

(No Model.)

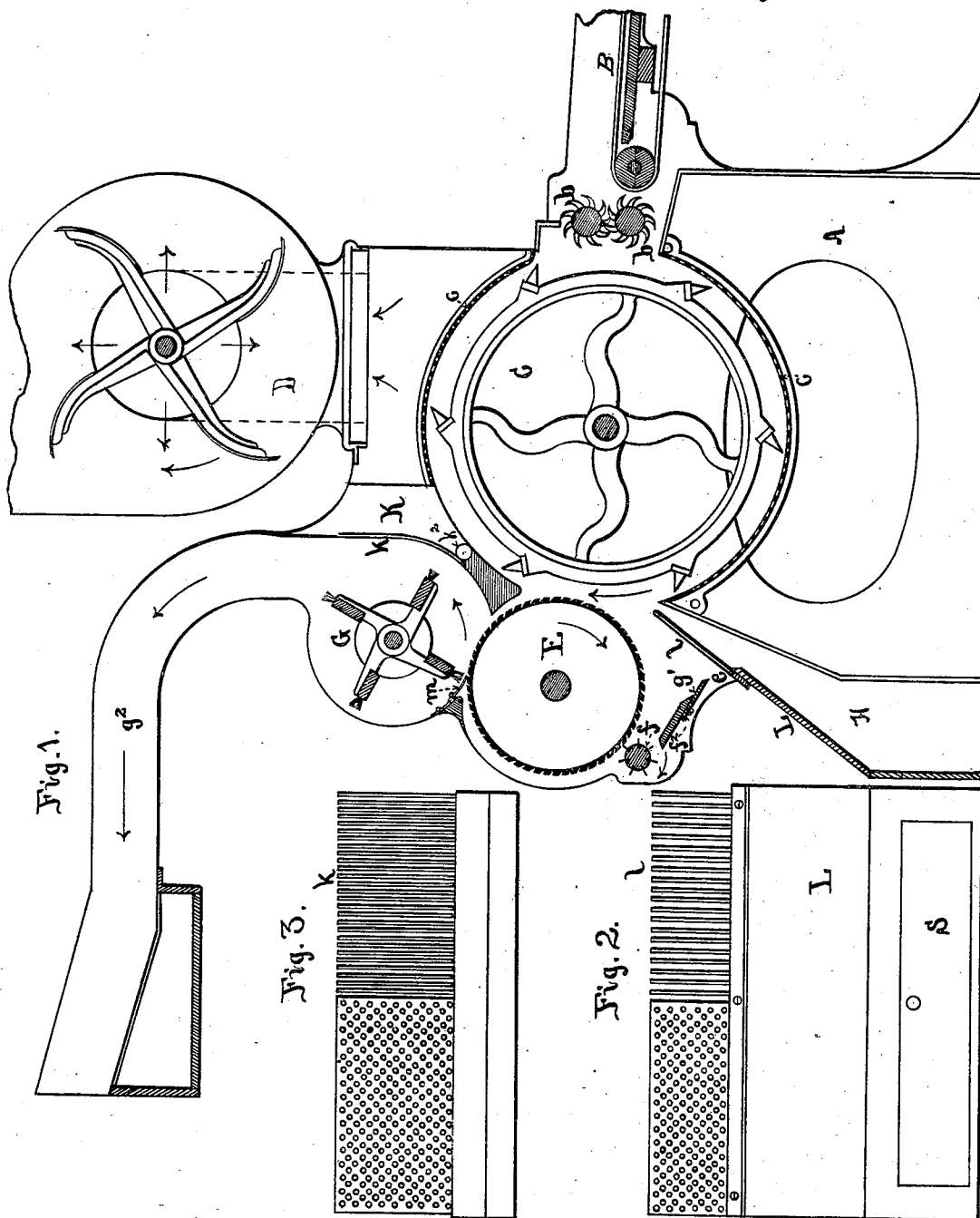
F. G. & A. C. SARGENT.

2 Sheets—Sheet 1.

BURRING MACHINE.

No. 260,901.

Patented July 11, 1882.



Witnesses:

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Fig. 5.

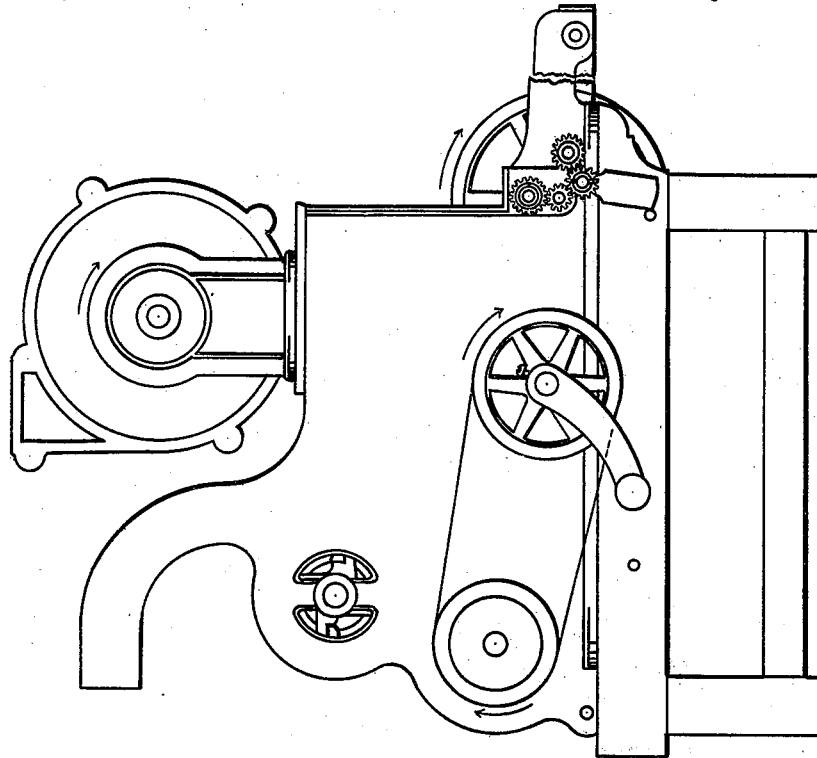
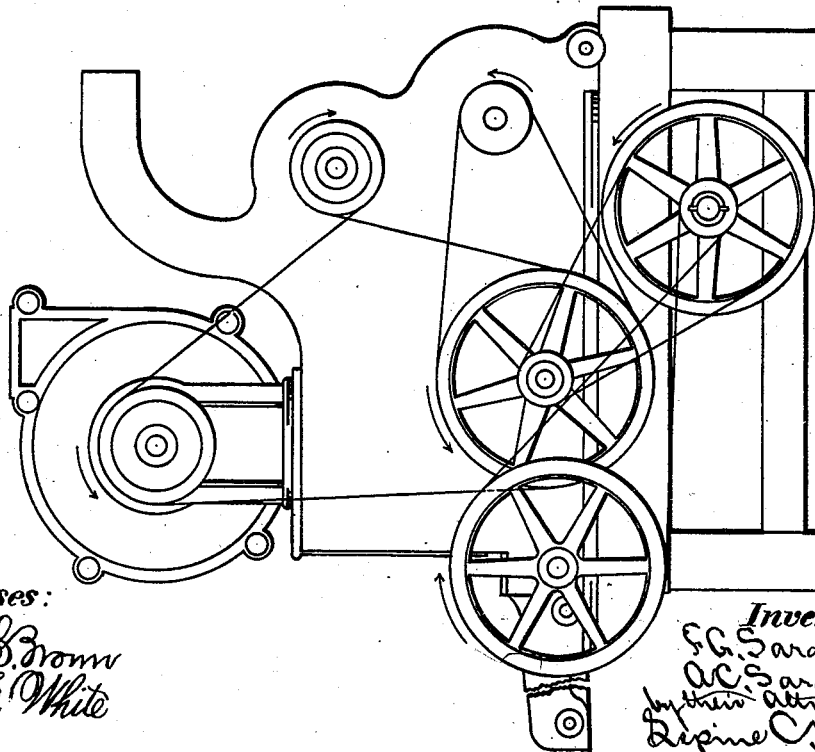


Fig. 4.



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# UNITED STATES PATENT OFFICE.

FREDERICK G. SARGENT AND ALLAN C. SARGENT, OF GRANITEVILLE,  
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## BURRING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 260,901, dated July 11, 1882.

Application filed May 27, 1881. (No model.)

*To all whom it may concern:*

Be it known that we, FREDERICK G. SARGENT and ALLAN C. SARGENT, of Graniteville, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Burring-Machines, of which the following is a specification.

Our invention relates to machines for picking and burring wool; and its objects are to provide a mechanism which shall prevent light shives from again being tangled in the wool after being loosened from among its fibers; to provide a mechanism whereby the opening in the rear of the machine through which the grosser matter loosened falls can be adjusted, so as to have an intruding current of air of just sufficient strength to prevent fibers of wool falling through the opening with such impurities. We accomplish these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a section through the longitudinal center of a machine provided with our devices. Fig. 2 is an elevation of the draft-board and its adjuncts seen in Fig. 1. Fig. 3 is a view from the interior of the grating separating the case of the doffer-cylinder from the dead-air chamber. Fig. 4 is an elevation of the right side of the machine. Fig. 5 is an elevation of the left side of the machine.

A is the frame of the machine.

B is the endless feed-apron, upon which the wool is placed to be fed to the machine.

b b are the feed-rolls, which feed the wool to the picker-cylinder C and hold it while being acted upon by the cylinder.

c c are perforated plates placed above and below the picker-cylinder. These plates form, with the frame of the machine, a case for the picking-cylinder, which prevents the air from rushing in except around the feed-rolls and at the opening left in the rear of the machine for that purpose.

D is the exhaust-fan, placed on top of the machine. This fan makes a strong draft into the machine through the openings about the feed-rolls and in toward the picker-cylinder through the opening marked e in the rear, and carries with the air drawn in up to the fan D the dust and dirt loosened from the wool not having sufficient gravity to overcome the draft.

The dirt or foreign substances which have a considerably greater specific gravity than the wool will easily be gotten rid of by reason of their weight carrying it or them down through the openings provided for the purpose; but it is those having substantially the same specific gravity as the fibers of wool that are most difficult to remove.

E is the burring-cylinder, which takes the fibers off from the cylinder C.

f is the guard-cylinder, which knocks the burrs, shives, and other foreign substances off from the wool while it is held by the burring-cylinder.

G is a brush-doffer and fan-cylinder, which takes the wool off from the burring-cylinder and throws it against the grating in the doffer-case and out through the flue g<sup>2</sup>.

H is a dead-air chamber in rear of the machine, opening into the picking-cylinder case between the burring and picking cylinder.

K is a dead-air chamber provided with a grating, k, which forms the front part of the concave back of the doffer-case.

k<sup>2</sup> is an opening through which the dead-air chamber is cleaned, which is closed when the machine is in operation.

L is the rear top wall of the dead-air chamber H, which forms a draft-board giving direction to the current of air entering the machine. This wall is given such a slope as will give such a direction to the current of air entering at the opening e as will carry it into the machine between the picking and burring cylinders, and has its top extending as a grating, l, above the point against which the burrs, shives, and other substances knocked off from the burring-cylinder strike as they slide off from the guide-board f<sup>2</sup>, placed below the burring-cylinder. This guide-board is provided with a slide-board, g', held in place by binding-screws fast in the guide-board, which pass through slotted holes in the slide-board. By loosening these screws the slide-board can be extended more or less, as is desired, beyond the edge of the guide-board, and the opening e through which air enters the machine can be made narrower or wider to give a greater or less strength of draft to the current of air entering at that point, after which movement, the binding-screws being tightened, the slide-

board can be held in the desired position. S is a movable panel opening into the dead-air chamber H.

The wool being picked is carried around by the picker-cylinder C to the burring-cylinder, which takes it from the picker-cylinder, and while it is carried forward by the burring-cylinder it has the pieces of burrs knocked out, as well as the shives, small bits of straw, and oat husks which were entangled in the wool. These pieces fall down upon the guide-board  $f^2$ , and sliding over it are given a direction which carries them across the opening, through which the bits of burrs and other foreign matter having sufficient weight fall to the floor; but oat husks, small bits of straw, and other shives not possessing much weight, or of no more specific gravity than the wool, will be kept from falling out of the machine by the draft of air which rushes in at the opening through which the burrs fall out, and as they are given a direction which would carry them across the current of air rushing in at the opening, and have acquired a momentum before coming into contact with the air current, they will be projected against the grating  $l$ , and, going upward, sliding upon this grating, will fall through it into the dead-air chamber H, while the fibers of wool which are occasionally knocked off the burring-cylinder, and which fall down with the bits of burrs and shives onto the guide-board, will, by reason of their length and sinuosity, be prevented from falling into the dead-air chamber, but will be carried up, and, mingling with the fibers brought forward by the picker-cylinder from the feed-rolls, be again taken by the burring-cylinder.

Heretofore machines have been constructed without the dead-air chamber interposed between the picker-cylinder and the draft-entrance, and without the guide and slide boards, and consequently the shives were, if a strong current of air was permitted to enter at the opening behind the machine, carried up with the draft until they met the wool brought forward by the picker-cylinder, when they would be caught by those fibers and again carried onto the burring-cylinder, to again be knocked off and undergo the same process until so torn up and beaten to pieces as to either pass with the wool to the doffer or, escaping the fibers, be drawn away by the exhaust-fan. If it was sought to avoid this by decreasing the strength of the draft entering at the back of the machine, so that the gravity of the shives would cause them to fall out against the current of air entering, it was found that the draft would no longer suck back into the machine the fibers of wool that were knocked off of the burring-cylinder by the guard-cylinder with the burrs and shives, and they would fall with the mass of dirt, burrs, &c., and be so entangled as not to be practically recoverable. Some small bits of shives will, by reason of being underneath the fibers of wool upon the burring-cylinder, be carried past the guard-cylinder, and only be loosened when the fibers

are taken off of the burring-cylinder by the doffer. To extract these from the wool we make a dead-air chamber against the doffer-cylinder case, and make the case open into it by a grating, so that when the doffer takes the wool off from the burring-cylinder and projects it forward it will come into contact with the grating, and the shives will pass between the bars into the dead-air chamber, while the wool will pass out of the machine through the flue.

By means of the guide and slide boards placed below the burring-cylinder the shives are protected from the air-current until they are given a line of movement that will carry them across the air-current and against the grating of the dead-air chamber, and the draft can be so regulated as to meet the requirements of the work in hand. As an additional means of loosening the burrs from the guard-cylinder which may from any cause escape being knocked completely off the burring-cylinder by the guard-cylinder, we provide the scrape-plate  $m$ , which is attached to the doffer-case by screws passing through slotted holes in the plate, so that the edge of the plate can be adjusted either in contact with the burring-cylinder or very close to it, so that any burrs or other substance lying upon the wool on the burring-cylinder will be brought into contact with the plate, and will, as they pass under it, be rolled, moved, or loosened, so as to be more readily separated from the fibers as they are taken off by the doffer.

As a slight change in the strength of the air-current will either make it so strong as to carry into the machine foreign matter which need not be drawn back or, on the other hand, permit of fibers of wool falling out which ought to be carried in, the utility of the guide and slide boards is apparent, and also because by their use the current of air is given its maximum of strength at the point where it first comes in contact with the falling substances, instead of being weakest under the burring-cylinder and strongest as it passes in toward the cylinders. The top extension of the draft-board  $L$  and the front of the doffer-case (marked  $k$ ) may, however, be made of perforated sheets of metal, as shown in the left of Figs. 2 and 3, without departing from the spirit of our invention.

What we claim as new and of our invention is—

1. The combination of a picker-cylinder, an exhaust-fan, a guard-cylinder, and a burring cylinder with a dead-air chamber, substantially as described—that is to say, so that the light substances knocked from the burring-cylinder will pass over the openings into the dead-air chamber as they are drawn back into the machine by the intruding current of air created by the fan.

2. The combination of the exhaust-fan D, the picker-cylinder C, the burring-cylinder E, and the guard-cylinder  $f$  with the guide-board  $f^2$  and dead-air chamber H, provided with an

inclined grated back against which substances falling onto the guide-board are directed, substantially as described.

3. The combination of the exhaust-fan D,  
5 the picker-cylinder C, the burring-cylinder E, the guard-cylinder *f*, and the dead-air chamber H, provided with a grated rear wall, with the guide-board *f*<sup>2</sup>, provided with the adjustable slide-board *g*, substantially as described.  
10 4. The combination of the picker-cylinder C

and the burring-cylinder E with the doffer-fan cylinder G, provided with a grated case behind which is placed a dead-air chamber, substantially as described.

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