

# UNITED STATES PATENT OFFICE.

CHARLES TENNANT LEE, OF BOSTON, MASSACHUSETTS.

## PROCESS OF TREATING VEGETABLE FIBER.

SPECIFICATION forming part of Letters Patent No. 713,116, dated November 11, 1902.

Application filed March 18, 1902. Serial No. 98,866. (No specimens.)

*To all whom it may concern:*

Be it known that I, CHARLES TENNANT LEE, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Processes of Treating Vegetable Fibers, of which the following description is a specification.

My invention relates to a process of treating vegetable fibers, and is intended to be used principally in the reduction of said fibers to pulp, the object of the invention being to produce a thorough separation of the material into its ultimate fibers without weakening or deteriorating the fibers themselves.

Fibrous vegetable matters have been reduced by boiling them in caustic alkalies or sulfites. The substance named, however, while having more or less efficiency so far as relates to wholly or partly removing the resinous or other binding matter and separating the material into its ultimate fibers, has been found to act also upon the fibers themselves and to materially weaken them, so that the resulting material or pulp is to a certain extent deteriorated.

In accordance with my invention, on the other hand, the material is separated into its ultimate fibers without weakening the fibers themselves, the process employed in carrying out my invention being as follows: I boil the material in an alkaline saccharic solution, such as a solution of a saccharate of lime or of a saccharate of magnesia, or of a mixture of a saccharate of lime and a saccharate of magnesia, the strength of the solution and the extent of time it is boiled depending upon the nature of the material to be treated. Any saccharic solution will answer the purpose, a solution of saccharate of lime having perhaps some commercial advantages. It will be obvious to those skilled in pulp manufacture

that these elements in the process (the strength of the solution and the element of time) may be widely varied to suit the nature of the material and the condition of the pulp which is to be obtained from the material. I have found, for example, that in the treatment of flax waste by my process the desired result will be attained by boiling the flax for three hours in a three-per-cent. solution of the saccharate.

By boiling the material in a saccharic solution, as described, I avoid the deteriorating effect of the action of caustic alkalies, and because of the high solubility of the saccharic salts used a very effective action is produced, which, although capable of accomplishing to the best extent the separation of the fibers, has no injurious effect upon the fibers themselves.

It is immaterial in what condition the vegetable fibers may be when subjected to the process described, it being practicable, for example, to treat goods woven from vegetable fibers as well as the vegetable fibers in their natural state.

I claim—

1. That improvement in the art or process of treating fibrous vegetable materials which consists in boiling the materials in an alkaline saccharic solution, as set forth.

2. That improvement in the art or process of treating fibrous vegetable materials for the purpose of reducing them to pulp, which consists in boiling the material in a solution of saccharate of lime, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES TENNANT LEE.

Witnesses:

HENRY J. LIVERMORE,  
JAS. J. MALONEY.