

UNITED STATES PATENT OFFICE.

JAMES J. JOHNSTON, OF COLUMBIANA, OHIO, ASSIGNOR TO THE UNITED STATES IMPROVEMENT COMPANY, (LIMITED,) OF SAME PLACE.

HARD SOAP.

SPECIFICATION forming part of Letters Patent No. 273,235, dated February 27, 1883.

Application filed February 25, 1882. (No specimens.)

To all whom it may concern:

Be it known that I, JAMES J. JOHNSTON, of Columbiana, in the county of Columbiana and State of Ohio, have invented a certain new and useful Improvement in Hard Soap; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to an improvement in soap, particularly that class known as "hard soap," for the washing of clothes and for general household purposes; and it consists in making said soap of tallow, rosin, lime, soda-ash, water, borax, and camphor, said ingredients used in the quantities and proportions and treated in the manner hereinafter described, which forms the second part of my invention, "Division B."

To enable others skilled in the art with which my invention is most nearly connected to make and use it, I will proceed to describe its construction and operation.

I take about ten (10) pounds of tallow and about twenty (20) pounds of rosin and melt these two ingredients by charging them into the caldron H, described in "Division A," forming the first part of my invention, taking care to skim off the impurities that may arise to the surface of the melted tallow and rosin. I then take about three (3) pounds of lime and about eight (8) pounds of good soda-ash, which I thoroughly triturate together until they become mechanically a homogeneous mass, which I dissolve in about twenty (20) pounds of "soft water" of a temperature of about one hundred and fifty degrees (150°) Fahrenheit, stirring the ingredients in said water for about five minutes, keeping the water at the above-mentioned temperature, after which sufficient time is allowed for the undissolved particles of the combined lime and soda-ash to precipitate, after which the solution is carefully "racked off" from the precipitated matter. I then take six (6) pounds of borax and one-half ($\frac{1}{2}$) of a pound of gum-camphor and thoroughly triturate these two ingredients together until they become mechanically a homogeneous mass of finely-pulverized particles, which are passed through a bolting-cloth or very fine sieve. The melted tallow and rosin are thoroughly mixed in the caldron H by the mixing-arms Y Z, described

in Division A, and while being stirred by said arms and in a state of violent agitation the racked-off solution is gradually added, still keeping up the agitation of the contents of the caldron H, which is heated up to a temperature of about two hundred degrees (200°) by fire in the furnace A and water in the caldron F, described in Division A. This temperature and agitation are kept up for about two hours. Then the valve *d* of pipe *b*, connected with the caldron F, is partially opened, and the valve *c* of the pipe *a* partially opened, and the fire in the furnace A withdrawn. This, combined with the gradual flowing off of the hot water from the caldron F and the flowing in of cold water through pipe *a*, will cause the said caldron, and caldron H, with its contents, to commence gradually to cool. The agitation of the contents of the caldron H is constantly kept up during this cooling-off process, and when the contents of the caldron H have cooled down to about a temperature of one hundred and fifty degrees (150°) Fahrenheit, at which point the agitation of the mass is considerably increased by imparting increased motion to the mixing-arms Y Z. During the increased agitation the pulverized mixture of borax and camphor heretofore described is gradually added to the contents of the caldron H, the agitation being kept up after the borax and camphor are added, for about twenty minutes, by which time the temperature of the mixed mass will have fallen to about one hundred and twenty degrees (120°) Fahrenheit. The contents of the caldron H is then dipped out into ordinary molds and allowed to cool, after which it is cut up into bars or cakes of any desired size.

The soap hereinbefore described will be suitable for washing with either hard or soft water, and will not injure the clothing nor injuriously affect the skin of the washer, but, on the contrary, will have a soothing effect, and in the washing of clothing is a most excellent disinfectant, the advantages of which cannot be overestimated, for it neutralizes the poisonous vapors that arise from the heated water and the clothing immersed in it. It has been a matter of observation that washer-women while washing clothes are often subjected to a trembling and sinking sensation, accompanied with

great weakness and an undue feeling of fatigue, and very often with nausea, which unhealthy symptoms are due to the poisonous vapors arising from the clothing and the air in the room surcharged with the said poisonous vapors, which symptoms will be avoided and their cause removed by the use of the soap hereinbefore described.

I am aware of the patent granted to Leonard and Johnston, No. 56,959, and dated August 7, 1856, for washing compound, in which camphor is one of the ingredients of said compound. I do not claim such compound, nor do I claim broadly the use of camphor as an ingredient in the manufacture of soap.

Having thus described my improvement, what I claim as of my invention is—

A soap consisting of a compound of tallow, rosin, lime, soda-ash, water, borax, and camphor in about the quantities and proportions and treated and manipulated in the manner substantially as hereinbefore described, and for the purpose set forth.

JAMES J. JOHNSTON.

Witnesses:

T. D. D. OURAND,
D. P. COWL.