UNITED STATES PATENT OFFICE.

CHARLES A. EVANS, OF SALEM, NEW HAMPSHIRE, ASSIGNOR TO HIMSELF AND THEODORE S. VERY, OF BOSTON, MASSACHUSETTS.

FLOCKED FABRIC OR IMITATION TEXTILE FABRIC.

SPECIFICATION forming part of Letters Patent No. 275,176, dated April 3, 1883.

Application filed July 10, 1882. (No specimens.)

To all whom it may concern:

Be it known that I, CHARLES A. EVANS, of Salem, in the county of Rockingham and State of New Hampshire, have invented certain Improvements in Flocked Fabrics or Imitation Textile Fabrics, of which the following is a specification.

This invention has for its object to provide a cheap and serviceable substitute for woolen and other cloths, adapted for use as a covering for desks and tables, drapery, upholstering material, carriage-lining, &c.

In carrying out my invention I take as a foundation a suitable woven fabric—such as linen, cotton, silk, or other suitable material of comparatively close texture—and spread upon one or both sides of it an elastic liquid-proof coating composed of rubber, gutta-percha, or other gum, or a mixture of these or equivalent gums, dissolved in naphtha or other evanescent volatile fluid, to form a smooth, pliable, elastic, and water-proof surface or bed. This elastic material should be of the same color as the outer surface of the completed product, and the foundation fabric is preferably of the same color. When this surface or bed has sufficiently hardened by the volatilization of the fluid, I apply to it a thin coating of mastic varnish or other suitable practically colorless liquid adhesive material, and immediately thereafter, before the adhesive material has time to dry or harden, I force against it a suitable flocking material composed of loose fibers or filaments of wool, silk, cotton, or other suitable material cut in any desired length and colored to correspond with the elastic bed.

In applying the flocking material I prefer to impel the same against the adhesive surface by air-pressure or by gravitation, so that the pieces or filaments of flock can stand on the cloth in the position in which they originally fall. I prefer to pass the cloth, after it has received its adhesive coating, into a flocking-box, the cloth being supported and carried through said box on an endless belt or apron driven by rollers at the ends of the box. The flocking material is forced against the adhesive surface within the box, preferably by means of a blower or other air-forcing apparatus, through a flaring pipe or tunnel, said material entering the smaller end and escaping through the larger end of said pipe, so as to be distributed or scattered widely over the cloth.

If desired, the flock may be dusted or sprinkled upon the cloth, and the apron supporting the cloth may be shaken or beaten upwardly by suitable mechanism, so as to meet the descending flock with some force.

The described operations are continued until all the adhesive surface is covered and the adhesive material has taken up as many particles of flock as possible.

By either of the above-described operations I am enabled to apply a greater amount of flock to the adhesive surface than could be done by positive pressure of the flock thereon, because the filaments are allowed to adhere more or less by their ends, instead of lying flat against the adhesive surface.

My improved method of applying the flock enables me to imitate a plush or piled fabric by using flock of suitable material. A napped woolen or other surface may be also successfully imitated. After the flocking operation is completed the cloth is exposed to the air until the adhesive material is thoroughly dried, and then rolled or folded for transportation and use.

If desired, I may press the cloth previous to drying and emboss or stamp figures or patterns upon the surface. Sometimes—as when a product of an unusual degree of thickness, or one in which both sides are alike, is required—I apply the adhesive material and flocking to both sides of the cloth. To obtain greater thickness, I may dust or blow fine flock upon the original elastic coating before it has been dried and pass the cloth between rollers to incorporate the flock closely into the elastic coating, the subsequent process being the same as above described. For many purposes—such as book-bindings, table and desk covering material, &c.—cloth flocked on one side is suitable, while for various other purposes it is obvious that both sides should be flocked.

I am aware that paper and other materials have been flocked with wool and other materials, and that cloth enameled on one side has

been flocked to imitate leather, the flocking being applied to varnish, which is spread directly on and permeates the cloth. My object is to produce a cheap and durable substitute for textile fabrics of various kinds, and the success of my invention is due to the provision of the elastic and liquid-proof bed on the foundation fabric and the application of the elastic material and flocking to said bed, whereby the varnish is kept from entering and stiffening the foundation fabric, and the whole product is maintained in a soft pliable condition. Were the elastic and liquid-proof bed omitted, the varnish or adhesive material would permeate the cloth and render it hard and liable to crack. This I have demonstrated by practical tests.

The improved product may be made to imitate broadcloths or other cloths having a finished surface by applying suitable surfacing compound to the flocked surface after the latter has been dried, and then applying a polishing roll or iron to give the desired luster.

I am aware that flock has been deposited directly upon the rubber coating of a piece of textile fabric while said coating is in a soft and adhesive condition, as shown in Letters Patent of the United States Nos. 48,015, 34,428, 25,192, and 26,720.

By depositing the flock upon the adhesive coating of varnish instead of upon the gum coating, I obtain the following advantages, viz: First, the varnish, being more adhesive in its nature than the rubber, will take or catch the particles of flock more readily, the flock being sprinkled or dusted upon the varnish and adhering by simply falling upon it, without artificial pressure, thus producing a surface resembling plush, whereas when the rubber is employed to catch the flock the latter has to be pressed into the rubber to insure sufficient adhesion, and has afterward to be raised by artificial means if a plush surface is desired; second, the varnish dries slowly, so that the operation of dusting or sprinkling the flock upon it can be repeated several times before the varnish dries, thus insuring a thorough covering of all parts of the adhesive surface with flock, while the rubber, when employed to catch the flock, dries more quickly, so that pressure has to be resorted to, as above described; third, the incorporation of the flock into the rubber coating by pressure makes a stiffer and less pliable article than mine, in which the flock is kept entirely distinct from said coating by the interposed coating of varnish.

By making the foundation fabric, the gum coating, and the flock of the same color, as above described, the product is made much more serviceable, no change of color being caused by wear.

I claim—

1. In the method or process of making a water-proof flocked fabric composed of a foundation of woven fabric, a liquid-proof coating of suitable gum, and a surface of flock, the interposed step consisting in applying to said liquid-proof coating a surface of varnish or other liquid adhesive material and applying the flock to said adhesive surface, as set forth.

2. An imitation of woolen or other fabric composed of a foundation of woven fabric having on one side or both sides an elastic liquid-proof bed, a coating of varnish or other adhesive material applied to said bed, and a surface of flock applied to said adhesive coating, as set forth.

3. An imitation of woolen or other fabric composed of a foundation of woven fabric of a given color, having on one or both sides an elastic liquid-proof bed of the same color, a coating of varnish or other colorless adhesive material applied to said bed, and a surface of flock of the same color as the foundation and bed, applied to said adhesive coating, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 3d day of July, 1882.

CHAS. A. EVANS.

Witnesses:
C. F. BROWN,
A. L. WHITE.