

UNITED STATES PATENT OFFICE.

OTTO RÖHM, OF DARMSTADT, GERMANY.

PROCESS OF BATING HIDES.

1,003,124.

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, OTTO RÖHM, a subject of the Emperor of Germany, residing in Darmstadt, Germany, have invented certain new and useful Improvements in the Process of Bating Hides, of which the following is a specification.

My invention relates to improvements in the process or method of bating hides or skins, and it has particular relation and reference to the process which is described and claimed in Letters Patent of the United States No. 886,411, granted to me the 5th day of May, 1908, and to which Letters Patent reference may be had for supplemental information to enable a more complete and comprehensive understanding of my present invention. The invention described in the said patent consists in the process or method of treating hides or skins after the liming process (for the purpose of preparing them for the tanning process) either with an aqueous extract of the pancreas alone or with such extract containing an ammonia-salt or an alkali-salt or a mixture of salts of ammonia and alkali. Such patented process, while being very efficient and desirable as compared with other processes known in the art prior to the said patent, has been found to be capable of improvement for the reason that after treatment of the hides or skins in accordance therewith they have been found to have an alkaline reaction. As a result it has been necessary to subject the hides or skins to further treatment to make them neutral or only very slightly acid before they are ready to be placed in the tanning material for the purpose of carrying out the tanning process. The neutralization or the rendering of the hides or skins only very slightly acid may be accomplished by washing them in water or by drenching them with bran or weak solutions of acid.

One of the objects of my present invention is to provide a process by the employment of which the hides or skins after having been bated need not be subjected to further treatment in order to neutralize or render the same only slightly acid. I have found by careful experiments that it is possible to accomplish this object or purpose by subjecting the hides or skins to the action of the enzymes of the pancreas in a fermenting or putrefying liquor either with or with-

out salts, such as alkali or ammonia salts. The acids created in such a liquor have a neutralizing effect and after the hides or skins have been bated in such a liquor they require only a very short washing in water in order to have them ready for the tanning process.

One advantage of the present process is that it enables a saving of both labor and material. Labor is saved by reason of the fact that it is unnecessary to subject the hides to a further treatment for the purpose of neutralizing or rendering them only slightly acid after they have been bated. The omission of such subsequent treatment obviously enables a saving of material.

A further and additional advantage in bating the hides or skins according to my present process resides in the fact that the hides and skins thus bated show a lower and finer grain than is usual. This action is in many cases important and desirable and is probably caused by trypsin of the bacteria formed in the fermentation to which reference has been previously made.

In the carrying out of my invention as thus far suggested and described, I take the usual bating liquor containing the enzymes of the pancreas and allow it to ferment. Such fermentation will take place if the bating liquor is allowed to stand for a length of time before its use or if it is desired to cause the liquor to ferment more quickly such fermentation can be accelerated by any one of the known methods, as, for instance, by the addition to the liquor of a certain amount of old bating liquor in a state of fermentation or by the use of fermenting bran, or by adding the bating material prepared from the pancreas to the old used bating liquor or to fermenting bran. Preferably the fermented liquor should contain salts, as already suggested. I have further found that the trypsin of vegetable origin, for instance, the papain, the trypsin of the yeast and other trypsin of vegetable origin have an action on the grain of the hides or skins similar to the action of the fermenting liquor containing the enzymes of the pancreas as above described; that is to say, by the treatment of hides and skins in a liquor containing trypsin of vegetable origin they are left with a low fine grain. A bating liquor containing trypsin of vegetable origin does not, however, have the ability

of dissolving the so-called scud of the skin. The ability to dissolve such so-called scud is peculiar to the enzymes of the pancreas.

By combining the different kinds of enzymes (that is the enzymes of the pancreas and the trypsin of vegetable origin), it is possible to obtain results which cannot be obtained by the employment of either the one or the other of the said enzymes or trypsin alone.

From the foregoing it will be seen that my process of bating hides or skins may be practiced by the treatment of the same with a fermenting or putrefying liquor containing the enzymes of the pancreas, which liquor should preferably contain salts either of ammonia or alkali or both, though effective results may be obtained when such salts are omitted. It will also be seen that I propose to combine the different kinds of enzymes (that is the enzymes of the pancreas and trypsin of vegetable origin) for the purpose of producing a bating liquor which may be employed for the bating of hides and skins. As an example I may state that an effective bating liquor may be prepared by the employment of the following named ingredients in the proportions stated:—One liter of water to which add $\frac{1}{2}$ gram of pancreas, $\frac{1}{4}$ gram of papain and $\frac{1}{2}$ gram of ammonium chlorid. The amounts of these ingredients may be increased or diminished as desired but if the proportions remain the same an efficient bating liquor is produced. It should, however, be understood that my invention is not limited to the proportions suggested, because good results may be secured when these proportions differ substantially from those stated.

Having thus described my invention, I claim:—

1. The process of bating hides and skins which consists in subjecting them to the action of the enzymes of the pancreas in a fermenting or putrefying liquor.

2. The process of bating hides and skins which consists in subjecting them to the action of the enzymes of the pancreas in a fermenting or putrefying liquor containing a salt.

3. The process of bating hides and skins which consists in subjecting them to the action of the enzymes of the pancreas in a fermenting or putrefying liquor containing salts of ammonia or alkali or both.

4. The process of bating hides and skins which consists in subjecting them to the action of the enzymes of the pancreas and of trypsin of vegetable origin in a fermenting or putrefying liquor.

5. The process of bating hides and skins which consists in subjecting them to the action of the enzymes of the pancreas and of trypsin of vegetable origin in a fermenting or putrefying liquor containing a salt.

6. The process of bating hides and skins by subjecting them to the action of an aqueous solution of the enzymes of the pancreas and of trypsin of vegetable origin.

In testimony that I claim the foregoing as my invention, I have hereunto signed my name this 21 day of June, A. D. 1911, at Darmstadt, Germany.

OTTO RÖHM.

In the presence of—
JEAN GRUND,
CARL GRUND.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."