No. 732,916. PATENTED JULY 7, 1903.

A. A. BARTLETT.

FERN OR OTHER WOOD CUTTING MACHINE.

APPLICATION FILED NOV. 10, 1902.

NO MODEL.

Fig. 1.

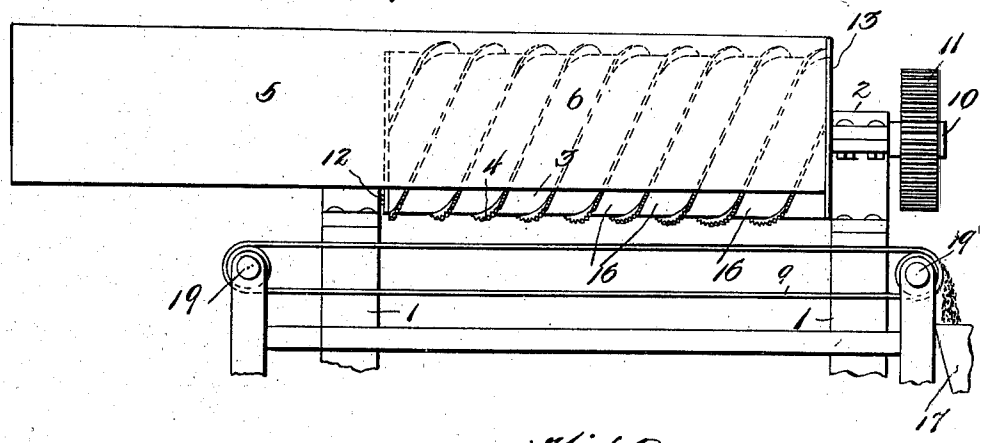


Fig. 2.

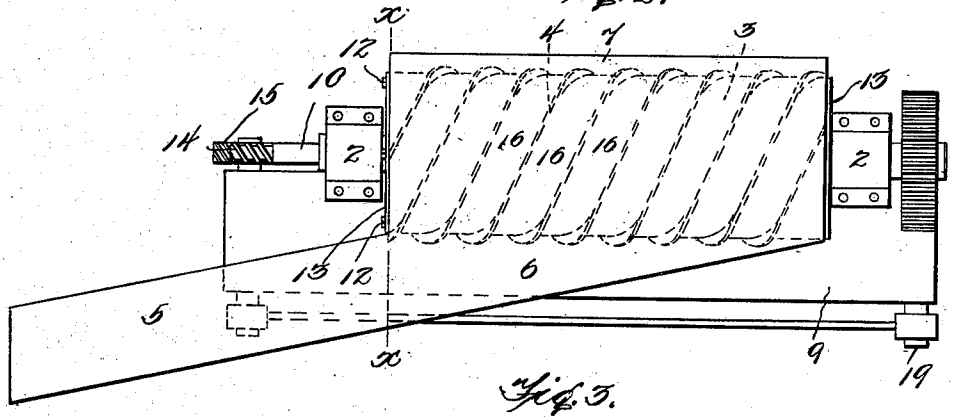
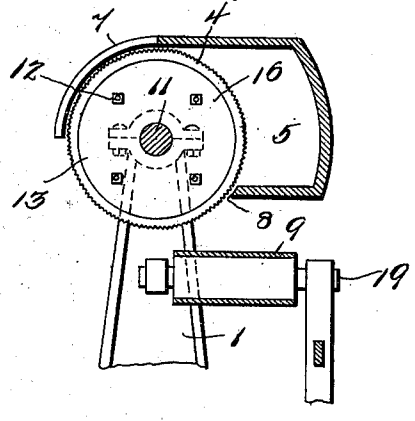


Fig. 3.



Witnesses:
T. L. Macgrane
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 732,916. Patented July 7, 1903.

UNITED STATES PATENT OFFICE.

ALDEN A. BARTLETT, OF EUREKA, CALIFORNIA.

FERN OR OTHER WOOD CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 732,916, dated July 7, 1903.

Application filed November 10, 1902. Serial No. 130,784. (No model.)

To all whom it may concern:

Be it known that I, ALDEN A. BARTLETT, a citizen of the United States, and a resident of Eureka, Humboldt county, State of California, have invented certain new and useful Improvements in Fern or other Wood Cutting Machines, of which the following is a specification.

My invention relates to machines for reducing fern and the like wood to sawdust or pulp; and my object is to provide a machine of this character which will efficiently reduce wood of the character indicated to a state of fine division, such as sawdust or pulp, suitable for use as a fertilizer and for other purposes and such a machine in which the number of parts shall be the fewest possible consistent with the work required of it and which shall be effective in operation and durable in use.

My invention particularly relates to a machine designed especially to operate upon ferns such as those which grow in the Hawaiian Islands, the texture of which more nearly resembles wool than wood, and therefore is of such a peculiar nature as to render it difficult if not impracticable of separation into fine particles by the usual wood-cutting means with which I am familiar, because it is found that instead of being severed by the usual cutting knives or devices it yields under the action of the same. This class of woods or plants grows luxuriantly in the Hawaiian Islands to various thicknesses up to four feet in diameter, and it may be briefly described as composed of round or wire-like fibers interwoven in a matted state, as a result of which peculiar texture of woods all attempts to cut it by knives operating either at right angles to the longitudinal axis of the wood or in line therewith are practically ineffective, because the result from practical experience is shown to be simply a tearing of the wood and without effective division of the same into sawdust or pulp. I have found that this fiber can be properly reduced to the required state of division by a specially-constructed cutting mechanism in which the cutting devices or elements are presented to the material so as to act upon the same in the manner of a screw and are so disposed that they are presented to the wood at an angle to the surface of each individual fiber, such angle being substantially at right angles to the texture of each of said individual fibers and combined with means, manual or mechanical, for feeding the material to the cutting or sawing mechanism.

With these objects in view my invention consists in the novel construction and combination of parts, as hereinafter described with reference to the accompanying drawings and more particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of the machine embodied in my invention. Fig. 2 is a top plan view thereof; and Fig. 3 is a transverse sectional elevation on the line $x\,x$, Fig. 2.

Referring to the drawings, in which the same reference characters relate to the same or corresponding parts in all the views, I provide a suitable frame 1, having bearings 2 for the reception of the horizontal shaft 10, on which is mounted the cutting or sawing device, consisting, in the present instance, of a spiral band-saw 4, which is preferably spirally wound around the cylinder, as shown in Figs. 1 and 2, so that it may form a series of spirally-disposed teeth, which will act upon the fiber of the wood after the manner of a screw, and thereby assist in drawing the wood through the machine, which feeding action may be supplemented by hand or any suitable mechanical means. This saw, provided with suitable teeth, as indicated, may be made in a continuous band wound in the manner designated and separated by spacing-blocks 16, shaped to fit the spaces intervening between the adjacent coils of the saw, or it may be fitted in a groove in the cylinder, as desired. The teeth preferably project not more than three-quarters of an inch from the surface of the drum proper, as I have found this to be an effective length of tooth for the purpose. When spacing-blocks are used, I preferably provide at each end of the cylinder so constituted clamping-plates 13, having tie-bolts 12, clamping the parts together; but it will be understood that any suitable means of mounting the spiral band-saw upon the shaft may be employed, as the essential element of the invention is the spiral arrangement of the saw-teeth, so that they may operate upon the wood which is fed to the machine at an angle of preferably about twenty degrees to the cutting-

cylinder. Suitably secured to the supporting-frame is a feed table or trough 5, terminating in a wedge-shaped box or receptacle 6, extending from the feeding end of the cylinder to the opposite end thereof, said table extending at an angle to the cutting device, so as to direct the wood against the cutting edges thereof diagonally with respect to the length of said wood, as shown in Fig. 2, and extending from the top of said trough is a segmental shield or guard-plate 7, overlapping and inclosing the upper quadrant of the cutting-cylinder opposite to said feed table or trough. Between the lower or bottom portion of the wedge-shaped receptacle or box 5 and the cutting-cylinder is a discharge-opening 8, adapted to direct the divided particles from the machine and preferably onto a suitable conveyer of any convenient form, such as a belt 9, passing around suitable shafts 19, journaled in bearings of the fixed frame below the feeding-trough, and operated in any suitable manner from the driving-shaft of the machine—such, for example, as by means of a worm-screw 14 on one end of the shaft 10 meshing with the worm-gear 15 on one end of one of the shafts 19—the main driving of the machine being effected through the medium of a spur-gear or pulley 11, mounted on the shaft 10 and deriving its motion from any suitable spur-gear or belt (not shown) driven from any suitable source of power or by any other equivalent driving means. After the material or divided particles fall upon the conveyer-belt they are conveyed by the same to any convenient point of discharge, and I have indicated conventionally a discharge-chute on the hopper 17, through which the particles are directed to any suitable point or to cars, boxes, or other receptacles placed thereunder.

I claim as my invention—

1. In a machine for reducing fern or other similar wood to sawdust or pulp, the combination of a rotating drum having saw-teeth spirally disposed around the same and presenting cutting edges at an angle to the longitudinal line of the periphery thereof, of a feed box or table disposed at an angle to the said cutting-drum terminating in a wedge-shaped box extending substantially the length of and adjacent to the cutting-drum and adapted to direct the material against the cutting edges at an angle thereto, substantially as described.

2. In a machine for reducing fern or other similar wood to sawdust or pulp, the combination of a cutting-drum having cutting-teeth spirally disposed around said drum and presenting cutting edges at an angle to the longitudinal line of the periphery of the drum, a feed-table disposed at an angle to said drum and terminating in a wedge-shaped box adjacent to the drum, and a shield extending from said wedge-shaped receptacle around part of the said drum, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALDEN A. BARTLETT.

Witnesses:
J. W. MANEVAL,
J. J. LA PAINT.