

(No Model.)

2 Sheets—Sheet 1.

F. ZEDLER & P. L. WARD.
COTTON ELEVATOR AND DISTRIBUTER.

No. 539,325.

Patented May 14, 1895.

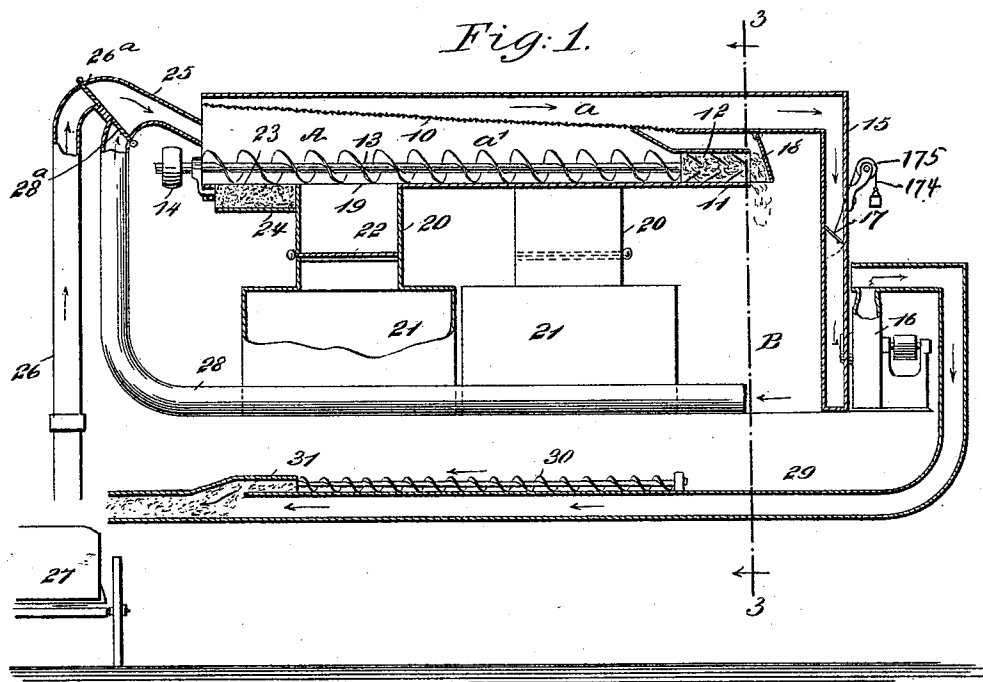


Fig. 2.

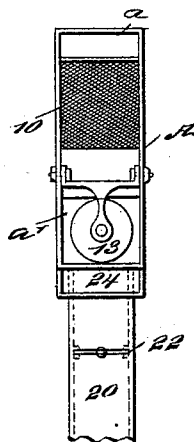


Fig. 3.

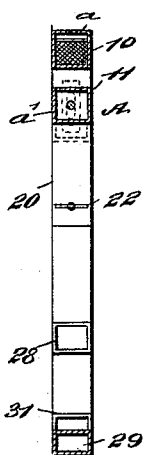
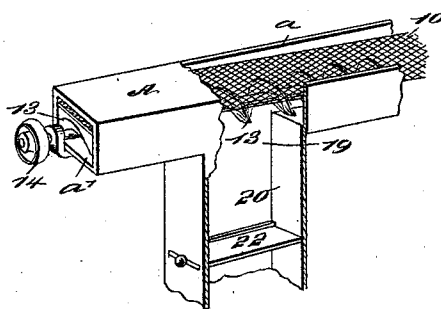


Fig. 4.



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(No Model.)

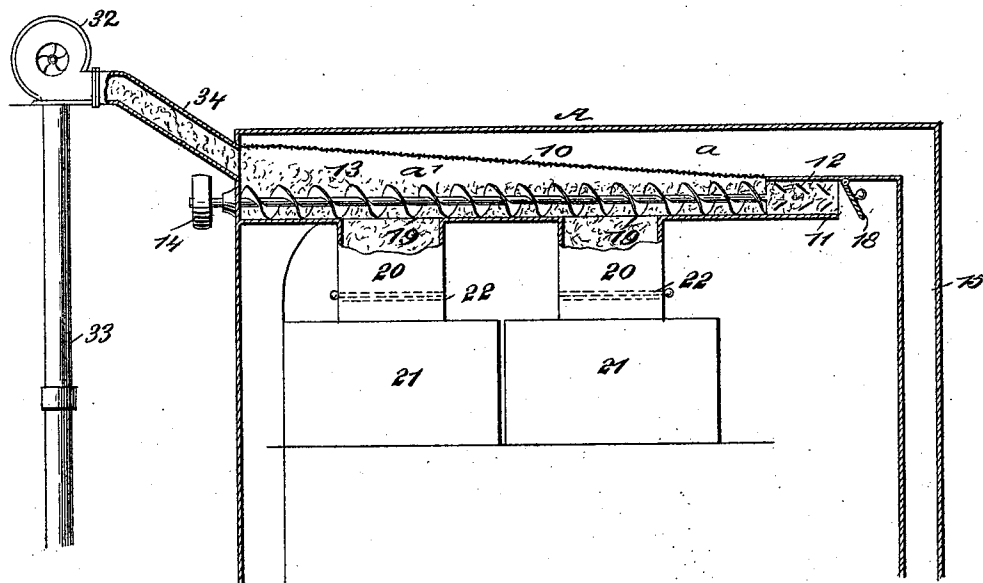
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Fig. 5.



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UNITED STATES PATENT OFFICE.

FRIEDRICH ZEDLER AND PERRY L. WARD, OF CUERO, TEXAS.

COTTON ELEVATOR AND DISTRIBUTER.

SPECIFICATION forming part of Letters Patent No. 539,325, dated May 14, 1895.

Application filed December 5, 1894. Serial No. 530,865. (No model.)

To all whom it may concern:

Be it known that we, FRIEDRICH ZEDLER and PERRY L. WARD, of Cuero, in the county of De Witt and State of Texas, have invented a new and useful Improvement in Cotton Elevators and Distributers, of which the following is a full, clear, and exact description.

Our invention relates to an improvement in pneumatic feed devices or elevators and distributors for cotton gins, and has particular reference to apparatus wherein a mechanical conveyer is used in connection with the blast device, so that a positive force feed is obtained and the cotton is placed evenly over the gins, and wherein further an overflow box is employed and an independent means of feeding the cotton through the medium of the said blast device, either from a vehicle or bin or from the overflow box, thus enabling the gin to be fed even while the connection between the bin or main source of supply is cut off; and wherein also the blower or fan employed in connection with the pneumatic conveying device may likewise be used for forcing the seed delivered from the gin to any desired point.

The object of our invention is to simplify the construction, and increase the efficiency of devices of the above indicated class.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a longitudinal section through the feed device. Fig. 2 is an end view of the body of the said feed device. Fig. 3 is a vertical section taken substantially on the line 3 3 of Fig. 1. Fig. 4 is a partial perspective and a partial sectional view of a portion of the vacuum-box and likewise a portion of the flue establishing communication between the box and the gin; and Fig. 5 is a longitudinal sectional view through a portion of the device, illustrating a modification in the application of the feed.

In carrying out the invention the vacuum box A is constructed of any suitable material,

and is divided into two compartments by a longitudinally-located screen 10, an upper compartment *a* and a lower compartment *a'*. The screen partition 10 has an inclination from the receiving end of the vacuum box in a downward direction, terminating practically at the outlet end, the partition being located near the upper portion of the box at the said receiving end.

The compartment *a'* of the vacuum box at its discharge end is made to terminate in a funnel or chute 11, preferably horizontally located, and in this funnel or chute a series of baffle plates 12, is located, having inclination in direction of the outlet; and also within the bottom portion of the vacuum box a screw conveyer 13 is mounted to revolve, being provided at the end projecting through the receiving section of the box with a pulley 14, and the said screw conveyer will convey the surplus cotton to the discharge chute or funnel 11.

The rear or discharge end of the upper portion *a* of the vacuum box is connected with a flue 15, and this flue is in direct communication with an exhaust fan 16 of any approved construction. A valve 17 is located within the flue 15 a predetermined distance from the vacuum box, as shown in Fig. 1, and this valve is a gate valve, having a hinged or pivotal connection with the flue at one of its ends, its free end being controlled by any form of tension device, as for example a weighted cord 174 passed over a suitable pulley 175, whereby the amount of air which shall be drawn through or from the vacuum box by the said fan may be regulated at will, and whereby further when the fan is not working the valve will automatically close itself.

The discharge end of the funnel or chute 11, is adapted to be normally closed by a gravity valve 18, which may be and preferably is, hinged or pivoted to the under face of the horizontal section of the flue 15.

At various intervals in the bottom of the vacuum box A openings 19 are produced, surrounded by flues 20, and the said flues are in direct communication with the feeders for the gins 21. Each feeding flue for the gin is provided with a valve 22, whereby the supply of cotton from the vacuum box may be cut off when necessary. The cotton is fed into the

lower section of the receiving end of the vacuum box and is prevented from passing into the air flue 15 by the screen 10. The cotton is therefore taken by the conveyer and delivered into the gin feed flues 20, and the surplus cotton is carried by the conveyer into the discharge funnel or chute 11, forcing open the valve 18, and this overplus or overflow of cotton will drop into what we denominate an overflow box B, as is likewise shown in Fig. 1.

At the receiving end of the vacuum box a screen 23 is located in the bottom portion thereof immediately over a box 24 secured to the bottom, and this box is adapted to receive sand, nails, stones, or other foreign substances that may be in the cotton that is fed to the vacuum box. The vacuum box being much larger than the air flue 15 causes the air to travel slowly, and facilitates the delivery of the cotton from the conveyer to the gins.

A feed nozzle 25, is made to enter the receiving end of the vacuum box, and this nozzle is connected with two pipes, a pipe 26, which is carried to the bin in which the cotton may be stored, or to the vehicle 27 in which the cotton may be placed, as shown in Fig. 1, the second pipe 28 being carried to the bottom of the overflow box B. Each pipe 26 and 28, where it connects with the nozzle 25, is provided with a valve, one of the valves being designated as 26^a and the other as 28^a, as shown in Fig. 1, and thus communication between either of the pipes and the nozzle may be cut off.

An air discharge pipe 29, is carried from the fan in any desired direction, but a portion of this pipe is located beneath the gins, and is adapted to receive the seed therefrom, the seed falling upon a conveyer 30, suitably propelled and located upon the pipe, as is also shown in Fig. 1, and this conveyer will deliver the seed to a branch 31 of the main pipe, and the air in being forced through this pipe will drive the seed before it and will deliver it wherever it may be desired.

In the operation of this machine, supposing the main pipe feed 26 to enter the body of a wagon filled with cotton, the valve 26^a will be opened and the valve 28^a in the second feed pipe 28 will be closed. When the fan is started it will create a suction in the vacuum box A and consequently in the feed pipe 26, causing the cotton to be drawn up through the said pipe and delivered to the conveyer in the vacuum box. The cotton in being passed over the screen 23 in the vacuum box will be freed from dust and other foreign matter, which will be caught in the box 24. A proper amount of cotton will then be fed by the conveyer to the feed flues of the gins, and any cotton carried by the conveyer that cannot be so fed will be conducted to the delivery chute or funnel, and will fall into the overflow box, the valve 18 closing this funnel or chute whenever cotton is not being fed through it; and the cotton itself, when passing through the funnel or chute,

serves to prevent air backing up into the vacuum box. When the cotton contained in the vehicle has all been drawn up by the feed device, the valve 26^a in the feed pipe 26 may be closed, and the valve 28^a in the overflow feed pipe 28 may be opened; thus, while another vehicle is being brought into position to be unloaded the cotton in the overflow box may be fed to the gins.

This machine is exceedingly simple, it is durable and it is economic, and it produces a substantially perfect force feed. This machine likewise serves to elevate cotton from the wagon or bin, delivering the same directly into gins, dispensing with the usual distributors having a spike belt or stop and start valves. By using such a screw conveyer with cotton, as heretofore stated, positive force feed places the cotton evenly over the gins. It also enables the operator to have an overflow for surplus cotton, whereby a great deal of time is saved. By this construction of the feed device a continuous suction from the fan is obtained, enabling the operator to elevate cotton faster than heretofore, and a greater screen surface is obtained than is found in ordinary feed devices or elevators of this character. Through the medium of the valve 17 placed between the fan and the vacuum box, the draft of the blower is under perfect control.

When the cotton is to be elevated for a long distance before it is fed into the receiving or vacuum box A, it may be desirable that the feeding apparatus shall be located at the front of said box. Such a construction is shown in Fig. 5, in which it will be observed that a fan 32 is supported in front of the said box A, and that said fan is connected, by means of a pipe 33, with the bin or vehicle, or any other receptacle that may be employed for the storage of the cotton, while a second pipe 34, connects the said fan with the box A below the screen 10 and above the conveyer 13. Under this construction the cotton is drawn by suction from the bin or vehicle in which it had been placed, and is forced or blown into the box A over the screen, and the excess of air, together with the chaff, dirt, &c., will be forced out through the screen. The sand box 24 in this case may likewise be employed, although it is not shown in this figure.

It will be observed that the only difference is that the cotton is blown into the box A instead of being sucked therein, as shown in the other views; otherwise the manipulation of the cotton remains practically the same.

It will be understood that the pipe 15 in the construction illustrated by Fig. 5 is made continuous with the pipe 29, and that the pipe 28 will have a valve controlled connection with the suction pipe 33.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a pneumatic elevator and distributor

for cotton gins, a blast device, a cotton receiving box connected therewith, said box having openings communicating with the gins, and an outlet for the discharge of surplus material and an automatic valve for normally closing said outlet, said valve being constructed to open under the pressure of the surplus material, substantially as described.

2. In a pneumatic conveying device, the combination with the machine for producing the blast, and an air pipe connected to the said machine, of a valve in the said pipe, and a tension device whereby the said valve is automatically closed when the machine is not in operation, and whereby, when the machine is in operation a resistance is opposed to the flow of air through the said pipe, substantially as described.

3. In a pneumatic conveying device, the combination with the machine for producing the blast, and an air pipe connected to the said machine, of a weight-controlled valve constructed to automatically close when the

machine is not in operation, and to oppose a resistance to the flow of air through the said pipe when the machine is in operation, as and for the purpose set forth.

4. In an elevator and distributor or feed attachment for cotton gins, a cotton-receiving box, a pneumatic conveying device connected with said box, the box being provided with a screened partition, and a contracted outlet for the cotton the upper section thus formed being in communication with an outlet for the air, and a conveyer located within the said box, communicating with the said contracted outlet for the cotton, said outlet being provided with deflecting plates inclined in direction of its discharge end, the said conveyer feeding the cotton intermediate of its length to the gins, as and for the purpose specified.

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Witnesses:

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