

UNITED STATES PATENT OFFICE.

PETER THOMAS, OF ELBERFELD, PRUSSIA, GERMANY.

BLEACHING FIBER.

SPECIFICATION forming part of Letters Patent No. 266,660, dated October 31, 1882.

Application filed March 7, 1882. (No specimens.) Patented in England February 4, 1882, No. 549.

To all whom it may concern:

Be it known that I, PETER THOMAS, of the town of Elberfeld, in the Kingdom of Prussia and German Empire, a citizen of the said Kingdom of Prussia, have invented certain new and useful Improvements in Bleaching without the Employment of Chlorine or Chlore; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in bleaching, and may be employed with especially satisfactory results in bleaching fiber, fibrous matters, yarn, or woven fabrics without the employment of chlorine or chlore. I do not, however, limit the use of my new process to the treatment of any particular article or material.

In practice my invention may be successfully carried out as follows: The object or objects, material or materials is or are placed in an earthenware, wooden, enameled-iron, or other suitable vessel or receptacle, and boiled for twelve hours' time in a weak solution of caustic soda. The quantity of caustic soda employed is three and one-half kilograms to one hundred kilograms of material. As soon as this process is ended the material or materials are cooled, and then placed in a warm bath consisting of a solution of potassium permanganate or its equivalent for a period of fifteen to thirty minutes. The material or materials are now removed from the bath, cooled, and placed in a bath of borax in hydrated sulphurous acid—that is, one thousand grams of borax is dis-

solved in one hundred liters of water, and sulphurous gas led into this solution; or a suitable combination of sulphurous matter and borax can be employed. The article or material will be permitted to remain in this bath for a period of, say, from fifteen to thirty minutes, after which it will be thoroughly washed and rinsed and dried in the open air or by means of a cylindrical machine, or otherwise in any convenient manner.

While, as hereinbefore recited, I contemplate practicing my invention particularly in bleaching fiber, fibrous material, yarn, and woven fabrics, I do not limit myself to the treatment of these articles, as it is apparent that the invention may be practiced in connection with articles which might not be regarded as being included within the classes to which those specifically mentioned belong.

In the foregoing description I have given formulas and proportions which I have used with satisfactory results; but I do not limit my claim to the exact proportions which I have given, as they may be varied to some extent without materially affecting the result.

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

The process of bleaching, which consists in first boiling the material with caustic soda, then treating with a bath of potassium permanganate, and lastly with a solution of borax in hydrated sulphurous acid, as described.

PETER THOMAS.

Witnesses:

D. GÖBELL,

F. BÖTTGER.