

Oct. 20, 1936.

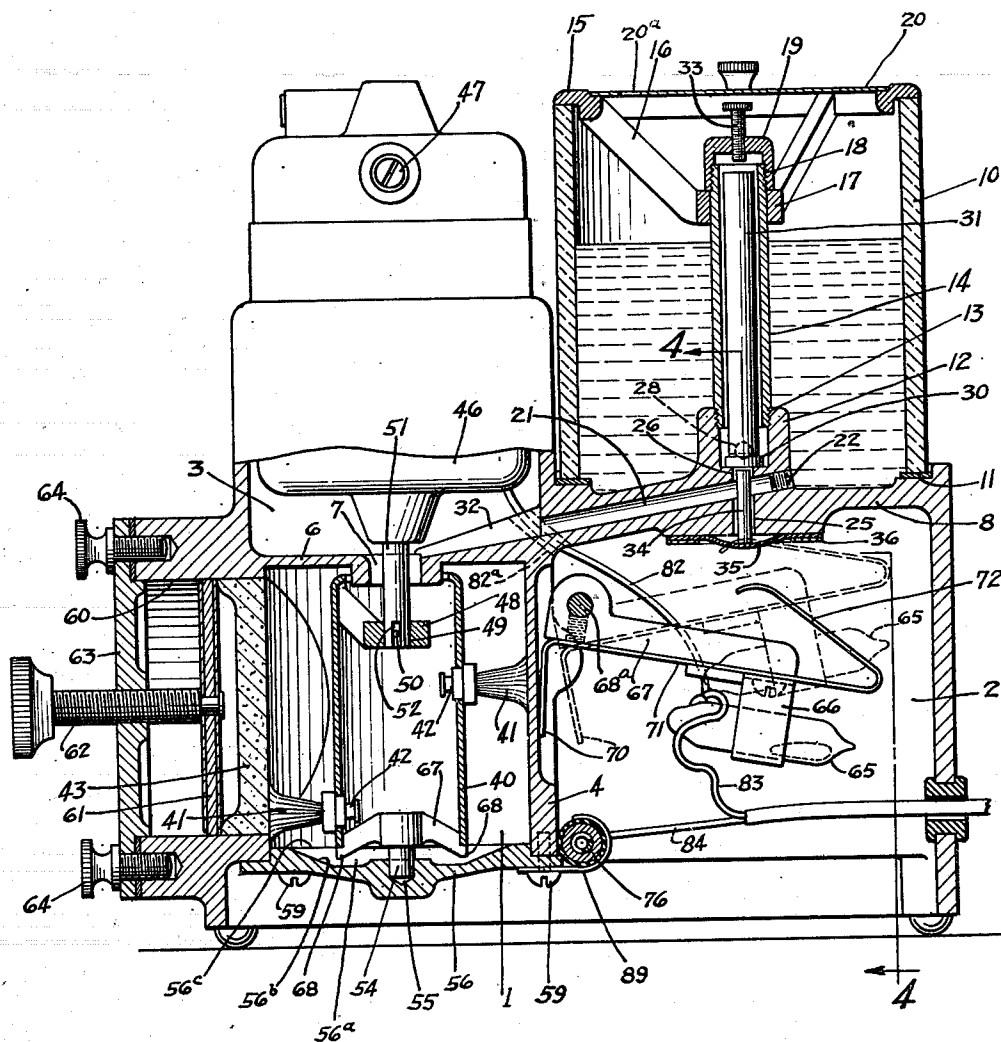
M. ROLSTAD
LATHER MAKING MACHINE

2,057,791

Filed Aug. 9, 1934

3 Sheets-Sheet 1

FIG. 1



Inventor
MELVIN ROLSTAD

By *Paul R. Moore*
ATTORNEYS

Oct. 20, 1936.

M. ROLSTAD

2,057,791

LATHER MAKING MACHINE

Filed Aug. 9, 1934

3 Sheets-Sheet 2

FIG. 2

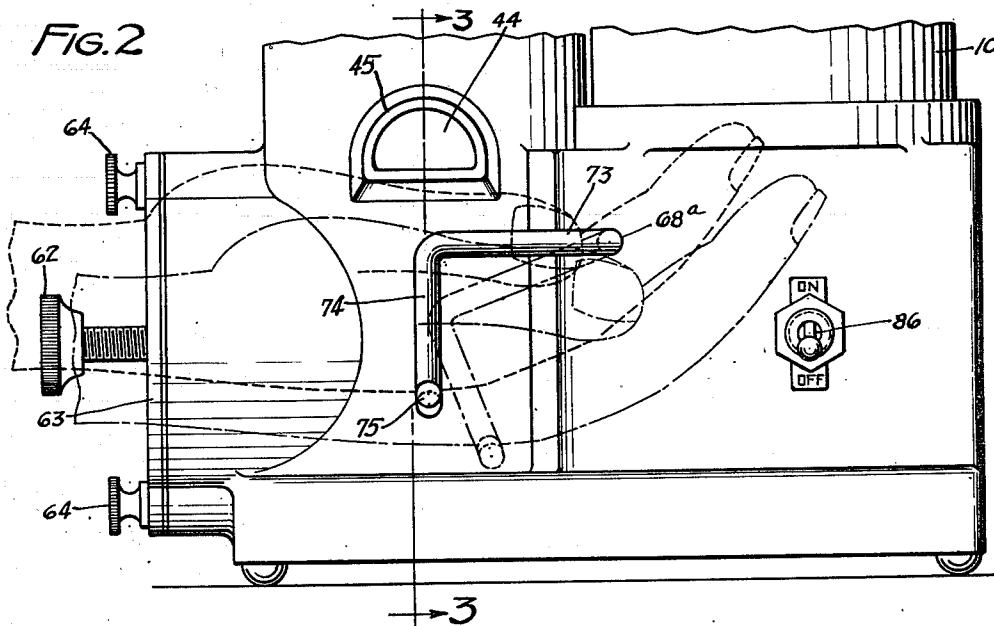


FIG. 3

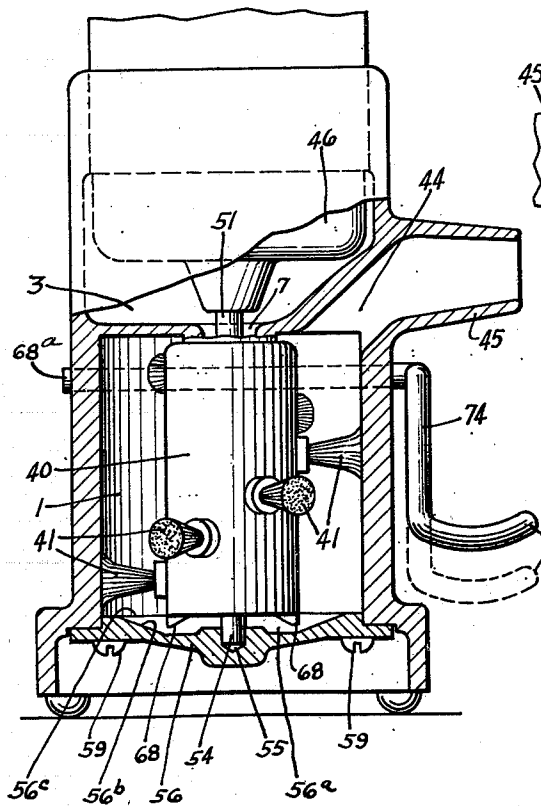
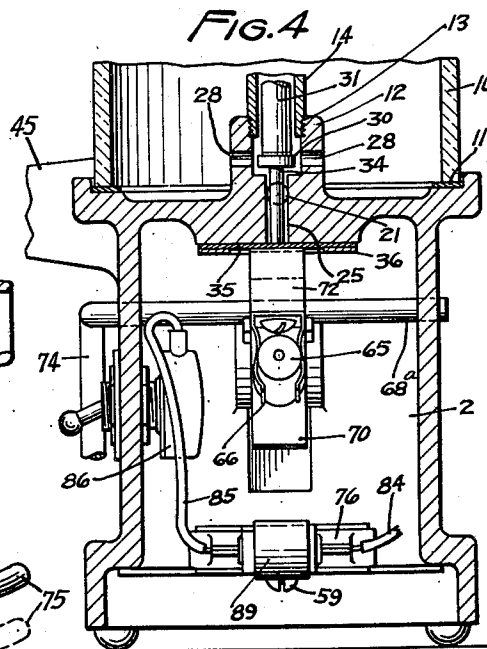


FIG. 4



Inventor
MELVIN ROLSTAD

By *Reed Paul & Moore*
ATTORNEYS

Oct. 20, 1936.

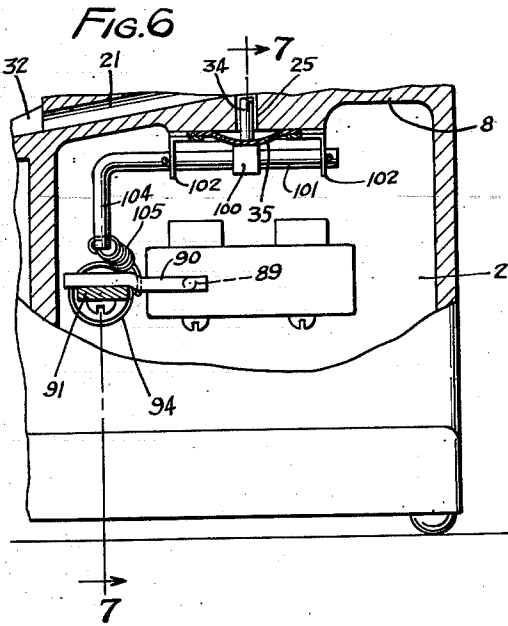
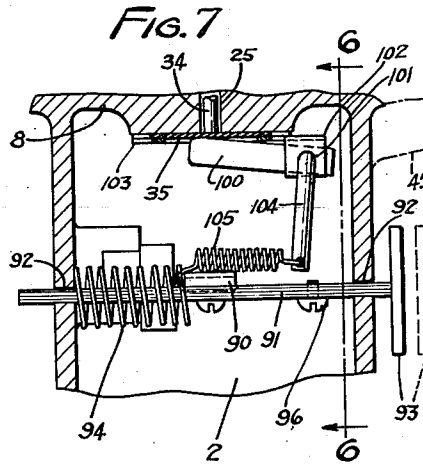
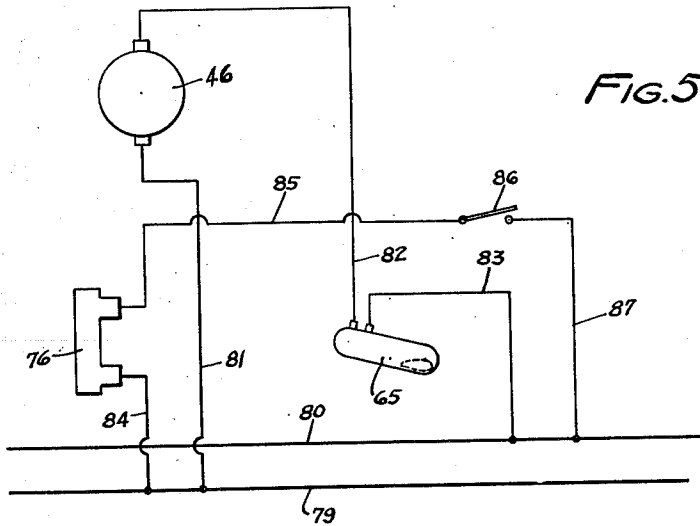
M. ROLSTAD

2,057,791

LATHER MAKING MACHINE

Filed Aug. 9, 1934

3 Sheets-Sheet 3



Inventor
MELVIN ROLSTAD
By *Paul, Reul & Moore*
ATTORNEYS

UNITED STATES PATENT OFFICE

2,057,791

LATHER MAKING MACHINE

Melvin Rolstad, Mankato, Minn.

Application August 9, 1934, Serial No. 739,078

21 Claims. (Cl. 299-83)

This invention relates to improvements in mixing machines, particularly adapted for mixing lather for shaving purposes. This invention is an improvement over the invention shown in my Patent No. 1,914,868 issued June 20, 1933.

Features of the invention include: the use of a spiral brush for scraping the soap for making lather; the provision of a brush having a hollow core and the delivering of water through said core to the bottom of the lather chamber; means associated with the core for centrifring the water; the operation of this brush in a direction to wipe or scrape the soap generally in a direction toward a lather delivery opening or passage; the use of a single spiral row of bundles of bristles with the bundles widely spaced; the provision of manual control means for simultaneously operating water delivery control means and a motor current controlling means to simultaneously start the motor and obtain delivery of water; the use of a mercury switch for controlling the motor circuit and of means movable with the switch for controlling the water supply to obtain a supply of water when the switch is closed; the use of a self-closing valve for controlling the water and the operation of the valve by means of a diaphragm; the provision of a single heater for heating the lather chamber by conduction and the water in the water reservoir by conduction and convection; means for detachably connecting the soap scraper with the motor, in conjunction with a bearing; the assembly relations of the brush with the motor and with a removable bottom for the lather chamber; and all details of construction shown and/or described.

Objects, features and advantages of the invention will be set forth in the description of the drawings forming a part of this application, and in said drawings:

Figure 1 is a central vertical longitudinal section showing the mercury switch in open condition and the water valve in closed condition;

Figure 2 is a side elevation showing the relation of the manual control element to the lather delivery spout;

Figure 3 is a vertical transverse section taken approximately on line 3-3 of Figure 2;

Figure 4 is a vertical transverse section taken approximately on line 4-4 of Figure 1, but showing the mercury switch in closed position and the water-controlling valve in open position;

Figure 5 is a diagram showing the wiring connections for the mercury switch and heater;

Figure 6 is a fragmentary sectional elevation of

the heater and switch chamber on line 6-6 of Figure 7, the section being taken in a manner similar to that of Figure 1; and

Figure 7 is a transverse section taken approximately on line 7-7 of Figure 6.

One embodiment of my invention is herein shown in a device comprising a casing providing a lather chamber generally designated 1, a heater and switch chamber 2, and a motor chamber 3. An upright metallic wall 4 is common to the lather and heater chambers, and a metallic wall 6 forms the top of the lather chamber 1 and the bottom of the motor chamber 3. This wall has a water delivery opening 7 leading to the lather chamber.

The wall 8 forms the top wall of the heater chamber and the bottom wall of a water reservoir which is formed by means of a cylindrical glass element 10 having its bottom end resting upon and sealingly associated with a suitable gasket 11. The wall 8 has upright hollow boss 12 interiorly threaded as at 13 to receive the threaded lower end of the tube 14. A spider ring 15 engages the upper edge of the element 10 and the arms 16 of the spider are connected with a ring 17, which ring surrounds the tube 14, and is slidable thereon. The upper end of the tube 14 is threaded as at 18 to cooperate with a similarly threaded cap 19 which, when screwed downwardly, correspondingly moves the spider ring downwardly to cause the ring 15 to clamp against the upper edge of the glass cylinder 10 and press it against the gasket 11. A suitable plate 20 fits a depression of the ring 15 to close the water reservoir.

Means is provided by which water is delivered to the lather chamber in regulated quantity. For this purpose, the bottom wall 8 of the water reservoir has a drilled water passage 21 leading to the bottom surface of the motor chamber. The bore 21 is closed at the inner end by a suitable screw plug 22. The wall 8 has a vertical passage 25 leading to the inner side of the hollow boss 12, said passage crossing and communicating with the drilled passage 21, as shown. The upper portion of said passage 25 is designated 26. The boss 12 has openings 28, in this instance two openings, which are diametrically related. Water flowing through these openings reaches passage 21 through the passage 26. Disk valve 30 normally closes the opening 26, as in Figure 1. The valve is held closed by a cylindrical bar 31 slidably disposed within the tube 14 and acting by gravity. The upward movement of this bar, and therefore the degree of opening of the valve, is limited

ited by the end of an adjustable stop screw 33 threaded into cap 19.

The passage 21 is herein designed to deliver toward the water opening 7 in the bottom wall of the motor chamber, and may be formed in any suitable manner. In this instance, the delivery end of the passage stops at the vertical wall of the motor chamber, and a pair of elements 32 rise from the bottom wall 6 to guide the water across the floor of the motor chamber to the opening 7, after it leaves the passage 21.

A pin 34 slides in the passages 25 and 26 to operate the valve 30, and a diaphragm 35 controls the pin and closes the lower end of the opening 25. This diaphragm is suitably sealingly secured by an annular plate 36. Suitable means hereinafter described is provided for acting on the diaphragm for control of the valve pin 34.

Within the lather chamber is soap scraping means and this means, as here shown, comprises a brush having a hollow core 40 having projecting radially from its outer side bundles 41 of bristles, arranged in a single spiral row and, as shown herein, composed of six bundles, the bundles being relatively widely spaced from one another. Each bundle is attached to the core by suitable means indicated at 42. The bristles act on soap indicated at 43, and the brush is given such a rotative direction as will cause the soap to be wiped or fed upwardly, for exit through a lather delivery passage indicated at 44, see Figure 3, which passage extends through a delivery spout 45, projecting at the outer side of the structure. My use of a spiral brush is a feature, as well as the scheme by which it acts to feed the soap toward or in the general direction of the lather delivery passage. The brush or scraping means is operated by a motor 46 suitably held in operative position in the motor chamber by means generally designated 47. The brush core 40 has therewithin a centering bearing 48 having an opening 49 diametrically traversed by a cross pin 50. The lower end of the motor shaft 51 is slotted as at 52 and when the shaft is engaged in the opening 49, the slot straddles the pin 50, as shown, to form a quickly releasable driving connection between the shell and the motor shaft. The motor has an R. P. M. of about 17,000 when idling and an R. P. M. of about 5,200 during the lather making process. The lower end of the shell has a stub shaft 54 which is stepped in a bearing socket 55 held in plate 56, which plate forms the bottom of the lather chamber and is held by means of screws 59. The soap is held and fed in a horizontal passage 60 which intersects the inner wall of the lather chamber. A follower 61 is operated by screw 62, the screw being threaded in cap plate 63 held by screw 64. Water delivered through opening 7 falls through the core of the brush to the bottom of the lather chamber, and I have found that this is a very efficient way to spread the water. The stub shaft projects from a spider 67, the arms of which project slightly below the core as at 68. Thus, water deposited upon the spider is moved by centrifugal action from the slightly projecting portion and splattered against the wall of the lather chamber. This is also a feature of my invention.

Suitable means is provided for simultaneously closing a circuit to the motor, and opening the valve 30 to supply water to the lather chamber. In Figures 1, 4 and 5 is shown a mercury switch 65 for controlling the motor circuit, and the tube of this switch is secured by a clip 66 to a suitable base 67 held non-rotatably on shaft 68, within

the switch and heater chamber 2. Swinging movement of the base 67 is limited at switch-closed position by an angled terminal portion 70 of a metal strip suitably attached to the base 67 by a middle portion 71. The opposite end of this strip is bent to provide a resiliently acting portion 72, the end of which is engageable with the outer side of the diaphragm 35 for pressing it upwardly to correspondingly move the pin 34 and open the valve 30. The water-valve-open and motor-switch-closed positions of the device are shown in Figure 1 in dotted lines, and in Figure 4 in full lines. The upward movement of the mount 67 is limited by the spring arm 72.

Referring to Figures 2, 3 and 4, and to a valuable feature of the invention: The shaft 68^a is journaled in the walls of the structure and at the outer side of the structure is first bent to provide a horizontal portion 73, then bent to provide the vertical portion 74 and then bent outwardly to provide the horizontally disposed hand-engaging portion 75. Thus the means for controlling operation of the switch has a part which is arranged to be operable by part of an operator's hand while positioned to receive lather issuing from the spout 45. The hand is merely placed upon the element 75 and pressed downwardly, see Figure 2, thus rotating the shaft 68^a to close the motor switch and open the water valve. Thus I broadly provide means operable by the hand, which is positioned to receive the lather from the spout, to initiate the lather making and delivering operation.

It is noted that the removable bottom wall 56 of the lather chamber has a water-receiving depression 56^a on its top surface, and that the wall of the depression flares upwardly and outwardly as at 56^b. The lower ends of the element 68 are arranged within the dished portion at a level below the level of the top surface 56^c of the plate 56. Water in this depression is thrown centrifugally by the projections 68 and is guided upwardly and outwardly along the surfaces 56^b toward the brushes 41. This is a feature of the invention.

Electrically operable heating means, generally indicated at 76, is provided for heating of the lather chamber and the water, and this means is so disposed as to heat the upright metallic wall 4 by conduction, and to also heat the water partly by conduction directly through the metal walls 4 and 8 and partly by convection through the air of the chamber 2 and then by conduction through the metal wall 8. The heater 76 is held by a clip 89 in turn held by one of the screws 59 which secures the bottom of the lather chamber. Parallel circuits for motor and heating are provided. These electrical connections have not been completely shown except in Figure 5, wherein the line wires are indicated at 79-80. The motor circuit is as follows: line 79, wire 81, motor 46, wire 82, switch 65 and wire 83 to line 80. The heater circuit is: line 79, wire 84, heater 76, wire 85, switch 86, wire 87 to line 80.

In Figures 6 and 7, I have shown a modification for opening the water supply to the lather chamber when the motor switch is closed, by means of the main control lever. In this case, one part 93 of the main control is disposed in the same relation to the spout 45 as that previously described for the element 75, the only difference being that the control element now to be described is adapted to be pushed horizontally toward the side of the casing by the hand as it moves to the lather-receiving position under the lather spout. The position of the spout is shown in dot-and-dash lines because the section, Figure 7, as taken would

not permit the showing of the spout in full lines.

Referring to Figure 6: the motor control switch is of the non-mercury contact type, and the translatable control button is indicated in dotted lines at 89. Engageable with this button is an arm 90 movable with a horizontally slidable bar 91. The bar is suitably held and guided in slots 92 of opposite walls of the heater chamber 2. The bar 91 has the hand-engaging portion 93 disposed as previously described. A compression spring 94 is interposed between the arm 90 and the casing wall, as shown in Figure 7, to move the bar 91 to its outermost position at which it is limited by a screw head 96. In Figure 7, the mechanism is shown in switch-open and valve-closed position, while in Figure 6, it is shown in switch-closed and valve-open position.

The water control valve construction is the same as previously described, but in this case the diaphragm 35 is moved by means of an arm 100 suitably secured to shaft 101, journaled in brackets 102 which are parts of the gasket-securing ring 103. The shaft 101 has a down-turned arm 104 connected by spring 105 preferably with arm 90. As shown in Figure 7, the spring is under tension, and its purpose is to permit movement of the bar 91 after arm 100 has moved the diaphragm upwardly to its limit.

The heater circuit can be closed at any time independently of the motor circuit, and during business hours in a barber shop, for example, is ordinarily closed during non-lather-making periods, so that the water and lather chambers are maintained in properly heated condition. In order to quickly obtain a plentiful supply of lather, all that is necessary is to place the back of the hand on the element 15 and press downwardly as shown in Figures 1 and 3. This results in closing of the mercury switch and opening of the water valve so that water is delivered through the shell to the bottom of the lather chamber, and the brush is operated to scrape the soap and centrif the water to the sides of the chamber.

With the construction shown in Figures 6 and 7, the operator places the inner side of the hand against the element 93 and moves it inwardly to the position shown in Figure 7, which results in switch closure and opening of the water valve, in exactly the same way as that described for the form of the invention in which a mercury switch is used.

In some instances, the bristles or other soap scraping means normally hang limply and are brought to scraping position and maintained for scraping action by centrifugal force. It may be assumed that the limp bristles are being held by centrifugal action in Figures 1 and 3 of the drawings. Of course, materials other than bristles, and spirally arranged, can be used.

An opening 82^a connects the chambers 2 and 3. This opening is shown in dotted lines in Figure 1. The conductor 82 passes through this opening, and the opening is of sufficient size to allow air to enter the chamber 3 and opening 7. An air hole 20^a is also shown in the cover 20.

Any suitable means may be used for operating the follower 61 and there is no intention to be limited to the means shown, since such means may be automatic.

I claim as my invention:

1. A device of the class described having, a lather chamber having soap therein, a brush rotatable in the lather chamber and operable against the soap to scrape and feed it, a water reservoir connected to deliver water into said

lather chamber to mix with the soap and means for controlling delivery of water, an electric motor for operating the brush, means for controlling current to the motor, and means manually controlled by a single control element for automatically simultaneously operating the water delivery controlling means and the motor current controlling means to start the motor and obtain delivery of water.

2. A device of the class described having, a lather chamber having soap therein, said chamber having a lather-exit passage into its upper portion, a vertically disposed rotatable helical brush comprising a hollow core and having bristles operative against the soap to move the soap upwardly, a water reservoir connected to deliver water into the upper end of said hollow core to fall through the core to the bottom of the lather chamber and means controlling delivery of water, an electric motor for operating the brush, and means for controlling current to the motor.

3. A device of the class described having, a lather chamber having soap therein, said chamber having a lather exit passage in its upper portion, scraping means in the chamber operable against the soap to move it upwardly, an electric motor for operating said scraping means, means for controlling current to the motor, a water reservoir connected to deliver into said lather chamber, and means for controlling delivery of water, and means manually controlled by a single control element for automatically simultaneously operating the water delivery controlling means and the motor current controlling means to start the motor and obtain delivery of water.

4. A device of the class described having, a lather chamber having soap therein, means operative to scrape the soap, a water reservoir connected to deliver into said lather chamber and means controlling delivery of water, an electric motor for operating the scraper and a circuit for the motor including a switch, and means movable as a result of switch movement to closed position for controlling the water delivery means to obtain delivery of water.

5. A device of the class described having, a lather chamber having soap therein and having a lather-exit passage, means operative against soap in the lather chamber to scrape the soap, a water reservoir connected to deliver into said lather chamber and means controlling delivery of water, an electric motor for operating the scraper and a circuit for the motor including a switch, means movable as a result of switch movement to closed position for controlling the water delivery means to obtain delivery of water and means for controlling operation of the switch, part of said switch control means being arranged to be operable by part of the hand while positioned to receive lather issuing from the lather-exit passage.

6. A device of the class described having, a lather chamber having soap therein, means operative against the soap in the lather chamber to scrape the same, a water reservoir connected to deliver into said lather chamber and means for controlling delivery of water, a main control element, an electric motor for operating the scraping means, a circuit for the motor including a switch, and means controlled by said main control element simultaneously operating the water delivery controlling means and said switch to obtain delivery of water and start the motor.

7. A device of the class described having, a

- lather chamber having soap therein, a scraper operative against the soap in the lather chamber, a water reservoir connected to deliver into the lather chamber, a self-closing valve normally preventing flow of water through said passage to the lather chamber, a diaphragm by which the valve is controlled, an electric motor operating the scraper and a circuit for the motor including therein a switch, a main control element, and means controlled thereby for operating the diaphragm to open the valve, and for closing the switch.
8. In a lather making machine, a structure providing a lather chamber and a heater chamber and an upright metallic wall common to both chambers, a water reservoir having a metallic bottom which forms the top wall of the heater chamber, an electrically operable coil heater in the heater chamber contacting and therefore adapted to transfer its heat by conduction through said upright metallic wall to the lather chamber and by convection along said upright wall to the bottom of said water reservoir, a circuit for said heater including a switch.
9. In a leather making machine a structure providing a lather chamber and a heater chamber and an upright metallic wall common to both chambers, a water reservoir having a metallic bottom wall which forms the top wall of the heater chamber, an electrically operable coil heater in the heater chamber contacting and therefore adapted to transfer its heat by conduction through said upright metallic wall and by convection along said upright wall to the bottom wall of said water reservoir, a circuit for said heater including a switch, said bottom wall of said water chamber having a passage therein in part disposed over said heater and adapted to deliver water to the lather chamber.
10. A structure providing a lower lather chamber and a motor chamber thereover, the bottom wall of the motor chamber forming the top wall of the lather chamber and said wall having a water delivery opening therein, a motor in said upper chamber having a shaft extending downwardly and loosely through said opening, a removable bottom wall for said lather chamber, a brush in said lather chamber having a hollow core placed to receive water delivered through the water opening, means by which the core is detachably rotatably stepped in said removable bottom wall, means detachably connecting the motor shaft to said core in a manner to drive and center the core, a water reservoir and a passage by which the reservoir delivers water into said water opening, and means controlling delivery of water through said passage.
11. A structure providing a lather chamber, a motor chamber over the lather chamber the bottom of said motor chamber forming the top of said lather chamber, said wall having a water delivery opening leading into the lather chamber, means for delivering water through said opening, a motor in the motor chamber having a shaft passing loosely through said water delivery opening, rotatable soap scraping means in said lather chamber, means connecting said motor shaft to said scraping means for driving and centering it, and means rotatably stepping the scraping means in the bottom wall of said lather chamber.
12. A structure providing a lather chamber, a motor chamber over the lather chamber, the bottom of said motor chamber forming the top of said lather chamber, and said wall having a water delivery opening leading into the lather chamber, a water chamber, the bottom wall of which has a passage therein for delivering water into the water opening, a motor in the motor chamber having a shaft passing loosely through said water delivery opening, rotatable soap scraping means in said lather chamber and means by which the motor shaft drives the scraping means.
13. A structure providing a lather chamber and a motor chamber over the lather chamber, the bottom of said motor chamber forming the top of said lather chamber, and said wall having a water delivery opening leading into the lather chamber, a water chamber the bottom wall of which has a passage therein establishing communication between said water and motor chambers for delivering water into said water opening, means controlling the delivery of water through said passage, a motor in the motor chamber having a shaft passing loosely through said water opening, and a brush in said lather chamber having a hollow core disposed to receive water delivered through the water opening, a driving connection between the shaft and core and one end of said core having a stub shaft rotatably stepped in the bottom wall of said lather chamber.
14. A device of the class described having a lather chamber having a water-receiving depression in its bottom, said depression having upwardly directed laterally diverging sides, a cake of soap in said chamber a vertically disposed brush rotatably stepped in said bottom and comprising a hollow core and bristles operative against the soap to feed the same, the bottom of said core having means projecting into said depression and adapted to move water centrifugally, a water reservoir connected to deliver water into the upper end of said hollow core to fall therethrough into said depression, means for controlling the delivery of water, an electric motor for operating the brush, and means for controlling current to the motor.
15. A device of the class described having, a lather chamber of substantially cylindrical configuration and substantially vertically disposed and having a lather outlet at its top, means for feeding a cake of soap into the chamber in a direction perpendicular to the axis of the chamber, a helical brush rotatable in the chamber with its axis parallel with the axis of the chamber and arranged and adapted to engage, scrape and feed the soap upwardly, a water reservoir connected to deliver water into said lather chamber to mix with the soap, means for controlling delivery of water, and means for operating the brush.
16. A device of the class described having, a lather chamber adapted to receive soap, means in the lather chamber adapted to act on the soap and scrape and feed it, a water reservoir connected to deliver water into said lather chamber to mix with the soap, means for controlling delivery of water, an electric motor for operating the soap-scraping and feeding means, means for controlling current to the motor, and means manually controlled from a single part for simultaneously operating the water delivery controlling means and the motor current controlling means to obtain delivery of water, and start the motor.
17. A device of the class described having, a lather chamber having a cake of soap therein, said chamber having a lather exit passage leading from its upper portion, a brush rotatable in the lather chamber and having its bristles helically

arranged and so disposed as to brush the cake and feed soap upwardly, said brush having a hollow core through which water can be delivered to the bottom of the lather chamber, a water reservoir and connections by which it can deliver water into said hollow core at its top, means for controlling the delivery of water, and means for operating the brush.

18. A device of the class described having a cylindrical lather chamber having its central axis vertically arranged, an opening leading inwardly through the wall, and a cake of soap, and means for feeding it through the opening to form a part of the cylindrical wall of the chamber, a spiral brush within the chamber rotatable on a vertical axis and comprising a hollow core and bristles at the outside of the core adapted to sweep the soap, a lather outlet, a water reservoir connected to deliver water into the upper end of the core to fall to the bottom of the lather chamber, means controlling delivery of water, and a motor for operating the brush.

19. A device of the class described having a cylindrical lather chamber having its axis vertically arranged, a cake of soap forming a part of the cylindrical wall of the chamber, a hollow brush within the chamber rotatable on a vertical axis and having helically arranged bristles acting to scrape the soap and move it axially of brush

and chamber, means for controlling delivery of water through the hollow brush to a level below that of the soap, means moving with the brush for centrififing the water toward the cylindrical wall, and a motor for operating the brush.

20. A device of the class described having a lather chamber having a curved wall generated from an axis, a cake of soap forming part of the curved wall, a brush rotatable within the chamber with an axis coinciding with the axis of generation of the wall of the chamber and having helically arranged bristles acting to wipe against the soap and move it axially of brush and chamber, means for controlling delivery of water into the chamber, means moving with the brush for centrififing the water toward the curved wall, and a motor for operating the brush.

21. A device of the class described having a substantial cylindrical chamber formed with an exit opening, and a cake of soap forming a portion of the wall of said chamber, a brush rotatably mounted in the chamber and having helically arranged bristles adapted to engage said cake of soap, and means for rotating said brush, said helical brush being rotatable in a direction to feed the lather formed in said chamber toward the exit opening of the chamber.

MELVIN ROLSTAD.