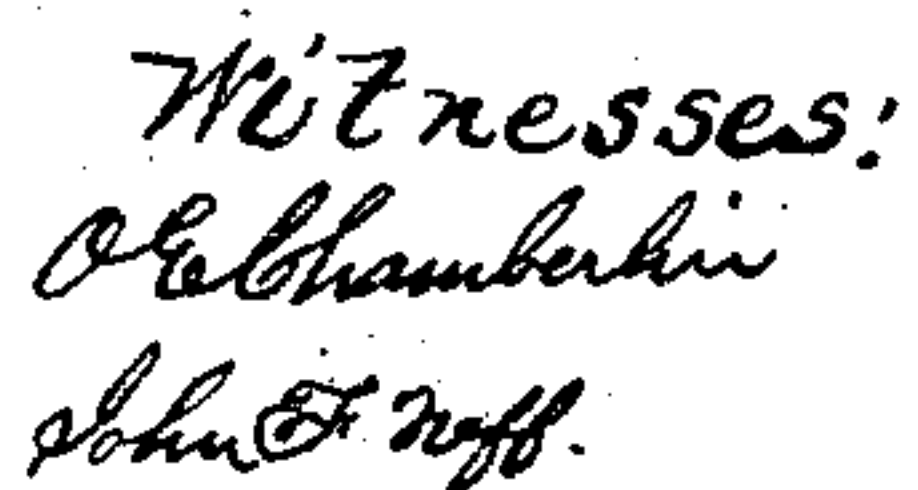


## Hemp Brake.

Patented Oct. 11, 1859.



Inventor.  
John H. Norton



# UNITED STATES PATENT OFFICE.

JOHN K. BOOTON, OF LURAY, VIRGINIA.

## IMPROVEMENT IN MACHINES FOR BREAKING AND CLEANING HEMP.

Specification forming part of Letters Patent No. 25,717, dated October 11, 1859.

*To all whom it may concern:*

Be it known that I, JOHN K. BOOTON, of Luray, in the county of Page and State of Virginia, have invented and made certain new and useful Improvements in Machinery for Breaking and Cleaning Hemp, Flax, and other Fibrous Substances; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figures 1 and 2 are side elevations of the machine. Fig. 3 is a top view of the machine.

The nature, construction, and operation of my improvements I describe as follows, in order to enable others to be skilled in the same.

In Fig. 1 is represented a side view or vertical elevation of the machine, *a a a a* being uprights, mortised and fitted to a longitudinal middle brace-rail, *b b b*, and framed onto base-timbers or sills *c c c*, and at *d d* is a feeding platform or table attached to the end of the machine, the table extending inwardly, as at *d'*, and formed of boarding or of canvas, if desired.

At *e e e*, Figs. 1 and 3, is a driving-band or belt-wheel having a shaft, *f*, Fig. 3, attached, formed with a cam or crank near each end, as at *g g*, Fig. 2, and to the other, at *h h*, is a small spur-wheel, in which gears a main driving double cog-gear wheel, *I I I I*, and at *J J*, Fig. 2, is shown the ends or heads of a cylindrical grating formed of the ribs or bars *K K K K K K K K*. This cylindrical grating is attached to an axle, *L L*, passing through the heads *J J*. The ribs or bars *K K K K K K K K* are sixteen in number on a large-size machine. These ribs or bars and the heads form the main or breaking cylinders.

In Fig. 1, at *m m n n*, are two spur-gears, with each a small roller attached and arranged parallel, and one above the other, rods or axles passing through the rollers. The upper roller is adjustable up and down, its journal ends working and resting in a slot or mortise cut in the uprights *a a*, and to the off end of the lower roller is attached a small pinion, *o*, as indicated in Fig. 2. This pinion gears into the inner set of gearing on the main cog-gear wheel *I I*. Immediately in front of the two rollers is a hurder-cylinder, *P P*, either solid or hollow, but having formed or attached to its circumference at equal distances series of

alternate plain and serrated or saw-like ridges or ribs *q r q r q r*. This hurder-cylinder has attached to one of its journal ends a double pulley, *s s t*, Fig. 3.

At *u u* is indicated an endless apron working over and around small rollers *v v*, Figs. 1 and 2, one of said rollers having a small pulley, *w*, this endless apron being connected and working to the back end of the machine.

At *x x x x* are lever-arms jointed or pivoted to the inside of the uprights *a a a a*. To the front or forward ends of said arms, attached crosswise at equal distances apart, are swords or breakers *z z z z*, so arranged that they strike in between the bars or grating *K K K K* when operated.

To the ends *y y y y* of the lever-arms are connection or pitman rods *& & & &*, and these rods hook on below around the cams or cranks *g g*, formed on the axle *f* of the driving-wheel *e e*.

Immediately below the hurder-cylinder *P P* is a concave-shaped grating formed of suitable wires or rods, as indicated in the end boards, Figs. 1 and 2, at *b' b'*.

At *c' c'* is arranged and employed a fan-wheel with casing *c' c' c'*. To the axle of the wheel is connected a band-pulley, *d' d'*.

The operation of my improvements is as follows: The hemp-stalks are deposited on the table or platform *d d'* and fed in endwise between the swords *z z z* and bars *K K K*. The machine being set in motion, the cylindrical grating *J J K K K K* revolves inwardly in the direction indicated by the arrows, and as the stalks of hemp pass in they are broken by the up-and-down motion or action of the swords *z z z*, which strike against them in connection with the bars *K K K*. It will be perceived the blades of the swords strike in between the bars or grating *K K K K*, and in so doing the swords make three distinct strokes to every four and a half inches movement of the cylinder *J J*, or sixteen times to one complete revolution of the cylinder. The hemp-stalks thus first being broken pass in and between the two small rollers, (indicated by the gearing-wheels *m n*,) which press or squeeze the broken stalks and convey them between the hurder-cylinder *q r q r q r* and the concave grating *b' b' b'*. The rollers indicated at *m n* have precisely the same speed as the breaking-cylinder *J J K K K*. The hurder-cylinder or cleaner *q r q r q r* must be geared so as to revolve sufficiently

fast to detach the hurds or bark from the fiber of the hemp. The hemp passes between the hurder or cleaner  $q r q r$  and the concave grating  $b^2 b^2$  out onto the endless apron  $u u u u$ , and as the hemp passes thereon the blast or current of air issuing from the casing  $c^3 c^3 c^3$  blows downwardly against the hurded or cleaned hemp, and thus the passing current counteracts the centrifugal action of the hurder or cleaner  $q r q r q r$ , and effectually prevents the scattering of the fiber upwardly.

Having described the nature, construction, and operation of my improvements, what I claim as new, and desire to have secured by Letters Patent of the United States, is as follows:

1. The combination and arrangement of the cylindrical grating  $J J K K K$  and lever-arms  $x x y y$ , and swords  $z z$ , and concave grating  $b^2 b^2$ , with the hurder-cylinder  $P$ , formed with alternate plain edge and serrated ridges or ribs  $q r q r$ , substantially as set forth and described.

2. The combination and arrangement of a fan or blast wheel,  $c^2 c^2 c^2$ , with the hurder-cylinder  $P q r$  and endless apron  $u u$ , substantially as set forth and described.

JOHN K. BOOTON. [L. S.]

Witnesses:

JNO. S. HOLLINGSHEAD,  
JOHN S. GALLAHER, Jr.