A. L. TREESE.

COTTON CLEANER.

APPLICATION FILED JUNE 15, 1910.

997,104.

Patented July 4, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

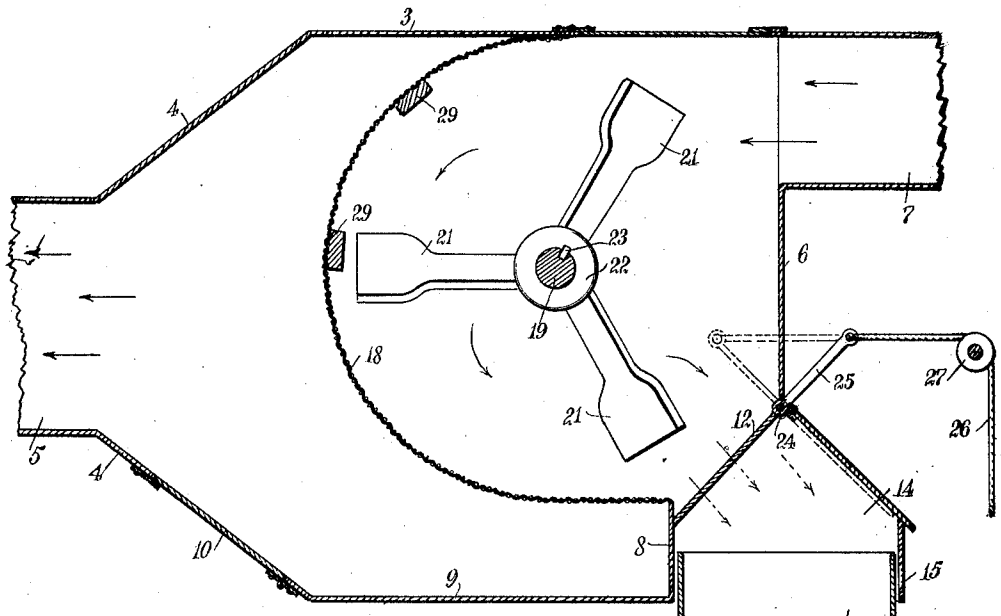
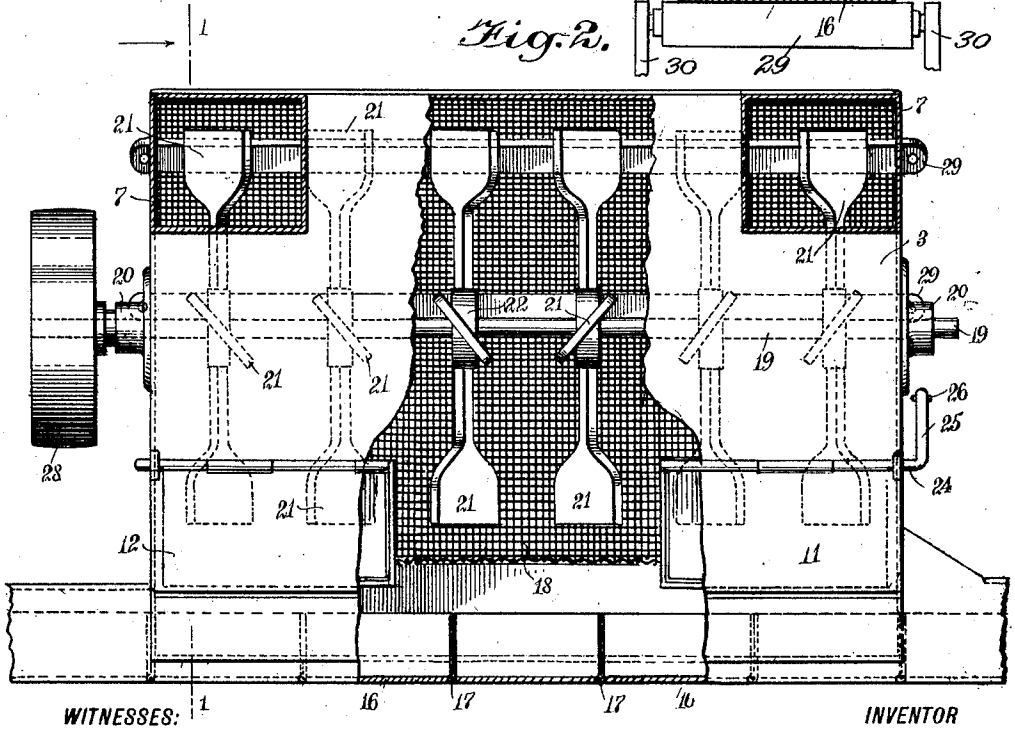


Fig. 2.



WITNESSES:

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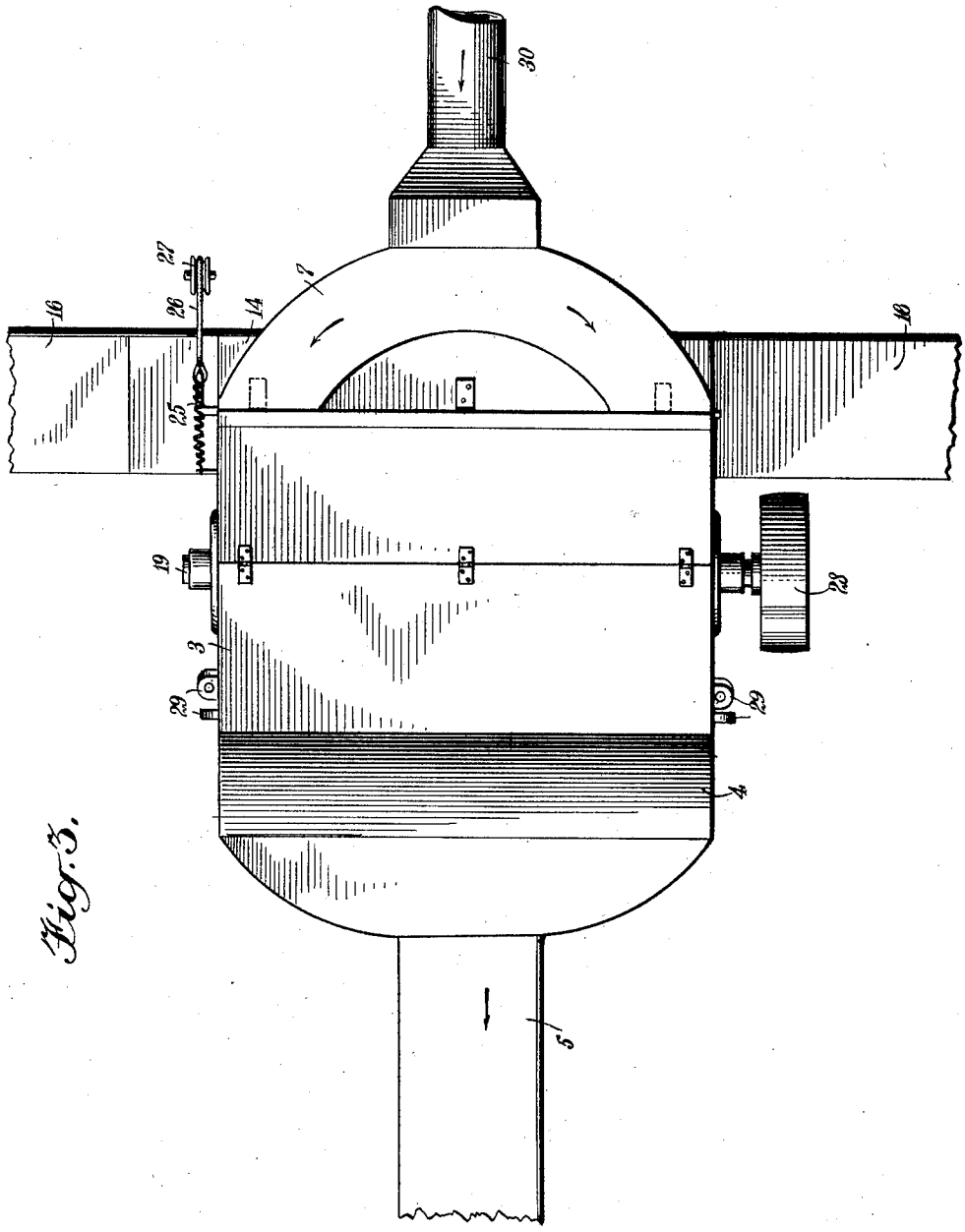

Fig. 3.

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ALBERT LEROY TREESE, OF JENNINGS, OKLAHOMA, ASSIGNOR TO TREESE COTTON CLEANER COMPANY, OF JENNINGS, OKLAHOMA.

COTTON-CLEANER.

997,104. Specification of Letters Patent. **Patented July 4, 1911.**

Application filed June 15, 1910. Serial No. 566,969.

To all whom it may concern:

Be it known that I, ALBERT LEROY TREESE, a citizen of the United States, and a resident of Jennings, in the county of Pawnee and State of Oklahoma, have invented a new and Improved Cotton-Cleaner, of which the following is a full, clear, and exact description.

Among the principal objects which the present invention has in view are: to provide a mechanism for cleaning cotton by pneumatically eliminating the dust and dirt therefrom; to provide means for controlling the operation of the cleaner; to provide a cleaner which is continuous in its operation; and to provide a machine of the character specified which is simple, efficient and durable in construction.

One embodiment of the present invention is disclosed in the structure illustrated in the accompanying drawings, in which like characters of reference denote corresponding parts in all the views, and in which—

Figure 1 is a vertical section of a machine constructed and arranged in accordance with the present invention, the section being taken on the line 1—1 in Fig. 2; Fig. 2 is a side elevation, partly in section, of a machine constructed in accordance with the present invention, and Fig. 3 is a plan view of a cleaner constructed in accordance with the present invention.

The machine is particularly adapted for cleaning cotton prior to the same being baled, and consists in a rectangular-shaped box 3, the forward sides 4, 4 of which are converged to a contracted duct 5. The duct 5 is connected with any suitable pneumatic draft-producing machinery. The box 3 is provided in the vertical wall 6, opposite the duct 5, with inlet chutes 7, through which the cotton is fed in loose condition to the box 3. The chutes 7, 7 are branches of the feed main chute 30. By thus dividing the stream of incoming cotton as the same is delivered, and by enlarging thereby the delivery capacity of the delivery chutes to the box 3, packing of the cotton is prevented. Also the cotton is distributed more fully in the box and maintained therein under the cleansing influence of the air current passing therethrough.

The bottom of the box 3 is provided with a vertical wall 8, which, with the bottom 9, forms a tray or accumulation space below the direct line of the draft from the chutes 7 to the duct 5. In the side 4 adjacent to the bottom 9 is formed a cleaning opening closed by a door 10. It is through this opening that the refuse or accumulation on the bottom 9 is removed. Between the walls 8 and 6 is formed an opening which is closed by doors 11 and 12. The side walls of the box 3 are extended at 14 to form bracketed extensions to support the wall section 15.

Between the walls 8 and 15 is formed a passageway for the guidance of an endless belt formed of boxes 16, 16. The boxes 16, 16 are pivotally connected at 17 at the bottom of the said boxes, whereby the same may fit around, or travel about suitable pulleys to form an endless chain of said boxes. The boxes 16, 16, when joined, form an endless laterally disposed and traveling carrier for the reception and conveyance of the cleansed cotton. The carrier is preferably supported at intervals upon rollers 29, said rollers being mounted in suitable bearings in stringers 30, 30; but any other suitable method of supporting the carrier may be adopted, this construction forming no essential part of the invention.

Between the top of the box 3, and secured to the upper edge of the wall 8 and to the said top is a semi-cylindrical screen 18. The screen 18 is formed of any suitable material, such as wire mesh, and the meshes are of suitable gage. The screen is utilized to arrest the cotton, and to permit the dust or fine particles of dirt to pass through the mesh and to be carried off through the duct 5 on the air draft therein produced, or, if too heavy to be sustained in the moving column of air, to be dropped into the bottom of the box to be therefrom subsequently removed through the opening closed by the door 10. The screen 18 extends from end to end of the box 3. Concentric with the screen 18 is a driving shaft 19, which is provided with suitable bearing boxes 20, 20, mounted on the ends of the said box 3.

Fixedly mounted upon the shaft 19 is a plurality of paddle wheels, the paddles 21 whereof are inclined or pitched with reference to their rotary path, and are fixedly connected to a hub 22 of the said wheels. The hub 22 is keyed to the shaft 19 by means of a feather 23. The pitch of the paddles 21, 21 is oppositely disposed on the sides of

the median cross section of the box 3, thereby arranging for the deflection of the cotton as moved by said paddles toward the center of the said box. It will be noted that at the center of said box there is no door such as the doors 11 and 12, the center section being constantly open for delivery to the conveyer boxes 16, 16.

The doors 11 and 12 are mounted upon a horizontal shaft 24, a crank extension 25 of which is connected by a cable 26 to an operating station after passing over a guide pulley 27. A weight, or other automatic device for pulling on the cable 26, is provided to maintain the doors 11 and 12 in closed relation. Whenever the weight, or other device, is released from said cable, the doors 11 and 12 are permitted to open to assume the position shown in dotted lines in Fig. 1 of the drawings. In this position it will be seen that the cotton is delivered from the end sections of the box without being transferred to the middle section.

Rods 29, 29 are inserted through the sides of the box 3 and on the delivery side of the screen 18, against which it rests, as shown in Fig. 1 of the drawings. The rods 29 are removable, and may be increased or decreased in number to suit the needs of the operator and of the cotton being treated. The purpose of the rods 29 is to separate bally or grab cotton. The rods 29 may be constructed of any suitable material, and are disposed within a short distance from the rotary path of the extremes of the paddles 21, 21. The rods are provided with a square upturned edge, which forms a breaking edge for the cotton. If the cotton balls or mats it is thrown outward by the paddles and rests upon the upper edge of the rods 29, from which it is dragged and partly treaded by the swivel paddles.

The operation of the device is as follows: The cotton when removed from the sacks is fed by compressed air or by the suction produced in the duct 5, through the chutes 7, 7 to within the section of the chamber 3 occupied by the beater blades 21, 21. The cotton is carried around the chamber in the path of the said blades or rested upon the screen wall 18, to be thereon moved by the said blades as the same are rotated. Whether suspended as floating in the chamber 3 or as resting on the screen 18, the fine particles of dust or straw or other foreign substances are released from the cotton, carried through the mesh of the sieve on the screen 18 and conveyed from the duct 5 to a suitable depository for the refuse. If the specific gravity of the refuse be great, it will not pass to the duct 5 but precipitate between the screen 18 and the entrance to the said duct to be conveyed by the inclined door 10 to the bottom section 9. When the lower section of the chamber 3 becomes filled, the same is emptied by opening the door 10 and removing the said refuse from the chamber 3.

When the cotton has an excess of dust or filth, the doors 11 and 12 are permitted to remain closed, in which position they hold the cotton in the box 3. The further result of closing the doors 11 and 12 is that the cotton is compelled to travel as many revolutions under the impact of the paddles 21, as will be necessary to remove the said cotton from the lateral ends of the chamber 3 to the center thereof. It will be remembered that this action is due to the inclined disposition of the paddles 21. Finally, the continued action of the paddles deflects the cotton to the central portion where it is delivered directly to the boxes 16, 16.

When the cotton is freed of refuse or when it is desired to accelerate the action of the cleaner, the doors 11 and 12 are opened by drawing the cables 26, 26. In this position of the doors, 11 and 12, it will be seen that the cotton, as received from the chutes 7, 7, is carried direct to the boxes 16, 16 without being compelled to make more than one circuit of the chamber or drum formed by the screen 18.

The motive power for the operation of the machine may be of any desired character. It is belt connected to the driven pulley 28 on the shaft 19.

While I have herein above described the bottom 9 of the box 3 as a receptacle for dirt too heavy to be carried by the draft from the duct 5, and have shown in the drawings a door 10 for cleaning the dirt from the said receptacle, I wish it understood that I may provide the bottom with a spout or chute having a door at the end thereof. Such an arrangement would facilitate the dumping of the dirt from the receptacle thus formed.

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

1. A cotton cleaner comprising a box having a plurality of chutes for delivering cotton thereto, said chutes being disposed at the outer lateral extremities of said box; an air duct forming a part of an air suction system connected with a delivery opening in said box; a plurality of cotton delivery openings in said box; a beater embodying a rotary shaft, and a plurality of blades radially disposed thereon and arranged in inclined relation to the rotary shaft thereof, said blades being oppositely inclined on the opposite sides of the median line of said shaft to deliver the cotton to the median section of said box; a semi-cylindrical perforated wall extended between the ends of said box around said beater and concentric therewith, said wall being adapted to pass dust and refuse commonly attached to cotton and to prevent the passage of the cotton; and a plurality of

doors arranged to control the exit of the cotton from the said beater to vary the time of manipulation of the cotton within the said box.

2. A cotton cleaner comprising a box having a plurality of chutes for delivering cotton thereto, said chutes being disposed at the outer lateral extremities of said box; an air duct forming a part of an air suction system connected with a delivery opening in said box; a plurality of cotton delivery openings in said box; a beater embodying a rotary shaft, a plurality of blades radially disposed thereon and arranged in inclined relation to the rotary shaft thereof, said blades being oppositely inclined on the opposite sides of the median line of said shaft to deliver the cotton to the median section of said box; a semi-cylindrical perforated wall extended between the ends of said box around said beater and concentric therewith, said wall being adapted to pass dust and refuse commonly attached to cotton and to prevent the passage of the cotton; a plurality of doors arranged to control the exit of the cotton from the said beater to vary the time of manipulation of the cotton within the said box; and an endless conveyer belt embodying a plurality of box-like carrying sections disposed in receiving relation to said delivery openings.

3. A cotton cleaner, comprising a box having a chute for the delivery of cotton thereto, said chute being disposed at the lateral extremity of said box; an air duct forming part of an air suction system connected with the delivery opening in said box; a plurality of cotton delivery openings in said box; a beater embodying a rotary shaft having a plurality of blades radially disposed thereon and arranged in inclined position on said shaft, said blades being inclined backward toward the delivery section of said box; a perforated wall extended between the ends of said box between the said delivery shaft and air duct, said walls being adapted to pass dust and refuse commonly attached to cotton and to prevent the passage of the cotton; and a plurality of delivery doors disposed between the said delivery chute and the opposite end of said box, said doors being arranged to control the exit of the cotton from the said box to vary the duration of time of the manipulation of the cotton within said box.

4. A cotton cleaner, comprising a delivery chute; a beater embodying a rotary shaft and a series of radially disposed inclined propelling blades, adapted to advance the cotton as received from said delivery chute away therefrom; and a plurality of door closed delivery openings arranged parallel with said rotary shaft and extended in the line of travel of said cotton as advanced by said blades, said doors when closed forming a floor upon which the said cotton rests; said doors being separated at the median line of said cleaner to form an open delivery passage; and a conveyer mounted to travel longitudinally under said open delivery passage and said doors and in line therewith to receive the cotton therefrom.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ALBERT LEROY TREESE.

Witnesses:
M. D. HAM,
M. E. ADAMS.