UNITED STATES PATENT OFFICE.

CHARLES TENNANT LEE, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO BAGASSE PULP COMPANY, A CORPORATION OF MAINE.

PROCESS OF REDUCING FIBROUS MATERIAL TO PULP.

SPECIFICATION forming part of Letters Patent No. 701,271, dated May 27, 1902.

Application filed July 31, 1901. Serial No. 70,418. (No specimens.)

To all whom it may concern:

Be it known that I, CHARLES TENNANT LEE, residing in Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Processes of Reducing Fibrous Material to Pulp, of which the following description is a specification.

This invention relates to a process of reducing to a pulp absorbent fibrous vegetable materials.

I have found that by the process herein described excellent pulp can be made from bagasse, which is the crushed stalks or waste of sugar-cane or sorghum, or from waste flax, jute, cornstalks, and other vegetable materials having like absorbent and fibrous characteristics.

The present invention consists in a process of treatment whereby the whole of the fibrous material is separated into its ultimate fibers, thus producing a pulp of excellent quality. I have found that the pith of the material, if present, forms a gelatinous matter, which does not interfere with the laying of the fiber and improves the quality of the resulting pulp.

In accordance with the present invention the raw material if already damp, and by "damp" I mean permeated with moisture, is subjected to the action of gaseous chlorin, which may be done by immersing the loose mass of material in a receptacle containing the chlorin gas. I have found that one half of the chlorin molecule unites with the hydrogen of the water with which the material is permeated to form hydrochloric acid and the other half of the chlorin molecule unites with the intercellular matter of the material to form a soluble chlorin compound. Both of these are subsequently removed by washing, as hereinafter more fully described. If the raw material has been dried previous to treatment by my process, it should be dampened before subjecting it to the action of the chlorin gas until it has absorbed a sufficient quantity of water to form, when acted upon by the chlorin gas, the hydrochloric acid and the chlorin compound already described. Usually an immersion of the loose raw material in chlorin gas for a period of from half an hour to an hour will be sufficient to insure the proper separation of the fibers. The time will depend to some extent upon the coarseness of the fragments of the raw material and may be reduced by cutting, stripping, or breaking up the material previous to immersion in the chlorin gas. After the damp material has been thus subjected to chlorin gas it is removed therefrom and washed in water, which will remove the free chlorin, the chlorin compound, and the hydrochloric acid which are in the material. The washed material may be subjected to the bleaching effect of aqueous chlorin or an alkaline hypochlorite until it is rendered white, and after the bleaching operation it is again washed. The material is then in a pulpy condition and requires but little beating, and it may then be laid by a suitable machine in the usual manner for the manufacture of the desired final product.

I claim—

1. That improvement in the art or method of reducing fibrous material to pulp, which consists in dampening the material, immersing the dampened material in chlorin gas, and washing the product in water, as set forth.

2. That improvement in the art or method of reducing fibrous material to pulp, which consists in cutting, stripping or otherwise breaking up the material, dampening the same, and immersing the dampened material in chlorin gas, as set forth.

3. That improvement in the art or method of reducing fibrous material to pulp, which consists in cutting, stripping or otherwise breaking up the material, dampening the same, immersing the dampened material in chlorin gas, and washing the product in water, as set forth.

4. That improvement in the art or method of reducing absorbent fibrous vegetable material to pulp, which consists in subjecting such material when damp to the action of chlorin gas, substantially as and for the purpose described.

5. That improvement in the art or method of reducing absorbent fibrous vegetable material to pulp, which consists in dampening the material and then subjecting it to the action of chlorin gas, substantially as and for the purpose described.

6. That improvement in the art or method of reducing fibrous material to pulp, which consists in subjecting such material when damp to the action of chlorin gas, washing the product in water, and subjecting the product to a bleaching agent, and again washing the same, substantially as described.

7. That improvement in the art or method of reducing bagasse to pulp, which consists in subjecting the bagasse when damp to the action of chlorin gas; substantially as described.

8. That improvement in the art or method of reducing bagasse to a pulp, which consists in dampening the bagasse and then subjecting it to the action of chlorin gas; substantially as described.

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.