UNITED STATES PATENT OFFICE.

ARTHUR GIEHLER, OF CHEMNITZ, GERMANY.

PROCESS FOR THE PRODUCTION OF TRANSPARENT PATTERNS AND THE LIKE ON TISSUES.

No. 853,966. Specification of Letters Patent. Patented May 21, 1907.

Application filed August 27, 1906. Serial No. 332,308.

To all whom it may concern:

Be it known that I, ARTHUR GIEHLER, a subject of the King of Saxony, and a resident of Sachs strasse, Chemnitz, in the Kingdom of Saxony, German Empire, have invented a new and useful Process for the Production of Transparent Patterns and the Like on Tissues, of which the following is an exact specification.

My invention relates to a process for producing patterns, designs, letters and the like on half-silk and silk tissues of all kinds, especially tissues used for umbrellas, window-shades, curtains and draperies. The patterns and so on produced according to my invention have the properties of being invisible or at least hardly visible if the rays of light are reflected thereof, but to appear in penetrating light. These properties are achieved by changing the volume of each single thread, the latter being brought in contact with a chemical substance, which causes these threads to shrink, to diminish in size. The adjacent meshes of the shrunken threads will naturally become larger, thereby making the meshes within the limits of the design to appear transparent and stand out against the remaining darker ground.

The chemical substances are brought upon the tissues by well known means of printing, such as dies or rollers. Suitable means to cause a changing of volume or properly spoken a shrinking of the single thread are all chemical substances, where acetic acid forms a union with some oxid of the heavy metals, such as are contained in the iron or aluminium groups. These acetates must be thickened by some well known means in order to form a pulpy mass of adequate thickness for printing purposes. The most suitable substance, for instance, would be acetate of chromium in a thickened state.

Having thus fully described the nature of my invention, what I desire to secure by Letters Patent of the United States is:—

1. Process for the production of patterns, designs and letters on tissues, said designs being transparent if penetrated by light, consisting in the printing of these patterns, designs and letters on tissues by means of a thickened acetate of some heavy metal, the application of which substance causes the shrinking or diminishing of the volume of each single thread, and the widening of the adjacent meshes within the limit of the design.

2. Process for the production of patterns, designs and letters on tissues, said designs being transparent if penetrated by light, consisting in the printing of these patterns, designs and letters on tissues by means of a thickened acetate of chromium, the application of which substance causes the shrinking and diminishing of the volume of each single thread, and the widening of the adjacent meshes within the limit of the design.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

ARTHUR GIEHLER.

Witnesses:

FREDERICK J. DIETZMAN,

RUDOLF FRANKE.