

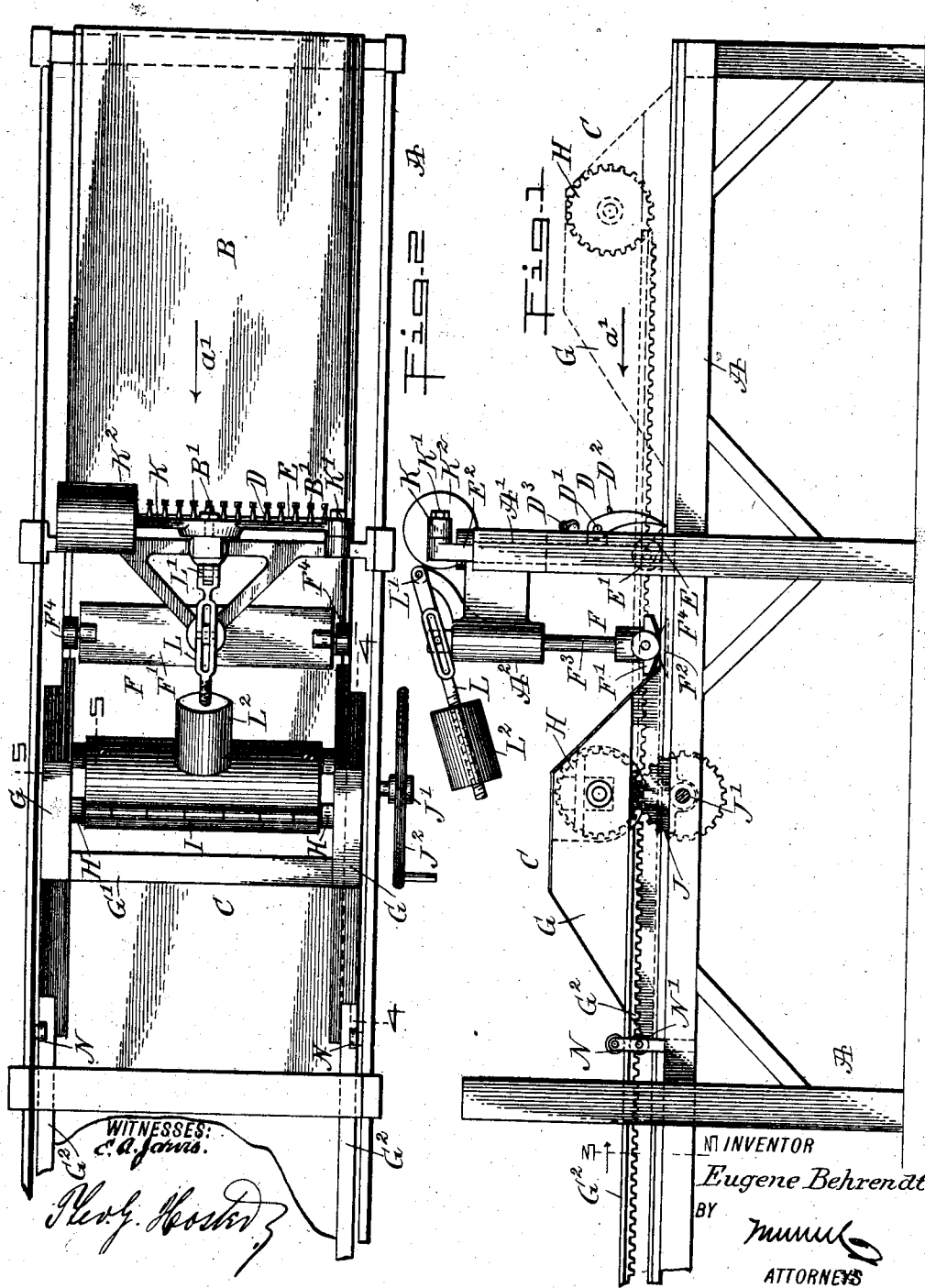
No. 834,102.

PATENTED OCT. 23, 1906.

E. BEHRENDT.
STRIPPING AND CLEANING MACHINE.

APPLICATION FILED JULY 19, 1905.

3 SHEETS—SHEET 1.



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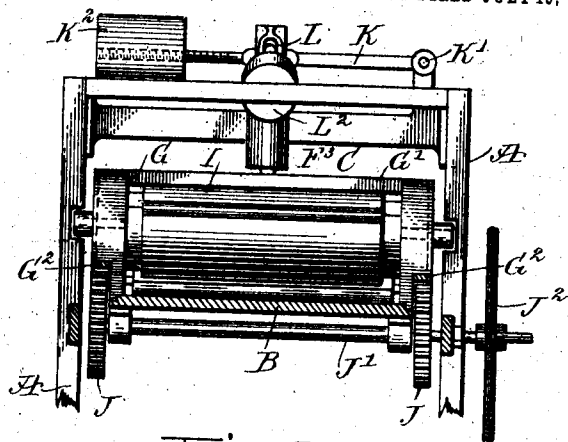


Fig. 3.

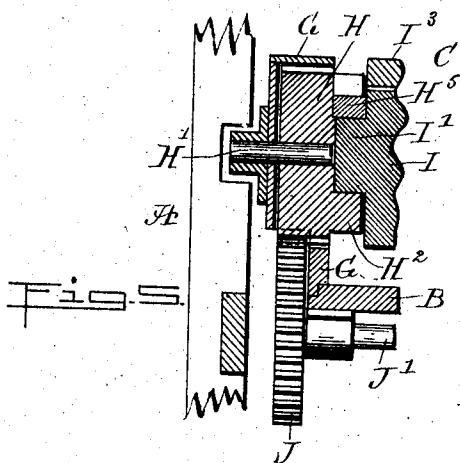


Fig. 5.

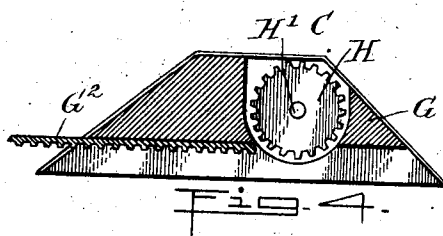


Fig. 4.

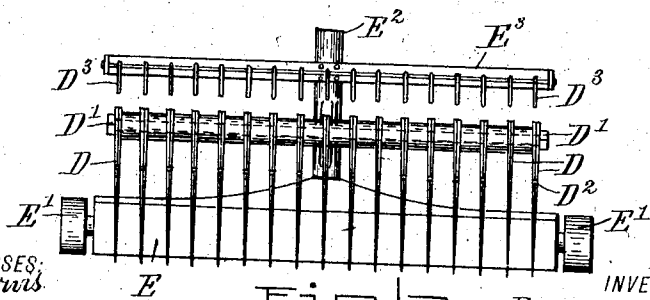


Fig. 6.

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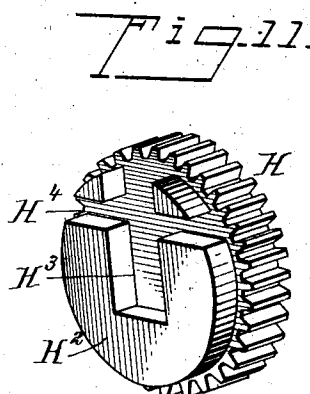
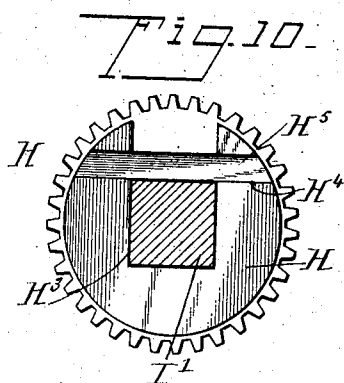
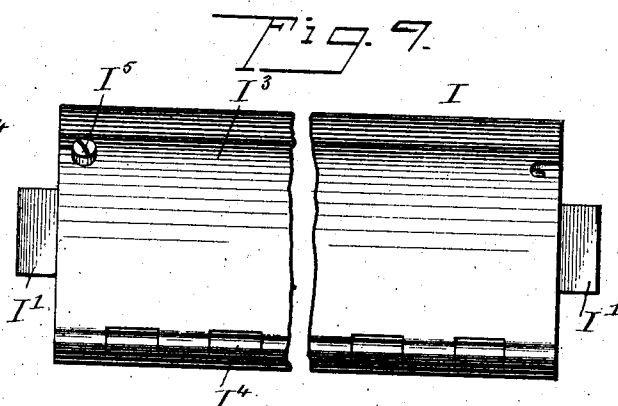
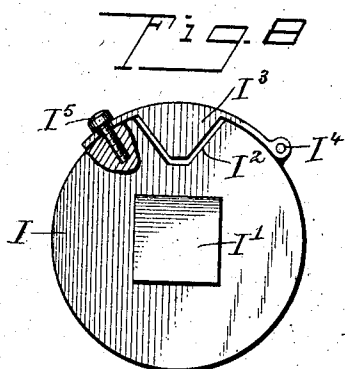
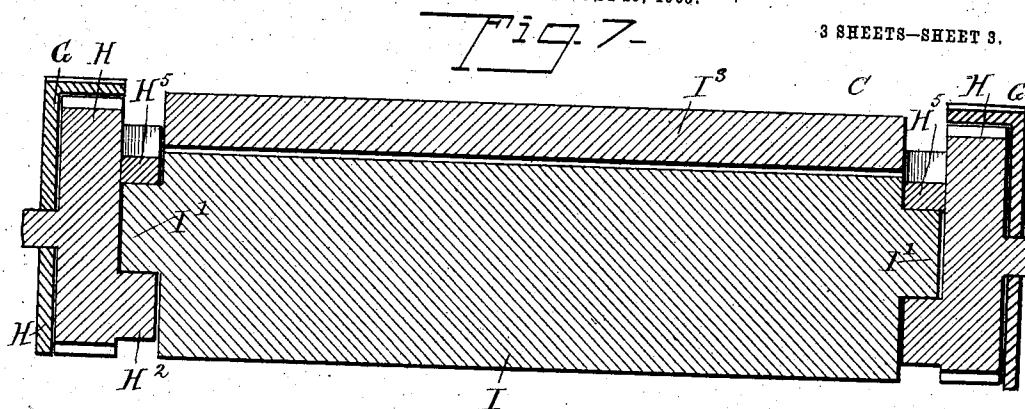
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

EUGENE BEHRENDT, OF MANILA, PHILIPPINE ISLANDS, ASSIGNOR TO
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STRIPPING AND CLEANING MACHINE.

No. 834,102.

Specification of Letters Patent.

Patented Oct. 23, 1906.

Application filed July 19, 1905. Serial No. 270,422.

To all whom it may concern:

Be it known that I, EUGENE BEHRENDT, a citizen of the United States, and a resident of Manila, Philippine Islands, have invented a new and Improved Stripping and Cleaning Machine, of which the following is a full, clear, and exact description.

The invention relates to machines for stripping and cleaning the leaf-sheaths or band-like material from the abaca and like plants—such, for instance, as shown and described in the application for Letters Patent of the United States, Serial No. 251,246, filed by me March 21, 1905.

The object of the present invention is to provide a new and improved stripping and cleaning machine arranged to cut and break the pulp to separate the latter from the fiber and to remove the pulp previous to winding the fibers on a roller or spool.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the improvement. Fig. 2 is a plan view of the same. Fig. 3 is a cross-section of the same on the line 3 3 of Fig. 1. Fig. 4 is a sectional side elevation of the carrier, the section being on the line 4 4 of Fig. 2. Fig. 5 is an enlarged cross-section of the same on the line 5 5 of Fig. 2. Fig. 6 is a front elevation of the stripper and cutter. Fig. 7 is an enlarged transverse section of the carrier. Fig. 8 is an end elevation of the roller. Fig. 9 is a plan view of the same. Fig. 10 is a face view of one of the gear-wheels, showing the roller-shaft in section, and Fig. 11 is a perspective view of the gear-wheel.

A suitably-constructed frame A supports a table B, over which the leaf-sheaths or band-like material is drawn by the use of a carrier C, in which is clamped or otherwise secured one end of the material. The material during its movement over the table B in the direction of the arrow *a'* is acted on by a cutter D, a stripper E, and a cleaning device F for removing any adhering broken pulp from the fibers.

The carrier C (shown in detail in Figs. 3, 4, 7, 8, 9, 10, and 11) is provided with a frame having sides G, connected with each other by a cross-bar G' and adapted to travel on the top of the table B, at or near the sides thereof, as plainly indicated in the drawings. On the sides G of the carrier-frame are journaled the shafts H' of gear-wheels H, arranged adjacent to the inner faces of the said frame sides G, and on the opposite faces of the said gear-wheels H are formed offsets H², provided with recesses H³ for receiving the square reduced ends I' of a roller I, extending from one gear-wheel H to the other and on which one end of the material is clamped or otherwise secured.

The ends I' of the roller I are secured in position on the offsets H² by cross-bars H⁵, fitting into recesses H⁴, extending at right angles to the recesses H³ directly above the top of the corresponding end I'. By removing the cross-bars H⁵ the roller H can be readily lifted out of engagement with the offsets H², and in a like manner the roller can be conveniently placed in position on the said offsets H² and locked therein by reinserting the cross-bars H⁵. Thus when the roller I is locked in position on the gear-wheels H and the latter are rotated then the roller I rotates with the gear-wheels; and when the gear-wheels are moved bodily in a lengthwise direction by shifting the carrier-frame in which the gear-wheels are journaled then the roller I is bodily carried along.

In order to clamp the material in position on the roller I, the latter is provided on its peripheral face with a transversely-extending recess I², adapted to receive a clamping-block I³, hinged at I⁴ to the peripheral face of the roller I and adapted to be secured at its free end to the said roller by screws I⁵, as plainly indicated in Figs. 8 and 9. Thus when the screws I⁵ are removed the clamping-block I³ may be swung into an open position to allow of placing the end of the material in position in the recess I², and then the clamping-block I³ is brought down onto the material and secured in place by the screws I⁵ to securely clamp the material in position on the roller I.

In order to impart a longitudinal traveling motion to the carrier C, the sides G of the carrier-frame are provided with rearwardly-extending racks G² in alinement with the bot-

tom teeth of the gear-wheels H and adapted to mesh with gear-wheels J, secured on a shaft J', journaled in suitable bearings carried on the table B and the frame A. On one
 5 outer end of the shaft J' is secured a hand-wheel J² under the control of the operator for turning the shaft J', so as to cause the gear-wheels J to impart a traveling motion to the racks G², and consequently to the carrier C
 10 for the latter to travel in a longitudinal direction—that is, either in the direction of the arrow a' or in the inverse direction thereto. When the right-hand ends of the racks G² leave the gear-wheels J, then the gear-wheels
 15 H move in mesh with the gear-wheels J, so that a further rotation of the shaft J' causes a rotation of the gear-wheels H, and consequently of the roller I to wind up the fiber, as hereinafter more fully described, it being understood that at this time the carrier-frame
 20 G is stationary, as the racks G² are out of mesh with the gear-wheels J.

The stripper E extends transversely across the table B and is in the form of a heavy block
 25 of metal having on its bottom a forward extension tapering to a sharp edge, and on the sides of the stripper are journaled rollers E', (see Figs. 1 and 6,) adapted to travel over the sides G of the carrier-frame when the latter
 30 moves forwardly in the direction of the arrow a', the action of the said frame on the rollers E' being to raise the stripper with a view to allow the carrier C to pass under the stripper, the latter finally moving downward into en-
 35 gagement with the material as soon as the carrier has passed the stripper. For the purpose mentioned each of the sides G of the carrier-frame has its forward and rearward ends in the form of inclines, terminating at
 40 their upper ends in a horizontal top. Now when the carrier C is moved forward on turning the shaft J' in the proper direction then the rollers E' travel up the front inclined edges, thus raising the stripper E, and on the
 45 further forward movement of the carrier the rollers carry over the horizontal portion of the sides of the carrier-frame and then down the rear inclines to allow the stripper E to descend and engage with its sharp edge the ma-
 50 terial drawn forward over the table B by the carrier C.

The stripper E is provided at its middle with an upwardly-extending stem E², mounted to slide vertically in a suitable guideway
 55 A', carried by the frame A, and the upper end of the stem E² is pressed on by a lever K, fulcrumed at K' on the frame A and carrying at its free end an adjustable weight K² to hold the stripper E with sufficient force in
 60 contact with the material to break the pulp thereof and to separate the pulp from the fiber during the time the material is drawn along under the stripper E.

As shown in Fig. 3, the weight K² screws
 65 on the threaded end of the lever K to allow

of conveniently adjusting the weight to bear with more or less force on the stem E² of the stripper E.

The cutters D in front of the stripper E are in the form of thin arms fulcrumed at their
 70 upper ends at D' on the front of the stripper E, (see Figs. 1 and 6,) and the lower pointed ends of the said cutters extend loosely into recesses B', formed on the top
 75 surface of the table B. The cutters D are spaced apart and engage the material as the latter is drawn along over the table B, it being understood that as the cutters D are held on the stripper E it is evident they rise and
 80 fall with the latter, and the cutters in falling readily penetrate with their pointed lower ends through the pulp in the material, and when the latter are drawn forward the cutters cut the pulp in a lengthwise direction to in-
 85 sure an easy stripping of the pulp by the following stripper E.

More or less cutters may be put in action, according to the material under treatment—that is, for some material alternate cutters
 90 may be swung forward to an inactive position and locked therein, and for this purpose each cutter is provided with an eye D², adapted to be engaged with a hook D³, fulcrumed on a cross-bar E³, carried by the stem E² of the stripper E, as will be readily understood
 95 by reference to Figs. 1 and 6.

The cleaning device F is substantially the same as the one shown and described in the application above referred to, the only differ-
 100 ence being that this cleaning device is located immediately in the rear of the stripper E. The cleaning device F consists, essentially, of two jaws F' and F², of which the jaw F² is carried by the table B and extends in a trans-
 105 verse recess in the same, and the other jaw F' is provided with an upwardly-extending stem F³, mounted to slide in a suitable bearing A², carried by the frame A. The upper
 110 end of the stem F³ is engaged by a lever L, fulcrumed at L' on the main frame A and carrying at its free end an adjustable weight L², similar to the weight K² on the lever K.

The opposite faces of the jaws F' and F² are rounded off and preferably covered with rub-
 115 ber linings, so that when the fibers are drawn between the rubber-covered jaws F' and F² the pulp is completely stripped off the fibers to free the latter of any pulp, thus thoroughly cleaning the fibers. The upper jaw F' is also
 120 provided at its ends with frictional rollers F⁴, similar to the rollers E' and adapted to travel over the inclines of the sides G of the carrier-frame, so as to lift the upper jaw F' for the passage of the carrier and to allow the jaw F' to move down in engagement with the fibers
 125 after the carrier has passed, it being understood that the weighted lever L presses the jaw F' with sufficient force into contact with the fibers to produce the desired cleaning re-
 130 sult.

In order to hold the carrier C in proper relation relative to the driven gear-wheels J, the racks G² are preferably provided with horizontal flanges engaged at the top and bottom by pairs of frictional rollers N and N', journaled on suitable bearings carried by the main frame A. (See Figs. 1 and 2.)

The operation is as follows: In starting the machine the carrier C is moved to a right-hand end position, as indicated in dotted lines in Fig. 1, and the roller I is removed from the carrier, and one end of the material is secured in the recess I³ of the roller by the clamping-block I³. The roller I, with the material fastened thereto, is now reinserted in the recesses H³ of the gear-wheels H, and the roller is then locked in place by inserting the cross-bars H⁵. When this has been done, the operator turns the hand-wheel J² to rotate the shaft J' and to cause the gear-wheels J to impart a traveling motion to the racks G² with a view to move the carrier C forward in the direction of the arrow a', thus causing the material to travel behind the carrier C and lengthwise over the table B. The sides G of the carrier C in their forward movement engage the friction-rollers E' to first lift the stripper E and cutters D and then to engage the friction-rollers F⁴ to lift the upper jaw F'. The carrier G in its further forward movement allows the stripper E and its cutters D, as well as the jaw F', to descend by the action of the weights K² and L², so that the stripper E and the cutters D act on the material, as above described, with a view to cut the pulp and to strip the material of the pulp and finally to remove the pulp completely from the fibers by the action of the jaws F' and F². When the carrier C has left the cleaning device F, as shown in Fig. 1, then the racks G² move out of mesh with the gear-wheels J, and then the gear-wheels H move in mesh with the said gear-wheels J, and consequently a further rotation of the shaft J' causes a revolving of the gear-wheels H and roller I for the latter to wind up the cleaned fibers, the winding-up action causing a further drawing of the material over the table B for the cutters D, the stripper E, and the jaws F' and F² to act on the material for the purpose above described. When the material has been drawn through the several parts and the ends of the fibers have been wound up on the roller I, then the operator stops the rotation of the hand-wheel J² and unlocks the roller I by removing the cross-bars H⁵, after which the roller I, with the fibers thereon, is removed from the carrier. The operator now turns the hand-wheel J² in the reverse direction to cause the carrier, minus the roller I, to travel in the inverse direction of the arrow a', it being understood that the carrier in order to mesh the racks G² again with the gear-wheels J is pushed by the operator a sufficient distance from the left to the

right to bring the racks in mesh with the gear-wheels. The carrier C in its return travel readily passes the cleaning device F, the stripper E, and the cutters D by lifting the same sufficiently for the carrier to pass under the raised parts until the carrier has finally reached its right-hand end or starting position, as indicated in dotted lines in Fig. 1. Another roller I, with one end of the material fastened thereon, is now again placed in position in the carrier and locked to the gear-wheels H, and the above-described operation is then repeated—that is, the carrier C is again moved forward to draw the material over the table B and in engagement with the stripper E and cutters D and also in engagement with the jaws F' and F² for separating the pulp from the fiber for finally winding up the fibers onto the roller I.

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

1. A stripping and cleaning machine comprising fiber-separating means, a carrier for the material, a winding device on the carrier, means for operating the carrier, and means for operating the winding device after the carrier has passed the separating means.

2. A stripping and cleaning machine comprising fiber-separating means, a carrier, a holding and winding-up means on the carrier, and means for successively operating the carrier and the holding and winding-up means.

3. A stripping and cleaning machine provided with a carrier provided with a roller having means for receiving and holding the material to be treated, means for moving the carrier and the roller bodily, and means for rotating the roller.

4. A stripping and cleaning machine comprising a table over which the material to be stripped and cleaned is drawn, a carrier having a roller in which the material is fastened, means for separating the fibers from the pulp, and means for moving the said carrier over the said table and for rotating the roller to wind up the fibers.

5. A stripping and cleaning machine provided with a stripper having a sharp front edge extending transversely to the direction in which the material is drawn past the stripper, and spaced and hinged cutters extending in front of the stripper.

6. A stripping and cleaning machine provided with a stripper in the form of a block having a sharp front edge extending transversely to the direction in which the material travels, means for drawing the material under the stripper's edge, and spaced cutters hinged to the block and extending in front of the said sharp edge.

7. A stripping and cleaning machine provided with a stripper in the form of a block having a sharp front edge extending trans-

versely to the direction in which the material travels, means for drawing the material under the stripper's edge, spaced cutters hinged to the block and extending in front of the said sharp edge, and means for locking the said cutters when in an inactive position.

8. A stripping and cleaning machine provided with a stripper in the form of a block having a sharp front edge extending transversely to the direction in which the material travels, means for drawing the material under the stripper's edge, spaced cutters hinged to the block and extending in front of the said sharp edge, and a table over which the material is drawn, the table having recesses for receiving the lower ends of the said cutters.

9. A stripping and cleaning machine comprising a table, a stripper, a cleaner, a carrier for drawing the material over the said table and past the said stripper and cleaner, a roller in which the butt ends of the material are secured, gear-wheels for removably carrying the said rollers, sides having racks and in which the said gear-wheels are journaled, and a driven gear-wheel adapted to engage the said racks and the said gear-wheels.

10. A stripping and cleaning machine provided with a carrier comprising sides, gear-wheels journaled in the said sides and provided at opposite faces with bearings, and a roller removably secured in the said bearings.

11. A stripping and cleaning machine provided with a carrier comprising sides, gear-wheels journaled in the said sides and provided at opposite faces with bearings, and a roller removably secured in the said bearings and provided with a clamping device for securing the material to the roller at the peripheral face thereof.

12. In a stripping and cleaning machine, a

support, a carrier, a rack on the lower part of the carrier, a roller mounted in the carrier, a gear-wheel on the roller and in alinement with the rack, and a shaft mounted in the support and provided with a gear-wheel for first meshing with the rack to move the carrier, and then with the gear-wheel of the roller to revolve the latter.

13. In a stripping and cleaning machine, a table, a shaft mounted in the table and provided with gear-wheels, and a carrier comprising a frame, gear-wheels mounted in the sides of the frame, a roller having its ends removably secured to the gear-wheels, and racks on the frame in alinement with the gear-wheels thereof.

14. In a stripping and cleaning machine, a carrier for the material comprising a frame, gear-wheels mounted in the sides of the frame, the wheels being provided with recesses in their opposing faces, a roller having its ends fitting in the recesses of the gear-wheels, and means for locking the ends of the roller in the said recesses.

15. In a stripping and cleaning machine, a carrier for the material comprising a frame, gear-wheels mounted in the sides of the frame, each wheel being provided with intersecting recesses in its inner face, a roller having reduced ends fitting in one of the recesses of the wheels, and a bar fitting in the other recesses of the wheels and locking the ends of the roller in the recesses.

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

EUGENE BEHRENDT.

Witnesses:

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