

# United States Patent Office.

C. J. BUGH, OF EAU CLAIRE, WISCONSIN.

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## IMPROVED TANNING-PROCESS.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that I, C. J. BUGH, of Eau Claire, in the county of Eau Claire, and State of Wisconsin, have invented a new and improved Tanning-Process; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to understand the same.

My invention has for its object to furnish a superior tanning-process, by means of which furs and hides may be easily, quickly, and thoroughly tanned; and it consists in the process hereinafter more fully described.

The first thing to be done in preparing a hide for my improved tanning-process, is to thoroughly soak it, as no hide or skin can be tanned unless it has been soaked and well broken on a fleshing-beam, made of a piece of any straight and fine-grained slab, ten or twelve inches wide, and five or six feet long, with two legs, two and a half feet long, about twenty inches from one end. A basswood-slab or split log is preferable.

To soak the hides or skins, put them into a barrel or other vessel, and cover them with cold water.

Dry hides should soak two or three days; then haul and thoroughly flesh them on beam, return them to the soak, and let remain from six to twelve hours.

Green hides should soak eighteen or twenty-four hours; then flesh, and return them to the soak for a few hours. Soft water is best in all cases.

### *Hairing.*

After soaking, if it is necessary to remove the hair or wool, make a paste as follows: To half a bushel of air-slaked lime, and half a bushel of hard-wood ashes, add six gallons of cold water. After the lime is thoroughly slaked, it is ready for use, and should be put on the hides through a middling coarse sieve, and distributed over them evenly with an old broom, or other suitable instrument.

The edges of the hides are then all folded in nicely, to prevent the hair from coming in contact with the lime, and the hides are rolled up, and put into a barrel or other vessel, and covered with cold water, where they should remain from ten to fourteen days, in warm weather, or until the hair slips off easily. In cold weather, they should remain in the water from fifteen to twenty days, but must not be frozen.

When the hair or wool can be easily removed, take the hides and spread them out, scrape off the paste, then take the hides to the beam, and remove the hair, without disturbing the grain, (or you can take off both paste and hair together, if desired,) with a graining-knife.

An old file, with one edge bevelled, (like a chisel,) with a smooth, dull edge, and a handle on each end, makes a good graining-knife.

The hides, after coming from the lime, are raised too high to go directly into the tan-liquor, and must be reduced to their natural or original thickness, by being

freed from the lime, which is done with a "bate," composed as follows: Put twenty pounds wheat-bran in a barrel, (the day before using,) add four gallons of lukewarm water, and cover over tight, to let the bran ferment. One or two hours before using, add sixteen gallons of water; if lukewarm, it will hasten the process. Soft water is preferable in all cases. Then add half a pound sulphuric acid, and stir all the time while adding the acid. Place the hides in this liquor, and handle by stretching and pulling, until they are thoroughly saturated, then let them remain, well covered over with the liquor, from twelve to sixteen hours in warm weather, or for twenty-four hours in cold weather. Then haul and beam off the bran from the flesh-side, and they are ready for the tan-liquor.

The tan-liquor is formed as follows:

Five gallons cold soft water.

Two pounds Glauber's salts.

Two pounds alum.

Two pounds common salt.

Two ounces sulphate of zinc.

When the ingredients are all dissolved, take about one gallon of the solution, and add three or four pounds of sassafras-bark, and steep to a strong solution, or of "terra japonica," and melt it over a very slow fire, and stir frequently while melting. When well melted, add a portion to the tan-liquor, until it will color the hide to suit your desire. Then handle the hides, one at a time, in the liquor, pulling and stretching them, until they are colored all over evenly. When properly colored, wring out lightly, so the liquor will not drip.

After handling two or three hides through the solution, strengthen it by adding a small portion of the sassafras or japonica-solution, and continue in the same manner, until the hides are all handled through the liquor. Then return them all to the liquor, from six to twenty-four hours, if buckskin, or until you get ready to attend to them. They will not receive any injury by remaining in the liquor.

When taken from the solution, the hides are rinsed in cold water, wrung out the same as you would a piece of cloth, and hung on a line or pole in the shade.

When about two-thirds dry, lay them all smoothly together, fold the edges in, and roll up as tightly as possible for twelve hours. Then stretch and pull the wrinkles all out of them, and stuff with the following stuffing, which is intended for any leather for gloves and mittens, or for string-leather:

One pint lard-oil or neat's-foot oil.

A piece of sal-soda, about the size of a hickory-nut, dissolved in one pint of water.

Half a pint of alcohol or kerosene.

Mix all together, and apply, with a sponge or piece of cloth, as light a coat as possible, and roll up the hides, as before, for about twelve hours. Then hang them in the shade again, and, when nearly dry, work them over the beam or by pulling, stretching, and

pounding, and you will have as nice buckskin as can be made, and to which you can give a smooth surface with pumice-stone or sand-paper, rolled upon a round stick, if desired.

Calf-skins should be handled in the tan-liquor the same as deer-skins, but the liquor must be made a little stronger, and the hides must remain in the liquor four or six days, and should be handled once each day. Then rinse, and manage the same as buckskin, and stuff with the following stuffing, which is designed for heavy leather:

- One quart rye-flour paste.
- One pound beeswax.
- Four pounds beef tallow.
- Two quarts tanners' oil, or neat's-foot oil.
- Half a gallon boiled linseed-oil.
- One pint kerosene.

Melt over a slow fire, and stir until cold. If a polish is required for boot or other leather, melt eight ounces "gum-tragacanth" with water in a vessel placed in a kettle of boiling water, to which add two-thirds of a paper of lamp-black. When fully melted, stir all into the stuffing, while the gum is warm. The leather should be a little damp when this stuffing is applied.

When the stuffing has been thoroughly rubbed in, hang the hides in the shade, and, when almost dry, whiten or sleek with a glass or steel sleek, on a smooth table, and roll until dry and soft.

In the case of calf-skins and heavy leather, after the hides come out of the tan-liquor, if it is desired to make an oak-bark tan, put the hides in strong decoction of oak-bark, and let them remain for from six to eight days.

Next apply the following blacking:

- One quart of alcohol.
- Four ounces extract of logwood.
- Four ounces tincture of iron.
- Half an ounce nitrate of silver.
- One tablespoonful of sweet oil.
- When dry, polish with a sleek.

This blacking is good for either grain or flesh-side.

Heavy leather is tanned in the same liquor and handled the same as calf-skins, but must remain in the tan-liquor from three to four weeks, and should be handled every four or five days, for the purpose of airing the hides and stirring the liquor, which liquor should also be strengthened once a week.

The hides are finished up as directed for calf-skin tan.

*To Tan Beaver, Otter, or any other Skins, with the Hair or Fur on.*

The hides should be soaked (if dry) from twelve to sixteen hours, then thoroughly fleshed, then returned to the soak for from six to eight hours longer.

They should then be washed as follows:

Take sufficient warm, soft water to wash them, to which add sal-soda until the water feels slippery, then wash thoroughly; next wash them well in a warm, strong soap-suds, then rinse well through two or three waters, and wring out as dry as possible. The hides are then ready for the tan-liquor, which is prepared as follows:

#### *Tan-Liquor for Furs.*

- Two gallons cold, soft water.
- One pound Glauber's salts.
- One pound alum.
- One pound common salt.
- Half an ounce sulphate of zinc.

Melt one pound terra japonica in half a gallon of the above preparation, over a slow fire, then mix all together.

All the ingredients should be pulverized, as they will dissolve much quicker.

Place the hides in the tan, and handle by pulling and stretching thoroughly, then let remain two or three days; if heavy furs, such as bear, four or five days.

Then rinse in three or four clean waters, wring out as dry as possible, and hang in the shade to dry. When nearly dry, work them occasionally by stretching, &c., or on the beam with the fleshing-knife. When dry, finish up on the beam, by working the middle or thick part of the hide down, until it is even, or as thin as the edges or flanks.

A currying-knife, with a fine edge, is the best tool to do this with, or it may be done with coarse sand-paper, rolled on a round stick, using it the same as a knife.

If it is desired to pluck the hides, after washing the hides through the alkali, and rinsing, lay them in clean, cold water for a day or two longer, or until the guard-hairs pull out without breaking.

Care must be taken not to let the hide taint. If it does, it will loosen the fur, as the fur is only on the grain, while the guard-hairs go through into the pelt.

Musk rats have very tender hides, which should be treated a little different from heavier furs.

Soak in clean, cold water for ten or twelve hours, or until all hard spots are softened; then flesh as well as possible; then wash as directed to wash furs; then put them in the tan-liquor for furs; handle the same as other furs, and let remain for two or three hours; then wring out, and flesh again, and return to tan-liquor for two or three hours longer; then wring and rinse, and finish up as directed for finishing furs. If the hides are well fleshed the first time, a second fleshing is not necessary.

A rich, nice gloss will be formed on all furs, if tanned and finished as herein described.

#### *For Tanning White Buckskin.*

Lime, hair, grain, and bate, as hereinbefore described, then form a tan as follows:

- Two gallons cold, soft water.
- One pound Glauber's salts.
- One pound alum.
- One pound common salt.
- Half an ounce sulphate of zinc.

Immerse the hides in this, and handle as hereinbefore described, and let them remain ten or twelve hours; then wring them out, and hang them in the shade to dry, (a cellar is a good place,) and, when two-thirds dry, put them into the following preparation:

Half a gallon cold, soft water.

A piece of sal-soda, half as large as a hen's egg, pounded up.

- One-fourth pound Glauber's salts.
- One-fourth pound alum.
- One-fourth pound common salt.
- Two quarts old soft soap.
- Two quarts neat's-foot or lard-oil.

Handle them as before described, and let them remain from six to eight days; then wash the oil all out in strong soap-suds, rinse clean, and put them in the following prepared liquor for six or eight hours:

- One gallon cold, soft water.
- One-fourth pound Glauber's salts.
- One-fourth pound alum.
- One-fourth pound common salt.

Then rinse, wring, and hang in the shade to dry, and, when nearly dry, work occasionally by stretching and pulling, or on the beam.

When dry, finish by rubbing grain-side with pumice-stone, or fine sand-paper, rolled on a round stick, and the result will be as nice a buckskin as can be made by machinery.

#### *To Color Buckskin Black.*

Apply with a brush a strong solution of copperas-water. When about dry, apply a strong solution of extract of logwood, and, when dry, rub thoroughly with a stiff brush.

*To Form a Snuff-Color.*

Make a strong liquor of sassafras-bark, apply with a brush, and, when dry, set with alum-water, applied in the same manner.

*To Form an Orange-Color.*

Dissolve one ounce of annatto in a quart of water, over a slow fire, apply with a brush, and set with alum-water.

*Orange and Snuff-Color*

Can be made light or dark by using weak or strong liquor.

*To Form a Buff-Color.*

Take half a pound yellow ochre, and half a pound Spanish-whiting, mixed up with a very little cold water, and made into a ball.

This ball may be made dark by adding more ochre, or light by adding more whiting.

*To Color Furs.*

After soaking soft, wash in a middling-strong soda water, and rinse clean.

Then apply with a brush, and rub well through the fur down to the pelt, half an ounce crystallized nitrate of silver, and one pint of soft water, and hang in the sun to dry.

Again apply with a brush, and rub well through the fur, one ounce sulphate of potash, dissolved in one pint soft water, and hang in the sun to dry, and, when dry, rinse off, and hang in the shade to dry, and work occasionally while drying.

Having thus described my invention,

I claim as new, and desire to secure by Letters Patent—

The improved tanning-process, substantially as herein shown and described.

C. J. BUGH.

Witnesses:

B. C. DUNN,

E. M. BARTLETT.