

UNITED STATES PATENT OFFICE.

R. O. LOWREY, OF SALEM, NEW YORK.

IMPROVED COMPOSITION FOR RENDERING FABRICS WATER-REPELLENT AND FOR FIXING THEIR COLORS.

Specification forming part of Letters Patent No. **90,564**, dated May 25, 1869.

To all whom it may concern:

Be it known that I, R. O. LOWREY, of Salem, in the county of Washington and State of New York, have invented certain new and useful Improvements in Compounds for Rendering Fabrics Water-Repellent and Fixing their Colors; and I do hereby declare that the following is a full, clear, and exact description thereof.

To enable others skilled in the art to construct and use my invention, I will proceed to describe it.

My invention consists in a new and useful composition of matter, and in the application of the same to various kinds of fabrics, but more especially to those used in the manufacture of umbrellas, for the purpose of rendering them water-proof or water-repellent, and at the same time of permanently fixing their colors.

As is well known, many kinds of fabrics designed for exposure to the rain, and especially many of the kinds used to cover umbrellas and similar articles, not only become thoroughly saturated when thus exposed, but to a great extent lose their coloring matter as the water drains off from them.

The ultimate object of my invention is to produce a fabric with fixed colors and water-repellent, so that it will neither absorb moisture nor lose its coloring matter.

I first take soap and glue, in about the proportions of seven (7) parts of soap to one (1) part of glue, and dissolve them in water until the specific gravity of the solution is about 1° of Baumé's hydrometer. For this solution I prefer to use a soap composed of two (2) parts, by weight, of resin to one part of tallow or other fatty substance, saponified with caustic alkali in the usual manner, and made as neutral as possible, so that neither the grease nor alkali will be in excess. This solution I place in any suitable vessel or sizing-tub, and call it "No. 1." I then take alum and salt, in about the proportions of two parts of alum to one of salt, and dissolve them in water until the specific gravity of the solution is about 3° of Baumé's hydrometer, and then place it in a vessel or sizing-tub similar to that occupied by the first solution. This solution I call "No. 2." Both of these tubs I provide with pressure-rollers or wringers in the usual way.

Having thus formed my new composition of matter, I apply it to and unite it with the desired fabrics in the following manner: In preparing the cloth for treatment, I first dye it in the usual manner and with any desired color, and then dry it, or not, as preferred. I prefer to dry it. When dried I pass it through the sizing-tub containing solution No. 1, and after having thoroughly saturated it with this solution I pass it through the pressure-rollers or wringers, so as to remove all the surplus of the solution, and then through the sizing-tub containing solution No. 2 in like manner, and then through the pressure or wringing rollers to remove the surplus of this solution, after which I thoroughly rinse the fabrics in a tub of clean water, and one through which a stream of water is constantly passing. When thus rinsed I dry the fabrics by passing them over steam-cylinders, or in a drying-room, or in the open air. After they are dried I thoroughly saturate again with water, using it warm in the first instance, for the purpose of hastening the operation, and then pressing or wringing out the water by the rolls. After this I put them into another tub through which a stream of cold water is constantly running, and afterward allow them to pass out through the rolls, or in any other convenient way, but in such a manner as to remain very wet. I pile them up in this wet condition, and leave them undisturbed for twelve or twenty-four hours, and then thoroughly rinse them again in the tubs through which a stream of water is passing, and afterward pass them through both pairs of rollers, so as to press them, as before. I then dry them in the usual way, either with steam-cylinders, or in a drying-room, or in the open air, and then sprinkle and calender them in the ordinary manner. The process is now complete, and the cloths or fabrics will be found water-repellent and the colors fixed.

Whenever it is desired to render fabrics repellent without regard to the character or permanency of the colors, I pass them first through solution No. 1, and through the pressure-rolls to remove the excess of the solution, and then pass them through solution No. 2. After this I thoroughly rinse and dry them, and then calender or finish them, or not, as may be desired.

In making my solutions I do not confine myself to the exact proportions of soap and glue or of the alum and salt mentioned above, but vary them to suit the character of the finish or the strength of the repellent quality that it is desired to give the fabrics.

It is obvious that the strength of both solutions may be varied to suit the quantity of material it may be desired to apply to the fabrics. If desirable for any purpose, the cloths or fabrics may be passed through this process twice.

It is further obvious that, instead of salt, (chloride of sodium,) other chlorides or substances having a saline quality may be used; and that, instead of alum, (sulphate of alumina and sulphate of potassa,) other alums or sulphates or acetates may be used with results somewhat similar, yet varying in some respects in their characteristics.

I prefer to use the salt in combination with the sulphates or acetates, though I am aware that the sulphates or acetates may be used alone, but when so used produce very inferior results.

It is further obvious that the above-described

process may be applied to raw materials, whether in their natural state or dyed or colored, as well as to manufactured fabrics.

I can also form a repellent liquid by combining my solutions in the proper proportions, and then boiling them until they unite and form a liquid of a milky color. By simply saturating the fabrics with this fluid and then drying them they will be made repellent.

Having thus described my invention, what I claim is—

1. The compound consisting of the ingredients herein mentioned, united in the manner and proportions substantially as described, and for the purposes set forth.

2. The process of rendering fabrics water-repellent and of fixing their colors, substantially as herein described, and for the purposes set forth.

3. The product resulting from the process herein described, as a new article of manufacture.

R. O. LOWREY.

Witnesses:

H. B. MUNN,

P. T. DODGE.