

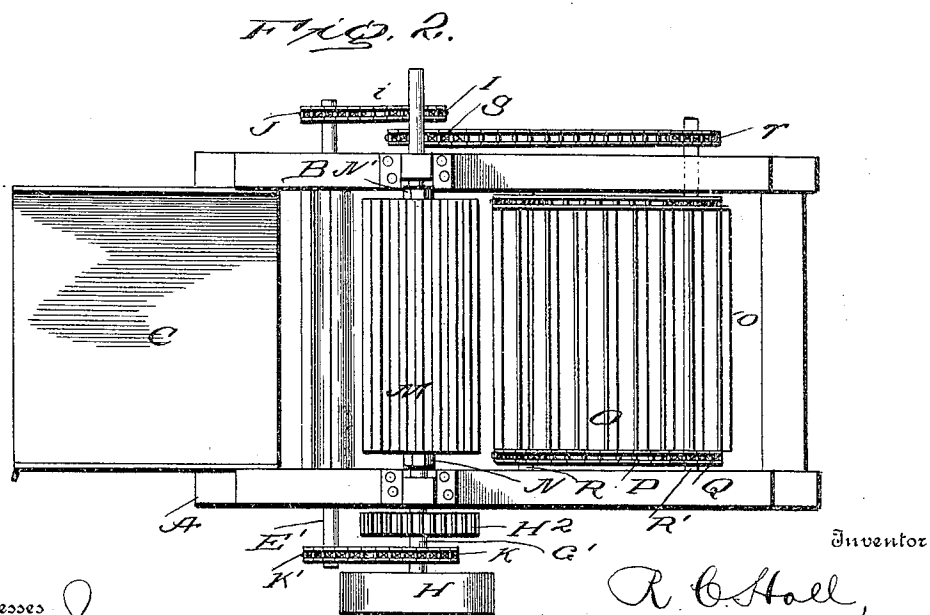
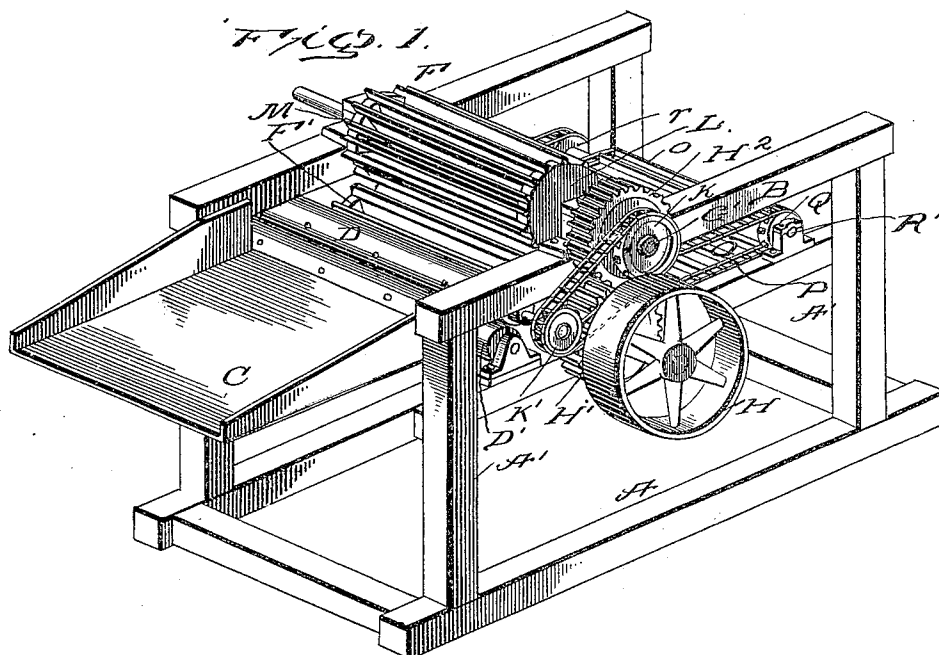
No. 801,191.

PATENTED OCT. 3, 1905.

R. C. HALL.
FIBER BREAKING MACHINE.

APPLICATION FILED OCT. 8, 1903.

2 SHEETS—SHEET 1.



Witnesses

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ROBERT C. HALL, OF LEXINGTON, KENTUCKY.

FIBER-BREAKING MACHINE.

No. 801,191.

Specification of Letters Patent.

Patented Oct. 3, 1905.

Application filed October 8, 1903. Serial No. 176,266.

To all whom it may concern:

Be it known that I, ROBERT C. HALL, a citizen of the United States, residing at Lexington, in the county of Fayette and State of Kentucky, have invented new and useful Improvements in Fiber-Breaking Machines, of which the following is a specification.

My invention relates to improvements in fiber-breaking machines, and pertains more particularly to that class used in breaking hemp, flax, and the like.

In the ordinary preparation of hemp, flax, and the like there has been considerable difficulty in separating the bark and straw from the fiber without breaking the same, and thus causing a considerable loss in both material and labor; and the object of my invention is to provide a machine of this character which is adapted to obviate the above disadvantage and at the same time cause a great saving in both material and labor.

In the accompanying drawings, Figure 1 is a perspective view of my improved machine. Fig. 2 is a top plan view of Fig. 1. Fig. 3 is a vertical longitudinal sectional view. Fig. 4 is an end view, partly in section. Fig. 5 is an enlarged plan view of the brakes. Fig. 6 is a vertical sectional view of the brakes, partly broken away. Fig. 7 is an inner plan view of one of the clamping-disks.

Referring now to the drawings, A represents a base, which is preferably of a rectangular form, and each corner is provided with the upwardly-extending standards A', which support the main supporting-frame B at their upper ends. The forward end of said frame is provided with a feeding spout or chute C, which is preferably of the form shown, and adjacent the inner end of said spout and extending transverse the frame B are the elongated crushing-rollers D and D'. The said rollers are composed of two pieces of wood *d* and *d'*, formed with a hole therein adapted to receive the shafts E and E', and extending through the said wood sections are the pins *e*, which are adapted to hold the wood sections on the shafts. The outer end of the said shafts E and E' are rigidly mounted in the frame one above the other and at such a distance that the rollers D and D' are a slight distance apart, and thus it will be seen that the shafts of said rollers being rigidly mounted in the frame and there being no movement of said rollers all the stalks passed through the machine will be crushed to the same thickness. Adjacent the said crushing-rollers and in rear thereof

are the drums or brakes F and F', arranged one above the other, and which are also mounted rigidly upon the frame, so that they hold the same relative position with each other at all times. The said drums or brakes are considerably larger than the crushing-rollers, and thus to prevent a stretching or longitudinal strain of the fiber of the stalk between the crushing-rollers and the drums or brakes it is necessary to drive the crushing-rollers considerably faster than the brakes, and thus the stalks are fed to the rollers and brakes at the same speed, and when a portion of a stalk is between the rollers and another portion of said stalk is between the drums or brakes they are both traveling at the same speed and a longitudinal strain of the fiber of the stalk is prevented. This is accomplished in the following manner: The said brakes or drums are of a specific construction hereinafter more fully described; but each brake has a shaft extending longitudinally therethrough, which are indicated on the drawings by G and G', which are mounted in rigid journals or bearings, and thus the brakes or drums are at all times held in the same relative position with each other.

The outer end of the lower brake-shaft G is provided with a drive-pulley H, by means of which the lower drum is driven and through the medium of which the entire machine is driven, as hereinafter more fully described. The said shaft is provided with a large gear-wheel H', which is on the inside of the pulley H, and said gear meshes with a gear H², carried by the upper brake-shaft G. The said gear-wheels H and H² are of the same size, and thus the two brakes are driven at the same speed. The lower shaft G on the opposite side of the machine from the pulley H is provided with a large sprocket-wheel I, which has a chain *i* passing around the same, and said chain also passes around a small sprocket-wheel J, carried by the outer end of the lower crushing-roller shaft E'. The end of the upper brake-shaft G on the outside of the gear-wheel H is provided with a sprocket-wheel K, which has a chain *k* passing therearound and also around a smaller sprocket-wheel K', carried by one end of the shaft E of the upper crushing-roller. The sprocket-wheels carried by the brake being considerably larger than the sprocket-wheels carried by the crushing-rollers, it will be readily seen that the crushing-rollers are driven considerably faster than the brake-rollers; but said brakes being

considerably larger in diameter the sprockets are so proportioned that both rollers and brakes will travel at such a speed that stalks will travel just as fast through the crushing-rollers as through the brakes.

The brakes, as before stated, consist of a horizontal shaft, which has loosely mounted thereon the two disk-shaped members L and L', which are provided with radially-extending grooves / in their inner faces, and fitting in said radial grooves /, are the swords M, which extend beyond the edge of the disks. The said swords, as clearly shown, are provided at their outer edges with the laterally-extending members m, which rest upon the outer periphery of the disk. Screwed upon said shaft on the outside of the disks L and L' are the nuts N and N', and thus the swords are clamped between the two disks, and thereby firmly held in the radial grooves. The said shafts of the brakes are mounted in rigid journals, so that the swords of one brake enters the space between the swords of the other brake, and thus the stalk is broken or crimped between the swords of one brake and those of the other and are at the same time fed rearwardly. In rear of the said brakes and a slight distance below a horizontal line between the same is an endless conveyer O, which is preferably of the structure shown—that is, formed of two endless chains P spaced apart and said chains passing over the sprocket-wheels Q, carried by the transverse shafts R and R', and connecting said chains are the transverse slats o, which form the endless conveyer. The rear shaft R' carries at its outer end a sprocket-wheel r, over which passes a chain, which also passes over the sprocket-wheel S, carried by the outer end of the lower brake-shaft G and by means of which the endless conveyer is driven.

The stalks are placed upon the feed chute or table and are started between the crushing-rollers and the stalks and are all crushed or flattened to the same thickness, and they continue to travel rearwardly and upwardly, the lower brake F' engaging the same and breaking the bark and cellular pitch, and they are then engaged by the upper brake F and stalks are crimped or fluted, as shown in Fig. 3, this loosening the bark and cellular pitch and allowing it to drop between the blades, and the stalks continue to travel rearward and are deposited on the apron at the rear of the brakes and travel to the end of the machine. The brakes continue to travel, and the bark

and cellular pitch between the blades drop out when the blades are in a downward position.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a machine, of the character described, of a brake-roller consisting of a shaft, disk-shaped members adjacent the ends thereof and having radially-extending grooves in their inner faces and extending from the shaft to the outer periphery and blades resting in said radial grooves between the disks.

2. The combination with a machine, of the character described, of a brake-roller consisting of a shaft, disk-shaped members adjacent the ends thereof and having radially-extending grooves in their inner faces and extending from the shaft to the outer periphery, blades resting in said grooves and extending beyond the periphery of the disk and outwardly-lateral portions carried by the blades and extending over the edges of the disks.

3. The combination with a machine of the character described, of a brake-roller consisting of a shaft, disk-shaped members carried thereby adjacent the ends and having radially-extending grooves in their inner faces and extending from the shaft to the outer periphery, and blades resting in said radial grooves between the disk and forming outward-diverging enlarged pockets.

4. The combination with a machine of the character described, of crushing-rollers mounted therein and brakes arranged in a line considerably above the crushing-rollers so that the lower brake will have two or more blades engaging the material before it enters between the brakes, said brakes consisting of a shaft, disk-shaped members carried thereby adjacent the ends and having radially-extending grooves in their inner faces and extending from the shaft to the outer periphery, and blades resting in said radial grooves between the disk and an endless conveyer in rear of said brake-roller and adapted to receive the material therefrom.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ROBERT C. HALL.

Witnesses:

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