

UNITED STATES PATENT OFFICE.

WILLIAM H. OCKLESTON, OF BOURN, AND THOMAS BURNELL CARMICHAEL, OF
WATERLOO, NEAR LIVERPOOL, ENGLAND.

TANNING.

No Drawing.

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To all whom it may concern:

Be it known that we, WILLIAM HENRY OCKLESTON and THOMAS BURNELL CARMICHAEL, subjects of the King of Great Britain, residing, respectively, in Bourn, in the county of Cambridge, England, and Waterloo, near Liverpool, in the county of Lancaster, England, have invented certain new and useful Improvements in Tanning, 10 of which the following is a specification.

This invention relates to improvements in tanning, and has for its object the provision of a process according to which hides and the like may be tanned by the combined 15 action of a chrome tannage and a vegetable tannage, so that the resulting leather may possess the characteristics of both tannings.

In the process of tanning with a chrome tanning agent, it has been usual to bring the 20 said agent to a basic state by the addition of soda ash, and when a combined chrome and vegetable tanning process is employed, using the ordinary chrome salts treated in known manner to render them basic, the 25 action of the vegetable tanning agent is retarded to such an extent that the hides have to be immersed for a very long period before the vegetable tanning agent has any effect.

We have found by treating the chrome tanning agents according to the present invention and using them and a vegetable tanning agent either together or in succession, 35 that a very rapid and effective tanning is obtained. Further, not only can we employ recognized chrome tanning agents, but we can also employ in this combined tanning process, chrome salts which do not in themselves possess the requisite tanning prop- 40 erties, such as chromium sulphate, chromium chloride, chromium nitrate or chromium acetate.

According to one method of carrying out our invention, we immerse the limed hides in 45 water for several hours, to wash them and extract as much of the lime as possible before commencing the present process.

We prepare the chrome tanning liquor by adding sufficient green chrome salts to water 50 to make up a 20° Barkometer liquor; to this we add acetic acid of ordinary commercial strength to give an acidity which, according to usual lime water test, is such as requires approximately 20 cubic centi-

meters of saturated lime water to neutralize 55 10 cubic centimeters of the liquor.

The vats usually employed hold 1250 gallons and we find if we add to this quantity of 20° Barkometer chrome liquor 60 from 2 to 5 gallons of acetic acid of usual commercial strength, that a suitable liquor is obtained.

The hides are removed from the washing water and suspended in the chrome bath 65 so formed, where they remain for, say, 12 hours, by which time they are completely struck-through by the chrome tanning agent.

The hides are then removed and may be "horsed-up" for a suitable period in order 70 to drain them.

They are then ready for treatment by the vegetable tannage; the vegetable tanning agent may be any of the usual vegetable tanning liquors of commerce and the treat- 75 ment may be that usually adopted with such liquors for the treatment of raw pelts. We prefer, however, to start the vegetable tannage at a Barkometer strength of 80°, as this strength can be maintained in carry- 80 ing out the process according to the present invention, without any trace of surface hardening of the leather. The hides are "struck-through" by the vegetable tannage in about six days.

After treatment as above described, the 85 hides are ready for hot pitting in a warm liquor, say from 100 to 150° F., of approximately 150° Barkometer strength; they are left in this liquor to fill up.

Alternatively, the hides, after treatment 90 in the acid chrome liquor described above and after washing, may be placed in a floating drum which is immersed in a vegetable tanning liquor of from 80° to 90° Barkometer strength; the penetration is 95 usually complete in about four days, when the hides are ready for hot pitting as before.

We find that the effect of the vegetable tanning on the hides treated with the acid 100 chrome liquor is very rapid and penetrating so that the time taken in the ordinary tanning process is very considerably curtailed by the employment of our process.

In some cases we may combine the acid 105 chrome and the vegetable tanning solutions in equal proportions to form the one liquor, in which case the vegetable tanning solution

would be of weaker strength, say 30° to 40° Barkometer; the hides may, after treatment in this combined liquor, be subjected to treatment in a vegetable tanning liquor of suitable strength, or may be treated in a succession of vegetable tanning liquors of increasing strengths.

The leather product of our process has a high percentage increase of weight on the limed pelt weight, possesses a high tensile strength and hard wearing qualities, and is specially suitable for sole leather and leather belting.

Having now fully described our invention, we declare that what we claim and desire to secure by Letters Patent, is:—

1. The process of tanning, which consists

in treating de-limed hides with an acidified green chrome liquor of substantially 20° Barkometer, and with vegetable tanning liquor.

2. A process for tanning, which consists in treating de-limed hides in a mixture of equal parts of chrome liquor of substantially 20° Barkometer, and a vegetable tanning liquor of from 30° to 40° Barkometer.

In testimony whereof we affix our signatures in presence of two witnesses.

W. H. OCKLESTON.

THOMAS BURNELL CARMICHAEL.

Witnesses:

JOSEPH E. HIRST,

MARGUERITA JONES.