

UNITED STATES PATENT OFFICE.

WILHELM HEINRICH PHILIPPI, OF BÜRGEL-OFFENBACH, GERMANY.

PROCESS OF TANNING.

SPECIFICATION forming part of Letters Patent No. 708,396, dated September 2, 1902.

Application filed November 4, 1901. Serial No. 81,119. (Specimens.)

To all whom it may concern:

Be it known that I, WILHELM HEINRICH PHILIPPI, manufacturer, a subject of the King of Prussia, German Emperor, and a resident of Bürgel-Offenbach-on-the-Main, Germany, have invented certain new and useful Improvements in Processes of Tanning; and I do hereby declare the following to be a full, clear, and exact description of the invention.

My invention relates to the production of leather of all kinds, which in its properties is similar to leather prepared with tanbark.

My invention relates especially to the treatment of skins or hides (previously prepared in the usual manner) with any tar as tanning material dissolved in suitable solvents, as turpentine-oil, pine-oil, or phenols in suitable proportions.

In carrying out my invention I can employ wood-tar or brown-coal tar or pit-coal tar or mixtures of these tars, which I dissolve in suitable solvents, such as turpentine-oil or pine-oil or phenol or its homologues or mixtures of these solvents, according to the definite properties to be given to the leather. If, for example, usual wood-tar from pine-wood, birch-wood, &c., is diluted with turpentine-oil or pine-oil and previously-prepared skins or hides are treated with such solutions in the usual manner I obtain a light-brown sufficiently-tanned leather showing a brown color when cut, the appearance being similar to the cut of leather prepared with tanbark. The leather thus produced can be worked like leather prepared with tanbark. If wood-tar diluted with phenol is employed, a fully-tanned leather showing a light-brown cut is obtained and possessing an increased density in its structure, so that it is consequently very suitable for strap-leather, for example. In employing tar of brown coal or pit-coal the tar can be mixed with benzol in order to dissolve the solid constituents, as pitch and naphthalene. Then to the solution thus obtained a suitable quantity of turpentine-oil is added. With this mixture the hides or the like to be tanned are treated. The leather thus obtained shows a cut of light-brown color and is in its properties quite similar to leather tanned with inorganic tanning agents. Such leather can therefore be dressed similarly to leather tanned with in-

organic tanning agents. Also the light and heavy oils of the brown-coal tar or pit-coal tar, which are free from naphthalene and pitch, can be employed with an addition of a suitable quantity of turpentine-oil. In this case the leather receives a lighter color, but possesses a less specific gravity and an appearance of a less thorough tanning.

As already stated, the preliminary treatment of the skins and hides before the proper tanning is effected takes place in the same way as in the usual process of tanning. The hides must be freed from the lime which is generally used to unhair them in the preparatory treatment in order to make the hides suitable for tanning, for the lime which has penetrated into the skin would be injurious to the tanned leather.

The mixtures to be used in carrying out the process may be produced, preferably, in the following proportions by way of example: First, one hundred kilos of wood-tar are mixed with seventy-two kilos of turpentine-oil or thirty kilos of carbolic acid; second, one hundred kilos of pit-coal tar or brown-coal tar are mixed with twenty-four kilos of benzol and then with seventy-two kilos of turpentine-oil. The benzol may be omitted. The tanning liquor thus prepared is placed in a suitable vat or tank, which is preferably closed and entirely of iron to avoid the danger of fire, as the solvents employed are very inflammable. The process may, however, be carried out in pits or tumbler-drums. In the latter the tanning is effected more rapidly. The hide previously prepared in the usual manner is placed in the liquor and allowed to remain therein until the liquor has sufficiently penetrated the hide and the latter is thereby tanned sufficiently. The hide thus tanned is then withdrawn from the bath and is treated with an alkaline lubricant, such as soap, in order to remove the adhering tar, and the hide is then washed with warm water. The hide thus tanned and cleansed is finished in the usual manner.

The leathers produced according to the present process are distinguished by great toughness and are very waterproof, whereby they are especially suitable and useful for upper-leather, fabric-leather, and strap-leather.

In view of the known employment of tar, carbolic acid, or turpentine in tanning processes it may be stated that in my process the carbolic acid and the turpentine-oil are used
5 merely as tar solvents, so that only the tar or its constituents dissolved in these solvents will act as the tanning agent.

The length of time usually required for tanning skins—such, for example, as dyed chev-
10 reau, (dead goat-skin,) grained sheep, grained he-sheep, sheep-chevreau-like, and sheep-glazed (sheepkid) leather in a tumbler-drum or hide-mill—is forty-eight hours. Heifer-grained for shaft-leather and heifer boot-
15 grain leather is produced in a vessel within four weeks. The completion of the process is indicated by the appearance of the surface and a cut of the skin and by holding the skin against the light. If the skin seems to be
20 opaque, the tanning is finished.

I claim as my invention—

1. The process of tanning skins or hides, consisting in subjecting the skins or hides to the usual preparatory treatment before the
25 tanning process, and then immersing them in a solution of tar in a suitable solvent until the tanning is accomplished, substantially as set forth.

2. The process of tanning skins or hides,
30 consisting in subjecting the skins or hides to the usual preparatory treatment before the

tanning process, and then immersing them in a solution of tar in turpentine-oil, substantially as set forth.

3. The process of tanning skins or hides, 35 consisting in subjecting the skins or hides to the usual preparatory treatment before the tanning process, then immersing them in a solution of tar in turpentine and then treating them with carbolic acid, substantially as 40 described.

4. The process of tanning skins or hides, consisting in subjecting the skins or hides to the usual preparatory treatment before the
45 tanning process, then immersing them in a solution of tar in a solvent and then treating them with carbolic acid, substantially as described.

5. The process of tanning skins or hides, consisting in subjecting the skins or hides to 50 the usual preparatory treatment before the tanning process and then immersing them in a solution of tar in turpentine and carbolic acid, substantially as set forth.

In testimony whereof I have signed my 55 name to this specification in the presence of two subscribing witnesses.

WILHELM HEINRICH PHILIPPI.

Witnesses:

WILHELM KUHLMANN,
JOHANN FLECKENSTEIN.