Jan. 11, 1949. J. D. RUST 2,458,531

AUTOMATIC STOP FOR COTTON HARVESTERS

Filed April 18, 1944

Fig. 3.

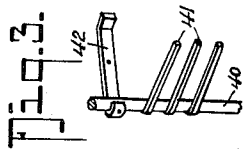


Fig. 1.

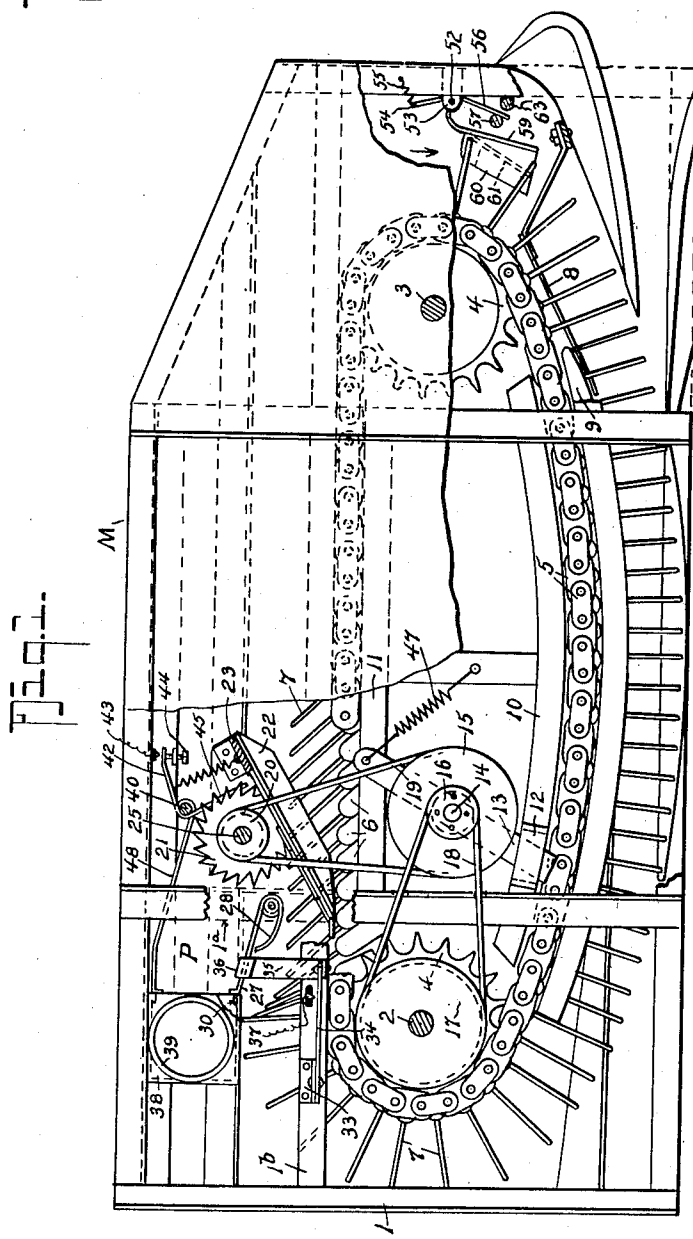


Fig. 4.

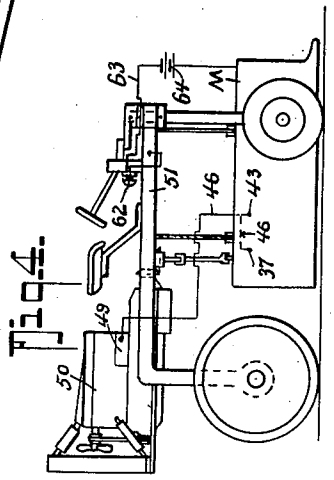
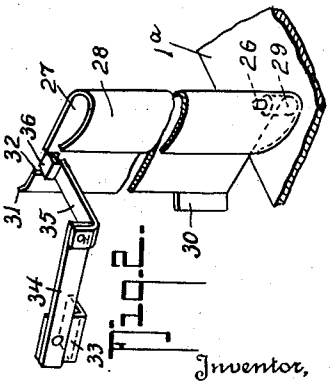


Fig. 2.



Inventor,
John D. Rust,
By Albert E. Dieterich,
Attorney.

Patented Jan. 11, 1949

2,458,531

UNITED STATES PATENT OFFICE

2,458,531

AUTOMATIC STOP FOR COTTON HARVESTERS

John D. Rust, Memphis, Tenn.

Application April 18, 1944, Serial No. 531,632

3 Claims. (Cl. 56—11)

1

My invention relates to certain new and useful improvements in spindle type cotton picking machines in general, and in particular to machines of the character disclosed in Letters Patent No. 1,894,198, issued January 10, 1933, No. Re. 19,411, reissued January 1, 1935, No. 2,085,046, issued June 29, 1937, and No. 2,200,303, issued May 14, 1940.

The primary object of the present invention is to provide safety means for automatically protecting the machine against injury in cases of abnormal harvesting conditions, said means to include a means in combination with the doffer for stopping the machine in the event that damp cotton, vines, grass and the like should ball up on the doffer.

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

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

Fig. 1 is a top plan view of a cotton picking machine embodying my present invention, parts being broken away and other parts being shown in section.

Fig. 2 is a detail perspective view of the wall plate forming a part of a circuit closing device.

Fig. 3 is a detail perspective view of a portion of a circuit closer that is directly associated with the doffer.

Fig. 4 is a side elevation, somewhat diagrammatic, of a self-propelled machine embodying the invention.

In the drawings, like numerals of reference indicate like parts in all the figures, beginning with Figure 1, the numeral 1 represents the main frame of the machine, 2 the driving shaft, and 3 the driven shaft of the spindle-carrying slat belt.

The shafts 2 and 3 carry the sprocket wheels 4 about which the chains 5 pass. The chains 5 carry the slats 6 in which the spindles 7 are rotatably mounted. All of the foregoing may be of the usual construction as these parts, per se, do not comprise a part of the present invention, nor does the front guard comb device 8 for the stalk guards 9 constitute a part of the present invention, the guard comb 8 being present to prevent cotton being drawn over the front end of the stalk guards 9 between the guards 9 and the chains and slats.

2

On the curved bar 10 of the inner frame 10, 11 of the machine is a bridge member 12 which forms, with the bar 10, a slot into which one end of a floating bar 13 projects. The other end of the bar 13 is spring loaded as at 47. The bar 13 carries a stub shaft 14 on which is mounted a pair of connected pulleys 15 and 16. A belt 18 passes about the pulley 16 and about a pulley 17 on the shaft 2, while a belt 19 passes about the pulley 15 and a pulley 20 on the doffer shaft 25. The doffer saws 21 are carried in suitably spaced relation by the shaft 25 and the teeth of the saws project between stripper bars 22 secured to an upright support 23 fixed to the frame of the machine. The picking spindles 7 in their travel pass between the saws and the bars 22 in a manner similar to that disclosed in my Patent No. 2,200,303 aforesaid.

Referring now to the tiltable wall plate 27, a detail of which is shown in Figure 2, a pin 26 is carried by and projects upwardly from the frame bottom cross bar 1a to receive a tubular bearing 29 that is welded or otherwise suitably secured to the lower end of the wall plate 27. The plate 27 extends from adjacent the doffer to the throat 38 of the suction duct 39 and has a wing 30 that projects into that throat and a flange 31 that lies outside but along the throat vertically. The wing 30 and the flange 31 serve as stops for the plate. The plate 27 is bent back upon itself as at 28 for a purpose presently made clear. The upper edge of the plate 27 is notched as at 32 to receive the hook end 36 of an arm 35 that is secured to the outer end of a spring arm 34. The arm 34 is fixed at its other end to a bracket 33 secured to the frame bar 1b. The arm 34 is one element of a circuit closer, the other element of which is an insulated fixed contact 37 suitably mounted on a frame bar 1b.

Referring now to Figures 1 and 3, a shaft 40 is journaled in suitable bearings in the frame of the machine and carries a plurality of fingers 41 that extend between the saws 21. A contact arm 42 is also secured to the shaft 40 and is drawn to a normal position by a spring 45 which pulls the arm against an adjustable stop 44 and tends to hold the fingers in their proper place, i. e. in operative position, between the saws 21 of the doffer mounted on shaft 25. A fixed contact 43, suitably insulated and mounted on the frame of the machine, cooperates with the arm 42 as a circuit closer. The contacts 37 and 43 are electrically connected together and to the magneto 49 which constitutes the current generator of the power plant 50 of the tractor 51 (which tractor carries

the picking machine proper M) by a wire 46. When either circuit closer is closed the magneto will be grounded and the machine be brought to a complete stop.

The arrangement of parts in Fig. 4 is like that shown in my Patent No. 2,073,653.

Referring again to Fig. 1, an upright plate 48 forms the outer or back wall of the passageway P into which the doffer throws the cotton as it is stripped from the spindles by bars 22 and from which it is drawn by suction through duct 39, as in my patents aforesaid.

In the event that cotton builds up about the doffer between the saws 21 and tends to jam the same, it will push out the fingers 41 (constituting an operating element), thereby turning the shaft 40 far enough to bring arm 42 into contact with contact point 43, thereby closing the circuit and grounding the magneto 49, which immediately stops the engine 50 and consequently stops the machine. Should, for any reason, the doffer jam without operating the circuit closer, the belt 19 will slip without damaging the machine. The spring-loaded floating pulleys 15, 16 also allow for taking up bearing wear and belt stretch automatically.

In the event that cotton piles up at the entrance-way to the doffer faster than the doffer can take care of it, the wall 27 will be crowded away from the spindles by the pressure of the cotton against the wall part 28, thereby pulling arm 35 and bending spring arm 34 against contact 37, thereby closing the circuit and grounding the magneto and stopping the machine so as to avoid damage and to enable it to be cleaned quickly. By lifting the hook 36 and consequently releasing the wall 27, the wall may be lifted out of the machine, thereby giving room for access to the piled up cotton without the necessity of unbolting the parts.

While I have shown and described a safety signal device for indicating an accumulation of cotton about the spindles, I do not claim it in this application as that subject matter constitutes the subject matter of a divisional application filed May 12, 1947, Serial No. 747,356.

From the foregoing description, taken in connection with the accompanying drawing, it is thought the construction, operation and advantages of my invention will be clear to those skilled in the art.

What I claim is:

1. In a power driven cotton picking machine wherein are provided sets of rotating cotton gathering spindles, a set of stripping bars between which the spindles are drawn to remove the cotton from the spindles, a rotary doffer which includes circularly arranged sets of teeth on a rotating body, the teeth projecting between the stripping bars and lying in planes above the spindles: the improvement which comprises a current generator for the power plant of the machine, a circuit closer including a fixed contact and a movable contact member, means for

mounting said movable contact member adjacent said doffer, means continuously tending to move said movable contact member out of contact with said fixed contact to keep the circuit open, said movable contact member including a set of fingers projecting between the teeth of said doffer and located in a position to be operated by an accumulation of cotton on the doffer for closing the circuit between the fixed contact and said movable contact member.

2. In a cotton picking machine having a plurality of cotton gathering spindles, a set of stripping bars between which the spindles are drawn to receive cotton from the spindles and a rotary doffer located adjacent said bars in cooperative association with the bars and spindles; the invention which comprises a circuit closer having an element held in operative relation to said doffer for actuation by cotton on the doffer, a current generator for the power plant of the machine, and a connection between said circuit closer and said current generator by virtue of all of which when cotton accumulates on the doffer said circuit closer will ground said current generator.

3. In a cotton picking machine having a plurality of cotton gathering spindles, a set of stripping bars between which the spindles are drawn to receive cotton from the spindles and a rotary doffer located adjacent said bars in cooperative association with the bars and spindles; the invention which comprises a circuit closer having an element held in operative relation to said doffer for actuation by cotton on the doffer, a current generator for the power plant of the machine, and a connection between said circuit closer and said current generator by virtue of all of which when cotton accumulates on the doffer said circuit closer will ground said current generator, said circuit closer element including a series of fingers projecting between doffing elements of said doffer and being pivotally mounted and provided with means continuously tending to operate said circuit closer to open the circuit.

JOHN D. RUST.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
993,460	Rice	May 30, 1911
1,008,230	White	Nov. 7, 1911
1,077,818	Eagar	Nov. 4, 1913
1,759,086	Berry	May 20, 1930
1,855,838	Kranick	Apr. 26, 1932
2,073,653	Rust et al.	Mar. 16, 1937
2,109,506	Rust	Mar. 1, 1938
2,143,901	Rust et al.	Jan. 17, 1939
2,162,750	Rust	June 20, 1939
2,200,303	Rust	May 14, 1940
2,369,708	Baker et al.	Feb. 20, 1945