

# UNITED STATES PATENT OFFICE.

JOHN T. DAVIS, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF THREE-FOURTHS TO PATTERSON A. CAMPBELL AND AUSTIN WALRATH, BOTH OF SAME PLACE, AND M. CONNELL, OF LYNCHBURG, VIRGINIA.

## PROCESS OF TREATING COCOANUT-HUSKS.

SPECIFICATION forming part of Letters Patent No. 456,241, dated July 21, 1891.

Application filed July 22, 1890. Serial No. 359,547. (No specimens.)

*To all whom it may concern:*

Be it known that I, JOHN T. DAVIS, a citizen of the United States, residing at the city and county of San Francisco, State of California, have invented a certain new and useful Improvement in Processes of Treating Coconut-Husks; and I do hereby declare that the following is a full, clear, and exact description of the said invention.

My invention relates to the treatment of the husks of cocoanuts for the purpose of producing a fiber fit to be used for matting, or in place of hair for upholsterers' uses, or for any purposes for which hair is ordinarily used.

The ordinary method of separating the fiber from the husk has heretofore consisted in removing the epidermis by hand, assisted by soaking in cold water—a process which requires much time and labor and produces an inferior article.

The object of my invention is to lessen the cost and labor of the process and to improve the resultant fiber.

The invention herein claimed includes only the process of manufacture or reducing the fiber.

In carrying out my process I first subject the husks to the action of an alkaline solution and heat. I prefer to do this in a closed vessel, in which I place the husks with a solution of potash lye of about 3° Baumé. I subject this to heat for from twelve to fifteen hours at a pressure of fifty pounds to the square inch, it being understood that the vessel is closed and fitted to stand the pressure necessary. After the husks have thus been digested in an alkaline solution at the pressure and for the time above stated they are in a fit condition for the next step of the process. While I prefer to treat the husks in an alkaline solution in a closed vessel, this part of the process may be carried on in an open tub or vat; but this would require a longer time and is not to be preferred. After the epidermis has thus been separated and the fiber softened by the treatment above described the mass of husks in a warm and wet condition is subjected to heavy pressure between squeezing-rolls, which disintegrates

the epidermis and completely separates it from the fiber and at the same time removes all extraneous matter held in solution. The fiber after leaving the squeezing-rolls is damp, but contains only the slight amount of moisture not removed by the heavy pressure of the squeezing-rolls. It is next willowed in an ordinary willowing-machine. In this the revolving drum, having radially-arranged teeth, carries the mass of fiber and throws it against and through the series of stationary teeth in the casing of the drum. This action tears or loosens the fiber and subjects it to severe agitation and frictional contact with the teeth, which detach and shake out the remaining epidermis and other loose matter. The fiber is next washed in a machine similar to a beating-engine used in the manufacture of paper, except that the fly-bars are made of wood instead of iron to avoid breaking the fiber. After this washing and beating it is dried. The resultant fiber resembles hair and is a substitute therefor, being soft, yielding, and pliable.

I do not claim the particular steps, as I am aware that these have been used in different combinations in connection with the reduction of other fibrous products.

The particular combination of steps in the order specified, which constitute my invention, are especially adapted to the particular article coconut-husks and are confined exclusively to that article.

I claim as my invention—

The hereinbefore-described process of treating coconut-husks, consisting in first digesting the husks in an alkaline solution under heat, and next subjecting them while still moist to the action of crushing-rollers, next willowing, and then subjecting them to washing and beating in a beating-machine, and finally drying, substantially as described.

In testimony whereof I have hereunto affixed my signature.

JNO. T. DAVIS.

In presence of—

L. W. SEELY,

J. P. LANGHORNE.