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C. R. WOOD

HULLER AND CLEANER FEEDER FOR COTTON GINS

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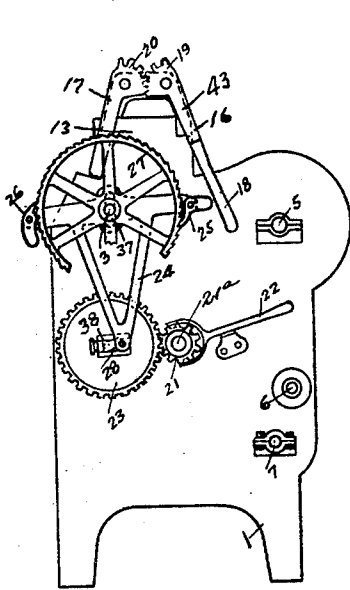


FIG. 1.

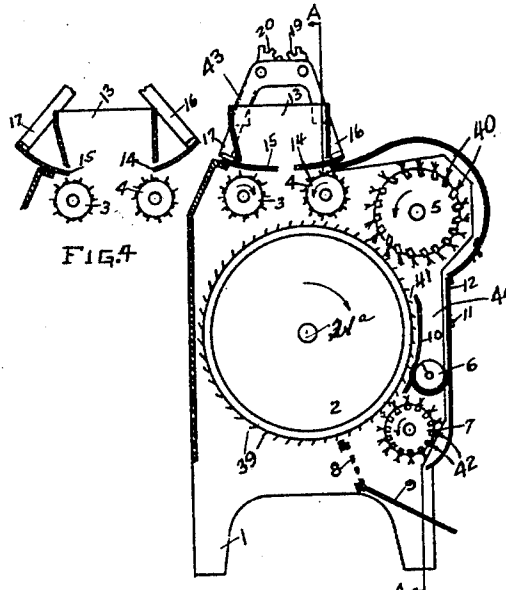


FIG. 2.

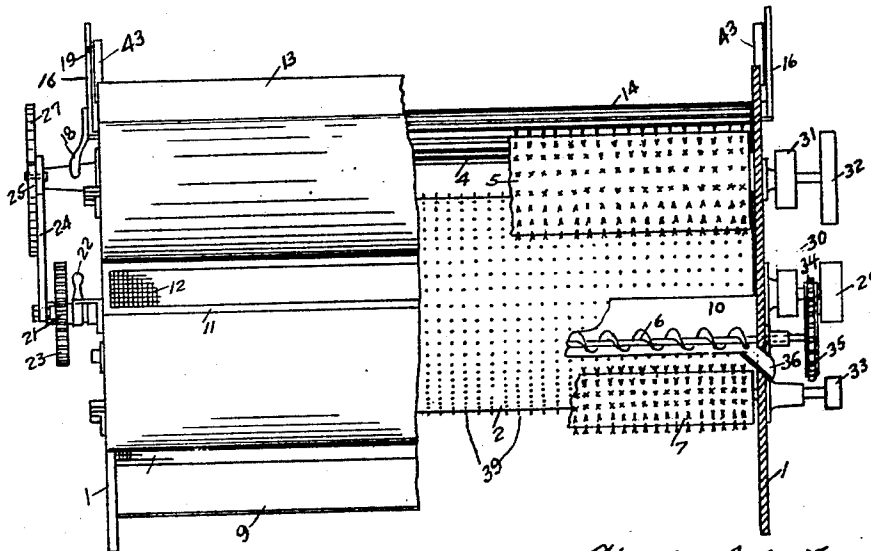


FIG. 3.

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HULLER AND CLEANER FEEDER FOR COTTON GINS.

Application filed September 1, 1921. Serial No. 497,792.

To all whom it may concern:

Be it known that I, CHARLES ROBERT WOOD, a citizen of the United States, residing at Memphis, in the State of Tennessee, have invented certain new and useful Improvements in Huller and Cleaner Feeders for Cotton Gins, of which the following is a specification.

This invention relates to huller and cleaner feeders for cotton gins and it consists in the novel features hereinafter described and claimed.

An object of the invention is to provide apparatus of the character stated which will effectually and thoroughly clean seed cotton preparatory for ginning purposes and with this object in view the huller and cleaner includes a casing having a cotton carrying drum journaled therein. A feeding mechanism is mounted upon the casing and adapted to introduce the cotton in batches or wads therein and upon the drum. Cotton brushing and hull separating means are located in the casing and adapted to act upon the cotton carried by the drum and doffing means are provided for removing the cotton from the cotton carrying drum.

A further object of the invention is to provide an improved means for feeding the cotton to the casing and drum whereby the cotton may be introduced into the casing in wads or batches and which are subsequently opened up upon the cotton carrying drum preparatory for the action of the hulling, cleaning and separating mechanisms.

In the accompanying drawing:—

Figure 1 is an end view of the huller and feeder.

Figure 2 is a transverse sectional view of the same.

Figure 3 is a side elevation with parts broken away and parts shown in section, the section being cut upon the line A—A of Figure 2.

Figure 4 is a detailed fragmentary sectional view of the cotton feeding mechanism of the cleaner.

As illustrated in the accompanying drawing, the cotton huller and cleaner comprises a casing indicated in general as 1. A relatively large drum 2 is journaled for rotation in the casing and is provided upon its periphery with steel pins 39. Feed rollers 3 and 4 are journaled in the casing above the drum and are adapted to receive the cotton between them as it is being intro-

duced into the casing for cleaning and hulling. A relatively large cylindrical brush 5 is journaled for rotation in the casing and extends the full length of the drum. The brush 5 is provided upon its periphery with bristles 40 which are disposed lengthwise at a tangent to a circle struck from the axis of the brush. The bristles are disposed with their cotton-engaging ends lying in the same general direction in which the brush rotates so that the bristles will push the hulls and trash from the cotton upon the drum as will be hereinafter explained.

A substantially vertically disposed separating board 10 is located in the casing 1 at the side of the drum and spaced therefrom and a screw conveyor 6 is located at the lower edge of the board 10 and between the said board and the side wall of the casing and is adapted to carry off all foreign matter removed from the cotton upon the drum. A relatively small cylindrical doffing brush 7 is journaled in the casing at the lower portion of the drum and extends the full length thereof. The bristles of the brush 7 have contact with the pins 39 upon the drum as the pins pass by the brush. An inclined screen 8 is located below the drum and opposite the brush 7 and spaced therefrom. The screen extends the full length of the drum and brush and a chute or slide board 9 extends from the lower edge of the screen and is inclined under the lower edge of the side wall of the casing 1 as best shown in Figure 2 of the drawing.

A screen panel 12 is mounted upon a hinge 11 and is located over an opening in the side of the casing 1 at a point opposite the upper edge of the separating board 10.

A hopper 13 is mounted upon the top of the casing 1 and is adapted to receive the seed cotton from an elevator (not shown). Valve wings 14 and 15 are slidably mounted in the lower portion of the hopper 13 and are carried by arms 16 and 17 respectively. A handle lever 18 is fixed to the arm 16 as shown in Figure 1. Intermeshing gear segments 19 and 20 are carried at the upper ends of the arms 16 and 17 and are pivoted upon yokes 43 attached to the hopper 13.

A clutch pinion 21 is slidably mounted upon the shaft of the drum 2 and a lever 22 is provided for shifting the clutch pinion 21 in a usual manner. A relatively large gear wheel 23 is journaled at the end of the casing 1 and the pinion 21 may be moved

into and out of mesh with the said gear wheel.

A T-arm 24 is adjustably connected at its lower end with the wheel 23 at a point to one side of the center thereof and the said T-arm is provided at its upper portion with a slot 37 which receives the shaft of the roller 3. A ratchet wheel 27 is mounted upon the shaft of the roller 3 and pawls 25 and 26 are carried at the ends of the cross head of the T-arm and engage the ratchet teeth of the wheel 27. A slotted block 38 is mounted upon the wheel 23 and carries an adjustable wrist pin 28 upon which the lower end of the T-arm 24 is pivoted. A drive pulley 29 is mounted upon the shaft of the drum 2. A pulley 30 is also mounted upon the shaft of the drum 2. Pulleys 31 and 32 are mounted upon the shaft of the cleaning brush 5. A pulley 33 is mounted upon the shaft of the doffing brush 7. A sprocket wheel 34 is mounted upon the shaft of the drum 2 and a sprocket 35 is mounted upon the shaft of the conveyor 6 and are operatively connected by a sprocket chain in a usual manner and as shown in Figure 3.

A spout 36 extends through the end of the casing 1 and is located at the end of the conveyor 6. The air and trash space between the separating board 10 and the side wall of the casing 1 is indicated at 44, the bristles upon the brush 7 are shown at 42 and the space between the separating board and the drum 2 is indicated at 41.

In operation the cotton is fed into the hopper 13 and upon the valve wings 14 and 15 and when ready to be put through the feeder the valve wings are moved to the positions as shown in Figure 4 of the drawing, whereby the cotton may descend and pass between the wings and the feed rollers 3 and 4. The shafts of the rollers are operatively connected together by gear wheels. By the action of the rollers the cotton is forced down upon the drum. The operator then uses the lever 22 and throws the clutch pinion 21 into mesh with the gear wheel 23 which is rotated and the wrist pin 28 is carried around the center thereof. This causes the T-arm 24 to reciprocate vertically and at the same time causes the upper portion thereof to oscillate or swing. This movement of the upper part of the T-arm causes the pawls 25 and 26 to engage the teeth of the ratchet wheel alternately and hence intermittent rotary movement is imparted to the ratchet wheel and through the connecting parts to the feed rollers 3 and 4. Thus the cotton is drawn or forced down upon the drum 2 where it is caught by the steel pins 39 and carried from under the wing 14 and under the feed roller 4 as the drum 2 rotates in the direction as indicated by the arrow in Figure 2.

The wings 14 and 15 upon the feed roller

4 check the delivery of the cotton to the degree in which the opening between the wings is varied by the manual operation of the wings and loosen the hulls and other foreign matter which may be in the cotton and pass them out with the cotton between the wings 14 on the roller 4 on and down through the bristles 40 on the brush 5 which further removes the hulls and other foreign matter from the cotton. The foreign matter thus separated from the cotton is thrown off by centrifugal force over the top of the separating board 10 into the space 44 and falls down upon the conveyor 6 and is carried off through the spout 36. The cotton is carried on by the steel pins 39 through the space 41 down to the brush 7 which revolves in the direction indicated by the arrow in Figure 2, and the bristles 42 on the brush 7 remove the cotton from the steel pins 39 and dash it against the wire screen 8 where any remaining dirt or trash is knocked out of the cotton and passes through the screen. The cleaned cotton slides down in the chute 9 to the breast of the gin (not shown).

What I claim is:—

1. A cotton cleaner comprising a casing, a drum journaled therein for rotation, feed rollers journaled above the drum, means for rotating the feed rollers intermittently and simultaneously, valves movably mounted above the rollers, and means for manually moving the valves simultaneously to vary and control the size of the delivery opening therebetween.

2. A cotton cleaner comprising a casing, a cotton moving means therein, a hopper communicating with the casing, opposed valves slidably mounted to form a bottom for the hopper, means operatively connecting the valves together whereby they may be moved simultaneously from closed to open position and vice versa, and means for manually controlling the valves to vary the restricting action of the same upon the cotton to insure the pulling apart of the cotton as drawn by the feed rolls.

3. A cotton cleaner comprising a casing, a cotton moving means therein, a hopper communicating with the casing, opposed valve elements each comprising a sliding wing to form the bottom of the hopper and a swinging support for the wing, means operatively connecting the valves together whereby they may be moved simultaneously to and from each other to vary the opening therebetween and restrict the passage of the cotton under the pull of the feed rollers.

4. A cotton cleaner comprising a casing, a cotton moving means therein, a hopper communicating with the casing, opposed arcuate valves mounted to slide back and forth in the arc described thereby to form a bottom to the hopper, means operatively

connecting the valves, and means for controlling the valves to restrict the cotton passing therebetween under the pulling action of the feed rollers.

5 5. A cotton cleaner comprising a casing, a cotton moving means therein, a hopper communicating with the casing, opposed valves forming a bottom to the hopper, means operatively connecting the valves for
10 simultaneous movement in opening and closing, means for controlling the valves, whereby to cause them to act restrictively upon the cotton as it is pulled by the feed rollers, means for intermittently rotating
15 the feed rollers, and means arranged adjacent the cotton moving means having its movement coinciding with the direction of movement of the cotton mover, and carrying
20 bristles arranged to enter the cotton on the cotton mover endwise and to permit the cotton to be pulled therefrom endwise by the cotton mover, whereby to dislodge hulls and other matter without removing the cotton from the cotton mover.

25 6. A cotton cleaner comprising a casing, a cotton carrying drum journaled therein, a hopper having valves for restrictively controlling the passage of the cotton, feed rollers arranged to pull the cotton as it is
30 restrictively held by the valves, and a brush journaled for rotation in the casing and having its bristles disposed longitudinally tangential to a circle struck from the center of the brush, the ends of the bristles being
35 disposed in the direction in which the brush rotates and the rotation of the brush being opposite to the drum so that the bristles in engaging the cotton thereon will move in the same direction with the cotton and push
40 into the cotton to loose and dislodge extraneous material.

7. A cotton cleaner comprising a casing, a cotton carrying drum journaled for rotation within the casing, a separating board

spaced from the drum, a hopper having
45 means for restrictively controlling the passage of the cotton, intermittently rotating feed rollers for pulling the cotton from the hopper, and delivering it to the drum, and a roller carrying bristles disposed longitudinally tangential to a circle struck from
50 the center of said roller, the ends of the bristles being disposed in the direction in which the roller rotates and the bristles in engaging the cotton upon the drums entering the same endwise and moving in the
55 same direction of the drum during said engagement, whereby an endwise pushing action in the bristles is made to dislodge extraneous matter from the cotton to fall away
60 therefrom upon the separating board.

8. A cotton cleaner comprising a casing, a cotton carrying drum journaled for rotation within the casing, a separating board
65 spaced from the drum, a hopper having means for restrictively controlling the passage of the cotton, intermittently rotating feed rollers for pulling the cotton from the hopper, and delivering it to the drum, and a roller carrying bristles disposed longitudinally tangential to a circle struck from
70 the center of the said roller, the ends of the bristles being disposed in the direction in which the roller rotates and the bristles in engaging the cotton upon the drums entering the same endwise and moving in the
75 same direction of the drum during said engagement, whereby an endwise pushing action in the bristles is made to dislodge extraneous matter from the cotton to fall away
80 therefrom upon the separating board, and a conveyor for removing the said extraneous matter, and a brush for removing the cotton from the carrying drum.

In testimony whereof I hereunto affix my
85 signature.

CHARLES ROBERT WOOD.