March 31, 1931. R. H. WAGER 1,798,345

LATHER FORMING DEVICE

Original Filed March 6, 1928

FIG. 1

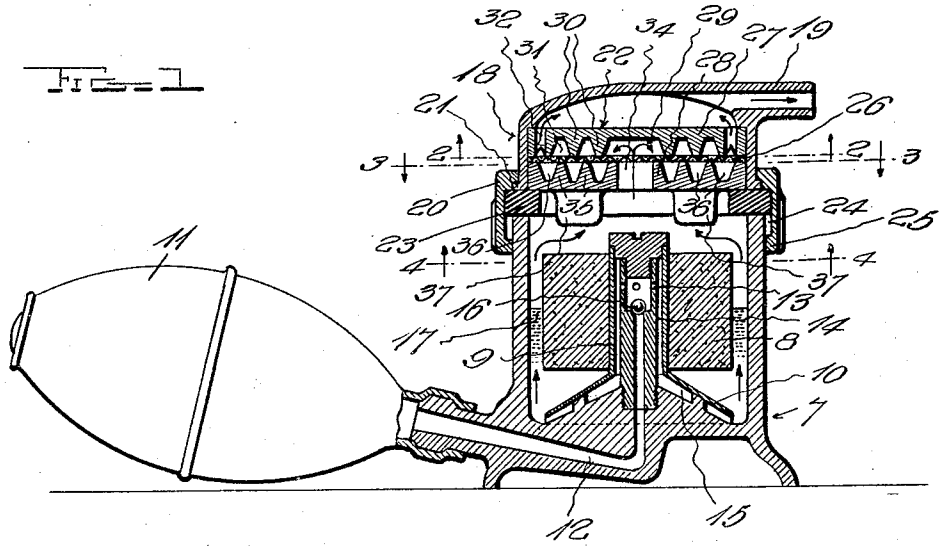
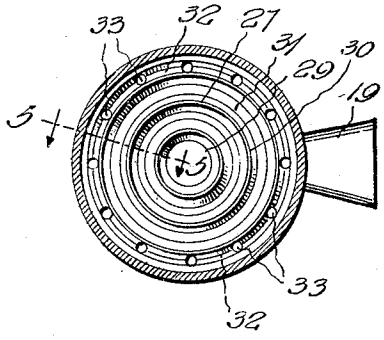


FIG. 2

FIG. 3



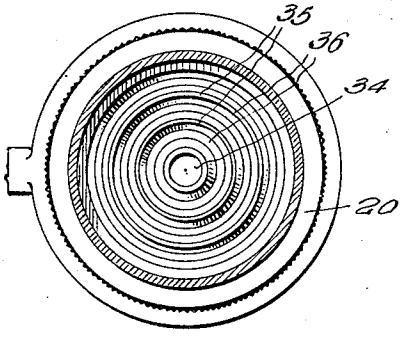


FIG. 4

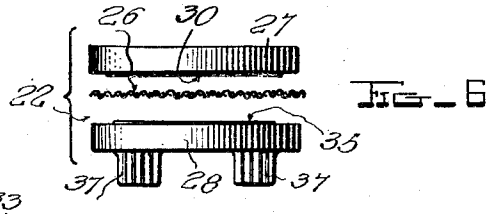
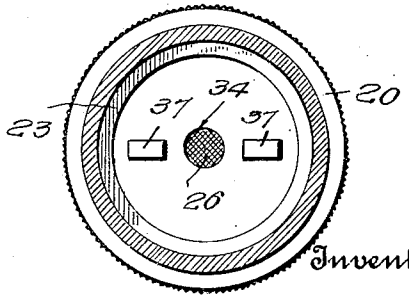


FIG. 6



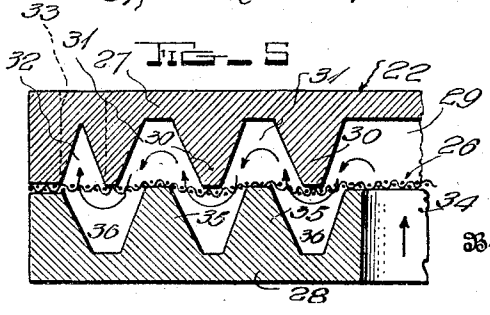


FIG. 5

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UNITED STATES PATENT OFFICE

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LATHER-FORMING DEVICE

Application filed March 6, 1928, Serial No. 259,519. Renewed September 3, 1930.

The invention relates to lather-forming devices of the general type shown in my U. S. Patents 1,554,146; 1,554,147 and 1,554,148, all of September 15, 1925, and my pending U. S. application Serial No. 174,320, filed March 10, 1927.

All of these devices embody a receptacle in which soap bubbles are formed, a cap for said receptacle, and bubble-condensing means for converting the generated bubbles into a thick creamy lather suitable for shaving purposes, and in the aforesaid pending application, a gasket is instrumental in obtaining a fluid-tight connection between the cap and the receptacle. The bubble-converting means of these prior devices have all been rather intricate and hence of expensive manufacture and it is one aim of the present invention to provide a construction materially cheapened without reducing its efficiency.

Another aim is to provide a new and improved construction in which the entire bubble-condensing means is confined within the cap and is bodily applicable and removable with the latter, thus reducing the number of parts which the user must handle when removing and replacing the cap, and simplifying the salesman's duties when showing the device to prospective purchasers, interested primarily in the function of the article and impressed more favorably by a device with few separate parts.

A still further object is to provide a new and improved construction in which a gasket such as that above mentioned, is instrumental in holding the bubble-condensing means in the cap, in such manner however, that it may be removed for cleaning whenever necessary.

With the foregoing in view, the invention resides in the novel subject matter hereinafter described and claimed, description being accomplished by reference to the accompanying drawing.

Fig. 1 is a vertical sectional view partly in elevation showing a lather-forming device constructed in accordance with the present invention.

Figs. 2, 3 and 4 are horizontal sectional views on the correspondingly numbered lines of Fig. 1, looking in the directions of the arrows.

Fig. 5 is an enlarged detail sectional view on line 5—5 of Fig. 2.

Fig. 6 is a side elevation of the bubble-condensing means with its three parts in juxtaposition.

The numeral 7 on the drawing denotes an open-topped receptacle in which to generate soap bubbles from a a cake of soap 8, said receptacle being provided with soap cake-supporting means embodying a post 9 and a cone 10, and with means embodying a hand bulb 11, portage 12—13—14—15 and a check valve 16 for discharging air at the periphery of the cone 10 into the soapy liquid 17, for the purpose of generating the soap bubbles. All of this subject matter is only briefly described in view of the fact that it is disclosed in pending application Serial No. 174,320, above mentioned.

A cap 18 is provided for the receptacle 7, said cap being equipped with a lather discharge nozzle 19 as in the patents and the pending case before mentioned. The lower side of this cap is open and the peripheral wall of the latter is preferably formed in part by a ring 20, an appropriate connection 21 being provided between the ring 20 and the remaining portion of the cap. A connection is also provided between ring 20 and the wall of the receptacle 7, applicable and releasable by rotation of said ring. This connection may consist of screw threads as shown for instance in Patent 1,554,148, or of lugs and bayonet slots as in pending application Serial No. 174,320, or it may be otherwise formed.

Confined in its entirety in the upper portion of the cap 18, is a bubble-condensing unit 22 which receives the bubbles from the upper portion of the receptacle 7. A gasket 23 of rubber or other desired yieldable material, abuts the lower side of the unit 22 to hold the latter against dropping out of the open lower side of the cap when the latter is removed, the interior of the ring 20 being formed with an annular recess 24 receiving the peripheral portion of said gasket, and being provided with an upwardly facing shoul-

der 25 which prevents dropping of said gasket out of the cap, when the latter is removed. This gasket projects inwardly a considerable distance from the ring 20 to be receivable between the connection 21 and the upper edge of receptacle wall when the cap is applied. Hence, in addition to retaining the entire bubble-condensing unit 22 within the cap 18, the gasket 23 insures a fluid-tight connection between the cap and the receptacle when the ring 20 is tightened.

The bubble-condensing unit 22 embodies a flat circular screen 26, an upper plate 27 and a lower plate 28, both plates also being of circular outline. The upper plate 27 is formed with a central recess 29 in its screen-engaging side and with a plurality of concentric ribs 30, providing concentric grooves 31—32 around said recess 29, the outer groove 32 being usually although not necessarily of less depth than the other grooves 31. Plate 27 is also formed with a plurality of circumferentially spaced lather-discharge openings 33 which lead from the groove 32.

The lower plate 28 is formed with a central opening 34 registering with the recess 29 and with a plurality of concentric ribs 35 providing concentric grooves 36 around said opening, in the screen-engaging side of said plate. The grooves 36 are staggered with respect to and overlap the grooves 31—32, the screen 26 spans all of these grooves, the recess 29 and the opening 34, and said opening 34 communicates with the receptacle 7. Thus, when bubbles are generated in this receptacle by operation of the hand bulb 11 and pressure is thus generated in the receptacle, the bubbles are forced by this pressure, through the opening 34. From this opening, they pass through the screen 26 into the recess 29 and from this recess, the bubbles being condensed must pass alternately downwardly and upwardly through the screen in opposite directions, until they finally reach the groove 32, from which they discharge through the ports 33 into the upper portion of the cap 18. By this time, they have been condensed to a thick creamy lather suitable for shaving purposes, which lather is discharged through the nozzle 19. Preferably, the screen-abutting edges of the ribs 30—35 project slightly beyond the planes of the peripheral portions of the plates 27—28 as seen in Fig. 5. This causes them to bow the screen 26 into the grooves of said plates and insures tight contact of screen and ribs, preventing any bubbles from "short circuiting" between said ribs and said screen.

It will be seen from the foregoing that a new and improved construction has been provided in which the entire bubble-condensing means is confined in the cap 18 for removal and application bodily with the latter, and in which the bubble-condensing means has been greatly simplified and cheapened, without in any manner reducing its efficiency. While ordinarily, the bubble-condensing means remains in the cap 18, it may be removed from time to time for cleaning, whenever advisable. To facilitate this operation, the lower plate 28 may well be provided with finger lugs 37, it being of course understood that the resilient gasket 23 may readily be sprung out of the ring 20, by hand, whenever it is necessary to remove the bubble-converting means, and after reinsertion of said means, the gasket may be re-inserted with equal ease.

The details herein disclosed are preferably followed, but within the scope of the invention as claimed, variations may of course be made.

I claim:—

1. In a lather forming device, a cap for a bubble-generating receptacle, said cap having an open side, a removable bubble-condensing unit in the cap and of a size for withdrawal through the open side of said cap, and a gasket in said cap to contact with the receptacle, said gasket abutting the side of the bubble-condensing unit toward said open side of the cap to hold said unit against movement through said open side until said gasket is removed, said cap having means for holding the gasket against accidental removal.

2. In a lather forming device, a cap for a bubble-generating receptacle, said cap having an open side, a removable bubble-condensing unit in the cap and of a size for withdrawal through the open side of said cap, and a gasket in said cap to contact with the receptacle, said gasket abutting the side of the bubble-condensing unit toward said open side of the cap to hold said unit against movement through said open side until said gasket is removed, said cap having a shoulder abutting the side of the gasket toward said open side of the cap to hold said gasket against accidental removal.

3. In a lather forming device, a bubble-condensing unit comprising a screen, and two plates disposed against opposite sides of said screen and each having a plurality of non-communicating recesses across which said screen extends; the recesses of one plate being staggered with respect to and overlapping those of the other plate; one of said plates being formed with a bubble inlet into one of said recesses, and the other plate being provided with a lather outlet from a recess thereof remote from said inlet; whereby the bubbles in traveling from inlet to outlet can enter any recess only by passage through the screen and can leave any recess, except that having the outlet, only by passage through said screen.

4. In a lather forming device, a bubble-condensing unit comprising a screen, and two plates disposed against opposite sides of said screen and each having a plurality of alternate concentric ribs and grooves across which

the screen extends, said ribs being imperforate and preventing communication of the grooves of either plate with each other, the ribs of one plate being staggered with respect to those of the other plate; one of said plates having a bubble inlet into the space circumscribed by one of said ribs, and the other plate being provided with a lather outlet from a groove remote from said inlet; whereby the bubbles in traveling from inlet to outlet can enter any groove only by passage through the screen and can leave any groove, except that communicating with said outlet only by passage through said screen.

5. In a lather forming device, a bubble-condensing unit comprising a screen, and two plates disposed against opposite sides of said screen; one of said plates having a central opening and having in its screen-engaging side a plurality of concentric ribs providing grooves around said opening; the other plate having a central recess communicating with said opening, a plurality of concentric ribs providing grooves around said recess, and a plurality of circumferentially spaced openings from the outermost of its grooves; all of said ribs being imperforate; the grooves of one plate being staggered with respect to and overlapping those of the other plate; whereby the bubbles in traveling from inlet to outlet can enter said recess or any groove only by passage through the screen and can leave said recess or any groove, except said outermost groove, only by passage through said screen.

6. A structure as specified in claim 3; said screen being bowed into said recesses by opposed plate portions, for the purpose set forth.

7. A structure as specified in claim 4; said screen being bowed into said grooves by opposed ribs, for the purpose set forth.

In testimony whereof I have hereunto affixed my signature.

ROBERT HUDSON WAGER.