To all whom it may concern:

Be it known that I, GEORGES HEBERLEIN, a citizen of the Swiss Republic, and a resident of Wattwil, Canton of St. Gall, Switzerland, have invented certain new and useful Improvements in Processes of Treating Cotton Fabric to Produce Woollike Effects (which improvements are described in the following filed applications, i.e., German application Ser. No. 67112, filed July 17, 1914; patent of addition #294,871, granted Oct. 19, 1916; German application Ser. No. 65935, filed Feb. 13, 1914; patent of addition #299,213, granted May 26, 1916; German application Ser. No. H. 65470, filed May 19, 1915; Patent #295,816, granted Dec. 18, 1916; French application Ser. No. 82050, filed Apr. 21, 1916; Patent #481,561, granted Sept. 23, 1916; British application Ser. No. 6218 of 1916, filed May 1, 1916; Patent #100,488, granted as of May 19, 1916; Belgian application Ser. No. 225,208, filed June 24, 1919; Patent #280987, granted (not yet issued); Italian application Ser. No. (have none), filed May 4, 1916; Patent #154,955, granted June 5, 1916; Austrian application Ser. No. (have none), filed Apr. 29, 1916; Patent #81907, granted Sept. 25, 1920), of which the invention is a specification.

My invention relates to a process of treating cotton fabric to produce wool-like effects.

In my United States Patent No. 1,141,872, granted June 1, 1915, I have described and claimed a process of treating cotton fabric to produce permanent wool-like effects, by first mercerizing the fabric and then treating it with concentrated sulphuric acid of less than 51° Bé. It was described in that patent specification that if cotton fabric which has been mercerized and also preferably bleached, is subjected to the action of sulphuric acid of from 49° to somewhat under 51° Bé. (the best action being obtained between 49½° and 50½° Bé.), the mercerizing lustre disappears, and instead of the transparency obtained with a higher concentration of sulphuric acid, the fabric assumes a fine light crepe-like nature, whereby it appears fuller, more wool-like, softer, and is generally improved and it has imparted to it somewhat the character of fine woolen stuff, such for example as fine thin wool muslin.

I have also discovered that the wool-like quality of the fabric mentioned in said Patent No. 1,141,872 is also obtained if the cotton fabric is first treated with the sulphuric acid of from 49° to 51° Bé., then washed, and without stretching, mercerizing the fabric with caustic alkali such as caustic soda.

The present process is distinguished from that described in the aforesaid patent, in that the said wool effect is obtained according to the process of the aforesaid patent, regardless of whether the mercerizing is carried out with or without stretching, whereas in the present process where the mercerizing is carried out after the acid treatment, the proper wool-like effect takes place only when the mercerizing is done without stretching.

I have further discovered that the said wool-like effect is attained if in carrying out the herein described process and also the process of the said patent, the treatment with sulphuric acid is replaced by a treatment with phosphoric acid of 55° to 57° Bé., or with hydrochloric acid of the specific gravity of 1.19 at low temperature (as for example, below 0° C.) or with nitric acid of 46° to 48° Bé., or with zinc chloride solution of 66° Bé. at 60° to 70° C., or with Schweizer's solution, with a short reaction period. This application is directed to the process comprising a treatment with a concentrated mineral acid and a subsequent treatment with the caustic soda without stretching, whereas my divisional co-pending application Serial Number 570,497 is directed to the same process except for the substitution of a cellulose solubilizing salt for the acid.

It will be understood by those skilled in the art that when the cotton fibres are treated as herein stated, the fibres are chemically structurally changed by each treatment, and it is characteristic of fabrics treated according to my process, that the fibres are chemically structurally changed, and that the changed or altered condition of the fibres is permanent, i.e., will withstand repeated laundering so that the goods may be laundered without eliminating or materially altering the characteristics of the fabric above.
described, and this greatly enhances their value.

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

1. Method of treating cotton fabric to produce the described wool-like effect, which method comprises subjecting the fabric to the action of a concentrated strong mineral acid which will so alter the fibre that when subsequently treated with caustic soda without stretching, the said wool-like quality will be effected, then washing the fabric and subjecting it to a mercerizing treatment without stretching.

2. Method of treating cotton fabric to produce the described wool-like effect, which method comprises subjecting the fabric to the action of concentrated sulphuric acid of from 49° to 51° Bé., then washing the fabric and subjecting it to the action of caustic soda without stretching the fabric.

3. Method of treating cotton fabric to produce the described wool-like effect, which method comprises subjecting the fabric to the action of a concentrated mineral acid which will so alter the fiber that when the fabric is subsequently treated with caustic soda without stretching, the said wool-like quality will be effected, and thereafter treating the fabric with caustic soda without stretching it.

In testimony whereof I have signed my name to this specification.

GEORGES HEBERLEIN.