Feb. 9, 1943. L. J. WAHL 2,310,378

LATHER MACHINE

Filed Dec. 30, 1940 4 Sheets-Sheet 1

Fig. 1.

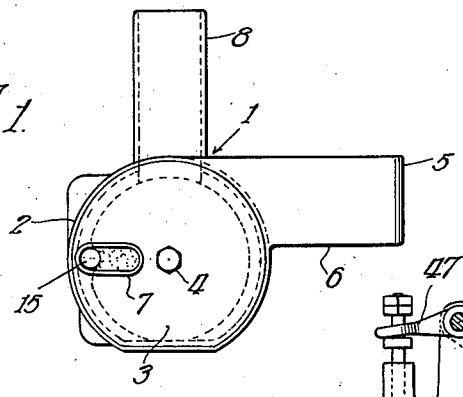


Fig. 5

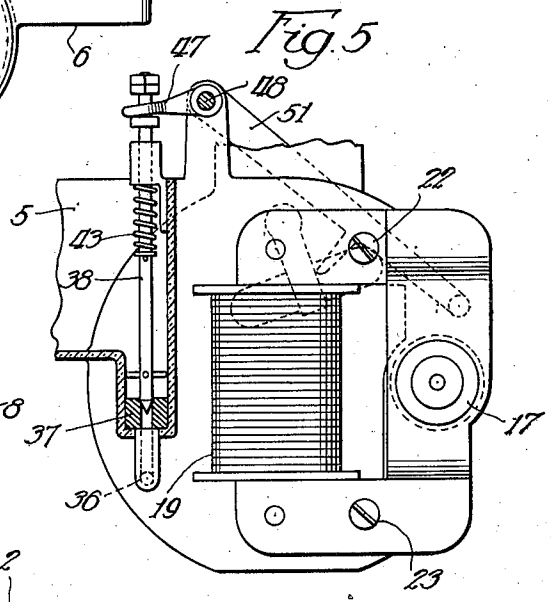
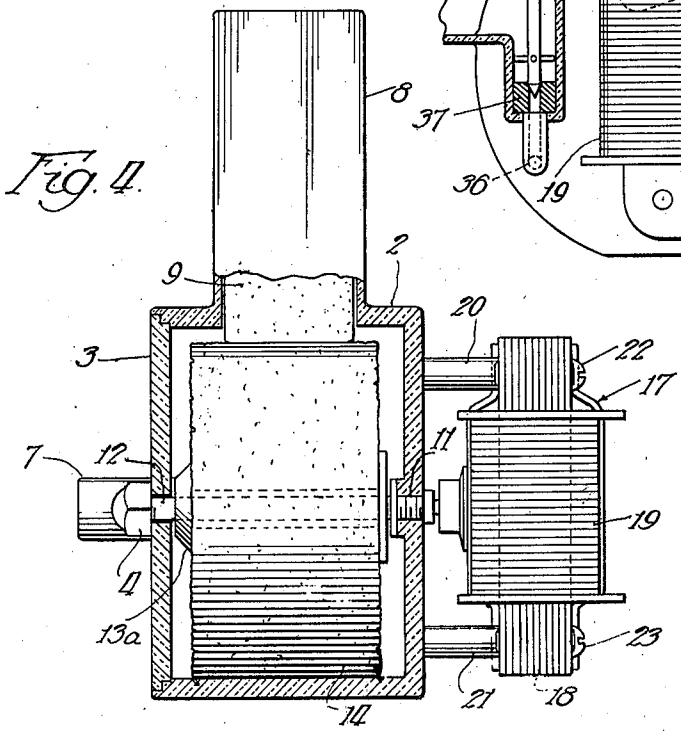


Fig. 4.



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Feb. 9, 1943. L. J. WAHL 2,310,378

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Filed Dec. 30, 1940 4 Sheets-Sheet 2

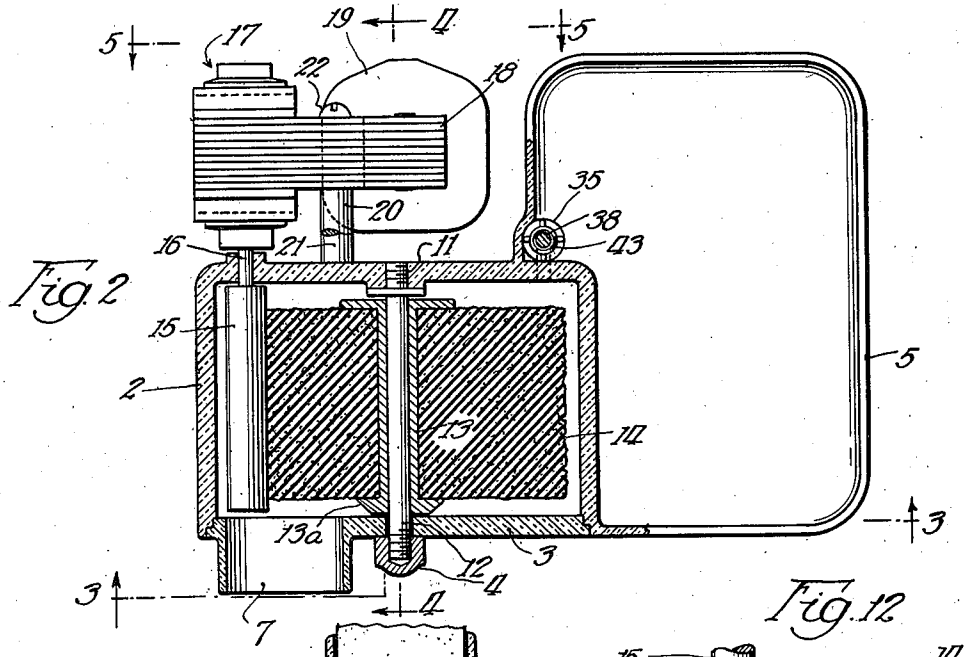


Fig. 2

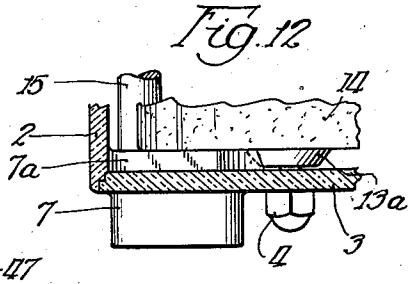


Fig. 12

Fig. 3

Fig. 13

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Feb. 9, 1943. L. J. WAHL 2,310,378

LATHER MACHINE

Filed Dec. 30, 1940 4 Sheets-Sheet 3

Fig. 6.

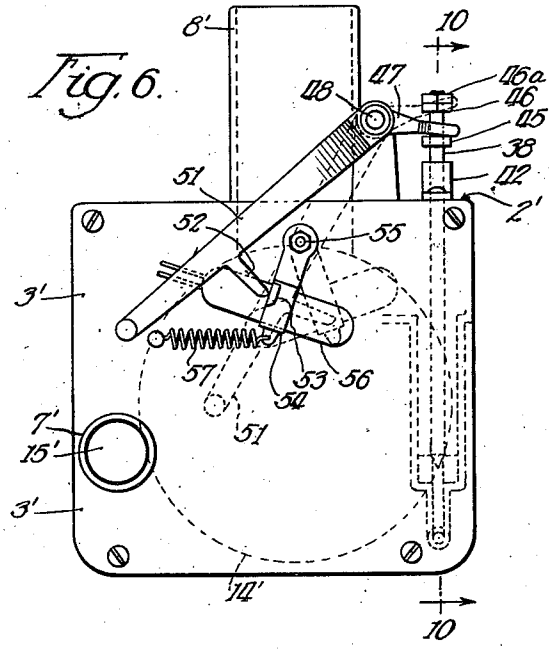


Fig. 11.

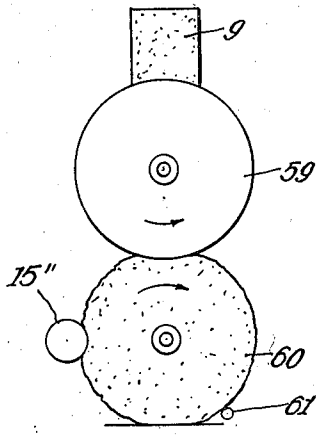
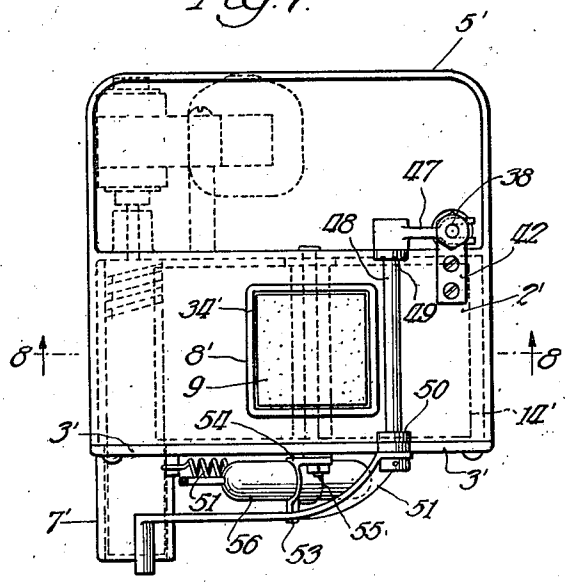


Fig. 7.



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Feb. 9, 1943. L. J. WAHL 2,310,378

LATHER MACHINE

Filed Dec. 30, 1940 4 Sheets-Sheet 4

Fig. 8.

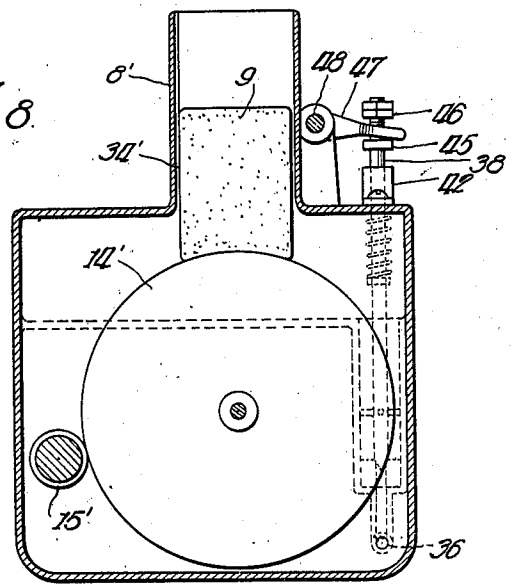


Fig. 10

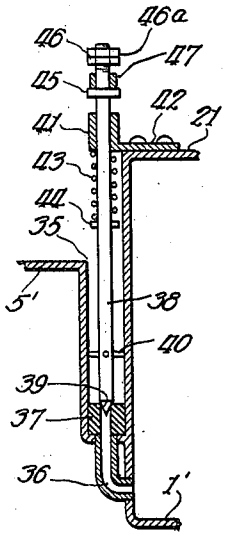
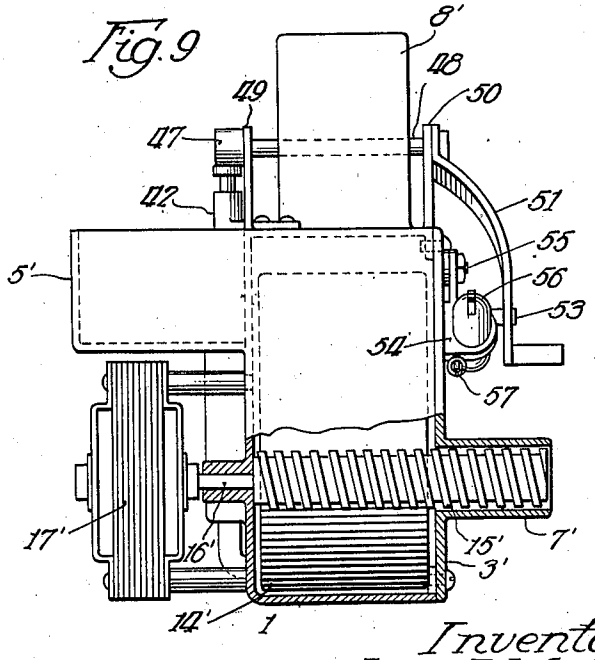


Fig. 9



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Patented Feb. 9, 1943

2,310,378

UNITED STATES PATENT OFFICE

2,310,378

LATHER MACHINE

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Application December 30, 1940, Serial No. 372,301

10 Claims. (Cl. 299—83)

The present invention relates to the making of lather from soap for use by barbers. It is the principal purpose of the invention to provide a lather mixing device in which a stick or bar of soap may be readily placed in the device, the soap gradually being removed from the bar and mixed with air and water from time to time as lather is needed. The invention contemplates a device of this character wherein the mixing mechanism and the means for removing the soap from the bar shall comprise relatively few simple moving parts.

The present invention contemplates as a preferred form a device wherein a rotary soap engaging member is mounted in a housing and the soap bar rides on the member, said soap bar being guided by a shell or tube so that it is pressed against the rotary member by the force of gravity. If necessary, added weight is used to back up the soap bar so that all of the soap may be removed by the member simply rotating against the under side of the bar. An extra bar of soap over the active bar may be sufficient.

The rotary member preferably is driven directly by another rotary member which, in certain forms of the invention, is used to aid in mixing air and water with the soap to produce a lather. Liquid supply means is of course provided and there is an outlet from the housing through which the lather is discharged.

A specific object of the invention is to provide a novel soap removing and mixing means for use with a bar of soap, which means comprises a sponge-like roller on which the soap bar rides, together with a drive element which turns the roller and at the same time aids in making the air, water and soap into lather. The combination of a rotating sponge rubber roller with a scraper or roller that compresses the sponge roller works very well with liquid soap. The invention contemplates such a combination whether the sponge is rotated by the scraper roller or separately.

It is also a purpose of my invention to provide in a lather making machine of the character described a power driven mixer in combination with a liquid supply means and a novel control for the mixer and the liquid supply means whereby liquid is supplied when the mixer is operated and is regulated by the operator while the machine is running. The liquid is turned off when the mixer is stopped.

Other and more detailed objects and advantages of the present invention will appear as the description proceeds, reference being had to the accompanying drawings wherein preferred forms of the invention are shown. It is to be understood, however, that the drawings and description are illustrative only and are not to be taken as limiting the invention except insofar as it is limited by the claims.

In the drawings:

Fig. 1 is a view in side elevation of a lather mixing machine embodying my invention;

Fig. 2 is a horizontal sectional view through the machine shown in Fig. 1 taken substantially on the line 2—2 of Fig. 3;

Fig. 3 is a sectional view taken substantially on the line 3—3 of Fig. 2;

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 2, the valve and switch operating levers being left off;

Fig. 5 is a rear view in elevation looking at the device in the direction indicated by the arrows 5—5 of Fig. 2;

Fig. 6 is a view in side elevation of another form of the invention;

Fig. 7 is a plan view of the device shown in Fig. 6;

Fig. 8 is a sectional view taken substantially on the line 8—8 of Fig. 7;

Fig. 9 is an end view with part of the housing broken away, looking at the device shown in Fig. 6 from the lefthand side;

Fig. 10 is a sectional view through the valve mechanism, the section being taken substantially on the line 10—10 of Fig. 6;

Fig. 11 is a somewhat diagrammatic view illustrating a modification wherein two rollers, one of hard material and the other of spongy material, are utilized in combination to perform the function of the single roller in the preferred forms of the invention;

Fig. 12 is a fragmentary sectional view taken on the line 12—12 of Fig. 3; and

Fig. 13 is a fragmentary sectional view taken on the line 13—13 of Fig. 3.

Referring now in detail to the drawings, the present invention is embodied in a lather mixing machine which comprises basically the following parts: a housing 1 which may be constructed of any suitable material such as metal or a plastic composition. The housing 1 consists of a body 2 which is open at one side, the open side being adapted to be closed by a cover 3 that is secured in place by a screw cap indicated at 4. Attached to the body 2 there is a liquid reservoir 5 which is adapted to contain an adequate supply of liquid for the lather mixing. The bottom 6 of the liquid reservoir is preferably substantially above

the bottom of the body 2 so that liquid will readily flow down into the bottom of the housing. The cover 3 for the body 2 is provided with a lather outlet 7 through which the lather escapes and a guard or scraper 7a for wiping lather off the adjacent face of the member 14. The body 2 of the housing 1 also includes a rectangular tube or guide 8 which extends upwardly from the body 2. The purpose of the guide 8 is to receive a bar 9 of soap which is fed down into the body 2 by means of gravity. A second bar 10 of soap may be inserted as soon as the first bar is used sufficiently so that there is always an adequate supply of soap in the machine.

Within the housing 1 there is provided a shaft 12 on which a hub 13 is rotatably mounted. The housing 1 is threaded at 11 to receive the shaft 12. The hub 13 removably carries a member 14 on which the soap bar 9 rides. The material of the member 14 may be varied within the scope of the present invention. For example, a hard composition roller, a wooden roller or a soft surfaced roller may be used. In soft surfaced materials I have used an absorbent cloth such as cotton toweling and sponge rubber. One of the specific features of novelty of the present invention, however, lies in providing a resilient spongy surfaced member 14 in this particular combination. For example, I utilize for the member 14 a roller comprising sponge rubber in which the pockets or holes are moderately fine, say about $\frac{1}{32}$ of an inch and smaller in diameter. The hub for the sponge rubber may be larger or smaller in diameter. Preferably the hub is made so it can be removed from a worn roller of rubber and used for a new one. In the form shown the hub 13 has a tapered head 13a that facilitates forcing the hub through a sponge rubber roller having a central opening.

The member 14 is adapted to be rotated by a drive element 15 which in the preferred form comprises a hard roller. The element 15 is mounted on a drive shaft 16 which extends through the body 2 and is driven by a motor 17. The motor 17 has a core 18 and an energizing coil 19 as illustrated best in Figs. 2, 4 and 5. The motor 17 is mounted on the body 2 by means of suitable posts 20 and 21 and screws 22 and 23.

The surface of the drive element 15 may be smooth or grooved. I prefer not to use grooves with a sponge member 14. A smooth drive element seems to adequately remove lather and excess water before the member 14 engages the soap bar 9. This helps in preventing softening of the soap bar and causing it to get messy and stick in the tube 8.

The direction of rotation of the roller 14 is as shown in Fig. 3. The water is let into the body 2 at the bottom thereof. The surface of the sponge roller is close to or touching slightly on the bottom wall of the body 2 and is moistened at that point. It will be noted that the water inlet is opposite to the lather outlet. The lather is therefore wetter at the back near the water inlet and drier toward the front near the lather outlet.

Referring now to Figs. 6 to 10, inclusive, in this form of the invention the housing and reservoir constructions are substantially the same insofar as any functional operation is concerned. The reservoir 5' of this form of the invention is, however, located a little differently from that in the first described form. The drive member and mixing member 15' is also slightly different. In this case it is composed of a device having substantially a square screw thread. In addition the member 15' is extended into the outlet 7' for the lather so that the screw threads thereon actually feed the lather out through the opening 7'.

The guide means 8' is precisely the same for the bar of soap. It will be noted that in both forms of the invention the tubular guide 8—8' is arranged to provide an air space 34—34' for air to travel down into the housing around the stick of soap. It will be appreciated that air is being continually removed from the interior of the housing when lather is being made because the lather takes up air as well as water and soap. The air is in part drawn down through the guide 8—8' and this tends to prevent excessive wetting of the soap and to keep the guide clean.

The soap engaging member 14' in this form of the invention may obviously be a roller of any of the suitable materials hereinbefore mentioned. It is found that with a screw-like drive member such as the member 15' a hard surface roller 14' can be satisfactorily used. With the soft type of roller such as sponge rubber it is desirable to use the type of drive member 15 illustrated in Figs. 1 to 5. I prefer, however, in the form of device shown in Figs. 6 to 10, to use the soft type or sponge rubber roller for the member 14'.

The member 15' is driven by a motor 17' and a drive shaft 16'. Control of the motor 17' and of the liquid supply from the reservoir 5' is, in this form of the invention, the same as the control shown in Figs. 1 to 5. In Fig. 10 a detail view of the valve housing 35 is shown. At the lower end of the housing 35 there is a tubular duct 36 which opens through the side wall of the housing close to the bottom thereof. A valve seat 37 is provided in the bottom of the housing 35. This valve seat is preferably of rubber and may be lifted out and replaced, as will be readily understood. A valve stem 38 has a tapered valve 39 at its lower end cooperating with the seat 37 to control the flow of liquid to the duct 36. The valve stem 38 has guide means 40 thereon at its lower end and is guided at its upper end by a sleeve 41 which is carried by a bracket 42 mounted on the top of the body 2'. The valve stem 38 is urged downwardly by a spring 43 which is under compression between the bracket 42 and a pin 44 in the valve stem. At the top end the valve stem 38 has a collar 45 and an adjustable nut 46 to receive bifurcated yoke 47 between them. The nut 46 is held in adjusted position by a lock nut 46a. This adjustment is set at the factory and need not be disturbed by the operator. The yoke 47 is used to lift the valve stem 38 against the spring 43.

Means are provided whereby the yoke 47 is operated in conjunction with a control switch for the motor 17'. As shown best in Figs. 6, 7 and 9, the yoke 47 is attached to a shaft 48 so that by turning the shaft the yoke may be raised or lowered. The shaft 48 is supported on two spaced brackets 49 and 50 projecting up from the housing 1 and extends across the top of the housing being connected at the end opposite the yoke 47 to an operating lever 51. The operating lever 51 when depressed will lift the yoke 47. The operating lever also carries a lug 52 which is adapted to engage a corresponding lug 53 on a switch-carrying arm 54. The arm 54 is pivoted to the cover 3' by means of a stud 55 and carries a mercury switch 56 of a well-known type. A spring 57 normally tends to hold the mercury switch 56 in open circuit position as shown in

full lines in Fig. 6 but permits the switch to be tilted to circuit closing position as shown by the dotted lines in Fig. 6 when the lever 51 is pressed down. When lather is wanted by the operator he presses the lever 51 down to the dotted line position shown in Fig. 6, thereby causing the switch 56 to close a circuit for the motor 17'. This movement of the lever 51 lifts the valve stem 38 more or less. If the operator desires a large supply of water, as in starting, he presses the lever down farther to open the valve wider. He can thus adjust the consistency of the lather to suit him. The spring 57 returns the lever 51 and the switch arm 54 to "off" position when the pressure on the lever 51 is released.

In Fig. 11 there is shown a diagrammatic view of a further modification of the invention. In this form of invention there are two rollers 59 and 60. The roller 59 is preferably hard surfaced so as to remove a slight amount of soap from the bar 9. The roller 60 is of sponge rubber. Water is fed to the surface of the roller 60 in any suitable fashion through an inlet 61. The rollers are driven by a drive member 15''.

Referring now to Figs. 1 to 5, inclusive, and Figs. 12 and 13, the operation will be briefly described. When lather is desired the operator starts the motor 17 and simultaneously opens the valve 39. The drive member 15 will rotate the roller 14 in a clockwise direction as shown in Fig. 3. Water flowing into the bottom of the body 2 is picked up by the roller 14 and carried up to where the member 15 engages the roller. At this point any excess water is pressed out of the spronge rubber so that a lightly moistened sponge surface is presented to the bar 9. The soap is wiped off of the bar 9 by the roller 14 and carried down to the point where water is supplied by the valve 39. The water and soap are mixed with air in the sprongy surface of the roller and form lather. The roller 15 and the scraper 7a act to wipe the lather from the spongy roller and direct the lather to the outlet 7.

By supplying more or less water at the valve 39 the consistency of the lather may be varied to suit the operator. The elimination of excess moisture in the sponge roller 14 before it strikes the soap bar avoids softening the soap too much and prevents the formation of excess lather at the surface of the soap bar to work up through the tube 8. If the bar sticks in the tube the operator can readily press it down with his finger.

The operation of the other forms of the invention are believed to be sufficiently described in the general description to be understood by those skilled in the art. Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a lather mixing machine, a housing, a roller mounted for rotation therein, soap bar guide means above said roller adapted to hold a bar of soap with its lower end resting on the roller, so that the bar is fed to the roller by gravity as the roller, in rotating, rubs soap from the bar, and means in the housing engaging the roller and cooperating therewith to mix soap removed from the bar with air and liquid, said roller having a yielding porous surface engaging the soap bar, and said housing having a discharge spout adjacent to said means for discharging the lather formed therein.

2. In a lather mixing machine, a housing, a soap bar wiping member mounted for rotation therein, guide means above said member adapted to support a bar of soap with its lower end resting upon the member, so that the bar is fed to said member by gravity as the member removes soap from the bar, liquid supply means including a control valve for furnishing a supply of liquid to said housing, a mixing member in the housing engaging said member and adapted to rotate it, power means driving said last named member, and a manual control means for said valve operable to regulate the flow of said liquid.

3. A lather mixing machine comprising in combination a moving soap wiping member, a guide for a bar of soap, said guide being positioned over said member and open to the member at its lower end whereby a bar of soap in the guide will be held against the member by gravity, a housing for said member, liquid supplying means supplying liquid to said member to mix with the soap on said member, and a driving member in the housing in engagement with the soaped surface of the wiping member and moving it by surface engagement.

4. A lather mixing machine comprising in combination a rotatable soap wiping member, a guide for a bar of soap, said guide being positioned over said member and open to the member at its lower end whereby a bar of soap in the guide will be held against the member by gravity, a housing for said member, liquid supply means supplying liquid to said member to mix with the soap on said member, and a second rotating member in the housing rotating in engagement with the soaped surface of the wiping member, said second member comprising the drive means for said wiping member and said wiping member comprising a roller of sponge rubber.

5. A lather mixing machine comprising a roller mounted for rotation on a substantially horizontal axis, means to direct a bar of soap down upon the roller under the action of gravity whereby the roller will rub off soap from the bottom of the bar, and means engaging the roller for mixing the soap thereon with air and water, said last named means comprising a second roller of spongy material, and drive means for said rollers.

6. A lather mixing machine comprising a roller mounted for rotation on a substantially horizontal axis, a housing in which said roller is mounted, said housing having a lather outlet in a wall thereof, means in said housing to direct a bar of soap down upon the roller under the action of gravity whereby the roller will rub off soap from the bottom of the bar, means to wet the surface of said roller, and a combined driving and scraping member in said housing engaging said roller.

7. A lather mixing machine comprising a roller mounted for rotation on a substantially horizontal axis, a housing in which said roller is mounted, said housing having a lather outlet in a wall thereof, said roller having a yielding porous surface, means in said housing to direct a bar of soap down upon the roller under the action of gravity whereby the roller will rub off soap from the bottom of the bar, means to wet the surface of said roller, and a drive member engaging said roller.

8. A lather mixing machine comprising a rotating member having a yielding porous surface, a drive roller pressing on said surface to rotate the member, means to apply liquid to said surface during the rotation thereof in advance of its engagement by the drive roller whereby the pressure of said drive roller may remove excess

liquid from the surface, and means to press a bar of soap against the porous surface of said member following its engagement with said drive roller and in advance of the application of the liquid thereto.

9. A lather mixing machine comprising a roller mounted for rotation on a substantially horizontal axis, a housing in which said roller is mounted, said roller having a yielding porous surface, means to supply a film of soap to said surface, and a member in said housing engaging the surface of said roller, as it is rotated, and compressing said surface after the film of soap is applied thereto whereby to press out bubbles of lather from the surface and wipe them off.

10. A lather mixing machine comprising a roller mounted for rotation on a substantially horizontal axis, said roller having a yielding porous surface, means to supply a film of soap to said surface, and a second roller engaging the surface of said roller, as it is rotated, and compressing said surface after the film of soap is applied thereto whereby to press out bubbles of lather from the surface and wipe them off.

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