

UNITED STATES PATENT OFFICE.

HUGH BURGESS, OF ROYER'S FORD, PENNSYLVANIA.

IMPROVEMENT IN DISINTEGRATING OR COTTONIZING FLAX, HEMP, &c.

Specification forming part of Letters Patent No. 41,276, dated January 19, 1864.

To all whom it may concern:

Be it known that I, HUGH BURGESS, of Royer's Ford, in the county of Montgomery and State of Pennsylvania, have invented a new and Improved Mode of Disintegrating or Cottonizing the Fibers of Flax, Hemp, and other Fibrous Substances; and I do hereby declare the following to be a full and exact description thereof.

The flax, hemp, or other fibrous materials which are to be subjected to the disintegrating or cottonizing process should first be well cleaned by any suitable machine from the shive or the outer cuticle and inner woody substance. The material thus cleaned is then subjected to the action of caustic alkali, under a suitable steam-pressure, which may be done in various modes, of which I have found the following to be the best.

The hackled flax, hemp, or other material may be cut into suitable lengths by any convenient machine. I do not, however, confine myself to the use of the material thus cut, but prefer it for convenience. This material should be placed in a boiler, (I prefer that known as "Keen's" patent boiler,) and subjected to the action of caustic alkali at a pressure equivalent to a temperature of 280° and upward. The strength of the caustic alkaline solution may vary from about one-quarter of a pound of soda-ash or its equivalent of potash, in the state of a caustic solution, to one pound of raw material, the quantity of alkali depending on the character and age of the material operated upon. For retted flax the best proportion is about three-quarters of a pound of alkali to the pound of flax. Care must be taken to keep the mass of fiber submerged in the alkaline solution. After the boiler has been charged it should be heated by any convenient mode until the desired pressure is obtained, at which it is to be kept for about one hour, when the discharge-valve of the boiler should be opened and the whole contents blown out, while the boiler is under pressure, into a suitable receiver. The alkaline solution is then drained off from the fibrous mass, and may be evaporated, burned, and again used for the same purpose. The fibrous mass is washed with hot water till all traces of alkaline solution are removed. It is then in a fit state for bleaching, and may be bleached in the usual mode.

The disintegrated or cottonized and bleached fiber, after being washed and dried, will be found in suitable condition to be wrought into textile fabrics by well-known machinery.

If it is deemed advisable to obtain the fiber in its natural length the following process may be used. The hackled flax is to be loosely formed into hanks, and placed tightly but regularly into cases or cylinders formed of iron wire of suitable strength. These cases or cylinders should then be placed one upon another in a suitable boiler, of an upright form, having a man-hole at the upper end. Caustic alkali of a strength proportionate to the character of the material, as hereinbefore indicated, should then be introduced into the boiler, so as to cover the cases or cylinders. The man-hole may be fitted and the boiler heated by any convenient mode, and the heat should be raised to the desired pressure, as hereinbefore described.

The mode of exposing the material to the action of alkaline solutions in cases or cylinders is not a part of my invention, as it has been heretofore used. The material may also be laid directly in the boiler on a perforated false bottom; but I prefer to adopt the wire cases, as being more convenient. When the boiling of the material is completed the alkaline solution may be removed by gently flowing it out of the boiler by means of a cock at its lower end. When it is removed hot water should be showered on the fibrous mass till the alkaline solution is entirely removed. The cases may then be lifted out of the boiler, the fibrous material removed, and placed in a percolating-tank and bleached by means of a weak solution of bleach-liquid passed through it. When bleached it should be washed by percolation and dried, when it is fit for the operations of machinery.

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

The mode of producing fibers for textile purposes from flax, hemp, and other fiber-yielding plants by the action thereon of caustic alkaline solution at a suitable temperature, substantially as described.

HUGH BURGESS.

Witnesses:

A. B. STOUGHTON,
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