

UNITED STATES PATENT OFFICE.

DUDLEY B. CHAPMAN, OF MILFORD, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND EBENEZER D. DRAPER, OF SAME PLACE.

IMPROVEMENT IN THE MANUFACTURE OF SOAP.

Specification forming part of Letters Patent No. 37,471, dated January 20, 1863.

To all whom it may concern:

Be it known that I, DUDLEY B. CHAPMAN, a citizen of the United States of America, and a resident of Milford, in the county of Worcester and State of Massachusetts, have invented a new or Improved Soap; and I do hereby declare the same to be fully described in the following specification.

Hitherto the method of using soluble alkaline silicates in the manufacture of soap has been to make a soap, in the usual manner, by boiling a hydrated alkali with grease, oil, or tallow, or one or more of these combined with resin, and while the soap was in a fluid state to reduce the soluble alkaline silicate to a fluid by the addition of water, and then mix it with the soap. By this process an alkaline silicate containing an excess of free alkali—that is, more than sufficient alkali to hold the silicic acid in solution, which most alkaline silicates do—cannot be used to advantage, because the excess of alkali in the silicate granulates or opens the soap in such a manner as to precipitate the silicated solution to the bottom. Therefore the use of highly-alkaline silicates in soap has been generally abandoned. By my process I can use in soap a silicate containing any quantity of free alkali and in such proportions that in some cases the quantity of alkaline silicate used will exceed in weight all the other ingredients combined, thereby materially cheapening as well as improving the quality of soap.

In manufacturing soap by my process I first ascertain the quantity of free alkali which the silicate to be employed contains. I next, by the addition of water, reduce the silicate to a fluid or gelatinous condition, and when ready for use have it heated to about 40° centigrade. I next take a quantity of any one or more of the following ingredients sufficient to completely neutralize the excess of alkali which the silicate contains, to wit: grease, oil of any kind, tallow, resin, or any of these combined with flour or starch of any kind, and prepare them by heating the grease, oil, tallow, or resin, as the case may be, to about 70° centigrade, at which heat I add the alkaline silicate prepared as above and mix thoroughly by stirring for a short time. Next mold the mixture in frames and allow it to cool. If I use flour or starch in the combination, I mix it in a dry state with the melted grease or fatty matter before adding the silicate. If the excess of alkali in the silicate is mostly caustic, the soap

thus made will in the course of three or four days be fit to cut up or formed into bars either for use or sale. Should the alkali be mostly a carbonate, the mass should be reheated in a day or two to about 80° centigrade, and next it should be framed, after which—viz., about two days—it will be ready to be cut or formed into bars. In this way I obtain a very fine neutral soap in a much cheaper manner than by any other process. The excess of alkali in the silicate completely saponifies the ingredients used to neutralize it, and these ingredients in the process of saponification absorb all the excess of water with which we are obliged to dilute silicates in order to render them sufficiently fluid to combine with soap. Therefore a soap made in this manner will not shrink in weight near so much as a soap in which a fluid silicate is mixed after the soap is finished, for such soaps have already taken up about forty per cent. of water from the hydrated alkali with which they are boiled, and the extra water in the silicate only tends to impair their value.

Another advantage which this process insures to the soap is that all the glycerine contained in the grease used is retained in the composition. This glycerine, having an affinity for the moisture contained in the atmosphere, prevents the soap from becoming too hard by age, as silicated soap is liable to do.

I do not herein claim the production of a soap by mixing a simple alkali with melted grease or a resin. Nor do I claim a soap made by neutralizing a grease or fat by an alkali and afterward adding an alkaline silicate thereto. Nor do I claim a soap made by adding, in two or more quantities of different specific gravities and at different times, to hot grease or a fatty or other matter used in making soap a solution of an alkaline silicate (soluble glass) and boiling the mixture after the first or each addition of the silicate; but

I claim as my invention and as an improved manufacture—

A soap made in the improved manner hereinbefore described—viz., of a hot fatty matter or matters and a solution of alkaline silicate combined at one operation without the process of being boiled after the addition of the solution of silicate to the hot fat.

DUDLEY B. CHAPMAN.

Witnesses:

F. P. HALE, Jr.,

E. D. DRAPER.