Jan. 18, 1944. J. D. RUST 2,339,295

COTTON CLEANER

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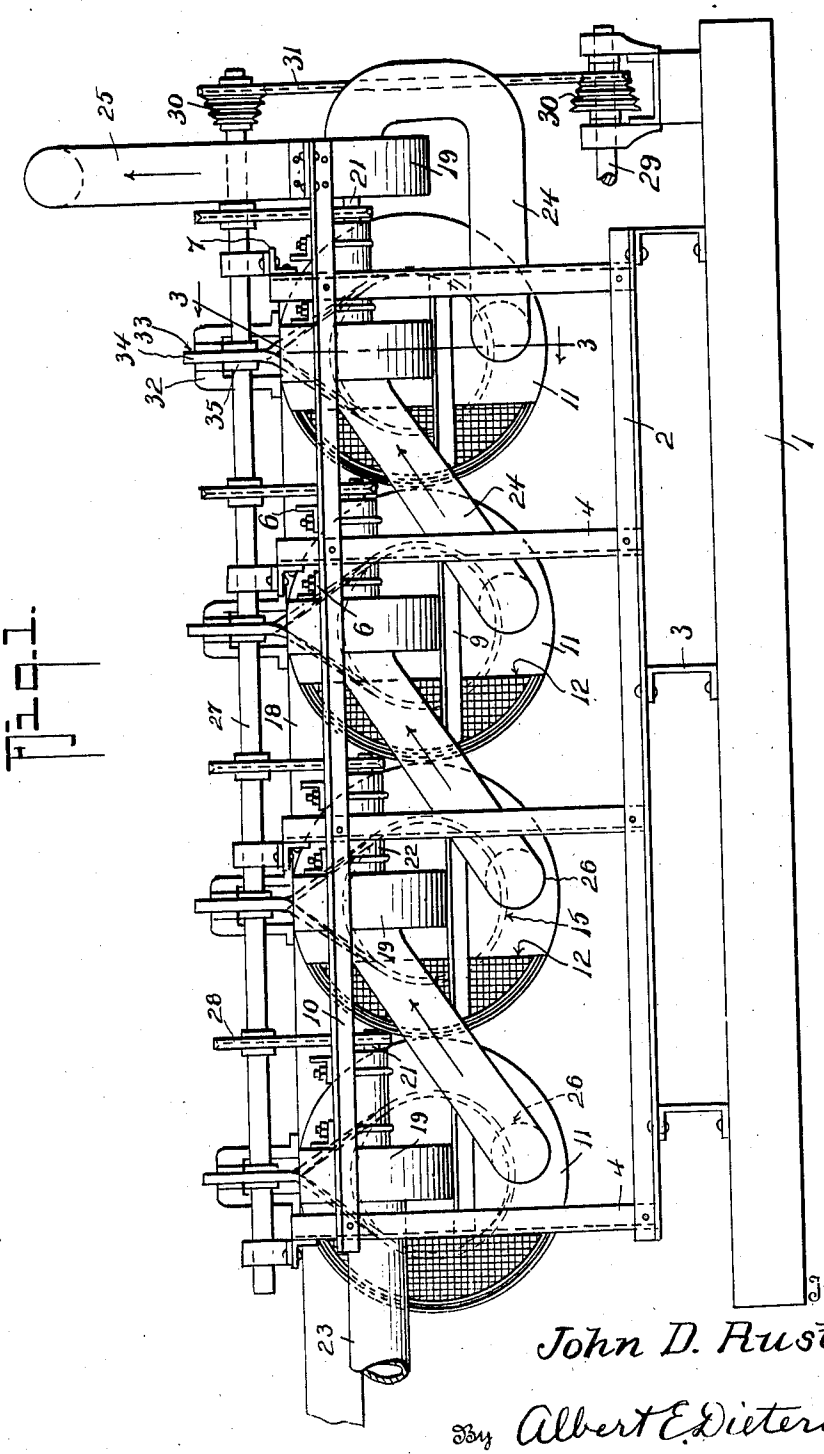


Fig. 1.

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Fig. 2.

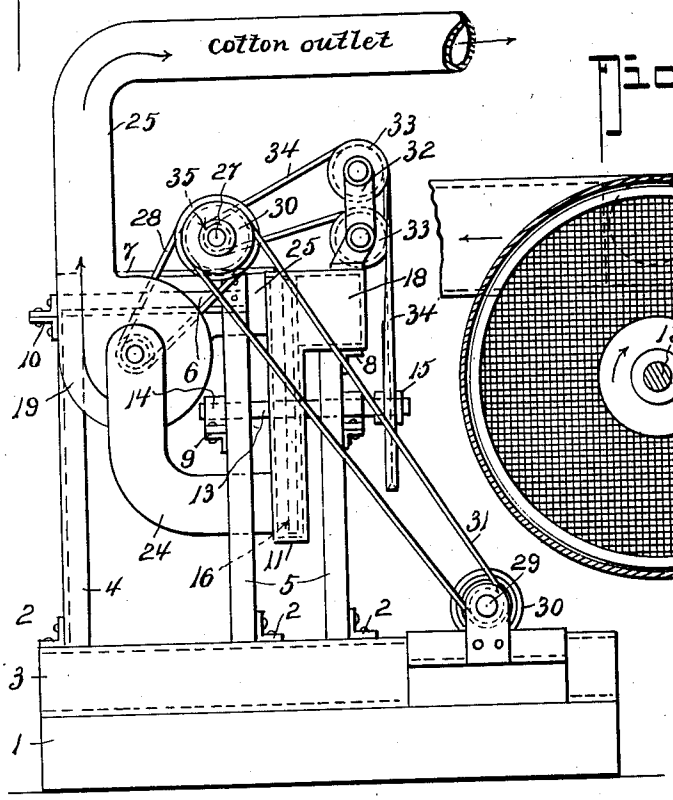
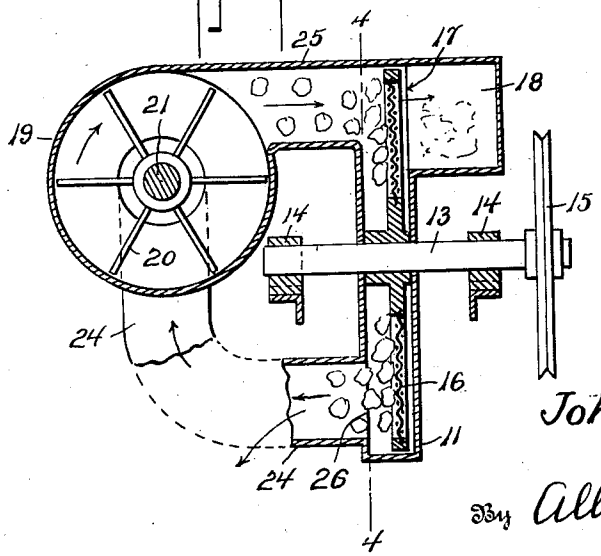


Fig. 4.

Fig. 3.



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UNITED STATES PATENT OFFICE

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COTTON CLEANER

John D. Rust, Memphis, Tenn.

Application December 16, 1940, Serial No. 370,389

1 Claim. (Cl. 19—72)

My invention relates to certain new and useful improvements in machines for cleaning cotton.

There are many cotton cleaners on the market at present. One type is designed to remove burrs and large particles of trash and another is designed with a view to rolling and brushing the dirt and smaller trash out through a screen. This latter type has revolving fingers which brush the cotton with a rolling motion over the concave side of a screen. This rolling motion is objectionable because it has a tendency to twist and rope the cotton which makes it unsatisfactory for ginning and spinning. Furthermore, it does not do a thorough job of cleaning the cotton. My invention, therefore, has for an object to provide a cotton cleaner which is free of the above objections and to that end, my invention works on a principle which avoids any twisting and rolling of the cotton, leaving the cotton clean and fluffy and in ideal condition for ginning and spinning.

It is an object of the invention to provide a machine employing a series of rotating disc-type screens and suction blowers for blowing the cotton and trash onto each of the screens successively at one location and removing the cotton, freed more or less of trash, from the screens at another location and discharging the trash and cleaned cotton separately from the machine.

Other objects will in part be obvious and in part be pointed out hereinafter.

To the attainment of the aforesaid objects and ends the invention still further resides in the novel details of construction, combination and arrangement of parts, all of which will be first fully described in the following detailed description, and then be particularly pointed out in the appended claim, reference being had to the accompanying drawings, in which:

Fig. 1 is an elevation of the first embodiment of my invention.

Fig. 2 is an end view of the same looking from right to left in Fig. 1.

Fig. 3 is an enlarged detail vertical cross-section on the line 3—3 of Fig. 1.

Fig. 4 is a detail section on the line 4—4 of Fig. 3.

Referring now to the accompanying drawings in which like numbers of reference indicate like parts in all the figures it will be seen that upon a suitable base 1 are placed transverse supports 3 carrying longitudinals 2 on which a frame structure, composed of angle irons 4 to 10 inclusive, is built up.

Suitably mounted in this frame is a series (plurality) of screen units, each comprising a housing 11, portions of the front and back walls of which are removed to leave openings 12. In the housings 11 are rotating disc-type screens 16, whose shafts 13 are mounted in bearings 14, and carry pulleys 15. The backs of the housings 11 have trash discharge openings 17 from which the trash and air discharged from the cotton impelling blowers or fans pass into a duct 18.

With each screen, there is associated a sucking-blowing fan whose housings 19 contain the fans 20. The fan shafts 21 run in bearings 22.

23, 24 designate the suction ducts of the fans, the duct 23 carrying the cotton to be cleaned to the first fan, while the ducts 24 carry the cotton from preceding screens to succeeding fans, the final discharge of cleaned cotton taking place in the last duct blowing duct 25.

The intermediate blowing ducts 25 deliver the cotton and any trash that may be mixed with it to the screens 16 adjacent their tops and in line with the discharge holes 17 in casing 11 (see Fig. 3).

The front walls of the screen housings 11 have cotton discharge holes 26 located preferably at or near the bottoms of the housings, from which holes the suction ducts 24 lead.

A countershaft 27 is provided with drive pulleys around which and around pulleys on the shafts 21, the driving belts 28 pass.

Power is applied from any suitable source to the driving or first motion shaft 29.

Change speed pulleys 30 are provided on shafts 27 and 29 around which the belt 31 passes.

The several screens are turned by belts 34 passing over idler pulleys 33 mounted in suitable brackets 32 and passing around pulleys 35 on shaft 27 (see Fig. 2).

The operation of this embodiment of my invention is as follows: Assume the screens and fans or blowers to be in motion. Cotton is drawn into duct 23 and passes through the first blower by which the cotton is impelled against the screen. The screen is of a mesh which will hold back the cotton but will permit the trash to be blown through. (The idea is to throw the cotton against the screen with as much speed as possible without breaking the seed.)

As the screen turns, it will carry the cotton along until it comes opposite the hole 26 in the front of the housing 11 where the cotton is sucked up by the second fan of the series and thrown against the second screen of the series. This operation is repeated for each screen of the se-

ries until the clean cotton is eventually discharged via last duct 25.

By providing the openings 12 in the housings 11 a sufficient area of the screen is exposed to facilitate the cleaning of the screen.

While I have shown my new and improved cleaner as a stationary one, it is obvious that it can be adapted as a portable cleaner or installed in a gin, if desired. I wish it understood that other modifications can be made within the spirit of the invention and the scope of the appended claim.

What I claim is:

A cotton cleaning machine comprising a series of disc-type revolving screen units, each unit comprising a vertically disposed narrow casing, a revolving screen-disc enclosed in said casing in close proximity to the back wall thereof, a suction blower having an intake opening and an outlet duct, said casing having at its upper portion of its front wall an inlet opening to which said outlet duct is connected to blow cotton and air against said screen-disc, said casing having an upper opening in its back wall in alignment with the front upper opening for discharge of air and detritus and having a lower opening in its front wall for discharge of cotton, a duct from the lower cotton discharge opening of one unit to the inlet of the suction-blower of the next succeeding unit, and means for operating said screen-discs and said suction-blowers.

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