Nov. 26, 1940. R. G. FARR 2,223,098

CLEANER AND FEEDER FOR GINS

Filed Sept. 7, 1939 2 Sheets-Sheet 1

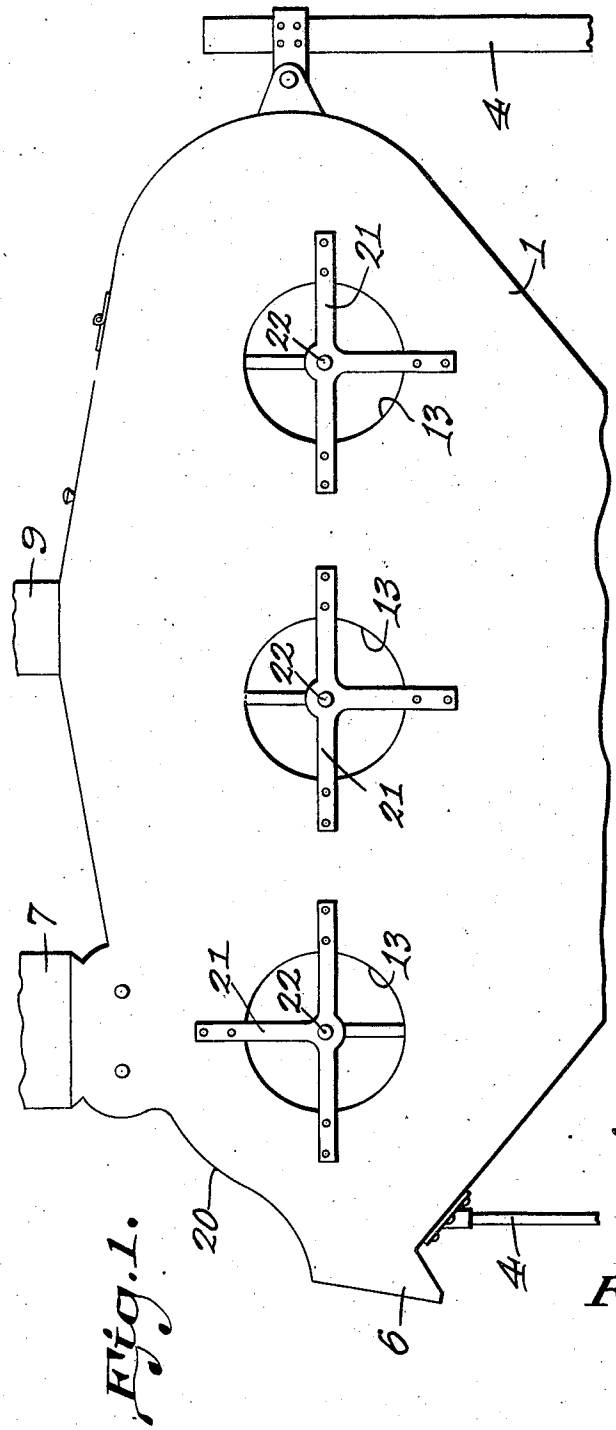


Fig. 1.

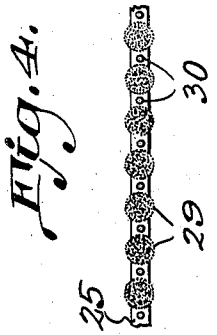


Fig. 4.

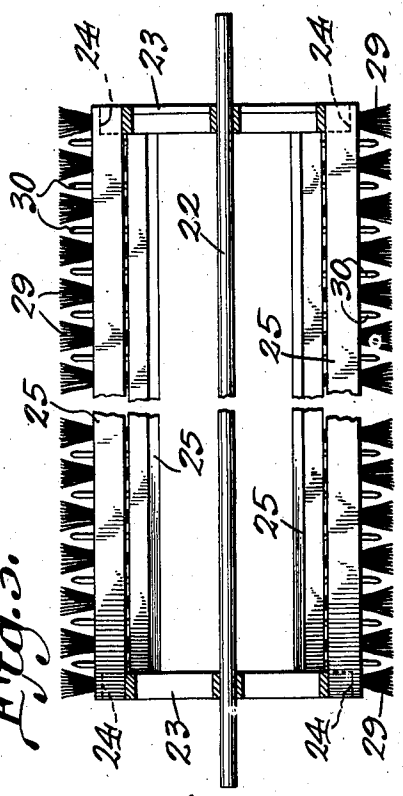


Fig. 3.

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BY C. A. Snow & Co.

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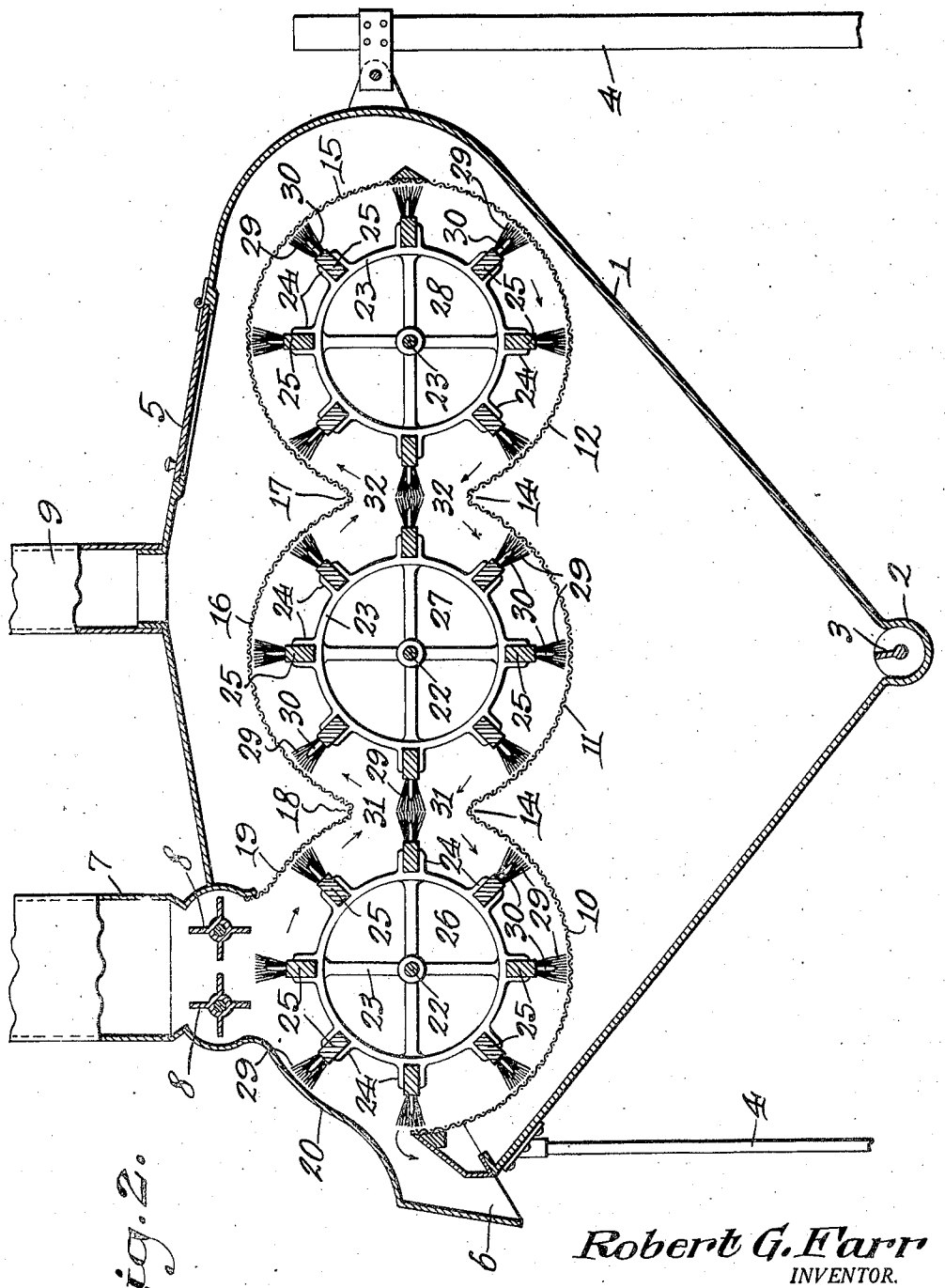


Fig. 2.

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UNITED STATES PATENT OFFICE

2,223,098

CLEANER AND FEEDER FOR GINS

Robert George Farr, Pacific Grove, Calif.

Application September 7, 1939, Serial No. 293,855

4 Claims. (Cl. 19—67)

This invention relates to an improved cleaner and feeder for use with cotton gins.

An object is to provide a new and novel arrangement of cylindrical brushes which cooperate with a series of screens to convey cotton along a circuitous path from the inlet to the outlet, each brush also acting as a fan to set up a circulation of air which, in cooperation with the centrifugal action of the brush, effects a thorough separation of dirt and other foreign particles from the cotton fibre.

Another object is to provide brushes which include in their construction rows of alternately arranged spikes and tufts of bristles, whereby the cleaner can be made without the separate spike drums commonly employed.

It has been found in practice that drums having spikes only beat and break the cotton fibres to an objectionable extent, thereby lowering the quality of the staple.

An object of the present invention is to avoid the objectionable characteristics of spike cylinders, by combining the spikes with the brushes, thereby producing better results, each cylinder effecting cleaning by the use of brushes and spikes and by air currents set up thereby.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings

Figure 1 is a side elevation of a portion of the structure.

Figure 2 is a central vertical section therethrough.

Figure 3 is a longitudinal section through one of the cylinders, a portion being broken away.

Figure 4 is a plan view of one of the bars of the cylinder.

Referring to the figures by characters of reference 1 designates a casing having its bottom inclined downwardly to a trough 2 for receiving dirt and other foreign matter separated from the cotton, there being a conveyor 3 in the trough for withdrawing material therefrom. Supports 4 can be connected to the casing and the top has a closure 5 which, when opened, affords access to the interior of the casing.

An outlet spout 6 extends from one end of the casing and opening downwardly into the casing is a feed chute 7 containing the usual feeder rolls 8 to be operated in any manner desired. A vent flue 9 opens from the top of the casing as shown.

A series of lower concaves in the form of screens 10, 11 and 12 is located in the casing and these screens extend from one side to the other of the casing. They are concentric with air inlets 13 and are joined as shown at 14. Screen 12 merges into an inverted concave screen 15 which, in turn is connected to an inverted concave screen 16 as shown at 17. At 18 the screen 16 merges into a screen 19 which overlies a portion of screen 10 and extends up to one side of the outlet end of feed chute 7. Screen 10 is beneath the chute and extends up to the outlet 6, and a portion of the breast 20 of the cleaner as well as screen 19 are, like screen 10 thereunder, concentric with one of the openings 13.

Bearings 21 in the form of spiders or cross frames, are secured across the openings 13 and journaled in them are shafts 22. Secured to each shaft are skeleton heads 23 through which air can circulate freely, and the heads on each shaft have annular series of outstanding peripheral ears 24 arranged in pairs and cooperating to provide seats. These seats hold the ends of spaced bars 25 secured therein and cooperating with the heads to form open faced cylinders 26, 27 and 28 respectively. Cylinder 26 is between and concentric with screens 10 and 19 as well as breast 20. Cylinder 27 is between and concentric with screens 11 and 16 while cylinder 28 is concentric with screens 12 and 15.

As shown, each bar has a row of tufts 29 extending outwardly therefrom. These are made of the usual brush material and are spaced apart to receive between them short pointed spikes 30, one spike being located between every two tufts. The tufts extend close to the inner surfaces of the screens but are spaced therefrom.

The shafts and the cylinders thereon are rotated simultaneously in the same direction as indicated by the arrows in Figure 2 and are driven at high speed by any suitable means not shown.

Cotton to be cleaned is fed downwardly from chute 7 by rolls 8 and is deposited on the cylinder 26. This brushes and combs the cotton at high speed to the throat provided at 31 where it is thrown into the path of cylinder 27 conveyed along screen 16 to throat 32 and transferred to cylinder 28. This latter cylinder brushes the cotton downwardly to screen 12, and along said screen to throat 32 where it is again transferred

to cylinder 27, carried along screen 11 to throat 31, transferred to brush 26 and delivered along screen 10 to the outlet 6. During this circuitous passage of the cotton from the inlet to the outlet the cylinders act as fans to suck air thereinto and expel it between the bars whereupon it is dissipated within the casing and escapes through flue 9 carrying with it any fine particles held in suspension. The bars, tufts and spikes also set up a centrifugal action which tends to throw off through the screens any foreign particles and these will accumulate in trough 2 and be carried therefrom by the conveyor 3.

It has been found that by locating the spikes between and back from the free ends of the tufts, they effectively comb through the cotton but do not tend to beat and break the same and reduce its quality.

What is claimed is:

1. A cleaner and feeder for cotton gins including a casing and having opposed concave screens arranged in pairs and providing throats between the pairs, a cotton inlet and a cotton outlet opening between the screens of one pair, and a unit constituting a brush, spike cylinder and fan rotatably mounted between the screens of each pair, each unit comprising open heads, spaced bars connecting the heads and constituting fan blades, spaced brush tufts on each bar and spikes between the tufts on each bar.

2. A cleaner and feeder for cotton gins including a casing having opposed concave screens arranged in pairs and providing throats between the pairs, a cotton inlet and a cotton outlet opening between the screens of one pair, and a unit constituting a brush, spike cylinder and fan rotatably mounted between the screens of each pair, each unit comprising open heads, bars secured to the peripheries of and connecting the heads, said bars being spaced apart and constituting fan blades, a row of spaced brush tufts on each bar, and spikes on each bar and shorter than the tufts, there being one spike between every two tufts.

3. A cleaner and feeder for cotton gins including a casing having opposed concave screens arranged in pairs and providing throats between the pairs, a cotton inlet and a cotton outlet opening between the screens of one pair, and a unit constituting a brush, spike cylinder and fan rotatably mounted between the screens of each pair, each unit comprising open heads, bars secured to the peripheries of and connecting the heads, said bars being spaced apart, a row of spaced brush tufts on each bar, and spikes on each bar and shorter than the tufts, there being one spike between every two tufts, there being air inlets in the casing at the end of each cylinder, and an air outlet flue extending from the casing.

4. A cleaner and feeder for cotton gins including a casing having opposed concave screens arranged in pairs and providing throats between the pairs, a cotton inlet and a cotton outlet opening between the screens of one pair, and a unit constituting a brush, spike cylinder and fan rotatably mounted between the screens of each pair, each unit comprising open heads, bars secured to the peripheries of and connecting the heads, said bars being spaced apart and constituting fan blades, a row of spaced brush tufts on each bar, and spikes on each bar and shorter than the tufts, there being one spike between every two tufts said cylinders cooperating to convey material from the inlet along the upper screens of the pairs and thence along the lower screens each said pairs to the outlet.

ROBERT GEORGE FARR.