

# UNITED STATES PATENT OFFICE.

GEORGE W. BILLINGS, OF NEW YORK, N. Y.

PREPARATION OF CLOTH AND VEGETABLE FIBER FOR BLEACHING.

Specification forming part of Letters Patent No. **46,774**, dated March 14, 1865; antedated February 27, 1865.

*To all whom it may concern:*

Be it known that I, GEORGE W. BILLINGS, of the city and State of New York, have invented, made and applied to use a certain new and useful Improvement in the Preparation of Cloth and Vegetable Fiber for Bleaching; and I do hereby declare the following to be a full, clear, and exact description of the same.

In cotton and linen fabrics especially there is considerable coloring and glutinous matter that requires to be removed before the fabric is adapted to sale. By experiment I have discovered that a large portion of this coloring-matter is capable of fermentation, and in that operation the coloring-matter is separated from the fiber, and the fiber itself softened, so that when the fabric is exposed to the action of the bleaching liquid or vapors the coloring-matter disappears much more quickly than in those goods that are bleached without fermentation; hence a much less quantity of the bleaching material is required and a saving effected in the process.

The fabric is to be washed and treated in any usual manner for the removal of grease and foreign substances that may accumulate in the cloth during the spinning and weaving operations, it being understood that my fermenting operation is to precede the bleaching itself; but in consequence of the fermentation acting upon any glutinous material or starch that may be used in the manufacture of the cloth, the washing, boiling, and other usual operations do not require to be performed with as much care as now usual. When the

fabric is thus in readiness, I immerse it in water at a temperature of about 90° Fahrenheit, and allow it to remain from two to four days, according to the character of the material. The acetous fermentation that is induced by this steeping will terminate in about this length of time and must be checked before putrefactive fermentation commences. I wash and thoroughly rinse the cloth in clean water to free it from any foreign substances that may have been rendered soluble by the fermentation and expose the fabric to the usual bleaching operation, either in the bleaching-liquid or to the vapors of chlorine or any other bleaching agent.

The fibers being rendered soft by the soaking, and the fermentation having loosened foreign substances and partially removed the coloring-matter, the bleaching is performed much more rapidly than heretofore and at a much cheaper rate.

In many cases the lime-boiling is dispensed with, thereby leaving the material free from lime salts, which are injurious to the fiber.

What I claim, and desire to secure by Letters Patent, is—

Subjecting the fabric to a fermenting operation previous to bleaching, substantially as and for the purposes specified.

In witness whereof I have hereunto set my signature this 9th day of July, 1864.

GEO. W. BILLINGS.

Witnesses:

WILLIAM G. MOTT,  
CHAS. H. SMITH.