July 7, 1942. O. W. ROSENKOETTER 2,288,956

ADVERTISING DISPLAY

Filed Sept. 13, 1939

Fig. 1

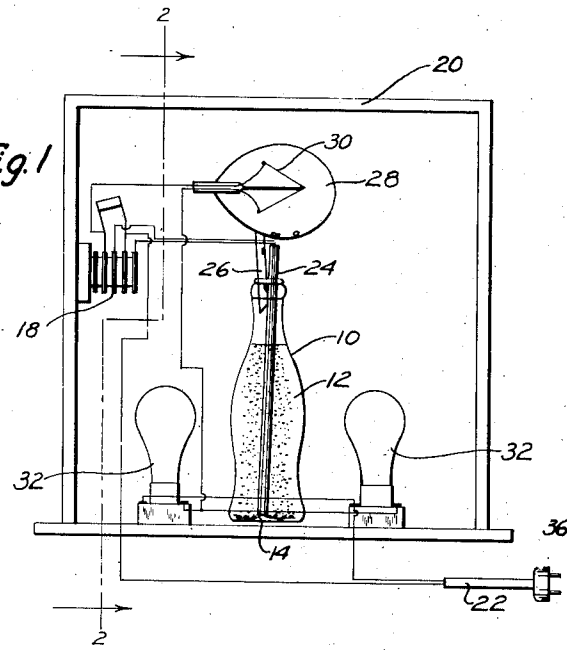


Fig. 2

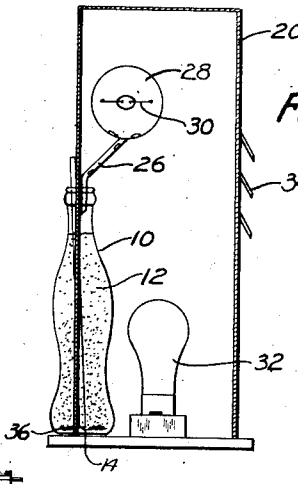


Fig. 3

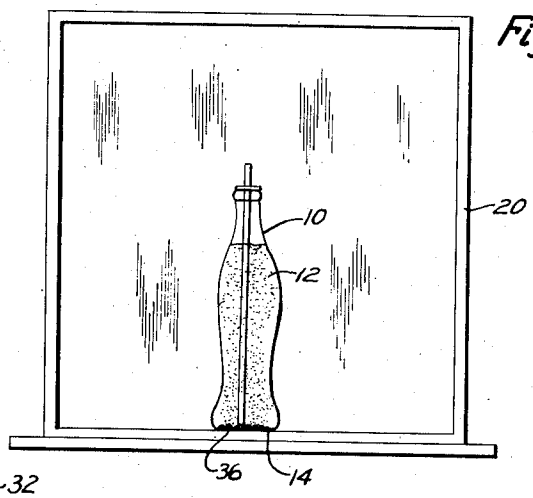
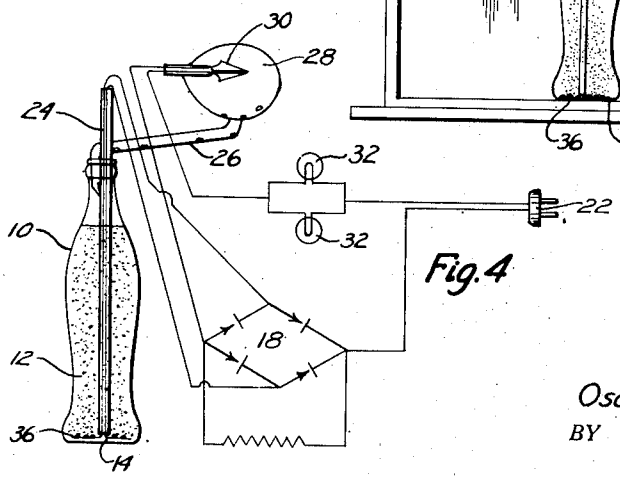


Fig. 4



INVENTOR:
OSCAR W. ROSENKOETTER
BY
Roy M. Eilers
ATTORNEYS.

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ADVERTISING DISPLAY

Oscar W. Rosenkoetter, Springfield, Mo., assignor to Alexander L. Du Val D'Adrian, Godfrey, Ill.

Application September 13, 1939, Serial No. 294,611

4 Claims. (Cl. 40—126)

This invention relates to improvements in advertising displays intended to simulate a bottle containing an effervescent liquid. It is an object of the present invention to provide a simple device which generates gases in a liquid and imitates the natural effervescence of a gas-charged liquid.

Other objects and advantages of the invention will appear from the specification, drawing, and accompanying claims.

In the devices now used to imitate the liberation of gas bubbles from a liquid, there are many disadvantages which the invention has avoided. The effect of the liberation of gases from the liquid is now secured by passing bubbles of air through the liquid. If air is introduced into a container holding a liquid, without pressure being exerted on the air which is introduced, the opening for the introduction of air must be large enough to let the water flow out of the container. If the opening is not large enough to permit the water to flow from the container, the water will be a bar to the passage of air through the opening and no bubbling will take place. If the opening in the container is made large enough to let the liquid run out of the container, the air bubbles passing through the liquid will be quite large and will not convincingly imitate the bubbles rising in an effervescent liquid. Also since some disposition must be made of the water which runs out of the container and since some provision must be made for replenishing the supply of the liquid in the container, other equipment must be provided. Because of the necessity of providing equipment to dispose of water from the container and equipment to replenish the supply in the container, and because of the unnaturally large bubbles passing through liquid, this type of device is not satisfactory.

The other types of display means used to imitate the bubbling of an effervescing liquid make use of means to force air through the liquid or make use of an evacuated atmosphere to draw air through the liquid. In these devices the bubbles can be made of any size by regulation of the size of the opening through which the gas passed, but because of the difference in pressure at the top of the liquid and at the point where the gas is introduced, the bubbles rapidly rise to the surface. Because of the speed at which the bubbles pass through the liquid, the effect is not natural. As a result, this type of device does not effectively simulate an effervescent liquid because the bubbles, although natural as far as size is concerned, are passed through the liquid too rapidly to appear natural. The invention avoids the objections to the devices now in use by the use of a different principle. Instead of introducing a gas into a liquid, the invention contemplates the generation of a gas within a liquid. This is done by passing an electric current through the liquid and causing it to decompose into hydrogen and oxygen. The electrolysis of a liquid is well suited for use in a device intended to simulate the liberation of gas from an effervescent liquid. By regulating the size, number, and position of the electrodes and by regulating the current passing through the liquid, bubbles of different sizes may be generated at desired points in the container and may be generated at any desired rate. It is one object of the invention to provide a device making use of the electrolysis of a liquid which imitates the effervescing of a liquid. The invention is described in the specification and drawing in a preferred form, but it is to be understood that the invention is not limited by the specification and drawing but will be defined by the accompanying claims.

In the accompanying drawing,

Fig. 1 shows the elements of the invention as they are assembled in the display case.

Fig. 2 shows a side view of the elements of the invention as they are assembled in the display case.

Fig. 3 shows the exterior of the device as it is used to display a bottle filled with a carbonated beverage.

Fig. 4 shows a schematic diagram of the elements of the device.

Referring to the drawing in more detail, Fig. 1 show a front view of the elements of the device as they are assembled in the display case **20**. A transparent container **10** is provided which holds a liquid **12**. The liquid **12** must be a conductor of electricity, but almost any common electrolyte will answer the purpose. A cheap and effective electrolyte is a weak acid solution. Electrodes **14** are immersed in the liquid conductor **12** and are encased by an insulator **24**. This insulator can be made as long or as short as desired but the applicant prefers to make it the size and length of the ordinary "straw" or sipping device commonly used. The insulator **24** is so made that it prevents the electrodes **14** from coming into contact with the liquid **12** except where such contact is desired. Beads **36** of insulating material are affixed to the electrodes **14** and prevent contact between the electrodes **14** and the conducting liquid **12** wherever the beads **36** are placed. By proper placing of the electrodes **14** and proper

placing of the beads 36 on the electrodes 14, gases may be generated at any point in the liquid 12. A conduit 26 is sealed in the top of the container 10 and collects the gases generated in the bottle and conducts them to a chamber 28. The gases are allowed to mix in their passage through the container 12, through the conduit 26, and into the chamber 28. In the chamber 28, there is a filament 30 which is heated. When the gases have mingled, an inflammable mixture is formed which burns on coming into contact with the heated filament 30. The product of the combustion of oxygen and hydrogen is water in the vaporized state. This vapor rises and contacts the walls of chamber 28 where it condenses. The condensate runs down the walls of the chamber 28 and enters conduit 26 and then runs back in container 10. Lamps 32 are placed in the display case 20 and are connected in series with rectifier 18 and with filament 30. Current is supplied to the device by inserting plug 22 into an alternating current receptacle not shown. Current is supplied to the electrodes 14 by leads connected to the rectifier 18. In places where a source of direct current is available, the use of a current-rectifying means would be unnecessary and the electrodes would be placed in series with the lamps 32 and the filament 30. The case 20 is provided with openings 34 to permit ventilation of the elements of the case 20.

The operation of the device is very simple, and is started by the insertion of plug 22 in a convenient alternating current outlet. The current passes through lamps 32 through rectifier 18, and heats filament 30. The rectifier 18 is energized by the current in the primary circuit and yields direct current which is conducted to electrodes 14. This direct current decomposes the liquid 12 into hydrogen and oxygen. These gases rise to the surface and are conducted to the ignition chamber 28 by conduit 26. There the gases burn and the products of the combustion condense and run back into the container 12. The provision of the ignition chamber makes the device self-sufficient since no water can escape. As a result, a regenerative system is had which needs no attention or replenishing of water.

In a device of this sort where gases are being generated, it is necessary that safety features be provided which will prevent an explosion of the device. The invention prevents an explosion of the device by providing a heated filament 30 which burns the gases as they are generated. This precludes the possibility of the storing up of gases and the resultant increase of pressure which would cause the breaking of the device. If the filament 30 were to become inoperative, the gases would not be consumed, and would increase the pressure within the container until the container exploded. In order to prevent such an occurrence, the applicant has placed the filament 30 in series with the rectifier 18 and the lamps 32. With such an arrangement, the failure of the filament 30 would interrupt the alternating current circuit. As a result the rectifier 18 would stop operating and the lamps 32 would go out. The darkness would show a failure in the device and investigation would lead to a discovery of the trouble. The cessation of operation of the rectifier would cause the liberation of gas to cease, and the device would be inoperative and safe. If the safety means detailed above do not operate effectively, the applicant contemplates the blowing of a weak spot in the tube 26 which will act as a safety valve. It can be seen from the specification that a safe, self-contained display means may be made which will convincingly imitate a container filled with an effervescing liquid.

I claim:

1. A display device comprising a transparent container, a liquid conductor of electricity within the container, electrodes in the liquid, beads of insulating material adapted to cover parts of the electrodes, and means to supply current to the electrodes to generate gas within the liquid and thereby simulate an effervescing liquid.

2. A display device comprising a transparent container, a liquid conductor of electricity within the container, electrodes in the liquid, insulators adapted to insulate the electrodes from the liquid and thereby regulate the points of contact between the electrodes and the liquid, and means to supply current to the electrodes to generate gas within the liquid and thereby simulate an effervescing liquid.

3. A display device comprising a transparent container, a liquid conductor of electricity within the container, electrodes in the liquid, means to supply current to the electrodes to generate gas within the container, means to collect and burn the gas, and an electric lamp positioned in proximity to the transparent container, said electric lamp being in series relation with the gas-igniting means and serving to indicate the failure of the gas-igniting means.

4. An illuminated display device comprising a transparent container, an electric lamp positioned in proximity to the said transparent container and arranged to illuminate the contents thereof, a liquid conductor of electricity within the container, electrodes in the liquid, an electric circuit to supply current to the electrodes to generate gas within the container, said electric circuit having the electrodes, the electric lamp, and an electric gas-igniting means in series relation, means to collect the gas and conduct it into contact with the gas-igniting means, said electric circuit being arranged to halt the generation of gas if the gas-igniting means fails, and to indicate the failure of the gas-igniting means by preventing the lighting of the lamp whenever the gas-igniting means fails.

OSCAR W. ROSENKOETTER.