United States Patent Office.

LOUIS S. ROBBINS, OF NEW YORK, N. Y., AND JOHN A. SOUTHMAYD, OF ELIZABETH, NEW JERSEY.

Letters Patent No. 87,295, *dated February* 23, 1869.

IMPROVEMENT IN PREPARING FIBRE FROM BAMBOO, &c.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, LOUIS S. ROBBINS, of the city, county, and State of New York, and JOHN A. SOUTHMAYD, of Elizabeth, in the county of Union, and State of New Jersey, have invented a new and useful Improvement in Preparing Fibre from Lignin of Bamboo or Cane, for the Manufacture of Textile Fabrics; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same.

Our invention relates to the development, disintegration, and preparation of the fibre of the bamboo for textile uses and purposes. We prefer the bamboo of the East and West Indies, and similar climates, having ascertained, by actual experiment, that the fibre thereof is stronger, and better adapted for said uses and purposes.

It is already understood that ligneous substances may be reduced to a fibrous pulp by a proper treatment with chemicals, as alkalies and acids, but no process has hitherto been discovered whereby the fibre of cane can be successfully applied to the manufacture of textile fabrics, as the treatment has not been so conducted as to obtain a fibre of sufficient length and strength, and otherwise suitable for such a purpose.

In treating cane heretofore, for the purpose of obtaining a pulp, or fibrous material, it has been subjected to the action of steam under pressure, or acids, and for such length of time as it required to soften the knotty joints and tougher portions that grow near the ground; besides, no adequate mechanical means has been employed in connection with the treatment. The consequence has been that, in subduing or softening the joints and harder portions of the cane by steam under pressure, or acids, the fibre of the lignin, between the joints, which is the only portion that can be used for textile fabrics, has been destroyed for such purpose.

It is absolutely necessary to so commence and pursue the process that all the contained silicious and resinous matter shall be expelled, and that only such portion of the lignin shall be subjected to the process as shall afford the proper and desired fibre. Not only that, but the lignin, either before or after the disintegration of the fibre, should be saturated with oleaginous vapors.

In operating our present invention, we, in the first place, remove the knots or joints, and then split the bamboo longitudinally into strips, by means of sharp-edged instruments, arranged for the purpose.

After removing the knots or joints, and splitting the bamboo, as aforesaid, the lower and tougher portions of the bamboo are separated from the remainder, since the hard and tenacious fibre, that grows nearer the ground, requires a treatment which, for our present purpose, would be injurious to the upper and more tender parts.

The bamboo is then boiled in caustic alkali of about six degrees (6°) Baumé, in an open kettle, until the silicious and gummy matter is softened. This operation requires from six to ten hours, according to the age and quality of the bamboo.

In this part of the process, the time occupied will depend upon the character of the lignin, the tougher and more tenacious portions requiring the more vigorous treatment.

The next stage in the process is to press the bamboo, while hot, for the purpose of expelling the water, and so much of the silicious and resinous matter as may be held in solution, or combined with the bamboo; also, to prepare it for the subsequent boiling and cleansing-processes.

We then, again, boil the bamboo in a weak solution of caustic-soda for about three hours, and afterwards, for about two hours, in soap and water, prepared for the purpose, which cleanses and softens the fibre, without reducing it to a pulpy condition, or impairing its strength, which would be the result if longer boiled in caustic alkali.

The bamboo is then washed in hot water, until all the foreign substances are removed from the fibre, when it is prepared for carding, by passing it through a machine-hackle, constructed for the purpose. It is next subjected to strong and peculiarly-constructed cards, which reduce the fibre to a proper condition for spinning.

It is necessary that the fibre be in a moist state during the operation of carding; but if water is employed for that purpose, the fibre is weakened, and will be destroyed while passing through the cards. We therefore saturate the fibre with oleaginous vapors, which render it pliable, and lubricates it without impairing its strength. It can then be carded with facility, and a length of fibre retained, of sufficient length and strength to be applicable to and valuable for textile manufactures and purposes.

The fibre may be used either separately or in combination with other substances, for the purposes stated.

Having thus described our invention,

What we claim as new, and desire to secure by Letters Patent, is—

The process, herein described, of preparing the lignin of bamboo for manufacturing textile fabrics, substantially as herein set forth.

LOUIS S. ROBBINS.
JOHN A. SOUTHMAYD.

Witnesses:
HIRAM HUSTON,
MARSHALL ROBBINS.