

UNITED STATES PATENT OFFICE.

JOHN W. DIXON, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN THE MANUFACTURE OF PAPER.

Specification forming part of Letters Patent No. 51,568, 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 Substances; 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 the common soda-ash (carbonate of soda) of commerce. Boiling in this solution of soda-ash 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 6° Baumé, at a pressure of one hundred and twenty-five pounds and the corresponding temperature thereto, will complete the pulping operation in about eight to twelve hours. A less strength of solution at this temperature—say from 2° to 4° of Baumé—will answer with straw, cornstalks, or sorghum, and I indicate these temperatures and strengths respectively in a good digesting apparatus, such as 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 liquor under pressure, containing the soda-ash, 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 heated it is to be washed in the usual way and then bleached with chlorine or chloride of lime in the usual way.

I do not desire to limit myself to the above degree 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 heated, 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 soda-ash (carbonate of soda) under pressure, as a process, or preparatory process, for making pulp for the manufacture of paper from wood, straw, or other vegetable fibrous substances, substantially as described.

In witness whereof I have hereunto set my hand this 1st day of December, A. D. 1865.

JOHN W. DIXON.

Witnesses:

J. ROBERTS HOWELL,
GEO. BUCKLEY.