Nov. 20, 1962 F. G. CAMPBELL 3,064,387

BUBBLE FORMING DEVICES

Filed Sept. 9, 1959

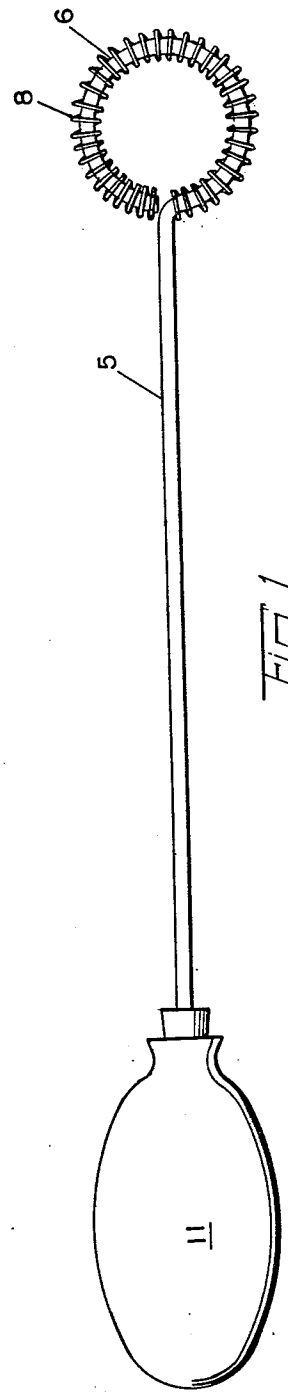


Fig. 1.

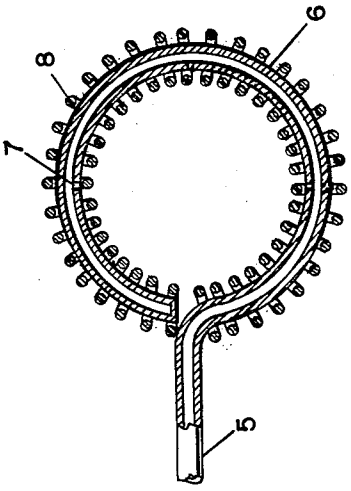


Fig. 3.

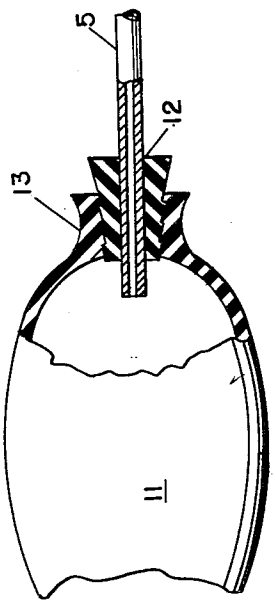


Fig. 2.

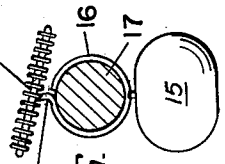
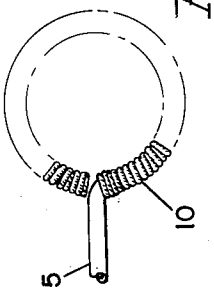


Fig. 6.

Fig. 5.



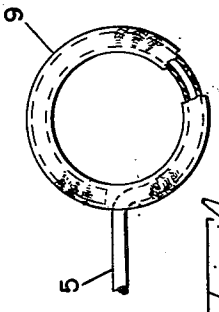


Fig. 4.

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BUBBLE FORMING DEVICES

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3 Claims. (Cl. 46—7)

This invention relates to bubble blowing devices. It has especial utility as a toy though its novel distributing head may be used in larger stationary units where display effects are desired.

The invention will be best understood by reference to the accompanying drawing wherein,

FIG. 1 is a side view of a relatively small, light weight toy, constructed in accordance with the invention.

FIG. 2 is an enlarged view of the rear or bulb carrying end of the device.

FIG. 3 is in enlarged sectional view through the distributing head of the device.

FIG. 4 is a view like FIG. 3 but illustrating a modified form of collector for the soapy or like fluid which forms the bubbles.

FIG. 5 is a view like FIG. 3 illustrating another form of collector, and FIG. 6 is a detail view illustrating the principles of the device embodied in a structure adapted to be worn as a ring on the hand.

Like numerals designate corresponding parts in all of the figures of the drawing. Many bubble blowing devices now on the market and of a toy like nature, comprise a wire like rod having a plain, ring-like, distributing element at its end which is dipped into a body of soapy or other bubble forming liquid, to cause a film of the liquid to form across the opening of the ring. When such a wand is waved through the air a succession of bubbles is discharged from the ring until the accumulated liquid thereon is exhausted, after which the ring must be again dipped in the liquid in order to produce more bubbles by again waving the wand through the air.

In an attempt to cause the distributing element to pick up a greater amount of the liquid some devices have wound collecting elements about the plain rings or have formed said rings into such shape as to cause them to take up more of the liquid than would be taken up by a plain ring. Several ways of accomplishing that result are shown in U.S. Patent No. 2,514,009 dated July 4, 1950. However, the several structures there shown contemplate successive dippings of the distributer head into a body of bubble forming liquid in order to replenish the supply of liquid upon said head.

It is a primary object of the present invention to substitute for the solid rod or wire of the aforesaid devices, a tubular wand, together with a container of liquid from which a continuous supply of liquid may be conducted through the wand to a distributer head in the form of a ring and which head preferably embodies a collecting element, embracing the ring and into and within which the liquid is discharged, to create a supply of liquid at the head, from which a substantially continuous stream of bubbles may be discharged, either by holding the toy out of the window of an automobile into the path of the air stream, or by holding the distributer head in the path of any air stream such as that from an electric fan, air conditioner or otherwise.

Referring now more particularly to FIGS. 1, 2 and 3, 5 designates an elongated tubular, rod like, member which is shaped at its outer end to form a ring-like distributer head 6. This head like member 5 is of tubular form and at spaced points about its circumference, is provided with very small openings 7, from which the bubble forming liquid is discharged into a collecting element which in the form shown in FIGS. 1 and 3 is in the form of a helical wire 8, wound around ring 6. The convolutions

of the helix are slightly spaced from each other and the liquid collects between them and between them and ring 6 where it is retained by capillarity, until by the movement of an air current through the ring the film of liquid is displaced in the form of a bubble, successive bubbles being formed as additional films are drawn across the ring by the surface tension of the liquid and as the successive bubbles are blown away.

Other forms of collectors may be substituted for the helical wire. For example, FIG. 4 shows the distributer ring embedded in an annulus 9 of a coarse, open mesh, fibrous material adapted to pick up the liquid by absorption, while in FIG. 5 the helix about the ring is formed by a winding of a relatively coarse twine 10 adapted to act by both absorption within itself and by capillarity between its several windings.

In any of the forms shown it is desirable to give the head, constituted by distributer ring 6 and collector 8, 9 or 10, an initial dip into a body of the bubble forming material to cause an initial film of the material to form quickly across the head. Additional liquid is then supplied through tube 5 from any source of supply, such as from a compressible bulb 11 of rubber or like elastic material. Any desired form of connection between tube 5 and bulb 11 may be resorted to. One such form may consist of a "cork" like body 12 that is affixed as by cementing to tube 5 and has a tight frictional engagement in a neck-like extension 13 of the bulb. By withdrawing cork and tube the supply of liquid within the bulb may be replenished. If desired a lock more secure than that provided by mere friction between cork and bulb and of the conventional bayonet joint form, may be used. However by making the friction sufficiently great it is thought that a simple friction type connection will be sufficient, especially in toys, where the pressure of the fluid in tube 5 will be very light.

In FIG. 6 it is indicated that the basic principle of the device may be embodied in a ring adapted to be worn by the hand and wherein bubbles may be discharged, apparently from the hand, by a mere waving of the hand through the air. In some trick toys a tubular ring upon the finger is connected to a bulb held in the palm of the hand and when a victim examines the ring a jet of water is squirted into his face through a small opening in the outer face of the ring. In FIG. 6 much the same arrangement is resorted to. Here a bulb 15 adapted to lie in the palm of the hand and to contain the bubble forming liquid, is connected to a tubular member in the form of a ring 16, worn upon the finger, indicated at 17. From the tubular, finger embracing ring, an extension 17*a* is shaped to form a ring-like collector and distributing head 18, which may be in the form shown in FIGS. 3, 4 or 5 but which, as a whole, is disposed to lie in a plane at enough of an angle to the transverse horizontal axis through finger 17 that a current of air will pass through the distributor head, when the hand of the user is waved horizontally through the air.

The invention is not limited to the precise construction set forth but includes within its purview whatever changes fairly fall within either the terms or the spirit of the appended claims.

I claim:

1. A bubble blowing device comprising a ring-like tubular head, a liquid collecting and retaining means embracing said head, a compressible reservoir for bubble forming liquid shaped and dimensioned to be held in the palm of the hand and a tubular member connecting the reservoir with the ring-like head, said tubular member comprising a finger embracing ring by which the device may be worn as a ring upon the hand.

2. A structure as recited in claim 1 wherein the ring-like tubular head and the liquid collecting and retaining

means embracing said head lie as a whole in a plane at an oblique angle to the plane in which an embraced finger would move if the hand were moved horizontally back and forth.

3. A device for producing bubbles by the continuing bodily movement of the device through the atmosphere when said device is projected out of the window of a moving automobile, said device consisting of an elongated tube carrying at its inner end a compressible bulb of a size to be grasped in the hand, said bulb constituting a reservoir for a body of a soapy fluid of a nature to form bubbles, and the interior of the bulb being in communication with the interior of said tube, the outer end of the tube being bent into a ring-like body, a collecting and retaining member embracing said ring-like body, said collecting and retaining member being of a nature to hold the bubble forming fluid in a ring-like form around the circumference of the ring-like body, the walls of the ring-like body being pierced at a plurality of points thereabout through which the bubble forming liquid is discharged when the bulb is squeezed, the bulb and tube complementally forming a manually operable handle by which the ring-like body and its collecting and retaining member may be projected out of the window of a moving automobile and then turned back and forth about the axis of the tube to alternately present an edge portion and the flat face portion of the collecting and retaining member toward the air flow created by the bodily forward movement of the automobile.

References Cited in the file of this patent

UNITED STATES PATENTS

2,205,028	Bloxom	June 18, 1940
2,391,797	Raspet	Dec. 25, 1945
2,514,009	Raspet	July 4, 1950
2,720,723	Peretti	Oct. 18, 1955

FOREIGN PATENTS

7,645	Great Britain	1895