

# UNITED STATES PATENT OFFICE.

HARMON HIBBARD, OF ATTICA, NEW YORK.

## IMPROVED MODE OF COLORING AND FINISHING LEATHER.

Specification forming part of Letters Patent No. 511, dated December 15, 1887.

*To all whom it may concern:*

Be it known that I, HARMON HIBBARD, of the town of Attica, county of Genesee, and State of New York, have invented a new and Improved Mode of Providing Leather with a Color and Finish; and I do hereby declare that the following is a full and exact description.

The nature of my invention consists in providing leather with a color, varnish, and finish which renders it more durable by adding to it solidity and tenacity, and it likewise possesses a high luster.

To enable others skilled in that art to make and use my invention, I will proceed to describe the process in full.

I have my leather prepared, without oil until varnished, by shaving it to a uniform thickness, and then made as smooth as possible by stoning it out; but if the leather is very thick it cannot be made sufficiently smooth by hand, and requires to be put through between two iron cylinders that have been cast about five feet in length and about three inches in diameter, and turned quite smooth, and so constructed as to lie one above the other in a horizontal form to admit leather of any thickness. This may be done by a thumb-screw over each end of the top cylinder. A chafing-dish should then be applied to the under cylinder, containing charcoal on fire, which should heat it from end to end to about 200°. The dish may then be withdrawn, and the leather when dry passed between them, with the grain side down, and then compressed, so running through several pieces before it gets cold. This is done by turning the cylinder with a crank or otherwise. The leather should then be tacked out on frames and kept straight until finished. I color the leather by first applying the nitrate of iron, which causes and supports a black by the iron coming in contact with the tannin and gallic acid that is contained in the leather. I then apply to it in like manner with a brush a phlogisticated alkali. It is then changed to a blue by the prussiate contained in the alkali coming in contact with the peroxide of iron. This color should be formed before the leather passes the cylinder; but the nitrates and alkali will require to be diluted with water, or there will be too much body, which would prevent the varnish from adhering

strongly to the leather. The varnish should be laid on with a soft brush at several times, giving time for each coat to dry separately, which will take about six hours. This should be done in a clean room excluded from dust. It will then emit a blue shade, giving a blue black. I prepare nitrates by putting one part of nitric acid with one of water and saturate it with a metal intended to be used—*e. g.*, if iron is used, it will be the nitrate of iron; and if copper is used, it will be the nitrate of copper. I prepare the varnish to be used by melting in a varnish-kettle over a charcoal-fire two pounds of gum-copal with two pounds of gum-asphaltum, and when both are perfectly melted I add two quarts of hot linseed-oil that has been prepared with umber for drying, and stir them briskly until they are incorporated, then leave it to cool. It is then brown, but dispense with using more of the asphaltum, which is used to prevent the varnish from turning white when wet, but is more friable than copal. I then darken the varnish by adding to this quantity in the kettle about one ounce of sulphuric acid that has been impregnated with the nitrate of copper by previously adding about four drams and shaking them together. It should then be poured in by a small stream while the varnish is kept in constant agitation with a rod; but if it should get too hot, the acid may be withheld for a moment and the stirring continued. This quantity of acid, if full strength, will change it to a dark shade or color. This change is probably owing to the copper coming in contact with the tannin that is given out by the partial charring which it undergoes, and is taken up by the nitric acid and oxygen contained in the composition. There should be no excess of acid left in the varnish, as it would be a detriment to its drying. This can be determined by the taste, as it will possess no sour taste, except there be too much acid added. I then add to this varnish a drier that is prepared by adding to one-half gallon of linseed-oil in a kettle over a fire one-half pound of ground umber, one pound of litharge, one-half pound of gum-shellac, and boiled until when dropped on glass it will stand in a convex form without spreading. It should then be taken from the fire, and when a little cool it should receive six quarts of oil of terebinthina, and then be added to the var-

nish and filtered through flannel while warm, then left to settle, and it is fit for use.

What I claim as my invention, and desire to secure by Letters Patent, is—

The using of ferro-prussiate of potash in forming a black on leather, and also the using sulphuric acid and nitrate of copper in coloring vegetable oils and varnishes to be applied to leather, &c., without any additional body which would diminish their tenacity or luster,

likewise the application of heat with cylinders in the finishing of leather in the manner within described, as that degree of heat applied in that manner would render the leather better fit for use and far more durable by adding to it solidity.

HARMON HIBBARD.

Witnesses:

D. FRANKLIN NEWCOMB,  
MOSES COTCORD.