

UNITED STATES PATENT OFFICE.

THOMAS ANYON, OF FALLOWFIELD, ENGLAND.

SOAP.

1,064,591.

Specification of Letters Patent.

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No Drawing.

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To all whom it may concern:

Be it known that I, THOMAS ANYON, a subject of the King of Great Britain, residing at Fallowfield, in the county of Lancaster, England, have invented certain new and useful Improvements in and Connected with Soap; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in and connected with soap and has for its object to provide a soap which can be produced considerably cheaper and is more cleansing than hitherto has been the case without being in any way injurious. I attain this object by using in the manufacture of soap as principal ingredient or base, brewers' or distillers' yeast to which I add fatty or oily matter which ingredients I treat by the ordinary alkali process.

I am aware that previous to my invention, yeast has been used in the manufacture of detergents but not in the manner as employed in accordance with my invention in which it does not act as a ferment with liberation of carbon dioxide but on the contrary its qualities as a ferment are destroyed imparting a greater firmness and density to the soap and facilitating the use of yeast either in a fresh or stale condition preferably the latter thus providing a use for a material which hitherto was a product of no value.

According to one method of my invention I preferably treat or clean the yeast by the addition of an alkaline wash or lye which chemically bursts or ruptures the yeast cells and permits the cell contents to escape. The liquid cell contents thus treated form a gelatinous protoplasmic mass or magma. This magma I then treat under heat in association or mixture with melted oils or fats, such as tallow or coconut oil or other saponifiable agents as ordinarily used by soap makers, and with which it readily amalgamates. The yeast magma is acted upon chemically by the action of the alkaline lye and this action whether direct or catalytic (at present undetermined) changes the protoplasmic magma into a number of new and at present undetermined and unclassified substances which are saponifiable and become along with the ordinary fats and oils

converted into soap. That these new saponifiable substances are alkali fixers or carriers is proved by the fact that for a given weight of soap produced, a much smaller weight of fats and oils, than is ordinarily used, can be employed while a larger proportionate quantity of alkali is taken up and combined without showing excess of free alkali in the resultant soap. The volume and density of the soap is also greater. This action is an entirely new function for yeast in soap making, because if yeast be simply added to soap finally made or finished it would simply remain as yeast, recoverable therefrom with cells visible under the microscope. When treated according to my invention the yeast is converted into a detergative mass, and can no longer be distinguished microscopically. That the new products obtained from yeast so treated act in the same way as fats and make a true soap is shown by the fact that if merely neutral or unsaponifiable bodies had been used, the amount of added alkali would show excessive alkalinity in the resultant soap. Since this is not the case, these new yeast products must act in a manner equivalent to ordinary fats.

Respecting substances which may be said to be alternatives to yeast such as starch, albumose, farina of all kinds and cereal meals, seeds and the like, the same have been and are employed in the manufacture of soap, but their action differs from that of yeast inasmuch as they do not produce saponifiable substances of the same nature as those produced by the use of yeast.

The percentage of the different ingredients in the soap may vary to a great extent, for example I may employ from 5 to 85 per cent. by weight of yeast, the remaining percentage being made up of fat, oil, or fatty acid, caustic soda, scents, coloring matter, or the like. A suitable mixture for a firm, hard toilet soap may consist of 60 per cent. of yeast, 33 per cent. of fatty matter or the like, and 7 per cent. of caustic soda. For a strong scouring soap I may mix the ingredients in the following proportions: 85 per cent. of yeast, 4 per cent. of fatty matter or the like, and 11 per cent. of caustic soda. The said ingredients may also be used in the following approximate proportions:—brewers' yeast 66 parts, fatty or oily matter 34 parts, alkali 5-10 parts. The yeast may be used in a liquid state, or after

being drained and compressed, the latter being however preferable on account of its portability.

According to one method of manufacturing soap containing yeast, the latter is first washed by means of an alkaline water, for instance water containing $\frac{1}{2}$ to 1 per cent. of caustic soda, and passed together with the said water through a screen or sieve to remove any foreign matter such as grit. The yeast is then allowed to settle in the water, and forms a thick buttery mass at the bottom of the same. The alkaline water is then decanted and a fresh supply of water, not necessarily alkaline, is then mixed with the yeast. The yeast is again allowed to settle, and the second supply of water decanted. This process is repeated until the yeast has become a clear, pure buttery mass. The yeast is then mixed with the oil, fat or fatty acid, while under heat of 170 to 200 degrees Fahrenheit. The caustic soda solution is then added, the same heat being maintained, and the mixture slowly agitated until it has thickened to a finishing point.

The soap resulting from the above process is of a dark grayish brown color and a clearer soap may be obtained by the following method:—The fatty matter or the like is first heated sufficiently to liquefy same, which heat may vary say from 120 to 200 degrees Fahrenheit, according to the nature of the fatty matter or the like employed, until liquid, and the solution of caustic soda then added to and thoroughly mixed with

the same. Before the chemical action between the fatty matter and the like and the caustic solution has ceased, the yeast is gradually mixed at a warm heat and the mass agitated until it has acquired the desired thickness.

The soap manufactured by either of the above methods may be refined by saline baths or other known treatment, or may be milled, polished, or undergo any other of the known final operations.

I claim:

1. A process for the manufacture of soap consisting of adding yeast to melted fats or oils, treating the mixture with caustic lye while under heat or agitation thus gradually setting up a chemical action between the alkali and the fats or oils and the alkali and the yeast, and converting the latter into a deterative substance, as and for the purpose hereinbefore specified.

2. As a new product, a soap in which the usual proportion of fats and oils, to the weight of soap to be produced, is greatly diminished and their place taken by the production of deterative substances produced by the action of alkali on the protoplasm or cell contents of yeast, substantially as and for the purpose specified.

In testimony whereof I have affixed my signature in presence of two witnesses.

THOMAS ANYON.

Witnesses:

ALFRED BOSSHARDT,
STANLEY E. BRAMALL.