

UNITED STATES PATENT OFFICE.

ANDREW K. HAXSTUN, OF FORT EDWARD, NEW YORK.

IMPROVEMENT IN THE MANUFACTURE OF PAPER-PULP FROM STRAW.

Specification forming part of Letters Patent No. 52,994, dated March 6, 1866.

To all whom it may concern:

Be it known that I, ANDREW K. HAXSTUN, of Fort Edward, in the county of Washington and State of New York, have invented a new and useful Improvement in the Manufacture of Paper-Pulp from Straw; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to fully understand and make use of the same.

This invention relates to a new process for treating straw, whereby a paper-pulp is obtained of superior quality and fit for the manufacture of the best kind of paper without the addition of other materials.

In carrying out my process I first place the straw or other fibrous substance, cut or uncut, with all its knots, into a rotary boiler or vessel, and then I pour into said boiler or vessel twenty-five gallons of boiling water to every one hundred pounds of straw, or a sufficient quantity to soak the straw in the boiler. By the action of the boiling water the knots, which are usually taken out, become soft like the rest of the straw. I then close the boiler and rotate the same for thirty minutes, or until the straw becomes perfectly soft. I then put into my boiler about forty-two gallons of alkaline solution of 4° Baumé to the one hundred pounds of straw. Said alkaline solution is made of soda-ash and lime, taking six hundred pounds of soda-ash at a test of 48°, to which are added four hundred and twelve pounds of stone-lime, dissolved in boiling water. When this liquor is in the boiler, I close the same and rotate it, and at the same time a fire is made under the boiler and the boiler continued to rotate until the pressure in the same rises to seventy pounds or upward to the square inch, and then I continue to rotate my boiler

for two hours and forty-five minutes. I then let the straw or other fibrous substance stand under pressure for two hours and twenty minutes, and after the lapse of this time I blow off the liquor through a pipe running through the journal of the boiler and dump the stock into a large tank and wash it with clean water. It is then ready for bleaching.

By first treating the straw or other fibrous substance with boiling water the glutinous substance which renders the paper hard and brittle is entirely removed, and the pulp is rendered easy to bleach, and the paper prepared therefrom is soft and pliable as paper made from rags. It is also of importance to use the exact proportion of alkalies above stated in preparing the liquor, and to observe the time given for boiling and rotating the boiler.

By keeping the boiler in motion the ebullition of the liquid in the boiler is checked and the heat is equally diffused throughout the entire mass. The alkali is prevented from settling down and the straw is reduced to pulp in the shortest possible time and with less expense than it can be done by any other method known to me.

What I claim as new, and desire to secure by Letters Patent, is—

The within-described process of reducing straw to paper-pulp by first treating the same in a revolving boiler or vessel with boiling water, and then with an alkaline solution under pressure, substantially as set forth.

The above specification of my invention signed by me this 6th day of October, 1865.

A. K. HAXSTUN.

Witnesses:

M. M. LIVINGSTON,
C. L. TOPLIFF.