UNITED STATES PATENT OFFICE.

JOSEPH SHORT, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF, JOHN J. ECKEL, AND ISAAC S. SCHUYLER, OF THE SAME PLACE.

IMPROVED PROCESS FOR BLEACHING FIBROUS SUBSTANCES.

Specification forming part of Letters Patent No. **52,250**, dated January 23, 1866.

To all whom it may concern:

Be it known that I, JOSEPH SHORT, of the city, county, and State of New York, have invented a new and Improved Process for Bleaching; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to fully understand and make use of the same.

This invention relates to a new and improved process for bleaching fibrous substances, and is more especially designed for bleaching straw and flax and hemp fiber for paper-stock.

The fiber is first subjected to a washing to deprive it of all dirt, grease, &c., as follows: To one barrel of water—about thirty-six (36) gallons—there are added potash or caustic soda, one pound; chloride of sodium, (salt,) one pound, or an equivalent amount of ox-gall; spirits of wine, two to three ounces. The stock or fiber is then put in the liquid and boiled steadily about thirty (30) minutes. The stock or fiber is then taken out and the liquid expressed from it by rollers or other suitable means, the liquid being saved, as it may be repeatedly used. The stock or fiber is then washed in clean or pure water.

The bleaching is effected as follows: To one barrel of water—thirty-six (36) gallons—add chloride of lime, one and a half pound; sulphuric acid, eight ounces. The acid is to be added gradually, four ounces at first, and the remainder afterward. This bleaching-liquid is to be well stirred, and the cleansed stock or fiber is placed into it in small quantities at a time, say, twenty (20) pounds, and keep the same submerged.

Instead of sulphuric acid, muriatic acid may be used, but the latter I consider inferior; and for the alkali wash liquid potassa may be used instead of the caustic soda, and spirits of ammonia instead of the spirits of wine, these substitutes being used about in the same proportion as the substances first named.

The liquid potassa enables the solution to be used cold—that is to say, no boiling will be required—and that in many cases is a great advantage, economizing in time and avoiding the expense of furnaces, boilers, &c.

The cold solution may be composed of water, one gallon; liquid potassa, three ounces; spirits of ammonia, two ounces, or an equivalent amount of the chloride of sodium.

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

1. The cold alkaline solution composed of the liquid potassa, spirits of ammonia, or chloride of sodium, about in the proportion specified.

2. The bleaching of fibrous substances by first washing them in the alkaline solution and then submerging them in the bleaching liquid composed of the ingredients herein named and about in the proportion as specified.

The above specification of my invention signed by me this 31st day of October, 1865.

JOSEPH SHORT.

Witnesses:

M. M. LIVINGSTON,

C. L. TOPLIFF.