

UNITED STATES PATENT OFFICE.

PAUL RUNGE, OF HAMBURG, GERMANY.

PROCESS FOR THE MANUFACTURE OF ALBUMOSE SOAP.

968,423.

Specification of Letters Patent.

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No Drawing.

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To all whom it may concern:

Be it known that I, PAUL RUNGE, a subject of the Emperor of Germany, residing in Dammtorstrasse 27, Hamburg, Germany, have invented certain new and useful Processes for the Manufacture of Albumose Soap, of which the following is a specification.

It is a known fact that albumose is eminently suitable for the manufacture of soaps that remain neutral in hydrolysis. Now in the process of manufacture of albumose soap as carried out hitherto the albumose is added only to the finished soft or hard soap, that is to say, the albumose is added to the soap mass either before it solidifies, or afterward in the milling operation, about 10 per cent. of albumose being added in the case of neutral potash soap, and about 8 per cent. in the case of soda soap. However the process of manufacture as carried out hitherto has several drawbacks. First, pure dialyzed casein must be dissolved and split up with an alkali. After the splitting up has taken place, this solution must be clarified and the albumose must be precipitated with acid, then washed, dissolved in dilute alcohol, and exactly neutralized with alkali. The alcoholic solution of albumose is then incorporated with the soap either by milling with soap shavings or by stirring into the soap mass.

Owing to the colloidal nature of the albumoses the acid employed for the precipitation cannot be removed entirely by washing, even with the aid of centrifugal apparatus. In fact it is necessary to fix the excess of acid by means of alkali with the result that the corresponding salts pass into the solution or into the soap made from such solution where they constitute impurities which cannot be removed. This is an important matter in the further treatment of the soap and more especially in the case of medicinal soaps.

The dilute alcohol employed for dissolving the albumose is lost in the milling operation, or when stirred in the soap mass, so that the process is rather expensive. The treatment of the alcoholic solution of albumose soap with shavings in the milling or other operation is difficult and necessitates several drying operations.

Now my improved process for the manufacture of albumose soap, consists in mixing and heating the clarified alkaline solu-

tion of albumose produced in the ordinary manner (either after concentration in a vacuum, or in its ordinary diluted state) with an exactly determined quantity (corresponding to the contained alkali) of a fat acid or a mixture of fat acids. By this means the whole of the contained alkali is fixed by the fat acid, and an albumose soap is produced which is absolutely free from the impurities that would otherwise ordinarily be present. This solution of albumose soap may be concentrated to any desired degree by treating it in a vacuum or in any other suitable manner.

It has been found advisable to employ such quantitative proportions as will insure 33½ to 50 per cent. of albumose in the mixture of albumose and soap produced in accordance with the present process. A mixture of this nature can be treated subsequently with great ease; for instance it can be readily dried to dessication and reduced to powder for the manufacture of soap powders containing albumose.

It is to be understood that earthy alkaline solutions of albumose, for instance solutions of albumose in calcium hydroxid, strontium hydroxid or barium hydroxid or alkaline sulfid solutions of albumose for instance solutions of albumose in sulfid of soda or sulfid of potassium may be employed instead of alkaline solutions of albumose, and treated with fat acids because the corresponding mixtures of soap and albumose are also produced in such cases, it being further noted that the alkaline earth sulfids are also suitable for the making of albumose soap.

No difficulty is experienced in incorporating medicinal substances such for instance "finely divided sulfur" and the like in the preparations before or after the treatment with fat acids.

A particular receipt or example by the use of which the process can be carried out is as follows: 3 kg. of casein are stirred thoroughly with 12 kg. of water and 3 kg. of 10% soda lye is added. After standing for several hours there is obtained an even solution, which by the addition of suitable preserving agents is exposed for 2 to 3 days to a temperature of 50° C., or until the solution has clarified. Then the clear part is separated from the undissolved part and the dry content is determined. If this latter amounts to 15%, then there is added to 10

kg. of the solution, 1.4 kg. of pure oleic acid and the mixture is evaporated as nearly as possible in a vacuum, until the gelatinous residue amounts to 4.5 or 3.75 kg. or even less. We then obtain a mixture containing 33 $\frac{1}{3}$ or 40% of albumose, which can be conveniently mixed with any soap by rolling or in any other way.

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

1. The improved process for the manufacture of albumose soap, which consists in treating an alkaline solution of albumose with fat acids substantially as described.

2. The improved process for the manufacture of albumose soap, which consists in treating an earthy alkaline solution of albumose with fat acids substantially as described.

3. The improved process for the manufacture of albumose soap, which consists in treating an alkali sulfid solution of albumose with fat acids substantially as described.

In testimony whereof I affix my signature.
PAUL RUNGE.

In the presence of—
ERNEST H. L. MUMMENHOFF,
IDA CHRIST. HAUFERMANN.