

# UNITED STATES PATENT OFFICE.

MATTHEW BIRD, OF LONDON, GREAT BRITAIN.

## IMPROVEMENT IN PROCESSES FOR WATERPROOFING LEATHER.

Specification forming part of Letters Patent No. **172,908**, dated February 1, 1876; application filed December 9, 1874.

*To all whom it may concern:*

Be it known that I, MATTHEW BIRD, of the city of London, in the Kingdom of Great Britain, have invented certain Improvements in Waterproofing and otherwise improving the condition of Leather, of which the following is a specification:

This invention relates to improving the condition of leather by chemical and mechanical treatment; and it consists in subjecting leather, in hides, skins, or pieces, to a bath consisting of a saturated solution with distilled water of equal parts of chloride of sodium and bicarbonate of soda or potash for any highly-tanned skins in which there is an excess of acid, or in a like solution of lower strength for skins not so highly tanned, previous to an after treatment, whereby the leather is rendered waterproof, and at the same time materially strengthened in fiber and texture, and which treatment can be varied, so as to leave the leather treated either rigid or pliant, according to the purpose for which it is required.

Leather has been rendered water-proof by immersing it in a mixture of paraffine with bees-wax, or the like. Although this is in general an effective process, I have found that it is sometimes attended with failures, especially so when the leather is highly tanned; and to overcome this difficulty, which is the object of my present invention, I immerse the hides, skins, or the like, first in a solution of chloride of sodium and bicarbonate of soda or potash, which I find will render the leather more susceptible to an after treatment by immersing it in a vat or vessel containing a mixture of coal-tar pitch and solid paraffine. The mixture consists of about seventy-five per cent. of solid paraffine, and about twenty-five

per cent. coal-tar pitch. These two substances are first dissolved by heat, and in separate vessels, and then the pitch is run into that containing the paraffine, and the heat maintained until they become, by stirring, intimately mixed together. The heat of the mixture being still maintained, the leather, which has previously been heated in an oven to about 90° Fahrenheit, is, according to its substance or quality, either dipped into the mixture, or allowed to remain in it for a few seconds or minutes, by which time it will have imbibed a sufficient quantity of the mixture. After complete absorption has taken place, the leather is rolled between brass, gun-metal, or wooden rollers or cylinders.

Should it be judged that the leather has not absorbed to the full extent the mixture, it may, previously to the rolling process, be again placed in the oven, to insure thorough absorption.

When the leather is very thin in substance, instead of immersing it in the mixture it is placed upon a heated metal plate, and the mixture is applied with a brush on either or both sides. Care must be taken that the plate on which the leather is placed is not heated to an extent which would damage the leather.

I claim as my invention—

The treatment of leather, as described, by first immersing it in a solution of chloride of sodium and bicarbonate of soda or potash, then an application of paraffine, or paraffine and coal-tar, all substantially as and for the purpose stated.

MATTHEW BIRD.

Witnesses:

MATTHEW AUGUSTUS SOUL,  
ALFRED JEFFERY.