

UNITED STATES PATENT OFFICE.

HARRISON B. MEECH, OF FORT EDWARD, NEW YORK.

IMPROVED PROCESS FOR PREPARING SAWDUST FOR PAPER-PULP.

Specification forming part of Letters Patent No. 45,510, dated December 20, 1864.

To all whom it may concern:

Be it known that I, HARRISON B. MEECH, of Fort Edward, in the county of Washington and State of New York, have invented a new and improved process of treating sawdust for the purpose of preparing the same to be converted into pulp for the manufacture of paper; and I do hereby declare that the following is a full and exact description thereof.

The nature of my invention consists in taking common sawdust of the mills produced by the cutting of timber into lumber, or sawdust produced in any other manner, and soaking or steeping the same in a weak solution of alkali and grease, composed of soda-ash, lime, grease, and water, for a period of twenty-four hours, or thereabout, the said solution, when applied, to be warm or hot.

Second. Then to boil said sawdust in a new solution of the same kind of liquor of an alkaline density, varying from 1° to 1½° Baumé, and in quantity sufficient to convert the mass in the vessel for boiling into a fluid state, subject to ebullition while boiling, and in time from four to six hours.

Third. After such boiling is completed, then discharge the surplus liquor into the batch of sawdust to be soaked preparatory for boiling, and let the same remain for the purpose of soaking the sawdust, as above stated, for the period of twenty-four hours, or thereabout, as above stated.

Fourth. Put the boiled dust into a tub or vat to be washed, and introduce clean water in quantity sufficient to reduce the mixture to a thin fluid state, and then agitate it thoroughly.

Fifth. The mass is then to be freed from water by being put into a press provided with suitable sieves or strainers of wire and stout or strong cloth and the water pressed therefrom.

Sixth. The sawdust thus treated is ready to be put into the common beating-engines known to the art of paper-making, when the process is completed by beating and bleaching in the manner commonly known and practiced by the paper-maker in treating other stock for such purpose.

Common sawdust thus treated is converted into a fine and valuable pulp, and is ready for use in the manufacture of paper. That part

of the process which consists in soaking the sawdust preparatory to boiling is useful in preparing the dust thus treated to be acted upon immediately by the new boiling-liquor, so as to reduce almost simultaneously the entire mass of dust to a condition to be converted to pulp without over-boiling any part of the fiber first acted upon, while other parts require further treatment by boiling when the soaking process is dispensed with. That part of the process requiring the discharge of the surplus liquor used in boiling, in its heated state, into the batch of sawdust to be soaked preparatory for boiling is useful in two ways. It furnishes a liquor of weak alkaline strength in a highly-heated state, which immediately expands the particles of dust, and commences dissolving the glutinous and other substances which hold the fiber together, and what of the finer fiber which tends to escape with the discharge of such liquor is thereby saved by mixing with the batch of dust to be treated, making a large economy in saving alkali, fuel, and fiber.

The advantage of pressing the dust after washing, as described in the process, rather than to drain off the water, is, first, to save time and, second, to save fiber. The process of draining is rendered almost impracticable, because unless very fine sieves or strainers are used a large portion of the dust treated will escape, and if such are used without any external force being applied they soon become filled with the fiber, so as to prevent the escape of the water; but by means of force being applied to the mass it can be freed from the water and be made fit for the beating-engine.

I do not claim absolutely the use of sawdust as a material for making pulp for the manufacture of paper, nor do I claim the boiling of the same in alkaline solutions; but

What I do claim, and desire to secure by Letters Patent, as my invention is—

The peculiar process by me above described for treating sawdust preparatory to converting it into a suitable material for the manufacture of paper, substantially in the manner and for the purposes above described.

HARRISON B. MEECH.

Witnesses:

EDWARD WADE,
JOEL TIFFANY.