

No. 769,251.

PATENTED SEPT. 6, 1904.

R. T. COOK.

ATTACHMENT FOR COTTON SEED CLEANERS.

APPLICATION FILED JAN. 11, 1904.

NO MODEL.

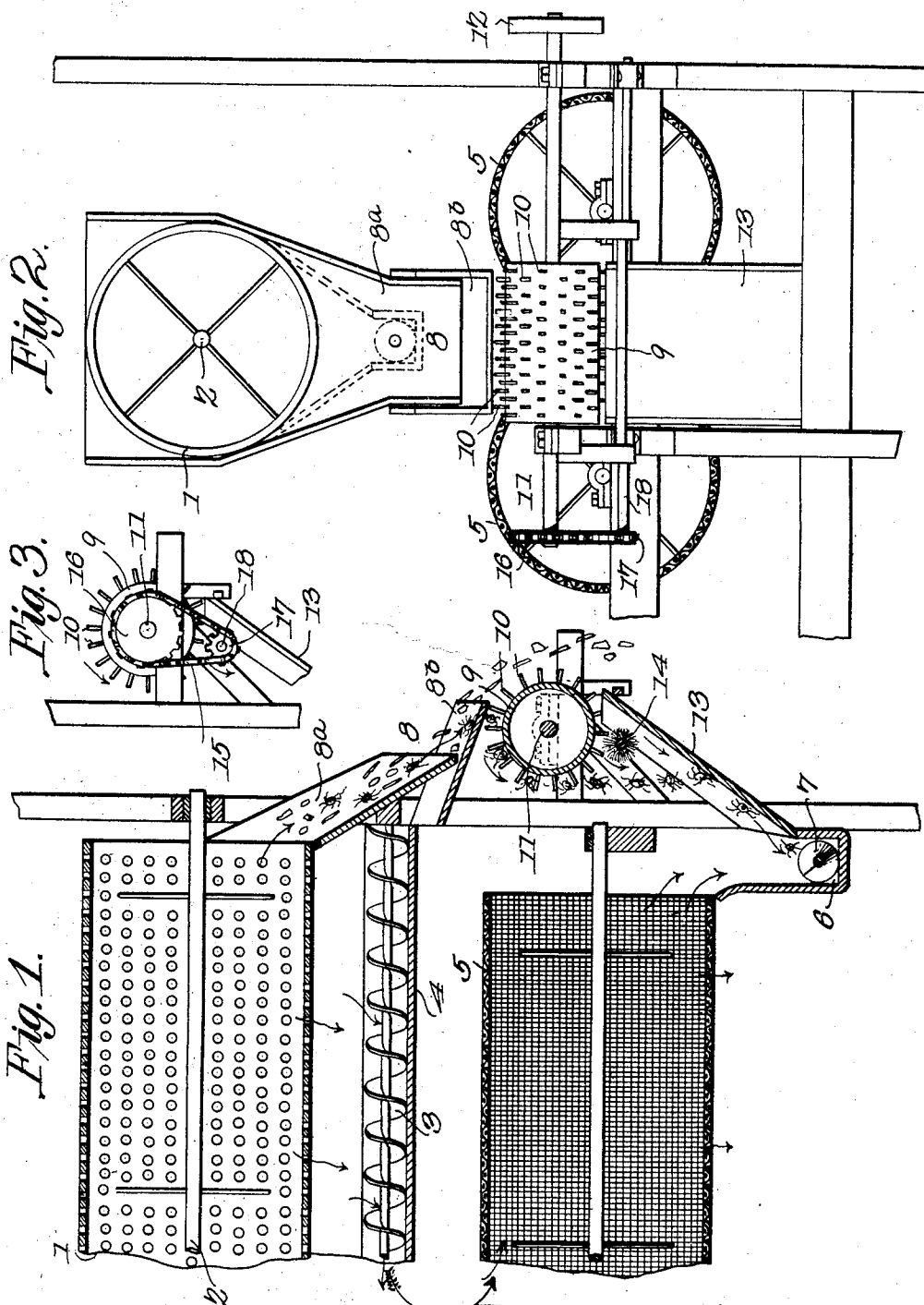


Fig. 1.

Fig. 3.

Fig. 2.

Witnesses
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ROLAND T. COOK, OF NORTH LITTLE ROCK, ARKANSAS.

ATTACHMENT FOR COTTON-SEED CLEANERS.

SPECIFICATION forming part of Letters Patent No. 769,251, dated September 6, 1904.

Application filed January 11, 1904. Serial No. 188,559. (No model.)

To all whom it may concern:

Be it known that I, ROLAND T. COOK, a citizen of the United States, residing at North Little Rock, in the county of Pulaski and State of Arkansas, have invented a new and useful Attachment for Cotton-Seed Cleaners, of which the following is a specification.

This invention relates to attachments for cotton-seed cleaners, and has relation more especially to cotton-seed cleaners of the type in which a rotary screen is employed to separate from the cotton-seed the larger pieces of trash—such as twigs, cotton-bolls, pebbles, nails, and the like—which are intermingled with the seed as they are received from the gin-houses and which if allowed to enter the cotton-seed linters would interfere greatly with the satisfactory operation of the linters.

In the operation of cotton-seed cleaners of the type specified the removal of the larger pieces of trash of the kinds mentioned by means of a screen is a source of loss of a considerable quantity of cotton-seed which adheres to the pieces of trash and of a considerable amount of cotton fiber which is adherent to the cotton-bolls and is carried out of the cleaner with the bolls and is consequently thrown away with the trash which escapes from the cleaner.

The object of the present invention is to provide an attachment for cotton-seed cleaners of the type above mentioned which will catch the greater portion, if not all, of the cotton-seed discharged with the trash from the cleaner and will separate from the cotton-bolls or fragments thereof practically all of the cotton fiber adherent thereto and will return to the machine for transfer to the cotton-seed linters all of the seed and cotton fiber so saved, while allowing the trash, which would injure the linters if carried thereinto, to pass off for destruction or removal.

With the objects above mentioned and others in view, which will appear as the invention is more fully disclosed, the same consists in the novel combination and arrangement of parts of an attachment for cotton-seed cleaners hereinafter described and having the novel features thereof clearly pointed out in the appended claims.

In describing the invention reference will be had to the accompanying drawings, in which I have illustrated a preferred form of embodiment of the invention, it being understood that various changes in the form, proportions, and exact mode of arrangement of the elements exhibited may be made without departing from the spirit of the invention or sacrificing the advantages thereof.

In the drawings, Figure 1 is a vertical sectional view through portions of a cotton-seed cleaner having the attachment forming the subject of the present invention operatively associated therewith. Fig. 2 is a view in elevation looking from the right of Fig. 1. Fig. 3 is a detail view of the attachment looking from the left of Fig. 2.

Referring to the drawings, in which corresponding parts are designated by similar characters of reference, 1 designates the curved screen of a cotton-seed cleaner which serves to separate from the cotton-seed the large fragments of trash—such as twigs, cotton-bolls, pebbles, nails, and the like—that may be intermixed with the cotton-seed and be too large to pass through the openings in the screen. The screen illustrated is of the ordinary hollow cylindrical form arranged horizontally and supported upon an axle 2, which is rotated by any suitable mechanism provided for that purpose, but not shown in the drawings, as the same forms no part of the present invention. Below the screen 1 there is illustrated a conveyer 3, which is preferably of the screw type and which lies at the bottom of a trough 4, into which the seeds passing through the apertures in the screen fall. The seeds falling into the trough 4 are engaged by the conveyer 3 and carried by it to the receiving ends of finer screens 5, by which the dust and fine particles of trash are separated from the cotton-seed and caused to escape through the meshes of the screens. The seed passes from the screens 5 into a trough 6, in the bottom of which is arranged a conveyer 7, which is also preferably of the screw type and which leads to the linters. (Not shown.) The clean cotton-seed carried into the linters by the conveyer 7 are denuded of their lint by the linters and are then carried to the mills,

by which they are ground previous to subjection to compression to extract the oil therefrom.

The lint separated from the cotton-seed by the linters and known to the cotton trade as "shorts" is formed into a bat and is baled and soled for use in a great variety of ways. The lint separated from the cotton-seed by the linters is of course very short and has a much smaller commercial value than that separated from the seed by the cotton-gins, and it is also considerably shorter than the fibers which adhere to the cotton-bolls or fragments thereof, which are separated from the cotton-seed by the screen 1 and caused to pass out of the end of the screen and down a discharge-chute 8, along which the trash from the screen passes to the trash pile. It is therefore a desideratum to recover the cotton fiber which adheres to the bolls and fragments thereof, because the quantity of fiber which so adheres is considerable, and it is of considerably-greater commercial value than an equal amount of the very short lint detached from the cotton-seed by the cotton-seed linters. So when the longer fiber adherent to the cotton-bolls and fragments thereof is recovered and added to the bat formed by the linters the quality of the bat produced is greatly improved and its market value is considerably increased.

In order to recover and carry back into the machine for transmission to the linters all of the cotton-seed discharged into the chute 8 and the cotton fiber adherent to the cotton-bolls and fragments thereof, I provide below the chute 8, which preferably consists of an upper section 8^a and a lower section 8^b, a drum or cylinder 9, provided on its outer surface with tolerably fine and closely-arranged teeth or spurs 10. The cylinder 9 is supported on an axle 11, having a pulley 12 or other power-transmitting member fixed thereon and journaled in suitable bearings mounted upon the frame of the machine. The drum 9 is preferably made of wood or other hard elastic material, and the spurs or teeth 10 must be tolerably fine and sharp to engage with the cotton fiber adherent to the cotton-bolls and fragments thereof and the cotton-seed, and they must be spaced sufficiently to permit the hard pieces of trash—such as twigs, pebbles, and the like—to strike the elastic surface of the drum and rebound therefrom. The teeth or spurs 10 are arranged in longitudinal rows upon the outer surface of the drum 9, and the spurs in adjacent rows are preferably placed in staggered order to insure the best operation of the machine. The end of the chute-section 8^b is disposed at such an angle to the surface of the drum 9 that the overtail trash passing out of the end of the said chute-section strikes obliquely upon the surface of the drum, and if the particles of trash have no cotton fiber adherent thereto they will at once rebound from the elastic surface of the

drum and fall upon the trash pile; but if the cotton-seed or fragments of cotton-bolls with cotton fiber adherent thereto fall upon the upper surface of the drum, the sharp spurs will become entangled in the cotton fiber and will carry the cotton-seed and fiber back into the machine, the fragments of cotton-bolls being detached from the fiber, which becomes entangled with the spurs or teeth 10 when the spurs upon the rotating drum pass under the end of the lower chute-section 8^b. The said chute-section is so arranged that the spurs upon the surface of the drum barely escape contact with the under surface of the chute-section at its lower end, and as the spurs pass under the end of the said chute-section the fragments of cotton-bolls or other pieces of trash adherent to the cotton fiber will strike against the end of the chute-section and be detached from the cotton fiber.

Below the drum 9 and in close proximity to the ends of the spurs 10 carried thereby I arrange a chute 13, which discharges into the trough 6, containing the conveyer 7, and in order to separate the cotton fiber and seed from the spurs upon the surface of the drum a cylindrical doffing-brush 14 is disposed under the drum in the position shown in Figs. 1 and 3, and this brush is positively driven in the direction indicated in Fig. 3 by a chain 15, running over sprockets 16 and 17, fast upon the shaft 11 of the drum and the shaft 18 of the brush, respectively. By means of the chain 15 the brush 14 is caused to rotate at a sufficiently rapid rate of speed to remove completely all of the cotton seed and fiber caught upon the spurs or teeth 10 of the drum, and the cotton fiber and seed so removed are carried downward through the chute 13 into the trough 6, where they become intermixed with the seed discharged from the screens 5 and are carried by the conveyer to the cotton-seed linters.

From the foregoing description and the accompanying drawings it will be readily seen that the trash which has no cotton fiber adherent thereto will rebound from the rotating drum when discharged from the chute 8, but that any particles of trash having cotton fiber adherent there will be caught by the fine spurs on the drum and will be carried upward by the drum until the said particles of trash strike against the end of the section 8^b, by which they are detached from the cotton fiber and are allowed to fall upon the trash pile, while the cotton fiber is carried onward by the spurs on the drum until detached therefrom by the action of the rotating brush 14. The action of the spurs 10 in catching cotton-seed which pass downward along the chute 8 is due in part to the tendency of the cotton fiber adherent to the seeds to catch upon the spurs and in part to the tendency of the cotton-seed to adhere together in rolls or masses like cockle-burs, and so to prevent surfaces well

adapted for engagement with the fine spurs upon the drum.

By setting the spurs upon the drum at the proper distance apart and making use of spurs of suitable fineness and sharpness the loss of cotton fiber from adherence to the bolls or fragments thereof is almost entirely eliminated, and the rolls or masses of cotton-seed which do not pass through the apertures of the screen 1, but are discharged through the opening at the end of the screen and pass downward along the discharge-chute, are recovered without waste. The recovery of the cotton-seed and cotton fiber adherent to the bolls in this manner effects a great saving in the aggregate during the year, greatly improves the quantity of the bat of cotton formed by the cotton-seed linters, and does not cause trash to reënter the seed-cleaning machine to pass on to the cotton-seed linters.

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

1. In a machine for cleaning cotton-seed, the combination of a cylindrical cleaning-screen, a recleaning-screen, means for transferring the cotton-seed escaping through the cleaning-screen to the recleaning-screen, a trash-cleaning device, means for conveying the trash escaping from the cylindrical cleaning-screen to the trash-cleaning device, and means for

returning the material saved by the latter to the seed-cleaner for intermixture with the clean seed issuing therefrom.

2. The combination of a cotton-seed cleaner, a receptacle for the cleaned seeds and fiber, a revolving hard-surfaced toothed cylinder in the path of the overtail or trash falling therefrom and adapted to cause the rebound of the impacting hard or heavy trash and to catch the seeds and fiber, means for doffing the seeds and fiber at a point other than that of the discharge of the foreign matter, and means for receiving the seeds and fiber and delivering them to the aforesaid receptacle for the cleaned seeds and fiber.

3. The combination with a cotton-seed-cleaning machine, of a traveling surface disposed obliquely to the line of travel of waste material discharged from said machine, provided with fine spurs or teeth, means for removing from said spurs or teeth the material caught thereby, and means for returning said material to the interior of the cotton-seed-cleaning machine for intermixture with the clean cotton-seed issuing from the machine.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ROLAND T. COOK.

Witnesses:

FRANK O. COOK,
L. S. HEATH.