# UNITED STATES PATENT OFFICE.

THOMAS JAMES DENNE AND AUGUST HENTSCHEL, OF LONDON, ENGLAND.

## IMPROVEMENT IN GLAZING PHOTOGRAPHS, &c.

Specification forming part of Letters Patent No. **132,640**, dated October 29, 1872.

*To all whom it may concern:*

Be it known that we, THOMAS JAMES DENNE and AUGUST HENTSCHEL, both of the Phœnix Works, Mile End, London, England, have invented or discovered certain Improvements in Protecting and Glazing Impressed Surfaces of Photographs, Prints, and Papers; and we do hereby declare that the following is a full, true, and particular description thereof sufficient to enable others to understand and use our said invention—that is to say,

According to these improvements, which relate particularly to a method of surfacing prints, drawings, photographs, wall-papers, colored, plain, printed, or other papers, with a coating or surface of caseine, thereby making them practically permanent by the protection given to their faces, and protecting them from the action of damp in addition to being smooth and glass-like upon the surface, similar in appearance to the paper known as "gelatine" paper, we take the substance "caseine" and dissolve it, and we prefer, for the purpose of dissolving the caseine, to employ a solution of boiled soap and water, preferably white soap, or otherwise water to which a few drops of ammonia have been added, and with this dissolved caseine we cover the piece of paper, presumably a print, about to be surfaced, either by swimming it or brushing it on. We then dry the paper, which may be done by natural process or by artificial heat. In this way we obtain a bright-coated surface or covering of caseine upon any required paper or paper foundation, which, by a subsequent process, we render smooth and glass like, with an appearance resembling that of ordinary gelatine paper, being insoluble in water and a protection against the action of damp. To effect this we take a sheet of glass and wipe it over with gall for the purpose of preventing the paper from adhering to the glass, and in order to soften and prepare the paper for the final treatment we make a bath of water, to which we add an acid, preferably acetic acid, by reason of its property of rendering caseine insoluble in water; or we add in place of the acid either alum or gall; but we find that the best result is obtained by the use of both acetic acid and gall in the bath, securing thereby the double purpose of rendering the new surface insoluble in water, and of causing it to leave the glass more easily. We plunge the print for a few seconds into this bath, and, withdrawing it, lay it with the "caseine" face downward on the glass. We then wipe the back of the print over with a squeezer in order to press the paper perfectly smooth and flat upon the glass, to remove any air that may remain between the paper and the glass, and to drive off superfluous water. When dry the paper will leave the glass having the glazed and polished appearance which is presented by ordinary gelatine paper.

In preparing the solution of caseine for surfacing the paper a portion of gall may be added in the first instance to the solution; but paper resembling the ordinary gelatine paper may be produced without this admixture by following out the process as above described.

If we desire to make paper of any particular color we can add any coloring ingredient in the first instance to the caseine. If we desire to give greater flexibility to the caseine surface we add to the dissolved caseine a little glycerine.

No precise quantity of any of the ingredients named has been given for use in any part of this process, as widely different quantities will give the desired result, and the proportions may be varied according to the different articles surfaced and the results aimed at.

Claim is made to—

Treating prints, drawings, photographs, and other similar surfaces or bodies with caseine, in the manner and for the purposes set forth.

In witness whereof we, the said THOMAS JAMES DENNE and AUGUST HENTSCHEL, have hereunto set our hands this 10th day of August, one thousand eight hundred and seventy-two.

T. J. DENNE.
AUGUST HENTSCHEL.

Witnesses:
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