UNITED STATES PATENT OFFICE.

HENRY CARMICHAEL, OF BRUNSWICK, MAINE.

WATERPROOFING OF FABRICS.

SPECIFICATION forming part of Letters Patent No. 342,175, dated May 18, 1886.

Application filed November 3, 1885. Serial No. 181,762. (No specimens.)

To all whom it may concern:

Be it known that I, HENRY CARMICHAEL, of Brunswick, in the county of Cumberland and State of Maine, have invented a new and useful Improvement in Waterproofing of Fabrics; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to the waterproofing of woven or felted fabrics; and it consists of an improved process of treating such fabrics with linseed-oil or equivalent oils, hereinafter explained. The treatment of such fabrics with oil is well known; but so far as I am aware in the previous treatment of such fabrics the oil has been oxidized on the surface, and the surface film of oxidized oil formed in the beginning of the process excludes the air from the interior of the body of the cloth or felt and prevents the oxidation of the interior of the fabrics. Fabrics thus treated retain a leathery consistency and upon exposure to the elements are liable to become weak and brittle. My process oxidizes the fibers throughout the body of the material uniformly and thoroughly.

I prepare the linseed-oil for the process by boiling it at a high temperature while exposed to the action of the air until its volatile constituents are driven off and it is reduced to such condition that when cool it is thick like treacle. Any suitable gum may be added to the oil, if desired. Through the oil thus prepared and heated to a temperature usually not less than 280° Fahrenheit, I pass the cloth or felt to be treated, thereby thoroughly saturating the fabric with the hot oil. I prefer to retain the oil during this process at as high a temperature as possible without injuring the fabric. Upon removal of the fabric from the hot oil excess of oil is removed from the surface by rollers or scrapers, leaving only the oil in the capillary spaces in the fabric itself. The fabric is afterward exposed to a temperature lower than that of the soaking-bath, but still high enough for rapid chemical action. At a temperature of 280° Fahrenheit the chemical action becomes injurious and this temperature therefore is never exceeded. This completes the induration of the oil, and as it is heated in the presence of the air the oil is oxidized and hardened throughout all the fibers of the fabric and the fibers thus thoroughly cemented together. Cloth or felt thus prepared may be coated upon its surface subsequently in any desired or well-known manner.

The article produced by this product resembles shavings of hard rubber or wood. It is elastic rather than pliable, but is quite flexible. It resists the action of heat and cold water and of all atmospheric agents, and with any suitable surfacing—such as paint, varnish, or the like—it may be used for roofing, coverings for carriages and cars, or any of the uses for which an elastic, durable, tenacious water-proof, and non-inflammable covering is required.

I claim as my invention—

The hereinbefore-described process of treating cloth or felt, consisting in saturating the fabric with prepared linseed or equivalent oil, then scraping or rolling to remove the exterior coating of oil, and finally subjecting the fabric to heat, substantially as described.

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

HENRY CARMICHAEL.

Witnesses:
J. P. WINCHELL,
N. T. PALMER.