

UNITED STATES PATENT OFFICE.

STEPHEN K. KANE, OF ALLEGHENY, PENNSYLVANIA.

IMPROVEMENT IN THE MANUFACTURE OF PETROLEUM SOAP.

Specification forming part of Letters Patent No. 63,528, dated April 2, 1867.

To all whom it may concern:

Be it known that I, STEPHEN K. KANE, of Allegheny city, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in the Manufacture of Petroleum Soap; and I do hereby declare the following to be a full, clear, and exact description thereof.

My improvement in the manufacture of petroleum soap, or soap containing petroleum or hydrocarbon oil or the fluid products thereof—such as benzine and benzole—consists in the process or order of operations hereinafter described, whereby I am enabled to dispense with the boiling of the soap or with the employment of fire-heat for any other purpose than the melting of the tallow or other animal fat or grease employed as the basis of the soap.

The dispensing with the boiling of the soap, beside being a great advantage in the saving of fuel and apparatus, has the great recommendation of avoiding in a great degree the danger of accident always incident to the proximity of fire to petroleum or its products. In addition to these advantages, the soap manufactured by my process is more detergent and emollient than soap made by the ordinary processes, contains less alkali, and is therefore less destructive to the skin and to fabrics washed with it, and also gives to the manufacturer a larger yield in proportion to the quantity of ingredients used.

My improved soap may be manufactured either with or without rosin, and if rosin is employed as an ingredient it may be either used without being melted by heat, or it may be mixed with the grease and melted with it, the former method having the advantage of requiring a lower degree of heat, as tallow melts at about 127° Fahrenheit, while rosin requires a higher temperature.

In the various modifications of my process of making petroleum soap an important feature is the effecting of a chemical union of the hydrocarbon oil or its fluid products with the animal fat before commencing the process of saponification.

In order to enable others skilled in the art to make use of my improvement, I will proceed to describe my process under the three modifications referred to, viz: First, where rosin is used without being melted by heat;

second, where rosin is used mixed and melted with the fat; third, where no rosin is employed. I will first, however, state that the proportions of the various ingredients constituting my soap cannot be given exactly, inasmuch as they will necessarily be varied by the manufacturer according to the kind and quality of soap to be produced, varying from soap for toilet purposes to the most detergent kind used for laundry and other cleaning purposes.

First. Where the rosin used is not exposed to fire-heat for the purpose of melting it, I reduce the rosin to fine powder, in any convenient manner, and dissolve it in the petroleum, benzine, benzole, or other product of hydrocarbon oil which it may be desired to employ, the solution being readily effected by mixing and stirring. The amount of rosin in proportion to the other ingredients is dependent on the kind of soap to be made; but when manufactured by my process a larger proportion of rosin can be used than is otherwise advantageously practicable. The amount of petroleum or benzine or other fluid product of hydrocarbon oil may also be varied, ten per cent., by weight, of the other ingredients being about the minimum quantity desirable; but the more petroleum I use, the longer the soap takes to harden, and the more deterrent and emollient it becomes. When the rosin is thoroughly dissolved in the petroleum or benzine, &c., I pour it into the vessel containing the melted tallow or other melted animal fat, and thoroughly mix them together, until they form a chemical union. The tallow needs only to be heated sufficiently to melt it thoroughly, and no further heat is required in the process. When the mixture of petroleum or product of petroleum and grease is complete, I add the necessary quantity of lye, made by dissolving any alkaline matter capable of saponifying fat in water. The lye is added slowly and gradually, and the whole mass is kept in a state of agitation by continual stirring for several hours, but without the application of heat. During the stirring process, and before the mass becomes too thick, I add to the soap any desired coloring-matter or perfume that may be desired. These ingredients should be introduced after the lye has been mixed with the grease. As soon as the mass becomes thoroughly saponified and becomes sufficiently thick, I re-

move it to frames for cooling and cutting, or to molds for pressing it into cakes of any required size or shape.

Second. Where rosin is melted with the fat, I take the required quantity of tallow or other animal fat or oil and mix with it the proper quantity of rosin, and then melt them together with a slow and gentle heat. When these substances are thoroughly melted and mixed, I remove them from the fire, and when they are at a temperature of about 145° Fahrenheit, I introduce slowly and gradually into the melted mass the petroleum or other hydrocarbon oil or the fluid product thereof—as benzine, &c.—and mix these ingredients thoroughly by stirring. I then, as soon as the hydrocarbon oil has united chemically with the mixture of grease and rosin, add the solution of alkali or lye, of the desired strength, slowly and gradually, and while doing so stir the mass so as to keep up a thorough and constant agitation, which is continued until the mass is completely saponified, and becomes sufficiently thick or stiff to remove to the molds or frames. The coloring-matters and perfumery are added, as before stated, after the lye is mixed and before the mass becomes too stiff to receive them to intimate mixture.

Third. Where the use of rosin is dispensed with, I melt the tallow or grease, and then mix thoroughly therewith the hydrocarbon oil, benzine, or other product of hydrocarbon oil. After a chemical union is effected, I saponify

with lye added slowly, keeping up a constant agitation, or I mix them by boiling, although I prefer to dispense with the boiling as dangerous and injurious to the quality of the product.

Having thus described my improved process of making petroleum soap, what I claim as my invention, and desire to secure by Letters Patent, is—

1. In the process of making soap, combining petroleum or other hydrocarbon oil, benzine, or other product of such oils with animal grease or fat or vegetable oil, either with or without the admixture of rosin, so as to form a chemical union therewith before adding the lye for saponifying, substantially as hereinbefore described.

2. The process of making soap by first dissolving rosin in hydrocarbon oil, benzine, or other fluid products of such oils, then mixing the solution with melted animal fat or grease or vegetable oil, so as to form a chemical union therewith, and, lastly, saponifying the mixture thus formed with lye, either with or without the application of heat, substantially as hereinbefore described.

In testimony whereof I, the said STEPHEN K. KANE, have hereunto set my hand.

STEPHEN K. KANE.

Witnesses:

JAS. L. SUTHERLAND,

GEO. H. CHRISTY.