

Sheet 4.

Inventor.

Chas. Fargent

Machine for Cleaning Fibrous Materials.

118158 Fig. 1.

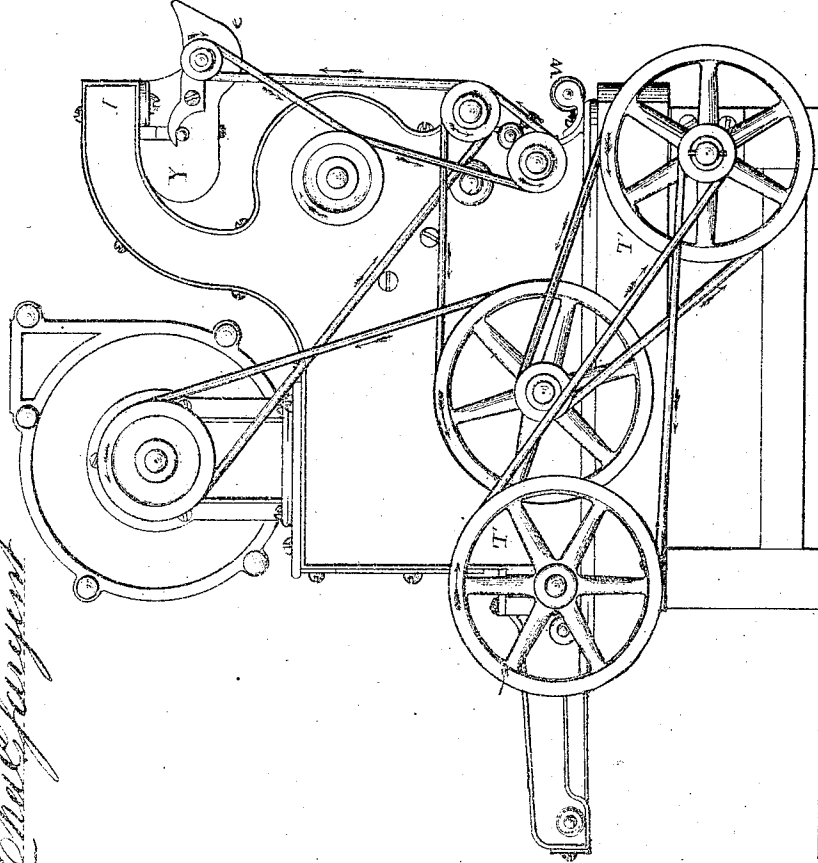
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2 Sheets

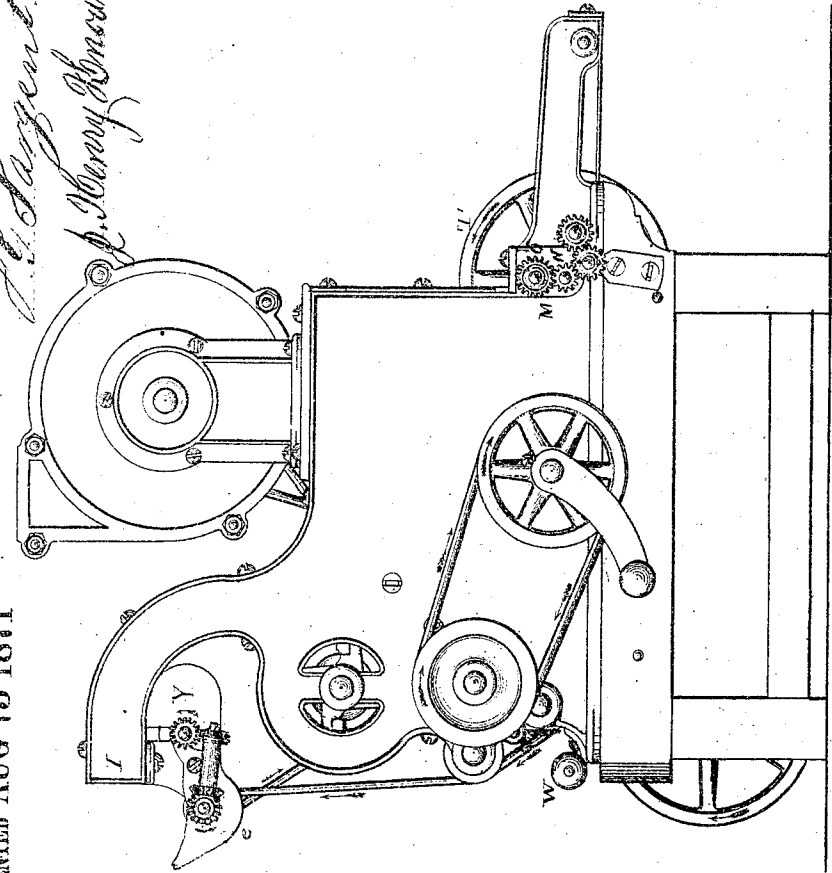
Witnesses.

H. Fargent.

J. Henry Knolls.



Right Hand Elevation.

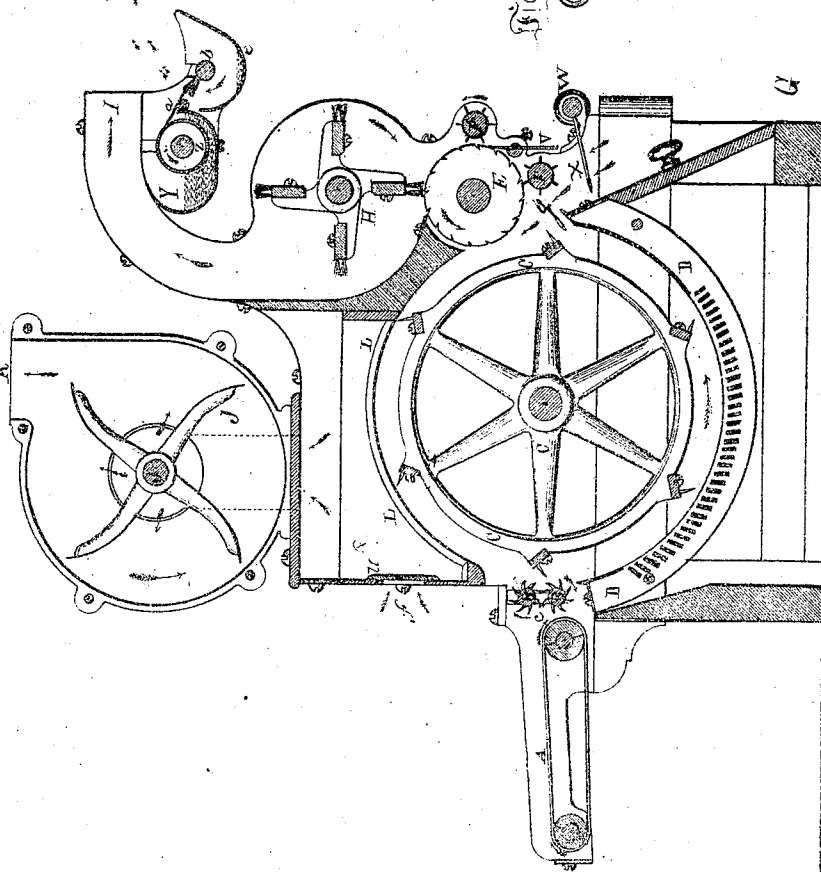


Left Hand Elevation.

Machine for Cleaning Fibrous Materials

R. Sheets

Fig. 3.



Sectional Elevation.

Fig. 4.

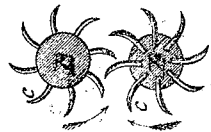


Fig. 5.

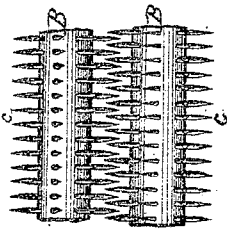


Fig. 6.

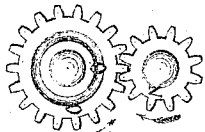


Fig. 11.

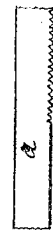


Fig. 7.

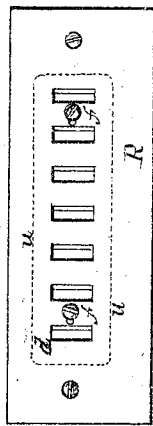


Fig. 8.

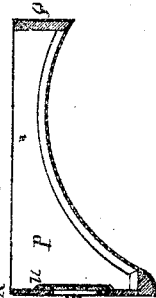


Fig. 9.

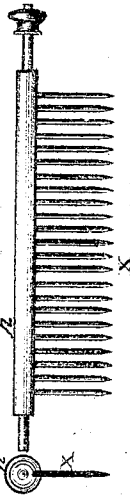
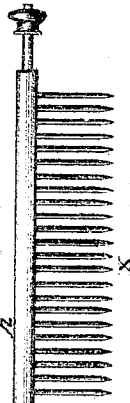


Fig. 10.



Details.

Inventor.

Chas. E. Fargus

Witness.

J. H. Sargent

J. Henry Knicker, Jr.

UNITED STATES PATENT OFFICE.

CHARLES G. SARGENT, OF GRANITEVILLE, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR BURRING AND CLEANING WOOL, &c.

Specification forming part of Letters Patent No. 118,158, dated August 15, 1871.

To all whom it may concern:

Be it known that I, CHARLES G. SARGENT, of Graniteville, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Machines for Burring and Cleaning Fibrous Materials, of which the following is a specification, reference being had to the accompanying drawing.

My invention relates to certain improvements in machines for burring and cleaning wool and other fibrous materials, but more especially to certain improvements in a machine for this purpose patented to me December 3, 1861, and numbered 33,852. These improvements consist in the novel construction and arrangement in such machine of certain mechanical devices, by means of which it is enabled to more completely remove the burrs, dust, and all loose foreign matter from the wool or other fibrous material passing through it, as well as to thoroughly oil the cleaned fiber as it passes from it, as hereinafter explained.

In the drawing, Figures 1 and 2 are right and left-hand side elevations, showing the form and general arrangement of the exterior of the machine and the gear by which it may be driven. Fig. 3 is a longitudinal vertical section of the same, and Figs. 4, 5, 6, 7, 8, 9, 10, and 11 are views of parts detached.

As the form of this machine and the general arrangement of its parts for operation are, in many respects, similar to those in the machine already patented to me and above referred to, it is unnecessary to describe them in detail, except in so far as they have been changed or improved; and as no claim is made to the form of the machine, or to the general arrangement of its outside, or to its driving-gearing, these parts will only be referred to in a general way.

The frame A' of the machine is composed of several pieces fitly joined together, and made entirely of iron or other suitable material, and in the general form shown in Figs. 1 and 2. In the same figures is shown an arrangement of gearing by which its different parts may be driven. In front of the machine is an endless apron, A, upon which the material to be cleaned is placed, and which carries it forward to feed-rolls B B. These rolls draw it through between them and deliver it to a picking-cylinder, C, which picks,

opens, separates, and thoroughly works and disintegrates it. During this part of the process the heavy dirt and scurf fall upon a screen, D, under the picking-cylinder, and then through this screen and into a heap in the bottom of the machine. The fibrous material is removed from the picking-cylinder by the action of a burr-cylinder, E, and drawn upon it. Here it is again acted upon by revolving guards F F, which separate all burrs, sticks, and other foreign substances still adhering or attached to it. These foreign substances fall upon and through a finger-rack, W, and are collected in a heap at G. Above the burr-cylinder E is a revolving brush, H, which removes the now thoroughly cleaned fiber from it, and, by the current of air produced by this revolving brush, carries this fiber forward and discharges it through the mouth I, when it is met with a spray of oil thrown among it by another revolving brush, b. Over the picking-cylinder C is a removable screen, L, and above this screen a fan, J. The motion of the fan J causes a current of air to pass through the machine, and on up through the screen L, and then through the case of the fan, and out through the mouth K of this case. This current of air carries with it all the fine dust, while the screen L serves to retain the fiber.

Such is the general arrangement and operation of the parts of the machine, as clearly shown in Fig. 3.

The parts to which my improvements more especially relate are:

First, the feed-rolls B B, Fig. 3, and the gear M, shown in Fig. 2, for driving them. These rolls B are formed of a solid bar of wrought-iron or other suitable material, with curved teeth c, made of steel or similar material, inserted therein and securely fastened, as shown in Figs. 3, 4, and 5. These teeth are arranged, with their curved ends having the relative position to each other, on each bar, as shown in said figures. The ends of these rollers are provided with gear of different size—the under one having a small gear-wheel, N, which engages with a larger gear, O, attached to the upper roll, as shown in Fig. 6, and the small gear N being connected with the driving-gear of the machine, as shown in Fig. 2. By this construction and arrangement of the

rolls with their gear several advantages are secured: The curved teeth serve both to seize and carry the material forward, as well as to partially open and tear it to pieces while thus feeding it; the different-sized gear on the rolls gives them a different rate of speed, which prevents the material being fed between them from winding about the rolls and interfering with the working of the machine, as would be the case were the rolls to move with equal rapidity; it also serves to deliver the material to be worked more evenly to the action of the picking-cylinder.

Second, the rack or screen L over the picking-cylinder, and the removable frame to which it is attached. This screen is formed of a piece of zinc, copper, or other suitable material, and fastened upon a frame, P, as shown in Figs. 3 and 8. This frame is constructed of two side pieces, connected by two end pieces, Q and R, as shown in the same figures, and is of the proper size to slide into the machine over the picking-cylinder, as shown in Fig. 3, being guided to its seat by ridges or projections on the inside of the frame of the machine, and held in place by a button or suitable device on the outside of the same. The front end of this frame is provided with a series of openings, *d*, and with a plate, *u*, with corresponding openings, arranged to slide on its inside by means of slots therein, through which pass the necks of knobs *f*, all as clearly shown in Fig. 7. These knobs serve to hold the sliding plate close against the end of the frame, and also to operate it with, as shown in Fig. 3. By having the screen L attached to a frame that may be removed at pleasure from the machine, it can be taken out and cleaned as often as desired; and by having the front of this frame provided with openings and a sliding frame thereon with corresponding openings, the current of air passing by the guard F and up through the machine can be regulated as may be required.

Third, the guards FF' and guard-plate or shield V. These guards FF' are formed of solid wrought-iron or other suitable metal bars, and have longitudinal grooves cut therein, in which are inserted and securely fastened strips *g* of steel or other suitable metal; or they may, in any convenient manner, be provided with longitudinal projections. One of these guards, F', is arranged in the same horizontal plane with that of the axis of the burr-cylinder, while the other, F, is arranged below the former and a little in the rear of the vertical plane of the same axis. Both, however, in a working machine are arranged in adjustable bearings, so that their position may be changed as desired. The position of these guards is shown in Fig. 3. Between them is arranged a guard-shield, V, as shown in the same figure. This shield consists of a thin plate of sheet metal fastened to a rod, which extends across the machine and is secured at either end, as shown in Fig. 3. As the guards FF' revolve, the longitudinal strips or projections *g* thereon crush, strip, knock off, or separate from the material being worked all burrs or other foreign matter that

may still be adhering to it. By the employment of two guards and a guard-shield the following important result is obtained: The guards can be set at different distances from the burr-cylinder, the upper a little closer than the lower. In this case the fiber, on passing the lower guard, is stripped of the larger burrs, and at the same time is arranged more evenly on the cylinder for the action of the upper guard. The shield-guard being arranged between them prevents the burrs or other substances removed by the upper guard from falling back upon the lower one and thus interfering with its operation. By these means the staple is more thoroughly cleaned and less injured than is the case when a single guard is used.

Fourth, the finger-rack or support W. This is constructed of a rod of iron, *h*, or other suitable material, provided with a series of fingers, X, as clearly shown in Fig. 10, and is arranged in the machine under the guards FF', as shown in Fig. 3, and so as to turn in its bearings, in order that any desired inclination may be given to the fingers. The fingers X form a screen, through which the dirt, burrs, and other matter removed from the fiber fall; and it also serves as a support for such of the fiber as may fall upon it. This fiber, if any, is caught by the air-current produced by the fan J and is carried back into the machine, and then to the burr-cylinder, as before. Should the draught be too great or insufficient, it can be regulated by means of the slide-plate in the screen-frame.

Fifth, the devices for oiling the fiber as it is discharged from the machine at the mouth I, as shown in Fig. 3. Beneath or under this mouth is placed an oil-tank or receptacle, Y, and over it is mounted a drum or roller, Z, and in front of it a scraper or doctor, *a*, and also a revolving brush, *b*, with dripper *c* underneath, all as clearly shown in the same figure. The lower edge of the scraper may be either straight or serrated, as shown in Fig. 11. The parts are connected by suitable gearing to the driving mechanism of the machine. As the roller Z revolves it carries up on its surface, by adhesion, a certain quantity of the oil, which is scraped off by the doctor and runs along its surface until it reaches its outer edge, when it is struck by the revolving brush *b* and thrown forward in the form of spray among the fibers flying from the mouth of the machine, as shown in Fig. 3, and in this way thoroughly oiling them, as may be desired, preparatory to the next step in the process of their being manufactured.

Having thus described my invention, what I claim is—

1. The feed-rolls B B, constructed and operated as described, so that one shall revolve faster than the other, as set forth.
2. The removable screen L arranged over the picker-cylinder, in combination with a slide or register, by which the draught of air through said screen may be regulated, substantially as described.

3. In combination with a burr-cylinder, the two guards F F' and the shield V, arranged to operate substantially as described.

4. The pivoted finger-rack or support W, constructed and arranged for operation substantially as and for the purposes set forth.

5. The supply-roller Z located in an oil-reser-

voir, in combination with the scraper *a* and rotating brush *b*, all arranged to operate substantially as described.

CHARLES G. SARGENT.

Witnesses:

ARTHUR WRIGHT,
GEO. A. GRIFFIN.