

# UNITED STATES PATENT OFFICE.

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FABRIC AND PROCESS OF TREATING THE SAME.

991,988.

Specification of Letters Patent.

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No Drawing.

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*To all whom it may concern:*

Be it known that I, NATHAN HIRSCH, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Fabrics and Processes of Treating the Same, of which the following is a full, clear, and exact disclosure.

The present invention relates to that class of fabrics designed for use as a flexible duck or canvas for wearing apparel.

The object of my invention is to produce a fabric for the purpose stated, which may be made of cotton, but which will not shrink or change its shape when moistened, and one which will not become stiff and inflexible when pressed or ironed with a hot iron.

Heretofore in the making of wearing apparel, linen duck has been largely used as a material for lining and giving body to parts of the apparel. Linen is particularly adapted for this use inasmuch as it is less liable to shrink than cotton and will not become as stiff and unpliable when pressed with a hot iron after being moistened.

Linen thus used is expensive and it is therefore one object of my invention to produce a fabric which may be used in the place of linen, but which will have all of the desirable qualities possessed by the more expensive material.

In carrying out my invention, I employ a textile fabric of suitable weave, preferably of cotton. The fabrics to which my invention is particularly applicable, are those known as paddings or elastic ducks used in the making up of custom made garments and other wearing apparel. This fabric is first bleached in the usual or well known way after which it is subjected to the action of a material having a shrinking or contractive action similar to that produced by astringent materials upon animal tissues, which is preferably a solution of caustic potash or caustic soda. The latter treatment contracts the fibers of the fabric and prevents liability of further shrinking when the fabric becomes again moistened. It also gives a permanent set to the fibers, thereby rendering them incapable of being stretched thereafter. After application of the contractive solution, the fabric is given a slight sizing by impregnating it with a solution of starch or similar material used for the purpose stated. After the sizing has been ap-

plied, the fabric is dried, and preferably at the same time subjected to the action of a tentering machine. The action of the tentering machine prevents the fabric from drying as a stiff unpliable body and renders the fabric of practically the same texture as linen heretofore used in the padding or lining of garments.

The tentering action is a manipulation or working of the fabric so that the warp is prevented from adhering to the woof thereof, thereby retaining the flexibility of the fabric. This tentering is to be distinguished from stretching, which has heretofore been resorted to in the preparation of ordinary cotton lining or material for garments. As an example of the action of the process of my invention, it may be said that a piece of cotton lining material which originally is thirty-six inches in width, will be contracted by the action of the caustic alkali to a width of twenty-seven or twenty-eight inches which width is practically that of the finished material since the tentering action simply loosens and prevents adhesion between the threads.

By treating a cotton fabric in the manner above set forth, a fabric will be produced which will not become stiff after moistening and ironing or pressing and one which is fixed in its dimensions, that is, will not shrink or enlarge under the action of moisture and which at the same time retains its original elasticity and pliability under the usual conditions of use to which such fabrics are submitted.

The fact that cotton may be used as original fabric in which these qualities are embodied, enables me to produce a fabric that is much less expensive to manufacture and therefore can be used in a class of garments, the selling price of which will preclude the use of linen as a padding or lining material.

Having thus described my invention, what I claim and desire to protect by Letters Patent is:

1. The process of producing a cotton lining or stiffening fabric which comprises, submitting a cotton fabric of substantially the weave and weight of the usual linen stiffening material to the action of caustic alkali having a shrinking or contractive action, thereafter sizing the same, then drying and at the same time submitting the fabric in its shrunken condition to a me-

chanical action which prevents adhesion between the threads and renders the fabric pliable without being stretched.

2. An article of manufacture, a cotton lining and stiffening fabric consisting of a sized cotton fabric of substantially the weave and weight of the usual linen stiffening material, chemically shrunk and having a permanent set in dimensions less than that

produced by moisture, the threads of the 10 sized fabrics being free from adhesion.

Signed at New York, this 30th day of April, 1909.

NATHAN HIRSCH.

Witnesses:

EDWARD W. VAILL, Jr.,  
H. RICHARD WOBSE.