June 24, 1969 J. C. BRAMLETTE 3,451,371

VACUUM BOTTLE FILLING GAUGE

Filed March 21, 1967

Fig. 1

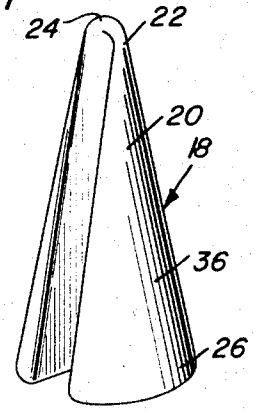


Fig. 2

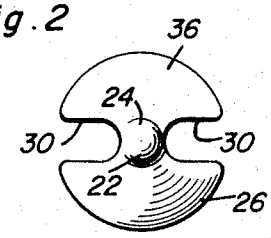


Fig. 3

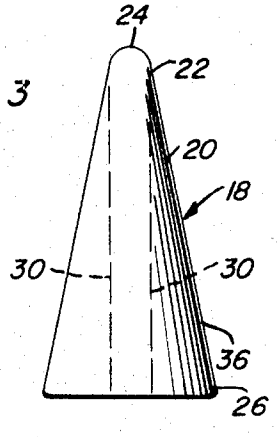


Fig. 4

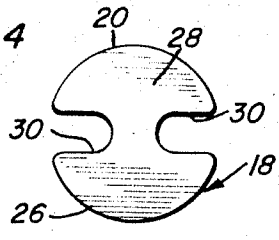
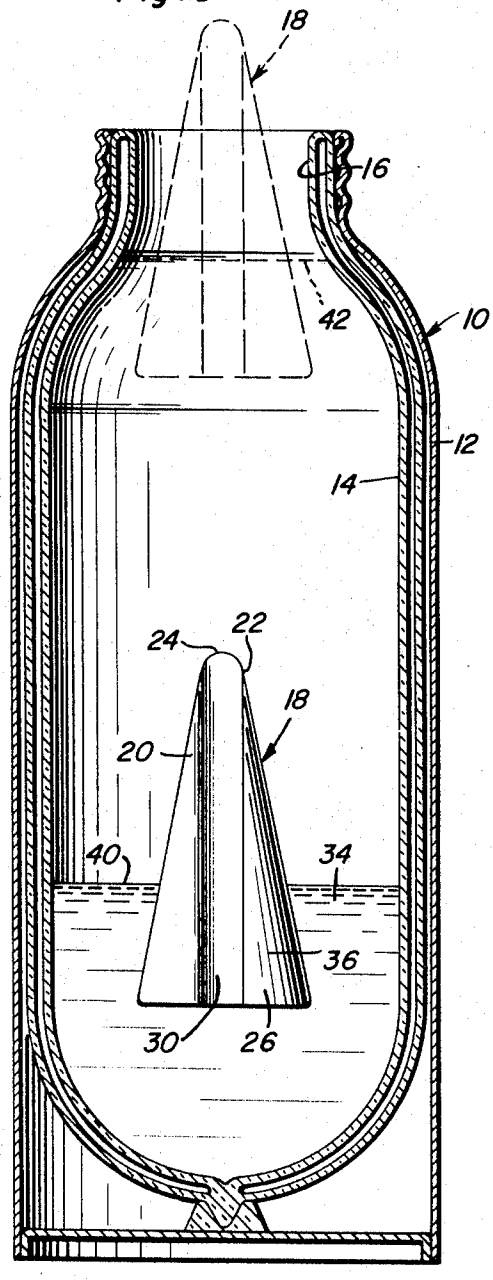


Fig. 5



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VACUUM BOTTLE FILLING GAUGE

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U.S. Cl. 116—118 9 Claims

ABSTRACT OF THE DISCLOSURE

A body of buoyant and at least slightly deformable and resilient material and which is generally conical in configuration having a greater height than its maximum width and wedgingly insertable through the neck of a vacuum bottle in upright position whereby as the vacuum bottle is being filled with liquid the minor diameter or apex end portion of the conical body will project upwardly through and above the upper end of the neck of the vacuum bottle as the level of liquid approaches the upper neck portion of the vacuum bottle.

The filling gauge of the instant invention is designed primarily for use in conjunction with narrow mouth vacuum bottles which are somewhat difficult to fill to the proper desired level since the internal surfaces of the vacuum bottle reflect light and the opening downward through narrow necked vacuum bottles is relatively small and therefore a person filling the vacuum bottle has difficulty in visually ascertaining the level to which the vacuum bottle has been filled, especially if the vacuum bottle is being filled with hot fluid from which vapor is rising through the neck of the bottle.

The filling gauge of the instant invention is constructed in a manner whereby it may be wedgingly downwardly inserted through the narrow neck of a vacuum bottle and includes an upwardly tapering body whose minor diameter or apex end portion is adapted to project outwardly of the bottle as the liquid within the bottle approaches the narrow neck portion thereof. Further, the upper end of the buoyant body comprising the filling gauge of the instant invention is also tapered in a manner to prevent liquids being poured into an associated vacuum bottle from spattering as the upper end portion of the filling gauge moves upwardly through the small neck of the vacuum bottle. Still further, the buoyant body is provided with circumferentially spaced, longitudinally extending and generally radially outwardly opening channels whereby even as the conical body is about to be seated in the inner end of the neck of an associated bottle fluids being poured into the bottle may flow downwardly past the body and air entrapped within the associated vacuum bottle may be vented to the ambient atmosphere.

The main object of this invention is to provide a vacuum bottle filling gauge readily insertable into substantially all vacuum bottles including neck portions having corresponding inside diameter dimensions.

Another object of this invention is to provide a filling gauge which will only slightly reduce the effective internal volume of an associated vacuum bottle.

Yet another object of this invention is to provide a filling gauge readily insertable into an associated vacuum bottle and which will not adversely affect venting of the interior of the vacuum bottle to the ambient atmosphere or liquids being poured into the associated vacuum bottle.

A final object of this invention to be specifically enumerated herein is to provide a vacuum bottle filling gauge which will conform to the 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 vacuum bottle filling gauge of the instant invention;

FIGURE 2 is a top plan view of the filling gauge;

FIGURE 3 is a side elevational view of the filling gauge;

FIGURE 4 is a bottom plan view of the filling gauge; and

FIGURE 5 is a longitudinal vertical sectional view taken substantially upon the plane passing through the center of a conventional form of vacuum bottle with the filling gauge of the instant invention operatively associated therewith and an alternate position of the filling gauge illustrated in phantom lines.

Referring now more specifically to the drawings the numeral 10 generally designates a conventional form of vacuum bottle including an outer shell portion 12 and an inner insulative and liquid reservoir defining portion 14 including a reduced diameter neck portion 16 in which a stopper is adapted to be seatingly received.

The filling gauge of the instant invention is referred to in general by the reference numeral 18 and comprises a body 20 constructed of buoyant and at least slightly deformable material and which is generally conical in configuration. The body 20 includes an upper apex end portion 22 which is rounded as at 24 and a major diameter lower end portion 26 including a flat under surface 28.

The body 20 includes a pair of circumferentially spaced, upstanding and generally diametrically opposite longitudinally extending and radially outwardly opening grooves or channels 30 defining both air vent passages and liquid passages as will be hereinafter more fully set forth. The lower major diameter end portion 26 of the body 20 is of a diameter slightly greater than the inside diameter of the neck portion 16 but the body 20 is sufficiently deformable so as to be wedgingly forced downward through the neck portion 16 in an upright position so that the body 20 will assume the position thereof illustrated in solid lines in FIGURE 5 of the drawings when the vacuum bottle 10 is partially filled with the liquid 34.

The body 20 is approximately twice as high as its its major width at its lower major diameter end portion 26 and the side walls 36 of the body 20 are inclined appreciably less than 30 degrees relative to the vertical centerline of the body 20.

The weight of the body as compared to the volume of the lower half thereof is such that the body will float in a liquid such as water with approximately the upper half of the body projecting above the surface of the liquid. Therefore, as will be noted from FIGURE 5 of the drawings, the body 20 may float in the liquid 34 with a greater portion of its vertical height projecting above the level 40 of the liquid 34. In this manner, as the level 40 approaches the upper level 42 the apex end portion 22 of the body 20 will project upwardly through the neck portion 16 and thus be readily visible to a person pouring the liquid 34 into the vacuum bottle 10. Further, the channels or grooves 30 prevent the major diameter end portion 26 of the body 20 from sealing the inner end of the neck portion 16 so as to prevent liquid 34 being poured into the vacuum bottle 10 from being blocked by the body 20. Further, the grooves 30 also provide a means for maintaining the interior of the vacuum bottle 10 vented to the ambient atmosphere and also diametric finger

receiving recesses at the apex end portion **22** of the body **20** to facilitate in manual withdrawal of the body **20** from the vacuum bottle **10**.

Inasmuch as the lower end of the body **20** is disposed below the level **42** when the vacuum bottle **10** is almost completely full of the liquid **34**, as the liquid level **42** is raised further upward toward the upper end of the neck portion **16** and the body **20** approaches a position with its lower major diameter end portion **26** seated in the inner end of the neck portion **16** the upper end of the body **20** may be readily grasped so as to manually withdraw the body **20** from the vacuum bottle **10** which will of course result in the level of the liquid **34** in the upper portion of the neck portion **16** dropping to approximately the level **42** whereupon, after a cork is seated in the neck portion **16**, the vacuum bottle **10** will be filled substantially to its maximum with the level **42** spaced only slightly beneath the cork (not shown).

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.

What is claimed as new is as follows:

1. A filling gauge for a container of the type including a neck of reduced inside diameter and adapted to be filled by pouring liquid thereinto through said neck, said gauge comprising a body of buoyant and at least slightly deformable material, said body being generally conical in configuration and including a lower major diameter end and an upper apex end, said major diameter end being of a diameter adapted to be slightly greater than the inside diameter of said neck and said material being sufficiently deformable so as to be adapted to be forced downwardly through said neck without great difficulty, the height of said body being appreciably greater than the width of the major diameter end thereof and said apex end being adapted to project upwardly through said neck to a point above the upper end thereof when said body is buoyed up in said bottle upon filling the latter with liquid such as coffee until said major diameter end abuts and is therefore prevented from passing upwardly through the lower end of said neck, said body including circumferentially spaced, upstanding and generally radially outwardly opening grooves.

2. The combination of claim **1** wherein said body includes inclined side surface portions inclined less than 30 degrees relative to the vertical centerline of said body.

3. The combination of claim **1** wherein the weight of said body as compared to the volume of the lower half thereof is such that said body will float in a liquid such as water with approximately the upper half of said body projecting above the surface of the liquid.

4. The combination of claim **1** wherein the upper ends of said grooves open through the inclined side surfaces of said body adjacent the upper terminal end thereof.

5. The combination of claim **1** wherein said grooves are disposed generally in diametrically opposite side portions of said body.

6. The combination of claim **1** wherein the upper end portions of said grooves are sufficiently wide so as to be adapted to at least partially receive therein the opposing portions of a person's thumb and forefinger between which the upper portion of said body is being gripped.

7. The combination of claim **6** wherein said body includes upstanding side surface portions inclined less than 30 degrees relative to the vertical centerline of said body.

8. The combination of claim **7** wherein the upper ends of said grooves open through the inclined side surfaces of said body adjacent the upper terminal end thereof.

9. A filling gauge for a container of the type including a neck of reduced inside diameter and adapted to be filled by pouring liquid thereinto through said neck, said gauge comprising a body of buoyant and at least slightly deformable material, said body being generally conical in configuration and including a lower major diameter end and an upper apex end, said major diameter end being of a diameter adapted to be slightly greater than the inside diameter of said neck and said material being sufficiently deformable so as to be adapted to be forced downwardly through said neck without great difficulty, the height of said body being appreciably greater than the width of the major diameter end thereof and said apex end being adapted to project upwardly through said neck to a point above the upper end thereof when said body is buoyed up in said bottle upon filling the latter with liquid such as coffee until said major diameter end abuts and is therefore prevented from passing upwardly through the lower end of said neck, the weight of said body as compared to the volume of the lower half thereof being such that said body will float in a liquid such as with approximately the upper half of said body projecting above the surface of the liquid, said body including circumferentially spaced, upstanding and generally radially outwardly opening grooves.

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U.S. Cl. X.R.

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