UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN POSTAL CARDS.

Specification forming part of Letters Patent No. **144,677**, dated November 18, 1873; application filed May 16, 1873.

To all whom it may concern:

Be it known that I, HENRY M. JOHNSTON, of the city, county, and State of New York, have made a new and useful Improvement in Postal Cards; and I hereby declare the following to be a full and exact description of the same.

One of the principal uses of postal cards is the sending of short messages or notes written with pencil. Any of the paper or card-board now used for this purpose, when written on with the ordinary black-lead, or composition, or other pencils, retains the writing with so little force that it is readily effaced, so as to make such cards of much less value than they would otherwise be. Now, the object of my invention is to prepare a card or paper in the form of a postal card, so that when written on with a metallic pencil, as hereinafter described, the writing will be indelible, such writing being fully as permanent as if written with the most indelible ink.

The following description will enable any one skilled in the art to make and use my invention.

I take paper or card-board of the proper quality used for the manufacture of postal cards and treat it in the following manner: I weigh eighteen ounces of glue and soak it for about twenty-four hours in six pints of water. I then place the vessel containing the soaked glue in a water-bath, and apply heat sufficient to dissolve the glue. I then strain the glue through a flannel strainer. (The kind of glue I prefer to use for the purpose is that known as Coignet's No. 1 glue.) I then take twenty-eight pounds of Kremnitz white in dense pulp and mix it intimately with nine pints of water, to which I then add the entire amount of glue solution as before prepared, and thoroughly mix the whole together. I then stain the mixture with any suitable coloring matter to imitate the color of the paper of which postal cards are now made; but the staining of the mixture is not essential to my invention. I then apply the mixture to the surface of the paper intended for the postal cards by means of brushes, either by hand or by machinery, in the same manner as in the coating of card-board or paper-hangings, and, after the coating is dry, I then coat the reverse side of the paper with the mixture in the same manner as before, and allow it to dry. After drying, there is found upon the surface of the coating a film of very fine particles, which have but little adhesion to the body of the coating. This film I remove, exerting a gentle friction upon the coating with a soft brush or other suitable friction-surface. I then pass the paper or card-board between highly-polished calendering-rolls under pressure sufficient to smooth its surface and impart to it a highly lustrous finish, or I take the postal cards (as furnished and issued by the Post-Office Department) and I coat the entire side which is designated by the Department for the message with the mixture by use of brushes in the same manner as in coating the paper, and I allow the card so coated to dry. After drying, the cards are laid upon a flat surface, with the side uppermost which is intended for the address. I then make use of a stencil-plate so cut that, when laid upon the card, it will cover its entire surface, except that part which the address is intended to be written upon, and, having placed the plate upon the card, I then brush the mixture upon the uncovered part, and then remove the plate and allow the mixture to dry. The card so coated I then brush and calender in precisely the same manner as described for the paper.

I then prepare a solution of salts, in the proportions and in the manner as follows: Commercial sulphate of alumina, eleven ounces; chloride of ammonium, eight ounces; chloride of sodium, eight ounces; biborate of soda, four ounces; water, two gallons.

To make the solution of the foregoing salts, I take a porcelain-lined kettle and put into it the sulphate of alumina and half of the water, and then place the kettle over a fire and heat the water nearly to the boiling-point, and, after the sulphate is dissolved, I add and dissolve the chloride of ammonium by occasional stirring. I then add the chloride of sodium, and, when dissolved, I add the biborate of soda, and stir the solution until the last-named salt is completely dissolved, and the solution becomes clear. I then remove the kettle from the fire and add the remaining gallon of water, and allow the solution to get cold and all extraneous matter to settle to the bottom. I then decant the clear solution into a wooden trough, and in it I immerse the coated paper or postal card

which I have described, and I subject it to the action of the solution for a period of time varying from half a minute to a minute. I then remove the paper or card from the solution and pass it through water, so as to remove the superfluous solution of salts and prevent any crystallization of the salts on the surface of the coated paper or card, and then allow it to dry. I then pass the paper or card through calendering-rolls for the purpose of flattening it. The paper may then have the Government postal stamp and other approved matter impressed or printed upon it.

I do not limit myself to the compounds named, as they may be greatly varied by an expert chemist. There is a chemical action between the compounds upon the surface of the paper and that portion of the metallic pencil left upon it by the writing, which, at the same time, brings out the color of the writing and fixes it indelibly upon the card. In fact, it is one of the most permanent kinds of writing known, as it may be wet and a great amount of friction brought to bear upon it without injury, whereas the same amount of friction, if brought to bear upon writing done with the best ink upon good paper, would entirely obliterate it and destroy the paper. The card may also be written upon with pen and ink, and although, when wet, the surface writing or ink may be washed away, as on writing-paper, yet the writing thereby only becomes paler, and that remaining will be found to be much more permanent and durable than if written on the best writing-paper; but, by the use of my invention, ink may be wholly dispensed with in writing on postal cards, and their value greatly increased. As a general rule such cards are employed in sending hasty messages, which are frequently dispatched at times and places where it is difficult or impossible to obtain pen and ink. The metallic pencil may be carried in the pocket, and ready at all times for use.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

A postal card covered with the compounds herein described, or their equivalents, so that a mark or writing with a metallic pencil will be permanently fixed, as set forth.

HENRY M. JOHNSTON.

Witnesses:
H. N. ELDREDGE,
HENRY G. FORBES.