

UNITED STATES PATENT OFFICE.

REUBEN H. SHOTWELL, OF WEST POINT, MISSISSIPPI.

IMPROVEMENT IN COTTON-CLEANING MACHINES.

Specification forming part of Letters Patent No. 207,777, dated September 3, 1878; application filed July 20, 1878.

To all whom it may concern:

Be it known that I, REUBEN H. SHOTWELL, of West Point, in the county of Clay and State of Mississippi, have invented a new and valuable Improvement in Cotton-Cleaning Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a cross-sectional view of my improved cotton-cleaner, taken through the line *yy*, Fig. 3. Fig. 2 is a like view thereof, taken through the line *xx*, Fig. 3. Fig. 3 is a horizontal section of the same; and Fig. 4 is a perspective view of its exterior.

This invention has relation to improvements in means for cleaning seed-cotton before it is ginned; and it consists in the construction and novel arrangement of the case, formed in two sections or compartments, one for the beaters and the other for the suction-fan, said compartments being separated by the dust-flues, and, in connection with said compartments, the receiving and discharging openings of the case, the spiral cleaning-beaters having their opposite ends formed respectively to draw in and discharge the cotton, and the fan-blades arranged on the same shaft with said beaters, all as hereinafter shown and described.

In the accompanying drawings, illustrating this invention, the letter A designates the case or frame of my machine, which is designed to be completely inclosed, with the exception of certain receiving and discharging openings, to be hereinafter mentioned. This case is divided into two compartments by means of a partition, B, in which is made the large opening or throat *a* of the fan-chamber, and which also forms one wall of the dust-flue C, which is between the fan-chamber and the cleaning-compartment, and communicates with the latter by an opening, *b*, leading into the dust-space D, in rear of and below the separating-slats *c* or wire-cloth screen, above which the beaters of the cleaning-shaft rotate.

E designates the top of the cleaning-chamber, which may be hinged, and is usually made

in the form of a tray, having at its end opposite the fan-chamber an opening, *d*, through which the seed-cotton lying in the tray is fed into the cleaning-compartment F at the end of the latter. The lower portion or floor of the cleaning-chamber is semi-cylindrical, being formed of slats or screen-work, the radius of curvature being just sufficient to allow free play to the beaters of the cleaning-shaft G, which is arranged lengthwise of the machine, and is seated in suitable bearings in the walls thereof, as shown. These beaters H are attached to spokes or arms *e*, extending from the shaft, and are formed with a slight spiral twist to the rear along the shaft to facilitate the movement of the cotton along the chamber, its free motion around the same being provided for to a great extent by the parallel spaces *f*, which are left between the inner edges of the beaters and the body of the shaft. At their extreme ends, under the feed-opening *d* of the top, the beaters are formed with forward bends *g*, which serve the double purpose of sucking in a current of air at the supply-opening *h*, and passing the seed-cotton quickly forward from under the feed-opening *d*, and obviates the tendency of cotton under a beater action to fly out at the feeding-aperture. At the other end of the cleaning-chamber, next the wall of the dust-flue, is the discharge flue and opening K, through which the cotton is ejected. This flue in rear is flush or even with the screen-wall of the chamber, but descends below it in front, while the screen-wall is carried up in its semi-cylindrical form, forming a cut-off or chute, K, into and through which the cotton is thrown by the squared ends *l* of the beaters, which overhang this chute and are bent forward, so as to be at right angles to the direction thereof. This action is important in forcibly relieving the cleaning-chamber at its inner end, and the operation is effectual whether the discharge-opening be in front or rear of the case.

Into the fan-compartment L, beyond the inner end of the cleaning-chamber and on the other side of the dust-flue, extends the shaft G, to which are attached the blades R of the exhaust-fan, whereby the dust and trash are drawn from the under space, D, through the opening *a*, and discharged below through the

opening S. The upper portion, T, of the fan-case may be made removable, as shown, for convenience in opening this portion of the machine.

Besides the action of the exhaust-fan in drawing the dust and trash from the dust-space D, the rapid current of air produced by it through the air-supply aperture at the end of the cleaning-compartment along and parallel with the shaft assists materially in effecting the conduction of the cotton from the feed to the discharge end of said compartment. It also serves to force the dust and trash through and out of the discharge-hole S, and a flue which may be connected therewith, to a sufficient distance from the gin-house or building to prevent these matters from being offensive to the operators, as well as from settling back upon the cotton in the house.

The operation of this device is as follows: The cotton is fed from the tray-lid through the feed-opening at the end thereof, and is quickly removed from under said opening by the bent ends of the beater-blades, being carried forward into the cleaning-chamber by said blades and the air-draft along the central shaft. The dust and trash are beaten out through the ribs into the under chamber, whence they are drawn by the fan through the vertical flue into the fan-case and discharged forcibly. The cotton in the cleaning-chamber is whirled to the end thereof and ejected, by the action of the ends of the beaters, through the discharge-flue. It will thus appear that the action of the beaters on one end of the shaft in this machine is made more efficient

by that of the suction-fan on the other end of said shaft, the intervening vertical flue between the two chambers serving as a means of communication.

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

1. In a cotton-cleaning machine, the spiral-blade beater, having its ends bent forward respectively, the outer end to clear the feed-opening and the inner end to effect a forcible discharge, substantially as specified.

2. In a cotton-cleaning machine, the combination of the casing having end openings *h*, the spiral beater-blades H, having their ends bent forward, as described, and the fan-blades R, substantially as specified.

3. In a cotton-cleaning machine, the combination, with the open-ended case, the spiral beaters having forwardly-bent ends, suction-fan, and screen dividing the cleaning-chamber from the dust-space, of the intermediate dust-flue leading from said dust-space into the case of said suction-fan, substantially as specified.

4. A cotton-cleaning machine having the open-ended case, the suction-fan, and spiral beater having forwardly-bent ends in opposite ends of the case, the dividing-screen *c*, dust-flue C, air-entrance *h*, and discharging-apertures K and S, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

REUBEN H. SHOTWELL.

Witnesses:

JNO. A. CAROTHERS,

JNO. A. STEVENS.