



(No Model.)

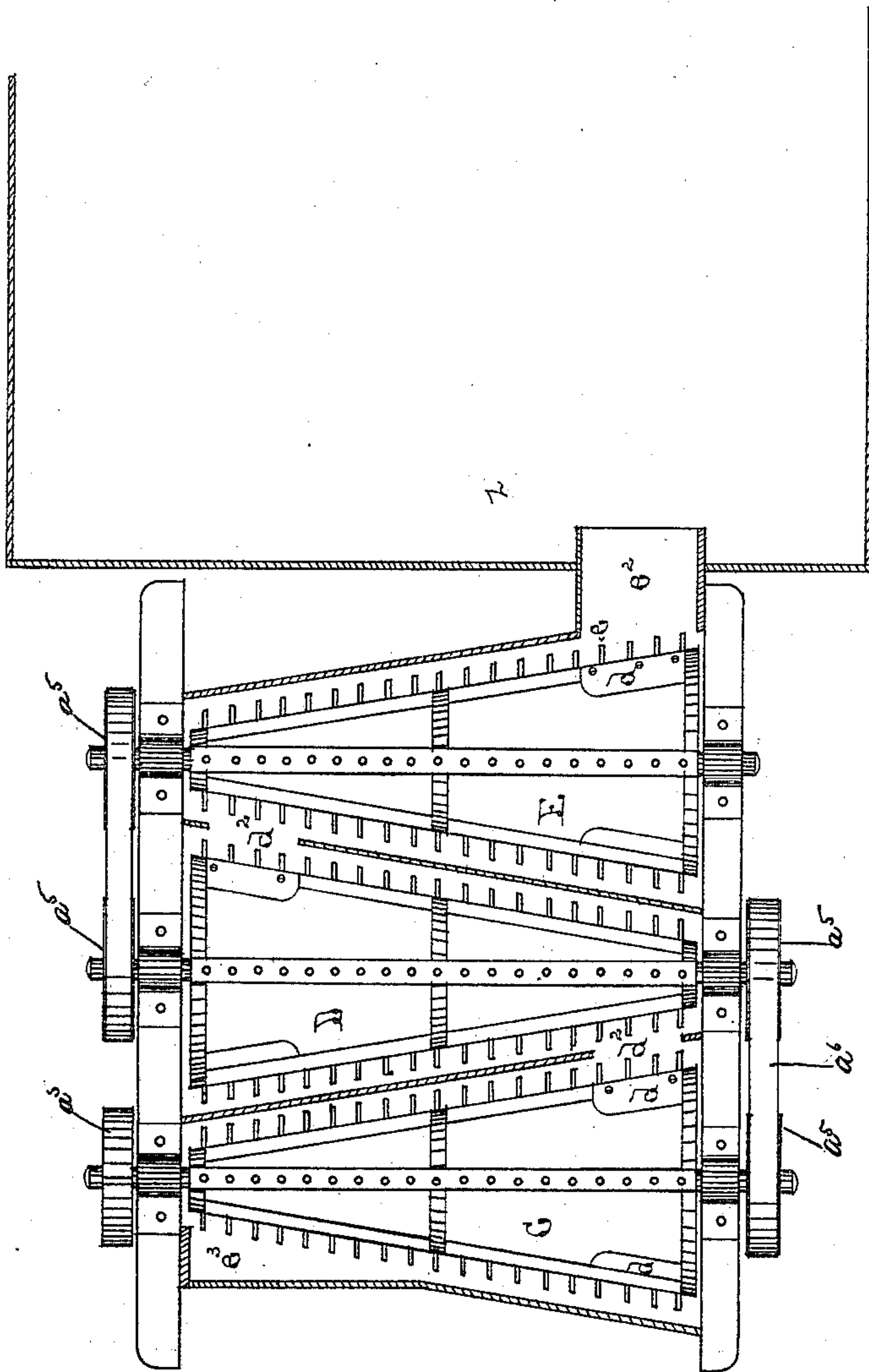
2 Sheets—Sheet 2.

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MACHINE FOR BURRING AND CLEANING WOOL.

No. 299,016.

Patented May 20, 1884.

Fig. 2



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# UNITED STATES PATENT OFFICE.

FREDERICK G. SARGENT AND ALLAN C. SARGENT, OF GRANITEVILLE, MASS.

## MACHINE FOR BURRING AND CLEANING WOOL.

SPECIFICATION forming part of Letters Patent No. 299,016, dated May 20, 1884.

Application filed October 21, 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 Machine for Burring and Cleaning Wool, of which the following is a specification.

Our invention relates to machines for burring and cleaning wool; and its objects are to provide a burring and cleaning machine which will burr and dust the wool in a more thorough manner than is now done by the separate machines used for those purposes; to provide a machine which, with a single handling of the wool, will burr and dust it and deposit it in the fiber-room, or which will, with a single handling, either burr it or dust it, as may be desired, without passing it through the other part of the machine, and deposit it as described. We accomplish these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation, with the casing of the machine nearest the observer removed to show the interior working parts. Fig. 2 is a plan view of the dust-cone part of the machine with the cover removed.

A is a burring-machine, substantially like that shown in Letters Patent No. 118,158.

B is a cone-duster mechanism, consisting of the cones C, D, and E, arranged in a frame, *c*, and inclosed in a casing, *c*<sup>2</sup>, substantially parallel with the cones, and having at proper places openings *d*<sup>2</sup>, through which the wool can pass from one cone to another, and an opening, *e*<sup>3</sup>, through which the wool can be fed to the cones, and another, *e*<sup>2</sup>, through which it may be discharged. The cones C, D, and E are provided with teeth *e* and fans *d*. By means of the teeth the cones seize the wool as it is fed into the opening *e*<sup>3</sup> at the small end of the cone C, and, carrying it around, give it a centrifugal motion, which tends to carry it toward the larger end of the cone. The fans *d*, attached to the cones near their larger ends, and opposite the opening through which the wool must pass out, create a draft within the cone-case, which assists in carrying the wool along, while the teeth, by carrying the wool around, rapidly shake out the dust and loose particles of foreign matter that are contained

among the fibers of wool. The dust and dirt so shaken out fall through the opening in the casing *c*<sup>2</sup>, which, below the plane of the axis of the cones, is made perforated. The cones are driven by pulleys *a*<sup>5</sup> *a*<sup>5</sup> and belts *a*<sup>6</sup>, as shown, and in the ordinary and well-known manner.

Heretofore cone-dusters consisting of a single long cone have been made and used; but the disadvantages of such a construction are, that to obtain a sufficient surface over which to carry the wool to shake out the dust, and at the same time give the cone a sufficient taper to cause the wool to move freely through it, the larger end would have to be of a very considerable size, and as the machine covered substantially a floor-space equal to its length and greatest width would occupy a large space. If it were sought to diminish the taper of the cones and increase the draft to carry the wool through, while it reduced the size of the machine, it was at the expense of carrying much of the dust along with the wool, and finally throwing it out with it.

In our device, the larger end of one cone coming opposite the smaller end of the next economizes space, so that the three cones thus placed take much less space than a single cone of similar tooth capacity. Besides, the bearings being much nearer together in the multiple-cone machine, the axial shafts do not need to be made so large, and the machine operates with less vibration and requires less power on account of such lessened weight and vibration, while, by reason of the changes made in the direction of movement of the air-current, a larger quantity of dirt and dust is permitted to fall through the openings in the lower casing of the cones, and therefore the wool is discharged much cleaner than from the single-cone machine.

The wool-burring mechanism A consists of the feed-apron 2, feed-rolls 3 3, picker-cylinder 4, draft-fan 5, burring-cylinder 6, guard-cylinder 9, and doffer and fan cylinder 7, all of which operate in substantially the same manner as like parts shown in Patent No. 118,158, and all of which move in the direction indicated by the arrows, being driven by belts or gears in the well-known methods of driving such machines.



The wool is fed to the picker-cylinder, from which it is taken by the burring-cylinder, and while being carried around upon it the burrs torn to pieces by the picking-cylinder are knocked off and drop down; but there will still be retained among the fibers on the burring-cylinder and between the fibers and the cylinder some small pieces and pieces of other foreign matter, which will be taken off the burring-cylinder with the fiber by the doffer 7 and discharged through the pipe 8. This pipe conducts the wool to the cone-duster mechanism, by which it is operated upon to free it from dust, in the manner already described. If, however, at any time in the judgment of the operator feeding the burring-machine it is not necessary to pass the wool through the cone-duster, the discharge-pipe 8, consisting of the pieces  $a$  and  $a'$ , can be jointed at  $x$ , and the piece  $a'$ , hinged at  $s$ , can be swung back, and the section marked  $a^4$ , hinged at  $s^2$ , can be swung into connection at  $x$ , and the wool discharged directly through it into the fiber-compartment  $z$ .

Heretofore the wool, after being passed through the burring-machine, fell upon the floor or into a fiber-compartment, from whence, if passed through the cone-duster, it was taken by the operator and fed into it; but as when so fed in it passed in in greater or less masses in an irregular manner, it was not as well dusted and cleaned as when received in the manner described from the burring-machine direct. In our device the burring-machine serves as an opener and evener for the cone-duster mechanism, opening out the wool and feeding it in an even stream of fibers borne forward in an air-current, and consequently not falling into the duster in masses inclosing the dirt, which masses must be opened out before the duster can begin its work. We therefore produce a machine which accomplishes more and better work than can be accomplished by a burring-machine and a cone-duster machine working separately, and one which saves space and power.

When it is desired to use the cone-duster to clean wool not having burrs, and not therefore

necessary to have passed through the burring-machine, the part of the discharge-pipe  $a'$  can be swung back so as to lie upon the top of the duster-case, and the operator can feed the wool to the machine from the table F. The duster-cones are driven by belts and pulleys, as hereinbefore described, so as to rotate in the direction indicated by the arrows.

By the action of the multiple cones, arranged as described, the wool, as it passes off from one cone to the next, will have both its speed and direction changed, and the dust and dirt will have better opportunity to fall from among the fibers than is the case where it continues in one direction during its entire passage through the duster. Besides this, so great a taper can be given the cones as will necessitate but small draft of air to pass the wool through, and consequently the dirt will have better opportunity to fall into the dead-air chamber below the cones.

What we claim as new and of our invention is—

1. The combination of a burr-picker mechanism with a multiple-cone-duster mechanism, substantially as described, and means for conveying the material operated upon, whereby the wool will pass from the picker direct into the duster, as specified.

2. The combination of the burr-picker A and the cone-duster B with the discharge-pipes  $a'$  and  $a^4$ , whereby the fibers passing from the picker may be made to pass either into the cone-duster or the fiber-compartment, substantially as described.

3. The combination of picker-cylinder 4, burring-cylinder 6, doffer 7, fiber-passage  $aa'$ , and cone-duster C, substantially as described.

4. The combination of picker-cylinder 4, burring-cylinder 6, doffer 7, fiber-passage  $aa'$ , and two or more cone-dusters, C D, substantially as described.

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