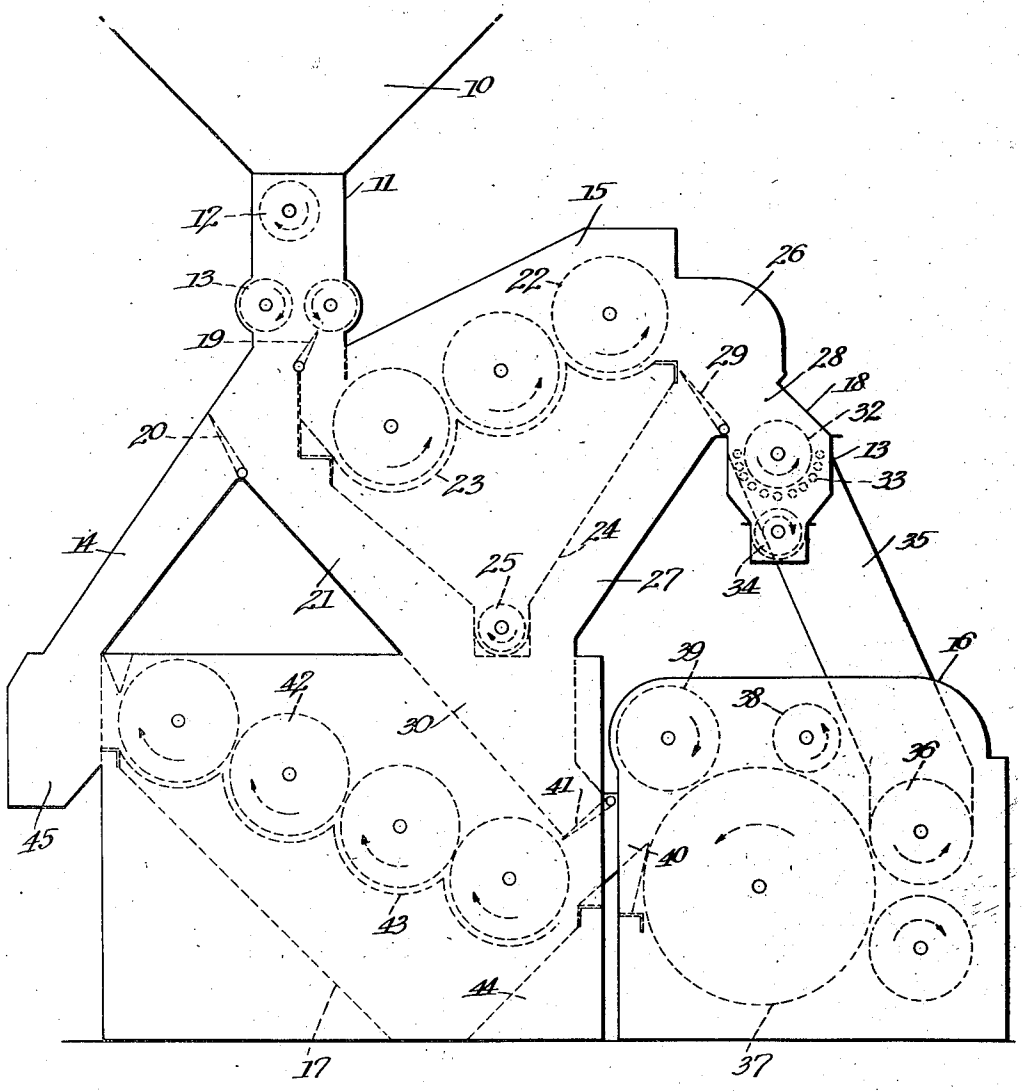
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CLEANER SYSTEM

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Inventor

Alexander S. Mackenzie.

By Cushman, Darby & Cushman

Attorneys

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CLEANER SYSTEM

Alexander S. Mackenzie, Houston, Tex., assignor, by mesne assignments, to Elk City Cotton Oil Company, a corporation of Oklahoma

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8 Claims. (Cl. 19—67)

The present invention relates to a cotton cleaning system arranged to deliver the cotton in continuous and regulated amounts to the gin. In this respect, it is an improvement upon the construction shown in my pending application, Serial No. 555,602, filed August 6, 1931.

The primary object of this invention is to provide an arrangement of cleaners having communication with each other and selective means for presenting the cotton to each cleaning instrumentality or one or more of them.

The invention seeks to provide a very compact construction which will take up but little space and constitutes a unit having ample capacity to handle a full battery of gins.

A further object of the invention is to provide as one of the cleaning instrumentalities a construction comprising a cleaning conveyor which moves over a trough having the form of a grid. Such a construction, I have found, in the case of cotton which is heavily laden with dirt, trash and débris to be of especial value.

In the drawing, I have indicated in a single view the preferred construction of my invention.

The numeral 10 indicates the usual dropper comprising a suction separator with a rotary screen or cylinder rotating in a suitable casing, the interior of which screen is connected by a duct with a suitable suction fan. This construction is all described in my aforesaid application.

The seed cotton is introduced into the casing through a suitable inlet, and between the outlet of the separator and the point to which the said cotton is delivered to the gin feeding means, there is arranged the cleaning mechanism of this invention.

In order to control definitely the amount of said cotton passing through the cleaning means, there is positioned in the chute 11 leading from the dropper a screw conveyor 12 which extends across the chute or box 11 and works in a trough extending to the end of the gin battery. This construction is set forth in my aforesaid application, and it will be understood that when box 11 has filled up to conveyor 12, the surplus will be caried by said conveyor through the trough and discharged outside of apparatus upon the floor or other suitable support, where, through the medium of a suction pipe it will be returned to the separator casing. The advantage of this, of course, is that the cotton will be fed in definite, continuous, and regulated amounts, and at the same time, there is prevented the heretofore inefficient practice of overcleaning the cotton, that is, the cotton which has overflowed from the conveyor 11 will not have been cleaned, as distinguished from prior practice where such cotton was passed through the cleaning instrumentality to the gin and collected as an overflow from the gin.

The present invention contemplates a construction wherein the cotton will be passed from the dropper 10 to a feeding instrumentality in the form of opposed rolls or cylinders 13 disposed in the box or chute 11, from whence it will be distributed to the particular cleaning instrumentalities to give it the treatment which its condition warrants.

At 14 I have indicated a chute or passage which leads to the gin.

At 15 I have indicated a pre-cleaner and at 16 a cotton boll or hull extractor mechanism. At 17 there is indicated the after cleaner and at 18 I have indicated a new type of cleaning mechanism which will be more in detail set forth.

Positioned in the box 11 is a suitable gate or valve 19. This gate 19 cooperates in the position shown with a gate 20 to pass the cotton through a chute or passage 21 to the after cleaner 17.

By moving the gate 20 at the mouth of the passage 14 to the limit of its movement to the right, it will be clear that there will be provided a passageway directing the cotton from the feeder 13 directly into the chute 14 and thus to the gin.

By moving the gate 19 to the limit of its movement to the left, the cotton will be directed to the pre-cleaner 15.

This pre-cleaner 15, it will be observed, is disposed above the several cleaning instrumentalities 17 and 18 and extractor 16 and comprises a casing having disposed therein the cylinders or screens 22 which are arranged in upwardly extending planes and operate over a screen 23, delivering the trash into the chamber 24 where it will be collected and delivered, from the machine by the conveyor 25.

The cylinders 22 moving over the screens 23 serve to relieve the cotton from much of its free and more finely divided particles, depending upon the mesh of the screen 23, and at the upper or last cylinder 22, the pre-cleaned cotton may be delivered to the cleaner 18 and extractor 16 or directly to the after cleaner 17. It will be observed that the cylinder 22 delivers the cleaned cotton to a passage 26 which communicates with two passages 27 and 28 extending in divergent relation, the passage 27 leading to the after cleaner and the other leading to the cleaner 18 and extractor 16.

Controlling the delivery of cotton from the

passage 26 is a valve 29 which in the position shown directs the cotton to the cleaning instrumentalities 16 and 18 and which, when turned to the right at the limit of its movement, will direct the cotton to the passage 27.

The passages 21 and 27 converge into a suitable chamber 30 as shown.

When the cotton is delivered from the chamber 26 to the cleaning instrumentality 18, it is presumed to be so full of débris, trash, and bolls and hulls as to require the treatment of all four of the instrumentalities.

The cleaner 18 comprises a casing 31 within which is disposed a substantially horizontal spiral conveyor 32 moving in a curved or arcuate trough 33. This trough 33 comprises a plurality of substantially equally spaced longitudinally extending grids which may be in the form of rods, bars, or pipes and which serve to effectively separate much of the larger trash particles and débris from the cotton. Disposed below the grid 33 is a suitable conveyor 34 for delivering such trash from the machine.

The conveyor 32 delivers at one end into a chute or passageway 35 which communicates with one end of a feeding conveyor 36 of the extractor 16. In this connection, it will be observed that the conveyors 32 and 36 are in substantially parallel relation and that by having the exit end of the conveyor 32 communicate with the inlet end of the conveyor 36, little or no space is lost and I am enabled to present the extractor mechanism not only below the cleaner 18, but position both instrumentalities below the pre-cleaner 15.

The extractor 16 comprises the rotating comb 37, a breaker roll 38 and a stripper roll 39. The stripper roll 39 usually comprising a plurality of brushing devices, withdraws the cotton from the comb 37 and delivers it to the passage 40 leading to the after cleaner 17. It will be observed that the chamber 30 and the passage 40 are in divergent relation and a valve 41 has one position at the base of the chamber 30 whence cotton delivered by the stripper roll 39 will be passed directly into the after cleaner 17.

On the other hand, when the valve 41 is moved to the right to the limit of its movement, it will cooperate thus with the valve 20 and valve 19, whereby cotton will be delivered from the feeding means through the passage 21, chamber 30, into the passage 40 and to the after cleaner.

When the valve 19 is at the limit of its movement to the left and the valve 29 is at the limit of its movement to the right, the cotton will pass to the pre-cleaner and then to the after cleaner. It will thus be seen that by reason of the valve arrangement, the cotton may be originally presented directly to the gin, to the after cleaner alone, to the pre-cleaner and after cleaner, or, in the case of cotton which requires a treatment by all of the instrumentalities, the valves may be arranged to pass the cotton through each of them.

The after cleaner 17 comprises a casing wherein is disposed a plurality of horizontally arranged foraminous cylinders 42 in upward planes and which move over screens 43 whereby the loose particles are effectively removed from the cotton. The débris so screened passes to a conveyor, not shown, at the base of the chamber 44 whence it is delivered from the machine. The uppermost roll 42 delivers the cotton into the chamber 45, whence it may be carried to the gin.

It will be understood that the various cylinders and rolls herein referred to as well as the conveyors all extend in a horizontal direction. By reason of the arrangement disclosed, I am enabled to obtain the selective cleaning such as the condition of the seed cotton warrants without use of any complicated or delicate mechanism such as would prove an obstacle where unskilled labor is utilized.

It will be observed, moreover, that in the precleaner the cotton delivers upwardly and that this instrumentality is disposed to deliver the precleaned cotton in a position where it may be directed to either of the subsequent treating instrumentalities.

By disposing the pre-cleaner substantially between the extractor and after cleaner, I am enabled to utilize a single chamber 30 and valve 41 to accomplish the selective treating described.

The present construction operates with great facility in connection with my regulating means, namely the conveyor 12, and as stated, that prevents the inefficient result heretofore obtained in practice of overcleaning or double cleaning the cotton.

The various valves indicated herein are preferably pivoted upon the respective casings and are operated by one or more control levers disposed within convenient reach of the operator.

It will be understood that the passages may be of various sizes and where, of course, a large apparatus is used, it may be necessary to employ a prime mover, such as an electric motor, for operation of the gates.

While I have described the several instrumentalities as housed in separate casings, it will be understood that there may be one integral casing, although I believe it more convenient to construct the machine with the several instrumentalities separable so that their inlet and discharge passages need simply be connected together at the time of installation.

The invention may partake of various modifications, all of which I consider as comprehended within the following claims.

I claim:

1. A cotton cleaning construction comprising a separator, a feeder, a precleaner communicating with said feeder, an aftercleaner communicating with said feeder, said precleaner and aftercleaner having means permitting communication between the two, an extractor having its inlet communicating with said precleaner and its outlet communicating with said aftercleaner, and a cleaning instrumentality disposed in a passage communicating with the outlet of said precleaner and the inlet of said extractor.

2. A cotton cleaning system comprising a feeder, a precleaner, an extractor and an aftercleaner, and means for directing the cotton directly from the feeder to the aftercleaner or selectively from the feeder through the precleaner, extractor and aftercleaner.

3. A cotton cleaning system comprising a feeder, a precleaner, an aftercleaner and an extractor communicating with said precleaner and aftercleaner, said precleaner having direct communication with said aftercleaner and said feeder also having direct communication with said aftercleaner.

4. A cotton cleaning system comprising a feeder, a precleaner, an aftercleaner, and an extractor communicating with said precleaner and aftercleaner, means for directing the cotton selectively through said precleaner, extractor and aftercleaner or selectively through said pre-

cleaner and aftercleaner, and means for directing the cotton directly to said aftercleaner or directly to the gin.

5. A cotton cleaning system comprising a feeder, a pre-cleaner, an after-cleaner, an extractor, and an intermediate cleaner between the pre-cleaner and the extractor, said pre-cleaner and said after-cleaner being selectively in direct communication with said feeder, and said intermediate cleaner and extractor being in communication with said pre-cleaner and said after-cleaner, respectively.

6. A cotton cleaning system comprising a feeder, a pre-cleaner communicating directly with said feeder, an after-cleaner communicating directly with said feeder, said pre-cleaner and after-cleaner having means permitting communication between the two, and an extractor having its inlet communicating with said pre-cleaner and its outlet communicating with said after-cleaner.

7. A cotton cleaning system comprising a feeder, a pre-cleaner, an extractor and after-cleaner located below said pre-cleaner, passages between said pre-cleaner, extractor and said after-cleaner, and passages extending downwardly from said feeder and pre-cleaner and converging at the entrance to said after-cleaner, whereby the after-cleaner is in direct communication with both the feeder and pre-cleaner.

8. A cotton cleaner construction comprising a feeder, a precleaner communicating with said feeder, an aftercleaner communicating with said feeder, said precleaner and aftercleaner having means permitting communication between the two, an extractor having its inlet communicating with said precleaner and its outlet communicating with said aftercleaner, and an intermediate cleaning instrumentality disposed in a passage communicating with the outlet of said precleaner and the inlet of said extractor.

ALEXANDER S. MACKENZIE.