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PROCESS OF OBTAINING GLUE AND GELATIN.

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The present invention relates to a process for extracting glue and gelatin from chrome tanned leather.

The difficulty of obtaining glue and gelatin from chrome tanned leather is well known. Various processes have been attempted for such extraction with more or less unsatisfactory results. The problem is to so treat the stock that it will free the glue and gelatin and prevent such dissolution of the chromium as will permit its entering into solution with the glue as it is given up, discoloring it and affecting its quality. Ordinary methods of extracting glue cannot be employed inasmuch as they result in a dissolution of the chromium. When the process is so changed as to prevent the dissolution of the chromium then the processes hitherto employed have resulted in an undesirable disintegration of the stock on cooking giving a very impure glue or necessitating the cooking being carried on at such high temperatures as would give glue and gelatin having but little jelly strength and a low viscosity.

The object of the invention is to obtain from chrome tanned leather glue and gelatin of superior quality, possessing high jelly strength and high viscosity.

The process is as follows: The stock is subjected to an alkaline treatment for so changing the condition of the collagen that it will yield its glue and gelatin when cooked. For this purpose the stock is limed in the same manner as ordinarily employed in the liming of hides for obtaining glue for glue stock, milk of lime being used and the liming carried on at ordinary temperatures and for such time as hide pieces or trimmings are commonly limed or even longer, for I find the chrome tanned leather may be limed for a much longer time than new hide stock without danger of becoming so soft that it will waste when washed.

After liming the stock is washed in cold water to remove loose and excess lime not gone into combination with the collagen. The washing is preferably accomplished in some form of a washing mill in the usual manner and as thoroughly as practicable. Twenty-four hours washing will usually be sufficient at this point.

The stock and alkaline solution initially employed remaining therein is then subjected to the action of such salt solution, and preferably a normal salt solution, as will combine with the alkali initially employed remaining in the mass and thereupon reduce the general alkalinity of the mass and give it just such alkalinity that when the stock is cooked the glue and gelatin will be set free without objectionable disintegration of the mass rendering the glue and gelatin impure, and without dissolving the chromium.

The reduction in the general alkalinity of the mass is preferably carried on to a point approaching the neutral point but in any event not beyond a point where there is danger of obtaining an acid reaction. Magnesium sulphate may be used in this connection for reducing the general alkalinity of the mass. To this end the stock while still in the washing mill is given a bath made by dissolving for every 100 pounds of stock about one pound of magnesium sulphate in sufficient water to cover the stock and enable it to be thoroughly stirred by running the mill. The stock is left in this bath preferably about twenty-four hours, the mill being run for a few minutes at intervals for keeping the contents stirred.

The magnesium sulphate reacts with the calcium hydroxide in the stock to form calcium sulphate and magnesium hydroxide. After sufficient time has been given for this reaction to take place the stock is again washed with cold water to remove the excess of magnesium sulphate so as to leave as little of the water soluble salts in the glue as possible as these on drying will crystallize and give the glue a somewhat mottled appearance. The calcium sulphate being slightly soluble in cold water will be partly removed by this washing and the amount of calcium sulphate left in the stock will not be detrimental to the quality of the gelatin and glue.

The magnesium hydroxide formed remains in the stock and gives the necessary alkalinity when the stock is cooked to set free the gelatin and glue from the chromium and prevent the solution of the latter with the glue.

After the above treatment the stock is put in kettles and cooked in the usual manner but at a lower temperature than is usually employed in the cooking of chrome tanned leathers; for example, at a temperature of 160 degrees F. or even at a lower temperature. The temperature for cooking will

depend somewhat upon the time the stock is limed. The longer the stock is limed, the lower the temperature that can be employed for extracting the glue and gelatin. After the cooking the glue liquor is drawn from the kettles in the usual manner.

As a preliminary to the above process it may be desirable to wash the stock to remove soluble salts and dirt. Hot water at a temperature even near the boiling point may then be used without danger and with considerable advantage as it hastens the removal of the soluble salts. It would not be objectionable also, as far as the yield and quality of the glue and gelatin are concerned, to give the stock a treatment with a bath of cold dilute acid to partially detan it at this time, but such is not necessary. If acid is used it should be thoroughly washed out and the washing should be done with cold water. These preliminary steps form no part of the process and may be employed if desired.

After the extraction of the glue and gelatin, if an acid glue is desired, the glue liquor after being drawn from the kettles and strained or filtered so that it will be free from all undissolved stock, may be acidified without marked effect upon its quality.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States:—

The process of extracting glue and gelatin from chrome tanned leather without disintegrating the leather or removing the chromium therefrom, which consists in the steps of liming the leather as ordinary glue stock is limed for such protracted period of time at atmospheric temperatures as will so change the condition of the collagen therein that it will give up its glue and gelatin on cooking, washing the limed leather with water to remove the major portion of the excess lime not having combined with the collagen, then reducing the residual alkalinity of the washed mass, by adding thereto a solution of a salt capable of reacting chemically with the excess lime to reduce the alkalinity thereof, the salt being used in quantities insufficient to completely neutralize the residual alkalinity of the mass, washing the so treated leather in water to remove therefrom excess soluble salts, then cooking the leather, for extracting the glue and gelatin therefrom, and afterwards separating the glue and gelatin from the exhausted leather stock in the known manner.

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