UNITED STATES PATENT OFFICE.

ALEXANDER THOMSON, OF COLLEGE HILL, OHIO.

PAPER-COATING PROCESS.

SPECIFICATION forming part of Letters Patent No. 693,189, dated February 11, 1902.

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To all whom it may concern:

Be it known that I, ALEXANDER THOMSON, a citizen of the United States, residing at College Hill, Hamilton county, Ohio, (post-office address, Hamilton, Butler county, Ohio,) have invented certain new and useful Improvements in Paper-Coating Processes, of which the following is a specification.

This invention, pertaining to an improved process for coating paper, will be readily understood from the following specification.

It being desired to give paper a coating of kaolin or other material applied adherently to its surface and subsequently brought to a high polish to produce a glazed or enameled surface upon the paper, the procedure according to my present invention is as follows: The coating material—say kaolin—is mixed with a waterproof glue—say casein—and this mixture is applied to the surface of the paper, which paper is then subjected to the action of spreading-brushes and subsequently dried. The paper is then calendered in the presence of and under exposure to steam.

The means or apparatus for applying the coating mixture and for brushing the coated paper for drying it and for calendering it may be of any character suitable or usual for those purposes, and the means or devices for applying the steam to the paper as it is being calendered may be of any character suitable or usual for delivering steam to a sheet or web of paper at the time of calendering. The pressure of the steam should be sufficient to effect its delivery upon the coating of the paper, but not sufficient to have aggressive action upon the coating.

The glue employed in connection with the coating material must be waterproof or the process will fail.

With a calendering pressure about twenty-five per cent. less than usual the finish realized is very much improved over ordinary processes. The lessened calendering pressure thus rendered available results in a less thinning of the paper, thus yielding a thicker finished product, and it also lessens the wear upon the calendering-rolls to a very marked degree. It also results in less violence to the body of the paper and lessens the liability to the breaking of the fiber and to the working of the fiber outward through the coating, thus yielding a more velvety surface and a paper stronger and less liable to break at folds. By ordinary processes the paper while being calendered in calendering-rolls may pass between but may not lap around upon the rolls, fly-rolls being necessary to keep the paper from the breasts of the rolls. In the improved process fly-rolls may be dispensed with and the paper allowed to lap around directly against the breasts of the rolls. Owing to the lessened calendering pressure the frictional holding back of the web of paper as it goes to the calendering-rolls may be very much lessened, thus materially reducing the amount of "broken" due to parting under the effect of tension. In ordinary processes slight edge breaks in the web of paper often refuse to pass the calendering-rolls, thus resulting in much broken. By the improved process these edge breaks freely pass the rolls. In the ordinary processes the coated paper calenders better after standing long enough to absorb a slight degree of moisture from the atmosphere and calenders better on damp days than on dry ones. The improved process is available with paper whose coating is fresh from the drying and is independent of the condition of weather. The improved process results in a product superior in finish, strength, thickness, and toughness and in marked economy of production by the saving of waste and lessened wear of appliances.

I claim as my invention—

The improved process of coating paper which consists, first, in applying to the surface of the paper a mixture of coating material and waterproof glue, second, brushing the coated surface, third, drying the coated and brushed paper, and fourth, calendering the coated brushed and dried paper in the presence of and under exposure to steam.

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Witnesses:
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