

UNITED STATES PATENT OFFICE.

GEORGE W. CHILDS, OF NEW YORK, N. Y.

PROCESS FOR UTILIZING SAPPED TANNING LIQUORS.

No. 899,006.

Specification of Letters Patent.

Patented Sept. 15, 1908.

Original application filed May 16, 1906, Serial No. 317,141. Divided and this application filed January 20, 1908.
Serial No. 411,720.

To all whom it may concern:

Be it known that I, GEORGE W. CHILDS, of New York city, in the county and State of New York, have invented a certain new and useful Improvement in Processes for Utilizing Sapped Tanning Liquors, whereof the following is a specification.

This application is a division of my application Serial #317,141, filed May 16, 1906, which is limited to a process for utilizing sapped tanning liquors containing mineral acid impurities. The process herein claimed is applicable to waste tanning liquors containing alkaline impurities, as lime or lime compounds, to produce therefrom a leather dressing of the character described and claimed in Letters Patent of the United States #875,653, granted to me December 31, 1907.

It is the object of my invention to produce a liquid dressing particularly applicable to the manufacture of leather, such as sole leather, which it is desired shall have the greatest degree of solidity possible with the necessary degree of flexibility. All processes for making such leather have heretofore involved two stages;—First, the hides are subjected to the action of a liquor comprising active tannic material until combined with all of the tannin with which they are capable of combining, and second, the leather thus tanned is then subjected to a loading process, which usually consists in impregnating the leather with concentrated bark extract.

My improved process, is advantageous in that sapped or exhausted organic tanning liquors which are usually wasted, are thereby utilized to form an inert leather dressing which is an efficient substitute for the more costly active tannic material heretofore employed for loading purposes. In order to make such leather dressing it is necessary to eliminate such impurities as have accrued in said liquors, from the addition of chemicals thereto or the formation of chemical compounds therein. For instance, if the waste liquor is from an acid tanning yard and contains sulfuric or other non-volatile mineral acid, it may be neutralized by the addition of alkali, or the acids may be precipitated as salts by the addition of suitable reagents, as described in my application Serial #317,141. On the other hand, if the waste liquor is from a non-acid yard and contains lime or lime compounds, in accordance with the process

herein claimed, such impurities may be precipitated by the addition of chemicals forming insoluble compounds with lime. For instance, ammonium oxalate, sodium phosphate, sodium fluorid or carbon dioxid gas may be employed to effect such precipitation. Said spent liquor may then be heated until the volatile impurities, for instance, acetic, propionic or butyric acids are eliminated, and the resultant liquid is concentrated conveniently by continued heating *in vacuo*, until it attains a specific gravity of from 1.05 to 1.3, and becomes a leather dressing adapted for the purposes specified.

The otherwise waste liquors thus purified and concentrated may be utilized as a dressing to increase the solidity of leather, as follows:—Hides which have been subjected to the action of a tanning solution until they have combined with approximately all the tannin with which they will combine, are then impregnated with said leather dressing in any convenient manner for instance, such leather may be placed in a rotary drum and said concentrate, preferably heated, introduced to said drum, conveniently through a hollow axle or trunnion thereof, and the revolution of said drum continued until said concentrate is absorbed by the leather and fills the pores of the latter so that, when dried, the residue of the dressing in the leather not only renders the latter more solid than if it had not been impregnated with said dressing, but also adds materially to its final weight. It may be observed that if said dressing were of less specific gravity, there would not be sufficient solid residue thereof when the leather is dried to effect the result desired. Moreover, if said dressing were of a greater specific gravity, it would not be absorbed by the leather.

I do not desire to limit myself to all the details of procedure above enumerated, as various modifications may be made therein without departing from the essential features of my invention, as defined in the appended claims.

I claim:—

1. The process of treating sapped or exhausted organic tan liquors containing alkaline mineral impurities and adapting them for impregnating leather, which consists in precipitating said impurities by the addition of a chemical capable of forming an insoluble compound therewith; separating the pre-

5 cipitate; then heating the supernatant liquor *in vacuo* until the volatile impurities are eliminated and the resultant liquid is concentrated to a specific gravity of from 1.05 to 1.3.

10 2. The process of treating sapped or exhausted organic tan liquors containing alkaline mineral impurities and adapting them for impregnating leather, which consists in precipitating said impurities by the addition of a chemical capable of forming an insoluble compound therewith; separating the precipitate and concentrating the resultant liquid to a specific gravity of from 1.05 to 1.3.

15 3. The process of treating sapped or exhausted organic tan liquors and adapting

them for impregnating leather, which consists in precipitating lime compounds therein, by adding a chemical capable of forming an insoluble compound with lime; separating 20 the precipitate and concentrating the resultant liquid to a specific gravity of from 1.05 to 1.3.

In testimony whereof, I have hereunto signed my name at New York City, in the 25 county and State of New York, this seventeenth day of January 1908.

GEORGE W. CHILDS.

Witnesses:

JNO. P. ANDERSON,
W. G. HORTON.