No. 884,157. PATENTED APR. 7, 1908.

R. L. HOLLINGSWORTH.

COTTON CLEANER AND DISTRIBUTER.

APPLICATION FILED JUNE 17, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

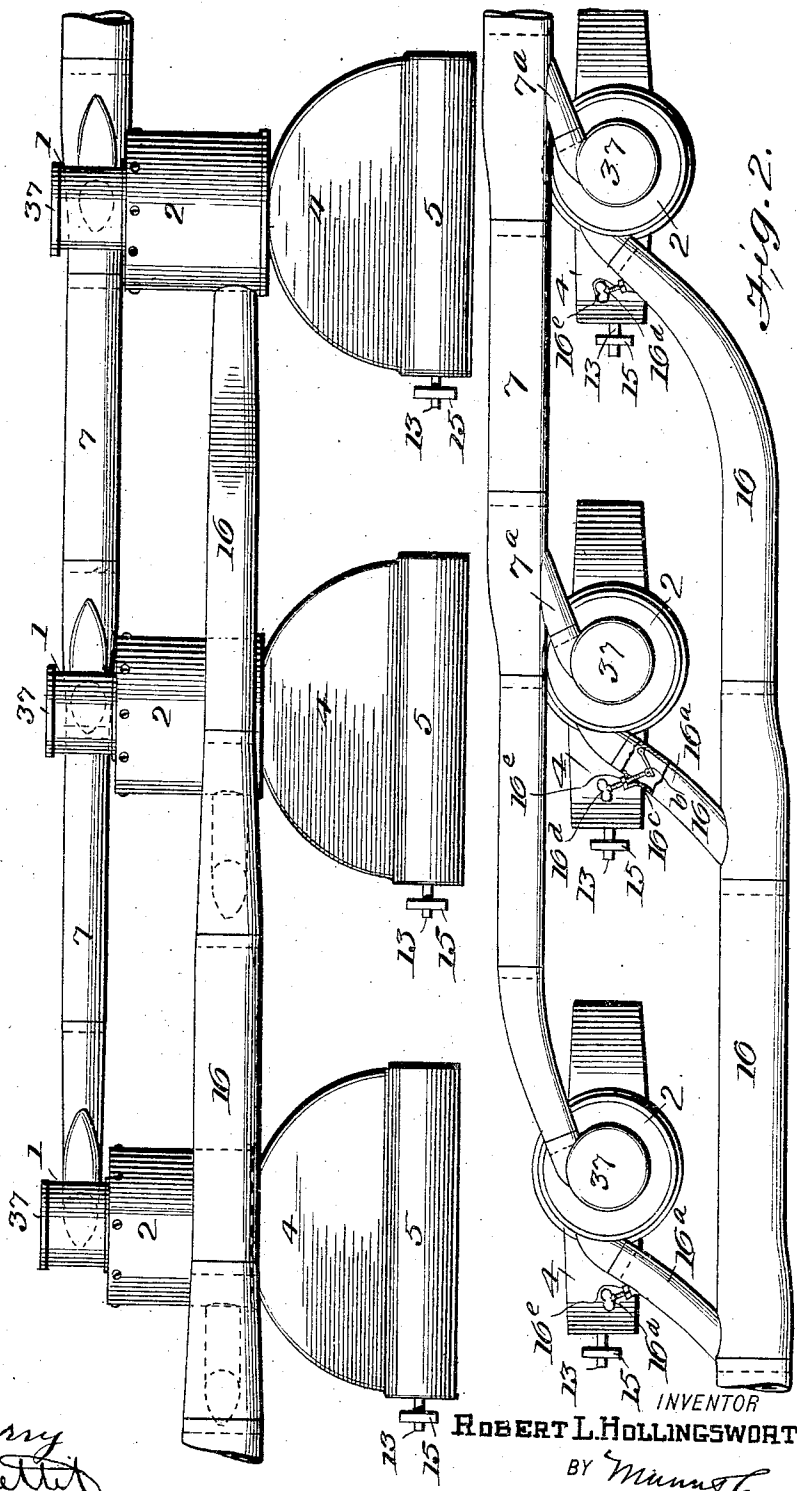


Fig. 2.

WITNESSES

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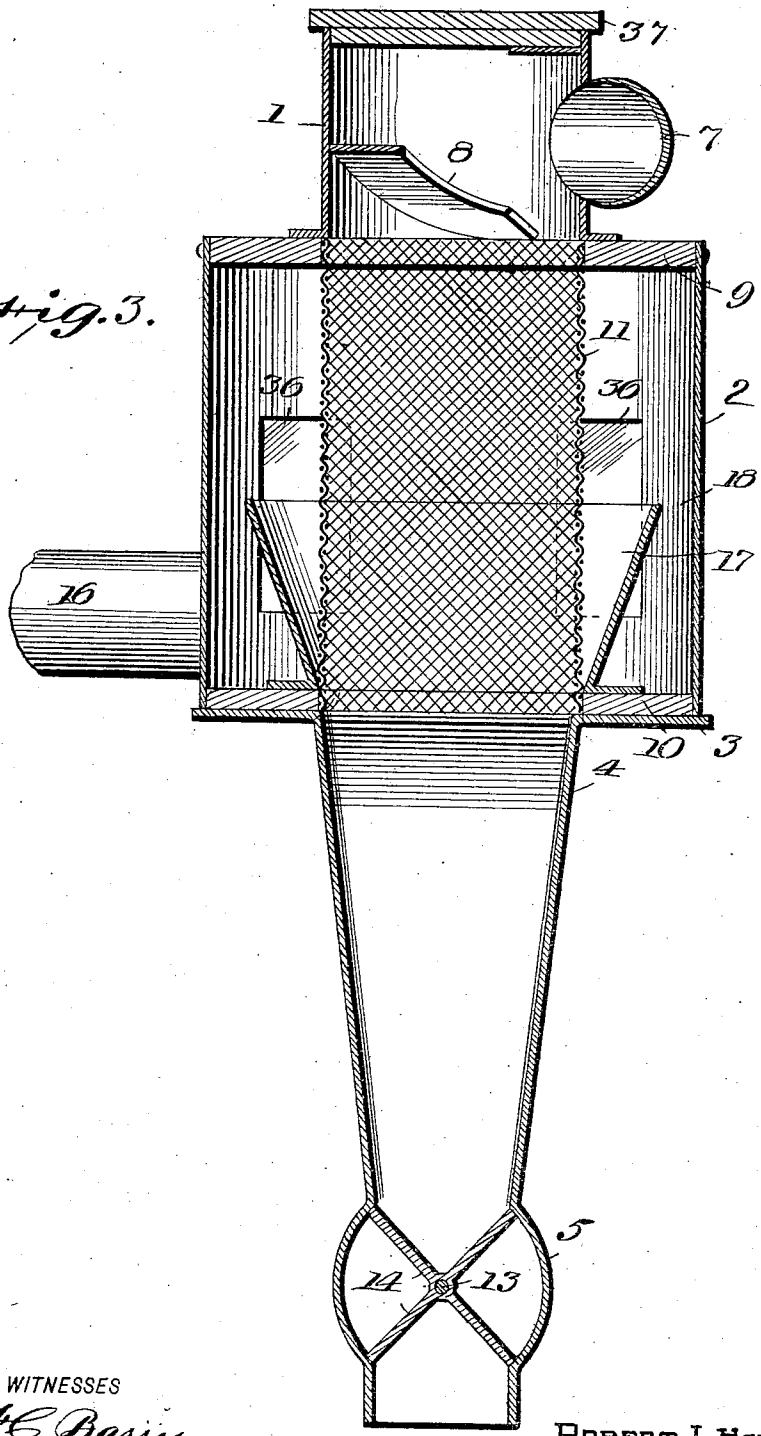
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Fig. 3.



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UNITED STATES PATENT OFFICE.

ROBERT L. HOLLINGSWORTH, OF DECATUR, GEORGIA, ASSIGNOR OF ONE-HALF TO JACOB R. MILLER AND ONE-FOURTH TO WALTER C. HENDRIX, OF FULTON COUNTY, GEORGIA.

COTTON CLEANER AND DISTRIBUTER.

No. 884,157. Specification of Letters Patent. Patented April 7, 1908.

Application filed June 17, 1907. Serial No. 379,373.

To all whom it may concern:

Be it known that I, ROBERT L. HOLLINGSWORTH, a citizen of the United States, and resident of Decatur, in the county of Dekalb and State of Georgia, have invented an Improvement in Cotton Cleaners and Distributers, of which the following is a specification.

My invention is an improvement in cotton cleaners and distributers and consists in certain novel constructions and combinations of parts hereinafter described and claimed.

Referring to the drawings forming a part hereof, Figure 1 is a side view of my improvement. Fig. 2 is a top plan view; and Fig. 3 is a central vertical section through one of the elements.

In the present embodiment of my invention, the cotton is fed to a battery of cleaning devices arranged in parallel, by air pressure. Each of said cleaning devices comprises a cylindrical bonnet 1, seated upon a cylindrical air chamber 2, which is in turn seated upon the top of the chute 4, and the bottom of the said chute has journaled horizontally therein, a shaft 13, and the side walls of the chute are curved outwardly concentric with the shaft to form a cylindrical chamber for a purpose to be hereinafter described.

An inlet pipe 7 is arranged alongside of the bonnets, and communicates directly with the last bonnet of the series, as shown in Fig. 2. Branches 7^a lead from the inlet pipe to the other bonnets, and it will be noticed from an inspection of Figs. 1 and 2, that the inlet pipe decreases in capacity between the bonnets.

Within the bonnets an inwardly projecting spiral guide 8 is arranged, said guide being formed of an annular plate bent to the required form, and adapted to direct the incoming jet of air downwardly and spirally to follow the curvature of the wall of the bonnet.

The air chamber 2 is provided with an upper head 9, having a central opening approximately the same diameter as the bonnet, and with a lower head 10 having a similar opening. Through the openings in the heads 9 and 10, a guide sleeve 11 is arranged, the extremities of the sleeve being received into the openings, and the said guide being formed of gauze or wire mesh, and constituting a screen. The shaft 13 before described, is provided with radial wings or vanes 14, spaced apart at angles of 90 degrees from each other, and contacting with the walls of the said chamber when the shaft is rotated. Upon the outer end of the shaft is arranged a pulley 15, whereby to rotate the shaft.

The wings or vanes extend the full length of the cylindrical chamber, to form a feeding device for delivering the cotton from the chute to the gin, while at the same time they prevent air from passing to the receiver from the chute. An exhaust or outlet pipe 16 leads from the lower portion of each of the air chambers, and is adapted to be attached to an exhaust fan, by means of which the air within the air chamber may be withdrawn. The pipe 16 communicates directly with the first chamber of the series, and is provided with branches 16^a connecting with the other chambers, the pipe 16 increasing in diameter between each of the air chambers.

A baffle plate 17 in the form of a conical wall having its larger dimension upward, is attached around the side of the guide sleeve 11, where it passes through the lower head by its lower extremity, and the upper edge of the baffle plate is disposed near the side wall of the air chamber, so that a restricted opening or space 18 is formed, through which the upper portion of the air chamber communicates with the lower portion.

Windows 36 are arranged in the side wall of the air chamber 2, and are provided with panes of glass or similar material, in order that the interior of the air chamber may be inspected, and the bonnet 1 is closed at its upper end by a removable cap 37.

In operation, the exhaust fan withdraws the air from the interior of the air chamber through the outlet, thus producing a partial vacuum, which causes an inward current of air through the inlet pipe. The air entering through the inlet pipe is laden with raw cotton, which is carried upon the air current in a helical path or swirl, this direction being given by the guide plate 8. The cotton then passes through the guide sleeves 11, which constitutes a screen through which the current of air passes, and through the chute 4 on to the wings or vanes 14 of the shaft 13, into the horizontal cylindrical chamber, and by means of the vanes or wings, it is fed out of the chute, the said vanes or wings acting to prevent an upward current of air to the air chamber, whereby to attain the full pressure in the inlet pipe. The baffle plate 17 oper-

ates as an equalizer or diffuser to prevent any tendency of the air to pass through the wire screen 11 at one point.

The pipe 16 adjacent to the first cleaning element, and the branch pipes 16^a, are each provided with a deflector or damper 16^b, the said deflector or damper being hinged to one side of the pipe as shown in Fig. 2, and having pivoted to the free end thereof, the end of a screw 16^d, threaded through a nut 16^e connected with the side of the pipe as at 16^c in any suitable manner, so that by manipulating the screw, the deflector or damper may be moved to partially or to entirely close the pipe 16 or the branch pipes, whereby to regulate the amount of air passing through the cleaning element, or to entirely close said element.

The deflector is intended to regulate the supply of cotton through the cleaning element, to provide for the use of different capacity gins, with said elements. For instance, should one of said elements be connected with a small size gin, the screw 16^d would be manipulated to move the damper or deflector to partially close the pipe, thus cutting off a part of the air drawn through the cleaning element so that a smaller amount of cotton would enter the said element.

While I have described my improvement as a cotton cleaner, it is evident that it might be with equal facility used for cleaning cotton seed, corn, or other grain, and for distributing said cotton seed or grain to different hoppers.

I claim:

1. In a device of the class described, a plurality of air chambers, a cylindrical screen within each of the said air chambers, and adapted to direct incoming cotton through the air chamber, a conical baffle plate in each of said air chambers, having its small end disposed near one end thereof for diffusing the air current drawn through said screen, bonnets above the air chambers, each of said bonnets having therein an inwardly projecting spiral guide to direct incoming air downwardly, a chute below the air chamber, a horizontal shaft journaled longitudinally of the chute and provided with longitudinal radial vanes or wings arranged at angles of 90° with respect to each other, the side walls of the chute being curved concentric with the shaft, and adapted to be engaged by the free edges of the wings or vanes, an inlet pipe common to all of said bonnets, and an outlet common to all of said air chambers, the inlet and the outlet communicating with the bonnet and the air chamber tangentially.

2. In a device of the class described, a plurality of air chambers, a cylindrical screen within each of said air chambers, adapted to direct incoming material through the air chambers, a conical baffle plate in each of said chambers, having its small end disposed near one end thereof for diffusing the air current drawn through the said screen, a bonnet above each of said air chambers and communicating therewith, a chute below the air chamber, a horizontal shaft journaled longitudinally in the chute, and provided with longitudinally arranged radial vanes, the walls of the chute being curved concentric with the shaft, and adapted to be engaged by the free edges of the vanes, an inlet pipe communicating with each of the bonnets, and an outlet pipe communicating with each of the air chambers.

3. In a device of the class described, a plurality of air chambers, a cylindrical screen within each of said chambers, and adapted to direct incoming material through said chambers, a bonnet arranged above each of said chambers and communicating therewith, an inlet pipe communicating with all of said bonnets, an outlet communicating with all of said air chambers, means for diffusing the air current passing through the said screen, a chute below each of the said air chambers, a horizontal shaft journaled at the outlet end of each of said chutes, and provided with radial longitudinally arranged vanes, the walls of the chute being curved concentric with the shaft, and adapted for engagement by the vanes, for the purpose set forth.

4. In a device of the class described, a plurality of cleaning devices, each comprising an air chamber, a cylindrical screen within the said air chamber and adapted to direct incoming material through the said chamber, means for diffusing the air current passing through the said screen, a bonnet arranged above the chamber and communicating therewith, an inlet pipe arranged on one side of the cleaning devices and communicating with each of the bonnets, an outlet pipe on the other side of the cleaning devices and communicating with each of the air chambers, said cleaning devices being arranged in parallel between said pipes.

ROBERT L. HOLLINGSWORTH.

Witnesses:
PAUL E. JOHNSON,
W. H. BOWEN.