

# UNITED STATES PATENT OFFICE.

JOHN W. DIXON, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVED PROCESS FOR MAKING PAPER-PULP.

Specification forming part of Letters Patent No. 51,572, dated December 19, 1865.

*To all whom it may concern:*

Be it known that I, JOHN W. DIXON, of the city of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in the Process of Making Paper-Pulp from wood, straw, cornstalks, and other vegetable fibrous substance; and I do hereby declare the following to be a full and exact description of the same.

I cut the wood, straw, cornstalks, &c., into short lengths by any convenient cutting-machine. The cuttings are then placed in a strong closed boiler or digester and submitted to the action of a solution of caustic lime, or unslaked lime of commerce. Boiling in this solution of caustic lime under pressure is of essential importance. By the words "under pressure" is meant a pressure at, near, or above 300° of Fahrenheit's scale, which is as low as is advisable to work the process. With wood I find a solution of 4° Baumé, at a pressure of one hundred and twenty-five pounds, and the corresponding temperature thereto—say will complete the pulping operation in from ten to twelve hours. A less strength of solution at this temperature—say from 1° to 3° of Baumé—will answer with straw, cornstalks, or sorghum, and I indicate these temperatures and strengths respectively in a good digesting apparatus, such as is hereinafter described. I prefer, also, to perform the digesting operation under pressure in the peculiar apparatus for which I have applied for a patent, in which the boiling-liquid under pressure

containing the caustic lime is made to circulate from the bottom to the top of the digester and through the mass to be pulped within the digester, by means of a pump.

Heat may be communicated by a coil of steam or hot-water pipes in the bottom of the digester, or any other convenient mode.

After the material has been thus treated it is to be washed in the usual way, and bleached with chlorine or chloride of lime in the usual way.

I do not desire to limit myself to the above degrees of temperature for treating the material, nor the above strength of solution, nor to any special form of pulp-digesting apparatus. The heat of the liquid solution in the digester may be varied from 300° to 400° Fahrenheit, according to the nature of the substance to be treated, the length of time under treatment, and the form of digesting apparatus adopted.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The process of treating wood or other vegetable substances by boiling in a solution of caustic lime under pressure as a process, or preparatory process, for making pulp for the manufacture of paper from wood, straw, or other vegetable substances, substantially as described.

JOHN W. DIXON.

Witnesses:

J. ROBERTS HOWELL,  
GEO. BUCKLEY.