

# UNITED STATES PATENT OFFICE.

LEOPOLD HEINRICH DEHOFF, OF LUDWIGSHAFEN-ON-THE-RHINE, GERMANY, ASSIGNOR TO THE BADISCHE ANILIN & SODA FABRIK, OF LUDWIGSHAFEN-ON-THE-RHINE, BAVARIA, GERMANY, A CORPORATION OF BADEN.

## PROCESS OF DISCHARGING WITH HYDROSULFITE PASTE.

SPECIFICATION forming part of Letters Patent No. 744,501, dated November 17, 1903.

Application filed August 18, 1900. Serial No. 27,314. (No specimens.)

*To all whom it may concern:*

Be it known that I, LEOPOLD HEINRICH DEHOFF, doctor of philosophy and chemist, a subject of the King of Saxony, residing at Ludwigshafen-on-the-Rhine, in the Kingdom of Bavaria and Empire of Germany, have invented new Processes of Discharging with Hydrosulfite Paste, of which the following is a specification.

This invention relates to a new discharging agent and also to the use thereof in an improvement in the art of discharging dyed material by means of salts of hydrosulfurous acid, such as sodium hydrosulfite, sodium-zinc hydrosulfite, &c.

In the prior art the hydrosulfite employed was generated at or practically at the time and place of employment and was then always accompanied by an excess of the metallic zinc used. It was this excess of zinc which caused the disadvantages and drawbacks in the application of hydrosulfites in discharging operations. These drawbacks and disadvantages were that if the discharge-paste was too thick the excess of zinc-dust which was necessarily present soon clogged up the design on the rollers. If the paste was too thin, the zinc-dust settled to the bottom of the box and was not available for discharging purposes on the material to be discharged. Now this improvement in the art of discharging dyed goods by means of sodium or another hydrosulfite and according to which improvement the presence of metallic zinc or other free or uncombined metal is completely avoided is based upon the discovery that such concentrated solutions of the alkali hydrosulfites as can be obtained when working according to the process which is described in German Patent No. 112,483 for the production of the solution of hydrosulfites, or the new solid sodium hydrosulfite whose preparation is likewise described in said German Patent No. 112,483, dated May 24, 1899, and issued August 1, 1900, or the zinc-sodium hydrosulfite which is the subject of United States Patent No. 662,339, of November 20, 1900, or the zinc-calcium hydrosulfite which is the subject of United States Patent No. 662,338, of November 20, 1900, are capable

of use in a discharge-paste as are other discharging agents. Since discharge-pastes so prepared are free from metallic zinc, the above-mentioned drawbacks and disadvantages do not exist when such pastes are employed for discharging purposes. Hitherto no solution of a hydrosulfite carrying no metallic zinc or a solid product containing a hydrosulfite appears to have been successfully used, if at all, in substance to prepare a discharge-paste.

In the following the nature of this invention is illustrated by means of examples according to which it can be carried into effect.

*Example 1—White discharge.*—One hundred and fifty (150) to two hundred and fifty (250) grams of the zinc-sodium hydrosulfite of United States Patent No. 662,339, of November 20, 1900, are dissolved in a mixture of two hundred and fifty (250) to one hundred and seventy (170) cubic centimeters of lukewarm water and six hundred (600) to five hundred and eighty (580) grams of gum water (1:1) as far as is possible, and the whole is diluted to a volume of one liter by means of water. This paste is printed onto the dyed goods to be discharged. The so-prepared material is then dried and steamed. If nitrosamine red is to be discharged, the steaming is best done in a Mather-Platt and lasts for about five (5) or ten (10) minutes. Other dyestuff-discharges on silk or cotton are steamed for about one hour without pressure. For woolen material the steam employed should be as moist as possible.

*Example 2—Variegated discharge.*—Bottom: Acid violet 6 B N. Discharge-paste: Thirty grams rheonin are dissolved in sixty cubic centimeters of water, one hundred grams acetin J, and five hundred and sixty grams gum-water by the aid of heat. After the paste has cooled add two hundred and fifty grams of zinc-sodium hydrosulfite and stir until solution has ceased. Print, dry, and steam.

Hereinafter I employ the word "metal" as meaning metal in the free or uncombined state.

What is claimed is—

1. The process of discharging dyed mate-



rial by means of a hydrosulfite which consists in mixing together a hydrosulfite which is free from metal and a thickening mixture, printing the result onto the material to be discharged, then drying and steaming the same.

5 2. The process of discharging dyed material by means of a hydrosulfite which consists in mixing together zinc-sodium hydrosulfite which is free from metal and a thickening mixture, printing the result onto the material to be discharged, then drying and steaming the same.

15 3. The process of discharging dyed material by means of a hydrosulfite which consists in printing onto the material to be discharged a mixture which is free from metal and contains a hydrosulfite, a thickening agent and a dyestuff, then drying and steaming the same.

20 4. The process of discharging dyed material by means of a hydrosulfite which consists in printing onto the material to be discharged a mixture which is free from metal and con-

tains zinc-sodium hydrosulfite, a thickening agent and a dyestuff, then drying and steaming the same.

25 5. The improvement in the art of discharging dyed material by means of a hydrosulfite which consists in printing onto the material to be discharged a mixture which is free from metal and contains a hydrosulfite and a thickening agent.

30 6. The improvement in the art of discharging dyed material by means of a hydrosulfite which consists in printing onto the material to be discharged a mixture which is free from metal and contains zinc-sodium hydrosulfite and a thickening agent.

35 In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

LEOPOLD HEINRICH DEHOFF.

Witnesses:

BERNHARD C. HESSE,

PAUL JULIUS.