

UNITED STATES PATENT OFFICE.

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PROCESS OF PRODUCING GLUE OR GELATIN FREE FROM FAT.

SPECIFICATION forming part of Letters Patent No. 659,261, dated October 9, 1900.

Application filed December 21, 1897. Serial No. 662,922. (No specimens.)

To all whom it may concern:

Be it known that I, CARL THEODOR SETTERBERG, Dr. Ph., a subject of the King of Sweden and Norway, and a resident of Regeringsgatan 47, Stockholm, in the Kingdom of Sweden, have invented certain new and useful Improvements in Methods of Producing Glue or Gelatin Free from Fat, (for which I have obtained a patent in Sweden, No. 5,821, dated 10 August 4, 1894, and in Norway, No. 4,244, dated February 28, 1895,) of which the following is a specification.

This invention relates to a method of producing a glue or a gelatin which is of a light 15 color and free from fat. The glue or the gelatin is made of the material usually employed for the purpose—that is to say, animal skins soaked in lime or lye, so-called “spetches,” or limed cartilaginous materials.

20 The method has properly for its purpose a preparatory treatment of the spetches or the cartilaginous material in order to remove the caustic lime or alkali and to bind the fat. After the treatment of the glue material according to the method in question it is treated 25 in the usual manner for producing glue or gelatin.

Pieces of skin prepared in a lime-bath or in a lye, so-called “spetches,” or cartilaginous 30 materials treated in the same manner are first washed with a sufficient quantity of a solution of an acid or an acid salt—for instance, a bisulfate of potassium, sodium, or ammonium—to neutralize the greater portion 35 of the caustic lime or alkali in the glue-producing materials mentioned. The water used in washing will then react neutrally or slightly alkaline. The said glue-producing materials are subsequently washed with a solution or 40 solutions of aluminium salts in such quantity that the caustic alkali or lime remaining in the interior of the glue-producing materials will be neutralized as completely as possible, while a glue solution prepared from the glue 45 material will not show an acid reaction. Should too small a quantity of the aluminium salt have been added and a considerable amount of caustic lime or alkali consequently remain in the glue material and enter in the 50 glue solution in the course of the glue boiling, this caustic constituent should in boiling be neutralized by aluminium salt. The caustic

lime or alkali, which but slowly and with difficulty can be washed off with water, is readily and quickly removed by the use of water with 55 acids or acid salts; but a clear glue free from fatty matters cannot be obtained in this manner, since the slight excess of these strongly-acid materials required for neutralizing the caustic substances in the interior of the glue 60 material decomposes the lime or alkali soap always present in the glue material, and fatty matters subsequently are admitted into the glue in boiling. For this reason a far better plan is to neutralize the greater portion only 65 of the caustic materials by means of acids or acid salts, and subsequently as completely as possible neutralize the last remainder by means of aluminium salts, the latter not only serving to neutralize the caustic materials, 70 but also already in cold state forming compounds with the lime or alkali soap present in the glue-producing materials. This reaction, however, will be more complete during the glue-boiling, the basic aluminium salts, 75 which in the neutralizing process have become deposited on the surface of the glue material, then removing the fatty matter, probably in the shape of insoluble aluminium soap. If an excess of acid substances or 80 salts of aluminium has been added, so as to cause the glue solution to show an acid reaction, the fatty matters cannot be removed in this manner, probably on account of the free acid decomposing the aluminium soap. An 85 excess of acid matters therefore must be carefully avoided. Caustic lime or alkali is well known to spoil the glue in glue boiling, and therefore should be neutralized as completely as possible. To be sure this neutralization 90 might be effected by salts of aluminium alone; but long time and an excessive quantity of said salts would in this case be required, this method therefore being both expensive and impracticable. 95

The method mentioned above is carried out as follows: Three hundred pounds of spetches are washed in a suitable washing-machine with water and six to twelve pounds sulfuric acid of 50° Baumé or of a chemically-equiva- 100 lent quantity of another acid—for instance, hydrochloric acid, nitric acid, acetic acid, or of a salt containing free acid, as bisulfate of sodium, potassium, or ammonium. After the

greater part of the caustic lime or alkali has herewith been neutralized the washing fluid, then showing a neutral or a slightly-alkaline reaction, is absented and the glue material
 5 is washed with water containing 0.5 to five pounds of sulfate of aluminium or of a chemically-equivalent quantity of another aluminium salt—for instance, alum or chlorid or acetate of aluminium—and the washing is
 10 continued until the caustic lime or alkali that might rest in the material has been neutralized with the aluminium salt, after which the glue material is taken up and by boiling converted into glue or gelatin in the usual manner. If by the boiling some considerable quantity of caustic lime or alkali should rest in the glue material, it may be neutralized with
 15 two to ten ounces of an aluminium salt. If the glue solution obtained at the boiling shows
 20 an acid reaction, too great a quantity of the acid or of the aluminium salt has been added and a useless glue or gelatin is obtained.

It is evident that the quantities of the acid or the acid salt and the aluminium salt must
 25 be greater or less as the spetches or the cartilage contain a greater or less quantity of lime or alkali.

After the treatment of the glue material in the manner described the material is treated
 30 in any usual manner for the production of glue or gelatin, as mentioned above.

The invention does not embrace the treat-

ment of the glue material with an acid or an acid salt alone or with an aluminium salt alone, but first with a solution of an acid or
 35 an acid salt for removing the greater part of the caustic lime or alkali and then with a solution of an aluminium salt for neutralizing as completely as possible the caustic lime or alkali that might rest in the material. 40

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

The method of producing glue or gelatin of a light color and free from fat from spetches
 45 or cartilage, consisting in first neutralizing a part of the lime or alkali by washing the spetches or the cartilage with a solution of an acid or an acid salt and then permitting the glue material to come in contact with a
 50 solution of an aluminium salt, which may be added in so great a quantity, that a glue or gelatin solution prepared at the boiling, shows a neutral or alkaline reaction and finally
 55 manufacturing, in the usual manner, glue or gelatin from the material thus treated.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

CARL THEODOR SETTERBERG.

Witnesses:

CARL P. GERELL,
 LAURA HORMEL.