

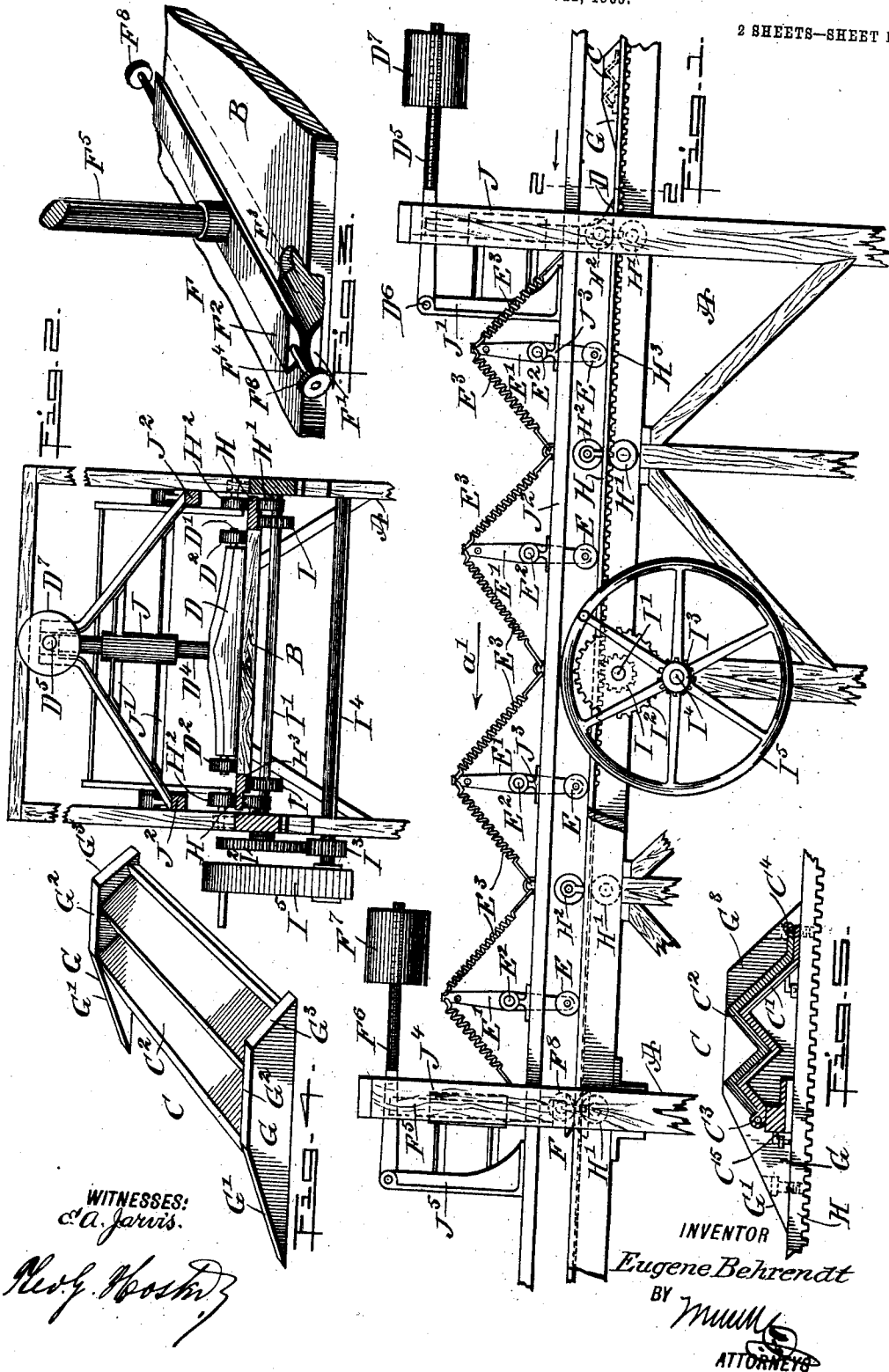
No. 826,918.

PATENTED JULY 24, 1906.

E. BEHRENDT.
STRIPPING AND CLEANING MACHINE.

APPLICATION FILED MAR. 21, 1905.

2 SHEETS—SHEET 1.



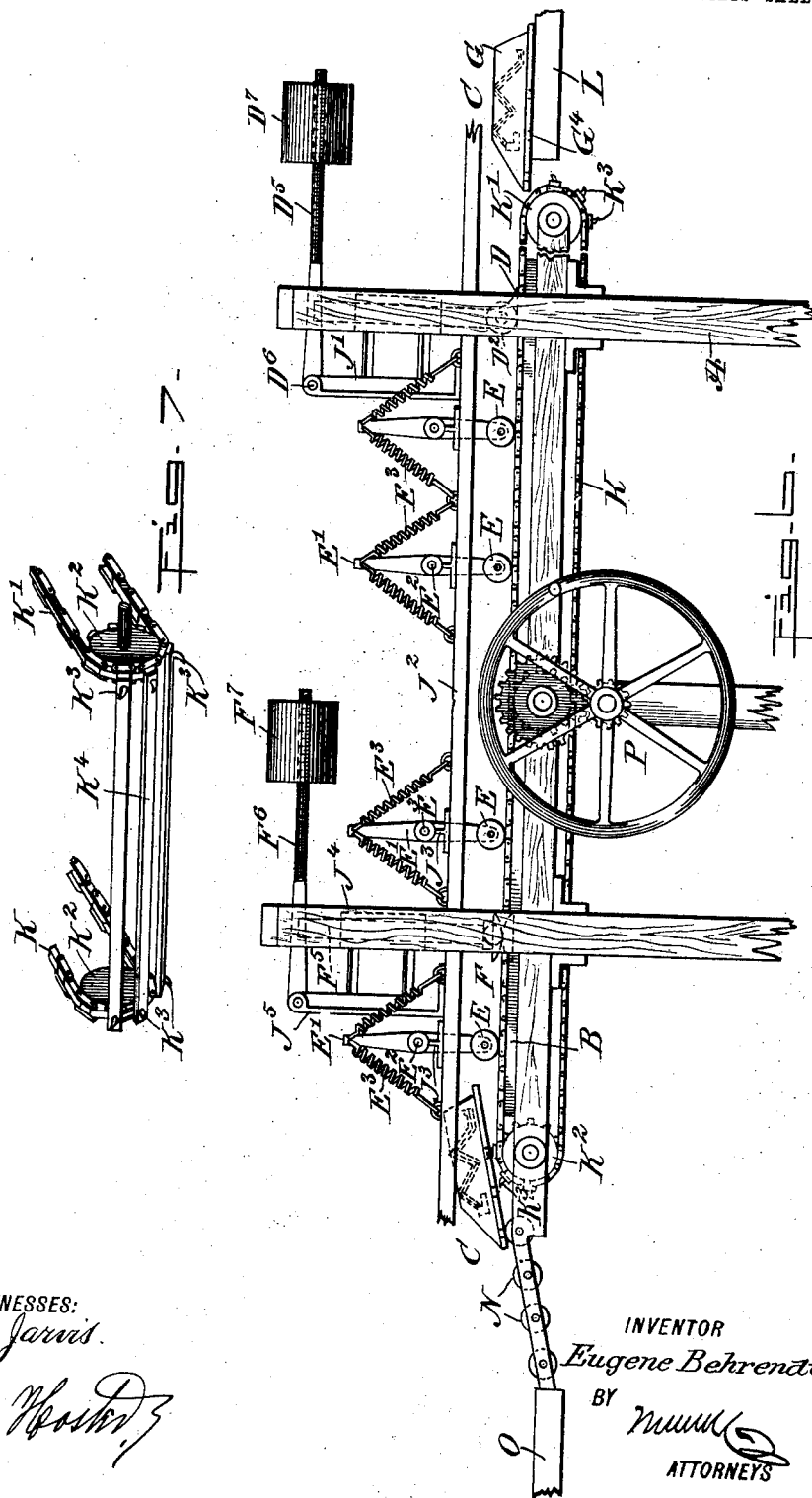
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2 SHEETS—SHEET 2.



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STRIPPING AND CLEANING MACHINE.

No. 826,918.

Specification of Letters Patent.

Patented July 24, 1906.

Application filed March 21, 1905. Serial No. 251,246.

To all whom it may concern:

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

The object of the invention is to provide a new and improved machine especially adapted for treating the leaf-sheaths or band-like material stripped off the abaca and like plants, and arranged to permit a quick and thorough separation of the pulp and freeing the fibers without injury to the latter, the fibers being completely freed or cleaned of the pulp.

The invention consists of novel features and parts and combinations of the same, as will be more fully described hereinafter and then 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, parts being broken out. Fig. 2 is a transverse section of the same on the line 2 2 of Fig. 1. Fig. 3 is a perspective view of the cleaning device, part being broken out. Fig. 4 is a similar view of the clamping-head for the material being treated. Fig. 5 is a sectional side elevation of the same. Fig. 6 is a side elevation of a modified form of the improvement, and Fig. 7 is a perspective view of the endless-chain carrier for the clamping-head.

A suitably-constructed frame A supports a table B, over which the leaf-sheath or band-like material is drawn by the use of a head C, in which is clamped or otherwise secured one end of said band-like material. The material during its movement over the table in the direction of the arrow a' is successively acted on by a stripper D for removing the main portion of the pulp and freeing the fibers; then by a series of rolls E for preventing the fibers from curling up, and finally by a cleaning device F for removing any adhering pulp from the fibers.

The head C (shown in detail in Figs. 4 and 5) consists, essentially, of a fixed clamping-jaw C' and a movable clamping-jaw C'',

hinged at its forward end at C³ to the forward end of the fixed clamping-jaw C', the said jaws being of zigzag shape, as plainly indicated in Fig. 5, to securely clamp the material between the jaws when the latter are closed. The free end of the hinged clamping-jaw C'' is adapted to be engaged by a spring-catch C⁴, held on the free end of the other jaw C', to hold the jaws in a closed position with the material clamped between the same during the time the head moves over the table B. The fixed clamping-jaw C' is fastened at its sides by hooks C⁵ or other means to carriers G, fastened to longitudinally-extending traveling beams H, arranged adjacent to the sides of the table B, and the under sides of the beams H are mounted to travel between sets of rollers H' H'', carried by the frame A, and the said under sides are also provided with longitudinally-extending racks H³, in mesh with pinions I, secured on a transversely-extending shaft I', journaled in suitable bearings arranged on the main frame A. On one outer end of the shaft I' is secured a gear-wheel I², in mesh with a pinion I³, fastened on a driving-shaft I⁴, journaled in the main frame A and carrying at one end a hand-wheel I⁵ under the control of the operator for turning the shaft I⁴ to rotate the shaft I' by means of the pinion I³ and gear-wheel I². The rotary motion given to the shaft I' and its pinion I causes the latter to impart a traveling motion to the racks H³, and consequently to the beams H and the head C, attached to the carriers G, fastened to the said beams, so that the said head C and the material clamped therein are drawn forward over the table B in the direction of the arrow a' , it being understood that the portions of the material not clamped in the head C are dragged behind the head over the table.

The stripper D extends transversely across the table B and is in the form of a heavy block of metal having on its bottom a forward extension tapering to a sharp edge, and on the sides of the stripper are formed studs D', carrying rollers D², adapted to travel over the carriers G when the latter move forwardly with the beams H to raise the stripper with a view to allow the head C to pass under the stripper, the latter finally moving downward into engagement with the material as soon as the head C has passed the stripper.

For the purpose mentioned each of the carriers G has its forward end in the form of an incline G', terminating in a horizontal top G², leading to an inclined back G³, down which the rollers D² travel to bring the stripper D into contact with the material trailing behind the head C. The stripper D is provided at its middle with an upwardly-extending stem D⁴, mounted to slide vertically in a suitable bearing J, carried by a framework J', supported on longitudinally-extending rails J², attached to the main frame A. The upper end of the stem D⁴ is pressed on by a lever D⁵, fulcrumed at D⁶ on the frame J' and carrying at its free end an adjustable weight D⁷ to hold the stripper D with sufficient force in contact with the material to enter the pulp thereof and to separate the pulp from the fiber during the time the material is drawn along under the stripper D. As shown, the weight D⁷ screws on the threaded end of the lever D⁵ to allow of conveniently adjusting the weight to bear with more or less force on the stem D⁴ of the stripper D.

Each of the rolls E for preventing the fibers from curling up while traveling over the table between the stripper D and the cleaning device F extends transversely of the table B and is journaled in the lower ends of arms E', fulcrumed at E² on brackets J³, attached to the rails J². The upper ends of the arms E' are pressed on by springs E³, attached to the rails J² and extending in opposite directions, so as to allow the arms E' to swing either forward or backward, the rollers E, similarly to the rolls D², being adapted to travel up and down the inclines G' and G³ of the carriers G whenever the head passes under a roller. When the head C has passed a roller E while traveling in a forward direction, then the roller E engages the fiber and holds the same firmly down on the table B to prevent the fiber from curling up during its travel from the stripper D to the cleaning device F.

The cleaning device F consists, essentially, of two jaws F' and F², of which the jaw F' is carried by the table B and extends into a transverse recess in the same, and the upper surface of the jaw F' is rounded off and has a covering F³ of rubber, the top of the cover being approximately flush with the top of the table B. The other jaw F² is rounded at its under surface and provided with a covering F⁴, 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 uppermost jaw F² is provided with an upwardly-extending stem F⁵, fitted to slide in a bearing J⁴, carried by a frame J⁵, attached to the rails J², and the upper end of the said stem F⁵ is pressed on by a lever F⁶, carrying an adjustable weight F⁷, similar to the weight D⁷ on the lever D⁵. On

the ends of the uppermost jaw F² are journaled rollers F⁸, adapted to travel over the inclines G' and G³ of the carriers G to raise the uppermost jaw F² to allow the head C to pass underneath the same, it being understood that after the head has passed the jaw F² is immediately forced downward onto the fibers to press the same between the coverings F³ and F⁴ of the jaws to free the fibers of pulp during the time the fibers are drawn between the jaws.

The operation is as follows: The head C when detached from the carriers G and when in an open position permits one end of the band-like material to be placed on top of the jaw C' with the pulp side up, and when the stalks have been arranged in this manner then the jaw C² is swung down into a closed position and locked therein by the spring-catch C⁴. The head C thus carrying the material is now attached to the carriers G by the use of the hooks C⁵ or other means, the carriers then being in the right-hand end position of the machine on the beams H. The operator now turns the hand-wheel I⁵ so as to impart a forward traveling motion to the beams H, carriers G, and head C, and during this forward traveling motion the head C is passed under the stripper D, which is raised by the carriers G to allow the head to pass under the stripper, and when the head has passed the stripper the latter immediately descends, sinks into the pulp, and rests lightly on the fiber, so that the knife or sharp edge skives or strips the pulp from the fiber while the fiber or strands are pulled along by the head C. The main portion of the pulp is stripped off the fibers by the stripper D as the head moves onward and drags the fibers along over the table B and under the stripper D. As the head C advances the carriers G engage the first roller E to swing the lower portions of the arms E' forwardly against the tension of the corresponding forward spring E³ to raise the rollers E sufficiently for the head to pass under the roller, and when the head has passed the forward spring E³ immediately draws the arms E' back to a normal vertical position, so that the first roller E moves down in contact with the fibers to prevent the same from curling up while moving forward over the table B. This operation is repeated for the several rollers E until the head finally passes under the jaw F², temporarily raised, as previously described, the jaw after the passage of the head C immediately descending for engaging the fiber to clean the same of adhering pulp, as previously explained. When the fibers have been drawn through the cleaning device F, then the operator stops the hand-wheel I⁵ and disconnects the head C from the carriers G for the removal of the cleaned fibers from the head. As soon as the head C is removed from the carriers G the operator turns the

hand-wheel I⁵ in the reverse direction, so as to move the beams H in the inverse direction of the arrow a' to bring the carriers G back to a starting position—that is, back to the right-hand side of the machine, the jaw F² being lifted during this return movement to allow the head C to pass, and the arms E', carrying the rollers E, swing in the reverse direction for the same purpose, and the stripper D is raised to permit the head C to return to its starting position, the several parts all returning to their normal positions, so that the above-described operation can be repeated as soon as another filled head is connected with the carriers G.

In the modified form illustrated in Figs. 6 and 7 the beams H are dispensed with and in their stead endless sprocket-chains K are employed passing over sprocket-pulleys K' and K², journaled on the frame A a distance beyond the ends of the table B. The sprocket-chains K are provided with sets of projections or hooks K³, adapted to engage recesses G⁴, formed in the under side of the carriers G, employed for supporting a head C in the manner previously described, it being understood that the head C, with its carriers and the material clamped in the head, is placed on a table L, arranged at one end of the machine to allow of pushing the head C forward sufficiently far for the hooks or projections K³ to engage the recesses G⁴ to carry the carriers G and the head C along. When the head C, with its carriers G, is moved over the table B, the material is acted on successively by the stripper D, the rollers E, and the cleaning device F in the same manner as above described, so that further description of this part of the machine is not deemed necessary. When the head C and its carriers reach the left-hand end of the machine, then the forward ends of the carriers pass onto rollers N, thus disengaging the hooks K³ from the apertures G⁴ and allowing the head C and its carriers G to slide down the rollers N, arranged in an inclined plane, for the head C and its carriers to finally land on a receiving-table O. By reference to Fig. 6 it will be seen that two sets of hooks K³ are employed, arranged in such a manner that when the head C and its carriers G leave the hooks K³ at the left-hand end of the machine and pass over the rollers N then another head C can engage the other set of hooks K³, now standing at the right-hand end of the machine. In order to impart a continuous traveling motion to the sprocket-chains K, gearing P may be employed similar to the gearing previously described and used for imparting a forward and backward motion to the beams H. The gearing for the endless sprocket-chains K may be driven by hand or by pulley and belt from other machinery. As shown in Fig. 7, the sprocket-chains K are preferably connected with each other by transverse bars K⁴ at

the hooks K³ to cause the sprocket-chains to travel in unison.

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

1. A stripping and cleaning machine comprising a table over which the material is drawn, a head in which one end of the material is fastened, said head having inclines means for moving the head forward over the said table, a stripper having a sharp edge and adapted to engage the material while being drawn forward, and means on the ends of the said stripper, adapted to travel over the inclines on the said head, to lift the stripper over the head as the latter passes underneath.

2. A stripping and cleaning machine comprising a table over which the material is drawn, a head in which one end of the material is fastened, means for moving the head forward over the said table, a stripper in the form of a block having a forwardly-projecting extension at its bottom, said extension tapering to a sharp edge and adapted to engage the material while being drawn forward, and a cleaning device engaging the stripped material.

3. A stripping and cleaning machine comprising a table over which the material is drawn, a stripper in the form of a block having a sharpened edge and provided with a stem sliding in a guideway, and a device for engaging the stem of the stripper to force the same downward into firm contact with the material as the latter is drawn forward over the table.

4. A stripping and cleaning machine comprising a table over which the material is drawn, a stripper in the form of a block having a sharpened edge and provided with a central stem sliding in a guideway, a weighted lever for engaging the stem of the stripper to force the same downward into firm contact with the material as the latter is drawn forward over the table, a clamping-head in which the material is fastened, and means for moving the head forward over the said table.

5. A stripping and cleaning machine comprising a table over which the material is drawn, a stripper mounted to slide up and down above the said table, a device for forcing the stripper downward into firm contact with the material as the latter is drawn forward over the table, and a cleaning device extending transversely across the table, forward of the said stripper, the said cleaning device comprising rounded-off jaws between which the fibers are drawn.

6. A stripping and cleaning machine comprising a table over which the material is drawn, a stripper mounted to slide up and down above the said table, a device for forcing the stripper downward into firm contact

with the material as the latter is drawn forward over the table, and a cleaning device extending transversely across the table, forward of the said stripper, the said cleaning device comprising rounded-off jaws between which the fibers are drawn, the said jaws having rubber-covered faces.

7. A stripping and cleaning machine comprising a table over which the material is drawn, a stripper mounted to slide up and down above the said table, a device for forcing the stripper downward into firm contact with the material as the latter is drawn forward over the table, a cleaning device extending transversely across the table, forward of the said stripper, the said cleaning device comprising rounded-off jaws between which the fibers are drawn, one of the jaws being fixed and arranged in a recess in the table and the other jaw being mounted to slide up and down, and means for pressing the movable jaw downward.

8. A stripping and cleaning machine comprising a table, a head adapted to travel over the table in the direction of its length, the head having means for receiving and holding the material, a downwardly-pressed stripper extending across the table and having a sharpened edge to engage the material and strip the same of the pulp, a cleaning device spaced from the stripper and extending across the table, the cleaning device having rounded-off jaws between which pass the fibers, and rollers over the table, intermediate the said stripper and cleaning device, the rollers engaging the fibers to prevent the same from curling up.

9. A stripping and cleaning machine comprising a table, a head adapted to travel over the table in the direction of its length, the head having means for receiving and holding the material, a downwardly-pressed stripper extending across the table and having a sharpened edge to engage the material and strip the same of the pulp, a cleaning device spaced from the stripper and extending across the table, the cleaning device having rounded-off jaws between which pass the fibers, yieldingly-mounted rollers over the table, intermediate the said stripper and cleaning device, the rollers engaging the fibers to prevent the same from curling up, and a hand or power actuated device for imparting a forward travel to the said head.

10. A stripping and cleaning device provided with a clamping-head comprising a

fixed and a stationary jaw, the jaws being hinged together at the forward ends and the jaws being step-shaped in cross-section and interlocking with each other, and means for securing the movable jaw to the fixed jaw after the jaws are closed.

11. A stripping and cleaning machine provided with a table, means for drawing the material over the table, and a pair of cleaning-jaws extending transversely across the table, the jaws having rubber-covered faces between which the material is drawn.

12. A stripping and cleaning machine, provided with a traveling head for holding the material and having inclines, and a stripper in the form of a block having a sharpened front edge and provided at its ends with rollers adapted to travel over the inclines of the head.

13. In a stripping and cleaning machine, a table over which the material is drawn, a stripper for removing the pulp from the material, and a plurality of swinging and spring-pressed rollers for engaging the material stripped off the pulp to prevent the same from curling up.

14. In a stripping and cleaning machine, a table over which the material is drawn, a stripper for removing the pulp from the material, arms pivoted intermediate of their ends in front of the stripper, rollers mounted in the lower ends of the arms, and springs secured to the upper ends of the arms and to a fixed support.

15. A stripping and cleaning machine, comprising a table over which the material is drawn, a stripper mounted to slide up and down above the table, means for forcing the stripper into firm contact with the material as it is drawn forward over the table, a cleaning device extending transversely across the table forward of said stripper, the said cleaning device comprising jaws between which the fibers are drawn, and a plurality of rollers interposed between the stripper and the cleaning device for preventing the material from curling up in its passage from said stripper to the cleaning device.

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

EUGENE BEHRENDT.

Witnesses:

A. R. CLARK,
NANCY P. KUHN.