UNITED STATES PATENT OFFICE.

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LIQUID SHAVING-SOAP.

1,257,545. Specification of Letters Patent. Patented Feb. 26, 1918.

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To all whom it may concern:

Be it known that I, JOEL STARRELS, a citizen of the United States, and resident of Montclair, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Liquid Shaving-Soap, of which the following is a specification.

This invention relates to soap of a liquid or freely fluent and mobile nature as will be hereinafter described; said soap being intended or adapted for shaving purposes in contradistinction to the ordinary liquid toilet soaps now in extensive use.

Shaving soaps have been made in the form of a solid cake, as a powder and as a paste, but up to the present time, so far as I am advised, no satisfactory shaving composition in a liquid form has been prepared. A shaving composition must form a free lather which remains substantially unchanged on the face for the period required in shaving. Liquid soaps as usually prepared perhaps may lather freely but the lather is not permanent. On the face it will be found to dry with a slight crackling noise due to rupture of the bubbles formed in making the lather. It is necessary to prevent this action and secure a bubble film which has sufficient tension or toughness to persist during the shaving period. A liquid soap made from cocoanut oil will for example lather profusely but as soon as applied to the face the crackling or snapping of the lather is found to take place and before the operation of shaving is complete the lather is practically "dry".

Sodium and potassium stearate and palmitate aid in giving permanency to the lather but these ordinarily give too great a consistency yielding paste or solid forms, or thick preparations which gelatinize on standing especially in cold weather.

I have found that stearate material may be incorporated with other soap material to produce a liquid soap which has a profuse lather and one which is substantially permanent so as to afford a practical liquid shaving soap, for which a demand has long existed but which has not heretofore been produced, to the best of my knowledge.

I will first give an illustrative formula and then discuss the various considerations, theoretical and practical, which obtain under the present invention, especially as directed to the preferred embodiment thereof.

Preferably a liquid soap base is first prepared by boiling or heating 50 pounds each of cocoanut oil and corn oil, and 33 pounds of caustic potash with a quantity of water sufficient to accomplish saponification and to leave in the finished base about 575 pounds of water. The caustic used is preferably about 75% KOH and 10% potassium carbonate although caustic of other grades may be used. After completion of the saponification the base may be clarified by adding a gallon or two of saturated alum solution and well stirred and filtered. This treatment removes bodies which otherwise might coagulate and settle to the detriment of the appearance of the base. The amount of caustic potash given above is somewhat in excess and the proportion may be reduced in case with the soap fats employed, a too alkaline base results. Caustic alkali is active on the skin and should not be present in such an amount as to cause stinging or burning of the epidermis. It is however usually required that some alkali be present in order to soften the beard and carbonated alkali may be used for this purpose as it is less active on the skin. The proportion should be carefully regulated as an excess will cause burning. I have treated the above composition with carbon dioxid until a faint turbidity appears when carbonate is formed to the required extent. This may be carried out readily simply by bubbling the dioxid through the liquid base.

For high lathering properties it is important to use cocoanut oil or the related oil—palm kernel fat, but the accompanying oil, corn oil may be substituted by other oils of similar properties, such as cotton seed or olive oil and the like, or the base may be made of cocoanut oil or the proportions varied more or less as will now be apparent from the present disclosure.

To 100 pounds of the above base, 5 pounds of sodium stearate, 15 pounds of potassium stearate and 2 pounds of sugar are added and the mixture digested with heating until these bodies are well incorporated. The composition is allowed to cool and perfuming agents may be added as required.

When cool, the preferred composition is liquid and has disseminated through it, a quantity of fine pearly flakes, which do not

materially interfere with the mobility of the product and which, unlike many preparations containing stearate, do not settle quickly, and the user is not necessarily required to resort to vigorous shaking each time the preparation is used, in order to secure a uniform mixture. The addition of sugar apparently aids in such suspension and the proportion of the latter as well as the amount of the stearate employed may be varied to secure this condition with respect to the other ingredients employed. Potassium stearate alone in place of sodium stearate may also be employed but the combination of the two alkalis usually improves the lather, and although 10% and upward of sodium stearate or potassium stearate will gelatinize with water to a paste or solid, under the present conditions, the surprising fact appears that a liquid mobile product is secured. This may be ascribed to the presence of protective colloids which prevent the formation of a stearate gel from its sol. By thus having a protective colloid present, a stable composition is obtained and any stearate which may separate does not quickly settle as would ordinarily be expected, but remains suspended for a noticeable period. Therefore when a sample of the preferred composition is withdrawn, it will be fairly uniform in composition and will give good results at all times. The lather produced by a small amount of the product is profuse and in fact the volume of lather from a relatively small quantity of the composition is so great as to appear quite disproportionate to the amount of soap taken. I have therefore devised and compounded a shaving soap which gives a quick, voluminous and profuse lather which does not have any objectionable drying properties when applied to the face.

It should be noted that in the preferred form of my invention, no alcohol is required to maintain fluidity, which is an advantage, as alcohol tends to destroy the surface tension or some similar property so that the permanency of the lather is affected. Besides alcohol is a costly ingredient or addition.

Soaps made from liquid oils which contain oleic acid as the prime ingredient lather well in cold water but do not work as well in hot water while the reverse is true of the stearate and sodium stearate especially is practically without lather in cold water although under the present conditions it exerts a useful effect on the lather, which result is obtained in the preferred form of the invention by the mutual or coöperative action of the sodium or potassium stearates or equivalent materials. The proportion of one part of sodium to 3 parts potassium stearate is one which I have found to be well suited for incorporation with the oleic portion of the composition, that is the saponified product heretofore designated as soap base.

By calculation of the ratio existing between the liquid fats or fatty acids and the solid fats or stearic acid as well as the proportion of the alkali and its distribution in the finished product between liquid and solid fat, it will be evident that the stearate soap exists in the preferred composition in some peculiar state which in the main is responsible apparently for the new and unexpected result attained.

One great advantage of a shaving soap in a liquid form is the fact that such a saponified product may be used in soap dispensers, like those used at the present time with ordinary liquid soaps, and thus shaving soap may likewise be handled in a similar sanitary and hygienic manner.

What I claim is:—

A liquid shaving soap containing alkali stearate in a supersaturated condition in an aqueous solution of a freely soluble soft soap forming a composition which remains permanently as a non-pasty fluent liquid which possesses very free lathering qualities and which forms a lather drying with extreme slowness and which does not form heavy deposits of stearin soap material.

Signed at Montclair, in the county of Essex and State of New Jersey, this twentieth day of March, A. D. 1914.

JOEL STARRELS.

Witnesses:
I. DAVID LUBETSKI,
NATHANIEL L. FOSTER.