

UNITED STATES PATENT OFFICE.

REINHOLD GRÜTER, OF CHARLOTTENBURG, GERMANY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO R. H. COMEY COMPANY, OF CAMDEN, NEW JERSEY, A CORPORATION OF NEW JERSEY.

PROCESS OF BLEACHING VEGETABLE FIBER AND FABRICS.

1,063,678.

Specification of Letters Patent.

Patented June 3, 1913.

No Drawing.

Application filed June 3, 1911. Serial No. 631,113.

To all whom it may concern:

Be it known that I, REINHOLD GRÜTER, a citizen of the German Empire, residing in Charlottenburg, near Berlin, in said Empire, have invented certain new and useful Improvements in Processes of Bleaching Vegetable Fiber and Fabrics, of which the following is a specification.

This invention relates to an improved process of bleaching vegetable fiber and fabrics.

It was discovered by practical tests that vegetable fiber and fabrics could be bleached in the most perfect manner and without the least impairment of the fiber by first treating them with hydrogen peroxid and then subjecting them to the action of ammonia-vapors.

By the first step, namely the treatment of the hydrogen peroxid, no essential bleaching effect is obtained on the fiber; but as soon as the so treated fiber is subjected to the action of ammonia-vapors, the hydrogen peroxid absorbed by the fiber is decomposed in a very short time and oxygen separated with considerable foaming. During the short time taken up by the reaction an intense bleaching effect is exerted on the fiber.

Example: A Panama hat or other fabric is first washed with soap water and then dried. It is then submerged in a 15% solution of hydrogen peroxid, which is heated to about 70° C., the fabric remaining in the solution until it is saturated. This is usually accomplished in a few minutes. Inasmuch as concentrated solutions of hydrogen peroxid lose at the temperature referred to, especially when covered with dirt or other impurities, in consequence thereof some of their oxygen, it is advantageous to add for bleaching purposes a small quantity of a tin compound, such as for instance tin sulfate. A fraction of 1% is sufficient, as thereby a reliable boiling resistency of the peroxid solution is obtained. The fabric to be treated is then removed from the solution, the excess of the solution expressed from the material, and, while still hot, introduced into an atmosphere of ammonia-vapors contained in a closed chamber. This atmosphere must be obtained by suspending the fabric over a concentrated ammonia-solution and heat-

ing the same so as to accelerate the generation of ammonia-vapors. The hotter and stronger the ammonia-vapors are and the hotter the fabric is when treated, the quicker and stronger is the bleaching effect obtained. Under favorable conditions the fabric is fully bleached even within a few minutes.

The process of treating the vegetable fiber or fabrics can also be reversed, namely, by impregnating the same in suitable manner with ammonia or substances which split off ammonia, and then subjecting them to the action of hydrogen peroxid.

The process described has the advantages that a very high degree of bleaching is obtained; that a very small quantity of bleaching material is required; that the bleaching is effected within a very short time; that it can be accomplished at a greatly reduced cost and without impairing the fiber or fabric in the least. Furthermore, the bleaching effect is obtained uniformly over the entire fiber or fabric to be bleached.

I claim:

1. The process herein described of bleaching vegetable fiber and fabrics, which consists in saturating the fiber or fabrics in a solution of hydrogen peroxid and then subjecting them to the action of ammonia-vapors.

2. The process herein described of bleaching vegetable fiber and fabrics, which consists in saturating the same in a solution of hydrogen peroxid to which a small quantity of a tin salt has been added, and then treating them with ammonia-vapors.

3. The process herein described of bleaching vegetable fiber and fabrics, which consists in saturating the fiber or fabric in a hot solution of hydrogen peroxid, and then subjecting them while in highly heated condition to the action of hot ammonia-vapors.

4. The herein described process of bleaching fibrous material, which consists in saturating the material with a solution of hydrogen peroxid which is free of decomposing matter, removing the excess of the solution from the material, and exposing the same to a gas or vapor adapted to cause decomposition of the hydrogen peroxid, which gas or vapor is contained in a chamber.

5. The herein described process of bleach-

ing fibrous material, which consists in saturating the material with a solution of hydrogen peroxid which is free of decomposing matter, removing the excess of the solution from the material, and exposing the
5 same to a vapor of ammonia, which vapor is contained in a chamber.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

REINHOLD GRÜTER.

Witnesses:

MAX MAETSCHKE,
PAUL FENGLER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
