No. 106,133. PATENTED AUG. 9, 1870.

L. DEAN.

APPARATUS FOR REDUCING FIBROUS MATERIAL TO A TEXTILE STOCK.

Fig. 1.

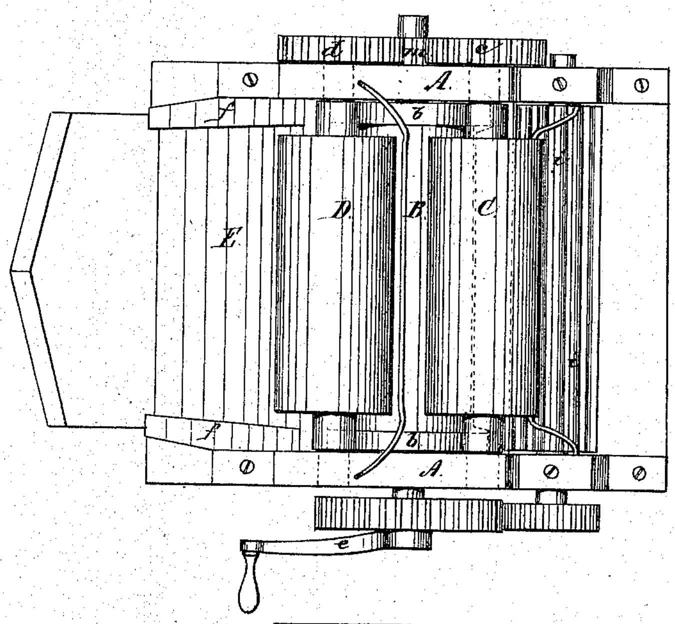
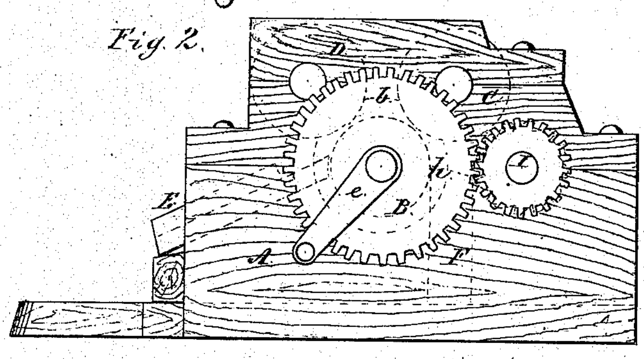


Fig. 2.



Witnesses.

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Letters Patent No. 106,133, *dated August* 9, 1870.

IMPROVEMENT IN APPARATUS FOR REDUCING FIBROUS MATERIAL TO A TEXTILE STOCK.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, LORENZO DEAN, of Fort Edward, in the county of Washington and State of New York, have invented a new and improved Machine for Assisting in Reducing Fibrous Material to a Textile Stock; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a plan view, and

Figure 2 is a side elevation.

This invention has for its object the disintegration of the fibers of Esparto grass, straw, or other fibrous material, to a condition in which it is ready to undergo a further disintegrating process by a chemical solution in a boiler, which process is fully described in another application made by me for a patent, and which produces a textile stock which may be spun, woven, or felted, or reduced to a pulp for the manufacture of paper and for other purposes.

The invention consists in a mill for crushing and brooming, and thus disintegrating the fibrous material after the same has had one or more soakings in tepid water, for the purpose of dissolving the waxy, glutinous substance surrounding the fiber and removing therefrom a portion of its color, the construction and operation of the said mill being hereinafter fully explained.

The invention also consists in a process of soaking the fibrous material in tepid water while passing through the machine.

In the drawing—

A is the cast-iron frame-work of the machine.

B is a cylinder, mounted transversely of the frame-work A, and having circular flanges *b b* at its ends.

C is a second cylinder, mounted transversely of the frame-work A, above and to the right of the cylinder B, between the flanges *b* of the same, and nearly in contact with it.

D is a third cylinder, mounted, in relation to the cylinder B, in all respects similarly as the cylinder C is mounted, except that the cylinder D is to the left of the cylinder B.

Spur-gears *m o d*, fixed on the projecting ends of the shafts of the cylinders B C D, outside the frame-work A, transmit the motion of the cylinder B to the cylinders C D.

The cylinder B receives motion from a crank, *e*.

E is an inclined apron, placed crosswise of the frame-work, the said apron having side flanges *f f*, which make of it a guide-way for the soaked fibers, that conduct the same directly against the periphery of the roll B, just below the passage, between it and the upper roll D.

The diameter of the rolls B and D are about the same.

While passing between these two cylinders the fibrous material is pressed flat, and a portion of its waxy, glutinous element, and of its color, removed by such pressure. The material thereupon emerges into the chamber between the three cylinders B C D, which space is kept filled with fresh tepid water by any suitable apparatus. The material, therefore, receives another soaking while passing this chamber, but is squeezed flat and nearly dry again while running between the cylinders B and C.

The cylinder C is of greater diameter than the roll B, and therefore moves faster at its surface, and, by such faster movement, it stretches, thus partially disintegrating the fibers as they pass between it and the cylinder B.

F is a vertical block, placed crosswise of the frame-work A, at the opposite side of the roll B from the apron E, and beneath the cylinder C.

The block F bears at the upper and inner corner a scraper, *h*, which scrapes and keeps clean the surface of the cylinder B.

At the upper and outer corner of the block F are knives, fixed lengthwise of the same.

I is a shaft, mounted parallel to the series of rollers and the block F, and bearing, fixed lengthwise of its surface, a series of brooming-knives, *i*, which approach, in their rotation, very near the bed-knife, on the block F.

The fibrous material, while on its way to the brooming-knives, receives a second soaking in tepid water, similar to the first.

While passing between the bed and brooming-knives the fibers are still further disintegrated, which completes the operation of this machine.

Having thus described my invention,

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

1. The combination of the cylinders B C D, frame-work A, apron E, block F, provided with the scraper and bed-knife, and shaft I, provided with the brooming-knives *i*, all substantially as and for the purpose described.

2. The combination of the rolls C and B, when the former is of greater diameter than the latter, in order that the fiber may be partially disintegrated while passing between the two rolls, substantially as described.

3. The process, herein described, of soaking the fibrous material in tepid water while passing through the machine.

LORENZO DEAN.

Witnesses:

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