UNITED STATES PATENT OFFICE.

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PROCESS OF MANUFACTURING FATTY ACIDS FOR MAKING CANDLES.

SPECIFICATION forming part of Letters Patent No. 243,377, dated June 28, 1881.

Application filed May 10, 1881. (No specimens.)

To all whom it may concern:

Be it known that I, ARMAND MÜLLER JACOBS, of the city of Moscow, in the Empire of Russia, have invented an Improved Process for Manufacturing Fatty Acids for Making Candles, of which the following is a specification.

The invention relates to certain new and useful improvements in the manufacture of sebacic or fatty acids from oils to be used in manufacturing candles.

In carrying out my invention the oils are cooled to a temperature of + 6° centigrade (42.8° Fahrenheit,) and are mixed with from thirty to forty per cent. of sulphuric acid of a specific gravity of 1.8230 to 1.8259, which sulphuric acid is also cooled before being added. As soon as the temperature of the mixture has reached 55° centigrade (121° Fahrenheit) the double quantity of cold water is added while stirring the mixture. The mixture is then allowed to stand for twenty-four hours, after which the mixtures of sulpho-sebacic acids which are separated during the standing are drawn off and boiled with two or more times their quantity of water for a considerable time. Thereby the sulpho-acid that has been formed is transformed into a sebacic acid, melting at 70.6° centigrade, (155.04° Fahrenheit,) and resembling stearic acid, and into fluid oxyoleic acid.

The following two reaction formulæ will illustrate the process: first, the formation of oleic sulphuric acid from the glycerides: $C_3, H_5, (O,C_{18},H_{33},O)_3 + 3H_2,SO_4 = 3,C_{18},H_{33},O,O,SO_3H + C_3,H_8,O_3$; second, the decomposition of the same by boiling it with water: $2(C_{18},H_{34},SO_5) + 3H_2O = C_{18},H_{36},O_2 + C_{18},H_{34},O_3 + 2H_2,SO_4$.

Stearic acid. Oxyoleic acid.

The composition and constitution of the oleic sulpho-acid, as, likewise, of the arising products of decomposition, require a thorough scientific examination; but my researches indicate that the above-described formulæ are correct.

The above mixture of sebacic acids, which dissolves to a clear liquid in alcohol, is placed into settling-vessels at a low temperature for two or three days, when the solid sebacic acid crystallizes. The fluid part, which is about forty per cent., is separated from the solid parts by means of a centrifugal machine or a hydraulic press or analogous machine. The press-cake is then purified in some well-known manner by washing it with alcohol, benzine, &c., as also by distillation. The sebacic acid obtained is used to manufacture candles in the same manner as stearic acid is used at present.

If the process of saponifying the oils with sulphuric acid does not take place at a very low temperature, or if the sulphuric acid is too strong, products of decomposition of the sebacic acids, which are absolutely worthless, will be produced, large quantities of sulphurous dioxide being formed and passing off at the same time. If an insufficient quantity of sulphuric acid is used, only a part of the oil will be transformed in the manner described. The mixture of sebacic acids is not completely soluble in alcohol, and contains small quantities of crystallizing solid sebacic acids and fluid oxyoleic acid and unchanged oil. It is very difficult to separate these bodies, and the process is unprofitable.

The oils that are adapted to be treated in the manner described are, among others, cotton-seed oil, olive-oil, rape-seed oil, and animal fats and oils, &c. About fifty-five per cent. of solid sebacic acid can be obtained from these oils if they are treated in the manner described above.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

The process herein described of manufacturing sebacic or fatty acids from glycerides, consisting, first, in forming sulpho-sebacic acids by treating the oils with sulphuric acid and boiling this mixture with double its quantity of water; and, secondly, in decomposing this sulpho-sebacic acid into sebacic acid and oxyoleic acid by boiling it with water, substantially as set forth.

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Witnesses:

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