July 16, 1968 J. C. LO GIUDICE 3,392,466

EFFERVESCENT ADVERTISING DISPLAY AND METHOD OF MAKING SAME

Filed Oct. 24, 1965

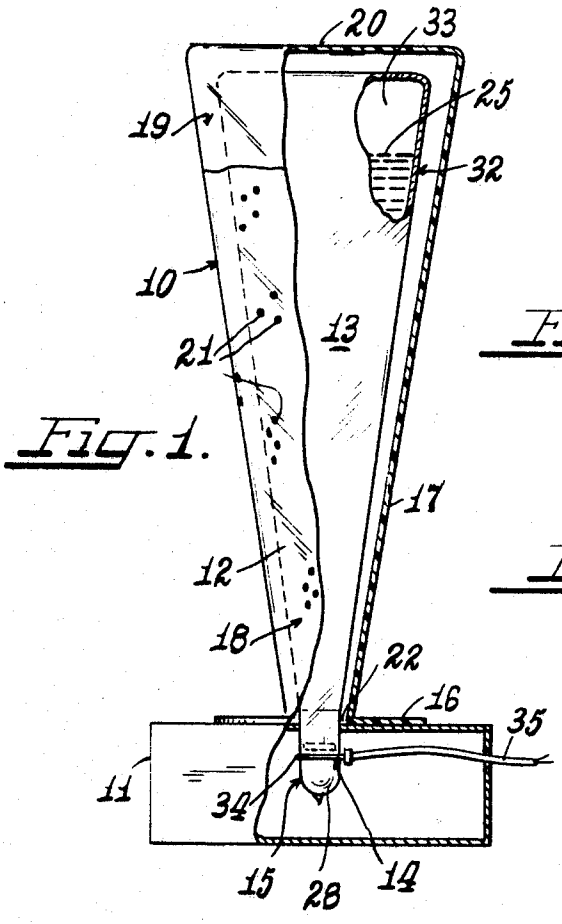


Fig. 1.

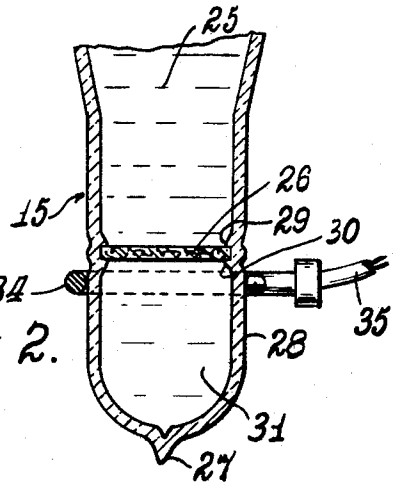


Fig. 2.

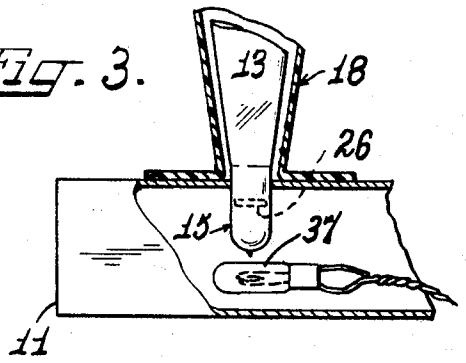
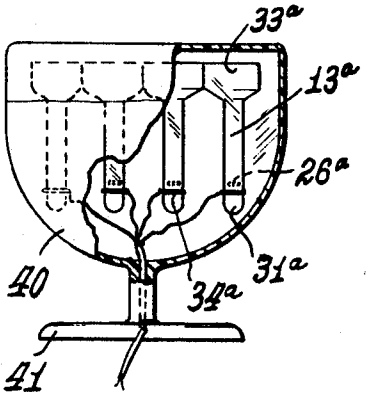


Fig. 3.

Fig. 4.



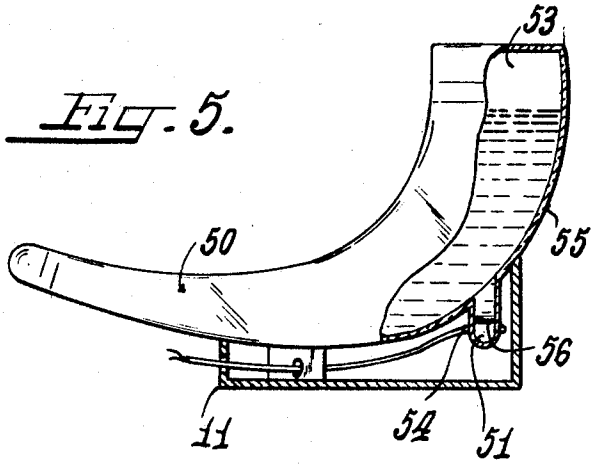


Fig. 5.

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EFFERVESCENT ADVERTISING DISPLAY AND METHOD OF MAKING SAME

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6 Claims. (Cl. 40—106.21)

ABSTRACT OF THE DISCLOSURE

An advertising display device including a sealed hollow body partially filled with fluid and evacuated of air and having a fritted base defining a bottom gas chamber having heating means associated with it to generate bubbles that pass upwardly through the fluid.

This invention relates to effervescent type advertising displays and is more particularly concerned with displays which include devices for continuous discharge of bubbles, such as displays for beer or other carbonated beverages, waterfalls or the like, wherein means is provided to depict gaseous movement through a liquid, as well as the method for making such displays.

In conventional displays of effervescent liquids, a bubbler tube having a lower gas chamber and an upper air chamber connected by a relatively long thin liquid filled tube is surrounded by reflectors, encased in the display, and the lower chamber is subjected to heat, as to cause heated gases in the chamber to move up through the liquid and cool in the upper chamber. Frequently, the lower chamber is overheated or the tube is not properly proportioned, so that the gases cease forming in the lower chamber and the unit stops bubbling. Also, frequently the bubbles become so large and irregularly discharge that the display is not realistic. Even when all these factors are closely controlled, such conventional displays require space consuming reflectors, which substantially increase the size and cost of the display, and prevent the display from appearing realistic.

Applicant's bubble producing device hereinafter described requires no reflectors or bubbler tube and produces bubbles consistently and continuously when in use, and it is therefore an object of this invention to provide a novelly constructed effervescent display which neither requires reflectors or a bubbler tube to simulate gaseous bubbles and which will provide bubbles continuously and consistently of a predetermined selected size.

Another object of this invention is to provide an effervescent display unit of the character referred to having novel means for inducing continuous discharge of gaseous bubbles of predetermined size and consistency.

A further object of this invention is to provide a novel method for making effervescent display units of the character described.

Another object is to provide a bubble generating device of the character disclosed with a novel fritted disc separating a fluid compartment from a gas compartment.

With the foregoing and such other objects in view, which will appear as the description proceeds, the invention consists of certain novel features of construction, arrangement and combination of parts, and steps of manufacture, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in form, proportion, size and minor details of the structure may be made without departing from the spirit of the invention.

Referring to the drawings in which the same characters of reference are employed to identify corresponding parts:

FIGURE 1 is a side elevational view, with parts broken away in section, showing an effervescent display unit embodying the features of the invention.

FIGURE 2 is an enlarged sectional view of the lower part of the inner sealed glass chamber shown in FIGURE 1, depicting only the liquid and gas chambers with a fritted disc therebetween and the heating means.

FIGURE 3 is a side elevational view, partially in section similar to FIGURE 1, showing a modified heating and illuminating means.

FIGURE 4 is a side elevational view, partially in section, showing a modified form of the invention.

FIGURE 5 is a side elevational view partially in section, showing another modified embodiment of the invention.

Referring to the accompanying drawings, and particularly to FIGURES 1 and 2, the display **10** includes a support **11**, shell **12**, chamber **13** and heating means **14**. Support **11** may be of any convenient size adequate to carry shell **12** and chamber **13** and to contain lower part **15** of chamber **13** and the heating means **14**. The shell **12** is formed of transparent light weight material, such as plastic, of a shape to accommodate the chamber **13**, such as in the form of a Pilsner or Stein glass or a beer horn, as shown in FIGURES 1, 4 and 5, respectively, or in any other desired shape, such as a beverage bottle, and may consist of a base **16**, side wall **17**, which may be tinted at its lower part **18** to simulate the color of the effervescent liquid and colored at its upper part **19** and at shell top **20** to simulate foam or the like. Holes **21** may be formed in the shell to impart the appearance of bubbles, and a central opening **22** may be provided in shell base **16** to permit the lower part **15** of chamber **13** to project into support **11**.

Chamber **13** is formed by glass blowing, from a mass of glass or other thermoplastic transparent material, into a hollow conoid open at its apex, partially filled with liquid **25**, fitted with a cellular divider **26**, evacuated and sealed at its apex, as at **27**. Liquid **25**, preferably methylene chloride or other noninflammable liquid of low boiling point, is poured into chamber **13** through the throat **28** adjacent the apex **27**, to a level as hereinafter more fully described. A cellular divider **26**, preferably a fritted glass disc or stone aerator, is fitted into and closes the throat, and wedged in position, as by heat forming of upper and lower flanges **29**, **30**, respectively, in the wall of the chamber, thereby forming gas chamber **31** in the space in the chamber between divider **26** and apex **27**.

The liquid **25** is then cooled, preferably by immersing the upper part **32** of the chamber in liquid nitrogen or the like, to partially solidify the liquid so that its gases become dormant. The chamber **13** is then evacuated of air by applying a vacuum pump to the open apex end of the chamber, and the apex opening **27** is then sealed by heat. When chamber **13** is rotated so that the apex is pointed downwardly, an evacuated expansion chamber **33** is formed above the liquid, to a level slightly above the foam line upper part **19** of shell **20** when the unit is assembled. Chamber **13** is filled to a level so that the volume of expansion chamber **33** is about twice the volume of gas chamber **31**.

Bubble size may be selectively increased or decreased by use of a cellular divider **26** having larger or smaller cell openings, respectively. The speed of bubble discharge may be slowed by adding motor oil or other oils or solvents to the liquid. The liquid may be colored or tinted by adding conventional dye to the same.

Relatively low temperature heat is applied to gas chamber **31** to cause the gaseous molecules going out of liquid **25** to move rapidly upwardly through cellular divider **26**, where they are spread over the upper surface thereof and

discharged upwardly through the liquid and into expansion compartment or chamber **33**. The gases are cooled as they travel through the liquid and the heat causes other molecules of the liquid to gasify in the gas chamber, so that the process is continually repeated and the gas bubbles continue to rise through the liquid. Heat is preferably applied by means of a two watt to four watt wire electric heating element **34** slipped over and around throat **28** of the chamber, connected to a power source by leads **35**, and secured by means of slip collar draw against the throat, in a position adjacent gas chamber **31** below cellular divider **26**.

The display may be illuminated and heat for the gas chamber may be provided by using an electric light bulb **37** beneath gas chamber **31**, as shown in FIGURE 3.

Displays embodying the invention may be made in a variety of shapes and sizes. For example, in FIGURE 4 there is shown a beer stein glass display **40** wherein shell base **41** acts to support the display and a plurality of chambers **13***a* may be provided therein, each having a gas chamber **31***a*, expansion chamber **33***a*, cellular divider **26***a* and heating element **34***a*. In FIGURE 5, a beer horn **50** is shown, wherein the gas chamber **51** is formed in vertical alignment with the expansion chamber **53** so that the bubbles produced will not be attracted to side walls **55** and may travel vertically upwardly through the liquid to the expansion chamber. In this embodiment, the beer horn **50** acts as the chamber and the outer walls thereof may be suitably decorated. Gas chamber **51**, expansion chamber **53**, cellular divider **56** and heating element **54** are substantially similar to their counterparts described hereinabove in connection with the other embodiments of the invention.

As many possible embodiments may be made of the invention, and as many changes may be made in the embodiments above set forth and described, it is to be understood that all matters hereinbefore set forth or shown in the accompanying drawings are to be interpreted as illustrative and not in a limited sense.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is the following:

1. An effervescent type advertising display device comprising a nonopaque elongated chamber sealed under partial vacuum, a throat of reduced size constituting the lower end of said chamber, a fritted disc providing a partition between said throat and said chamber, a liquid in said chamber of such level as to leave an upper portion of said chamber free of liquid, and heater means associated with said throat adapted to heat the contents entering the throat through said fritted disc and cause generation of gases that rise through the fritted disc and the liquid for dissipation in the chamber above the liquid level.

2. The display device recited in claim **1**, in which the throat has internal flanges embracing the disc to retain it in place.

3. The display device recited in claim **1**, in which the chamber-throat assembly is enclosed in a shell at least part of which is nonopaque.

4. The advertising display device recited in claim **1** wherein the heater means comprises an electric heating wire arranged in heat exchange relation to and surrounds the throat of the sealed chamber.

5. The display recited in claim, in which said disc is heat sealed in the throat.

6. The advertising display recited in claim **1** wherein the liquid is noninflammable and vaporizes at a temperatures less than the boiling point of water.

References Cited

UNITED STATES PATENTS

Re. 22,289	3/1943	Otis	40—106
2,412,171	12/1946	Petry	40—106
2,453,176	11/1948	Abramson	40—106
2,731,747	1/1956	Hazelroth et al.	40—106
2,991,574	7/1961	Trame	40—106

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,392,466 July 16, 1968

Joseph C. LoGiudice

It is certified that error appears in the above identified patent and that said Letters Patent are hereby corrected as shown below:

Column 4, line 25, after "claim" insert -- 1 --.

Signed and sealed this 25th day of November 1969.

(SEAL)
Attest:

Edward M. Fletcher, Jr.
Attesting Officer

WILLIAM E. SCHUYLER, JR.
Commissioner of Patents