

UNITED STATES PATENT OFFICE.

HARRY A. SCHLESINGER, OF LONDON, ENGLAND, ASSIGNOR TO THOMAS CHRISTY, OF SAME PLACE.

METHOD OF PREPARING WATER-PROOF MATERIAL.

SPECIFICATION forming part of Letters Patent No. 446,294, dated February 10, 1891.

Application filed August 14, 1890. Serial No. 362,008. (Specimens.) Patented in England September 27, 1888, No. 13,917, and in France October 17, 1888, No. 193,601.

To all whom it may concern:

Be it known that I, HARRY ADRIAN SCHLESINGER, merchant, a subject of the Queen of Great Britain, residing at 25 Lime Street, London, England, have invented an improved method of preparing water-proof material for use in surgical operations, as bandages, plasters, and the like, for artificial flowers, also for lining bonnets, hats, and caps, for dresses, and for analogous uses, (for which I have obtained a patent in Great Britain, No. 13,917, bearing date September 27, 1888, and in the Republic of France, No. 193,601, bearing date October 17, 1888,) of which the following is a specification.

In carrying this invention into practice I take a silk gauze or other delicate woven fabric, or a thin unsized paper of strong and long fibers, or surgical bandage material, and I saturate or treat such material with a solution of animal glue of a quality according to the nature of the article to be produced. The material to be saturated or treated is either simply drawn through the glutinous solution or the latter is applied by means of a felt in the same way as color is applied to the surface of papers by a paper-staining machine, the solution of glue simply taking the place of the color in the trough, or the glutinous solution may be applied by means of a brush or sponge. After the material has thus been saturated or otherwise treated it is preferably air-dried, and it is then subjected to a fixing-bath, which will render the glue insoluble. I most usually employ chrome-alum for this purpose in a moderately-strong solution, to which I generally add a small percentage of an iron salt if the material to be produced is to have a brown shade; otherwise the iron salt is omitted. The gelatinized material is left in the fixing-bath for two hours or upward, so as to insure thorough permeation of the chemical solution; but in the case of very thin material it is sufficient to simply pass it slowly through the said solution. The material is then preferably air-dried and allowed to season for two or three days, after which it is immersed in water for the purpose of removing all excess of the chemical solution and dried again.

For most purposes the material is required

soft, tough, and pliant, and for this purpose I treat it with glycerine, more generally by immersing the gelatinized fabric in a bath of glycerine diluted with an equal to two parts of water and after thorough permeation, which may take from two hours upward, according to the substance, I drain the material well and hang it up to dry.

For surgical purposes the material is frequently required to be antiseptic or medicated, and the respective agents for this purpose are applied in any convenient manner, but most generally in combination with the glycerine. For instance, if the material is to be carbolyzed the carbolic acid is mixed with the glycerine bath in a proportion of five to ten per cent. to undiluted glycerine, and in the same way a great variety of medicaments may be incorporated with the material. There are, however, some which do not readily dissolve in the cold—as, for instance, salicylic acid—and such agents I can generally mix with the hot solution of gelatine, with which the material is first treated. In some cases the finished material is further treated by perforating it, so as to give free ventilation when applied to wounds.

Instead of a material of a single texture, I may make a material of a double or compound texture, such as by joining a material treated as above to an untreated fabric—as, for instance, a thin woven tissue or a thin paper treated as above described, to the back of surgical lint or other surgical bandage material. I may also impart aromatic properties to the materials by adding the aromatic substances to the glycerine with which the material is treated.

Instead of the method just described, I may carry out the whole process at one operation by mixing all the ingredients with which the fibrous fabric is to be treated together. For this purpose I make a solution of animal glue with from one-fourth to an equal part of glycerine, according to the suppleness desirable in the resulting material (The larger the proportion of glycerine the more supple the resulting material will be.) I dissolve a chromic salt—such as the bichromate of potash or a combination of the two—in a proportion of

two per cent. or upward to the dry weight of the glue, (the larger the proportion of bichromate the harder the gelatine will set, but the deeper the color.) The latter is a disadvantage, and therefore as small a proportion as possible is usually employed. I mix the chemical solution with the glue solution, and with this composition I saturate or treat a fine silk gauze or other delicate woven fabric, or unsized paper, or surgical bandage material in the same manner as before described. I then hang the so-treated material up to dry, preferably exposing it to the action of daylight for as long a time as practicable, after which it is ready for use. I may also add antiseptic and aromatic substances to the glutinous composition with which the material is treated, as may be required.

I may also form compound fabrics with the materials treated as just described. Thus I may attach a saturated thin woven tissue or paper to the back of lint or other surgical material, as before described, and while the glutinous composition is still fresh and adhesive.

I claim—

1. The method of preparing a water-proof material, which consists in first saturating or treating a fibrous fabric with a solution of animal glue or its equivalent; second, rendering the gelatinous matter insoluble; third, washing the treated material, and, fourth, subjecting the treated material to a bath of glycerine, substantially as specified. 30

2. The method of preparing a water-proof material, which consists in saturating or treating a fibrous fabric with a gelatinous composition of animal glue or its equivalent, glycerine, and a chromic salt, and then drying the material, substantially as specified. 35 40

3. A water-proof material consisting of a fibrous fabric saturated with animal glue, glycerine, and a chromic salt, substantially as described.

Dated this 29th day of July, 1890.

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Witnesses:

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