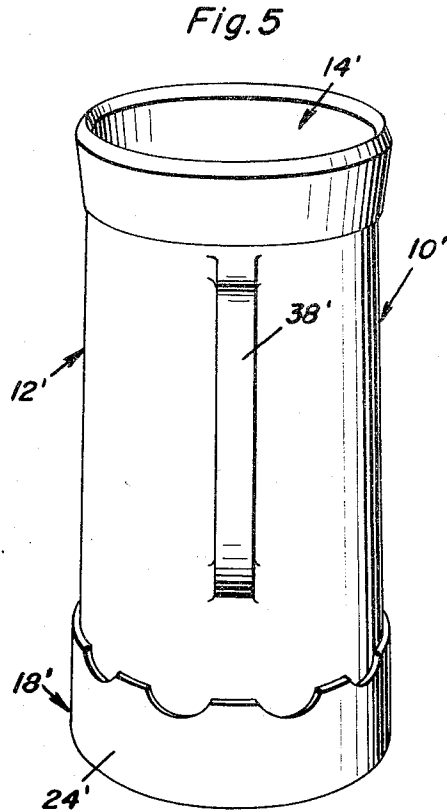
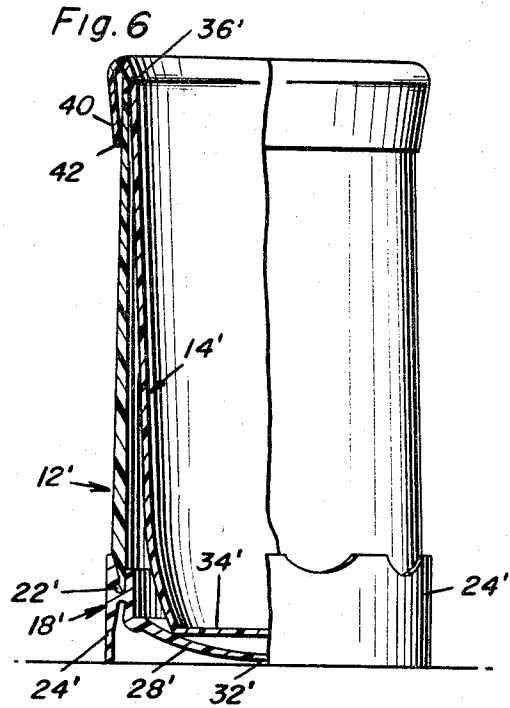
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INSULATING TUMBLER

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2 Sheets-Sheet 2



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3,355,046

INSULATING TUMBLER

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11 Claims. (Cl. 215-13)

ABSTRACT OF THE DISCLOSURE

A container including inner and outer telescoping-ly engaged tubular members closed at one set of corresponding ends and open at the other set of corresponding ends with the open end portion of the inner tubular member being seatingly engaged with the inner surface portions of the open end of the outer tubular member and projecting outwardly of the latter and the closed end of the outer tubular member being inwardly displaceable by an inward force directed thereon from the exterior of said body and operable, when being inwardly displaced, to at least slightly outwardly displace the inner tubular member from the open end of the outer tubular member.

This invention relates to a novel and useful insulating tumbler assembly and more specifically to an assembly including a generally tubular outer body closed at one end and open at the other end. The assembly also includes an inner tubular member which is closed at one end portion and has its closed end portion removably telescoped into the open end of the outer tubular body with the closed end portion of the inner tubular member disposed in the closed end of the tubular body. Further, the open ends of the tubular body and tubular inner member include coacting inner and outer surface portions respectively, which are seated in frictional engagement with each other in a manner forming a generally fluid-tight seal therebetween.

At least some portions of the inner tubular member are spaced from corresponding portions of the outer tubular body constructed of deformable material and adapted to be displaced inwardly by a force directed thereon from the exterior of the body to thereby reduce the volume of the area disposed between the spaced portions of the outer tubular body and the inner tubular member. In this manner the air pressure within the area will be increased and may be utilized to eject the inner tubular member at least slightly outwardly of the open end of the tubular body member.

Further, the deformable portions of the outer tubular body form the bottom wall thereof and are convexed downwardly whereby the convexed portions may be readily upwardly displaced in order to increase the air pressure within the above mentioned area. Still further, the bottom of the inner tubular member is spaced only slightly above the convexed portions of the bottom of the outer tubular body thereby allowing the deformable portions of the bottom of the outer tubular body to also contact and upwardly displace the bottom of the inner tubular member when the deformable portion is displaced upwardly.

Both the outer tubular body and inner tubular member of the assembly of the instant invention are preferably constructed of a material having low heat transferring properties such as plastic enabling the assembly to be utilized to contain either chilled or heated fluids which fluids, because of the low heat transfer properties of the outer body and inner tubular member and the spacing between major portions of the outer surfaces of the inner member and the inner surfaces of the outer tubular body, will tend to maintain their respective temperatures longer.

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The main object of this invention is to provide an insulating tumbler construction or assembly that is adapted to have either chilled or heated liquids disposed therein and consumed directly therefrom by the user placing the open end of the tumbler assembly to his lips and drinking fluid from the tumbler.

Another object of this invention, in accordance with the immediately preceding object, is to provide an insulating tumbler assembly which may be utilized to contain either chilled or heated liquids to be consumed directly therefrom and which, because of its heat insulating properties and double container construction, prevents the outer surface of the tumbler assembly from sweating or the supporting surface on which the tumbler is disposed from sweating.

A further object of this invention is to provide an assembly in accordance with the preceding objects constructed in a manner enabling the inner member to be readily displaced at least partially outwardly of the open end of the outer member.

A final object of this invention to be specifically enumerated herein is to provide an insulated tumbler assembly in accordance with the preceding objects which will conform to conventional forms of manufacture, be of simple construction and easy to use so as to provide a device that will be economically feasible, long lasting and relatively trouble free in operation.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view of the insulating tumbler assembly of the instant invention;

FIGURE 2 is a bottom plan view of the assemblage illustrated in FIGURE 1;

FIGURE 3 is a vertical sectional view taken substantially upon the plane indicated by the section line 3-3 of FIGURE 2;

FIGURE 4 is a fragmentary sectional view similar to that of FIGURE 3 but shown with the inner tubular member slightly outwardly displaced from the open end of the tubular body by increased air pressure within the area disposed between the spaced apart portions of the body and tubular member caused by upward deflection of the normally downwardly convex center portion of the bottom wall of the outer tubular body;

FIGURE 5 is a perspective view of a modified form of insulating tumbler assembly constructed in accordance with the present invention;

FIGURE 6 is a vertical sectional view similar to that of FIGURE 3 but of the modified form of tumbler assembly illustrated in FIGURE 5;

FIGURE 7 is a sectional view similar to that of FIGURE 4 illustrating the manner in which the inner tubular member of the assemblage illustrated in FIGURE 5 may also be at least partially ejected from the open end of the tubular body by upward deflection of the center portion of the bottom wall of the body; and

FIGURE 8 is a top plan view of the bottom assembly utilized in both illustrated forms of the invention.

Referring now more specifically to the drawings, the numeral 10 generally designates the insulating tumbler assembly of the instant invention. The assembly 10 includes an outer generally tubular body referred to in general by the reference numeral 12 and a generally tubular inner member referred to in general by the reference numeral 14.

The outer body 12 includes a body portion 16 which is

generally cylindrical in configuration and a bottom assembly referred to in general by the reference numeral 18. The lower end of the body portion 16 is beveled as at 20 to define a circumferentially extending bead 22 and the bottom assembly 18 includes a generally cylindrical body portion 24 including a circumferentially upwardly opening groove 26 in which the beveled portion 20 and the bead 22 are removably interlockingly received. Further, the body portion 24 of the bottom assembly 18 includes a bottom wall portion 28 including a thick outer annular peripheral portion 30 and a downwardly convexed central portion 32. The tubular body 12 is constructed of any suitable material such as plastic and has poor heat-transmitting properties. The central portion 32 of the bottom assembly 18 may be deflected upwardly to the position illustrated in FIG. 4 of the drawings by applying an upward force on the center thereof.

The inner cylindrical member 14 includes a bottom wall 34 closing its lower end and its upper open end is provided with a circumferentially extending shoulder 36 which faces toward the closed end of the member 14 and is abuttingly engageable with the upper end edges of the body portion 16 when the member 14 is telescoped within the body 12 in the manner illustrated in FIG. 3 of the drawings.

The body 12 includes an outwardly projecting fixed bail-type handle 38 disposed in an upstanding plane and which may be readily grasped by the user of the tumbler assembly 10 when lifting the latter to drink therefrom.

The outer surface portions of the inner member 14 disposed below the shoulder 36 are tightly telescoped within the upper end of the body 12 and forms a generally fluid-tight seal therewith. Accordingly, if cold liquids are poured into the inner member 14, the air within the area disposed between the spaced portions of the body 12 and inner member 14 is chilled thus creating a partially vacuum which tends to tightly draw the inner member 14 into full seated engagement within the body 12. In order to provide a means whereby the inner member 14 may be at least partially ejected from the open end of the body 12, the central portion 32 of the bottom wall 28 may be deflected upwardly to the position illustrated in FIG. 4 of the drawings thereby reducing the volume of the area between the confronting surfaces of the body 12 and inner member 14 so as to increase the air pressure within the area and thereby forcibly eject, by increased air pressure, the inner member 14 from the body 12.

With reference now more specifically to FIG. 5 of the drawings, there may be seen a modified form of insulative tumbler assembly generally referred to by the reference numeral 10' and which includes an outer tubular body generally referred to by the reference numeral 12' substantially identical in construction to the tubular body 12 and which has its component parts designated by prime numerals corresponding to the numerals given the same component parts of the body 12.

The inner tubular member of the tumbler assembly 10' is generally referred to by the reference numeral 14' and includes a bottom wall 34' corresponding to the bottom wall 34 closing the lower end of the tubular member 14' and which is seatingly received in the downwardly convexed central portion 32' of the bottom wall 28' and engageable by the latter when the central portion 32' is upwardly deflected as illustrated in FIGURE 7 to assist the increased air pressure in the space between the body 12' and the member 14' in at least partially ejecting the member 14' defines an outer circumferentially extending shoulder 36' corresponding to the shoulder 36 which abuts against the upper edges of the open end of the tubular body 12'. However, the tubular member 14' extends upwardly from the shoulder 36' and terminates in an outward and downwardly directed portion 40 which overlaps the upper end portions of the tubular body 12'.

The operation of the insulating tumbler assembly 10' is of course substantially identical to the operation of the

assembly 10 except that the free lower end portions 42 of the backturned portion 40 also form a generally fluid-tight seal between the inner tubular member 14' and the outer tubular body 12'. Thus, a double seal is formed between the tubular body 12' and the inner member 14.

When it is desired to eject the tubular member 14' from the body 12', it is merely necessary to upwardly deflect the central portion 32' of the bottom wall 28' whereby increased air pressure within the area disposed between the inner tubular member 14' and the outer tubular body 12' will cause the inner tubular member 14' to be at least partially ejected outwardly of the open end of the tubular body 12'. Further, the central portion 32' may be further upwardly deflected so as to abut the bottom wall 34' and thereby physically assist in at least initially ejecting the inner tubular member 14'. Finally, the inner tubular member 14 may be increased in length so as to have its lower end cradled by the outer peripheral portions of the bottom wall 28 and the central portion of its bottom wall 34 engageable by the central portion 32 of the bottom wall 28.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. An insulating tumbler comprising a generally tubular body closed at one end by a bottom wall and open at the other end, a generally tubular inner member closed at one end portion and open at the other end portion, said one end portion of said inner tubular member being endwise telescoped in the open end of said body with the other end portion of said tubular member snugly received in the open end of said body in generally fluid-tight sealing engagement therewith, said bottom wall including an outwardly convexed center portion seatingly receiving the closed end of said inner member in the outer periphery portions thereof, said convexed center portion of said body being deformable and displaceable inwardly by an inward force directed thereon from the exterior of said body so as to reduce the volume of the area disposed between said member and said body and thereby increase the air pressure in said area to eject said member at least slightly outwardly of said open end of said body and also, at least at a point approaching the inwardmost displaceable position of said center portion engageable with the closed end of said inner member so as to be capable of at least slightly positively outwardly displacing said inner member from the other end of said outer member.

2. The combination of claim 1 wherein said open end portion of said member projects outwardly of the open end of said body and includes a circumferentially extending generally radially outwardly projecting shoulder facing toward the closed end portion of said member and abuttingly engaged with the end edges of the open end of said body.

3. The combination of claim 1 wherein the open end of said member includes generally longitudinally straight circumferential wall portions projecting outwardly of said open end of said body and terminating at its free end edges in a plane spaced slightly outwardly of the open end of said body.

4. The combination of claim 3 wherein said bottom wall includes outer peripheral portions releasably secured to said one end of said tubular body in generally fluid-tight sealed engagement therewith.

5. An insulating tumbler comprising a generally tubular body closed at one end and open at the other end, a generally tubular inner member closed at one end portion and open at the other end portion, said one end

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portion of said member being endwise telescoped in the open end of said body with at least portions of the telescoped portion of said member disposed in spaced relation relative to the corresponding portions of said tubular body and with the outer surfaces of the open end portion of said member snugly received in the open end of said body in generally fluid-tight and frictionally retained engagement therewith, said corresponding portions of said body including deformable portions displaceable inwardly by an inward force directed thereon from the exterior of said body to reduce the volume of the area disposed between said member and said body sufficiently to thereby increase the air pressure in said area an amount operable to eject said member at least slightly outwardly of said open end of said body.

6. The combination of claim 5 wherein said corresponding portions of said body define a bottom wall forming the closure for said one end of said body.

7. The combination of claim 6 wherein said deformable portions define a downwardly convexed central portion of said bottom wall.

8. The combination of claim 5 wherein said open end portion of said member projects outwardly of the open end of said body and includes a circumferentially extending generally radially outwardly projecting shoulder facing toward the closed end portion of said member and abuttingly engaged with the end edges of the open end of said body.

9. The combination of claim 5 wherein the open end of said member includes generally longitudinally straight circumferential wall portions projecting outwardly of said open end of said body and terminating at its free end edges in a plane spaced slightly outwardly of the open end of said body.

10. The combination of claim 5 wherein said open end portion of said member projects outwardly of the open end of said body and includes a circumferentially extending generally radially outwardly projecting shoulder facing toward the closed end portion of said member and abuttingly engaged with the end edges of the open end of said body, the open end of said member includes generally longitudinally straight circumferential wall portions

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projecting outwardly of said open end of said body and terminating outwardly in outwardly directed and backturned circumferential wall portions, said backturned wall portions terminating at their free edges in a plane passing through the open end portion of said body and disposed in frictional surface to surface contacting engagement with the outer surfaces of said open end of said body.

11. An insulating tumbler comprising a generally tubular body closed at one end and open at the other end, a generally tubular inner member closed at one end portion and open at the other end portion, said one end portion of said member being endwise telescoped in the open end of said body with at least portions of the telescoped portion of said member disposed in spaced relation relative to the corresponding portions of said tubular body and with the outer surfaces of the open end portion of said member received in the open end of said body in frictionally retained engagement therewith, said corresponding portions including deformable portions of said body displaceable inwardly by an inward force directed thereon from the exterior of said body and operable, by being inwardly displaced, to eject said member at least slightly outwardly of said open end of said body, said open end portion of said member projecting outwardly of the open end of said body and including a circumferentially extending generally radially outwardly projecting shoulder facing toward the closed end portion of said member and abuttingly engaged with the end edges of the open end of said body.

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