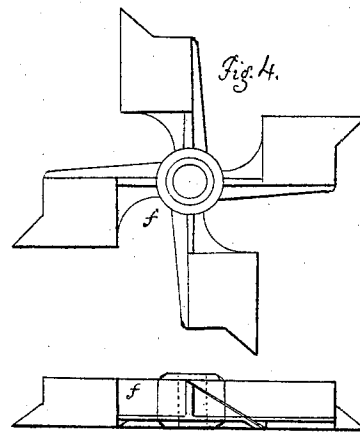
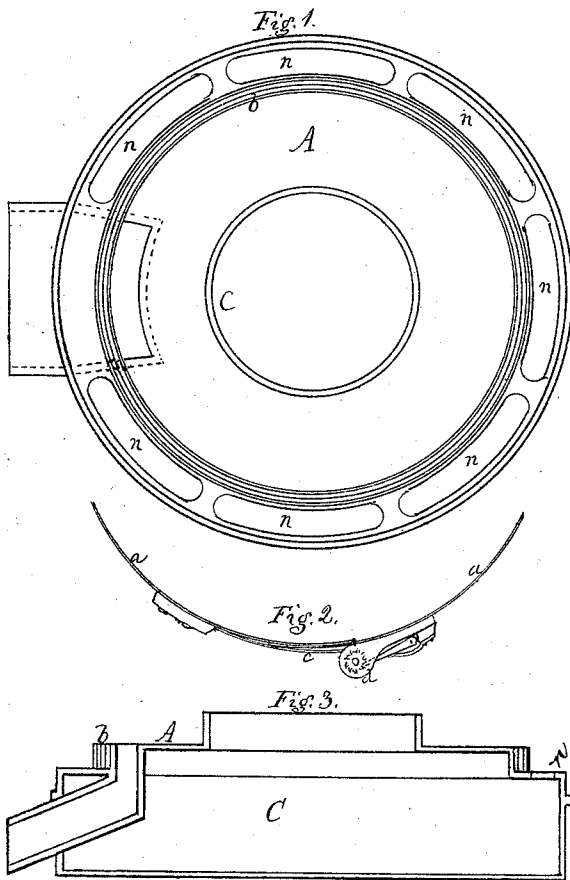


G. E. THROOP.

Grain Cleaning Machines.

No. 135,675.

Patented Feb. 11, 1873.



Witnesses.
J. J. Greenough
A. Thompson

Inventor.
G. E. Throop

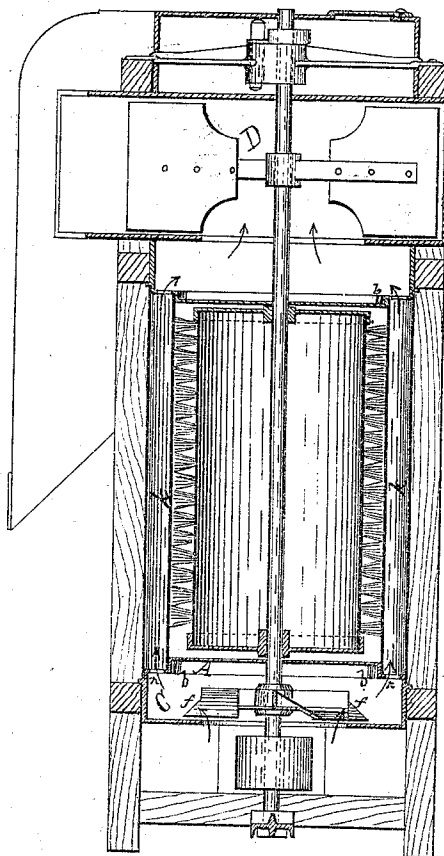
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Fig 5



J. H. Munroe
E. H. Munroe

WITNESSES

Gordon E. Throop

INVENTOR

UNITED STATES PATENT OFFICE.

GARDNER E. THROOP, OF SYRACUSE, NEW YORK.

IMPROVEMENT IN GRAIN-CLEANING MACHINES.

Specification forming part of Letters Patent No. 135,675, dated February 11, 1873.

To all whom it may concern:

Be it known that I, GARDNER E. THROOP, of Syracuse, in the county of Onondaga and State of New York, have invented certain Improvements in Machinery for Cleaning Wheat, &c., of which the following is a specification:

My present improvements relate to cylindrical brushing-machines, part of which are adapted to smut-machines, grain-cleaners, &c., invented heretofore by me, and other machines of like character.

In machines using a cylindrical brush for cleaning wheat, &c., it is essential that the space between the brush and the surrounding case should be within certain limits to produce the best effect upon the grain; but the fiber of which the brushes are made is constantly wearing away, and this eventually makes the brush worthless, and the renewing it is very expensive.

To remedy this defect I have devised a method of contracting the outer case as the brush wears away, so as to maintain the proper space between them until the fibers of the brush are worn out.

A second part of my invention consists in causing a strong current of air to pass up through the openings *nn* by separating the cleaning-chamber from the chamber containing the fan *f* placed below the cleaning-cylinder on the same shaft, so as to force the entire upward current of air through said openings and prevent the clogging that would otherwise take place if the air has another outlet, when the space aforesaid becomes choked, as it is liable to be in the machines where the auxiliary fan-chamber and cleaning-chamber are open to each other.

To remedy these defects I construct the apparatus as follows, referring to the accompanying drawing, in which—

A, Figure 1, is the lower head of the case, around the inner periphery of which, that the perforated case fits, there is a series of metal bands or rings, *b*, put—say four, more or less, in number—thus enlarging the diameter of the head to that extent. Similar rings are also affixed to the upper head. When the machine is first set up the perforated case is put on over the outer ring *b*. The parts of this case *a* (see Fig. 2) lap over each other, and

are held together by adjusting-clamps, which may be constructed in any convenient way. I have found a thin metal strip, *c*, affixed to the case on one side of the lap-joint, and wound around a small cylinder, *d*, on the other side, with a ratchet and pawl to hold it, efficient and convenient for adjustment.

When the brush that runs inside the perforated case is worn back, I remove one of the rings *b* and draw in the case close around the next ring, and after again wearing down the surface of the brush a second ring is removed, and so on until the brush is worn out, thus, by a simple and cheap arrangement, saving the considerable expense of a new brush.

In Fig. 1, representing the lower head of the cylinder-case, there are openings *nn*, shown all around between the two cases. This head A covers a fan-chamber, C, Fig. 3, in which a fan-wheel, *f*, revolves, having inclined fans so constructed and formed as to cause a strong upward current of air through the holes *nn* and annular passage *k*. The plan of this fan is seen in Fig. 4. The current of air from this fan raises the extraneous matter between the cases into the influence of the upward current caused by the action of the exhaust-fan above, aiding said fan in carrying it off. This auxiliary fan prevents the eddying down of the dust, &c., and filling the space below, and throws out all the extraneous matter at the top of the case.

Heretofore fans have been used below, but not with an upward blast or auxiliary to an exhaust-fan above; and there have been openings in the case below without a fan to discharge the smut, &c.; but this would disturb the draft from the interior and litter up the space around the machine and incommode the operator.

The section Fig. 5 shows a section in a vertical plane through the axis of the machine, with the several parts shown in the previous figures in place.

It will be noticed that the lower fan-chamber is separated from that in which the brush revolves by the head A, and that the entire blast from the auxiliary fan is driven up through the openings *nn*, which is the distinguishing feature of my invention, combined with the feathered or inclined blades *f* of the auxiliary fan, constructed substantially as shown in the

drawing, by which the blast is more directly forced upward through said openings *n n*, through which the entire blast from the auxiliary fan passes, by which a more perfect action and greater economy of power for the effect produced are obtained. The grain, instead of passing down through the fan-chamber *C*, passes off through a spout on one side independent of the fan-chamber.

I have not represented or described any of the parts of the well-known smut-machine or brush-machine, as they are largely in public use, and may be found in patents heretofore granted to me December 22, 1863, and April 2, 1867, to which reference can be had.

What I claim is—

1. In combination with the cleaning appa-

ratus, the adjustable case described, consisting of the heads *A*, case *a*, and rings *b*, together with the clamping devices *c d* or their equivalent, all constructed and for operation substantially as described.

2. The fan-chamber *C* disconnected from the cleaning-chamber, as herein set forth, and having the openings at *n n*, and the feathered fan-wheel *f*, having its blades constructed as shown, so combined that the entire blast is directed upward through the openings *n n* into the annular chamber and air-flues, all for the purposes described.

GARDNER E. THROOP.

Witnesses:

J. J. GREENOUGH,

A. THOMPSON.