

(No Model.)

J. VON OVEN & C. F. PANKNIN.

MACHINE FOR DECORTICATING FIBER BEARING PLANTS.

No. 475,794.

Patented May 31, 1892.

Fig. 7.

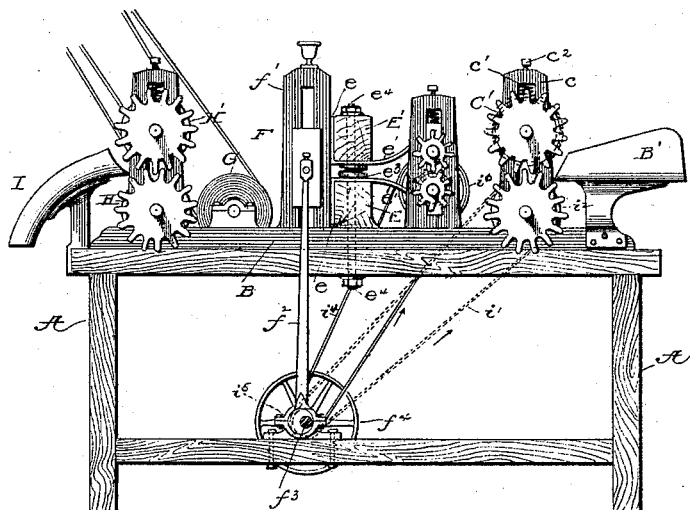


Fig. 2.

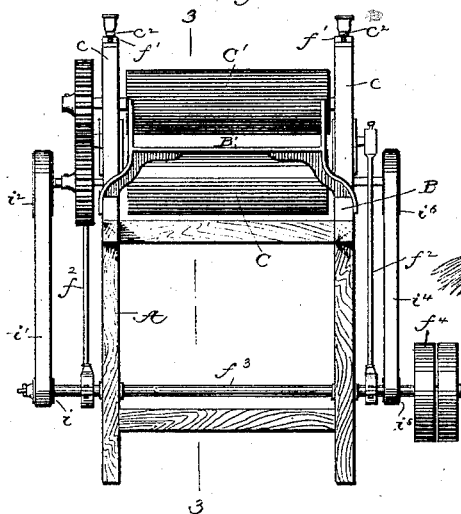


Fig. 3.
on line 3-3

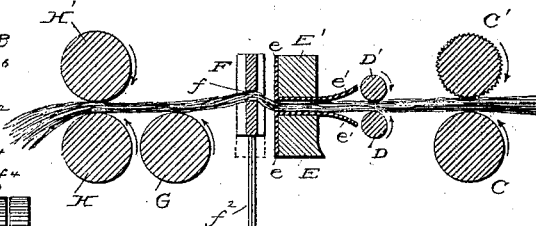


Fig. 4.

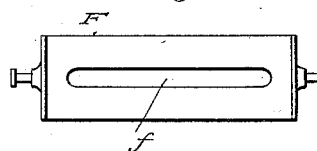
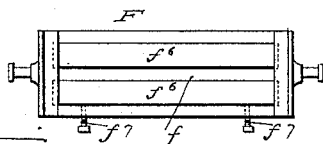


Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN VON OVEN AND CHARLES F. PANKNIN, OF CHARLESTON, SOUTH CAROLINA.

MACHINE FOR DECORTICATING FIBER-BEARING PLANTS.

SPECIFICATION forming part of Letters Patent No. 475,794, dated May 31, 1892.

Application filed October 30, 1890. Serial No. 369,821. (No model.)

To all whom it may concern:

Be it known that we, JOHN VON OVEN and CHARLES F. PANKNIN, of Charleston, in the county of Charleston and State of South Carolina, have invented certain Improvements in Machines for Decortivating Fiber-Bearing Plants, of which the following is a specification.

Our invention relates to an improved brake or decorticator for separating the bark and woody portions from jute, ramie, hemp, and from other fiber-bearing plants.

The invention consists in the various details of construction and combination of parts hereinafter described and claimed, designed to render the operation of the machine effective and its organization simple.

In the accompanying drawings, Figure 1 is a side elevation of the machine. Fig. 2 is an elevation of the same as seen from the receiving end. Fig. 3 is a longitudinal vertical section through the operative parts of the machine on the line 3 3 of Fig. 2. Fig. 4 is a face view of the head or brake proper. Fig. 5 is a face view of the head or brake proper provided with means for changing the width of the slot.

Referring to the drawings, A represents the main frame, of any suitable construction; B, a stationary table mounted on one end of the frame to receive the stalk.

C C' are two horizontal power-driven rolls located in position to receive the stalk between them from the table. The lower roll C is mounted in fixed bearings and has a smooth surface. The upper roll is fluted or corrugated longitudinally and has its journal-box mounted to play vertically in slotted standards *c*, subject to the downward pressure of springs *c'*, the tension of which may be varied by pressure-screws *c''*, mounted in the standards. This arrangement allows the application of any required degree of pressure to the stalk passing between the rolls, so that they will serve to crush and disintegrate the same and carry it forward.

D and D' represent a second pair of horizontal rolls arranged in front of the first pair to receive the fiber therefrom. These second rolls are preferably made of much less diam-

eter than the first and are mounted in precisely the same manner. Guide-plates may be placed between the rollers to prevent the stalks from falling through.

E E' represent a stationary abutment or guide consisting of two horizontal bars having a space or slot between them for the passage of the stalk from the rolls D D'. This abutment may be constructed in any suitable form and manner, provided only it presents a narrow horizontal slot or opening for the passage of the stalk. The abutment may be faced with metal, as shown at *e'*, to prevent wear, and provided at the rear with converging guides *e*, or otherwise formed to facilitate the passage of the fiber therethrough. The abutment is preferably constructed, as shown, of two bars or timbers, the lower bar resting rigidly in the frame while the upper bar is sustained by intervening springs *e''* and confined by vertical bolts *e'''*, by means of which it may be drawn downward to diminish the slit or opening for the passage of the fiber.

F is a head or brake arranged to reciprocate vertically near the abutment E E' and having therethrough, as shown in Fig. 4, a longitudinal slot *f* for the passage of the fiber. This head may be mounted and driven in any suitable manner; but, as shown in the drawings, its ends are guided in vertically-slotted standards *f'* and operated by pitmen *f''* and eccentrics or other reciprocating devices carried by a driving-shaft *f'''*, mounted in bearings in the base of the frame and provided with a driving-pulley *f''''*. The parts are so adjusted that the slit in the head is carried upward and downward past the slot in the abutment at a short distance therefrom.

The head F may be constructed in one solid piece or it may be constructed in any manner which will permit a variation in the width of the slot or opening therethrough.

In Fig. 5 we have shown the head provided with adjustable plates *f''''*, which form the walls of the slot and which are adjustable to and from each other by means of screws *f'''''*.

G represents a carrying-roll mounted horizontally in the frame slightly beyond the head F, so as to receive the stalk therefrom.

H H' represent a pair of horizontal deliv-

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ery-rolls arranged beyond the roll G. The roll H is mounted in fixed bearings, while the roll H' is sustained in movable spring-pressed bearings similar to those of roll C'.

5 I is a delivery-plate over which the cleaned fiber is discharged from the rolls H H'.

The arrangement of the carrying or supporting roll G between the reciprocating brake and the drawing-rolls is advantageous in that
10 a comparatively free vertical movement of the stalk is permitted, which promotes and facilitates the action of the reciprocating brake in thoroughly loosening the bark and woody matter of the stalk.

15 Power is communicated, primarily, through the pulley f^4 to the driving-shaft f^3 , whence it is communicated by pulley i thereon through the belt i' to pulley i^2 on the roll C, which is geared directly to its companion at one end,
20 as shown in Fig. 1. The second belt i^4 communicates motion from a pulley i^3 on the driving-shaft to a pulley i^5 on the roll D, which is geared at one end to its companion. The rolls H H' are geared together and the
25 rolls G and H' are driven, as shown, by overhead belts from any suitable source of power, or the parts may be driven by suitable gearing from the driving-shaft or otherwise.

The operation of the machine is as follows:
30 The stalk is delivered upon the table B' and passed forward between the rolls CC', whereby it is crushed, partially disintegrated, and the woody and brittle portions broken and loosened to a considerable extent. The stalk
35 then passes between the feed-rolls D D', through the stationary abutment E E', and thence through the reciprocating head F, by which it is bent and broken to and fro across the edges of the abutment alternately in such
40 manner as to effectually loosen the bark and woody matters, which are discharged between the head and the roll G, while the unbroken stalk passes forward over the roll G and between the discharging-rolls H H'.

45 The employment of the longitudinally-ribbed roll in advance of the brake mechanism is highly advantageous, as it acts to weaken and break the bark or woody covering trans-

versely at short intervals and leave it in such condition that it is readily loosened and re- 50 moved by drawing it through the narrow throat and bending it sharply to and fro. In practice it is found that unless subjected to the preliminary crushing and breaking the bark cannot be rapidly or entirely removed. 55

It will be observed that in our machine the parts E E' form in effect a slotted guide through which the material is delivered to the slotted head or brake.

The details of construction may be modified at will, provided only the head is adapted to bend or break the ligneous portion to and fro across the opposing corners or edges of the abutment.

Having thus described our invention, what 65 we claim is—

1. In a machine for decorticating fibrous plants, the combination, with a stationary slotted abutment and a reciprocating brake located adjacent thereto and acting to bend 70 the stalk to and fro, of a supporting-roll adjacent to the reciprocating brake, and drawing-rolls for advancing the stalk, located beyond the supporting-roll, whereby the woody matter loosened by the brake is discharged 75 between the same and the supporting-roll, the stalk supported while being advanced and vertical movement of the stalk permitted between the abutment and the drawing-rolls.

2. The combination of the crushing-rolls, 80 the feed-rolls, the slotted guide or abutment, the reciprocating head, the sustaining-roll G, and the delivery-rolls.

3. In combination with the reciprocating slotted head or brake F, the guide or abut- 85 ment E E', provided with a slot, with means for changing the width of its slot, substantially as described and shown.

In testimony whereof we hereunto set our hands, this 10th day of October, 1890, in the 90 presence of two attesting witnesses.

JOHN VON OVEN.

CHARLES F. PANKNIN.

Witnesses:

DUNCAN C. ROBERTSON,

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