

# UNITED STATES PATENT OFFICE.

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## PROCESS FOR MAKING SOAP.

1,049,495.

Specification of Letters Patent.

Patented Jan. 7, 1913.

No Drawing.

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*To all whom it may concern:*

Be it known that I, STEPHEN S. KRAYER, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a new and useful Process for Making Soap, of which the following is a specification.

This invention relates to new and useful improvements in processes for making soap.

An object of the invention is to produce a neutral detergent compound for dissolving mineral oils, paints, varnishes, etc., by a process which consists generally in saponifying any suitable fatty acid with an alkali, the mixture being boiled until saponification is complete, then cooling the mixture to approximately 60 degrees C, and then adding a suitable mineral oil solvent, then neutralizing the resultant with a sulfonated oil.

In practice I use any suitable glycerid, such for instance as tallow, cotton-seed, coconut, or olive oil, and add a sufficient quantity of alkali, such as potash, soda, ammonia, etc., to saponify the fatty acid of the glycerid and leave an excess of free alkali after the mixture has been boiled to complete the saponification. The glycerin may be removed by the usual methods. I now add a suitable mineral oil solvent such as benzol, or its homologues, toluol, xylol; the ethers; the chlorid of carbon, such as dichlormethane, carbontetrachlorid, chloroform, tetrachloraethan; the alcohols, such as methyl, ethyl, butyl, amyl, allyl, and benzyl; or the like. Before adding the solvent, however, the mixture is cooled below the point of volatilization of the solvent. The amount of solvent is approximately 10% of the entire mass, which proportion has been found in practice to produce eminently satisfactory results. To this point in the manufacture the resultant mass is distinctly alkaline, and in order to neutralize the mass I now add a sufficient quantity of sulfonated oil, such for instance as Turkey red oil, to bring the compound to a state of neutralization. Upon cooling, the mass gelatinizes. The compound may be filled by the use of any one of the well known commercial "fillers," such as silica, talcum, etc, if desired. By increasing the amount of the mineral oil solvent the strength of the compound as a detergent may be increased.

As a specific example, illustrative of the process of the present invention I suggest

the following formula or receipt: After melting together 150 pounds of cotton seed oil and 50 pounds of cocoanut oil in a suitable vessel, add thereto a solution comprising 50 pounds of caustic soda dissolved in a sufficient quantity of water so that the solution will test approximately 25 degrees Bé. Now boil the mixture until saponification is complete. It is preferable now to allow the soap to stand in a covered vessel for about 24 hours in an atmosphere sufficiently cool to reduce the temperature to below 60 degrees C. Now add approximately 8 gallons of benzol and mix thoroughly. After which add a sufficient quantity of unneutralized sulfonated castor oil until the mixture gives a neutral test with litmus paper. A filler, such as silica, may be added if desired.

The proportions of the ingredients may be varied, and I do not restrict myself to any specific proportions, but

What I claim and desire to secure by Letters-Patent is:

1. The process of making a neutral soap suitable for dissolving mineral oils, paints and varnishes, which consists in first mixing a quantity of a glycerid and suitable alkali in excess and boiling the same to completely saponify the fatty acid of the glycerid, then cooling the mixture, then adding a quantity of a mineral oil solvent after the temperature of the saponified mass has been reduced below the volatilization point of such solvent, then adding gradually a sufficient quantity of unneutralized sulfonated oil, such as sulfonated castor oil, until the entire mass becomes neutral, substantially as specified.

2. The process of making a neutral soap suitable for dissolving mineral oils, paints and varnishes, which consists in first mixing a quantity of a glycerid and suitable alkali in excess and boiling the same to completely saponify the fatty acid of the glycerid, then cooling the mixture, then adding a quantity of a mineral oil solvent after the temperature of the saponified mass has been reduced below the volatilization point of such solvent, then adding gradually a sufficient quantity of unneutralized sulfonated oil, such as sulfonated castor oil, until the entire mass becomes neutral, and then adding a filler such as silica to the mass, substantially as specified.

3. The process of producing a compound

- suitable for dissolving mineral oils, which consists in adding to an alkaline soap, a quantity of mineral oil solvent while the soap is in a liquid condition but below the
- 5 temperature of the solvent, then adding gradually unneutralized sulfonated castor oil to satisfy the free alkali of the soap and thereby neutralize the compound, substantially as specified.
- 10 4. A process of soap making which consists in mixing a quantity of a glycerid with an alkali in excess and raising the mixture to a high temperature, then reducing the temperature thereof, thereupon

adding a mineral oil solvent, such as benzol, ether, or a chlorid of carbon such as herein specified, then adding gradually a sufficient quantity of unneutralized sulfonated castor oil to bring the entire mass to a point of neutralization, substantially

15 as specified.

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In witness whereof, I have signed this specification in the presence of two subscribing witnesses.

STEPHEN S. KRAYER.

Witnesses:

NELSON THOMAS,  
L. C. KINGSLAND.