

UNITED STATES PATENT OFFICE.

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GLUE FOR CARDBOARD AND PHOTOGRAPHS.

SPECIFICATION forming part of Letters Patent No. 505,618, dated September 26, 1893.

Application filed December 6, 1892. Serial No. 454,282. (No specimens.)

To all whom it may concern:

Be it known that I, HERMANN W. VOGEL, professor of the Royal Polytechnical School and editor of the *Photographische Mittheilungen*, a subject of the King of Prussia, German Emperor, and a resident of Charlottenburg, in the Kingdom of Prussia, Empire of Germany, have invented a new and useful Glue for Cardboard and Photographs, of which the following is a full, clear, and exact specification.

My invention relates to an improved glue for uniting the several layers of paper which constitute a sheet of card-board, and for mounting paper photographs on paper or card-board.

The object of my invention is to prevent the card-board and the photographs from becoming yellow and thus to overcome a defect which is often experienced in the art of photography. I attain this object by employing, as a glue, a paste of starch mixed with iodine.

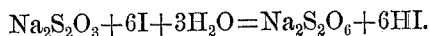
My invention also consists of means for removing spots which may be occasioned by my improved glue, as will be stated farther on.

My improved glue consists of starch and iodine, which may be mixed in varying proportions. For instance ten cubic centimeters of a solution containing one gram of iodine in ten cubic centimeters of alcohol are added to one hundred cubic centimeters of freshly prepared pure starch-paste. The mixture is thoroughly stirred. The paste is changed into a dark-blue mass, which may be coated on paper or on card-board by means of a brush, in the same manner as ordinary starch-paste.

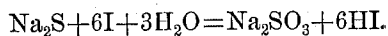
It is preferable that the bristles of the brush should not be inserted into a metallic sleeve.

My improved glue is employed either for uniting the several layers of paper of which a sheet of card-board is composed, or for mounting paper photographs upon paper or upon card-board. This glue will prevent the card-board and the photographs from yellowing. This yellowing, which is a defect occurring frequently with photographs mounted with ordinary glue, is due to chlorides and

sulphurous or other impure admixtures either contained in the paper or card-board, or adhering to the photograph in consequence of the previous operations, for instance owing to defective fixing or insufficient washing of the photograph. Now iodine is a very efficacious agent for destroying such compounds as are capable of yellowing the photographs. Hyposulphite of soda is caused to combine with oxygen and thus to form hyposulphate of soda, as is represented by the equation:



Sulphide of sodium is converted into sulphite of soda according to the chemical equation:



Experiments have proved that iodine has no noxious effect upon paper photographs in which the sensitive part of the paper contains silver salts. The experiments have also demonstrated the fact that my improved glue is efficacious to preserve the photographs for any length of time. It has been further ascertained that the addition of ten parts of tincture of iodine (1:10) to one hundred parts of starch-paste is the highest proportion which it is necessary to employ, when the paper contains as much as one per cent. of impurities. It will be obvious that the amount of iodine which is to be added will in each case depend on the proportion in which impurities are admixed to the paper, card-board, or photographs.

It will be obvious that my improved glue may be employed with great advantage for uniting the several layers composing a sheet of card-board, especially if such card-board is to be used for mounting photographs thereon.

It sometimes occurs that the paste or glue is squeezed out laterally of the photograph to be mounted, thereby occasioning blue spots. In this case I take a small sponge and soak it in a solution of one part of chemically pure sulphite of soda in one thousand parts of water. The sponge is pressed so as to re-

move the greatest part of the solution it has soaked, and is passed over the blue spots; the blue color will disappear very rapidly, and it will be sufficient to wipe the moisture away
5 with a clean piece of fabric.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

As a glue for uniting the several layers of
10 a sheet of card-board, and for mounting pho-

tographs, a paste of starch to which iodine is admixed in solution, for the purposes set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

HERMANN W. VOGEL.

Witnesses:

W. H. EDWARDS,
W. HAUPT.