(No Model.) 2 Sheets—Sheet 1.

A. BAILLY.

MACHINE FOR REMOVING CARBONIZED EXTRANEOUS MATTER FROM WOOL.

No. 307,161. Patented Oct. 28, 1884.

Fig. 1.

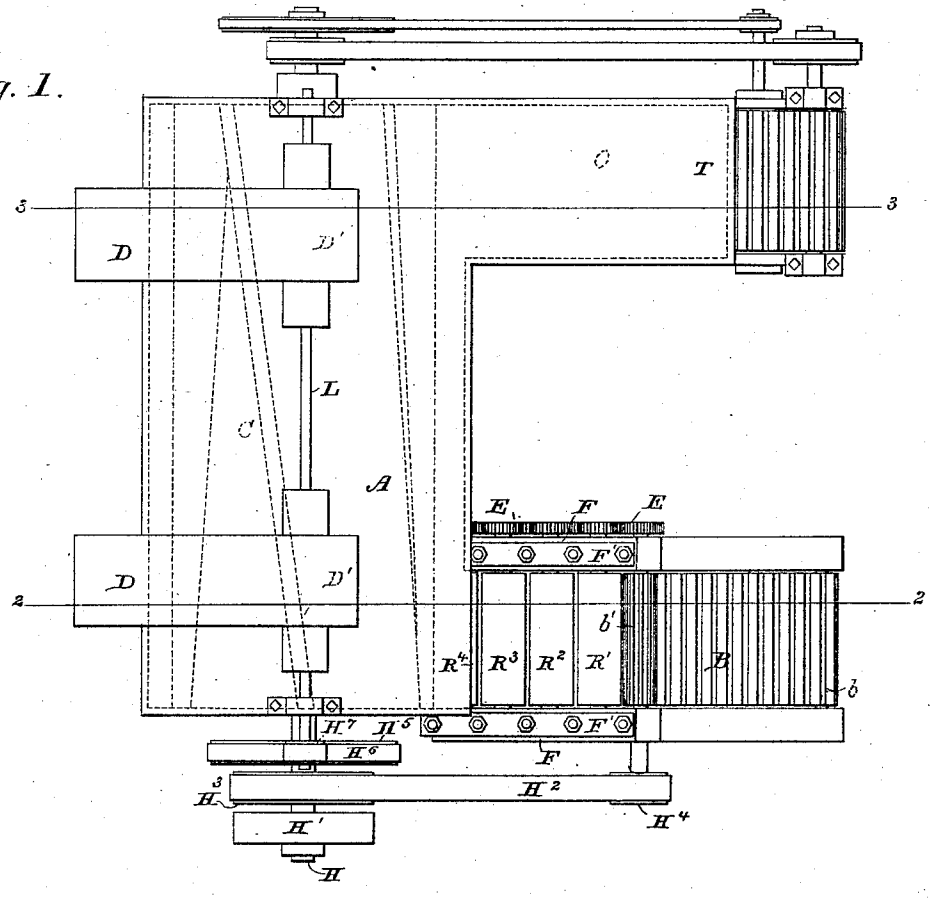
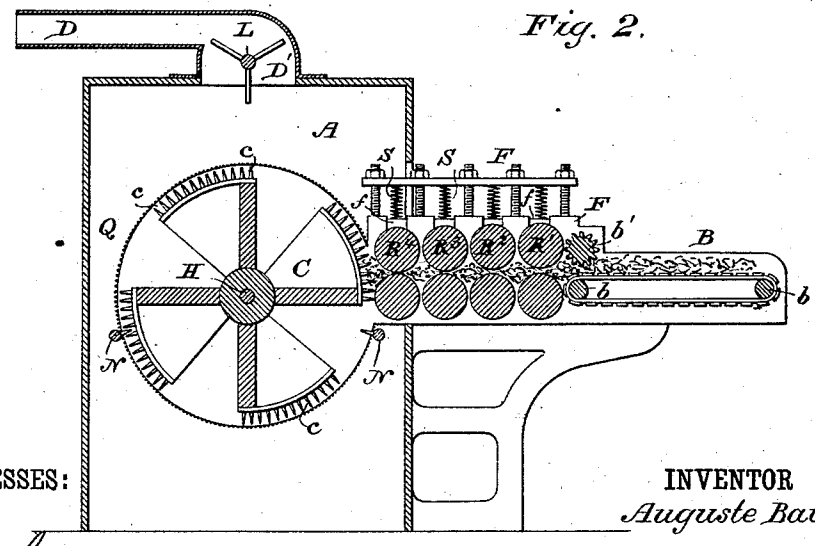


Fig. 2.



WITNESSES:

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Fig. 3.

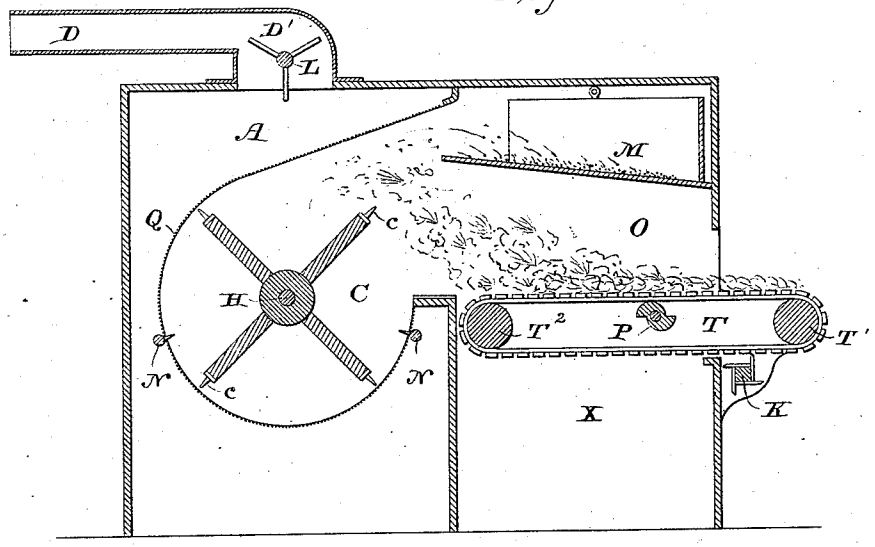
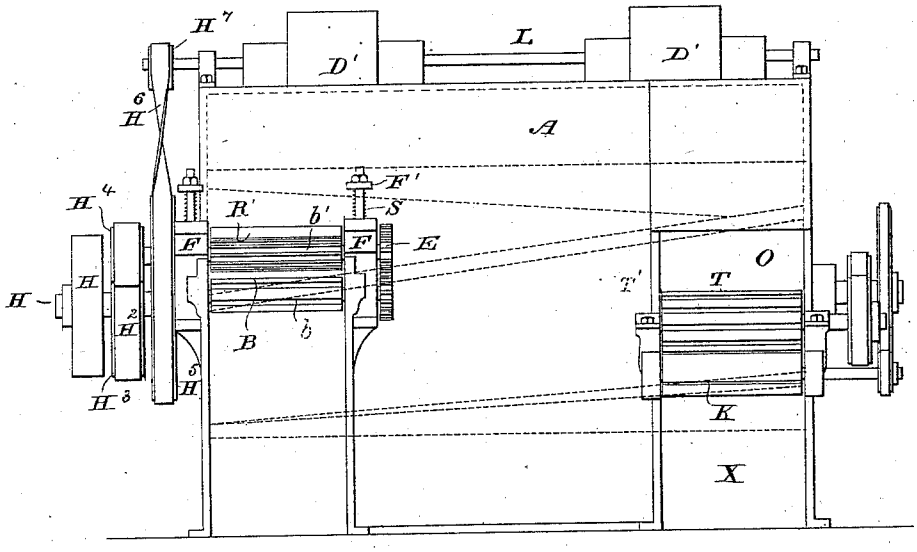


Fig. 4.



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UNITED STATES PATENT OFFICE.

AUGUSTE BAILLY, OF DOLHAIN PRÈS VERVIERS, BELGIUM, ASSIGNOR TO ALBERT M. PATTERSON AND WILLIAM GREENOUGH, BOTH OF NEW YORK, N. Y.

MACHINE FOR REMOVING CARBONIZED EXTRANEOUS MATTER FROM WOOL.

SPECIFICATION forming part of Letters Patent No. 307,161, dated October 28, 1884.

Application filed April 2, 1884. (No model.) Patented in Belgium November 15, 1879, No. 49,720; in France April 1, 1880, No. 134,821, and in Germany August 9, 1880, No. 10,576.

To all whom it may concern:

Be it known that I, AUGUSTE BAILLY, a subject of the Kingdom of Belgium, residing at Dolhain près Verviers, within said Kingdom, have invented a new and useful Machine for Removing Carbonized Extraneous Matter from Wool, (for which I have obtained a patent in Belgium, No. 49,720, dated November 15, 1879,) of which the following is a specification.

My invention relates to that class of machines employed for separating the extraneous matter from wool noils or woolen waste, after the same has been subjected to the process called "carbonizing," whereby the extraneous matter is in great part so acted upon as to be easily broken or pulverized by the action of the machine, thereby making practicable its separation from the wool.

My invention consists in organizing a machine of this character in such a manner that the burrs and other extraneous matter are more thoroughly separated from the wool than has been effected by similar machines heretofore, while at the same time the wool is uninjured by the operation either in texture or color. As is well known, a common method of treating wool so that it may be separated from extraneous matter is to subject it to a bath of diluted acid. This bath, while sufficiently strong to carbonize the burrs and most other extraneous matter which becomes mixed with wool, thus rendering these substances friable, is not made of sufficient strength to injure the fibers of the wool. The operation of the machine is as follows: After the wool has been taken from the acid bath and suitably dried, it is spread in the usual manner upon the feeding-table of the machine, whence it is carried through several pairs of rolls, the surfaces of which are fluted or corrugated, and which break up or pulverize the greater part of the extraneous matter. It then passes into the main body of the machine, where it is engaged by a swift or wheel extending the entire length of the machine, having spirally-arranged arms provided with teeth at their extremities. These teeth just clear the inner surface of the cylinder in which the swift revolves, and the effect of their action is to thoroughly open the wool, separate its fibers, and separate it also from all such extraneous matter that has passed with the wool between the rollers. The spirally-arranged arms serve to carry the wool while opening it from the end of the machine where the feeder is situated toward the other end of the machine where the cleaned wool is to come out. At this end of the machine a shelf is arranged in the upper part in such a position that heavy matters—such as pieces of wood, large burrs, &c.—that were not entirely pulverized or broken up by the action of the rolls are thrown upon it and lodged there, while the cleaned wool falls upon a table made of slats in the usual form, and is carried out of the machine, where it can be collected by the person having charge of the operation. In the meantime the dust which is thrown out the wool in the operation is carried by suitable fans from the top of the machine through conveyers into the outer air.

In the accompanying drawings, which illustrate my invention, Figure 1 is a top view of my improved machine. Fig. 2 is a transverse section through the plane 2 2, Fig. 1; and Fig. 3 is also a similar view through the plane 3 3 in Fig. 1. Fig. 4 is a front view.

In the drawings, A represents the body of the machine; B, the feeding-table; R, the rolls; C, the swift or central wheel extending the length of the machine. The wool is first placed upon the endless table B, formed of slats in the usual manner, and kept in motion by the two end rollers, *b b*. (Shown in Fig. 2.) As the wool passes toward the machine it is first engaged by the cog-roller *b'*, and is carried forward by that roller between the successive pairs of rollers R', R^2, R^3, and R^4. These rollers are all made of the same size, and are all supported in the frame F. Their surfaces are fluted or corrugated, the flutings preferably being made parallel with the axis of the rolls; but other forms of corrugating or breaking up the surface may be adopted in some cases. They are set in such a manner that they do not touch each other even when no wool is

passing between them. The object of this is to prevent the wool from being injured by being pressed or squeezed between the surfaces of the rollers, which would be the case if they were in contact with each other. The upper roller of each pair is pressed toward the lower roller by the springs S, which are held between the bar F′ and the blocks *f*, which form the upper portions of the bearings of the rollers. The rollers are kept in motion by means of the cog-wheels E, (shown in Fig. 1,) and these cog-wheels are so arranged with reference to each other that the rollers all revolve at different rates, the lower roller of each set going faster than the upper. Besides this, the speed of each pair of rollers increases as the rollers are nearer the swift. Thus the pair of rollers R^2 turn swifter than the rollers R′, the pair R^3 swifter than the pair R^2, and the pair R^4 swifter than the pair R^3. The proportionate speed of the rollers, not only between the upper and lower roller of each pair, but also the rate of increase in speed between the pair farthest from and nearest to the swift, may be varied according to the kind of wool and the amount and nature of the extraneous matter which it contains. While the wool is passing between these rollers, the burrs and similar substances, carbonized by the action of the bath, are crushed and to a greater or less extent pulverized, and very much of their material falls between the several pairs of rollers as the wool is carried forward to the swift. It is there caught by the teeth *c* upon the outer ends of the revolving arms C′ and thoroughly opened and separated from other matters while it is being carried from one end of the machine to the other, and at the same time it is rapidly whirled about within the cylinder Q, which incloses the swift C. The cylinder Q is composed of wire-netting, which holds the wool within while allowing the dust and other fine matter to pass through into the interior of the case A, whence it is withdrawn by the fans D′.

The dotted lines in Figs. 1 and 4 from one end of the machine to the other show the positions of the edges of the spirally-arranged arms on the swift C.

N N are stationary combs, which extend the length of the machine, and the teeth of which pass between the teeth *c c* of the arms of the wheel C, and which serve to retain the wool within the machine, whereby it is more thoroughly opened and separated. The shaft H, passing through the machine, carries the swift, and by suitable belting communicates motion to the other movable parts of the machine. The pulley H′ is intended for the main belt which drives the machine. The rollers are carried by the belt H^2, which passes over the pulley H^3 on the central shaft, H, of the machine, and the pulley H^4 on the end of the shaft which passes through the first of the rollers R. The blowers D′, for driving away the dust, are carried upon the shaft L, which is driven by the pulley H^5, belt H^6, and small pulley H^7. When the wool has been carried by the revolutions of the swift to the other end of the machine from that at which it entered, it reaches the opening O and is thrown, as shown in Fig. 3, upon the endless table T, which is made, like the feeding-table, of slats which are placed somewhat apart from each other. Above the table T is the shelf M, placed in such a position with reference to the arms of the swift that heavy matters—such as pieces of wood, large burrs, &c.—are thrown upon it on account of their greater weight, and remain there, while the wool is carried forward by the motion of the table T until it reaches the outside of the machine. The irregular piece or cam P is kept in revolution, and thereby gives a constant shaking or shuffling motion to the table, whereby the dust that remains in the wool is shaken from it and falls between the slats of the table into the box X. The table T being kept in motion over the end rollers, T′ and T^2, brings the wool out of the machine, and it falls from the table as it passes over the roller T′. The comb or brush K underneath the table T, outside of the machine, is kept in revolution in an opposite direction from the movement of the slats of the table, so as to brush off any wool which adheres to the slats after it passes over the end roller, T′.

D D are the conveyers, which are intended to carry the dust from inside the machine out of the room, so that the workmen are not troubled by its presence. The fans D′ are kept in rapid revolution, as heretofore explained, and thereby draw the dust from the inside of the machine and force it through the conveyers D.

By my invention the wool is not injured either while passing between the rollers or while being separated and opened by the swift, at the same time the separation of the burrs, dust, and other extraneous matters is very complete.

I claim as my invention—

1. The combination, substantially as hereinbefore set forth, of the feeding-table B, the rollers R, arranged in pairs, means, substantially such as described, for revolving said rollers at different rates of speed, and the wheel or swift C.

2. The combination, substantially as hereinbefore set forth, of the feeding-table B, the rollers R, arranged in pairs, means, substantially such as described, for causing the lower roller of each pair to revolve faster than the upper roller, means, substantially such as described, for revolving each pair of rollers at different speed from the other pairs of the series, and the wheel or swift C.

3. The combination, substantially as hereinbefore set forth, of the feeding-table B, the rollers R, arranged in pairs, means, substantially such as described, for turning the lower roller of each pair faster than the upper roller, means, substantially such as described, for

increasing the speed of each pair of rollers as their distance from the feeding-table increases, so that the pair nearest the table turns slowest and the pair farthest from the table turns fastest, and the wheel or swift C.

4. The combination, substantially as hereinbefore set forth, of the feeding-table B, the cog-roller b', the series of rollers R, the wheel or swift C, the combs N N, the shelf M, the table T, the revolving piece P, and the brush K.

5. The combination, substantially as hereinbefore set forth, of the frame or case A, the table B, the series of rollers R, the swift C, the combs N N, the shelf M, the table T, the fans D′, and dust-conveyers D.

6. In a machine for separating extraneous matters from wool, the combination of the frame A, feeding-table B, the series of rolls R, having their surfaces fluted or corrugated, a series of cog-wheels for revolving said rolls at different rates of speed, the wheel or swift C, the fans D′, and dust-conveyers D.

In testimony whereof I have hereunto subscribed my name this 22d day of December, A. D. 1883.

AUG. BAILLY.

Witnesses:
ALPH. MÜLLENDER,
J. JOUCKER, VISC.