UNITED STATES PATENT OFFICE.

WILLIAM GRÜNE, OF BERLIN, GERMANY.

IMPROVEMENT IN TRANSFER-PAPER.

Specification forming part of Letters Patent No. **132,659**, dated October 29, 1872.

To all whom it may concern:

Be it known that I, WILLIAM GRÜNE, of Berlin, in the Kingdom of Prussia, Empire of Germany, have invented a new and useful Compound for Treating Paper and other materials on which to transfer patterns or designs, of which the following is a specification:

My invention relates to the production of figured paper and other material by the well-known process of transferring the design to the surface to be ornamented. As heretofore practised this has been attended with much difficulty in removing the transferring ornamented material from the design without injuring or disfiguring the material. It is the object of my improvement to remedy this difficulty and to produce a transferring preparation which will answer the purpose in a better and more advantageous manner than hitherto in use. To this end my invention consists of a new transferring compound in which caseine, being the purified curd or the coagulable portion of milk, is used with gum, albumen, gelatine, and glue, to form a watery solution, with a suitable body or consistency, and producing the proper whiteness and clearness to the sizing, while rendering it elastic to prevent it from drying in cakes or from cracking; and in connection with this new compound which is soluble, when dry in water, I have made a further improvement, the object of which is to render it insoluble when applied upon the transferring material for use. This consists of a solution of chromate of alum, saliferous clay, and tannic acid. While the application of a coating of this solution renders the first coating perfectly insoluble, it nevertheless retains the property of absorbing a certain quantity of water, and of expanding slightly, which is important, for the reason that the paper or other material on which the patterns are to be transferred must be dampened to receive the impressions. The combination and use, therefore, of these two preparations form the chief feature of my invention. Any suitable proportion of these ingredients will answer the purpose, and the ingredients of the first-named preparation may be mixed separately or together. The first coating substance I render insoluble partially through the addition of chromate of alum, but finally and after it has been applied and become dry, by means of a coating of the insoluble preparation before stated, compounded in suitable proportions of the ingredients named.

In applying the material it must be dampened with water to facilitate its application to the article to be ornamented, and it is at this stage of the process that the dry sizing will absorb a certain quantity of water to render it entirely flexible and easily handled, without dissolving the coating, but expanding it slightly under the action of the water. This is of great advantage in manipulating the transferring material while maintaining the consistency of the coating intact. The paper or other material is coated by floating it upon the sizing solution, and after being dried is treated to render it insoluble, that it may be dampened with water for use.

The design may be upon glass or metal plates, produced by painting, etching, printing, or photography, and when applied, the transferring medium is left under pressure until it is perfectly dry, when it may be removed easily and entirely, with the picture distinct thereon. The pattern requires neither sinking nor raising, for the transferred copy will be perfect in the finest lines and shading.

Having described my improvement, I claim as follows:

1. In the preparation of paper and other material, as a medium for transferring designs, I claim the soluble compound herein described for forming the transferring body, as described.

2. In combination with the soluble coating preparation herein described, I claim the insoluble preparation applied to the transferring coating, as described.

3. The herein-described insoluble preparation, for preparing paper, &c., for the transfer of patterns, essentially as described.

Witnesses: WILLIAM GRÜNE.

H. BREISMANN,

LOUIS KRUEGER.