

L. LAVEDAN & H. AMIGUES.

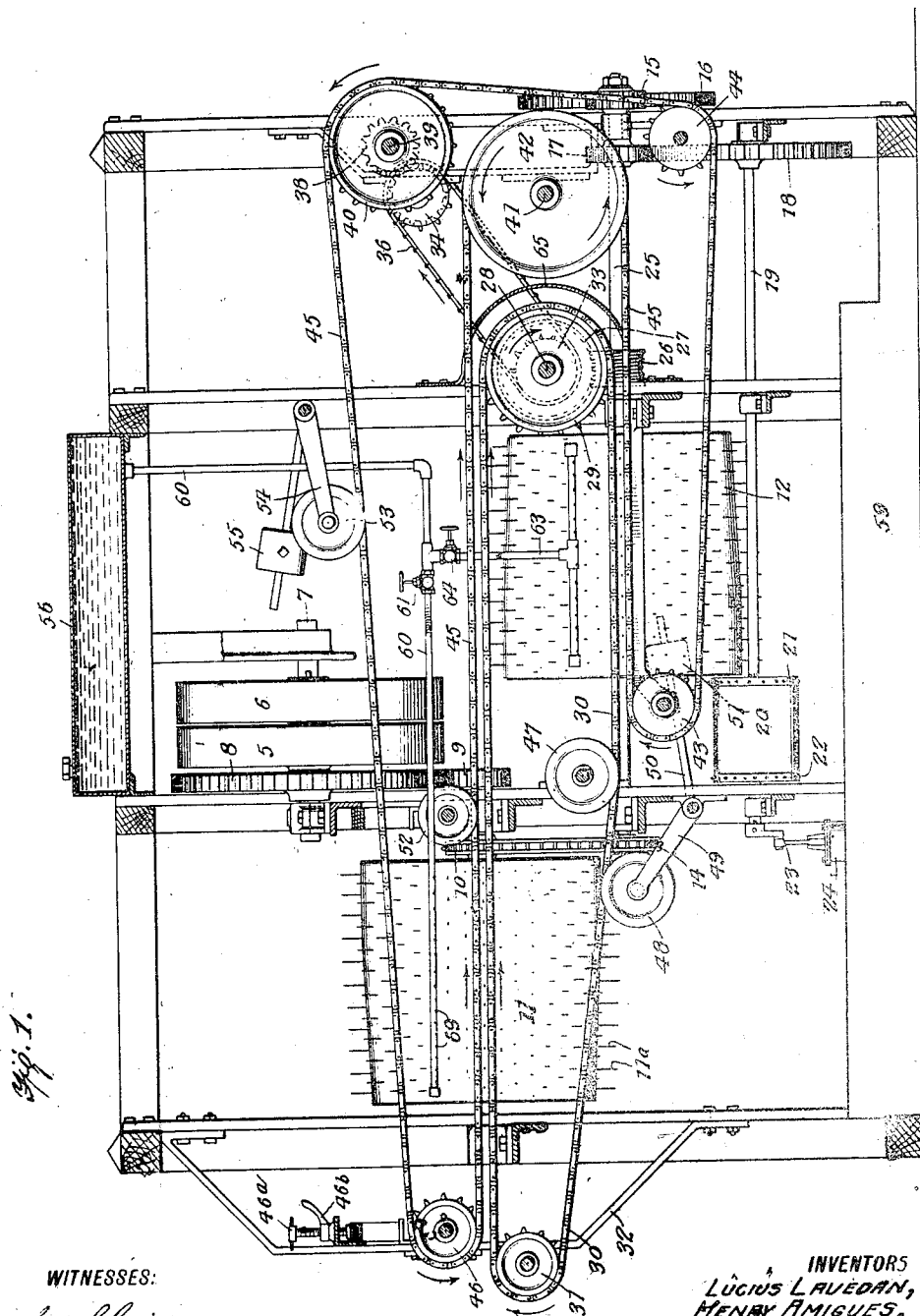
DECORTICATING MACHINE.

APPLICATION FILED SEPT. 23, 1910.

Patented Feb. 13, 1912.

3 SHEETS—SHEET 1.

1,017,104.



WITNESSES:

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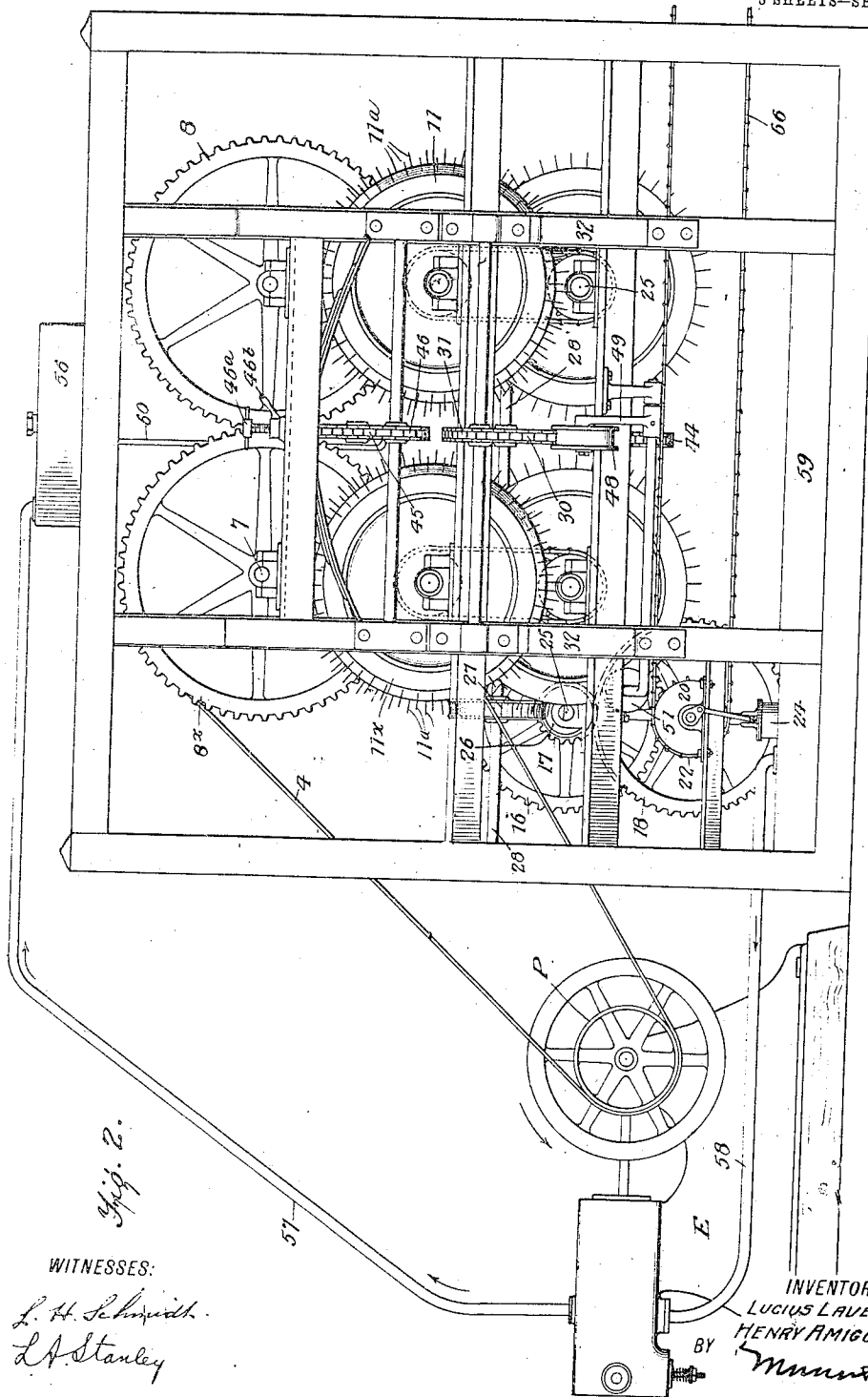
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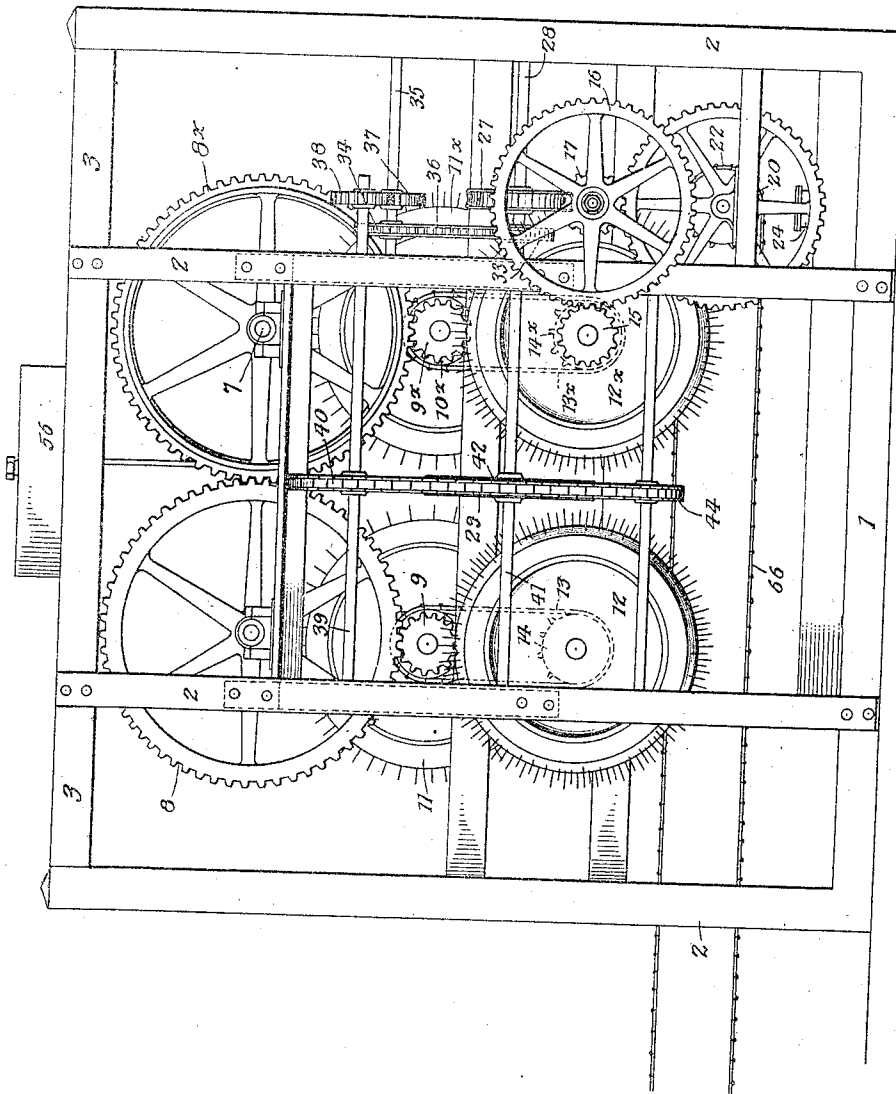
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

LUCIUS LAVEDAN AND HENRI AMIGUES, OF NEW ORLEANS, LOUISIANA.

DECORTICATING-MACHINE.

1,017,104.

Specification of Letters Patent.

Patented Feb. 13, 1912.

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To all whom it may concern:

Be it known that we, LUCIUS LAVEDAN and HENRI AMIGUES, citizens of the Republic of France, and residents of New Orleans, in the parish of Orleans and State of Louisiana, have made certain new and useful Improvements in Decorticating-Machines, of which the following is a specification.

Our invention relates to improvements in means for decorticating various species of plants for extracting tan products therefrom, and it consists in the combinations, constructions, and arrangements herein described and claimed.

15 An object of our invention is to provide a device by means of which the removal of the bark may be thoroughly accomplished, and the extraction of the tan product may be simultaneously effected.

20 A further object of our invention is to provide a device in which the water used for extracting the tan product may be heated by passage through the water jacket of an engine or other motor, this resulting in the cooling of the motor and in the heating of the water prior to its use, as above stated.

25 A further object of our invention is to provide means for extracting the tan products in the process of decorticating plants and of simultaneously volatilizing some of the non-tan products.

30 A further object of our invention is to provide a device by means of which the bark may be removed by combing it in the direction of its length. This is effected by the use of a series of cylinders, provided with teeth, which revolve in such a manner as to rake or comb the branches in the direction of their length as the latter are passed through the machine.

Other objects and advantages will appear in the following specification and the novel features of the device will be particularly pointed out in the appended claims.

35 Our invention is illustrated in the accompanying drawings, forming part of this application in which similar reference characters indicate like parts in the several views and in which—

40 Figure 1 is a side view of the device, certain parts being shown in section for the sake of clearness, Fig. 2 is an end view, and Fig. 3 is a view of the opposite end.

45 In carrying out our invention, we provide a main frame consisting of the base members 1, the uprights 2, and the top members 3.

Outside of the frame, we provide a motor. In the present instance this motor consists of an engine E having a drive pulley P. This drive pulley is connected by means of the belt 4 to one of the pulleys 5 or 6 (see Fig. 1). The pulley 6 is a loose pulley, while the pulley 5 is secured to the shaft 7 upon which is an integral gear 8, which meshes with a similar gear 9. The gear 9 is on the same shaft with a sprocket wheel 10. A drum 11 is also on this shaft. This drum tapers from one end to the other after the manner of a frustum of a cone, and is provided with the spikes 11^a. In Fig. 2, it will be seen that there is a gear 8^x, which is similar to, and meshes with, the gear 8. This gear drives a drum 11^x precisely in the same manner as the gear 8 drives the drum 11, that is, there is a gear 9^x and a sprocket 10^x on the shaft of the drum 11^x (see Fig. 3). It will be seen that the two drums 11 and 11^x, therefore, revolve in opposite directions at the same rate of speed.

In Fig. 3 we have shown two lower drums 12 and 12^x. These drums are actuated by means of sprocket chains 13 and 13^x, which pass over the sprockets 10 and 10^x, respectively, and which engage sprockets 14 and 14^x on the shafts of the respective drums 12 and 12^x. The two lower drums, therefore, revolve in opposite directions and at the same speed.

40 Arranged to mesh with the gear 15^x at one end of the device (see Fig. 3) is a gear 16, which is on the same shaft with a smaller gear 17 (see Fig. 1 also). The latter meshes with a larger gear 18 whose shaft 19 bears a drum 20 having at each end sprocket wheels 21 and 22. This drum forms the driving member of a carrier which carries off the waste bark in a manner hereinafter described. The shaft 19 also has at its end a crank arm 23 (see Fig. 1) which operates a pump 24 whose purpose will also be explained later. The shaft 25, upon which the gear 17 is located, (see Fig. 1) has upon it a worm 26, which engages a worm wheel 27 on a shaft 28. This shaft bears a sprocket wheel 29 (see Figs. 3 and 1). A chain 30 passes over the sprocket 29 and over a smaller sprocket 31, which is carried on a bracket 32 at the opposite end of the frame, see Fig. 1. Referring again to Fig. 3, it will be seen that the shaft 28 bears a sprocket 33, which drives a sprocket 34 on a shaft 35 by means of a sprocket chain 36.

The shaft 35 bears a gear 37 in mesh with another gear 38 on the shaft 39. On the shaft 39 is a sprocket wheel 40. Secured to the frame below the sprocket wheel 40 is a shaft 41, which bears an idler 42. In Fig. 1 are also shown the two guide sprockets 43 and 44. From this figure it will be seen that the sprocket wheel 40 drives a sprocket chain 45 in the direction indicated by the arrow, that this chain passes around a sprocket wheel 46 disposed near the sprocket wheel 31, then rearwardly around the idler 42, forwardly again around the sprocket 43 then rearwardly around the sprocket 44 and upwardly to the sprocket 40.

In Fig. 1, we have shown means for keeping both of the chains 30 and 45 tight and at the same time to permit the chains to be forced apart when necessary. The means for keeping the chain 30 taut consists of an idler 47 under which the chain 30 runs. Another idler 48 is disposed beneath the chain on the arm of a bell-crank lever 49, which is pivoted to the frame, the other end 50 of the bell-crank lever being provided with a counterweight 51. A chain 45 is provided with an idler 52, and on its upper side is engaged by an idler 53 on a bell-crank lever 54 whose other arm is provided with an adjustable weight 55, similar to the weight 51.

Disposed above the main frame is a reservoir 56, which is connected with the water jacket *e* around the cylinder of the engine, by means of a pipe 57. A pipe 58 connects the opposite side of the water jacket with a lower reservoir 59. Extending downwardly from the reservoir 56 is a pipe 60, which is provided with a valve 61. This pipe is perforated at its end as shown at 62 for discharging water between the upper drums. This pipe 60 has a branch 63 which is also perforated and has a portion extending between the lower set of drums. The pipe 63 is provided with the valve 64.

From the foregoing description of the various parts of the device the operation thereof may be readily understood.

From an inspection of Fig. 1, it will be noticed that the lower chain 30 extends out toward the front of the device (the left hand side of the figure) a little farther than the upper chain 45. The plants are fed in between the sprocket wheels 31 and 46, and between the chains 30 and 45 which are moved in the direction indicated by the arrows. The plants are carried along between the two upper drums. These taper from front to rear as shown in the figure and the spikes or nails 11 strip the bark from the plants in the direction of their length. This stripping is a sort of combing action. In the meantime the valve 61 is opened, so as to permit the water from the reservoir 56 to flow down upon the drums

which are revolving toward each other. After the water passes through the plants it drops down into the reservoir 59 which may be provided with a suitable screen, (not shown) for screening out any dirt or bark that may come down with the water. The plants, after passing the first set of drums, are carried by the chains until they reach a guide plate 65. This guide plate is of cylindrical shape and the plants completely turned over. They are now deposited on the chain 45 which has passed around the idler 42, and is now proceeding in the direction along with the chain 30, which is now the uppermost chain. The upper portion of the plants, which are at first the lower portion, is now subjected to a combing action by the lower set of drums in precisely the same manner as that described in connection with the upper set. The valve 64 is manipulated so as to permit the water from the reservoir 56 to flow upon the freshly stripped plants. The soluble products are, therefore, washed out of the fiber, and the latter, when it reaches the sprocket 43, now falls down upon the drum 20. This drum is provided with a flexible carrier 66, upon which the fiber is conveyed away to the place where it is to be deposited.

In the meantime the pump 24 is pumping the liquor from the reservoir 59 through the pipe 58 and into the water jacket *e* of the engine *E*, and thence by means of the pipe 57 into the upper reservoir 56. The liquor is thus cooling the engine and in turn becomes heated, so that when the operation is continuous the upper reservoir is filled with warm water derived from the cooling of the engine. The warm water is, of course, more efficient in extracting the tan products than cold water would be. In fact, by using water over and over again at a temperature under the boiling point we do away with the prolonged boiling usually necessary in plants for the extracting of tan products. This feature is one of the most valuable in our invention, because where the extraction takes place at the boiling temperature some of the tan products are destroyed, while in our process none of them are destroyed and the volatile non-products are driven off. Moreover, in the boiling process other products are extracted, which will have to be separated from the solution. The water falling upon the drums tends to clean the nails or teeth and acts as a lubricator to the smooth operation of the carriers.

When the water has gotten sufficiently saturated it may be drawn off from either the upper or the lower reservoir and fresh water added.

In order to accommodate plants of various size we arrange the sprocket wheel 46 upon an adjustable support so that it can be raised or lowered by means of the screw 46^a

and may be locked in position by the lock nut 46^b. Obviously the counterweights 51 and 55, which cause the idlers 48 and 53 to press upon the respective chains 30 and 45, will permit the chains to give under increased pressure so that in case there is any undue bunching of the plants the chain carrier will not be broken but will conform to the shape of the bunch.

The operation of the device is continuous, the plants being fed in at one end of the device and the fiber with the tan products extracted being carried away beneath the device on the carrier 66. The fiber forms an important product of itself and is of superior quality because of the fact that it has been combed or cut into hair like strands in the direction of its length and has not been chopped up into short lengths.

While we have disclosed a special form of apparatus, it is, of course, obvious that other forms varying in details might be built without departing in the least from the broad principles upon which the device works. We, therefore, do not limit ourselves to the precise construction shown, but consider as our own any device working upon the same principles and which would fall within the spirit and the scope of the invention.

We claim:—

1. In a decorticating device, a plurality of sets of drums provided with spikes or teeth on their peripheries, a pair of endless chains disposed between one set of drums, one of said chains serving as a lower support for the plants and the other serving as an upper retaining member, said chains having their return portions extending between a second set of drums, and the upper chain serving as a lower supporting member, and the lower chain serving as an up-

per retaining member between the second set of drums, and a guide member for reversing the position of the plants.

2. In a decorticating device, a plurality of sets of drums provided with spikes or teeth on their peripheries, a number of endless chains disposed between one set of drums, one of said chains serving as a lower support for the plants, and the other serving as an upper retaining member, said chains having their return portions extending between a second set of drums, the upper chain serving as a lower supporting member, and the lower chain serving as an upper retaining member between the second set of drums, a guide member for reversing the position of the plants, an upper reservoir disposed above one set of drums, a lower reservoir disposed below the upper reservoir and in alignment therewith, and means for pumping water from the lower to the upper reservoir.

3. In a decorticating device, a plurality of sets of drums provided with spikes or teeth on their peripheries, a number of endless chains disposed between one set of drums, one of said chains serving as a lower support for the plants, and the other serving as an upper retaining member, said chains having their return portions extending between a second set of drums, the upper chain serving as an upper retaining member between the second set of drums, a guide member for reversing the position of the plants, and means for subjecting one of said sets of drums to streams of water.

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Witnesses:

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