UNITED STATES PATENT OFFICE.

OTTO RÖHM, OF STUTTGART, GERMANY.

PROCESS OF BATING HIDES AND SKINS.

No. 875,382. Specification of Letters Patent. Patented Dec. 31, 1907.

Application filed August 18, 1906. Serial No. 331,215.

To all whom it may concern:

Be it known that I, OTTO RÖHM, Ph. D., a citizen of the Empire of Germany, residing in Stuttgart, in the Kingdom of Würtemberg, in said Empire, have invented certain new and useful Improvements in Process of Bating Hides and Skins, of which the following is a specification.

This invention relates to an improved process of bating hides and skins.

The well known liming processes to which the hides and skins were heretofore subjected for loosening the hair and the epidermis, leave in the hides and skins an undesirable proportion of lime so that they assume a swelled, "plumped" condition.

It is the object of my improved bating process to remove these undesirable properties and to facilitate the removal of the ground-hair and the so-called dirt, viz., the remainder of the epidermis, the dissolved hair-bulbs, the fatty matters which had been saponified by the lime, and the coriin, the liquid part of the hide substance which, during the liming process, has combined with the lime.

By my present invention the effect, heretofore obtained by the animal dung bate, is obtained in a very effective manner by chemical means in the following manner: After the well known unhairing or depilation process, the hides and skins are subjected to the action of an aqueous bath at about 85° F., containing sulfureted hydrogen, carbonic acid and ammonia in the following proportions: To 100 parts or weight-units of water are added 1/10 part of sulfureted hydrogen (H_2S), one part of carbonic acid (H_2CO_3) and 7/10 parts of ammonia (NH_3). The volume of the solution is approximately in the proportion of 30 gallons of the solution to 100 lbs. of moist hides or skins. These proportions and the temperature may, however, be varied somewhat according to the season, the condition of the water and according to the special requirements of the various kinds of hides and skins.

A simple way of preparing the solution is the following: According to the above given proportions, 100 gallons of water require 13.35 oz. of sulfureted hydrogen, 133 1/2 oz. of carbonic acid, and 93 1/2 oz. of ammonia, which are obtained by adding to the water 133½ oz. of a solution of ammonium sulfid containing 10% H_2S and 10% NH_3, yielding 13.35 oz. H_2S and 13.35 oz. NH_3, 203 1/2 oz. of ammonium carbonate of commerce, containing 46.6% CO_2 = 65.6% H_2CO_3 and 26% NH_3, yielding 133 1/2 oz. H_2CO_3 and 52.9 oz. NH_3, and 136 1/4 oz. of aqua ammonia of 20% strength. The quantity of NH_3 needed is 93 1/2 oz.

The solution of ammonium sulfid contains	13.35 oz.
The solution of ammonium carbonate contains	52..9 oz.
	66.1/4 oz.

which leaves to be added

27 1/4 oz. NH_3 = 136 1/4 oz. of 20% NH_3.

The aqueous solution thus prepared contains ammonium sulfid = $(NH_4)_2S$, ammonium carbonate = $(NH_4)2CO_3$ and a small percentage of ammonia = NH_3 according to the above given figures. The hides and skins transferred into this liquor are stirred for about 20 to 30 minutes and are then to remain therein for about 4 to 8 hours under occasional stirring, after which they are ready for further treatment. By subjecting the hides and skins to this solution, the lime is transformed into insoluble calcium carbonate which is indicated, shortly after the reaction, by the milky turbidity of the bating liquor, and the hides and skins are caused to fall from their swelled, plumped condition. The pores are gradually opened so that the dirt and the ground-hair can be readily removed in the usual manner. The hides and skins become soft and pliable and show a low, smooth and brilliant grain. The final leather produced shows, when dyed, a uniform and brilliant color.

To the water into which the hides and skins are to be transferred after the bating, are added about 3% of the used bating liquor in order to precipitate the lime ordinarily contained in the water, as otherwise the ammonia and ammonium carbonate still contained in the hides and skins would cause the formation of insoluble calcium carbonate which *in statu nascendi* would settle on their surface, making the grain rough.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent:

The process herein described of bating hides and skins which consists in subjecting the same to the action of an aqueous solution of sulfureted hydrogen, carbonic acid and ammonia.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

OTTO RÖHM.

Witnesses:

EMIL SEIPPEL,

ALFRED LÖRCHER.