

UNITED STATES PATENT OFFICE.

EDWARD METZGER, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN PROCESSES FOR MAKING PARCHMENT-PAPER.

Specification forming part of Letters Patent No. **150,698**, dated May 12, 1874; application filed March 28, 1874.

To all whom it may concern:

Be it known that I, EDWARD METZGER, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Method of Making Parchment-Paper; and I do hereby declare the following to be a full, clear, and exact description thereof.

This invention relates to that class of processes employed in the treatment of sized or unsized paper in the manufacture of the article known as parchment-paper; and it consists, first, in the joint use of certain ingredients entering into the composition of what is known as the acid-bath or first step of the process.

In preparing the acid-bath according to the first part of my invention, I take of the ordinary commercial sulphuric acid and of a solution of common salt or chloride of sodium, in the proportions of one and one-half of the saline solution to four parts of acid—that is to say, four ounces of sulphuric acid and an ounce and a half of the salt solution. The acid is added gradually to the salt solution, and the mixture allowed to stand until about the temperature of the surrounding atmosphere. The specific gravity of the solution thus formed is about 1.650, more or less, provided the salt solution used is 1.100. Into this bath the sheet of sized or unsized paper is passed, and allowed to remain until such time as a complete change of the paper takes place—that is, until it has the clear even transparent appearance common to parchment—after which it is removed from the acid-bath. The superfluous acid may then be removed, either by scraping or rollers, or in any other suitable manner. The sheet is then passed to the water-bath to wash out any free acid that may remain. The sheet or sheets thus treated, are then passed into an alkaline bath, which may be composed of carbonate of soda, potash, caustic soda, ammonia, or any alkali that will complete the neutralization of the acid. The paper, when removed from this alkaline bath, is again submitted to a water-bath for the removal of any alkali.

The different kinds of paper will require different lengths of treatment. For instance,

paper such as blotting-paper should be left for a greater length of time, or until the change above mentioned is completed. I find that in treating blotting-paper a temperature of from 45° to 50° Fahrenheit is preferable. Salt in its dry state may be used, and the desired effect obtained, but the bath is thicker and not so manageable.

All acid-baths heretofore employed work irregularly, and are only effective under certain conditions, which cannot be insured; but the bath made by my process is constant, and the results regular, the paper produced uniform, and waste avoided.

I am well aware that sulphuric acid is commonly employed in the manufacture of parchment-paper, and that various salts have been used in such baths, and lay no claim thereto. The object to be attained by me is to obtain a regular, constant, and uniform working bath, which is believed to be attained by my process, and to be due to the following causes: The addition of the salt solution to the acid causes the formation of an acid salt in the bath, which is probably a double salt of the sulphate and chlorate of soda. This acid salt acting as a carrier yields back to the bath a portion of the acid upon each introduction of paper, so that the bath is maintained uniform in character and operation, working steadily until completely exhausted, the last sheet coming from the bath being equally perfect with the first submitted, and the exhausted bath containing simply dregs—mainly sulphate of soda.

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

The process herein described for producing vegetable parchment, consisting in subjecting the paper to a bath composed of sulphuric acid and a solution of common salt, and then to the usual washings and alkaline bath.

In testimony whereof I, the said EDWARD METZGER, have hereunto set my hand.

EDWARD METZGER.

Witnesses:

JAMES I. KAY,

F. W. RITTER, Jr.