

UNITED STATES PATENT OFFICE.

690,868

JAMES MENZIES, OF LONDON, ENGLAND.

PROCESS OF WATERPROOFING FABRICS.

SPECIFICATION forming part of Letters Patent No. 690,868, dated January 7, 1902.

Application filed July 8, 1901. Serial No. 67,542. (No specimens.)

117-167

To all whom it may concern:

Be it known that I, JAMES MENZIES, a subject of the King of England, and a resident of London, England, have invented a certain new and useful Improved Process for Waterproofing Fabrics, of which the following is a specification.

The present invention relates to a process for rendering cloth, canvas, paper, and other fabrics waterproof, the object being to produce a material which will be thoroughly proof against the action of water, but which will at the same time allow air to pass with comparative freedom through it.

In carrying out this invention the fabric to be treated is passed through two solutions, the cloth being in contact with the solutions for a sufficient time to allow of a thorough impregnation. To prepare the first solution, certain fatty acids are saponified with caustic potash and water in any steam-jacketed boiler or soap-pan. The mixture is then boiled, say, for an hour, sodium silicate and paraffin-wax being added in convenient quantities and the boiling being further continued, say, for another hour. The following proportions of the different substances have been found to give the most advantageous results: stearic acid, thirteen parts; oleic acid, six parts; paraffin-wax, eighteen parts; caustic potash, 2.5 parts; sodium silicate, two parts; water, four hundred parts. The second or fixative solution consists, preferably, of a clear solution of acetate of alumina and is prepared by dissolving sulfate of alumina in boiling water and adding thereto an aqueous solution of acetate of lead. Conveniently forty-seven pounds of sulfate of alumina are dissolved in fifteen gallons of boiling water in one vessel and thirty-two pounds of lead acetate are dissolved in fifteen gallons of water in another. When dissolved, the solutions are thoroughly well mixed, the insoluble precipitate of lead sulfate is allowed to settle, and the clear solution of acetate of alumina is decanted off.

The complete operation of waterproofing thus consists in passing the fabrics to be treat-

ed through a bath of the first solution and then through a bath of the second solution, a convenient speed for the fabric being about five yards per minute. The fabric is then hung up to dry, and when thoroughly dried it is calendered or finished by any of the well-known methods.

The baths may be provided with rollers and gear for driving the rollers to feed the cloth.

It has been found that fabric treated according to the method above described is rendered quite waterproof without being air-proof. The water-repelling property of the material is not deteriorated by high temperature, such as is experienced in tropical climates, nor does extreme cold affect it, and the color and condition of the treated fabric is not affected by the solutions.

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

1. The herein-described process of rendering fabric waterproof which consists in immersing the fabric first in a solution containing a soap, sodium silicate and paraffin-wax and thereafter in a fixative solution.

2. The herein-described process of rendering fabric waterproof which consists in immersing the fabric first in a solution prepared by boiling caustic potash with fatty acid and adding sodium silicate and paraffin-wax thereto, and thereafter in a fixative solution of acetate of alumina.

3. The herein-described process of rendering fabric waterproof which consists in immersing the fabric first in a solution prepared by boiling caustic potash with oleic and stearic acids and adding sodium silicate and paraffin-wax thereto and thereafter in a fixative solution of acetate of alumina, the fabric being finally dried and calendered.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES MENZIES.

Witnesses:

HAROLD WADE,
HARRY S. BRIDGE.