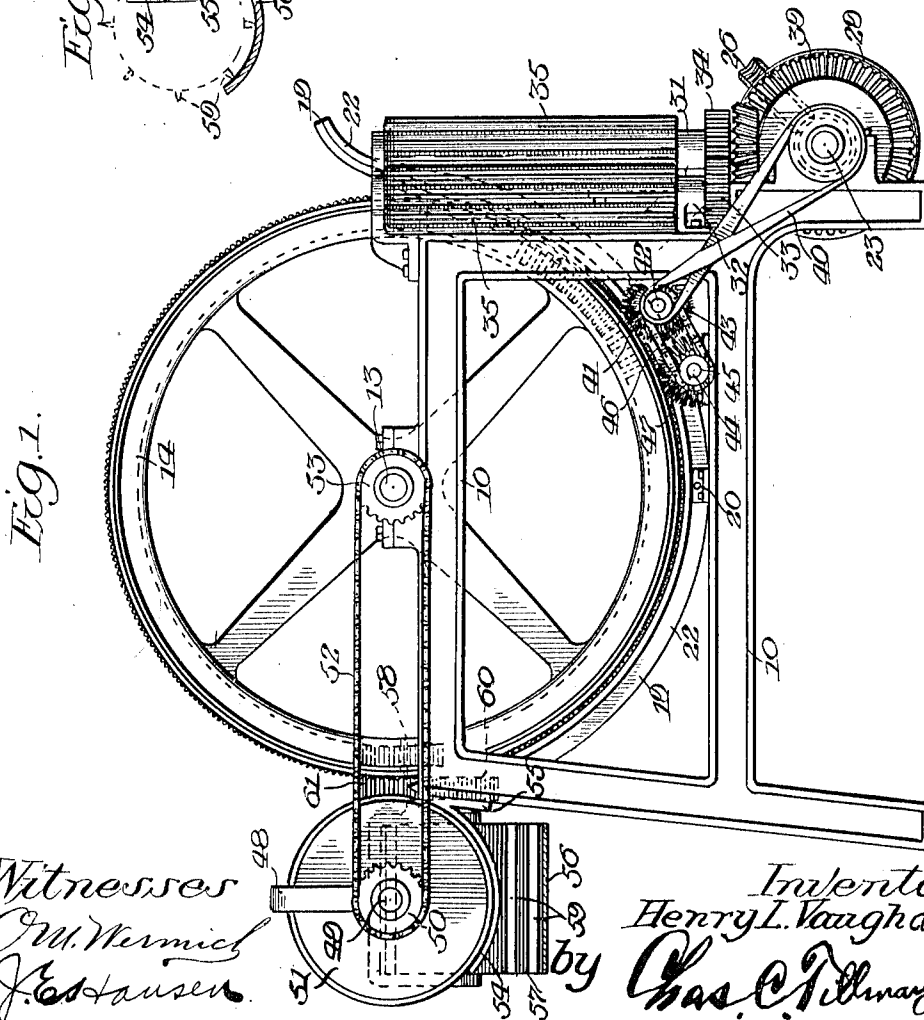
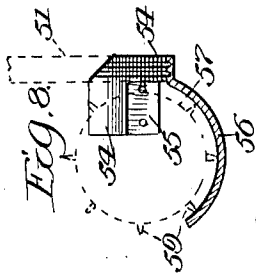
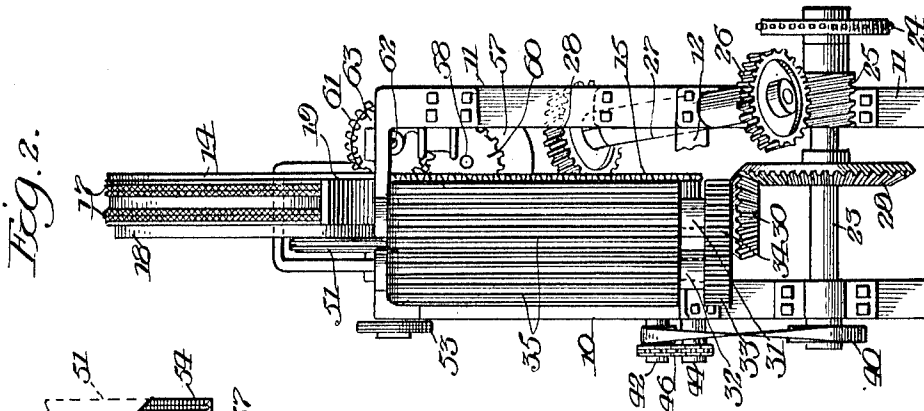


H. L. VAUGHAN.
FIBER CLEANING MACHINE.
APPLICATION FILED OCT. 22, 1910.

1,001,481.

Patented Aug. 22, 1911.

2 SHEETS-SHEET 1.



Witnesses
O. M. Mermel
J. Estausen.

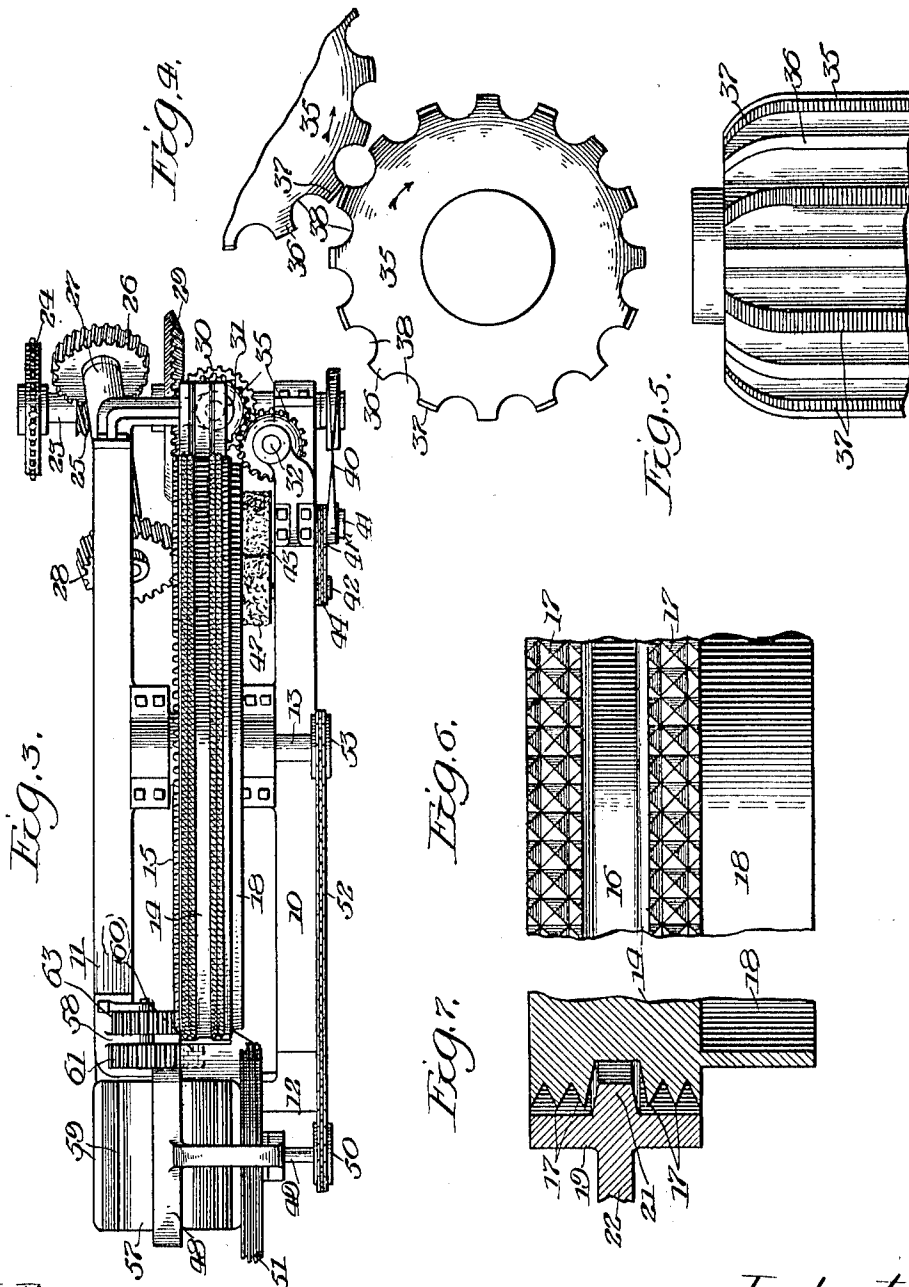
Inventor:
Henry L. Vaughan.
by Chas. C. Tillman, atty

H. L. VAUGHAN.
FIBER CLEANING MACHINE.
APPLICATION FILED OCT. 22, 1910.

1,001,481.

Patented Aug. 22, 1911.

2 SHEETS—SHEET 2.



Witnesses
Cm. Wernick
J. E. Hansen

Inventor
Henry L. Vaughan.
by Chas. C. Tillman
Atty

UNITED STATES PATENT OFFICE.

HENRY L. VAUGHAN, OF EL PASO, TEXAS.

FIBER-CLEANING MACHINE.

1,001,481.

Specification of Letters Patent: **Patented Aug. 22, 1911.**

Application filed October 22, 1910. Serial No. 588,451.

To all whom it may concern:

Be it known that I, HENRY L. VAUGHAN, a citizen of the United States, residing at El Paso, in the county of El Paso and State of Texas, have invented certain new and useful Improvements in Fiber-Cleaning Machines, of which the following is a specification.

This invention relates to that class of machines employed for decorticating and removing the pulp from the long fiber of fibrous plants such as for example the *Lechuguilla*, *Heniquen*, maguey, and others, and it consists in certain peculiarities of the construction, novel arrangement and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The principal objects of the invention are to simplify the construction of such machines; to improve their general efficiency; and to provide machines of the above-named character which shall be compact in form and portable.

Other objects and advantages of the invention will be disclosed in the subjoined description and explanation.

In order to enable others skilled in the art to which my invention pertains, to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1, is a view in side elevation of a fiber cleaning machine embodying the invention; Fig. 2, is a view of the rear or feeding end of the machine; Fig. 3, is a plan view thereof; Fig. 4, is an enlarged fragmental plan view of the vertically arranged rotary beaters or cleaning cylinders; Fig. 5, is an enlarged view of the upper portion of one of said beaters or cylinders; Fig. 6, is an enlarged plan view of a portion of the toothed drum or band wheel of the machine; Fig. 7, is an enlarged cross-sectional view of a portion of said wheel and a part of the shield or apron which co-acts therewith; and Fig. 8, is a detached view partly in section and partly in elevation of the shields for the finishing beater and wheel.

Like numerals of reference, refer to corresponding parts throughout the different views of the drawings.

The main frame of the machine may be made of any suitable size and form, but is herein shown as consisting of two upright side pieces 10, and 11, which are connected

together in parallelism by a transverse piece 12, at each of the ends thereof. Journaled on the central upper portion of the frame is a shaft 13, on which is mounted between the side pieces 10, and 11, of the frame, a wheel 14, which has on one of its sides, a series of gear teeth 15, to mesh with gears as will be presently explained. The wheel 14, is provided on its periphery with a circumferential groove 16, and on each side of said groove with teeth 17, which are arranged in rows circumferentially with respect to said wheel. On that side of the wheel opposite the gear teeth 15, is located a circumferential flange 18, which, as is clearly shown in Fig. 7, of the drawings, projects laterally from one side of a segmental shield or apron 19, which is supported at its ends between the side pieces 10, and 11, of the frame, and at its middle and lower portion by means of a piece or support 20, transversely mounted on the lower portion of the sides 10, and 11, of the main frame. This apron or shield has on its surface adjacent to the wheel 14, a rib 21, extended into the groove 16, and on its outer surface a strengthening rib 22, and extends at one of its ends upwardly and outwardly between the sides of the main frame and terminates at its other end at the upper portion of said side pieces as is clearly shown in Fig. 1, of the drawings.

That end of the shield 19, which extends outwardly from the main frame, as well as from the wheel 14, will be termed the feeding end, for it is apparent that as said end of the shield diverges from the wheel, the leaves of the fibrous plants may be easily placed between said shield and the periphery of the wheel 14, so as to be drawn downwardly in the operation of the machine. Transversely mounted on the lower portion of the main frame, is a driving shaft 23, to which power may be applied to a sprocket wheel 24, or gear mounted on one end of said shaft. This shaft has mounted thereon a worm gear 25, which meshes with a gear 26, mounted on one end of a shaft 27, which is diagonally journaled on the main frame and has at its other end a gear 28, to mesh with the teeth 15, of the grooved wheel 14, as is clearly shown in Figs. 2, and 3, of the drawings.

Mounted on the shaft 23, is a beveled gear 29, which meshes with a similar gear 30, on the lower end of a shaft 31, which is vertically journaled at the feeding end of the

machine and below, but slightly to one side of a line drawn centrally and longitudinally through the apron or shield 19, as will be understood by reference to Fig. 3, of the drawings. Vertically journaled in parallelism with the shaft 31, and near the same, is another shaft 32, which has on its lower portion a pinion 33, to mesh with a pinion 34, on the lower portion of the shaft 31, which shaft, as well as the shaft 32, has mounted thereon a beater or cleaning cylinder 35, each of which is provided with a series of vertically disposed ribs 36, and 37, having between the same, depressions 38, which are also vertically disposed. The ribs 36, on each of the cylinders 35, have smooth surfaces while the ribs 37, on each of said cylinders are serrated as is clearly shown in Fig. 5, for the purpose of cutting or breaking the outer coat and pulp of the fibrous leaves, and the smooth surfaced ribs are for the purpose of scraping or removing the same from the fiber as the cylinders 35, are rotated.

Mounted on the end of the shaft 23, from that on which the sprocket wheel or gear 24, is located, is a pulley 39, around which is passed a crossed belt 40, which also passes over a pulley 41, mounted on a shaft 42, which is journaled on one side of the frame near the cylinder 35, on the shaft 32, but in front of said cylinder and beneath the shield 19. Mounted on the shaft 42, is a brush 43, which is disposed so that a portion thereof will extend beneath and contact with the flange 18, on the wheel 14. Mounted on a shaft 44, which is journaled in front and somewhat below the shaft 42, is a sprocket wheel 45, which is geared to the sprocket wheel 41^a, by a chain 46. Mounted on the shaft 44, is another brush 47, which is also disposed so that a portion thereof will underlie and contact with the flange 18, of the main wheel, yet somewhat in front of the brush 43, as is clearly shown in Fig. 1, of the drawings. Transversely journaled with respect to the main frame on a suitable bracket 48, extended from the upper portion of the front or discharging end thereof, is a shaft 49, which has mounted on one of its ends a sprocket wheel 50, and on its other end a wheel 51, which may be provided with teeth and one or more grooves similar to those on the wheel 14, and above described.

Extended around the sprocket wheel 50, is a sprocket chain 52, which also passes over a sprocket wheel 53, on the shaft of the main wheel 14, see Figs. 1, and 3, of the drawings. Located beneath the wheel 51, is a segmental shield 54, which has at one of its ends a bracket 55, by means of which it is secured to the main frame at the discharging end thereof. The bracket 55, is also provided with a transversely disposed shield 56, which is extended under a finish-

ing drum 57, which is mounted on a shaft 58, longitudinally journaled on the main frame at the discharging end thereof at one side of the face of the wheel 51, and at one side of the shield 54, under said wheel. The drum has longitudinally mounted thereon a series of blades 59, used for scraping and cleaning the fiber. Mounted on the shaft 58, is a gear 60, which meshes with a gear 61, mounted on a shaft 62, journaled on the main frame above the shaft 58. The shaft 62, also has mounted thereon a gear 63, which meshes with the teeth 15, of the main wheel 14, by which the drum 57, is driven.

From the foregoing and by reference to the drawings, it will be readily understood and clearly seen that by applying power to the shaft 23, the same will be rotated, thus causing the main wheel 14, through the instrumentality of the gears 25, 26, and 28, to be turned, in which operation it is apparent that the beveled gear 29, on the shaft 23, will drive the shafts 31, and 32, of the vertical cleaning cylinders 35, so that they will rotate toward each other as indicated by the arrows in Fig. 4, of the drawings. It is also apparent that as the shafts of the brushes 43, and 47, are geared to the driving shaft 23, that the same will be rotated against the flange 18, of the main wheel.

In the initial step of cleaning the leaves of the fibrous plants the said leaves are placed horizontally between the out-turned portion of the shield 19, and the wheel 14, so that the butt ends of the leaves will be clamped between the wheel and said shield and engaged by the teeth 17, of the former. The laterally and horizontally extended portion of the leaves will be placed between the tapered upper ends of the cleaning cylinders 35, which, as shown, and above described, are located near the periphery of the main wheel 14, and one of said cylinders, somewhat to one side of said wheel. In the rotation of the main wheel, as well as that of the cleaning cylinders, it is apparent that the leaves will be drawn downwardly by the main wheel with the butt ends between the shield 19, and said wheel, and their outwardly extended portion downwardly between the cleaning cylinders 35, for some distance, during which time, the leaves will be crushed and scraped by the ribs 36, and 37, of the cleaning cylinders. In the further progress of the main wheel 14, the leaves will be drawn forwardly between the cleaning cylinders 35, so as to cause them to lie circumferentially on the flange 18, of the main wheel and be exposed to the action of the brushes 43, and 47, which will thoroughly clean the fiber of that portion of the leaves which have been crushed and scraped by the cleaning cylinders. From said brushes, the leaves will be carried by the wheel 14, around to the dis-

charging end of the shield 19, where they will be released from the main wheel and the fiber or cleaned portions of the leaves caught by the wheel 51, and carried between the periphery of the same and the shield 54, therefor, in which operation the butt ends of the leaves which have heretofore been held by the teeth 17, of the main wheel will be subjected to the action of the drum 57, and the scraping blades 59, thereon, for it will be understood that in the rotation of said drum the butt ends of the leaves will be passed between it, and the shield 56, which is extended under the same. After thus being acted on by said drum, the cleaning of the fiber will be finished, and the same will be discharged from between the shield 56, drum 57, wheel 51, and shield 54, at the outer or free ends of said shields. By forming the vertical grooves or depressions 38, in the cleaning cylinders 35, semi-circular, it is apparent that they will offer but little obstruction to the pulp and other substances removed from the fiber and that the same will glide downwardly through said grooves.

Having thus fully described my invention what I claim as new and desire to secure by Letters-Patent is—

1. In a machine of the character described, the combination with the main frame of a main wheel mounted thereon, said wheel having teeth on its periphery and provided with a laterally extended circumferential flange, a segmental shield mounted on the frame outwardly from the toothed portion of the main wheel, a pair of cleaning cylinders vertically journaled near each other at one end of the frame and one end of said shield, and means to rotate the wheel and said cylinders.

2. In a machine of the character described, the combination with the main frame, of a main wheel mounted thereon, said wheel having a groove and teeth on its periphery and provided with a laterally extended circumferential flange, a segmental shield mounted on the frame outwardly from the toothed portion of the main wheel and having a tongue extended into the groove of said wheel, a pair of cleaning cylinders vertically mounted near each other at one end of the frame and at one end of said shield, and means to rotate the wheel and cylinders.

3. In a machine of the character described, the combination with the main frame, of a main wheel mounted thereon, a segmental shield mounted on the frame outwardly from the main wheel, a pair of cleaning cylinders vertically journaled near each other at one end of the frame and at one end of said shield, and means to rotate the wheel and said cylinders.

4. In a machine of the character described,

the combination with the main frame, of a main wheel mounted thereon and provided with a laterally extended circumferential flange, a segmental shield mounted on the frame outwardly from the main wheel, a pair of cleaning cylinders vertically mounted near each other at one end of the frame and at one end of said shield, a brush horizontally mounted to contact with the flange of the main wheel, and means to rotate said wheel, said cylinders and the brush.

5. In a machine of the character described, the combination with the main frame, of a main wheel mounted thereon and having a laterally extended circumferential flange, a segmental shield mounted on the frame outwardly from said wheel yet encompassing a part of the same, a pair of cleaning cylinders vertically mounted near each other and at one end of the frame and at one end of said shield, a brush horizontally journaled to contact with the flange of the main wheel, a wheel journaled on the discharging end of the frame in parallelism with the main wheel, a segmental shield supported on the frame beneath the wheel at said end of the frame, a finishing drum journaled on the discharging end of the frame, a segmental shield supported beneath said drum, and means to rotate the main wheel, the cleaning cylinders, and the brush.

6. In a machine of the character described, the combination with the main frame, of a main wheel mounted thereon, said wheel having a groove and teeth on its periphery and provided with a laterally extended circumferential flange, a segmental shield mounted on the frame outwardly from the toothed portion of the main wheel and having a tongue extended into the groove thereof, a pair of cleaning cylinders vertically mounted near each other at one end of the frame and at one end of said shield, a brush horizontally journaled and disposed beneath the flange of the main wheel, a wheel journaled on the discharging end of the frame in parallelism with the main frame, a segmental shield supported on the frame beneath the wheel at said end of the frame, a finishing drum journaled on the discharging end of the frame, a segmental shield supported beneath said drum, and means to rotate the main wheel, the cleaning cylinders, and the brush.

7. In a machine of the character described, the combination with the main frame, of a main wheel mounted thereon, said wheel having teeth on its periphery and provided with a laterally extended circumferential flange, a segmental shield mounted on the frame outwardly from the toothed portion of the main wheel, a pair of cleaning cylinders vertically journaled near each other at one end of the frame and at

one end of said shield, the said cylinders each having vertically disposed ribs separated by semi-circular grooves, the said ribs being alternately provided with smooth and serrated surfaces and adapted so that the serrated ribs will approximate each other and the smooth surfaced ribs will approximate each other in the rotation of said cylinders.

HENRY L. VAUGHAN.

Witnesses:

J. E. HANSEN,

CHAS. C. TILLMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."