UNITED STATES PATENT OFFICE.

CHARLES F. MILLER, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN COMPOSITIONS FOR RENDERING LEATHER WATER-PROOF, AND IN THE MODE OF APPLYING THE SAME.

Specification forming part of Letters Patent No. **1,749**, dated August 28, 1840.

To all whom it may concern:

Be it known that I, CHARLES F. MILLER, of the city of Baltimore, in the State of Maryland, have invented an Improvement in the Manner of Rendering Leather Water-Proof, for the manufacturing of mail-bags in particular, but which is also applicable to the preparing of leather for the making of various other articles which it is desirable to render impervious to water; and I do hereby declare that the following is a full and exact description thereof.

For my waterproofing compound I take the following ingredients in the proportions named, or nearly so—that is to say, one part of beeswax, one part of spermaceti, one part of rosin, one-half a part of suet, one-half a part of hog's lard, and one-fourth a part of borax. The borax I pulverize and put it, with the other ingredients, into a suitable vessel, and melt the whole over a slow fire, stirring the ingredients until they are perfectly incorporated. The addition of the borax gives by its chemical action a degree of consistency to the mixture or compound which renders it much more efficient in its action upon the leather. The waterproofing compound so prepared is then to be spread over the flesh side of the leather by means of a sponge or other suitable article, using it at a moderate temperature, or such as will not feel unpleasant to the hand. This operation is to be performed two, three, or more times, dependent upon the thickness and texture of the leather. When a sufficient quantity has been applied it will make its appearance on the hair side, and this part of the operation will be completed. After the leather has been thus far saturated it is to be placed in an oven or heated air-chamber made sufficiently large to admit of the leather being suspended in it by one edge, so as to hang down and be equally exposed to the action of the heat on both sides. A number of skins are to be so suspended side by side and exposed to such a degree of heat as will cause the leather completely to absorb the waterproofing substance, which will be readily perceived upon examination.

The oven that I use is simply a rectangular box of sheet or cast iron, under which a fire can be made. Its particular construction is not a matter of importance. That used by me does not differ from those contained in many stoves, excepting in size. The fire is made below the oven and the heat carefully regulated. The suspended leather should be reversed after the lower part, which is exposed to the greatest heat, has been sufficiently acted upon. An oven might be constructed with a draft over the top, which would render this precaution unnecessary; but circumstances of this kind must be left to the judgment of the operator.

When the leather is removed from the oven it will be found to be somewhat rigid from the action of the heat, and it is to be worked upon a table by folding and rubbing, as is practiced by curriers, which will render it perfectly soft and flexible. The last operation to which it is subjected is the rubbing it on the flesh side with Armenian bole or red chalk, which may be taken in the lump; or a portion of it may be pulverized and rubbed in until the pores have taken in as much as possible. This will have the effect not only of perfectly filling the pores, but also of protecting the waterproofing compound from the action of the heat of the sun, and will at the same time communicate a good and desirable color to the leather. Other absorbent earthy substances may be used for this purpose with analogous results, excepting in point of color. In the making of mail-bags the flesh side so prepared is turned outward.

Having thus fully described the manner in which I make my waterproofing composition and apply the same to the leather, what I claim therein is—

1. The particular compound composed of the materials and combined in the proportions, or nearly in the proportions, above set forth.

2. The manner of applying this compound and preparing the leather for use by exposing said leather in an oven properly heated in the manner and for the purpose herein made known, in combination with the subsequent process of filling the pores on the flesh side with Armenian bole or other absorbent earthy matter possessed of analogous properties.

I will here observe that the borax is added not on account of its mechanical but on account of its chemical action on the other ingredients.

CHARLES F. MILLER.

Witnesses:

THOS. P. JONES,

GEOR. WEST.