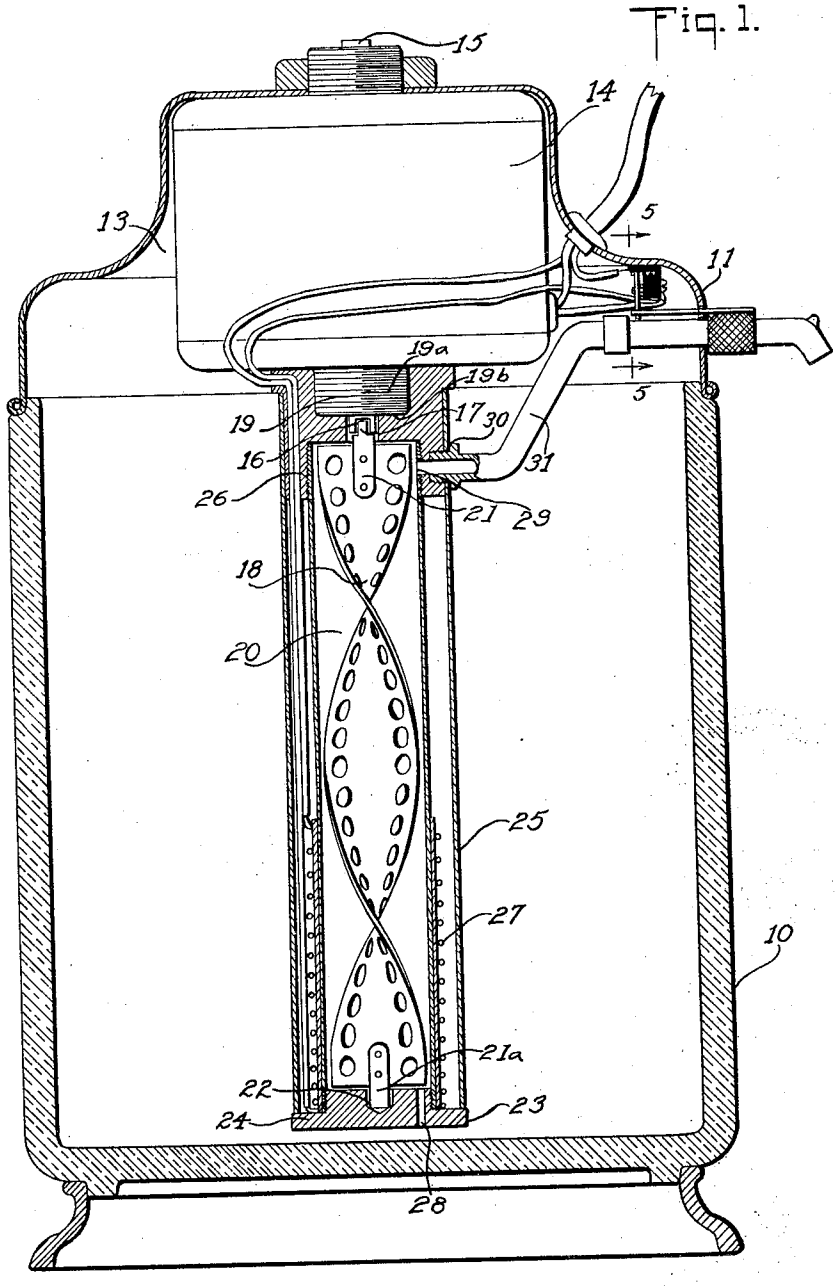
Nov. 1, 1932. R. R. GONSETT 1,885,253

AGITATING MECHANISM

Filed May 9, 1927 2 Sheets-Sheet 1

Fig. 1.



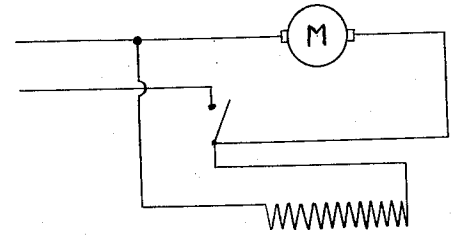
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Fig. 3.



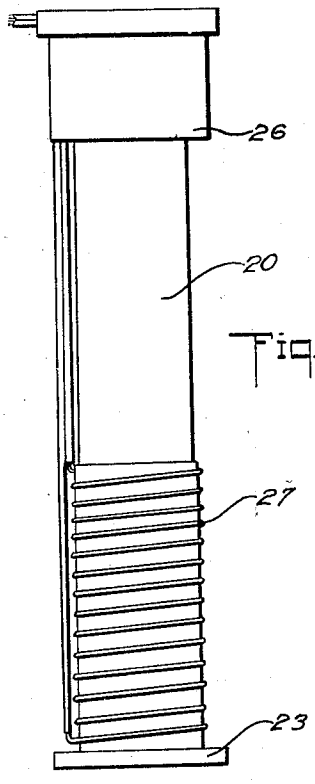


Fig. 2.

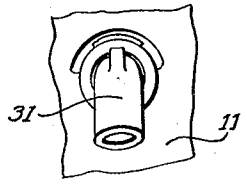
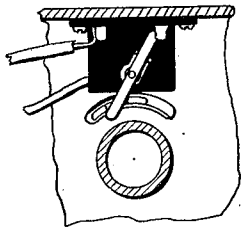


Fig. 4.

Fig. 5.



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UNITED STATES PATENT OFFICE

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AGITATING MECHANISM

Application filed May 9, 1927. Serial No. 189,936.

This invention relates to agitating mechanism generally. One of the purposes to which the invention is put is the agitation of soap forming compounds to convert same into a froth or lather instantaneously. Another use to which the invention can be put is the mixing and agitation of liquids and food and health compounds or matter such as is commonly dispensed over the counters of soda-water fountains. The invention may be put to any number of uses, and, in view of the foregoing examples, it shall be understood that I do not wish to be limited as the functional and structural characterizing details of the invention give to the mechanism an exceedingly wide range of adaptability.

One important object of my invention is the provision of means for causing a thread of matter to be treated to be introduced to an agitating process or step and for effecting an immediate stream-like discharge of the agitated matter from the mechanism, in time with the step of introducing the said matter to the said agitating process, and in an automatic manner and with resulting thoroughness.

Another important object of the invention resides in the provision of means for automatically heating the matter under treatment so that the discharging agitated matter will be warm, or the temperature thereof raised to the desired degree according to the use to which the invention is put.

With specific reference to the use of the invention as a lather producer, it is an object of my invention to provide new and novel means for evacuating the free air from the soap compound, before said compound is subjected to an agitating treatment so that the lather, when produced, will be practically void of air. In other words, the means constituting an important part of the invention functions to produce a lather which is not at all cellular as would be the case where the free air in the compound had not been exhausted before the agitating step is completed, as, and in such instance, it manifestly follows that the light cellular lather with its free air content breaks down as the filmy cells vacate themselves from the mass, and, hence, the lather is short lived and is rendered unfit for satisfactory use. By eliminating the free air from the soap compound in the process of producing a lather, I find that the quality of the lather is very much enhanced and that after it has been produced same will last and remain in a usable state for a very long time. Tests prove that a lather formed in this manner will remain in a perfect state of preservation for many days and that its creamy consistency as against a light cellular body structure results in ease and comfort in shaving; also in connection with the use of the invention as a lather producer, I am able through use of other important features of construction to provide a lather which is warm and ready for application to the face of the user as the lather flows from the discharge nozzle of the device.

Another important feature of my invention resides in the provision of means for restricting the flow of soap compound to the agitating mechanism so that a calculated quantity of soap will be urged to the agitating mechanism in true or operative time with the step of inducing thorough agitation. In this manner a surprisingly small proportion of said soap compound is used at each operation. A perfect lather is produced with the minimum amount of soap and without any waste whatever.

Another object of the invention is to provide mechanism of this character which may be maintained in a sanitary condition.

A still further object of the invention is to provide positively operating mechanism which will consist of a comparatively small number of parts, which are of exceedingly simple and durable design.

Another object of the invention is to provide a device of this character which is light of weight and capable of being manually handled with utmost convenience.

A further object of the invention is to provide a device having maximum lather producing capacity and means whereby a continuous discharge of lather will be effected in time with the process of feeding the soap to the agitating mechanism.

A further object of the invention is to provide mechanism adapted to be employed in connection with soap jelly and wherein means are provided to apply heat to jelly at its point of intake to the agitator so that the jelly is converted into a liquid progressively with the step of supplying the agitator with a quantity thereof for treatment.

Other objects and advantages of the invention will be made apparent as the specification proceeds.

In the drawings:

Figure 1 is a vertical section through the device, with parts in elevation;

Figure 2 is a view in side elevation of the agitating mechanism;

Figure 3 is a diagram of the resistance circuit connected in the motor circuit;

Figure 4 is a view in elevation of the discharge terminal of the nozzle; and

Figure 5 is a section on the line 5—5 of Figure 1.

In carrying the invention into practice, use is made of a suitable vessel 10 having a removable cover 11 whose central portion is formed with an aperture 12, the purpose of the latter being explained later. When used as a lather producer, the vessel is intended to contain a soap compound, preferably a compound of the consistency of jelly. I will relate the characterizing features of my invention with a compound of the above nature, because certain peculiar actions will manifest themselves that will illustrate some of the advance steps to be accomplished in the art through use of my invention. However, and as previously stated, I am not to be limited to the use of the invention in the connection specifically recited, and it shall be understood that the invention can be used as a cream whipper or as a beverage mixer or the like, and with marked success.

The cover 11 is upset to form a cavity 13 for an electrically driven motor 14 whose armature shaft 15 is disposed vertically and axially of the vessel 10. Its lower end is formed with a kerf 16 in which is fitted the flat extension 17 of a helical dasher or agitator 18. The base of the motor is provided with a depending boss 19 having an external thread 19*a* which detachably receives the internal thread of a chamber 20. The said chamber has an apertured seat 19*b* which acts as a bearing for the axial stub shaft 21 of the agitator 18, the said stub shaft carrying the flat extension 17. The said seat 19*b* is adapted to fit tightly against the lower face of said boss 19, thereby acting to seal the motor against entrance thereto of liquid from the chamber 20.

The helical agitator 18 is relatively long. By that I mean that it is almost co-extensive with the depth of the vessel 10 so that it extends about to the bottom thereof. The lower end of the agiator is provided with a shaft 21 mounted to freely revolve in a step bearing 22 in the upper face of a nut 23. This nut has a lateral flange 24 which serves as a shelf or rest for the lower end of a shell 25. This shell fits over the said chamber 20 in concentric spaced relation thereto and its upper end receives an enlargement 26 of said chamber. The nut 23 functions to hold the respective parts correlated normally and to enable one to separate or knock down the parts when repairs are needed.

In the space between the chamber 20 and said shell 25 and wound about the former is a resistance wire 27 adapted to be placed in an electric circuit so that heat may be supplied to the chamber.

The agitator 18 is formed with perforations, preferably arranged in spiral rows at the respective edges of said agitator so as to augment the agitating action when the motor is running. The width of the agitator is about equal to the internal diameter of the chamber 20, sufficient clearance being allowed between the parts to allow of freedom of rotation of the agitator.

The nut 23 is provided with an aperture 28 which opens into the chamber 20 and into the vessel 10, respectively. The size of the aperture is calculated so that a fine stream or thread of matter may be drawn into the chamber from the vessel by suction induced in the regular functioning of the agitator and the matter subjected to the direct action of the agitator. When soap jelly is used as a lather producing vehicle, the chamber 20 penetrates the mass. The lower end of the chamber is intended to be covered by the soap mass at all times, with the small intake aperture of the nut 23 in direct contact therewith. In this manner, I am able to accomplish aeration of the soap as it enters the chamber ready to be acted upon by the agitator, and the lather which results from the functioning of the described instrumentalities is paste-like, rather than highly cellular or light and fluffy as would be the case where air is permitted to enter the agitator with the soapy matter. In the latter example, the lather breaks down prematurely; is short lived and frequently rendered unfit for use, while, and by excluding the air as stated herein, I am able to produce a lather which may be kept indefinitely after it is made.

The chamber 20 and the shell 25 are formed with apertures 29 and 30, respectively, which are in horizontal alinement and which receive the inner end of a nozzle 31. The outer end of said nozzle extends outside of the cover 11, which is preferably curved downward in order that it may be made to discharge its flow into a cup or suitable receptacle, not shown.

The operation of the machine has been explained so that no further discussion need be necessary. But it is desired to emphasize

the fact that by taking the soapy matter thread or the thin stream into the direct presence of the agitator, a great saving of soap is made possible and that, in addition thereto, a maximum quantity of lather is produced from a minimum quantity of soap. By the radiant action of heat the soap jelly is heated at the source or at the small orifice 28 which acts to liquefy the soap as it enters the chamber 20. It is also important to note that the lather flow at the discharge nozzle operates synchronously with the step of introducing the soap to the action of the agitator, and that by drawing the soap into the chamber 20 by induced suction and causing it to move upward and longitudinally of the chamber 20, the lather when delivered is of a warm temperature ready for application to the face. It is also important to note that the operation of producing the lather is instantaneous.

I claim:

1. A soap lathering device, comprising a cylindrical chamber, a slightly helical agitator extending throughout the length of the chamber forming substantially a paddle device within the chamber, the chamber having a small inlet at one end for the entrance of matter to be agitated and closed at its opposite end except for a small single outlet at said opposite end, the latter for the slow discharge of the agitated matter from the chamber, a finished product.

2. A device for mixing lather, comprising a container, a cover for said container, a tower on said cover, a motor mounted in said tower, said motor having a shaft, a stirring element attached to said shaft, a tube mounted on said motor surrounding said stirring element, said tube having a comparatively small aperture in one end thereof and extending downwardly into the container, a casing surrounding said tube and spaced slightly therefrom, heating units between said casing and tube, means on said tube for supporting said stirring element, a helical lift-screw on said stirring element, a pipe section extending from the interior of said tube to the exterior of said casing and through said cover as and for the purpose specified.

3. In a lather producing device, a cylindrical chamber member having a relatively small inlet at one end and a single similar sized outlet at its opposite end, heating means immediately surrounding the wall of the chamber member adjacent the inlet end thereof, a reservoir surrounding and spaced from the chamber member and heating means and communicating with the inlet to the chamber, and screw-like agitating means rotatably mounted in the chamber member adapted to agitate and emulsify substances therein and to discharge the same from the outlet.

4. In an agitating mechanism, a cylindrical chamber member having a relatively small inlet at one end and a single similar sized outlet at its opposite end, the small inlet providing means for causing a thread-like stream of agitatable substance to be introduced into the chamber, and an agitator rotatably mounted within and coaxially with the cylindrical chamber member, said agitator comprising a flat member twisted slightly with respect to its longitudinal axis.

ROBERT R. GONSETT.