

(No Model.)

2 Sheets—Sheet 1.

C. PHILIBERT, E. PERREAU & A. LABORDE.
MACHINE FOR DECORTICATING RAMIE.

No. 514,494.

Patented Feb. 13, 1894.

Fig. 2.

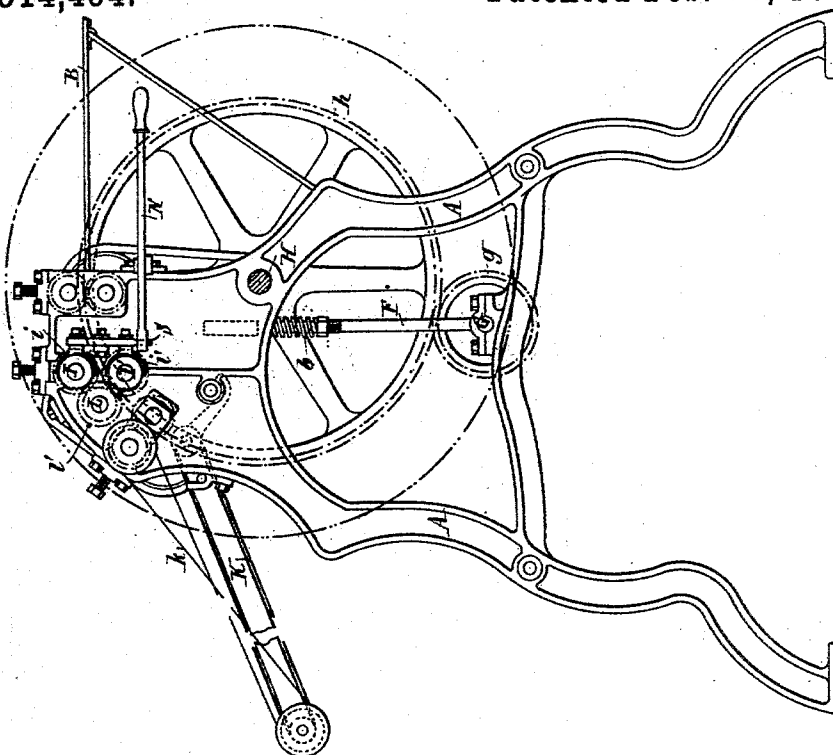
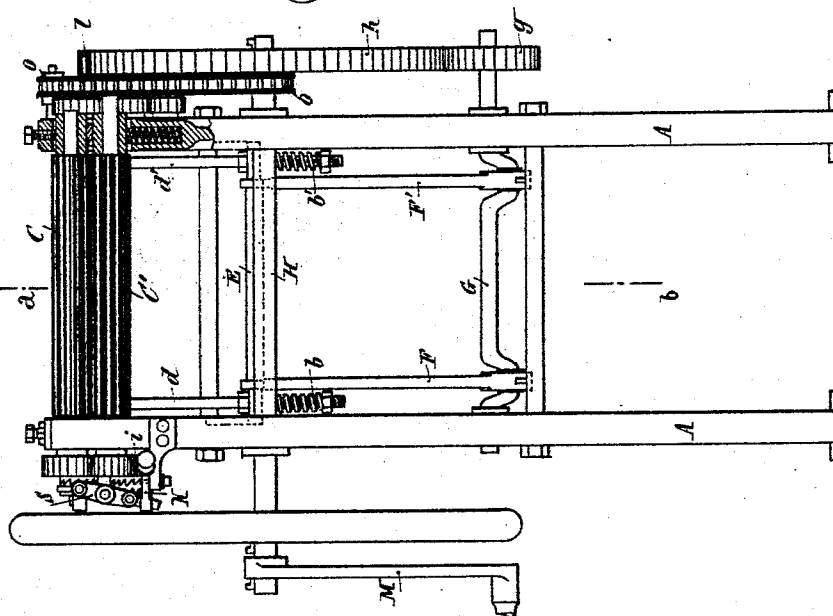


Fig. 1.



Witnesses
Ernest P. Newton
A Prior

Inventors
Clement Philibert
Emile Perreau
Andre Laborde
By their Attorney
I. W. Rogers

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Fig. 4.

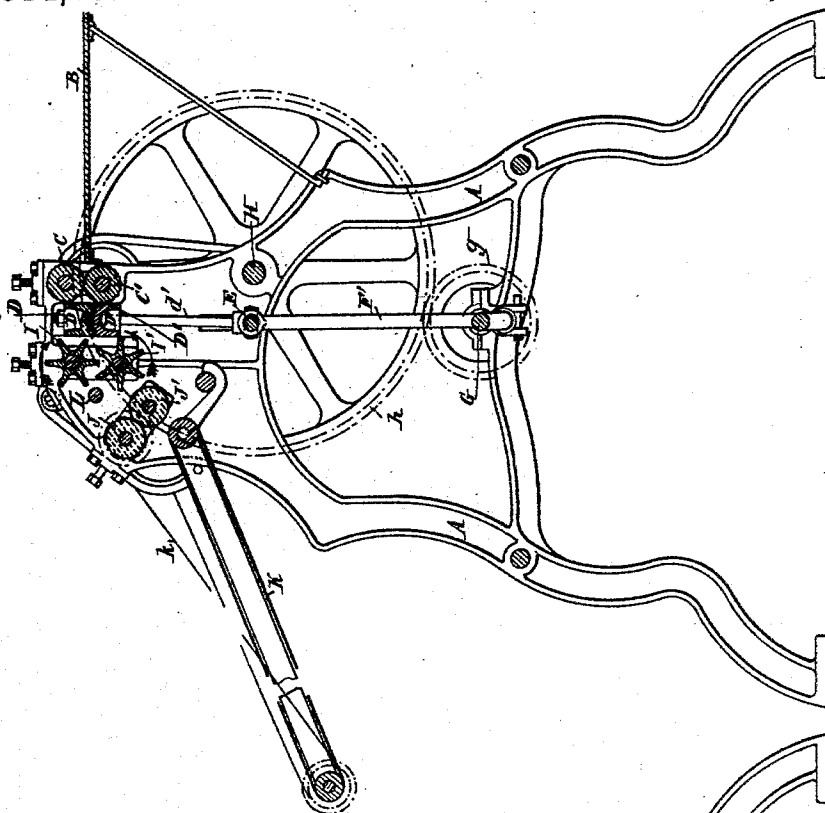
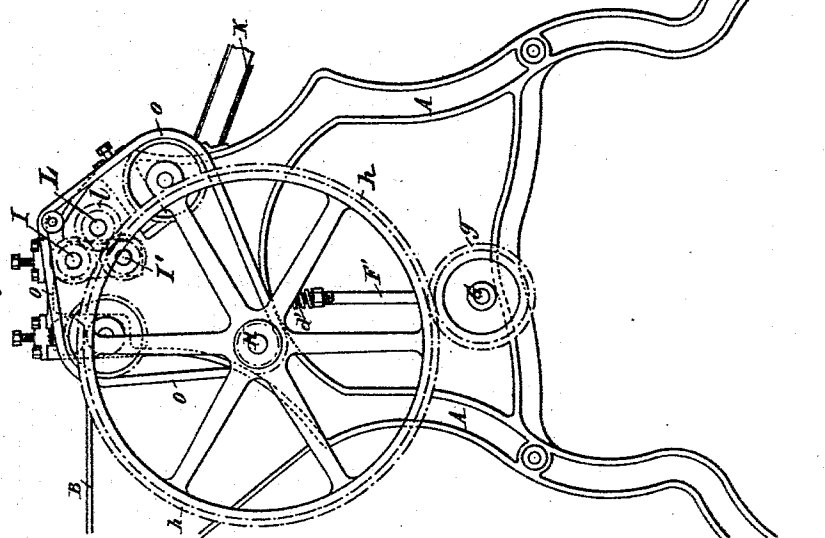


Fig. 3.



Witnesses
Ernest P. Newton
A. Prior

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Emile Perreau
Andre Laborde
By their Attorney
J. W. Rogers

UNITED STATES PATENT OFFICE.

CLEMENT PHILIBERT, EMILE PERREAU, AND ANDRÉ LABORDE, OF PARIS,
FRANCE.

MACHINE FOR DECORTICATING RAMIE.

SPECIFICATION forming part of Letters Patent No. 514,494, dated February 13, 1894.

Application filed March 28, 1893. Serial No. 468,068. (No model.) Patented in France May 3, 1892, No. 221,348, and in England September 13, 1892, No. 16,398.

To all whom it may concern:

Be it known that we, CLEMENT PHILIBERT, EMILE PERREAU, and ANDRÉ LABORDE, all citizens of the Republic of France, residing at Paris, France, have invented certain new and useful Improvements in Machines for Decorticating Ramie, (for which patents have been granted to us in the following countries: France, dated May 3, 1892, No. 221,348, and England, dated September 13, 1892, No. 16,398,) of which the following is a specification.

Our invention refers to improvements in machines for decorticating ramie (*Urtica utilis*) and the like wherein the fibrous plants or grass are passed through feeding rollers, subjected to a crushing action between two opposed undulated or corrugated surfaces of breakers which are rapidly brought together and separated, after which the materials are passed between opposing star section rollers to remove the broken woody parts, and finally carried by delivery rolls onto an endless band.

Our invention will be readily understood by reference to the accompanying drawings.

Figure 1 is a front elevation of a machine according to our invention, Fig. 2 being a view of one of the sides, and Fig. 3 showing the other side. Fig. 4 is a transverse section through the line *a b* of Fig. 1.

The machine is composed of a double cast iron frame A connected by cross bars, the said frame carrying at its upper part grooved cylinders C C' for drawing or feeding into the machine the stems of the ramie or other suitable fibrous plant from the table B. Behind these cylinders C C' there is located a breaker composed of two parts D D' each part formed with undulations so that the apexes of the undulations of one part fit into the corresponding recesses of the other part when the two said parts D D' are brought together; the lower part D' of the breaker forms an anvil, being fixed on the frame A; the part D is movable and acts as the striker. This acting part D is connected at its two ends to two vertical bars *d d'* passing through a cross bar E the ends of which latter are guided in vertical slides formed in the frame. The ends of the rods *d d'* are free to slide vertically in the

crosspiece E. As the latter is lowered it presses on the helical springs *b, b'* with which the lower ends of the rods *d d'* are provided. The same cross bar E is also provided with two connecting rods F F' extending to a double cranked shaft G which receives motion by means of the crank M on the main first motion shaft H through spur wheel *h* and pinion *g*. Behind the breakers D D' there are two rollers I I' of star shaped section so arranged that the arms of one take into the spaces of the other and have for their object to detach from the fibers the woody particles previously broken by the breakers D D'.

J J' are two receiving cylinders made of caoutchouc or other suitable material which receive the fiber from which the wood has been removed and convey it onto an endless band K driven by belt *k*.

Motion is given to the machine by the crank M provided with a fly wheel or by driving pulleys when steam or other power is employed. The main shaft H carries a toothed wheel *h* which as before explained drives the crank shaft G and in addition to this drives the pinion *l* keyed on the shaft L extending across the machine; this latter shaft L carries at its other end (Fig. 2) a second pinion *l'* which is always in gear with both of the pinions *i i'* which are loose on the shafts of rollers I I'. The direction in which it is desired to drive the rollers I I' is regulated by means of the hand lever N operating, by means of the rock lever S, suitable clutches Fig. 1. These clutches slide on feathers, and being alternately thrown in or out of action, lock one or other of the pinions *i i'* to the shafts and cause motion to be given alternately to the said rollers I I' in one direction or the other. The speed of the rollers I I' is about sixteen times greater than that of the cylinders C C'; thus for a turn of the crank M the cylinders C C' make a half turn, while the rollers I and I' make eight turns. The shaft H also carries a pinion receiving a chain which transmits motion to the grooved cylinders C C' and to the caoutchouc receiving cylinders J J'.

The action of this machine is as follows: The ramie or other like material is placed on

the table B in such manner as to enter between the grooved cylinders C C', the cylinder C' being mounted on springs to allow of the introduction of more or less quantity of material. Upon the material arriving on the anvil D', the woody parts thereof are broken by the acting part D, which by the crank shaft G, has, as before stated, a rapid and continuous up and down movement imparted to it, the material being crushed between the aforesaid undulating faces of the parts D D'. The fibers together with the broken woody parts are then taken between the rollers I I' which at this moment should be caused to turn in the direction indicated by the arrows Fig. 4. The arms of the star-section rollers I I' detach the small broken pieces and allow them to fall below the machine and the fiber arrives alone to the receiving cylinders J J' between which it becomes engaged. As soon as the end or ends of a piece or pieces of the fiber has passed between the cylinders J J', the direction of the movement of the rollers I I' is changed, by means of the lever N, practice having shown that this second direction is advantageous for avoiding the breaking of the fibers at the knots.

The direction of the motion of rollers I I', indicated by the arrows Fig. 4, is only continued up to the moment of the introduction of the tips of the said material between the receiving cylinders J J', after which the motion of the said rollers I I' is reversed, all as before described.

The fibers, after the woody matter has been completely removed therefrom, pass on to the endless band K as has been before explained.

The springs *b, b'* (Fig. 1) with which the ends of the rods *d d'* are furnished and on which the cross bar E rests are intended to modify the shocks of the striking part D so as not to cause damage whatever quantity of ramie or the like may be introduced into the machine.

We claim—

1. A machine for decorticating ramie (*Urtica utilis*) or the like material, having a feed table B, two grooved feed rollers C C' between which the material is passed, a breaking device composed of a lower fixed part D', undulated on its upper surface, and a rising and falling striking part D also similarly undulated, between which two undulated surfaces, the material is crushed, two rollers II' of star shaped section, the arms of one of said rollers co-acting with the spaces of the other roller, between which the material passes from the breaking device, a pair of delivery rollers J J', to take the material from the star rollers I I', clutch mechanism S and actuating lever N, for reversing the motion of star rollers I I', as soon as the end of the material has been gripped by the delivery rollers J J', thereby freeing the woody particles from the material, and a traveling band K onto which the fiber is delivered by rollers J J' as set forth.

2. The combination with a pair of grooved feed rollers C C', and a breaking device composed of a lower fixed part D', undulated on its upper surface, and a rising and falling striking part D similarly undulated, between which the material is subjected to the crushing or breaking action; of two rollers of star shaped section, the arms of one taking into the spaces of the other, mechanism for driving same and reversing the motion when required, and a pair of receiving or delivery rollers J J' substantially as set forth.

In testimony whereof we have hereunto set our hands in the presence of the two subscribing witnesses.

CLEMENT PHILIBERT.
EMILE PERREAU.
ANDRÉ LABORDE.

Witnesses:

AULLIGER,
ROBT. M. HOOPER.