

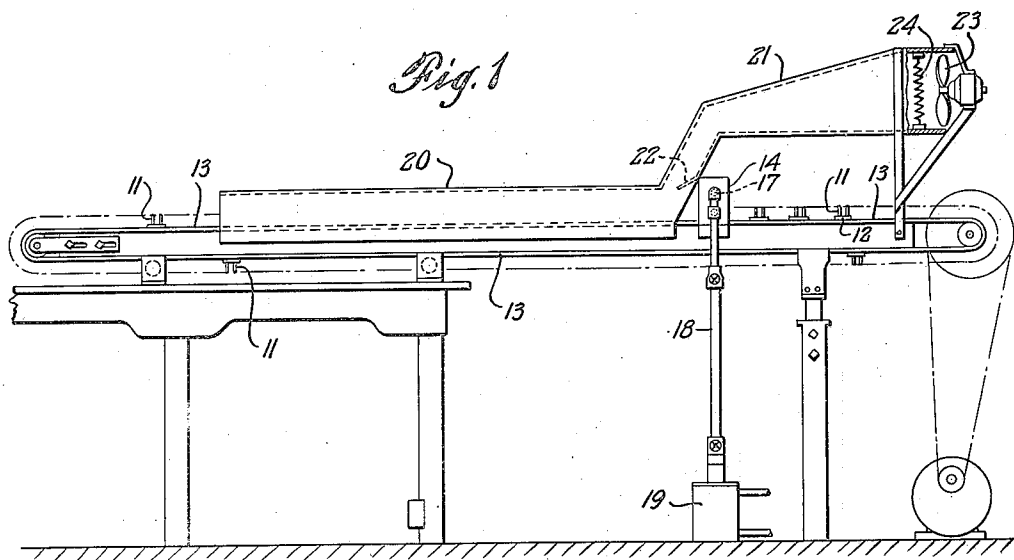
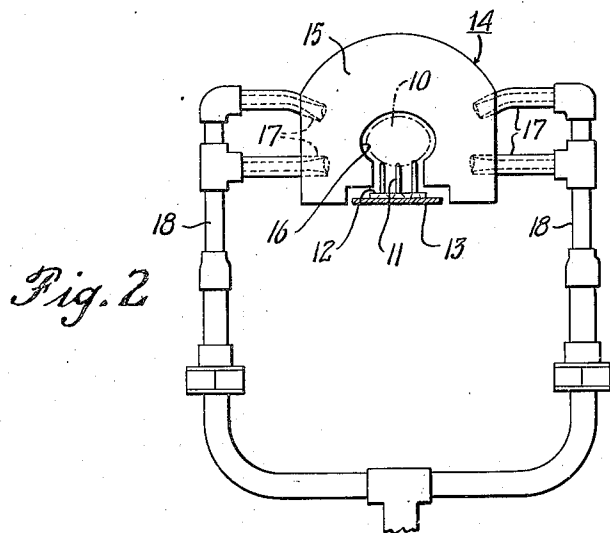
Jan. 1, 1946.

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2,391,919

METHOD AND APPARATUS FOR TREATING SOAP PRODUCTS

Filed April 2, 1941



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2,391,919

METHOD AND APPARATUS FOR TREATING SOAP PRODUCTS

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Application April 2, 1941, Serial No. 386,476
In Great Britain April 16, 1940

9 Claims. (Cl. 252—367)

The present invention relates to the improvement of the external appearance and characteristics of soap products by imparting thereto a more polished or glossy surface.

It long has been appreciated by soap makers that more polished or glossy soap products are received with greater favor by the every-day user of conventional soap products. For example, it is well established that the improved external appearance of milled soap, as compared with ordinary framed soap, is one of the preferred characteristics of this type of product.

Many methods have been devised, heretofore, for improving the gloss or appearance of conventional soap products, for example, by incorporating in the soap small quantities of sugar, glycerin, mineral oil or other substances. In some instances, the manufacturers have resorted to burnishing processes utilizing alcohols and other luster-forming substances. It is an advantage of my invention that conventional soap products may be given a highly polished or glossy surface without resorting to the types of operations described above.

My invention is applicable, in general, to all conventional soap products such as are produced, for example in bar or cake form. With respect to soap cakes or tablets, my invention is particularly advantageous in the treatment of toilet soaps, for example, those prepared by the conventional milling process.

If desired, my invention may be utilized in place of or to supplement soap polishing processes which are used in conventional operations. On the other hand, in view of its economical nature, the process may be applied to conventional soap products which ordinarily are not subjected to treatment for improving their surface appearance.

My process may be operated continuously, if desired, and may be integrated without difficulty with any conventional soap making processes. For example, it generally is desirable to carry out my process at the end of the usual soap finishing processes and just prior to the packaging or wrapping of the soap articles.

It is an advantage of my invention, however, that immediate wrapping of the soap after the polishing treatment is permitted, whereby the operating time of the soap making process is not materially increased. Moreover, the improved external appearance and characteristics of the treated soap products are not damaged or deleteriously affected by conventional soap wrapping processes, or by the wrappings themselves.

The process of my invention in general comprises a superficial treatment of soap products with steam, followed by drying and cooling, whereby the surface of the soap undergoes a smoothing or refining which gives the soap a desired polished or glossy appearance.

My invention also resides in novel apparatus for effecting a steam treatment and drying of conventional soap products for carrying out the process more fully described hereinafter.

My invention will be described more particularly in connection with the drawing, in which:

Fig. 1 is a diagrammatic view of apparatus which may be used for treating soap cakes or bars in accordance with my invention;

Fig. 2 is an enlarged view of the steaming elements utilized in the apparatus shown in Fig. 1.

In the preferred mode of carrying out my invention, a soap product such as soap cakes may be caused to pass between opposing flows of hot steam, such as may be provided by steam jets in such a fashion that the steam contacts substantially the entire surface of the soap particle for a short period of time. In the case of soap cakes or bars, for example, this may be accomplished by spacing the soap from the upper surface of a carrier and causing the soap to be moved thereby through a chamber wherein jets of steam are directed against substantially all of the surface of the soap. In the case of soap flakes or chips, the soap may be permitted to fall between oppositely directed flows of steam, whereby both sides of the chips or flakes may be treated. After the steaming operation, it is desirable to dry the surface of the soap without material delay. This may be accomplished, for example, by passing the soap through a zone of drying air which, if desired, may be heated for more effective drying. If heated air is used, it is desirable to cool the soap after drying by means of a flow of cool air or by permitting the soap to cool naturally prior to wrapping or packaging.

Referring to Figs. 1 and 2, conventional soap bars or cakes 10 may be placed upon triangularly arranged pins 11 disposed on a plurality of small platforms 12. This form of supporting means provides a minimum contact of the soap with the supporting means and permits the steam or air in the treating chambers, to be described more particularly hereinafter, to have free and equal access to all sides of the cake or bar. The soap bars or cakes ordinarily will be treated after the usual stamping operation. This order is not essential, but may be preferred because in some instances it will be found that a subsequent stamping op-

eration will impair the gloss of the bars or cakes which have been polished in accordance with my invention. The platforms 12 carrying the soap bars or cakes 10 thereupon may be placed upon an endless band 13 in sequence, or these platforms may be secured permanently upon the band 13 as shown in the drawing, whichever may be the more convenient. The platforms carrying the soap cakes are conducted by the endless band through a steaming chamber 14 which is provided with front and back walls 15, provided with openings 16, therein having a general contour similar to that of the soap, soap platforms and belt, and through which these elements may pass. A plurality of steam jets 17 are disposed in the chamber 14 as shown more particularly in Fig. 2, whereby steam may be brought in contact with substantially all portions of the soap cake. The steam jets are supplied with steam in any convenient manner, for example, by means of conduits 18 provided with a steam trap 19 to remove any droplets of water.

After the platforms carrying the soap have passed through the steaming chamber 14, they may be conducted through an elongated drying chamber 20 which is provided with an air tunnel 21 for introducing a flow of drying air there-through. If desired, a baffle 22 may be placed adjacent the entrance of the drying chamber for preventing air from being directed against and entering the steaming chamber 14. The air tunnel 21 may be provided at its outer end with a fan 23 for supplying air thereto. If it is desired to utilize heated air, a heating element such as a resistance heater 24 may be placed, for example, within the air tunnel where it will come in contact with the air being supplied by the fan 23.

In carrying out my invention, I prefer to utilize a steam pressure or quantity of steam just sufficient to cause the steam to emerge gently from the steam jets. This ordinarily provides a sufficient steaming action to bring about the desired surface modification of the soap products. It will be apparent to one skilled in the art, however, that this rate of flow is not critical and may be varied depending upon the extent of the surface modification desired, the efficiency of the steaming apparatus, the character of the soap product being treated, and other variables.

The temperature of the steam at the place of contact with the soap products also may be varied over a wide range. In general, a temperature in the neighborhood of 90 to 100° C. will produce desired results. Other temperatures may be utilized depending, for example, upon the characteristics of the soap being treated or upon the length of time during which the soap is in contact with the steam.

I have found that wet or dry steam, or steam mixed with air, may be employed in the steaming zone. In general, it is desirable to avoid the presence of visible droplets of moisture in the steam coming into contact with the surface of the soap, as these may spoil the evenness of the gloss.

For efficient operation, it is preferred to cause the soap products to pass rapidly through the steaming chamber, inasmuch as a very brief treatment suffices to produce a high gloss on the surface. In the case of conventional soap cakes, for example, if the steam impinges directly upon the soap, a contact with the steam for about one second may be sufficient, although if the steam does not impinge upon the soap, a somewhat longer treatment, say ten seconds, may be required. The

time required to obtain desired results may be readily determined, and will depend upon the factors of operation, such as the temperature and rate of flow of the steam utilized.

It generally is more desirable to pass the soap product successively through the steaming and drying operations with the shortest practical interval of time between the two operations.

If heated air is utilized for drying the soap, it may be preferred to utilize a temperature, for example, of the order of 130 to 150° C. The temperature may be varied, as desired, to effect the requisite drying rate. After drying with heated air, it is preferred subsequently to treat the soap with cool air to completely solidify and retain the resulting gloss on the surface of the product although in many instances, normal cooling will suffice. In general, a longer period of time is required for drying the soap than is required during the steaming operation. For example, in treating conventional soap cakes or bars, the steaming operation may require only one second, whereas the drying operation may require a period of about twenty-five seconds.

After the soap has been dried and cooled, as described above, the surface of the soap shows a high gloss or polish which greatly enhances the appearance of the soap product. The soap thereupon may be wrapped or packaged in a conventional manner, without any material damage to the polished surface during such operation, or by the wrappers or packages themselves.

It will be apparent that my invention will be susceptible to modifications by one skilled in the art without departing from the scope thereof, and all such modifications are intended to be included within the scope of the following claims.

I claim:

1. Apparatus for imparting a glossy finish to the surface of soap cakes or bars comprising a steaming chamber, a plurality of steam jets disposed within said steaming chamber, a drying chamber, means for supplying a flow of drying air to said drying chamber, means for supporting each of said cakes or bars out of contact with other cakes or bars and in a position to expose substantially the entire surface thereof, and means for conducting said soap cakes or bars in spaced relationship successively through said chambers, said conducting means comprising an endless belt, and a plurality of platforms thereon, said platforms being provided with a plurality of pins adapted to support the soap cakes or bars in spaced relationship with substantially the entire surface thereof exposed.

2. Apparatus of the character described comprising in combination a steaming chamber, a drying chamber, and a conveyor passing through said chambers, said conveyor comprising a plurality of platforms, supporting means on each platform comprising at least three upstanding substantially point contact members, and means for maintaining the plane of contact portions of three of said members at less than ninety degrees to the horizontal at all positions along the path of said platforms through said chambers.

3. Apparatus for imparting a glossy finish to the surface of soap cakes or bars, comprising a steaming chamber, means for admitting steam within said steaming chamber, a drying chamber, means for supplying a flow of drying air to said drying chamber, and means for conducting said soap cakes or bars successively through said chambers, said conducting means comprising an endless belt and a plurality of platforms dis-

posed thereon, said platforms being provided with a plurality of pins adapted to support the soap cakes or bars in spaced relationship with substantially the entire surface thereof exposed.

4. A continuous automatic process for imparting gloss to cakes of soap, comprising conveying the cakes successively through a steaming zone wherein each cake is subjected to a brief treatment with steam, and then through a drying zone wherein each cake is subjected to the drying action of a current of drying air while the surface of the cake of soap otherwise is maintained undisturbed.

5. A continuous automatic process for imparting gloss to cakes of soap, comprising conveying the cakes successively through a steaming zone wherein each cake is subjected to a brief treatment with steam, and then through a drying zone wherein each cake is subjected to the drying action of a current of hot drying air while the surface of the cake of soap otherwise is maintained undisturbed.

6. A continuous automatic process for imparting gloss to cakes of soap, comprising conveying the cakes successively through a steaming zone wherein each cake is subjected to a brief treatment with steam, and then through a drying zone wherein each cake is subjected to the drying action of a current of hot drying air while the surface of the cake of soap otherwise is maintained undisturbed, and then cooling each cake to completely solidify and retain the gloss imparted by the steaming.

7. A continuous automatic process for imparting gloss to cakes of soap, comprising conveying the cakes successively through a steaming zone

wherein each cake is subjected to a brief treatment with steam, and then through a drying zone wherein each cake is subjected to the drying action of a current of air while the surface of the cake of soap otherwise is maintained undisturbed, said cakes being passed through each of said zones so as to allow the steam and air to have free access to substantially all of the surface of all sides of the cake of soap.

8. A continuous automatic process for uniformly imparting gloss to cakes of soap, comprising conveying the cakes successively through a steaming zone wherein steam is caused to impinge upon each cake in a substantially uniform manner over substantially all of the surface of said cake, and then through a drying zone wherein each cake is subjected to the drying action of a current of drying air while the surface of the cake of soap otherwise is maintained undisturbed.

9. A continuous automatic process for uniformly imparting gloss to cakes of soap, comprising conveying the cakes successively through a steaming zone wherein steam at a temperature at 90 to 100° C. is caused to impinge upon the surface of each cake for a brief period, and then through a drying zone wherein each cake is subjected to the drying action of a current of hot air while the surface of the cake of soap otherwise is maintained undisturbed, said cakes being passed through each of said zones so as to allow the steam and air to have full access to the surface of all sides of the cake of soap, and then cooling each cake to completely solidify and retain the gloss resulting from the steaming.

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