

# United States Patent Office.

GEORGE W. ROGERS, OF LANCASTER, NEW YORK, ASSIGNOR TO HIMSELF  
AND JOHN D. SHEPARD.

*Letters Patent No. 61,466, dated January 22, 1867.*

## IMPROVEMENT IN THE MANUFACTURE OF SOAP.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, GEORGE W. ROGERS, of Lancaster, in the county of Erie, and State of New York, have invented certain new and useful improvements in the Manufacture of Soap; and I do hereby declare that the following is a full and exact description thereof.

I will first describe what I consider the best means of carrying out my invention, and will afterwards designate the point which I believe to be new.

I take any of the materials ordinarily employed in the manufacture of soap, but prefer as the alkali the carbonate of soda, and apply them together in their proper proportions in a boiler, and raise the compound to a boiling temperature in the open air. I then introduce the mixture into the cooling frames, which are made of cast iron and fitted together with bolts, so as to be able to withstand a very great pressure. Having filled the cooling frame, I powerfully press in an additional quantity, or attempt so to do, by the aid of a forcing-pump, until a high pressure is accumulated in the frame. I prefer a pressure of about two thousand pounds to the square inch. Leaving the compound subjected to this pressure for a few hours, or until it is cold, I find on opening the frame that it has changed to a very perfect soap. The rapidity and perfection of the result I ascribe to the fact that it is subjected to a high pressure and at only a moderate temperature.

Soap has been manufactured cold or at a very moderate temperature without pressure, but to effect this requires a more caustic alkali than I employ. Soap has also been manufactured rapidly by the high pressure induced by heating to a high temperature in a close vessel; but this is different in its nature and effects from my process. My soap is harder than soap made from the same materials by the ordinary process of boiling. I believe it may be made of the ordinary colors and from any materials which have ever been employed in soap-making. In practice I ordinarily introduce the compound through the forcing-pump, even from the commencement of the operation of filling of the cooling frame. I introduce the compound at the bottom, and as the cooling frame is tight there is a considerable quantity of air in a compressed condition which overlies the upper surface of the soap, and by its elasticity maintains the pressure in case there is any change of volume of the soap relatively to the enclosing vessel in the act of cooling; in other words, the operation of introducing the compound into the cooling frame is a gradual and continual compression from first to last. The first portion of the compound introduced meets with little resistance, but as the air is compressed more and more by the filling of the frame the resistance increases, and reaches its maximum when the frame is so nearly filled that the air is reduced to a very thin strata at the top. On the removal of the frame the soap may be cut up by wires or otherwise in the ordinary manner.

I believe that my method of manufacture enables me to retain all the glycerine in the soap. I believe that this allows the soap to possess a mild character not possessed by ordinary soap. I believe that my soap possesses a superior detergent quality, and yields a greater percentage of perfectly saponified soap than that made by any other process. It is evident that there is a great saving of time as compared with the slow-boiling process.

I do not believe it necessary to give so high a temperature to the compound at the commencement as 212° Fahrenheit; but as I have discovered no bad effects from this temperature, and it is one easy to obtain by simply applying heat until the compound boils, I have generally adopted it in my experiments. In experimenting on small quantities, I have, however, greatly lowered the temperature in most cases before applying the high pressure. I ascribe the result entirely to the high pressure. My frames may be made of wrought iron instead of cast, or they may be of any other metal, or even of wood applied together in such a manner as to yield a sufficient strength. The compressed air may be partially or entirely let out of the top of the cooling frame by means of a small cock or the like, if desired, under any circumstances. I prefer, however, to retain it as above described, both to employ its mechanical elasticity and, also, to obtain what I believe to be a slight chemical influence due to its free oxygen.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows:

I claim the within-described manufacture of soap by subjecting the material to a high pressure at a moderate temperature, substantially as and for the purpose herein specified.

G. W. ROGERS.

Witnesses:

D. L. FREEBORN,  
W. C. DEY.