Aug. 8, 1950 E. M. BROWN 2,517,539

LATHERMAKING MACHINE AND METHOD OF MAKING LATHER

Filed Sept. 16, 1949

Fig. 1.

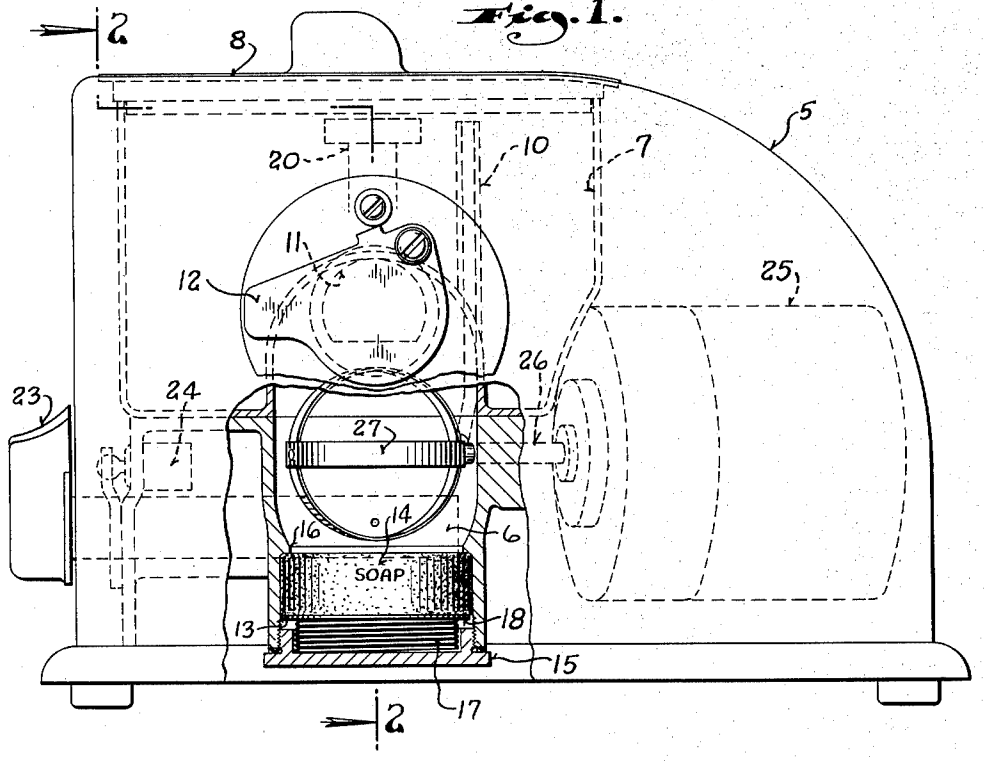


Fig. 2.

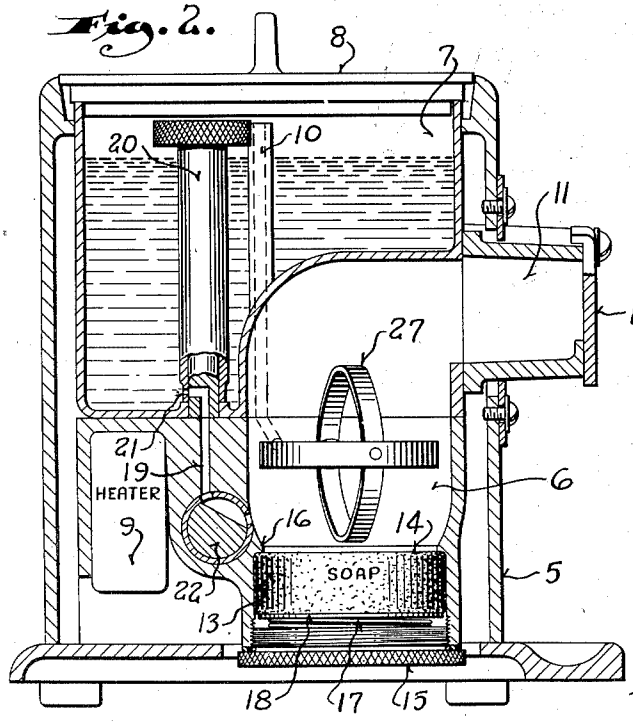
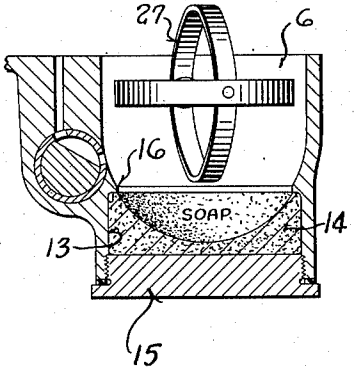


Fig. 3.



Inventor
Ellis M. Brown
By Ira Sutton Jones
Attorney

Patented Aug. 8, 1950 2,517,539

UNITED STATES PATENT OFFICE

2,517,539

LATHER MAKING MACHINE AND METHOD OF MAKING LATHER

Ellis M. Brown, Racine, Wis., assignor to John Oster Manufacturing Company, Racine, Wis., a corporation of Wisconsin

Application September 16, 1949, Serial No. 116,011

6 Claims. (Cl. 299—84)

1

This invention relates to the art of making lather suitable for shaving and to lather-making machines of the type intended for use by barbers.

Commercially available lathermaking machines suitable for use in barber shops now operate upon either of two principles. Either a premixed liquid soap is fed into a lathering chamber where a power driven agitator whips air into the solution to produce the desired lather as in the Jensen Patent No. 2,052,569 issued September 1, 1936, or, as in the Rolstad et al, Patent No. 2,344,170, issued March 14 1944, an effort is made to duplicate the action of the conventional hand brush wiping across the surface of a bar of soap.

In both instances there are serious objections. In one case the inconvenience of having to mix up the liquid soap and the difficulty of obtaining the proper consistency is an obstacle and in the other brush type of machine the brushes wear off and must be replaced at regular intervals.

In recognition of these disadvantages it is an object of the present invention to provide an improved method of making lather which is characterized by the fact that neither liquid soap nor brushes are used but instead a turbulence is set up in a confined chamber partially defined by the surface of a bar or cake of soap and to which air and water are fed in quantities suitable for continuous lathermaking.

Another object of this invention is to provide a lathermaking machine wherein the action of the machine itself automatically and continuously produces a soap solution of the proper concentration and continuously converts solution reaching lathermaking concentration into lather.

Another objection of this invention is to provide a lathermaking machine which uses a solid cake of soap.

Another object of this invention is to provide a lathermaking machine in which the necessary soap solution is produced solely by the action of water recurrently flowing across the surface of a cake of soap.

Another object of this invention is to provide a lathermaking machine wherein a mechanical agitator having permanent blades travelling in a defined orbit spaced from the walls of a chamber in which the lather is made and from the surface of a cake of soap held in one wall of the chamber and exposed to the interior thereof creates a turbulence within the chamber which serves to effect recurrent flow of the water across

2

the exposed surface of the soap to produce a soap solution solely by the action of the water on the soap and then converts the resulting solution into a lather.

With the above and other objects in view, which will appear as the description proceeds, this invention resides in the new and improved method of making lather and in the machine therefor with its novel construction, combination and arrangements of parts all substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the herein-disclosed invention may be made as come within the scope of the claims.

The accompanying drawing illustrates one complete example of the physical embodiment of the invention constructed according to the best mode so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a side view of a lathermaking machine embodying this invention, parts thereof being broken away to more clearly illustrate the essential features;

Figure 2 is a cross sectional view taken through Figure 1 on the plane of the line 2—2; and

Figure 3 is a fragmentary detail sectional view taken on the same plane as Figure 2 but illustrating a slightly modified manner of holding the soap in place.

Referring now particularly to the accompanying drawings in which like numerals indicate like parts throughout the several views, the numeral 5 designates the housing or body of a lathermaker machine embodying this invention the interior of which is formed to provide a lathering chamber 6 and a water tank 7. A removable cover 8 closes the top of the tank and an electric heater 9 of any suitable construction is mounted under the tank to keep the water warm.

A standpipe 10 extends up from the lathering chamber within the tank 7 to provide an air inlet port leading from the atmosphere into the lathering chamber, and extending out through the side of the machine is a lather discharge port 11. This discharge port is preferably equipped with a hinged cover 12 and is shaped to drain back into the lathering chamber.

The bottom of the lathering chamber 6 opens to a soap receptacle 13 adapted to receive a bar or cake of soap 14 with its top surface providing the bottom for the lathering chamber. The receptacle 13 opens to the bottom of the machine and is closed by a removable plug 15 threaded into place as shown. Preferably the soap receptacle

is cylindrical and of a diameter to fit the bar or cake of soap.

A peripheral ledge 16 at the top of the soap receptacle provides a stop against which the bar or cake of soap bears and by which the position thereof is defined. If desired, a suitable spring 17 is interposed between the plug 15 and the bottom of the bar or cake of soap in which case a thrust plate 18 covers the soap. The spring 17 holds the bar or cake of soap in its position defined by the ledge 16, but it has been found that such accurate positioning of the soap is not necessary and hence the simpler construction shown in Figure 3 may be employed.

Water in limited quantities is permitted to flow into the lathering chamber from the tank 7 through an inlet passage 19. The amount of water flowing through this passage is controlled by a rotatable valve sleeve 20 which has a number of ports 21 varying in size and selectively registerable with the mouth of the passage 19 by rotation of the sleeve 20. The ports 21 are of such sizes that even with the largest thereof in use, the water entering the lathering chamber would be characterized as a trickle. The amount of water and the rate of its admission to the chamber is one of the prinpical factors determining the consistency of the lather. Hence, that port size is used which admits just enough water to assure the desired consistency and when this selection is right water entering the chamber substantially equals the amount of water leaving the chamber as part of the expelled lather.

A valve plug 22 provides means for shutting off the flow of water into the lathering chamber, and for convenience the handle 23 which controls this valve plug also actuates a switch 24 which controls the operation of an electric agitator motor 25. The shaft 26 of the motor enters the lathering chamber to mount an agitator 27.

The agitator may be of any suitable material, form and design but in the embodiment shown consists in a pair of permanent stainless steel hoop-like blades fixed to the motor shaft 26. Hence the agitator blades travel in a fixed orbit, and this orbit is so related to the defined position of a bar or cake of soap held in the receptacle 13 that at no time do the agitator blades have physical contact with the soap; nor do they contact the walls of the lathering chamber. However, as clearly shown in the drawing the orbit or path of the agitator blades sweeps across the exposed surface of the soap cake in juxtaposition thereto.

The machine above described provides one convenient means for practicing the method of the invention in a practical manner. The method is, of course, characterized by the fact that it involves neither liquid soap nor brushes. Reduced to its simplest aspect the method consists in introducing water in a confined space in an amount and at a rate to substantially replace the water absorbed in the formation of the lather, forming a soap solution by effecting recurrent impingement of a small volume of this water upon and flow thereof along or across a bar or cake of soap within a confined space, solely by the force of a turbulence of the air and water in the confined space, and by said turbulence, aerating or combining air with the forming soap solution to cause solution reaching lathermaking concentration to be converted into lather.

Thus it will be seen that where with past methods of making lather results were either unsatisfactory or unpredictable, the method of this invention assures the successful making of

lather at all times since it automatically effects correct proportioning of the air, water and soap.

In the machine described the agitator blades, being constrained to travel in a fixed orbit spaced from but passing in juxtaposition to the surface of the soap, set up the turbulence necessary to effect recurrent impingement of the water in the lathering chamber upon and flow thereof across and along the exposed surface of the soap, it being understood that the walls of the lathering chamber coact with the agitator in this function. The agitator also acts directly upon the water, the soap solution and the forming lather in the chamber to augment the action of the turbulent air thereon; and as soon as any portion of the forming soap solution reaches lathermaking concentration, the agitator and the turbulence produced thereby converts that portion of the solution into lather.

Since shaving lather consists of myriad tiny soap bubbles, its formation in the lathering chamber results in some of the air in the chamber being trapped in each tiny bubble. Hence, it follows that as the formation of lather proceeds, more and more of the ulage of the lathering chamber becomes filled with these tiny bubbles until at last the entire chamber is filled with bubbles and forming bubbles. When this stage is reached the bubbles being formed coact with the agitator to crowd those already formed out of the chamber through the discharge port 11 which is open when the machine is in use. This is a continuous process.

To assure the continuance of this process and achieve the conversion of the soap solution into lather, i. e. form the tiny bubbles, with the rapidity required, it is essential that the water be fed to the chamber in the manner described, i. e. at a rate to substantially replace the water absorbed in the lather expelled from the chamber, and that the air be admitted to the chamber through a vent opening to the atmosphere in such a manner that the relatively closed condition of the chamber will not be lost. If these requirements are met and the soap is of good lathermaking quality, the rapid formation of lather suitable for shaving is assured, since, as noted before, the correct proportioning of the air, water and soap is automatic with the air and water entering the chamber as it is needed to replace that leaving the chamber as an inherent part of the lather. After the desired amount of lather has been expelled the valve and switch actuating handle 23 is simply actuated to shut off water admission and stop the agitator motor.

From the foregoing description taken in connection with the accompanying drawing it will be readily apparent that this invention has substantial advantages over past lather making methods and machines therefor and that while the machine of this invention is intended primarily for use in barber shops to provide a sanitary source of lather for shaving, it is also useful in washrooms to provide soap lather for washing.

What I claim as my invention is:

1. A lathermaking machine, comprising: means defining a substantially closed lathering chamber adapted to hold water and having an entrance for air; means for holding a cake of soap with a surface thereof exposed to the interior of the lathering chamber; and means coacting with the walls of the chamber and said surface of the soap for creating a turbulence of air and water

in the chamber and for effecting recurrent impingement of water in the chamber upon said exposed surface of the soap to thereby form a soap solution of increasing concentration and for combining air with the soap solution to convert solution reaching lathermaking concentration into lather, said means comprising a power driven agitator within the lathering chamber having agitating means thereon constrained to move in a path all portions of which are spaced from said exposed surface of the soap and the walls of the chamber and which path has a portion thereof in juxtaposition to said exposed surface of the soap.

2. A lathermaking machine, comprising: means defining a substantially closed lathering chamber; a soap holder adapted to hold a cake of soap with at least one surface thereof exposed to the interior of the lathering chamber; means for feeding water in small controlled volume to the lathering chamber; means providing an air vent leading from the chamber to the atmosphere; means providing a discharge port in one wall of the chamber and through which lather may be expelled from the chamber; and means coacting with the walls of the chamber and said exposed surface of the soap for creating a turbulence of air and water in the chamber and for effecting recurrent impingement of water in the chamber upon said exposed surface of the soap to thereby form a soap solution of increasing concentration and for combining air with the soap solution to convert solution reaching lathermaking concentration into lather, said means comprising a power driven agitator within the lathering chamber having permanent blades constrained to travel in a fixed orbit, all portions of said orbit being spaced from the walls of the chamber and from the exposed surface of the soap but a portion of said orbit being in juxtaposition to the exposed surface of the soap so that the agitator blades sweep across but not in contact with the exposed surface of the soap.

3. The lather making machine of claim 2 further characterized by the fact that the soap holder is so disposed with respect to the means defining the lathering chamber that the exposed surface of a bar of soap held thereby defines one wall of the chamber.

4. A lathermaking machine, comprising: means defining a lathering chamber; a soap receptacle in a wall of the lathering chamber adapted to hold a cake of soap with a surface thereof exposed to the interior of the lathering chamber; a water tank adjacent to the lathering chamber; a controlled passage connecting the tank with the lathering chamber and through which water may flow from the tank into the lathering chamber in small enough volume to assure production of good lather; means providing an air inlet into the lathering chamber; and a motor driven agitator within the lathering chamber having blades which move in an orbit all portions of which are spaced from the walls of the chamber and the exposed surface of the soap so that the blades have no physical contact whatsoever with the chamber walls or the soap, but a portion of the orbit of said agitator blades passing close enough to the exposed surface of the soap that the agitator blades are capable of throwing water against said surface of the soap, said agitator coacting with the walls of the lathering chamber and the exposed surface of the soap to effect recurrent impingement of the water upon and flow thereof across the exposed surface of the soap to thereby produce a soap solution solely by the action of the water on the soap and convert soap solution of lathermaking concentration into lather; and means providing a discharge port in a wall of the chamber through which the lather thus produced is expelled.

5. A lathermaking machine, comprising: means defining a lathering chamber; means defining a soap receptacle opening into the lathering chamber; a rotatable power driven agitator shaft entering the lathering chamber; agitator blades on the shaft revolvable thereby in a fixed orbit, all portions of which are spaced from the walls of the lathering chamber and which sweeps across the mouth of the soap receptacle; means for holding a cake of soap in the receptacle in a defined position with one surface of the soap exposed to the interior of the lathering chamber in juxtaposition to but spaced from the orbit of the agitator blades; means for feeding water in a mere trickle to the lathering chamber; means for supplying air to the lathering chamber, the lathering chamber being substantially closed and of a size and shape to confine its contents to the zone of influence of the agitator so that the walls of the chamber and the agitator coact to effect recurrent flow of the water across the exposed surface of the soap to produce a soap solution of increasing concentration and convert soap solution of lathermaking concentration into lather; and means defining a lather discharge port in a wall of the chamber.

6. The hereindescribed method of making shaving lather by the combined action of air and water upon a cake of soap in an enclosure defining a chamber vented to the atmosphere and having a lather discharge port, which method comprises: holding the cake of soap with a surface thereof exposed to the interior of the chamber; creating a turbulence of the air within the chamber solely by agitation carried out within the chamber in a zone spaced from the exposed surface of the cake of soap; utilizing the turbulence thus created to effect recurrent impingement of the water in the chamber upon the soap to form a soap solution which increases in concentration as agitation continues; aerating the forming soap solution by the turbulence within the chamber to cause soap solution reaching lathermaking concentration to be converted into lather; expelling the formed lather from the chamber; introducing water into the chamber in a volume and at a rate to substantially replace the water leaving the chamber as an inherent part of the lather expelled from the chamber; and taking air into the chamber through its vent to replace the air entrapped in the tiny bubbles which comprise the lather as the lather is expelled from the chamber.

ELLIS M. BROWN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,139,352	De Vito	May 11, 1915
1,281,603	Leyer	Oct. 15, 1918
1,457,895	Campanella	June 5, 1923
1,491,212	Thomson et al.	Apr. 22, 1924
1,554,147	Wager	Sept. 15, 1925
1,554,148	Wager	Sept. 15, 1925

(Other references on following page)

UNITED STATES PATENTS

Number	Name	Date
1,673,228	Cantrell	June 12, 1928
1,770,302	Empson	July 8, 1930
1,782,095	Jensen	Nov. 18, 1930
1,798,345	Wager	Mar. 31, 1931
1,821,914	Wagener	Sept. 1, 1931
1,914,868	Rolstad	June 20, 1933
1,950,968	Burlingham	Mar. 13, 1934
2,037,006	Clayton	Apr. 14, 1936
2,052,569	Jensen	Sept. 1, 1936
2,057,791	Rolstad	Oct. 20, 1936
2,122,636	Cantrell	July 5, 1938
2,139,735	Dobkin	Dec. 13, 1938
2,191,450	Campbell	Feb. 27, 1940
2,225,058	Langhaus	Dec. 17, 1940
2,256,694	Tuttle	Sept. 23, 1941
2,301,851	Boerger	Nov. 10, 1942
2,310,378	Wahl	Feb. 9, 1943
2,310,379	Wahl	Feb. 9, 1943
2,319,244	Lo Cascio et al.	May 18, 1943
2,323,377	Campbell	July 6, 1943
2,344,170	Rolstad et al.	Mar. 14, 1944
2,358,252	Rowan	Sept. 12, 1944
2,413,925	Massion	Jan. 7, 1947
2,425,474	Hussey	Aug. 12, 1947
2,447,358	Neuburger	Aug. 17, 1948
2,477,998	McCowan	Aug. 2, 1949

FOREIGN PATENTS

Number	Country	Date
17,971	Great Britain	Sept. 26, 1895