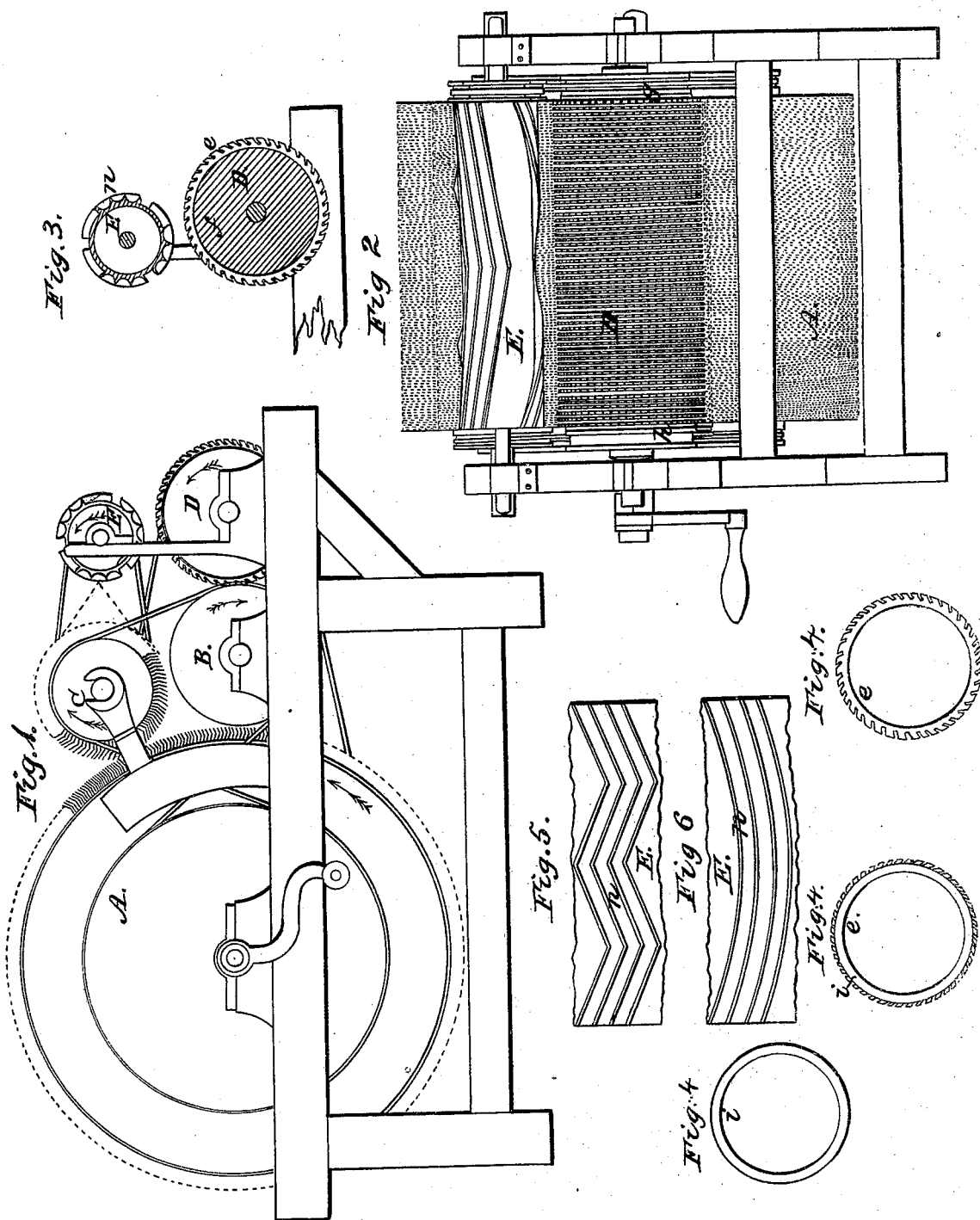


*W. Cundell,
Wool Burring Mach.*

N^o 5,222.

Patented Aug. 7, 1847.



UNITED STATES PATENT OFFICE.

WM. CUNDELL, OF PATERSON, NEW JERSEY.

WOOL-BURRING MACHINE.

Specification of Letters Patent No. 5,222, dated August 7, 1847.

To all whom it may concern:

Be it known that I, WILLIAM CUNDELL, of Paterson, in the county of Passaic and State of New Jersey, have invented new and useful Improvements in Machines for Cleaning Wool and other Fibrous Substances, and that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before known and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a longitudinal elevation of the machine; Fig. 2, a front elevation; Fig. 3, a section through the cleaning and the shearing cylinders; and Fig. 4, separate views of the rings of teeth and the plane rings interposed in forming the cleaning cylinder.

The same letters indicate like parts in all the figures.

A machine for cleaning wool has heretofore been made with the cleaning cylinder composed of metal rings with the teeth formed by cutting into their periphery, so that the points of the teeth shall not project beyond the general periphery of the cylinder thus formed, the spaces between the several rings and the spaces cut out to form the teeth being so small as not to admit burs or other coarse impurities; but in this the space cut out to form the teeth was made much larger within than at the periphery, the defect of which is that a large quantity of fibers accumulate within this space than can be drawn out and thus the machine chokes. The different rings were so arranged as to have the spaces between the teeth of one ring correspond with the middle of the teeth of the next, which I have found prevents the free reception of the fibers. The object of the first part of my invention is to avoid these defects which I do by making the spaces or slots cut out between the teeth no wider at bottom than at the periphery which effectually prevents choking, and delivers the fibers to the card with facility; and I facilitate the reception of the fibers by arranging the teeth of the several rings in a line whether parallel with the axis of the cylinder or diagonal thereto. In the machine referred to, the cleaning cylinder was so combined with a carding engine as to take the place of the tumbler and have the carding cylinder to take the fibers directly from

the cleaning cylinder which I have found by experiment to be defective; this I have much improved by introducing the cleaning cylinder between the feed rollers and the tumbler that takes the fibers from the cleaning cylinder to transfer them to the carding cylinder; this constitutes the second part of my invention. And finally in the machine referred to the burs, motes, &c., were sheared or cleaned off by means of what is termed the cleaning roller which consists of longitudinal blades or strips projecting from the surface of a cylinder in lines parallel with the axis. This I deem to be defective because they act by intermission and entirely across the whole length of the cylinder at once. My improvements in this part of the machine consist in placing these guards cleaners or shears diagonally on the surface of a cylinder, or in curved lines so as to act continuously on the cleaning cylinder; and also in making them of sheet metal bent in the form of semi-cylinders inverted and soldered to the surface of a hollow cylinder so that their edges shall come together to form the blades, cleaners, or shears, which are thus braced in opposite directions.

In the accompanying drawings (A) represents the carding cylinder of a carding engine, (B) the tumbler, and (C) the stripper, all constructed and arranged in the usual manner of carding engines. The feeding rollers and aprons are removed sufficiently from the tumbler to admit between them the cleaning cylinder (D) which receives the fibers from the feed apron and rollers and transfers them to the tumbler to be carded in the usual manner; but before passing to the tumbler the fibers are acted upon and stripped of the motes, burs, and other impurities by the rotary shear guard (E) which strips off all the impurities that project above the surface of the cleaning cylinder, the fibers being protected from the action of the rotary shear by being in the spaces between the teeth and therefore within the periphery of the cylinder. The rotating shear guards move with great velocity in the reverse direction of the cleaning cylinder, as indicated by arrows, and the teeth on the tumbler pass the teeth of the cleaning cylinder; (moving in the same direction) with sufficient velocity to take the fibers from the teeth of the cleaning cylinder and transfer them to the card in the usual manner.

The cleaning cylinder is composed of a series of metal rings (*e*) of teeth slipped and secured on an included cylinder (*f*) with rings (*i*) made of flattened wire interposed. The teeth are formed on the rings (*e*) by cutting in slots tangential to a circle of about two-thirds the diameter of the periphery of the rings, the sides of each slot being parallel, or nearly so, which prevents the fibers and other impurities from accumulating in such quantities within the slots so as to choke them up, but not sufficiently wide to admit motes, burs, &c. And the series of rings (*e*) should be so arranged as to have the slots in a continuous line either parallel with the axis or diagonal thereto. The slots should also be made of greater depth than the projection of the teeth beyond the periphery of the intermediate rings (*i*) so that as the points of the teeth wear they can be sharpened and the same length of tooth retained by grinding or otherwise reducing the diameter of the rings of teeth and the spacing or intermediate rings. The usual thickness of these rings is about one twenty-sixth of an inch so as to have about thirteen of each kind to an inch; they are secured and held on the included cylinder by being clamped between a permanent flanch (*g*) on one end of the cylinder, and a movable one (*h*) on the other end secured by a key or screw in manner well known to machinists.

The stock of the rotating shear guard (*E*) is a hollow cylinder made of sheet metal with heads to form the connection with the shaft; and to the periphery of this cylinder are secured the guards or shears (*n*) which are made of sheet metal semi-cylindrical, with the convex part soldered or otherwise secured to the cylinder with the edges projecting at equal distances from the periphery. These are arranged around the cyl-

inder with the edges placed against and soldered to each other, two edges thus brought and secured together forming one shear or guard. They are arranged as represented in Fig. 2, each inclining in opposite directions from the middle of the length of the cylinder so as to act diagonally from this point in either direction and thus clear off the motes, burs, &c., more regularly and effectually than when placed parallel with the axis. Or, I place them either in a zig-zag line, as represented in Fig. 5, or in curved lines as in Fig. 6, these two acting on the same principle as the first example, and therefore introduced simply to show that the same principle can be variously applied.

As the carding part of this machine is constructed and operates in manner similar to the common carding engine it is deemed unnecessary to give a description of it.

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

1. Making the spaces or slots between the teeth of equal width, from the point to the bottom of the teeth, when this is applied to teeth the peripheries of which are concentric, so that when the rings of teeth are all put together the outer portion of the space shall be of the same width as the space within, and the surface of each tooth from point to back shall be a segment of a cylinder and concentric, substantially as described.

2. I claim making shears or guards for clearing off the impurities, of sheet metal bent in semi-cylindrical forms and connected together by the edges and with the included cylinder by the convex surface, substantially as described.

WM. CUNDELL.

Witnesses:

H. HATHEWAY,
DAVID BURNETT.