

No. 759,151.

PATENTED MAY 3, 1904.

C. R. BENEFIELD.
APPARATUS FOR HANDLING SEED COTTON.

APPLICATION FILED MAY 5, 1903.

NO MODEL.

Fig. 1.

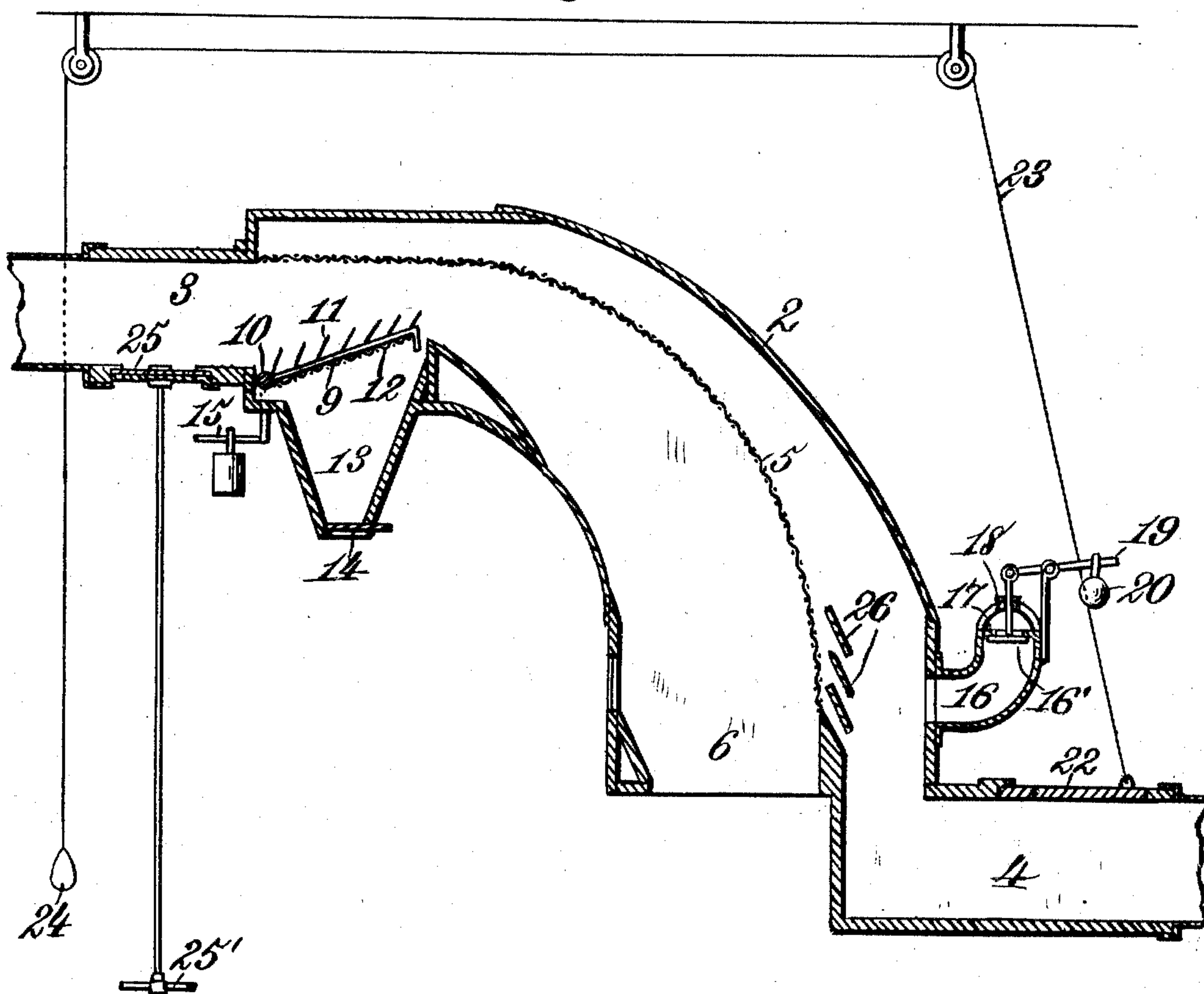
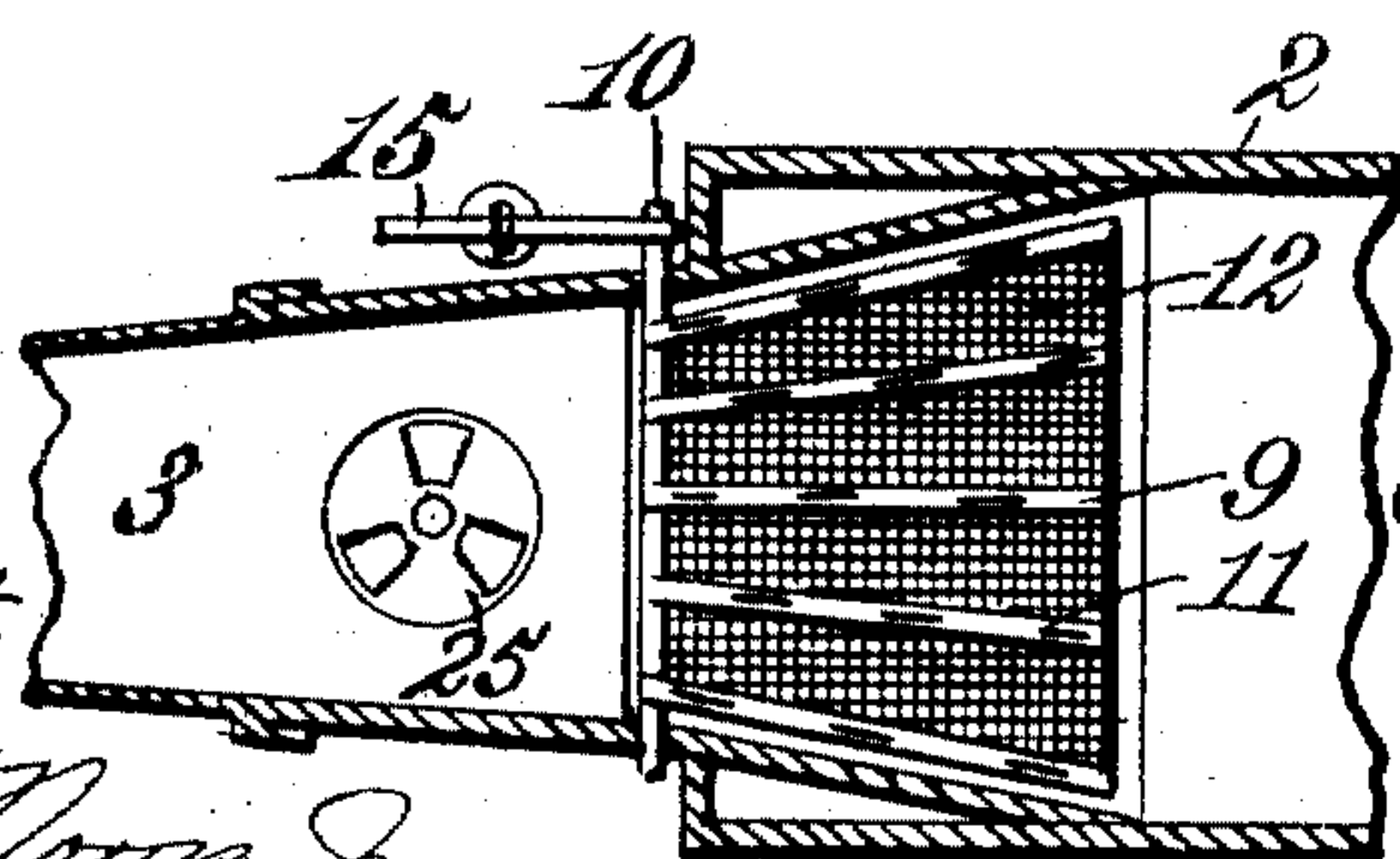


Fig. 2.



Witnesses:
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Att'y,

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APPARATUS FOR HANDLING SEED-COTTON.

SPECIFICATION forming part of Letters Patent No. 759,151, dated May 3, 1904.

Application filed May 5, 1903. Serial No. 155,744. (No model.)

To all whom it may concern:

Be it known that I, CHAUNCEY R. BENEFIELD, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented new and useful Improvements in Apparatus for Handling Seed-Cotton, of which the following is a specification.

This invention relates to an apparatus for handling seed-cotton; and the primary object of the invention is to provide a simple and effective apparatus of this character for rapidly drawing seed-cotton from a wagon, storage-house, or the like and delivering same to ginning mechanism, means being provided for cleaning the cotton in transit.

Other objects and advantages of the invention will be recited at length in the following description, while the novelty thereof will constitute the basis of the claims succeeding such description.

In the accompanying drawings, Figure 1 is a sectional elevation of my improved apparatus, and Fig. 2 is a detail sectional plan of the thresher forming part of the same.

Like characters refer to like parts in both figures.

Referring to the drawings, the numeral 2 denotes the vacuum or cotton box of the apparatus, the same being made of any desirable size or material. A pneumatic tube or conveyer 3 for the seed-cotton opens into what is illustrated as the upper rear side of the box, a suction-pipe 4 leading from the lower front corner of said vacuum or cotton box. In connection with the suction pipe or flue 4 an exhaust-fan (not shown) coöperates, it serving its usual function. Upon the operation of the fan and when the entering end of the pneumatic conveyer or tube is placed into proximity to a body of seed-cotton such cotton will be drawn into the pneumatic tube or conveyer 3 and into the vacuum or cotton box 2. The said vacuum or cotton box, it will be seen, is approximately of arcuate form and houses or incloses the separating-screen 5, which extends from the delivery end of said pneumatic tube or conveyer 3 to the inner end of the suction flue or tube 4. The screen 5 is shown as being of curved form, and the seed-cotton as it enters the cotton-box strikes the inner

surface of the screen tangentially, the cotton at the same time being given a downward impetus, which causes it to enter the delivery-chute 6, depending from the vacuum or cotton box. As the cotton traverses the inner surface of the screen, a great deal of the dirt and other objectionable matter therein is draw through the meshes of the screen by the exhaust-fan.

The cotton after it leaves the chute 6 is delivered in some suitable way to ginning mechanism for treatment thereby; but as such ginning mechanism forms no part of the present invention it is not illustrated in the drawings.

At the inlet end of the vacuum-box 2 I arrange a spreader, which is of skeleton form, consisting of a plurality of rods 9, diverging outward from a rock-shaft 10, carrying the same. The upper sides of the rods are provided with teeth 11, separated from each other and diagonally disposed with respect to said bars 9. The shaft 10 is supported by suitable bearings in the box 2 near the inlet, said shaft being located at the lower side of the inlet and the spreader extending normally upward and outward at an angle therefrom, so that the teeth 11 are presented to the cotton as it enters the vacuum-box. The rocking spreader constructed as just described serves to scatter the cotton as the same strikes the spreader in order that the latter will distribute the cotton evenly upon the inner surface of the screen 5. The teeth 11, as stated, are separated from each other, and to prevent any of the cotton falling down below the same I fasten to the under side of the rods or bars 9 a screen 12. This screen is of a mesh sufficient to permit any sand that may be in the mass to pass therethrough into the sand-box 13, but is not coarse enough to permit the escape of the cotton therethrough. The sand after it drops from the spreader of course enters the sand-box and may be removed therefrom at intervals by way of the outlet thereof, such outlet being furnished with a sliding valve or sluice 14.

The spreader is yieldingly mounted, the shaft 10 being furnished with a weighted arm 15, which acts in opposition to the spreader and the weight of which serves to hold said

spreader normally in its working position. When, however, the cotton becomes choked between the upper side of the spreader and the adjacent portion of the screen, the said
 5 spreader will yield or drop down to permit the obstruction to pass, and after the same occurs the weight upon the arm 15 will return the spreader to its initial position.

A tubular extension 16 is shown as connected with the forward side of the vacuum-box in proximity to the suction-flue 4, it being furnished interiorly with an inwardly-opening valve 16', represented as of disk form. The tubular extension 16 is of approximately angular or elbow form and has upon its upper
 10 side on the interior thereof an annular seat 17 for the disk valve, the stem of the valve extending upward therefrom through a spider 18, mounted upon the top of the tubular extension and being pivoted to the short arm of a weighted lever 19, fulcrumed upon a suitable bearing upon the tubular extension, the weight
 20 of the lever being adjustably connected thereto. The weight acting through the intermediate lever serves to maintain the valve 16' normally closed. The valve 16' constitutes an automatic pop or safety valve and its peculiar utility will now appear. It is the custom to connect a telescopic pipe to the pneumatic conveyer; but such telescopic pipe is
 30 not illustrated. It happens that in thrusting the telescopic pipe into a wagon or cotton-house the inlet thereof will be suddenly closed, so as to shut off the entrance of air thereinto. In such a case as this the fan being under
 35 motion would be apt to cause injury to the piping and other parts of the apparatus. The valve 16' upon such stoppage of the telescopic pipe is automatically opened by the suction of the fan, so that the possibility of breakage
 40 of the piping or injury to any other of the parts is thereby prevented. At the same time an even motion of the fan is assured by reason of the fact that uniform suction is secured.

In the upper side of the suction-flue is an opening normally closed by the valve 22, which is mounted for swinging motion in said opening and to one end of which is connected a suitable cord 23, the cord extending upward
 50 from the valve, then rearward over suitable guide pulleys or sheaves, and then downward, terminating in a handle 24, which may be pulled down by the ginner to open said valve 22, thereby to stop the suction through the vacuum-box 2, and hence through the pneumatic conveyer 3, whereby the drawing of cotton through said pneumatic conveyer and suction-box by the fan is positively prevented. The handle 24 is within easy reach of the
 60 ginner, so that he can stop the passage of the cotton through the pneumatic conveyer at any time without notifying the feeders at the cotton-house or wagon.

The pneumatic conveyer 3 adjacent to the vacuum-box 2 has in its bottom rotary damper-

valve 25. The stem of the valve is supported by suitable bearings upon the said pneumatic conveyer and terminates in a handle 25' in proximity to the other handle, 24. The purpose of the rotating damper-valve 25 is to
 70 regulate the vacuum in accordance with the feed of the cotton. If the cotton comes too rapidly, the valve will be turned by the manipulation of the handle 25' in order to bring its slots into registration with those in the
 75 pneumatic conveyer to thereby admit the maximum amount of atmospheric air into said pneumatic conveyer, and consequently into the vacuum-box. The amount of air admitted will of course vary with the volume
 80 of cotton entering the vacuum-box. If the amount of cotton entering said box is considerable, the supply may be decreased by manipulating said handle 25'. To resume normal conditions, the valve will be turned to
 85 cause the imperforate portion to cover the slots.

To prevent the adherence of the cotton at the lower end of the screen upon the inner surface thereof, and consequently the clog-
 90 ging of said cotton in the lower end of the cotton or vacuum box 2, I provide in said cotton or vacuum box adjacent to the lower end of the screen and upon the outer side thereof one or a plurality of overlapping
 95 blades 26, which are disposed as shown. These blades cover the screen near its lower end, so as to check or lessen the air being drawn through the screen at such place, but do not prevent the free entrance of the cot-
 100 ton into the cotton-box.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an apparatus of the class described, 105 the combination of a vacuum-box, a pneumatic conveyer and a suction-tube connected respectively with the upper and lower ends of the vacuum-box at opposite sides thereof, a screen extending between the pneumatic con-
 110 veyer and the suction-tube, and a suction-checking device on the outside of the screen near the lower end thereof, spaced from said screen.

2. In an apparatus of the class described, 115 the combination of a vacuum-box, a pneumatic conveyer and a suction-tube connected respectively with the upper and lower ends of the vacuum-box at opposite sides thereof, a screen extending between the pneumatic con-
 120 veyer and the suction-tube, and a suction-checking device on the outside of the screen near the lower end thereof, spaced from said screen and consisting of a plurality of overlapping blades. 125

3. In an apparatus of the class described, the combination of a vacuum-box, a pneumatic conveyer and a suction-tube connected with said vacuum-box, a screen extending between the pneumatic conveyer and the suction-tube, 130

a spreader at the inlet end of the vacuum-box mounted for oscillatory motion about an axis at the lower side of said inlet, the spreader serving to control the delivery of the cotton
5 against said screen, and including a plurality of rods provided with teeth on their upper sides, and a screen carried by the spreader upon the under side thereof.

4. In an apparatus of the class described,
10 the combination of a vacuum-box, a pneumatic conveyer and a suction-tube connected with said vacuum-box, a screen extending between the pneumatic conveyer and the suction-tube, a spreader at the inlet end of the vacuum-box
15 mounted for oscillatory motion about an axis

at the lower side of said inlet, the spreader serving to control the delivery of the cotton against said screen and including a plurality of rods provided with teeth on their upper sides, a screen carried by the spreader upon
20 the under side thereof, and a valved sand-box connected with the vacuum-box under the spreader.

In testimony whereof I have hereunto set my hand in presence of two subscribing wit-
25 nesses.

CHAUNCEY R. BENEFIELD.

Witnesses:

J. C. HARDISON,

J. N. WHARTON.