UNITED STATES PATENT OFFICE.

CHARLES GOODYEAR, OF NEW HAVEN, CONNECTICUT.

IMPROVEMENT IN POROUS-NAPPED RUBBER FABRICS.

Specification forming part of Letters Patent No. 25,192, dated August 23, 1859.

To all whom it may concern:

Be it known that I, CHARLES GOODYEAR, of New Haven, in the State of Connecticut, have invented a new manufacture which I denominate "Porous-Napped India-Rubber Fabric;" and I do hereby declare that the following is a full, clear, and exact description thereof.

In view of the importance of rendering fabrics water-repellent, and at the same time deeming it indispensable for many uses—such as clothing—that such fabrics should be pervious to air, I instituted a series of experiments to ascertain if these combined properties could not be obtained by the use of india-rubber or allied gums, and finally I discovered that by incorporating fibrous substances with india-rubber or allied gums, applied in a very soft or liquid state and very thin films, that the gum is not only cemented or bound together the mass of fibers, but became porous, so as to be pervious to air and at the same time water-repellent, and the fabric so produced I secured by Letters Patent in England, sealed on the 5th day of May, 1850, and enrolled the 7th day of December, 1850. Subsequently I invented another fabric composed of a woven fabric coated with a porous film of india-rubber or allied gum, rendering the fabric pervious to air and impervious to water; but fabrics so made, although useful for some purposes, are of very limited application, in view of the want of a napped or woolen face resembling cloth. What was most desired was a fabric which should have a napped face, be much cheaper than woolen fabrics, impervious to water, and at the same time pervious to air. These results I have attained by my invention, which consists of a fabric formed either by incorporating a bat or fleece of cotton or other fibers with india-rubber in such small proportional quantity and so soft or liquid as to become porous, or consisting of a woven fabric coated with india-rubber or allied gum so to thin as to become pervious to air while it is impervious to water, and of a coating of flocks or clippings or shearings of woolen or other fibers, or finely-granulated cork or other substance sifted over the surface while the gum is still in the plastic state.

Having thus pointed out the nature of my said invention, I will now describe the modes in which I have successfully produced the said new manufacture.

I take a woven fabric—such as cotton cloth—and coat it on one face with india-rubber or allied gum, applied in the liquid state with what is known by india-rubber manufacturers as the "spreading-knife." A good consistency of solution for the purpose is obtained by dissolving one pound of india-rubber in two pounds of naphtha or camphene; or if a bat or fleece of fibers be used, it is incorporated with a sheet of india-rubber or allied gum made very soft by heat and very thin, so as to become pervious to air; and when made according to either of the above modes, and while the gum is still in the plastic state, I spread over the surface, by a sieve or other suitable means, a coating of flocks or shearings or clippings of woolen or other fibers, or finely-granulated cork or other granular matter, and partly incorporated with the gum by passing between calendering-rollers, and, if desired, the fabric thus produced may be vulcanized by artificial heat, the gum being previously prepared for that purpose in manner well known to persons acquainted with the process of vulcanizing india-rubber.

The fabric produced by either of the modes above described will be found to be impervious to liquids and pervious to air, and with a face which may be napped or otherwise finished, as may be desired.

Although I have above described the modes by which I have successfully produced the fabric invented by me, I do not wish to be understood as limiting my claim of invention to such modes, as the same fabric may be produced by other modes.

I am aware that fabrics have been made by spreading flocks or clippings or shearings of wool or other fibers or granulated cork or other substance on the surface of india-rubber fabrics which were not porous, and causing the same to adhere thereto; and therefore I do not wish to be understood as making claim broadly to the facing of india-rubber fabrics with flocks, clippings, or shearings, or granulated cork, &c.; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

A new porous manufacture or fabric composed of a woven or other cloth, or equivalent therefor, and india-rubber or allied gum rendered pervious to air and impervious to water, substantially as described, and with a face of flocks, clippings, or shearings of woolen or other fibers or equivalents therefor, substantially as and for the purpose described.

CHAS. GOODYEAR.

Witnesses;
FRS. BACON,
HORACE ANDREWS.