Sept. 15, 1925 1,554,147

R. H. WAGER

LATHER FORMING DEVICE

Filed July 29, 1922 2 Sheets-Sheet 1

FIG. 1.

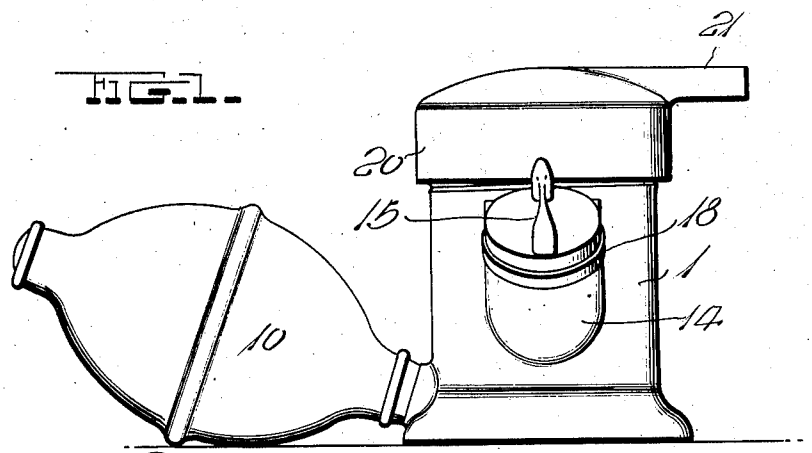


FIG. 2.

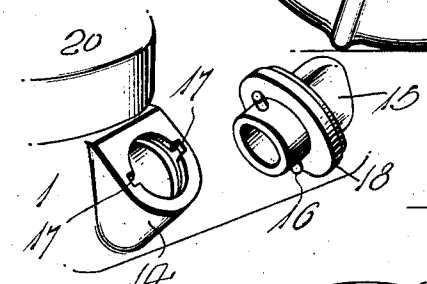


FIG. 4.

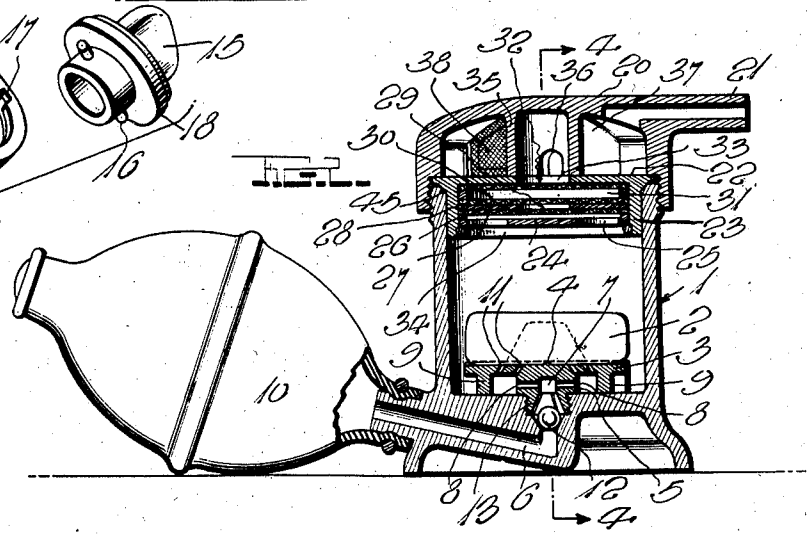
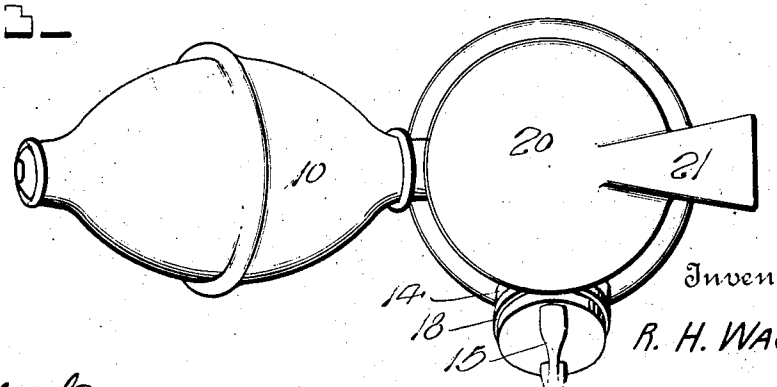


FIG. 3.



Witness
H. Woodard

Inventor
R. H. WAGER

By H. B. Wilson & Co
Attorneys

Sept. 15, 1925 1,554,147

R. H. WAGER

LATHER FORMING DEVICE

Filed July 29, 1922 2 Sheets-Sheet 2

FIG. 8.

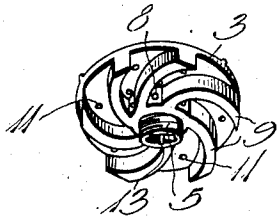


FIG. 9.

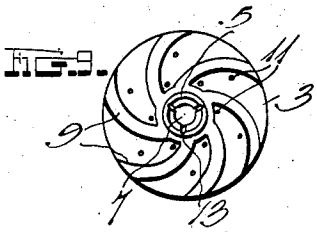


FIG. 10.

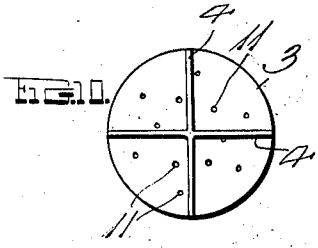


FIG. 4.

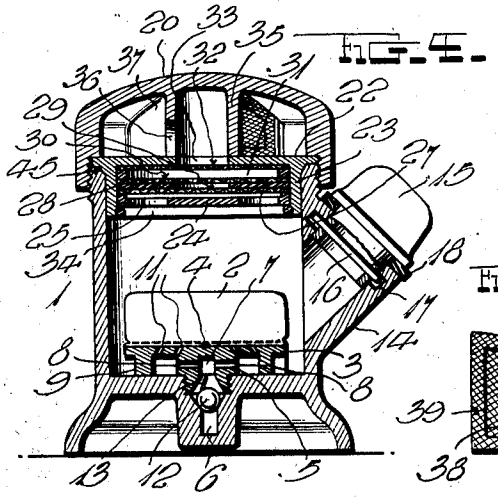


FIG. 11.

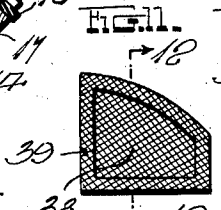


FIG. 12.



FIG. 6.

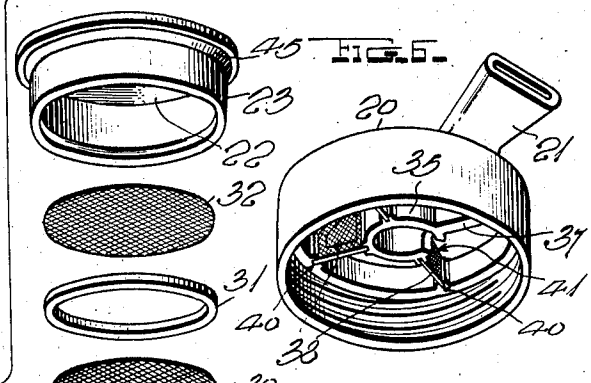


FIG. 16.

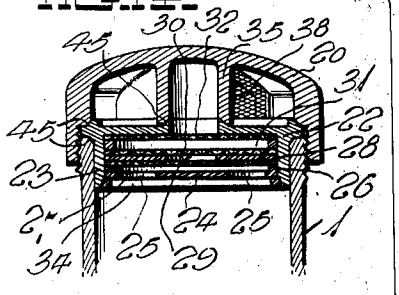


FIG. 5.

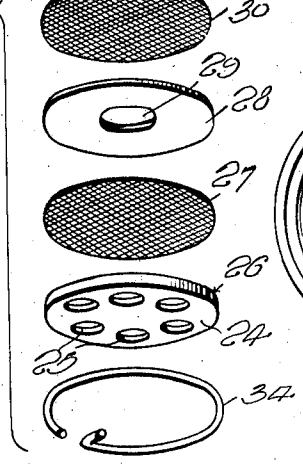
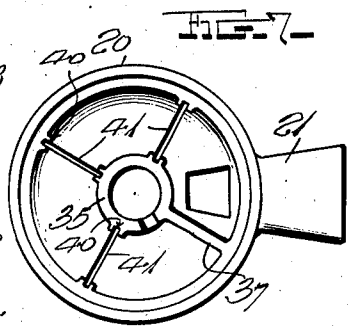


FIG. 7.



Witness
H. Woodard

Inventor
R. H. WAGER

By A. B. Williamson & Co
Attorneys

Patented Sept. 15, 1925. 1,554,147

UNITED STATES PATENT OFFICE.

ROBERT HUDSON WAGER, OF JERSEY CITY, NEW JERSEY.

LATHER-FORMING DEVICE.

Application filed July 29, 1922. Serial No. 578,401.

To all whom it may concern:

Be it known that I, ROBERT HUDSON WAGER, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in a Lather-Forming Device; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in devices for forming lather for shaving purposes and has reference more particularly to a device in which air is injected into a chamber containing a saponaceous liquid, the suds being then forced through means for breaking the bubbles and condensing their soap content into a smooth lather, prior to discharge for use. A device of this character is shown by my pending U. S. application, Serial No. 544,059, filed Mar. 15, 1922, but the present invention aims to provide improved means for condensing the soap content of the generated bubbles, as well as to provide an improved arrangement, whereby the bubbles or suds will be effectively generated, regardless of the size to which the cake of coap has worn. The method or process described herein, is claimed in my co-pending application Serial No. 699,133 filed March 13, 1924 which is a division of application Serial No. 544,059.

With the foregoing in view, the invention resides in the novel subject matter hereinafter described and claimed, the description being supplemented by the accompanying drawings.

Figure 1 is a side elevation of a lather forming device constructed in accordance with my invention.

Figure 2 is a vertical sectional view.

Figure 3 is a top plan view.

Figure 4 is a vertical transverse section as indicated by line 4—4 of Figure 2.

Figure 5 is a disassembled view showing more particularly the means for condensing the soap content of the bubbles to a lather.

Figure 6 is a perspective view of the cap in which further condensation of the soap content takes place.

Figure 7 is a bottom plan view of the cap shown in Figure 6.

Figures 8, 9 and 10 are respectively a perspective view, a bottom plan view and a top plan view of the soap supporting platform.

Figure 11 is a side elevation of one of the screens carried by the cap above referred to.

Figure 12 is a detail sectional view on line 12—12 of Figure 11.

Figure 13 is a detail perspective showing the preferred manner of closing the water inlet opening of the suds generating chamber.

Figure 14 is a view similar to the upper portion of Figure 4 but illustrating a slightly different form of construction.

In the drawings above briefly described, the numeral 1 designates an upright cylindrical receptacle whose interior constitutes a chamber adapted to contain a saponaceous liquid, the latter being preferably formed of water and soap. In the present showing, the soap is in the form of a cake 2 supported upon a platform 3 within the lower end of the chamber 1, said platform being preferably provided on its upper surface with ribs 4 to hold the soap cake against rotation thereon. The platform 3 is spaced above the bottom of the receptacle 1 and I provide means for supplying air under pressure to the space beneath said platform, so that air will be supplied to the water within the receptacle, around the edge of the platform 3 and soap cake 2 thereon. In the preferred form of construction, the lower side of the platform 3 is provided with a centrally disposed depending neck 5 threaded into the enlarged upper end of an air supply passage 6 which is formed in the bottom portion of the receptacle. The neck 5 is formed with a passage 7 communicating with the delivery end of the passage 6 and a plurality of air discharge ports 8 lead from said passage 7 through the neck to supply air in radial jets beneath the soap supporting platform 3. In the preferred from of construction, the lower side of this platform is provided with a plurality of curved substantially radial ribs 9 located between the ports 8 and defining passages of such shape and to impart a whirling motion to the water within the receptacle 1, when air under pressure is forced into the device through the passage 6, for instance by means of a hand bulb 10 connected with the outer end of said passage. This whirling of water about the

soap cake dissolves or wears away the peripheral portion of the cake and forms soap suds in the receptacle 1, which are condensed to a lather of the proper consistency for shaving, before discharge for use, as will be hereinafter described.

When the soap cake 2 has worn away to a predetermined extent, it uncovers the outermost of a plurality of inclined ports 11 which pass entirely through the platform 3. Thus, by the time the soap cake has worn down to such an extent as to prevent the effective formation of soap bubbles by whirling of the water around the cake, jets of air and water will be forced upwardly through the ports 11 against the cake which then assumes substantially the shape shown by the dotted lines in Fig. 2. Thus, the soap cake can be entirely used and no waste will therefore occur.

The meeting portions of the passages 6 and 7 are flared to form a valve cage and seat within which a ball check 12 is located so as to prevent any liquid from running into the passage 6 from the receptacle 1, while permitting air under pressure from the bulb 10 to pass freely into said receptacle. To prevent upward closing of the check 12, any suitable provision may be made, such as forming grooves 13 in the wall of the passage 7 at its flared lower end.

For the purpose of filling the receptacle 1 with water, I provide it with a suitable filling neck 14 having a removable closure 15 which is preferably held in place by means of a pin 16 and bayonet slots 17, an appropriate gasket 18 being interposed between the closure and the neck to form a liquid tight connection. Attention may here be directed to the fact that the neck 14 constitutes an overflow for the receptacle 1, preventing filling of the latter to an undesirable extent. The location of this neck insures that sufficient water shall not be supplied to the receptacle 1, to run from either the upper or lower end of the latter, should it be accidentally tilted or laid upon one side. This is due to the fact that the level of liquid in the receptacle will not reach as high as the passage 7 or the central outlet from the upper end of the receptacle 1, if the latter is in a position at an angle or on one side.

The numeral 20 designates a removable cap threaded upon the upper end of the receptacle 1 and provided with a lather outlet spout 21. This cap contains final suds condensing means and preliminary condensing means are located within a hollow partition which separates the receptacle from the cap. In the present showing, a disk 22 is clamped between the receptacle and the cap 20, said disk being provided with a depending annular flange 23 closed at its lower end by a disk 24 which is formed with apertures 25 near its periphery. The edge of this disk as here shown, is provided with an upwardly extending rib 26 upon which a screen 27 rests. A second disk 28 rests upon the screen 27 and is provided with a central aperture 29. A second screen 30 rests upon the upper side of the disk 28 and is held against the same by a spacing ring 31 bearing against the upper side of said screen 30. Between the ring 31 and the plate 22, a third screen 32 is positioned, which screen extends across the central outlet opening 33 with which the plate 22 is formed. A spring ring 34 is preferably provided to hold the several parts 24—32 within the flange 23 and it will be seen that removal of this spring ring, will permit easy disassembly of the initial suds condensing means for cleaning purposes. The ring 31 and disk 28 serve as spacing members between the adjacent screens.

The cap 20 is provided with a central depending sleeve 35 which registers at its lower end with the opening 33, said sleeve being formed with an outlet opening 36 placing it in communication with the space between said sleeve and the peripheral wall of the cap. Extending across this space between the opening 36 and the spout 21, is a partition 37 which forces the suds discharged through the opening 36, to travel entirely around the interior of the cap before it is discharged through the spout 21. During this travel, a number of screens 38 are encountered and these screens act to further condense the soap content of the partially condensed suds, so that a thick smooth lather is produced for expulsion through the spout 21.

As shown most clearly in Figures 6, 7, 11 and 12, each screen 38 is preferably mounted on a rigid sheet metal frame 39 and the cap is provided with vertical guide ribs 40 on the peripheral wall of said cap and the sleeve 35, for holding said frames. The top of the cap is also by preference formed with grooves 41 receiving the upper portions of said frames.

To operate the device, a cake of soap is pressed downwardly upon the platform 3 and the plate 22 with its condensing means and the cap 20, are again secured in place. The closure 15 is now removed and the receptacle 1 is filled with water to the extent permitted by the neck 14. When this closure is again applied, the device is in readiness for use. Operation of the bulb or the like 10 will now cause discharge of air under pressure into the receptacle 1 around the cake 2, thereby forming soap bubbles which are forced out through the openings 25, 29 and 33, and the interposed screens. Thus, the soap bubbles are broken up and their soap content is reduced to a lather which is

discharged through the opening 36 and must pass through the screens 38 before reaching the discharge spout 21, the result being that further condensation takes place and when the lather is finally discharged, it is in the form of a thick smooth cream of proper consistency for shaving. This lather may be caught in the hand and applied to the face directly, so that the use of an unsanitary brush is not necessary.

I have found in actual practice, that the soap suds in being pressed by the action of the bulb, through the several extremely fine screens within the flange 23 will pulsate them and permeate between these screens and the adjacent disks and will ooze through the entire areas of said screens instead of only through the portions extending over the several openings. Thus, a thorough breaking up of the soap suds is produced which insures a perfect lather.

In view of the fact that excellent results are being obtained from the exact details shown and described, these details may well be followed, but it is to be understood that within the scope of the invention as claimed, numerous minor changes may be made. It will be understood that any suitable provision may be made for providing an air tight or liquid tight joint wherever desired. The numerals 45 in Figures 2, 4 and 14, designate suitable ground joints for this purpose.

I claim:—

1. A lather forming device comprising a water receptacle having a soap cake supporting platform and a space under the same, and provided with an air inlet into said space, the latter being in communication with the receptacle at the edge of the platform, said platform being formed with a portage leading to its upper side from said space and covered by the soap cake until the latter is worn to a reduced diameter.

2. A lather forming device comprising a water receptacle having a soap cake supporting platform, an air inlet under said platform, and passages from said air inlet to the edge of the platform for discharging air into the receptacle around the soap cake, said platform having ports leading to its upper side from said passages covered by the cake of soap until the latter is worn to a reduced diameter.

3. A lather forming device comprising a suds forming chamber adapted to contain a saponaceous liquid, and a plurality of substantially parallel closely related screens through which the suds are discharged under pressure, whereby they are broken and their soap content condensed to a thick lather, said screens being permanently segregated from the liquid containing portion of the chamber, whereby no liquid can reach said screens except in the form of suds.

4. A lather forming device comprising a suds forming chamber adapted to contain a saponaceous liquid, and screening means through which the suds are discharged under pressure, said screening means being permanently segregated from the liquid space of the chamber and comprising an apertured disk and a screen disposed side by side.

5. A lather forming device comprising a suds forming chamber adapted to contain a saponaceous liquid, and screening means through which the suds are discharged under pressure, said screening means being permanently segregated from the liquid space of the chamber and comprising an apertured disk between two screens.

6. A lather forming device comprising a suds forming chamber adapted to contain a saponaceous liquid, and screening means through which the suds are discharged under pressure, said screening means being permanently segregated from the liquid space of the chamber and comprising spaced apertured disks and a screen between said disks.

7. A lather forming device comprising a suds forming chamber and screening means through which the suds are discharged, said screening means comprising a disk apertured near its periphery, a screen spaced a slight distance beyond said disk, a second disk centrally apertured and in contact with said screen, and a second screen in contact with said second disk.

8. A lather forming device comprising a suds forming chamber and screening means through which the suds are discharged, said screening means comprising a disk apertured near its periphery, a screen spaced a slight distance beyond said disk, a second disk centrally apertured and in contact with said screen, a second screen in contact with said second disk, and a third screen spaced slightly from said second screen.

9. A lather forming device comprising a suds forming chamber, a removable cap on the upper end of said chamber having a lather outlet, a hollow partition between said chamber and cap communicating with both, and suds condensing means in said hollow partition.

10. A lather forming device comprising a suds forming chamber, a removable cap on the upper end of said chamber having a lather outlet, an apertured plate clamped between said cap and chamber and having a depending flange fitting within the latter, and suds condensing means mounted within said flange.

11. A lather forming device comprising a container for a saponaceous liquid, said container having a lather outlet course permanently segregated from its liquid containing portion, a plurality of closely related screens extending across said course, and a spacing

member disposed between each pair of adjacent screens for holding them in spaced relation.

12. In a shaving lather forming device, a receptacle for soapy liquid, a hand bulb for supplying and means for mingling a gaseous fluid under low pressure with said soapy liquid, an outlet course for the co-mingled liquid and gaseous fluid through which they are forced under the influence of said fluid pressure, and a plurality of fine parallel screens disposed face to face in said course capable of preventing forcible outrush of the co-mingled liquid and fluid, converting them into a thick creamy shaving lather, and permitting such lather to ooze slowly from the outlet course.

13. In a shaving lather forming device, the combination of a receptacle adapted to contain a solid piece of soap and water, a hand bulb for introducing low pressure air into and through the water in said receptacle while in contact with such soap, an outlet course for the co-mingled soapy liquid and air through which they are forced under the influence of the said low pressure air, a plurality of fine screens disposed parallel to each other in said course for preventing forcible outrush of the co-mingled soapy liquid and air, and for converting them into a shaving lather at substantially atmospheric pressure, and permitting such lather to ooze slowly from the outlet course.

In testimony whereof I have hereunto affixed my signature.

ROBERT HUDSON WAGER.