

UNITED STATES PATENT OFFICE.

REBECCA SHERWOOD, OF FORT EDWARD, NEW YORK.

IMPROVEMENT IN REDUCING HEMP, FLAX, &c., TO A FIBROUS CONDITION.

Specification forming part of Letters Patent No. 40,577, dated November 10, 1863.

To all whom it may concern:

Be it known that I, REBECCA SHERWOOD, of the town of Fort Edward, in the county of Washington and State of New York, have invented certain new and useful improvements in the reducing of hemp, grass, flax, straw, and other fibrous substances to a textile fiber for the purpose of making textile fabrics, felt, cloth, and textile paper for shirt-bosoms, &c., also all kinds of paper, on being reduced to a textile pulp, of which the following is a specification.

I use two tubs or pans holding about one thousand gallons each, for convenience about seven feet in diameter and about four feet deep; also, a pan holding about two thousand gallons convenient to the boiler.

In my process for producing hemp, flax, grass, straw, and other fibrous substances of textile fiber I make a solution as follows: To about fifteen hundred gallons of water I add about five hundred and seventy-five pounds of soda-ash or its equivalent of pure caustic soda. Then I add about twenty pounds of borax, boron, or boracic acid or their equivalents. I then dissolve about eight pounds of rosin or pitch or their equivalents in about ten pounds of soda-ash or potash in one pail of water; then add them to the solution. It is then ready to add to about one ton of any substance which I wish to reduce to a textile fiber. The usual time of boiling is from three to six hours. When the solution is about two-thirds boiled (more or less) I sometimes draw off the whole or part of the liquor before I add, by means of a force-pump, (if in a close boiler,) a solution made of about fifty pounds of alum and about one hundred and twenty gallons of water. I sometimes use a greater or less quantity of the alum solution. The hemp and flax need less than the other fibrous substances. I sometimes omit the rosin and use coal-oils or their fluids instead. I use a soapy solution formed by means of soap with any of the above-named ingredients. When I wish to make a more textile pulp for paper—say about two barrels of soap or coal-oils, or their fluids combined—I sometimes use, instead of soap to form my soapy solution of, with my other ingredients above mentioned, crude or refined coal-oils, or fluids made from them, separate or combined, to form my soapy solutions of.

I do not confine myself to the quantities of the various ingredients used in the above solutions, but vary them according to the fiber

I may wish to make. The solutions may be weaker for hemp or flax than most other fibrous substances—say about one-eighth to one-third less in strength. When I wish to partly or wholly bleach my textile fabric for cloth, felting, or paper in a rotary boiler after the straw has partly gone through with textiling, I add from one hundred to one hundred and fifty pounds of chloride of lime, in addition to the alum or its equivalent to about five hundred gallons of water. I sometimes cleanse the straw after it is boiled in the first solution by means of water before I add the alum. I sometimes boil the fiber in an alum solution a short time before adding the chloride of lime. I sometimes add from twelve to sixteen pounds of oil of vitriol. As the heat in the boiler begins to cause the different ingredients to mingle together and act chemically with each other then the viscous and oleaginous substances contained in the different fibrous substances begin to unite and form a kind of mineral, unctuous, mucilaginous, or soapy solution, which assists in protecting the finer portions of the fiber or other substances, while the coarser portions are being dissolved to a textile fiber.

I do not intend to limit myself to the use of a rotary air-tight boiler alone, but may use either such a boiler or a fixed air-tight boiler with an arrangement by a wheel or otherwise for imparting a rotary motion to its contents without permitting the escape of the gases within, my object being to confine the gases arising from the heated solution and to use them for bleaching the fiber while rotating the mass.

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

1. The use of the solutions combined, as described, for the purpose of reducing hemp, flax, grass, straw, and other fibrous substances to a textile fiber for the manufacture of textile fabrics and pulp for paper, substantially as described.

2. The use of coal-oil, naphtha, benzine, or other liquid hydrocarbon, either alone or combined with alkaline or soapy solutions, for the purpose of reducing hemp, flax, grass, straw, and other fibrous substances to a textile fiber for the manufacture of textile fabrics or for pulp for all kinds of paper, substantially as described.

REBECCA SHERWOOD.

Witnesses:

J. K. PIXLEY,
HENRY TEFFT.