

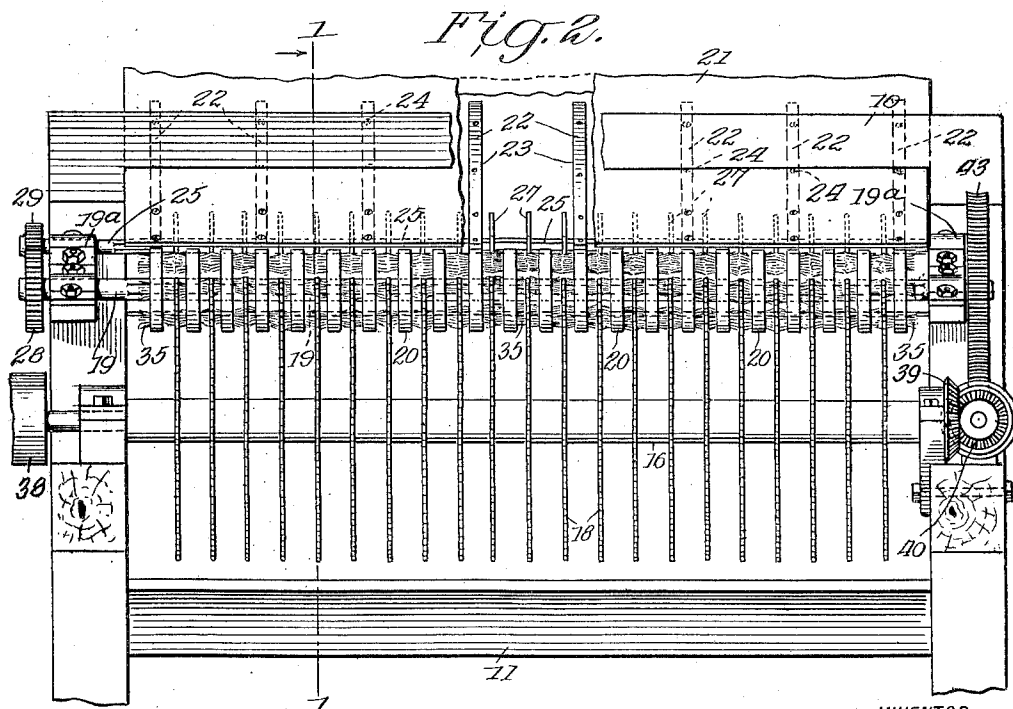
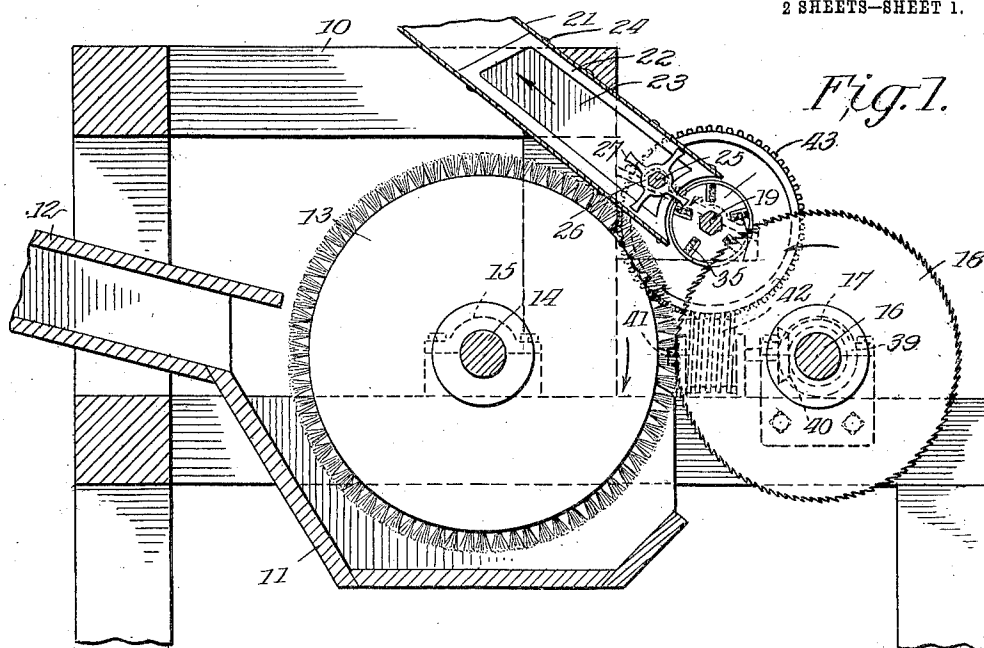
E. A. ROZIER.
COTTON CLEANER.

APPLICATION FILED DEC. 16, 1912.

1,087,831.

Patented Feb. 17, 1914.

2 SHEETS—SHEET 1.



WITNESSES

Samuel E. Wade.
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INVENTOR

EDWARD A. ROZIER.

BY Munn & Co.

ATTORNEYS

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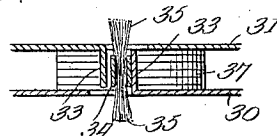
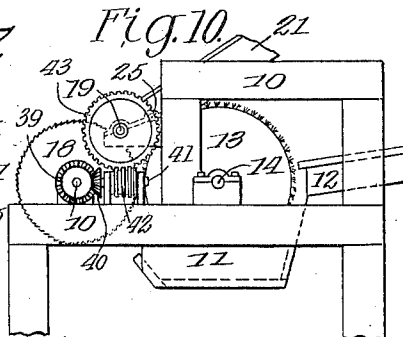
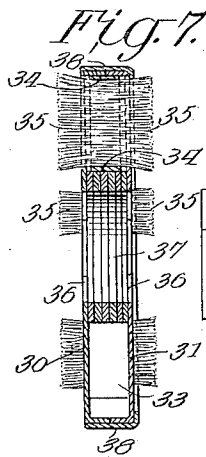
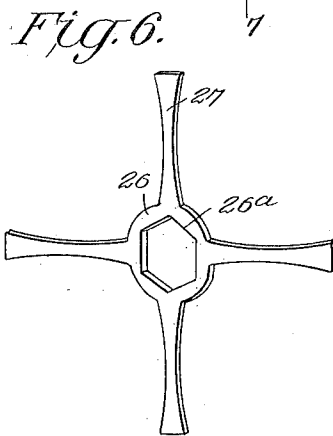
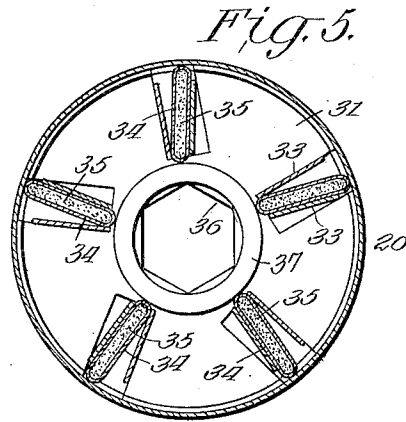
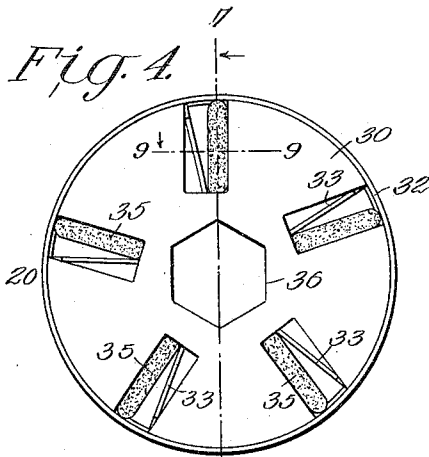
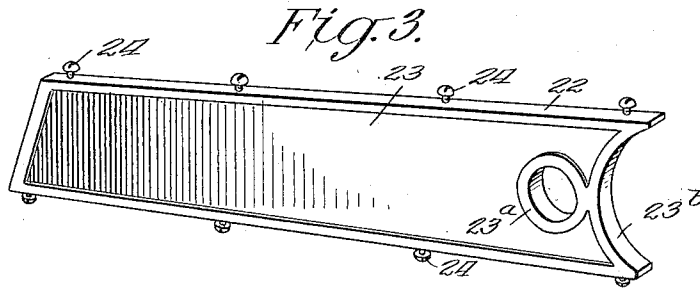
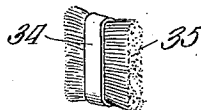


Fig. 8.



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UNITED STATES PATENT OFFICE.

EDWARD A. ROZIER, OF SPARTA, GEORGIA, ASSIGNOR TO ELLA LOU ROZIER, OF SPARTA, GEORGIA.

COTTON-CLEANER.

1,087,831.

Specification of Letters Patent.

Patented Feb. 17, 1914.

Application filed December 16, 1912. Serial No. 736,962.

To all whom it may concern:

Be it known that I, EDWARD A. ROZIER, a citizen of the United States, and a resident of Sparta, in the county of Hancock and State of Georgia, have made certain new and useful Improvements in Cotton-Cleaners, of which the following is a specification.

My invention relates to cotton cleaners, and operates in connection with gin mechanism.

The purpose of my device is to comb, card or clean cotton while the latter is passing through the gin and is being carried by the gin saws at points in the rotation of the saws where the least amount of cotton is present, and where the cotton as carried by the saws offers the least resistance to motion of the saws.

More particularly stated my invention is to clear the cotton of black specks caused by dried cotton leaves pulverized, and to remove motes and various other impurities, including small cotton seed, which, during the process of ginning, are drawn through the ribs of the gin, as is sometimes the case owing to the ribs being worn.

My device is also intended to remove earth stains from the cotton due to the fact that portions of the cotton have fallen to the ground.

Another purpose of my device is to gin the cotton seed closer than usual, and in so doing to prevent the sawdust from the hulls going into the lint as the latter is removed and blown or hurled into the lint room.

Reference is made to the accompanying drawings, forming part of this specification and in which like letters indicate like parts.

Figure 1 is a vertical section through a gin equipped with my invention, and taken upon the line 1—1 of Fig. 2, looking in the direction of the arrow, Fig. 2 is a fragmentary front elevation of the mechanism shown in Fig. 1, both broken away, Fig. 3 is a detail view showing in perspective one of the partitions with which the dust flue is provided, Fig. 4 is a detail showing in side elevation one of the cleaning wheels removed from its mountings, Fig. 5 is a substantially central vertical section through one of the cleaning wheels, Fig. 6 is a perspective view of one of the finger wheels, Fig. 7 is a vertical section through a cleaning wheel and is taken upon the line 7—7 of Fig. 4, looking in the direction of the

arrow, Fig. 8 is a detail showing one of the brushes of a cleaning wheel, Fig. 9 is a section on the line 9—9 of Fig. 4, looking in the direction of the arrow and showing how the cleaning brushes are mounted in the cleaning wheels, and, Fig. 10 is a side elevation of the machine, as seen by a person standing at the right of Fig. 2.

The gin frame is shown at 10 and is provided with a flooring 11 and with a lint chute 12, the latter extending rearwardly from the gin and preferably projecting into the lint room or condenser flue. The brush wheel of the gin is shown at 13, and is mounted upon a revoluble shaft 14, the latter being supported by bearings 15 in the usual, or any desired manner. The saw shaft is shown at 16 and is mounted in bearings 17. The saws are shown at 18 and may, if desired, be of the type commonly used in gins.

I provide a revoluble shaft 19 having a hexagonal form in cross section. This shaft is revolubly mounted in bearings 19^a in such manner as to be readily disconnected from these bearings and removed from the machine. Mounted upon the hexagonal shaft 19 are a number of cleaning wheels 20, the details of which can be best understood by reference to Figs. 4, 5, 7 and 9. Mounted within the gin frame 10 and supported thereby is a chute 21, which extends obliquely upward from the saws 18, as will be understood from Fig. 1. The chute 21 contains a number of metallic partitions 22 each provided with a comparatively thin web portion 23 and secured in position by aid of bolts 24 or other appropriate fastenings.

The partitions 22 are provided with annular portions 23^a (see Fig. 3) serving as bearings and extending through these bearings is a revoluble shaft 25 having a hexagonal form in cross section. Rigidly mounted upon this shaft and spaced apart are number of finger wheels 26 each carrying a number of fingers 27 integral with it. A gear wheel 28 (see left of Fig. 2) is mounted rigidly upon the shaft 19 and meshes with a gear pinion 29 which is rigidly secured upon the adjacent end of the shaft 25. The gear wheel 28 has twice as many teeth as the gear pinion 29 so that the shaft 25 makes two revolutions to one revolution of the shaft 19 and the shafts turn in opposite directions. The cleaning wheels 20

according to Fig. 1 turn in a contraclockwise direction, while the finger wheel 26 turns in a clockwise direction, the fingers carried by this wheel outrunning the adjacent portions of the cleaning wheel. The
5 saws turn in a contra-clockwise direction. The brush wheel 13 turns in a clockwise direction according to this figure, so that its peripheral surface does not outrun the adjacent surfaces of the saws.
10

Each cleaning wheel 20 comprises two cupped disks 30, 31 facing each other as indicated in Fig. 7. Each disk is provided with a number of openings 32 and with a
15 number of tongues 33, these tongues being stamped or struck out in forming the openings and being bent down so as to partially bound the openings. Each tongue carried by one of the disks 30, 31 extends toward
20 an opening in the other disk. The tongues are thus arranged in pairs, a tongue carried by the disk 30 and a tongue carried by the disk 31 together constituting a pair. The cleaning wheels carry brushes 35 each
25 comprising a bunch of bristles tied together by a band 34 extending around the middle of the bunch and having a substantially elliptical form so that the brushes are flat as indicated in Fig. 8. Each disk 30, 31 is
30 provided centrally with an aperture 36 which is angular so as to mate the cross section of the shaft 19. Carried by each cleaning wheel 20 are a number of metallic washers 37, which are conveniently formed
35 of sheet metal. These washers serve as spacing members for the disks 30, 31, as will be understood from Fig. 7.

In order to assemble the parts of one of the cleaning wheels the washers 37 are
40 brought together and the disks 30, 31 are disposed upon opposite sides of the group of washers so that the openings 36 of the two disks are brought nearly into registry. The disks 30, 31 are turned slightly in relation to each other, so that the brushes 35
45 may be readily inserted into the openings 32. The brushes being inserted one of the disks is rotated slightly in relation to the other so that each brush is clamped firmly
50 between two of the tongues 33, one of these tongues being carried by each disk. The cleaning wheel is now ready to be mounted. It is slipped upon the shaft 19 and during
55 this step the openings 36 are, by virtue of the angular conformity of the hexagonal shaft, brought into exact registry. This means that one of the tongues 33 carried by one of the disks 30, 31 is turned slightly in relation to the other disks so that between
60 these tongues the brush is securely held. As the action is the same at each of the openings 32 the several individual brushes 35 are all held in their respective positions.

The finger wheels 26 are provided with

angular openings 26^a and are fitted upon the
65 hexagonal shaft 25 being spaced apart by washers. The finger wheels 26 turn with the shaft upon which they are mounted. The several cleaning wheels 20 are also
70 spaced apart by washers or in any other appropriate manner.

The parts are arranged as indicated in Fig. 2. Each cleaning wheel 20 extends between two consecutive saws so that the
75 brushes 35 press against the same, the result being that each saw, at a point adjacent to its edge, is pressed upon its opposite faces, the pressure upon it being thus equally balanced. The chute 21 is connected with an exhaust or suction air pump
80 so that a vacuum draft is created through the chute in a direction obliquely upward to the left according to Fig. 1.

Power is applied to the shaft 16 by a pulley 38. The shaft 16 carries a beveled
85 gear 39, which meshes with a beveled gear 40, the latter being mounted rigidly upon a shaft 41. A worm 42 is also rigidly mounted upon this shaft. Meshing with this worm
90 is a worm wheel 43 which is mounted rigidly upon the adjacent end of the shaft 19.

The operation of my device is as follows:—The parts being assembled and arranged as above described the cotton is fed
95 into the gin substantially in the usual manner and is brought into engagement with the gin saws, 18. As these saws revolve the brush wheel 13 of the gin removes the cotton from the saws and discharges it through
100 the chute 12 into the lint room. As the saws 18 turn, carrying with them little tufts or particles of cotton torn from the seed, the cleaning wheels 20 by revolving as above described bring the brushes 35 into contact
105 with the cotton thus carried by the saws, and as the cleaning wheels have a speed slower than the saws, the brushes 35, already described, carry the dirt and other impurities from the cotton. The fingers 27 by
110 turning at a higher rate of speed than the speed of rotation of the brushes 35 strips these brushes continuously of the impurities which they carry. The impurities in the form of dust, dirt and flocculent particles are dislodged within the chute 22 and
115 are carried off by the vacuum draft as above described.

By the use of the apparatus above described the color and general quality of the cotton are greatly improved, the cotton thus
120 operated upon being as a consequence entitled to a higher grading. The shaft 19 being easily detachable from its bearings as above indicated may be removed bodily along with the cleaning wheels 20 in an
125 instant after stopping the gin, so that very little time is lost. As some of the cleaning wheels 20 fit into the hemispherical por-

tions 23^b of the partitions 22, the latter serving as peripheral bearings for such cleaning wheels, the ease with which the shaft 19 and wheels carried by it may be removed is greatly increased.

I do not limit myself to the precise construction shown, as variations may be made therein without departing from the spirit of my invention.

10 I claim:

1. In a cotton cleaner adapted for attachment to a gin, the combination of cleaning wheels provided with brushes and disposed adjacent to the gin saws, means for turning said cleaning wheels in the same angular direction as said saws, finger wheels disposed adjacent to said cleaning wheels and provided with fingers, each finger wheel being located between two consecutive cleaning wheels, and a chute for conveying impurities gathered by said cleaning wheels from cotton carried by said saws.

2. A cotton cleaner comprising a chute to be mounted upon a gin, a plurality of partitions located within said chute and spaced apart, finger wheels revolubly mounted within said chute, cleaning wheels disposed adjacent to said chute and coacting with said finger wheels, said cleaning wheels being mounted upon a shaft and extending partially into said chute, and means for disengaging said shaft from its location relatively to said chute.

3. A cotton cleaner adapted for attachment to a gin, comprising cleaning wheels for removing impurities from cotton while said cotton is carried by the gin saws, finger wheels coacting with said cleaning wheels for receiving impurities therefrom, and a chute encircling said cleaning wheels for

the purpose of conveying away impurities received from said cleaning wheels.

4. A cotton cleaner comprising a chute, a plurality of partitions mounted therein and spaced apart, each partition being provided with a semicircular end portion serving as a bearing, a cleaning wheel disposed adjacent to each partition and provided with a surface extending into proximity to said semicircular bearing portion, means for turning said cleaning wheels, and a mechanism for removing impurities from said cleaning wheels.

5. The combination of a cotton gin provided with saws, cleaning wheels revolubly mounted and disposed adjacent to said saws, said cleaning wheels being located at points where said saws are carrying a minimum of cotton, finger wheels located adjacent to said cleaning wheels for the purpose of receiving impurities therefrom, and means for conveying away impurities from said cleaning wheels.

6. A device of the character described, comprising a chute, a plurality of partitions mounted within said chute, each partition being provided with an annular bearing and with a semicircular surface adjacent to said bearing, a revoluble shaft extending through the several annular bearings of the partitions, finger wheels mounted upon said revoluble shaft, cleaning wheels extending into proximity to said hemispherical surfaces of said partitions, means for turning said cleaning wheels, and saws revolubly mounted in proximity to said cleaning wheels.

EDWARD A. ROZIER.

Witnesses:

E. GORDON LATIMORE,
W. O. THOMAS.