

UNITED STATES PATENT OFFICE.

ALBERT THOMPSON, OF PARIS, AND EMILE BLIN, OF NANTES, FRANCE.

PROCESS OF PURIFYING TANNING LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 671,570, dated April 9, 1901.

Application filed February 19, 1900. Serial No. 5,834. (No specimens.)

To all whom it may concern:

Be it known that we, ALBERT THOMPSON, residing at Paris, and EMILE BLIN, residing at Nantes, France, citizens of France, have
5 invented certain new and useful Improvements in Processes of Clarifying Tanning Liquids; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled
10 in the art to which it appertains to make and use the same.

Our invention relates to a process of clarifying tanning liquids employed in the tanning of skins for the preparation of leather.
15 The mineral acids (take, for instance, sulfuric acid) precipitate salts of lime and destroy certain organic properties contained in the tanning liquor and bring about their discoloration; but these acids have a disastrous effect upon the tanning, because they favor oxidation, (especially under heat,) and it must not be forgotten that the products of oxidation of physiological tanning precipitate
20 neither gelatin nor albumin. They are therefore useless; but, on the other hand, they give a black coloring with the salts of copper and iron and are consequently prejudicial. Heretofore the tanning liquid, generally obtained by a diffusion in boiling water of certain
25 woods rich in tanning properties, was poured out of the diffusing-tub upon attaining 3° or 4° Baumé. The liquid is then clarified, among the substances used being sulfuric or other acid, with the object of precipitating or destroying the salts and colored organic matters contained. The clarifying performed, the liquid is filtered to deprive it of deposits arising from the clarifying operation and is then concentrated in an evaporating apparatus up
30 to a density of 20°, 25°, and 30° Baumé, or even more. The tanning liquids thus treated by acids are impoverished to a great extent in their useful qualities. Further, the oleaginous products employed generally in
35 the acid processes to counteract the destructive effect of these acids and give to the tanning liquid the softness which said acids take from it present many disadvantages, notably that of forming stains or spots and to spoil
40 the density of the tanning liquid proper. In accordance with our invention the tanning liquids, always obtained by diffusion, are

clarified without employing either acids or oleaginous matters and contain proportionately more useful properties than the tanning
55 liquors treated by the acid process. They contain no acids nor other matters likely to alter their actual density. A series of methodical experiments has led us to employ vegetable alkaloids, and we give the preference to the vegetable basis naturally contained in the sulfates of "quinquina" "quinin," "quinidine," "cinchonine," "cinchonidine," and their derivatives. We may use one of these alkaloidal salts separately or a
60 mixture of any two or more of them and prefer them to the pure salts, as they are cheaper, more readily obtainable, and possess greater solubility. The pure alkaloids are susceptible of use with some difficulty on account of
65 their slight solubility. All the alkaloidal salts are readily susceptible of use.

We manufacture the tanning liquor in the following manner: The liquid leaving the diffusing-tub possesses a density varying
70 from 3° to 4° Baumé, (the degree being obtained at will.) It is left to cool to the surrounding temperature. The cooling effected, we pour in a solution of salts of the alkaloids of quinquina (weakened by water or pure, to
75 suit requirements) and then agitate strongly for about five minutes. The alkaloid salts are in proportions of one, two, or three kilograms to the thousand kilograms of tanning acid brought to 20° Baumé, according to the
80 discoloration required; but the proportions may be varied according to requirements. Under the action of these alkaloids the colored or foreign organic matters, as well as a certain quantity of the tanning, are precipitated
85 at the same time as the alkaloids, and this while leaving to the liquor the gloss or glaze so generally appreciated. We should state that the operations may be carried on at any temperature; but we prefer the cold treatment
90 to the hot, as the performance is much quicker. The deposit of clarification in which is found the major part of the vegetable alkaloids is drained and is treated at a warm temperature with water acidulated with .005 of hydrochloric acid. The liquid is filtered and
95 treated with a solution of ten grams of quicklime to a liter of hydrochloric acid. The alkaloids are precipitated with the excess of
100

lime. The deposit is collected and washed in cold water and then treated by a slight excess of water acidulated by sulfuric acid. The liquid acid containing the alkaloids is
5 filtered, discolored while warm by animal black, again filtered, and neutralized by the quinin or one of the other alkaloids precipitated by carbonate of soda in a part of the liquid.

10 Other processes of extraction may be employed; but we mention the above to demonstrate the economy of our invention from an industrial point of view.

Having thus described the invention, what
15 is claimed, and desired to be secured by Letters Patent, is—

1. That step in the art or process of treating tanning liquids for the purpose set forth, which consists in adding thereto an alkaloid
20 of cinchona, substantially as set forth

2. That step in the art or process of treating tanning liquids for the purpose set forth, which consists in adding thereto an alkaloidal salt of cinchona, substantially as set forth.

25 3. That step in the art or process of treating tanning liquids, which consists in adding thereto the sulfate of an alkaloid of cinchona, substantially as set forth.

30 4. The herein-described process of clarifying tanning liquids, which consists in adding to the liquid an aqueous solution of a salt of an alkaloid of cinchona, substantially as set forth.

35 5. The herein-described process of clarifying tanning liquids, which consists in precipitating the foreign matter by the action of

an alkaloid of cinchona, and then subjecting the deposit of clarification to the action of a substance capable of precipitating said alkaloid, substantially as set forth. 40

6. The herein-described process of clarifying tanning liquids, consisting in adding to the liquid an alkaloid of cinchona to precipitate the foreign matter, removing the deposits of clarification, subjecting the same to the
45 action of acidulated water, precipitating the clarifying agent by the action of a lime-milk, and then neutralizing the said clarifying agent, substantially as set forth.

7. That step in the art or process of treating the residue of clarified tanning liquids which consists in collecting the deposits of clarification, subjecting the same to the action of water acidulated by the addition of
50 .005 per cent. of hydrochloric acid thereto, 55 precipitating the clarifying agent by the action of a lime-milk in proportion of ten grams of quick-lime to a liter of the hydrochloric acid employed in the preceding step, and then neutralizing the said clarifying agent, 60 substantially as described.

In testimony whereof we have hereunto set our hands in presence of subscribing witnesses.

ALBERT THOMPSON.
EMILE BLIN.

Witnesses as to Albert Thompson:

EDWARD P. MACLEAN,
ANTOINE ANGIER.

Witnesses as to Emile Blin:

EDMOND THADDORE,
GIRET HENRI.