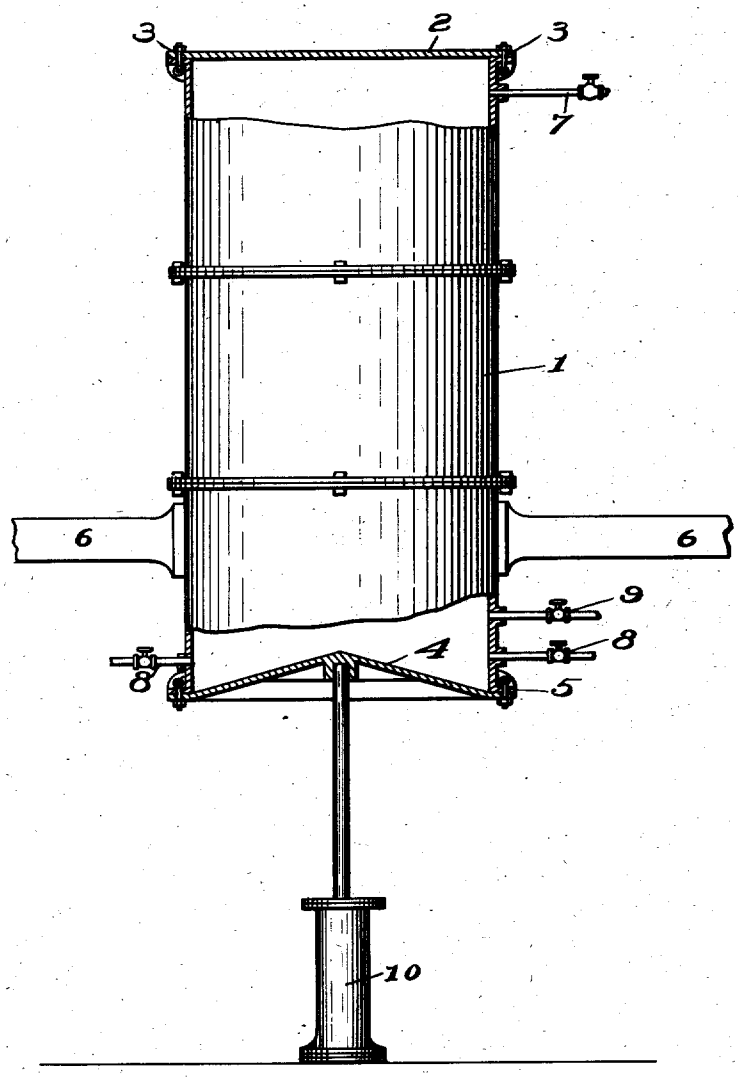
C. BACHE-WÜG.

WOOD PULP AND PROCESS FOR MAKING SAME.

APPLICATION FILED MAY 13, 1907.

913,679. Patented Mar. 2, 1909.



Witnesses
H. B. Davis.
Cynthia Doyle.

Inventor:
Carl Bache-Wüg
by Hayes & Harriman
attys.

UNITED STATES PATENT OFFICE.

CARL BACHE-WÜG, OF BERLIN, NEW HAMPSHIRE.

WOOD-PULP AND PROCESS FOR MAKING SAME.

No. 913,679. Specification of Letters Patent. Patented March 2, 1909.

Application filed May 13, 1907. Serial No. 373,225.

To all whom it may concern:

Be it known that I, CARL BACHE-WÜG, of Berlin, county of Coos, State of New Hampshire, have invented an Improvement in Wood-Pulp and Processes for Making Same, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to a process for treating wood for the production of a white ground wood pulp for paper, and also to a new form of wood pulp which can be used without the admixture with it of any sulfite, and newspaper of a good quality produced, or it may be used as a mixer in strong wrapping paper, Manila paper or bag paper.

My process consists in cooking the wood in the form of blocks in a suitable solution which operates to soften but not to dissolve and thereby remove to any substantial extent, the lignin which is contained in the outer portions of the blocks, and by softening the lignin to separate the fibers of the wood; and then grinding the blocks thus treated, in the usual manner. When the blocks are ground the fibers obtained from the outer treated portions of the blocks are stronger and longer than the fibers obtained from the inner untreated portions of the blocks, and substantially all the lignin which is contained in the blocks is present in the yield. As for example, a cord of wood will yield say 2000 pounds of ground wood pulp in the ordinary manner, while by my process the yield will be approximately 1900 pounds, the loss being therefore quite inconsequential when compared with the superior quality of the pulp which is produced. The pulp thus produced is well adapted as a substitute for a mixture of ground wood and sulfite.

In practicing my invention I employ a saline solution, using sodium chlorid and water in the preparation of this solution, and it may be made of any degree of concentration. This solution possesses certain advantages which are very important, as for instance, it acts readily to soften the lignin and not to dissolve it to any substantial extent, even when heated to a high temperature, (as for instance, to 120° C.) so that the bulk or volume of the yield will not be substantially reduced; also, it does not discolor the wood or cause any discoloration of the wood even when heated to a high temperature, (say to 120° C.), but on the contrary whitens it some. Furthermore, the solution may be reused by merely adding sodium chlorid and water to maintain the required strength and quantity. My invention, however, is not limited to the use of this solution as other solutions may be suited for the purpose, the object being to employ a solution which will soften but not dissolve the lignin. I am familiar with the ordinary sulfite and soda processes and I am aware that wood has been treated with chemical solutions which act to remove the lignin, as for instance, it has been treated with an alkaline solution which softens the wood but also dissolves the lignin and discolors the pulp, but I am not aware of any process by which substantially all the lignin is retained, it being merely softened sufficiently to cause the separation of the fibers of the wood in order that comparatively long fibers may be obtained when the wood is ground. I, therefore, disclaim the use of alkaline solution.

I find in practice that when the blocks are treated in accordance with my process the power required to grind up the blocks is materially reduced, which results in decreasing the cost of producing the pulp. The term lignin is herein used in the broad or general sense, meaning all the binding and other substances associated with the cellulose in the wood.

In the drawing herewith, I have shown a suitable digester for practicing my process. This is made of either steel or cast iron, and may be stationary or rotary and arranged either horizontally or vertically. The digester may be lined with brick or similar material to resist the action of the chemicals. After the digester is charged with the blocks, the liquor may be introduced by any suitable means, such as a pump or gravity, but I prefer to use a vacuum pump, because thereby the air is drawn from the blocks, permitting the liquor to penetrate the blocks more deeply, or in a shorter time. It will be understood that the time of the cooking and the strength of the solution depend on the quality of pulp desired and the depth to which the blocks are to be treated.

In the drawing, 1 indicates the digester having a removable cover 2 secured in position by nuts and bolts 3 or by other suitable means, and having a removable bottom 4

secured in position by nuts and bolts 5, or by other suitable means.

7 is a pipe leading to a suitable vacuum pump, when it is desired to introduce the liquor by that means.

8, 8 are inlet and outlet pipes for the liquor. Steam for cooking may be introduced through a suitable pipe 9. The digester may desirably be supported on brackets as 6, 6, or otherwise, and the bottom held up in position by means of a hydraulic, or other, press 10, whereby the digester is conveniently charged and the cooked blocks conveniently removed.

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

1. The herein described process of preparing wood pulp for paper which consists in treating the wood in the form of blocks with a solution of sodium chlorid to soften only but not remove the lignin contained in the outer portions thereof, to a substantial depth, to thereby separate the fibers and then grinding up the entire blocks.

2. Wood pulp for paper composed of untreated fibers mixed with treated fibers treated with a solution of sodium chlorid and containing substantially all the lignin which is originally contained in the wood from which both fibers are obtained, substantially as described.

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

CARL BACHE-WÜG.

Witnesses:
B. J. NOYES,
H. B. DAVIS.

Correction in Letters Patent No. 913,679.

It is hereby certified that the name of the patentee in Letters Patent No. 913,679, granted March 2, 1909, for an improvement in "Wood-Pulp and Processes for Making Same," was erroneously written and printed as "Carl Bache-Wüg," whereas said name should have been written and printed as *Carl Bache-Wiig;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 3rd day of July, A. D., 1917.

[SEAL.]

F. W. H. CLAY,
Acting Commissioner of Patents.

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