

# UNITED STATES PATENT OFFICE.

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## MANUFACTURE OF WOOD PULP.

SPECIFICATION forming part of Letters Patent No. 530,898, dated December 11, 1894.

Application filed June 9, 1894. Serial No. 514,010. (No specimens.)

*To all whom it may concern:*

Be it known that I, EDWARD NOLON, a citizen of the United States, residing at Wausau, in the county of Marathon and State of Wisconsin, have invented a certain new and useful Improvement in the Manufacture of Wood Pulp, (Case No. 2,) of which the following is a full, clear, concise, and exact description.

My invention relates to the manufacture of wood pulp, and its object is the provision of a wood pulp of high tensile strength that shall be waterproof and impervious to moisture.

My invention consists, first, in an improved method of treating the wood from which the pulp is to be made whereby the pitch and rosin are effectually removed therefrom, and whereby the fibers of the wood are strengthened and toughened.

My invention consists, second, in a method of preparing the wood pulp to impart to the same an increased tensile strength, and to render the same waterproof and impervious to moisture, and, further, to impart to the pulp any desired color.

The wood from which the pulp is to be made is first divested of its bark, knotty formations, and dead wood, and is then placed in a boiler and subjected to the toughening action of steam. Kerosene, salt, and saltpeter are placed in the boiler with the wood, and I find that the combined action of the kerosene, salt, saltpeter and steam imparts to the wood fibers a strength and toughness that cannot be obtained by the use of steam alone, which has been the practice heretofore. The kerosene in addition to its action as a toughening agent, also serves to loosen the pitch and rosin from the fibers. I preferably employ a steam pressure of eighty or ninety pounds, and subject the wood to the action of the above agents from ten to fifteen hours. The wood, thus cleaned, strengthened and toughened, is then ground in the usual manner, mixed and stirred with water and conveyed to the stock or storage tank from which it is withdrawn as desired for use, and passed in the usual course through the shaker that separates out the fibers too coarsely ground. The mixture is then passed to the wet machine that deposits the pulp in a thin layer upon a felt blanket from which it is wound

about a wooden drum until of the required thickness, when the pulp is cut therefrom to form a sheet. The sheet thus produced is placed in the drier and dried to the extent of about ninety per cent. The sheet of pulp, thus dried, is then subjected to my improved preparing process by being dipped into a hot liquid preparation which completely permeates the interstices of the pulp and wood fibers to impart thereto the desirable properties above mentioned. The preparation in its preferred form, consists of rosin dissolved in turpentine, forming about twenty per cent. of the mixture; asphaltum, thirty per cent.; and glue dissolved in linseed oil, fifty per cent. The rosin and turpentine are first mixed and subjected to heat, as are also the glue and linseed oil, after which these two mixtures and the asphaltum are combined. While I find the above proportions to give satisfactory results, the proportions may be varied to some extent without materially affecting the process.

I do not confine myself to the use of linseed oil for dissolving the glue, nor to the use of turpentine for cutting or disintegrating the rosin, as other suitable elements may be employed in their stead.

The pulp sheet, after having been dipped into the preparation which is maintained in a hot condition, is subjected to a rolling process to compress and complete the pulp sheet.

The preparation to which the pulp is subjected permeates the same and imparts thereto an increased tensile strength and fills up the pores of the fibers and the interstices of the pulp to render the same waterproof and impervious to moisture.

When it is desired to impart to the pulp a color other than the natural color, coloring matter and lead—red or white, according as the color is to be dark or light—are mixed with the preparation; the coloring matter thus thoroughly permeating the pulp and imparting thereto a color which is not merely superficial, but which enters into the substance of the pulp.

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

1. The herein described method, which con-

sists in subjecting wood fibers to the combined action of steam, kerosene, salt and salt-peter, grinding said fibers and forming the same into a pulp, and then impregnating said  
5 pulp while containing a percentage of moisture with rosin, glue and asphaltum, substantially as described.

2. The herein described composition of matter for the treatment of wood pulp, comprising dissolved glue, disintegrated rosin and asphaltum, substantially as described.  
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3. The herein described composition of matter for the treatment of wood pulp, comprising

ing glue, linseed oil, rosin, turpentine and asphaltum, substantially as described. 15

4. The herein described composition of matter for the treatment of wood pulp, comprising glue, linseed oil, rosin, turpentine, asphaltum, coloring matter and white or red lead, substantially as described. 20

In witness whereof I hereunto subscribe my name this 6th day of June, A. D. 1894.

EDWARD NOLON.

Witnesses:

CHAS. M. GREENE,  
W. CLYDE JONES.