

(No Model.)

2 Sheets—Sheet 1.

J. M. MACDONALD.
DECORTICATING APPARATUS.

No. 597,993.

Patented Jan. 25, 1898.

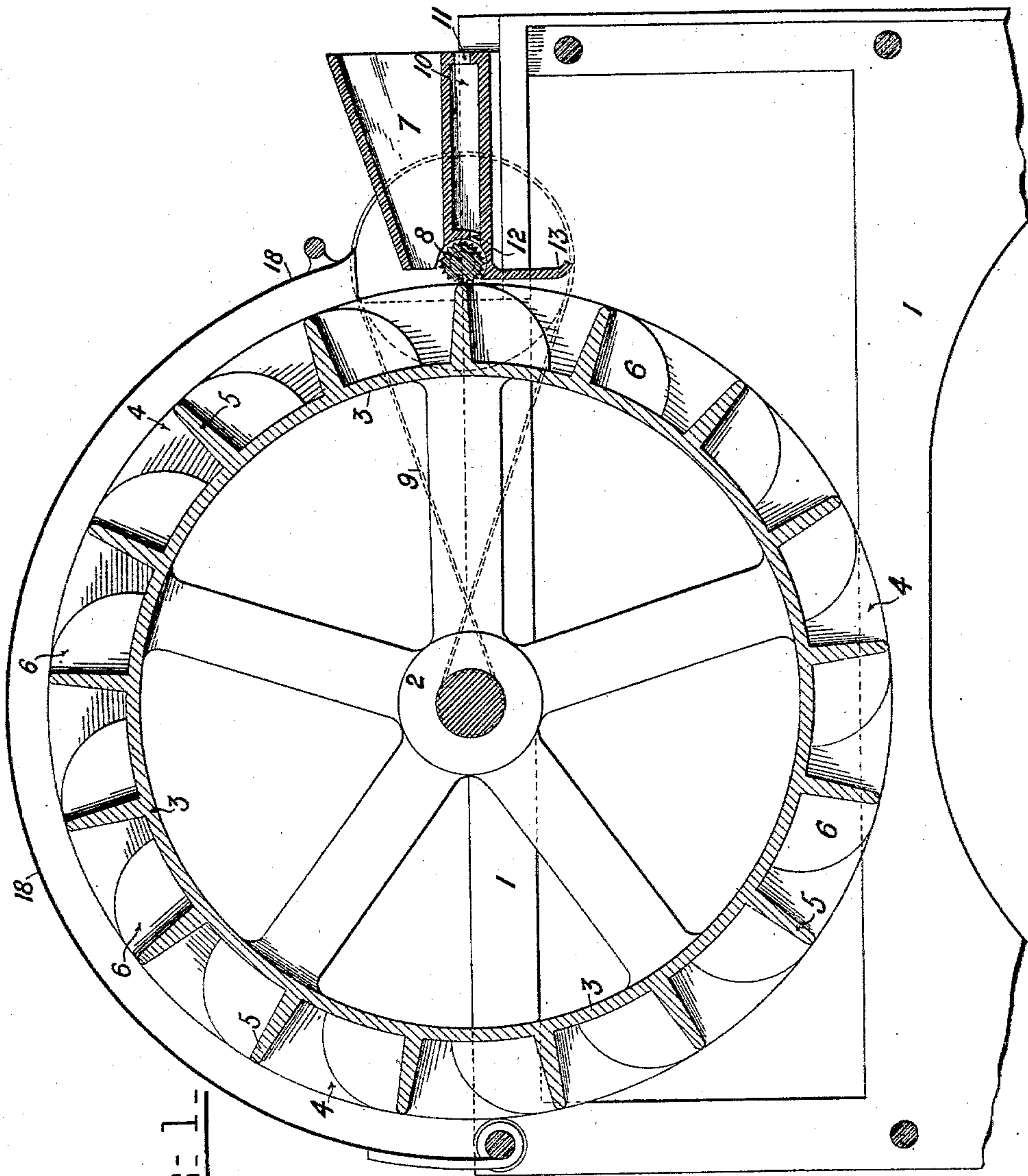


FIG. 1.

Witnesses

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(No Model.)

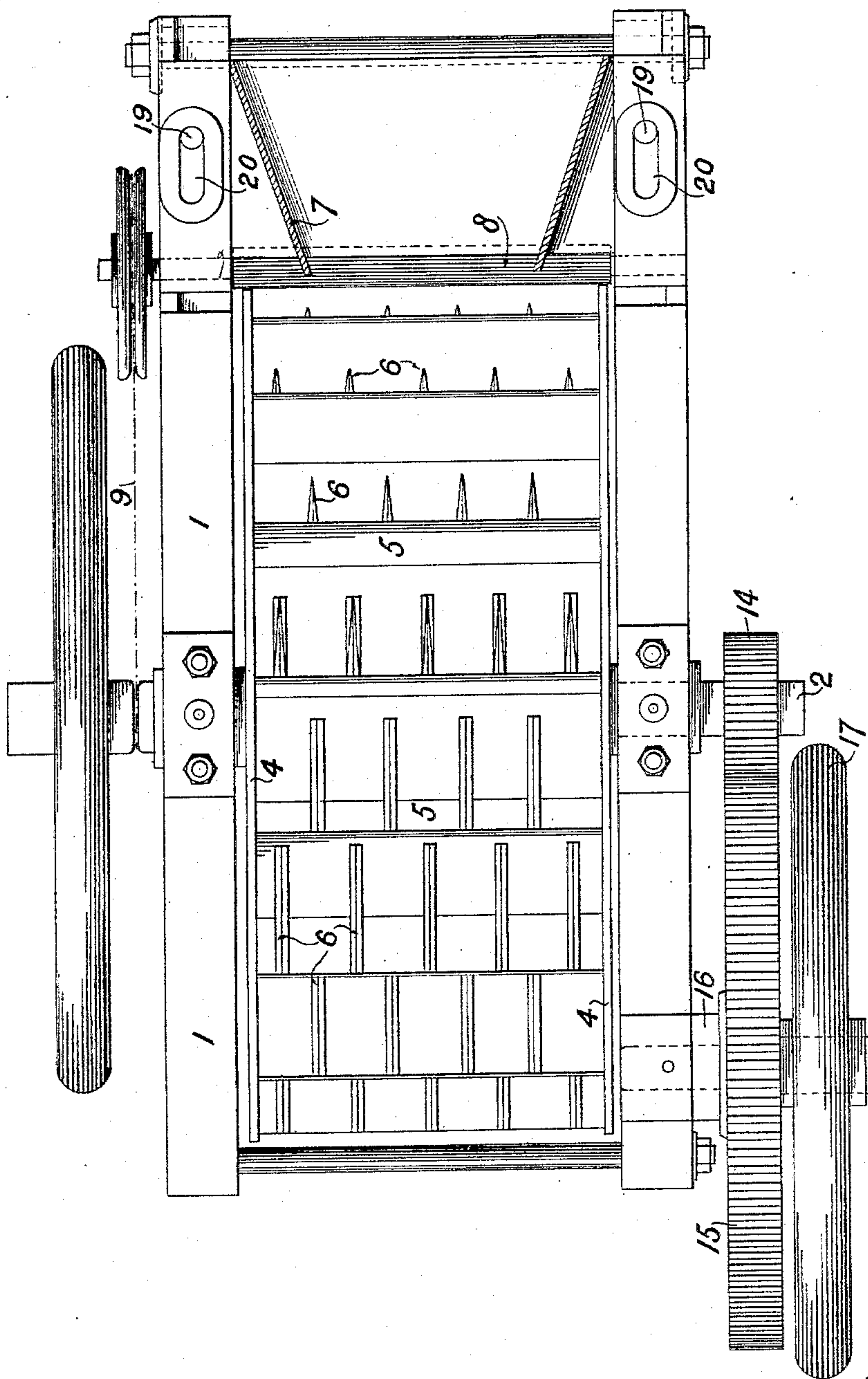
2 Sheets—Sheet 2.

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— FIG 2 —



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN MALCOLM MACDONALD, OF LONDON, ENGLAND.

DECORTICATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 597,993, dated January 25, 1898.

Application filed May 28, 1896. Renewed May 21, 1897. Serial No. 637,627. (No model.)

To all whom it may concern:

Be it known that I, JOHN MALCOLM MACDONALD, a subject of the Queen of Great Britain, residing at 2 Victoria Mansions, Westminster, London, England, have invented certain new and Improved Apparatus for Decortivating Rhea-Grass and Similar Fibrous Plants; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

In the treatment of rhea-grass, for example, for the purpose of obtaining the fiber of same for commercial purposes it is necessary to remove the bark from the coating of fiber that surrounds the interior wood or pith and to extract the latter, such operations being necessary previous to degumming the fiber to render it fit for combing and spinning. An apparatus according to the present invention has reference to such preliminary treatment of rhea-grass in conjunction with the invention patented by Henry Hungerford Boyle, bearing date March 12, 1895, and numbered 535,665, but may advantageously be employed for decortivating and extracting the interior wood or pith from rhea-grass and similar fibrous plants when the fibrous portion is subjected to other treatment than by Boyle's invention aforesaid.

This invention will be understood by reference to the accompanying drawings, in which—

Figure 1 illustrates a sectional side elevation of a decorticator constructed according to this invention, and Fig. 2 represents a sectional plan of the same.

1 represents a suitable framework, upon which is mounted a shaft or spindle 2, having the drum 3 keyed thereon. This drum has side flanges 4, between which are arranged the beaters 5, extending across the periphery of the drum. These beaters are formed with rounded front edges. Knives 6 are attached to the beaters 5 to separate the fibers longitudinally.

7 represents a feeding-chute, by means of which the grass is fed to the drum.

8 is a roller which may be either longitudinally grooved, as shown, or smooth, and is journaled at the inner end of said chute. This

roller is driven from the shaft 2 by means of a belt or chain 9 and suitable pulleys or gearing, and is rotated with the upper side of its periphery moving toward the periphery of the drum 3. The feeding-chute has a hollow base 10 for liquid, which enters at inlet 11 and passes out at outlet 12, meeting the roller 8, and is carried around by it to act on the fiber. This liquid may be an acidulated or an alkaline solution, according to the class of fiber to be operated upon. The use of such liquid I have discovered assists the beaters in removing a larger proportion of the gum or resin than they would otherwise do and renders the subsequent degumming operation more easy.

13 represents a guide-shield beneath the chute to assist the redrawing out of the fiber after removal of bark and interior wood or pith.

When this apparatus is in practical use in the field, a series of drums or beaters, with other described parts, are arranged along a shaft at suitable intervals, one man being employed to feed in the plant to each, the shaft being revolved by suitable power.

The drawings illustrate a means for revolving a machine according to this invention by manual power. In this arrangement a pinion 14 is keyed onto the end of the shaft or spindle 2 and gears with a toothed wheel 15, carried on a short spindle 16, bolted to side of the main frame 1. A hand-wheel 17 is keyed to the outside end of the spindle 16 to revolve the same.

18 designates an iron guard or cover for the drum 3, as seen in Fig. 1.

When the plant to be treated is particularly tender, the grooved roller 8 may be removed and replaced by a smoother-faced one and the feeding-chute is made adjustable to or from the drum 3 by set-screws 19, working in slots 20. To assist the momentum of the drum when the machinery is worked by hand, the spindle 3 may have a fly-wheel mounted thereon.

The apparatus is operated in the following manner: The feeding-chute is first adjusted to set the feed-roller 8 as near the periphery of the beaters as desired, according to the fiber to be treated. The plant is passed into action of the roller and the beaters, the latter

of which break the interior wood or pith of the plant at short intervals over the roller. The plant is never released by the operator; but after passing in as far as it will go it is then drawn back and the other end passed in. The same action which breaks the interior wood or pith effects the removal of the bark. The pieces of bark and other matter removed by the above operation fall into a suitable receptacle, from which they are collected and carried away.

The decorticator may be driven singly or a number together upon the same shaft and from the same source of power, and the power may be either hand or machine power, as desired.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In an apparatus for the treatment of fibrous plants for removing the bark and extracting the interior wood or pith, the combination with a drum rotatably mounted in a suitable frame and having flanges upon each end thereof; blunt-faced cross-beaters extending across said drum between said flanges, knives between said beaters, and means for rotating said drum; of a feeding-chute, and a feed-roller mounted at the discharge end of said chute, and means for driving said feed-roller, substantially as described.

2. In an apparatus for the treatment of fibrous plants for removing the bark and ex-

tracting the interior wood or pith, the combination with a drum rotatably mounted in a suitable frame, and having flanges upon each end thereof, blunt-faced cross-beaters extending across said drum between said flanges, knives between said beaters, and means for rotating said drum, of a feeding-chute having a hollow base and having its outlet near the periphery of said drum; a feed-roller mounted at the discharge end of said chute, and means for driving said feed-roller, substantially as described.

3. In an apparatus for the treatment of fibrous plants for removing the bark and extracting the interior wood or pith, the combination with a drum rotatably mounted in a suitable frame and having flanges upon each end thereof, blunt-faced cross-beaters extending across said drum between said flanges, knives between said beaters, and means for rotating said drum; of an adjustable feeding-chute having a hollow base provided with inlet and outlet openings for liquid, the outlet of said chute being near the periphery of said drum, a grooved feed-roller mounted at the discharge end of said chute and means for driving said feed-roller from the shaft of said drum, substantially as described.

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