UNITED STATES PATENT OFFICE.

OTTO RÖHM, OF DARMSTADT, GERMANY.

PROCESS FOR MAKING GLUE AND THE LIKE FROM GLUE MATERIAL.

1,405,741. Specification of Letters Patent. Patented Feb. 7, 1922.

No Drawing. Application filed March 10, 1917. Serial No. 154,032.

(GRANTED UNDER THE PROVISIONS OF THE ACT OF MARCH 3, 1921, 41 STAT. L., 1313.)

To all whom it may concern:

Be it known that I, OTTO RÖHM, fabric owner, a subject of the King of Wurttemberg, residing at Nos. 4–6 Weiterstädterstrasse, in the city of Darmstadt, Grand Duchy of Hesse, German Empire, have invented an Improvement in Processes for Making Glue and the like from Glue Material, (for which I have filed applications in Germany September 28, 1915; Hungary March 7, 1916, and Austria March 3, 1916;) and I do hereby declare that the following is a full, clear, and exact description of the same.

Glue material is the name given to certain parts which are cut off animal hides after they have been depilated, because they cannot be used for making leather. According to the tanning process adopted this glue material is suitable for being reduced to gelatine for cooking purposes, or for making glue. In known processes where sulphides are used, the sulphides cannot be entirely removed, so that from such glue material gelatine cannot be produced.

This glue material, obtained in one way or the other, is reduced to glue or gelatine, according to the process now commonly employed, by allowing it to lie in lime for several weeks or even months. This glue material is then washed with water and hydrochloric acid and subjected to a tedious boiling process which requires great care.

A special drawback of this process consists in the fact that, in spite of the greatest care taken in carrying out the same, a considerable amount of albumen is disintegrated and therefore lost for the preparation of glue or gelatine.

It has now been found that this treatment with lime for several weeks and the washing with hydrochloric acid can be replaced by a treatment with the enzymes of the pancreas or with similar enzymes which have a disintegrating or digesting action on albumen, and this treatment needs only last for a few hours.

If necessary I add, in addition to the enzymes, acids, ammonia salts or other substances which neutralize lime or alkali, as well as amino acids or other derivates of albumen. In the case of a glue material which is only slowly attacked by the enzymes it is of advantage to previously soak the same for about a day in a 5 per cent solution of caustic soda.

By way of example I can carry out my process as follows:

I move the washed glue material in the so called washing machines for 4–6 hours in a solution of 1 kg. pancreas and 10 kg. sodium bicarbonate in 1 cbm. water. The previously swollen glue material gives off water and lime and beeomes soft. As soon as this has taken place the reaction is finished, and the material is washed with water and then boiled to form glue.

The enzymes decoction need not be thrown away after use, but it can be repeatedly employed, pancreas juice and sodium bicarbonate can be added for further quantities of glue material, a smaller amount being required than when first beginning.

Older processes of mine have been made known in which skins and hides are treated with solutions containing enzymes and additional substances. This known treatment however serves quite another purpose, that is, to bate the hides in making leather and indeed as a substitute for dung bate.

My present invention, however, relates to a process for obtaining a nearly exhaustive yield of albumen substances which can be employed as glue, or the like, or as a nutritive.

The progress obtained by my new process, apart from the economy of time and space, consists in obtaining a higher yield and better qualities of glue, owing to the usual treatment with lime and hydro-chloric acid being avoided. Of no lesser importance is the advantage obtained by avoiding the unpleasant smell which prevails in glue factories.

What I claim and desire to secure by Letters Patent of the United States is:—

1. The process for making glue or the like from glue material which consists in bringing animal waste into a solution which contains enzymes of the pancreas, or similar enzymes which disintegrate albumen, before boiling same, substantially as set forth.

2. The process for making glue or the like from glue material which consists in bringing animal waste into a solution which contains enzymes which disintegrate albu-

men and a substance which neutralizes lime or alkali, and in boiling said glue material when it is soft, substantially as set forth.

3. The process for making glue or the like from glue material which consists in treating animal waste in a dilute solution of caustic soda, and in putting the material so treated into a solution containing enzymes which disintegrate albumen and a substance which blunts the action of lime or alkali, whereupon the glue material, when soft, is boiled, substantially as set forth.

4. The process for making glue from glue material which consists in treating animal waste in a 5 per cent solution of caustic soda, placing the material thus treated in a solution containing enzymes which disintegrate albumen and sodium bicarbonate, and in boiling the material when soft, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

OTTO RÖHM.

HUGO T. ALEVY,
HEINRICH JOST.