UNITED STATES PATENT OFFICE.

FRIEDRICH BREUNINGER, OF FRANKFORT-ON-THE-MAIN, GERMANY, ASSIGNOR TO LEOPOLD CASSELLA & CO., OF SAME PLACE.

PROCESS OF DYEING SULFUR COLORS.

SPECIFICATION forming part of Letters Patent No. 660,069, dated October 16, 1900.

Application filed August 7, 1900. Serial No. 26,162. (No specimens.)

To all whom it may concern.

Be it known that I, FRIEDRICH BREUNINGER, a citizen of Prussia, and a resident of Frankfort-on-the-Main, Hesse-Nassau, Prussia, Germany, have invented certain new and useful Improvements in the Process of Dyeing Sulfur Colors, of which the following is a specification.

The direct-dyeing cotton-dyestuffs containing sulfur—such as immedial black, vidal black, katigen brown, &c.—are, as a rule, subjected to an after-treatment on the fiber after being dyed in order to improve the shade or to develop and completely fix the color. An after-treatment with bichromates, which have hitherto been used almost exclusively for this purpose, has often a detrimental effect on the structure of the cotton fiber, and it is a well-known fact that dyeings done with vidal black, which require a very energetic chroming, become tender after having been stored for some time.

I have now found out that chromous salts are an excellent means of fixing dyestuffs of the sulfur group. If dyeings of immedial black are, for instance, treated with chrome-alum, such dyeings become fuller and deeper, exactly as if after-treated with chromate. The fastness to milling and especially also the fastness to rubbing of dyeings treated with chromous salts meet the highest requirements; but a tendering of the fiber cannot at all be observed.

It is natural that with dyestuffs which have to be first developed by oxidation, such as vidal black, the use of the chromate cannot be substituted by a treatment with chromous salts; but also in such a case the after-treatment with chromous salts offers great advantage, as a comparatively-small addition of chromate proves sufficient, and consequently the fiber is less changed. The after-treatment is effected in this way that the dyeings after being well rinsed are turned for about one hour in a bath of about 80° centigrade, which has been charged, according to the dyestuffs used and the intensity of the dyeings, with three to five per cent. chrome-alum, (calculated on the weight of the cotton.)

Other chromous salts, especially chromous acetate, may be used in the place of chrome-alum.

Having now described my invention and in what manner the same is to be performed, what I claim is—

The method of increasing the intensity and fastness of dyeings done with sulfur dyestuffs by treating the dyed fiber with solutions of chromous salts substantially as described.

Signed at Frankfort-on-the-Main, Hesse-Nassau, Prussia, Germany, this 24th day of July, A. D. 1900.

FRIEDRICH BREUNINGER.

Witnesses:
JEAN GRUND,
RICHARD GUENTHER.