(No Model.)

W. S. ARCHER.

MACHINE FOR DISINTEGRATING FIBER PREPARATORY TO BEING FELTED.

No. 314,642. Patented Mar. 31, 1885.

Fig. 1.

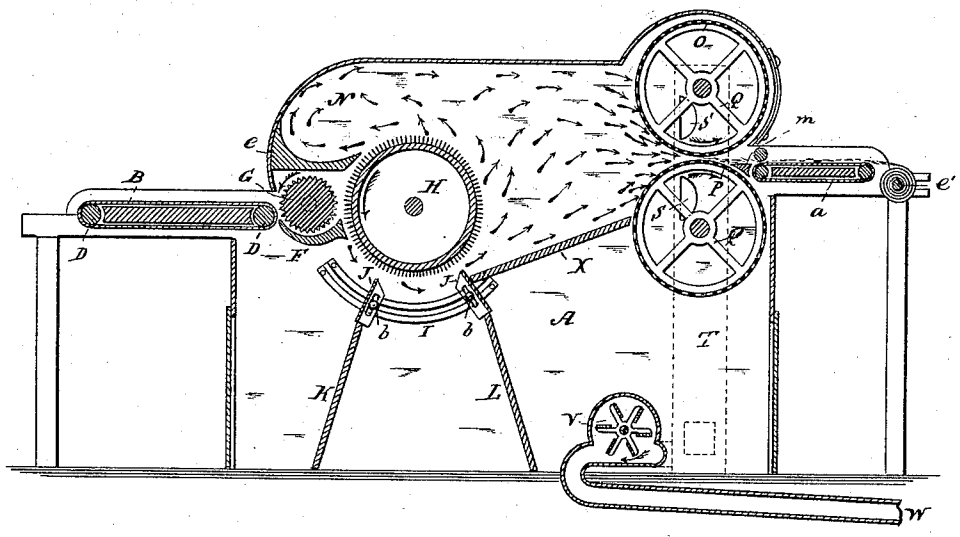
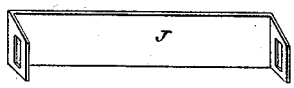


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM S. ARCHER, OF NEW YORK, N. Y.

MACHINE FOR DISINTEGRATING FIBER PREPARATORY TO BEING FELTED.

SPECIFICATION forming part of Letters Patent No. 314,642, dated March 31, 1885.

Application filed February 19, 1885. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. ARCHER, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Machines for Disintegrating Fiber Preparatory to Being Felted, of which the following is a specification.

The invention relates to improvements in machines for the disintegration of short fibers. It is of value in the separation of material composed of hair and fur, whereby I am enabled to utilize the latter for many of the purposes for which the higher grades of fur and wool are employed.

It has been discovered that the fur of the bison may be readily felted and utilized in the manufacture of the finest quality of hats, and in explaining the invention I will, for convenience, mention its use in treating the material found upon the hide of the buffalo. Upon the hide of the bison is found a mixed species of very coarse hair and fine fur, the latter being close to the hide of the animal, but so intimately combined with the former that both must be removed together. In this mixed condition the material can only be utilized for a coarse grade of goods, and the value of the fur is almost if not completely lost. It is, therefore, an object of prime importance to so separate the material that the coarse hair may be used for its usual purposes, while the fur is reserved for use in fine goods; and this object may be accomplished by the invention sought to be protected by the application of which this specification forms a part. The particular method of separating the coarse from the finer elements of the material to be treated, and of discarding the former and reserving the latter, will be described hereinafter in connection with the construction of the apparatus by means of which the disintegration is effected.

The apparatus is illustrated in the accompanying drawings, in which Figure 1 is a central vertical longitudinal section of the invention, and Fig. 2 is a detached perspective view of one part of the apparatus known as a "stop."

In the drawings, A designates the frame of the machine, at the front end of which the endless feed-apron B is mounted upon the rollers D. In the rear of the apron C is secured, between the sides of the frame A, the trough F, in which the feed-roller G has a revolving motion and operates to draw the stock or material being treated from the apron C down into the trough, thence carrying it over the rear edge of same and delivering it to the separator-roller H. The feed-apron, trough, feed-roller, and separator are the same as the similarly-described devices in the patent granted to me on the 28th day of August, 1883.

Below the separator H are secured, upon the inner sides of the machine, the corresponding guides I, in which are adjustably secured, by headed screws *b*, the stops J. One or more of the stops may be used, as may be desired, and they are adjustable with relation to the separator-roller, in order to adapt them to the various conditions of the stock to be treated. It will be found desirable to secure the stop in such position that its upper edge will be about from one to three-sixteenths of an inch from the extremities of the pins on the roller H.

Below the stops J are provided the inclines K L.

Over the feed-roller G and separator-roller H is provided the hood N, the front edge of which is forward of the feed-roller and within which (directly over the feed-roller) is furnished a concave extension, *e*, the effect of which is to reverse the current of air created by the separator-roller, the hood then deflecting it toward the rear of the machine.

At the rear portion of the machine are secured, upon the same vertical plane, the hollow cylinders O P, consisting of the cast-iron open heads Q, connected by the wire-cloth or perforated metal. The heads Q will be set in recesses provided in the opposite sides of the machine so as to form as nearly as possible an air-tight joint without interfering with the rotation of the cylinders.

In the side of the machine opposite to the open heads Q of the cylinders O P are formed the openings S, which communicate with the hollow stand-pipe or column T, at the lower end of which is a suction-blower, V, of usual construction, the purpose of the blower being to suck air, if any, from the interior of the

cylinders O P, drawing it downward through the stand-pipe T and discharging it through the pipe W.

A platform, X, is provided between the rear stop, J, and the cylinder P, for the purpose of directing the stock as it leaves the separator-roller H to the hollow cylinders.

In rear of the cylinder P is provided the table *m* and traveling apron *a*, the latter moving upon rollers of usual construction, and having its upper surface about on the same horizontal plane as the upper side of the cylinder P, and adjacent to the rear roller, supporting the apron *a*, is arranged the roller *e'*, the purpose of which is to receive the stock as it passes from between the cylinders O P, and is fed to it by the apron *a*. The sides of the machine are inclosed to prevent the escape of air except through the cylinders O P.

The cylinders and rollers of the apparatus will be operated in the usual manner by belts or otherwise.

Operation: The operative parts of the machine being in motion, the stock is spread upon the feed-apron B, and is by it and the roller E carried to the roller G, which draws it continuously into the trough F and discharges it at a point within reach of the pins on the separator-roller H, which, revolving with great velocity—say, at a speed of about two thousand revolutions per minute—carries the finer elements of the stock in line with its motion, the coarse elements being brought in contact with the stops J, whereby their motion is arrested, and they descend into the spaces in front of the inclines K L, and may be removed at will. The finer elements of the stock which follow the separator-roller are taken up by the current of air created by the roller and carried toward the cylinders O P, substantially as indicated by arrows in the accompanying drawings. At the same time the suction-blower V being in motion, air is drawn through the cylinders O P, together with such dust as may be in the stock reaching the cylinders, and is discharged through the pipe W, as aforesaid. The stock moved toward the cylinders O P by the blast created by the roller H and the suction of the blower V is gathered by and moves between said cylinders, and is fed from between the same upon the apron *a*, which delivers it in a layer to the roller *e'*, upon which it is wound, and from or with which it may be removed from the machine at will.

I do not of course limit my invention to the treatment of bison fiber, since the fur of other animals as well as other kinds of fibrous material may be successfully manipulated, according to the method and by means of the apparatus hereinbefore described. For instance, if cotton waste is being treated, the sand, dirt, &c., will be arrested by the stops J, while the cotton will pass to the cylinders O P and be delivered in the manner above described in convenient form to be removed.

When the combined hair and fur of the bison is being treated, the coarse hair, wisps, and locks will be caught by the stops J, while the fur will follow the roller H and be moved toward the cylinders O P.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a machine for disintegrating fiber, the feed, separator, stop, cylinders for gathering the separated stock, and a roller for receiving the stock from the cylinders, substantially as set forth.

2. In a machine for disintegrating fiber, the feed, separator, stop, and cylinders for gathering and delivering the separated stock, substantially as set forth.

3. In a machine for disintegrating fiber, the feed, separator, stop, perforated cylinders, suction, and roller for receiving the separated stock, substantially as set forth.

4. In a machine for disintegrating fiber, &c., the feed, separator-roller, perforated cylinders, suction, and roller for receiving the separated stock, substantially as set forth.

5. In a machine for disintegrating fiber, the feed, separator-roller, stop, perforated cylinders, and suction-blower, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 11th day of February, A. D. 1885.

WILLIAM S. ARCHER.

Witnesses:

HERMAN GUSTOW,

CHAS. C. GILL.