

# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN THE MANUFACTURE OF VEGETABLE PARCHMENT.

Specification forming part of Letters Patent No. 30,945, dated December 18, 1860.

*To all whom it may concern:*

Be it known that I, XAVIER KARCHESKI, of the city, county, and State of New York, have invented certain new and useful Improvements in the Manufacture of Vegetable Parchment; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is based on the well-known fact that paper treated with sulphuric acid undergoes a change whereby the same assumes some of the qualities of parchment. The most common way to apply the sulphuric acid has been to quickly immerse the paper in diluted sulphuric acid and wash it off immediately after each immersion; but the parchment produced by this process is not only wanting in strength and durability, but it also lacks a uniform transparency.

By my improved method of treating the paper I am enabled to produce vegetable parchment equal, or nearly so, in strength to the animal parchment, and of a uniform transparency; and the principal part of my invention consists in the application to certain parts of the paper of starch or some other gelatinous substance, whereby a uniform action of the acid on the surface of the paper is prevented and an indelible water-mark is produced on the parchment, rendering the same of peculiar value for bank-bills and other papers of the same character.

To enable others skilled in the art to fully understand and use my invention, I will proceed to describe it.

I dilute sulphuric acid until the same, on cooling to a temperature of 65° Fahrenheit, attains the specific gravity of 56° Baumé, and I then reduce the temperature to 55° Fahrenheit for ordinary thickness of paper, and for very thin paper to 42° Fahrenheit. It is of the greatest importance to reduce the temperature to the proper point, for if the temperature is too high the influence of the acid on the paper is so strong that a brittle article is produced, and if the temperature is too low in proportion to the thickness of the paper the acid does not penetrate the sheets, and an opaque article is produced. After the diluted acid has attained the requisite temperature the pa-

per is immersed in the same with a quick movement, and it is now suspended in the air for a period of from twenty-five to thirty seconds, according to the thickness of paper. During this time the acid has ample time to act on the fiber of the paper, and at the same time the acid dripping off from the sheets while being suspended can be collected in troughs and repeatedly used for the same operation. After thus giving time to the acid to act on the paper the sheets are washed repeatedly in clean water for the purpose of extracting the surplus acid, and in order to surely destroy any traces of remaining acid alkalies are applied and the sheets are then again washed and dried.

The parchment thus produced is of perfectly uniform transparency, and it is much harder, stronger, and more durable than parchment produced by the old process of quickly immersing the sheets and immediate washing.

In order to render the parchment produced by my process soft, pliable, and elastic, I apply a solution of glycerine in water, the strength of which is increased or diminished according to the degree of softness and pliability to be obtained. A solution of one (1) part of glycerine in about four (4) parts of water gives a good result.

In cases where a water-mark in the parchment is desirable I produce, by printing, stenciling, or by any other means, the desired mark on one side of the sheets of paper by the application of starch or any other gelatinous substance that will dissolve in the sulphuric acid, and if the sheets with these marks are now immersed in the sulphuric-acid bath those parts which are protected by the starch or other gelatinous substance are not acted on so powerfully by the acid as the remaining portion of the paper, and a distinct and indelible water-mark is produced. By mixing the starch or other gelatinous substance with some coloring-matter any desired color may be given to the water-marks.

Paper treated according to this process is changed into parchment at a trifling expense, and when provided with the water-marks and rendered pliable by the application of glycer-

ine my parchment is of incalculable value for bank-bills and other papers where counterfeiting must be guarded against.

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

The application to certain parts of the paper of starch or some other gelatinous sub-

stance, either plain or colored, substantially as set forth, for the purpose of producing in the parchment an indelible water-mark.

XAVIER KARCHESKI.

Witnesses:

W. HAUFF,  
J. F. BUCKLEY.