UNITED STATES PATENT OFFICE.

PIERRE CASTIAN, OF RENAIX, BELGIUM.

TANNING PROCESS FOR THE PREPARATION OF SOLE-LEATHER.

1,067,796. Specification of Letters Patent. Patented July 22, 1913.

No Drawing. Application filed August 5, 1912. Serial No. 713,380.

To all whom it may concern:

Be it known that I, PIERRE CASTIAN, subject of the King of the Belgians, residing at Renaix, Belgium, have invented certain new and useful Improvements in Tanning Processes for the Preparation of Sole-Leather, of which the following is a specification.

This invention relates to the tanning of chrome leather and has for its object a process for the manufacture of chrome sole leather.

Chrome leather as tanned by previous processes has the drawback of becoming slippery on contact with damp soil which renders such leather unsuitable for the soles of footwear. The improved process according to the present invention yields chrome tanned leather free from this defect but possessing all the advantages peculiar to this kind of leather.

The invention consists substantially in an improved process for the tanning of chrome leather, in which the chrome leather is treated in a bath of vegetable tanning agents, washed to remove such of these as have not become fixed in the fibers, and lastly immersed in a mixture of paraffin and resin or other substances or mixtures adapted to occupy in the interstices between the fibers the place left free by the vegetable tanning agents removed in the washing operation.

Processes are known in which after the chrome tanning the leather is immersed in extracts of vegetable tanning matters. This second tanning is carried on as far as possible and at the same time that the tannin is fixed in the fibers it is tried to make it fill the interstices between the fibers to as great an extent as possible. The leather thus obtained has the same properties as leather tanned with vegetable tanning matters. Processes are also known in which the chrome tanned leather is immersed in a mixture of paraffin and resin. These processes yield a stiff and strong leather, but which has the defect of swelling in contact with water owing to capillary attraction, which renders it very slippery.

The present invention provides a leather possessing the advantages both of chrome leather treated with tannin, and chrome leather treated in the paraffin bath.

The improved process is carried out in the following stages: (1) The hides previously chrome tanned by any known process, are immersed in a neutralizing bath. (2) They are steeped in weak extracts of vegetable tanning matters, from which they are withdrawn after thorough impregnation. (3) By successive washing in tepid water containing preferably a little borax or other similarly acting material, all the tannin not fixed in the fibers is removed. This operation is continued until the washing water is no longer appreciably colored. (4) The leather is then dried and polished in the usual manner, and the hair side given a good coating of oil. (5) When the drying is thoroughly completed, the leather is immersed in a mixture of paraffin and resin heated to between 80 and 100° C., and taken out when air bubbles cease to rise. (6) The leather is then allowed to drip and to completely cool.

The process according to this invention thus amounts to a combination of the known processes herein before referred to, with the essential difference that in the present process the object desired and the result obtained by the treatment of the hides with vegetable tannin are completely different. In the known processes of retanning chrome leather, the tannin has the same function as in leather tanned with vegetable agents; at the same time that it becomes fixed in the fibers it serves as filling agent between them. In the improved process on the other hand the tannin is used for the sole purpose of agglomerating and rendering impermeable the filaments composing the fibers of the hide and which it is well known are refractory to the waterproofing action of paraffin. In fact the subsequent washing removes all the tannin which is not fixed in the fibers, which is quite the reverse of what occurs in the previous processes, in which it is attempted to introduce the largest possible amount of tannin into the leather.

The leather after washing and subsequent treatment with paraffin and resin, or other waterproofing substances or mixtures, possesses an impermeability which renders it eminently suitable for sole leather.

Chrome leathers retanned and the interstices filled with vegetable tanning matters absorb in 24 hours from 30 to 40% of their weight of water; chrome leathers subsequently treated with paraffin absorb up to 12% of their weight of water. On the contrary leather prepared according to this in-

vention absorbs in the same time or even in a time twice or thrice as long, only 5 to 6% of water.

Since leather tanned by the present improved process does not require to be stretched and framed to dry as is the case with ordinary chrome tanned leather, it may be made in greater thickness than the latter. The preservation of the maximum thickness is due also to the fact that leather tanned by the improved process does not require to be beaten, like leather which has been chrome tanned and then treated with vegetable tannin.

If there is used in the first stage of the process yellowish and slightly colored extracts of tannin such as myrabolams, valonias, etc., the leather acquires a greenish color very like that of pure chrome tanned leather.

It is obvious that in carrying out the invention the mixture of paraffin and resin referred to for filling the interstices may be replaced by any analogous or equivalent product.

The process is also applicable to leathers tanned chemically by other substances than chromium salts, for example formic aldehyde, quinone, etc.

To restore to its natural color the leather tanned as described and darkened in consequence, after the leather has been soaked in the mixture of paraffin and resin and while it is still hot, it is thoroughly soaked in hot water at 50 to 80° C. and the surfaces well rubbed with a sponge or bundle of rags soaked in hot water.

If the leather has been allowed to cool, it may be soaked for several seconds in benzin and the surfaces rubbed with a dry rag.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. A process for the tanning of sole leather, consisting in treating the leather with mineral tanning agents, submitting the treated leather to the action of a bath of vegetable tanning agents, washing the leather in order to remove such of said tanning agents which have not become fixed on the fibers, and finally immersing the leather in a mixture of paraffin and resin.

2. A process for the tanning of sole leather, consisting in treating the leather with salts of chromium, submitting the chrome leather to the action of a bath of vegetable tanning agents, washing the leather in order to remove such of said tanning agents which have not become fixed on the fibers, and immersing the leather in a mixture of paraffin and resin.

3. A process for the tanning of sole leather consisting in treating the leather with mineral tanning agents, submitting the treated leather to the action of a bath of vegetable tanning agents, washing the leather in order to remove such of said tanning agents which have not become fixed on the fibers, immersing the leather in a mixture of paraffin and resin, steeping the leather in benzin, and rubbing its surfaces with a dry rag.

4. A process for the tanning of sole leather, consisting in treating the leather with salts of chromium, submitting the chrome leather to the action of a bath of vegetable tanning agents, washing the leather in order to remove such of said tanning agents which have not become fixed on the fibers, immersing the leather in a mixture of paraffin and resin, steeping the leather in benzin, and rubbing its surfaces with a dry rag.

In testimony whereof I affix my signature in presence of two witnesses.

PIERRE CASTIAN.

Witnesses:
F. JOSEPH LABARRY,
CHARLES A. JOHNSON.

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

Correction in Letters Patent No. 1,067,796.

It is hereby certified that the name of the patentee in Letters Patent No. 1,067,796, granted July 22, 1913, for an improvement in "Tanning Processes for the Preparation of Sole-Leather," was erroneously written and printed "Pierre Castian," whereas said name should have been written and printed *Pierre Castiau;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 19th day of August, A. D., 1913.

[SEAL.]

THOMAS EWING,

Commissioner of Patents.

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