

# UNITED STATES PATENT OFFICE.

WILLIAM H. L. JONES AND GEORGE C. WARR, OF PATERSON, NEW JERSEY.

## PROCESS OF SOFTENING VEGETABLE FIBERS.

SPECIFICATION forming part of Letters Patent No. 507,501, dated October 24, 1893.

Application filed November 17, 1892. Serial No. 452,340. (No specimens.)

*To all whom it may concern:*

Be it known that we, WILLIAM H. L. JONES and GEORGE C. WARR, citizens of the United States, residing in Paterson, county of Passaic, and State of New Jersey, have invented certain new and useful Improvements in Processes of Softening Vegetable Fibers; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Heretofore it has been impracticable to spin the coarser vegetable fibers such as hemp, jute, ramie and the like, into fine threads or yarns, soft in texture and of the requisite strength.

The object of our present invention is to so soften the fibers of plants such as hemp, jute, ramie and the like, that the same may be spun to any degree of fineness and softness, without impairing the tenacity or strength of the same.

The present invention consists in subjecting the fiber to the vapors arising from boiling glycerine and an alkali or glycerine, alkali, oil and soap, until the fiber has been thoroughly saturated and softened and in then drying the saturated fiber.

To carry our invention into effect the fiber is first washed of its impurities and then placed over a tank or vat containing a solution of glycerine and alkali in water, or a watery solution of glycerine, alkali, soap and oil in such a manner that the vapors arising when either of these solutions is boiled, will permeate and thoroughly saturate the fiber. The proportions of the ingredients used in these solutions may vary according to the nature of the fiber to be treated but we have found that the following proportions will give useful results,—water eighty-five per cent.; glycerine ten per cent. and alkali five per cent., or,—water eighty per cent.; glycerine two per

cent.; oil five per cent.; alkali eight per cent.; and soap five per cent. The alkali we prefer to use is ammonia or volatile alkali, although we do not desire to limit ourselves to such alkali as any other, which could be carried in the vapor, may be "used." The fibers are subjected to the action of these vapors until they become thoroughly saturated and softened. The fibers so saturated are then dried, the elements of the solution remaining in combination with the fibers. It will be found that after this treatment the fibers lose their harsh, brittle texture and become soft and silky and may be spun into delicate threads or yarns in the usual way without impairing the tenacity of the fiber.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The herein described method of softening vegetable fiber which consists in first subjecting said fiber to the action of vapors arising from boiling glycerine and an alkaline compound, until said fiber is thoroughly saturated and softened and in then drying the saturated fiber, substantially as described.

2. The herein described method of softening vegetable fiber which consists in first subjecting said fiber to the action of vapors arising from boiling glycerine, ammonia, oil and soap, until said fiber is thoroughly saturated and softened and in then drying said saturated fiber, substantially as described.

In testimony that we claim the foregoing we have hereunto set our hands this 15th day of November, 1892.

WILLIAM H. L. JONES.  
GEORGE C. WARR.

Witnesses:

ALFRED GARTNER,  
WM. D. BELL.