

UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, ORANGE, NEW JERSEY, ASSIGNOR TO NORTH JERSEY PAINT COMPANY, OF STEWARTSVILLE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

WATERPROOFING FIBERS AND FABRICS.

No. 909,168.

Specification of Letters Patent.

Patented Jan. 12, 1909.

Application filed June 1, 1908. Serial No. 436,104.

To all whom it may concern:

Be it known that I, THOMAS ALVA EDISON, a citizen of the United States, residing at Llewellyn Park, Orange, county of Essex, and State of New Jersey, have invented certain new and useful Improvements for Waterproofing Fibers and Fabrics, of which the following is a description.

My invention relates to waterproofing fibers and fabrics and to an improved method of rendering fibers and fabrics waterproof which is cheap and extremely efficacious.

While materials treated according to my invention may of course be used for any purpose for which waterproof fibers and fabrics are available, the particular use which I contemplate therefor is the waterproofing of bags for containing ground Portland cement so as to protect the cement contained therein from moisture.

The material which I use for the treatment of fibers or fabrics to render them waterproof is the petroleum residuum known in the petroleum trade as B. S. This residuum settles in the tanks which are used for containing crude petroleum and is solid at ordinary temperatures. I have secured very good results by merely melting the B. S. and adding a little benzine or other solvent to thin it somewhat; then immersing the bag or other object to be waterproofed therein. The canvas bags used for holding cement, when thus treated, after having been allowed to dry will answer very well for containing cement under any ordinary conditions.

Where the waterproofed fabric is to be subjected to harder usage and its waterproof qualities must be made as perfect as possible, as for example, when the cement is to be shipped on a protracted sea voyage, I make the bag substantially perfectly waterproof in the following manner: I first dissolve the B. S. in a solvent, preferably warm; this solvent is preferably petroleum benzine, although other solvents as, for example, benzol or turpentine may be used. I then allow it to cool and remain quiescent until the insoluble portion settles at the bottom; or, it may be filtered for the same purpose. The solution is then drawn off and the solvent is distilled off until a point is reached where the residue is pasty or

semi-solid. This material is then melted, preferably by means of steam coils at a temperature above 212 degrees F. when it becomes substantially as limpid as water.

The fibrous object to be treated, as for example, the bag for containing cement, is immersed in the waterproofing agent so prepared until the water of the fiber has been driven off. The bag, when cooled and dried, is ready for use. The bag so treated is rendered more perfectly waterproof than when treated with the B. S. without the portion thereof which is insoluble in petroleum benzine or equivalent solvent having been removed. This insoluble portion is practically without waterproofing qualities and acts merely as an adulterant of the waterproofing material. Its use, however, is permissible in all cases except when extraordinary waterproofing qualities are required to be imparted to the fiber.

When bags are treated in either of the manners described above, they are rendered very flexible and will not crack before being worn out, the strength of the bag is greatly increased by the treatment and a bag so treated is of very great utility for containing any material very sensitive to moisture, such as Portland cement.

The fact that bags treated in the manner here described are rendered more flexible and are given greater strength by the treatment than they would otherwise possess is shown by a series of exhaustive tests conducted on both treated and untreated bags. These tests consisted in filling the bag with 95 pounds of cement and dropping it 7 feet onto a cement floor until the bag broke. A great number of tests, on a large number of standard bags intended for carrying cement, have shown that in the case of the bags treated with the B. S. 25½ drops were required to rupture the average bag, whereas in the case of untreated bags the average number of drops per bag before breaking was only 4.

Having now described my invention, I claim:

1. Fiber impregnated with the petroleum residuum known as B. S., substantially as set forth.

2. As a new article of manufacture, a bag waterproofed by impregnating it with the

petroleum residue known as B. S., substantially as set forth.

3. Fiber impregnated with the portion of the petroleum residue known as B. S. which is soluble in petroleum benzin and free from the insoluble portion thereof, substantially as set forth.

This specification signed and witnessed this 27th day of May 1908.

THOS. A. EDISON.

Witnesses:

FRANK L. DYER,
ANNA R. KLEHM.