

UNITED STATES PATENT OFFICE.

JOHN W. SEIFERT, OF WACO, TEXAS, ASSIGNOR TO WACO COTTON MACHINE MANUFACTURING COMPANY, OF SAME PLACE.

COTTON CLEANER AND DISTRIBUTER.

SPECIFICATION forming part of Letters Patent No. 682,816, dated September 17, 1901.

Application filed April 13, 1901. Serial No. 55,699. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. SEIFERT, a citizen of the United States, residing at Waco, in the county of McLennan, State of Texas, have
5 invented certain new and useful Improvements in Cotton Cleaners and Distributers, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to a cotton cleaner and distributor, and particularly to means for pneumatically elevating the cotton, removing the dirt therefrom, and automatically discharging a quantity of said cotton when
15 collected in the distributor.

The invention has for its object to improve the construction of pneumatic distributors, whereby when the cotton has collected upon the cleaning-screen the suction-pressure will
20 be partially cut off by means of an automatic floating valve and the cotton automatically discharged when the air-pressure is relieved therefrom.

A further object of the invention is to provide means for immediately restoring the parts to their normal position in the operation of the device, thus rendering the collection and discharge entirely independent in its operation of any regulation by the operator.

30 A further object is to provide means for automatically discharging the dirt or dust removed from the cotton at such times when the suction is removed from the apparatus.

35 Other objects and advantages of the invention will hereinafter appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

40 In the drawings, Figure 1 is a vertical section through the apparatus, showing the parts at rest in full lines and when under pressure in dotted lines; and Fig. 2 is a detail elevation showing the regulator for the floating valve.

45 Like letters of reference indicate like parts throughout both figures of the drawings.

The distributor is composed of a collector-casing A of any desired shape or configuration and having at its upper portion a passage
50 A', communicating at one side with a trunk or pipe A², leading to a source of supply for

cotton or other desired material to be operated upon, and at its opposite side with a corresponding trunk or pipe A³, communicating with any desired source of air-suction, as customary in this class of devices. It will be obvious that these trunks may communicate with a series of collectors A, which may be multiplied dependent upon the amount of work to be performed. Extending downward
60 from the upper portion of the passage A' and into the body of the collector A is a screen B, preferably curved in outline, so as to deflect the cleaned cotton downward into the chamber. The lower portion of this screen is connected to an inclined discharge-floor B', communicating with a chute B², forming a discharge for the dirt or dust removed from the cotton, which chute is provided with a pivoted door B³, which is normally held closed
70 by the air-suction through the apparatus and automatically opens by gravity into the position shown in full lines when such suction is removed.

At the lower portion of the collector a flexible valve C is provided, which may be formed of fabric or any other desired material and is mounted upon an offset C', extending circumferentially of the collector A, so as to give the necessary width to this valve when
80 open. The flexible valve C is provided at suitable points upon its sides with opening-levers C², pivoted to the offset C', as shown at C³, and having their upper free ends C⁴ connected to the collector A by means of restoring-springs C⁵, which when placed under tension restore the levers to a vertical position, as shown by full lines. It is obvious, however, that any suitable equivalent of these
90 springs may be applied to the levers for the purpose of restoring them to the vertical position.

For the purpose of automatically controlling and regulating the air suction or pressure upon the body of cotton drawn into contact with the screen a floating valve D is located between said screen and the trunk or pipe leading to the suction means. This valve is pivoted in any suitable manner—for instance, at its upper end, as shown at D'—
100 and this pivoting-shaft has applied thereto a counterbalance comprising a rod D² upon the

exterior of the case extending at an angle to the valve and provided with adjustable weights D³, by means of which the pressure or suction required to operate the valve may
5 be varied, dependent upon the adjustment of these weights.

In the operation of the invention the cotton to be cleaned and distributed is drawn by suction into contact with the surface of the
10 screen, (the parts being in the position shown by dotted lines in Fig. 1, so that the suction-pressure automatically closes the flexible valve C and the dust-discharging door B³,) thereby removing from the cotton the dust
15 and dirt contained therein, the heavier particles of which will be deposited upon the inclined floor B', communicating with the chute B². When a quantity of cotton has collected upon the face of the screen, the passage of air through said screen is diminished,
20 so that the floating valve D closes against the remaining air-pressure by its own gravity or assisted by the counterbalance-weight D² and is held by its inertia, so as to momentarily cut off all the suction, permitting the cotton
25 to drop away from the screen and fall into the lower portion of the collector A. It will be seen that when a quantity of cotton collects in the flexible valve C the air-suction on such valve is cut off by the body of material,
30 so that said valve may be opened by the weight of the cotton and the levers C², assisted by their restoring means, which normally hold the valve in an open position, as shown by full lines in Fig. 1. It will be understood that the collection of cotton upon
35 the screen does not completely cut off the air from the pipe C³; but the valve D is so weighted or adjusted as to close automatically against the reduced air-pressure when sufficient cotton has collected upon the surface
40 of the screen to prevent a thorough cleaning of the cotton. At the time when the suction is thus cut off sufficient air passes through the screen to equalize the pressure upon both
45 faces thereof, and the door B³ of the dirt-chute automatically opens, permitting any material collected therein to pass therefrom by gravity. This automatic closing of the floating
50 valve also prevents any back pressure, which is liable to occur when a body of cotton is collected upon the screen and in the collector A. As soon as the cotton has dropped from the screen the valve D begins to open and
55 under the highest air-pressure stands in the position shown by dotted lines in Fig. 1. The position of this valve is constantly changing, dependent upon the pressure of air, which varies according to the amount of cotton collected upon the screen, and is entirely independent of any regulation or operation by the operator using the machine. It will be obvious that if the valve be secured in its closed position the machine will be rendered
60 inoperative, which is often desired when a series of machines are connected to operate in connection with a single cotton trunk or

pipe and suction-pipe. The valve-governor is adjustable for various pressures of air due to differences in size and speed of the fans or
70 other suction-producing devices used. The lighter dust will be carried out to the suction device, while the heavier substances, such as sand and gravel from the cotton, fall into the inclined chute and are automatically
75 thereby discharged, thus obviating the necessity of cleaning the same by hand. The improved construction of flexible valve also obviates any difficulty in opening this valve, as the restoring means for the levers are suit-
80 ably adjusted to open the valve when a predetermined quantity of cotton has collected therein, sufficient to prevent the action of air from continuing to draw inward the walls of the valve.
85

With a machine of this character cotton in any of the ordinary conditions can be successfully treated and automatically deposited in the desired receptacle, while the dirt is removed therefrom, all of which operations are
90 automatically performed.

It will be obvious that changes may be made in the details of construction and configuration of the several parts without departing from the spirit of the invention as defined by
95 the appended claims.

Having described my invention, what I claim is—

1. In a device of the class described, the combination with a collector-body, of a pneu-
100 matic conveyer communicating therewith, a screening-surface disposed in said conveyer, and a counterbalanced valve located between said screening-surface and the suction device of the conveyer and adapted to auto-
105 matically close to cut off said device by the collection of material upon said surface; substantially as specified.

2. In a device of the class described, the combination with a collector-body having at
110 its lower end a flexible valve, levers secured to said valve, an offset from said body to which said levers are pivoted, and restoring-springs adapted to retain said levers in a vertical position; substantially as specified.
115

3. In a device of the class described, the combination with a collecting-chamber hav-
ing a screen therein, cotton and air pipes communicating with the opposite sides of
120 said screen, and a floating valve between said screen and air-pipe freely pivoted at one end for oscillation; substantially as specified.

4. In a device of the class described, the combination with a collecting-chamber hav-
ing a screen therein, cotton and air pipes
125 communicating with the opposite sides of said screen, a floating valve between said screen and air-pipe freely pivoted at one end for oscillation, and a counterbalance carried by the pivot of said valve; substantially as
130 specified.

5. In a device of the class described, the combination with a collecting-chamber hav-
ing a screen therein, cotton and air pipes

communicating with the opposite sides of said screen, a floating valve between said screen and air-pipe freely pivoted at one end for oscillation, a counterbalance carried by the pivot of said valve, and a dirt-chute disposed at the lower end of said screen and provided with a pivoted door adapted to automatically open when said valve is closed; substantially as specified.

6. In a device of the class described, the combination with a collecting-chamber having a screen therein, cotton and air pipes communicating with the opposite sides of said screen, a floating valve between said screen and air-pipe freely pivoted at one end thereof for oscillation, a counterbalance carried by the pivot of said valve, a dirt-chute disposed at the lower end of said screen and provided with a pivoted door adapted to automatically open when said valve is closed, a flexible valve at the lower end of said collector, and means for normally holding said valve in an open position; substantially as specified.

7. In a device of the class described, the combination with a collecting-chamber having a screen therein, cotton and air pipes communicating with the opposite sides of said screen, a floating valve between said screen and air-pipe freely pivoted at one end thereof for oscillation, a counterbalance car-

ried by the pivot of said valve, a dirt-chute disposed at the lower end of said screen and provided with a pivoted door adapted to automatically open when said valve is closed, a flexible valve at the lower end of said collector, pivoted levers connected to said flexible valve, and means for normally retaining said levers in a vertical position to open said valve; substantially as specified.

8. In a device of the class described, the combination with a collecting-chamber having a screen therein, cotton and air pipes communicating with the opposite sides of said screen, a floating valve between said screen and air-pipe freely pivoted at one end thereof for oscillation, a counterbalance carried by the pivot of said valve, a dirt-chute disposed at the lower end of said screen and provided with a pivoted door adapted to automatically open when said valve is closed, a flexible valve at the lower end of said collector, pivoted levers connected to said flexible valve, and springs connected to the upper free ends of said levers and to the fixed support; substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN W. SEIFERT.

Witnesses:

H. W. NAGEL,
H. A. BYBEE.