

UNITED STATES PATENT OFFICE.

THOMAS CROSSLY, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO AMERICAN WATER PROOF CLOTH COMPANY, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN THE MANUFACTURE OF WATER-PROOF FABRICS.

Specification forming part of Letters Patent No. 48,015, dated May 30, 1865.

To all whom it may concern:

Be it known that I, THOMAS CROSSLY, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and useful Improvement in the Manufacture of Water-Proof Cloth or Cloth Prepared with India-Rubber and with other Gums; and I do hereby declare that the same is fully set forth and described in the following specification.

In the manufacture of flock-faced water-proof goods either dust-flocks or flocks of short fibers have heretofore been used to obtain, upon the face or upon either side of the fabric used as a base, a surface resembling cloth. In the process of dyeing or printing such goods it has been found that a full and rich color, equal in effect to that obtained on goods made entirely from wool, cannot be produced, by reason of the shortness of the fiber and of the promiscuous manner in which it is necessarily applied to the cloth; and, second, for the reason that the fibrous surface is so slightly elevated above the rubber or gum used to hold it upon the surface of the cloth as to show the dark, heavy shade or color of the gum after being flocked; and, third, because the coloring-matter or the substances evolved from the rubber or gum while being heated or vulcanized easily penetrate and discolor the fibers or flocks used. These difficulties are much more conspicuous in heavy goods—such as are desirable for carpets, car-seating, traveling-bags, &c.—where a heavy and substantial face of wool or other fibrous material is desirable in order to produce full and rich shades of color, which cannot be obtained by flocks or short fibers, for the reasons above given. These objections I have overcome, and have produced a fabric in all respects suitable for and adapted to the uses last named and for other purposes, by the discovery that a surface of wool, silk, fur, or other fibrous material can be prepared of any desired length of fiber and of any required thickness, and applied to cloth coated with india-rubber or other gum in lieu of flocks. This new article of manufacture may be produced in the following manner: A fabric of jute, cotton, flax, wool, or other textile material is selected for the base, and covered with

a coating of india-rubber compound prepared in such manner that it is capable of vulcanization. This coating may be spread upon the fabric used as the base when in a state of partial solution, by what is known as the “knife-machine,” or, when softened by heat, by means of calender-rollers, or in any of the well-known ways of spreading rubber and other gums upon textile fabrics. While the rubber compound is in a soft and plastic state a bat or felt of wool, silk, or fur, or other textile fabrics to be used as a face, is spread upon and pressed into the rubber compound, and thoroughly united with that and with the base by means of the pressure of calender-rollers, in the same manner that water-proof goods with a surface of fibrous flocks are now made.

This material, to be used as a face, may be carded as in the ordinary manner for felting, and the bats thus carded may be applied either before or after being felted. I prefer, however, to pass the bat through the hardener for such length of time (being guided by the kind of wool or other material used) as will give it the consistency of cloth, and thoroughly interlock the fibers, thus securing a much firmer adherence of the face to the back of the fibrous material. The vulcanization of the rubber compound greatly improves the fabric, and will cause its several parts to adhere more firmly together. The face may be napped by the ordinary process of teasing or gigging to any extent required in imitation of velvet or terry fabrics, or may be corrugated with fluted rolls in imitation of Brussels carpet or rep goods, and is susceptible of almost any desired finish, while it presents a face of fibrous material sufficiently dense to give full effect and richness to the colors applied to it. The fluting or corrugation may be made with better effect before vulcanization. A woven or knit fabric may be used for the face of the goods, instead of fibrous material in the bat or felt, the chain of material being determined by the uses to which the fabric is to be applied. I am thus enabled to produce a fabric which may be dyed, colored, or printed, or stamped or embossed, and which is suitable for carpets, rugs, mats, upholstering, traveling-bags, &c.,

equaling in durability and richness of coloring and finish the finest mosaics, velvets, or brussels, and at less cost.

The dyeing and printing may be done by a process heretofore invented and patented by me, or by any of the known processes for the printing of heavy goods. The stamping or embossing may be done by any of the machines used for those purposes. For goods applicable to certain uses the face of the bat, felt, or textile material may be colored before it is combined with the gum-coated base.

The new fabric will be composed of the coarse textile material used as the back or base, combined with the finer textile material or the fibrous substances in the form of a bat or felt which form the face, united by means of a coat or sheet of india-rubber or other gums, or the compounds thereof, which can be so thoroughly combined and united by means of pressure and the process of vulcanization that they cannot be separated without the destruction of the whole. When the compound of rubber or other gums in the fabric have been vulcanized, it may be dyed, colored, or printed, as above set forth. This fabric, both before and after it has been colored, I believe to

be new and different from anything that has heretofore been produced.

What I claim, and desire to secure by Letters Patent, as a new manufacture, is—

1. A fabric formed by the combination of a coarse textile material for a base, with a finer textile material, or with fibrous material in the form of a bat or felt, for a face, united by a coating or sheet of india-rubber or other gum, or compounds thereof, in the manner and with the result and for the purposes set forth.

2. As a new manufacture, the fabric having a back or base of flax, cotton, jute, wool, or other textile material, coated or covered with a sheet of india-rubber or other vulcanizable gums, or the vulcanizable compounds thereof, and having a face of fibrous substances in the form of a bat or felt, or of other textile material, combined and united by pressure and by the vulcanization of the gums, and dyed and printed, or dyed, or printed, or colored, or stamped, or embossed, for the purposes and in the manner described and set forth.

THOS. CROSSLY.

Witnesses:

JOHN S. HOLLINGSHEAD,
JOHN D. BLOOR.