Jan. 17, 1939. J. D. RUST ET AL 2,143,901

COTTON PICKING MACHINE

Filed Sept. 1, 1936 2 Sheets-Sheet 1

Fig. 1.

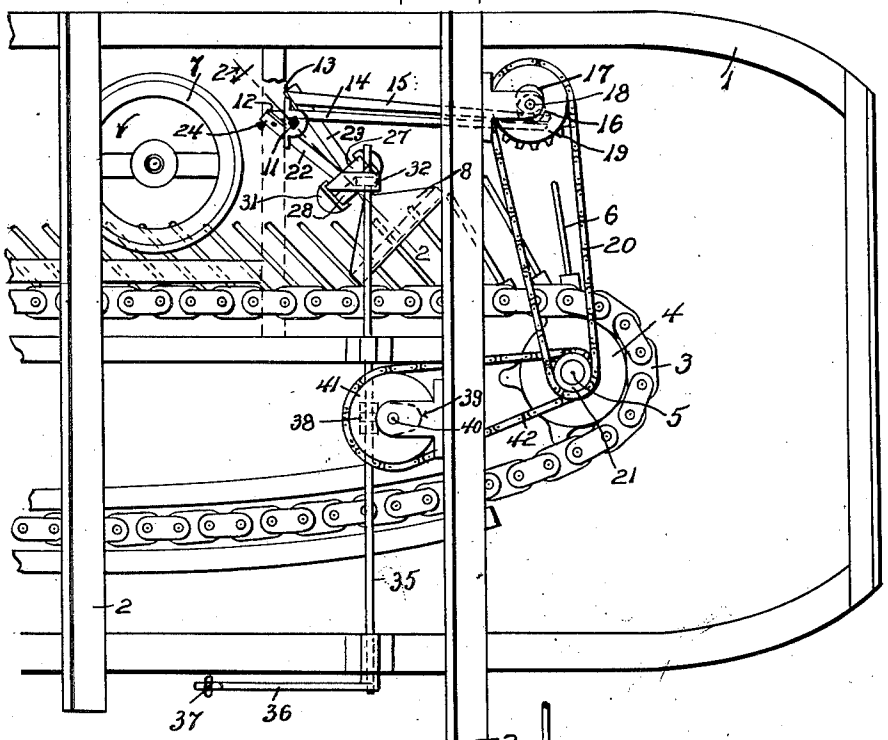


Fig. 4.

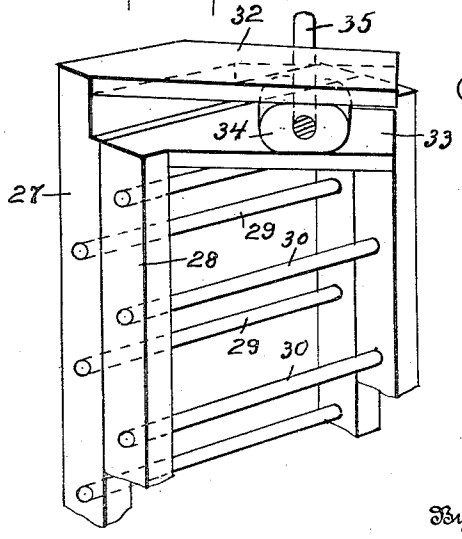
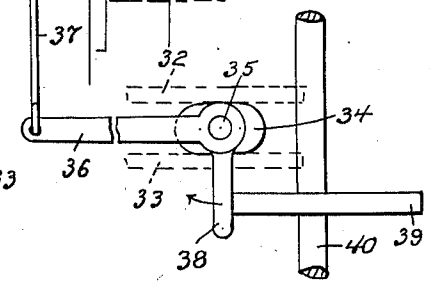


Fig. 5.



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COTTON PICKING MACHINE

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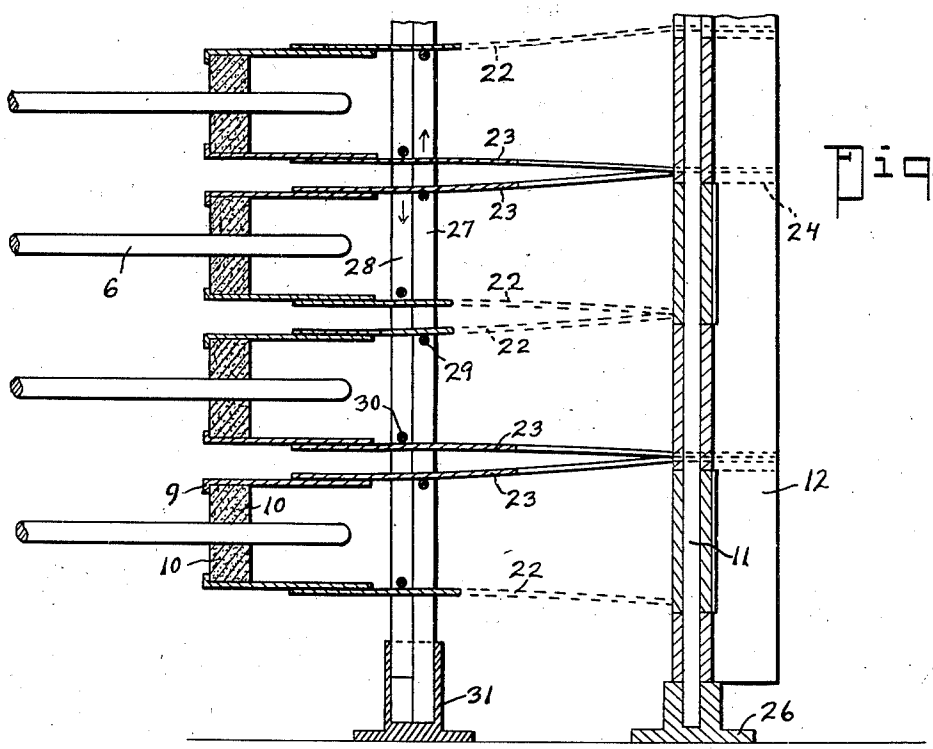


Fig. 2.

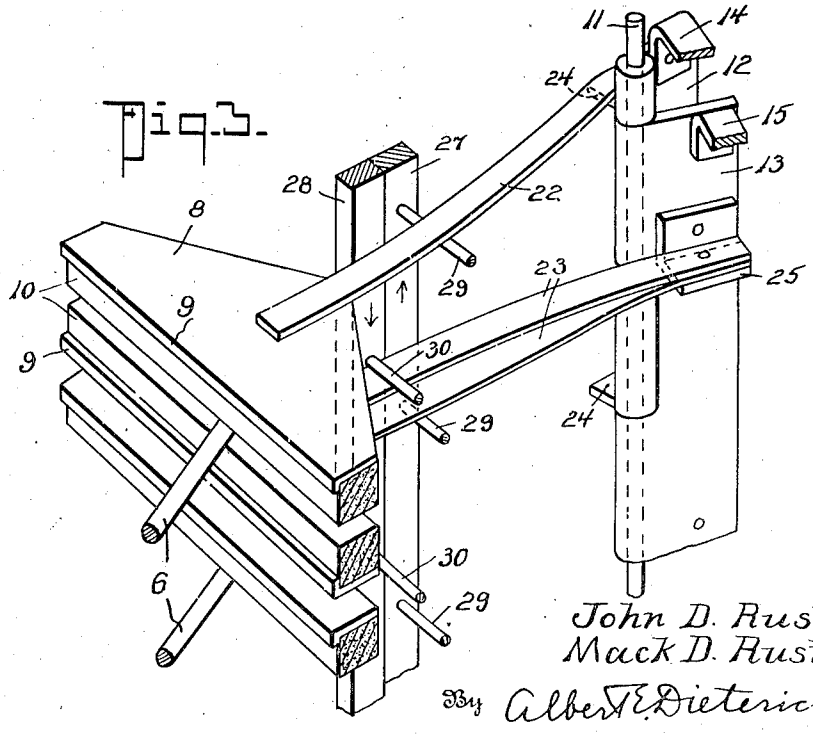


Fig. 3.

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2,143,901

COTTON PICKING MACHINE

John D. Rust and Mack D. Rust, Memphis, Tenn.

Application September 1, 1936, Serial No. 98,944

13 Claims. (Cl. 56—43)

The present invention relates to cotton picking machines of a type similar to that disposed in our patents, No. 1,894,198, granted January 10, 1933, No. 1,910,307 (Re. 19,411) granted May 23, 1933, No. 2,023,491, granted December 10, 1935, and our applications Serial No. 723,423, filed May 1, 1934, Serial No. 733,686, filed July 3, 1934, Serial No. 733,687, filed July 3, 1934, Serial No. 733,688, filed July 3, 1934, Serial No. 26,363, filed June 13, 1935, Serial No. 44,412 filed October 10, 1935, and Serial No. 45,337, filed October 16, 1935, such machines including an endless carrier with rapidly rotating spindles, which spindles as the machine is traveled along the rows of cotton, enter the plants and gather the cotton, the spindles being then doffed and the cotton collected in suitable receivers.

In practice we have found that there is a tendency for the surfaces of the wire spindles which we use in our machine to become polished as a result of the cotton being continuously stripped from them; this polished surface is less effective in winding up the cotton from the plants than the original surface of the wire as it comes from the factory. In our applications Serial No. 26,363 and Serial No. 45,337 aforesaid we have disclosed means designed to overcome this polishing effect; it has been found, however, where the relatively stationary abrasive blocks are used (see Figures 7 and 8 of application Serial No. 26,363 or Figures 9 and 10 of application Serial No. 45,337 aforesaid) the blocks sometime take on a groove which in time becomes so pronounced as to cause bending of the spindles. It is therefore a primary object of our invention to provide means for overcoming this objectionable feature and otherwise to improve the means for preventing a polished surface from developing on the picking portion of the spindles.

Further, it is an object of the invention to provide an improved means of the character stated in which provision is made to render the means inoperative at the will of the operator.

Further, it is an object to provide means by which the abrasive members may be caused to remain in their operative position for a given period and then be rendered inoperative for a given period alternately.

A further object of the invention is to provide means for holding the blocks so that they may be oscillated or rocked in their own planes and to provide means driven preferably from a rotating part of the machine, for effecting such movement, whereby blocks on opposite sides of a given row of spindles will not engage the spindles in the same corresponding position at all times, as sometimes occurs with the stationary block arrangements heretofore provided, thereby preventing the formation of grooves in the surfaces of the blocks.

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

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

Figure 1 is a plan view of so much of the cotton picking machine of the type referred to as is necessary to illustrate the present invention.

Figure 2 is an enlarged detail section on approximately the line 2—2 of Figure 1.

Figure 3 is a detail perspective view of a portion of the present invention.

Figure 4 is a detail perspective view of the "ladders" used to render the abrasive blocks inoperative.

Figure 5 is a detail view illustrating the means for alternatively rendering the abrasive blocks operative and inoperative.

In the accompanying drawings, in which like numerals of reference indicate like parts in all the figures, the frame of the machine includes longitudinal bars 1 and cross bars 2. In the frame is suitably mounted the slat carrying chains 3 which carry the spindles 6 through an endless path. The chains are driven in any suitable way through a power shaft 5.

7 designates the usual spindle conditioning device which in the present embodiment of the invention has been moved rearwardly somewhat from its previous position in the machine in order to provide a suitable space for the location of the present invention.

The present invention includes a plurality of abrasive carrying plates 8 having flanges 9 and to which plates the bars of abrasive 10 are suitably secured as by cementing the same thereto, for example. The plates 8 are carried by spring arms arranged in two groups, one group being numbered 22 and the other being numbered 23.

11 designates a hinge or pivot rod suitably mounted in the frame of the machine. On the rod 11, in the form of a hinge, are pivot leaves 12 and 13. To these leaves are secured cam engaged rocking arms 14 and 15, respectively. These arms 14 and 15 engage cams 16 and 17

respectively on a suitably mounted cam shaft 18 that is driven in any suitable way, preferably by means of sprockets 19 and 21 and chain 20, receiving power from the shaft 5. The spring arms 22 are all secured to brackets 24 on the leaf 12 while the spring arms 23 are all secured to brackets 25 on the leaf 13. Except for the top and bottom ones the spring arms are arranged in pairs (see Figures 2 and 3). The spring arms of a pair tend to separate from each other and in doing so press the blocks 10 against the spindles 6 between which they are located.

If desired means may be provided either operated manually or automatically, or both, for rendering the abrasive blocks 10 inactive. This may be accomplished by squeezing the spring arms of a pair together thereby opposing their spring action and allowing the blocks to be disengaged from the spindles.

In order to render the abrasive blocks inactive we may provide a pair of ladders 27 and 28 the rungs 29 of the ladder 27 passing under the lowermost arms 22—23 of a pair while the rungs 30 of the ladder 28 pass over the uppermost arms 22—23 of a pair (see Figures 2 and 3). By moving the ladders lengthwise in their own planes in opposite directions, as indicated by the arrows in Figure 2, the spring arms 22—22 and 23—23 of the several pairs are squeezed together and consequently the blocks 10 are moved away from the spindles 6. Suitable guides 31 are provided for the ladders 27 and 28 and suitable bearings 26 are provided to receive the rod 11. The ladders 27 and 28 are respectively provided with arms 32 and 33 which lie spaced apart in parallelism and between which passes a rock shaft 35 carrying a cam 34 to cooperate with the arms 32 and 33 to move the ladders in the directions of the arrows in Figure 2. In order to rock the shaft 34 so as to cause the cam 34 to function we provide a crank 36 to which a pull rod 37 may be attached, the latter extending to a convenient place where it may be manipulated by the operator.

When it is desired to provide automatic means for periodically rendering the abrasive blocks non-operative the shaft 35 is provided with an arm 38 to be engaged by a cam 39 on a shaft 40 which is driven in any suitable way, preferably by means of sprocket 41 and chain 42, from the shaft 5.

From the foregoing, it will be seen that the drag of the spindles 6 over the abrasive blocks 10 which are held in engagement with the spindles through the action of the spring arms 22 and 23 always tends to turn the leaves 12 and 13 in a counterclockwise direction in Figure 1, thereby continuously tending to keep the rocking arms 14 and 15 against their respective cams. However, as the cams 16 and 17 function the arms 14 and 15 are moved in a clockwise direction around the pivot 11. In consequence the plates 8 with their carried abrasive blocks 10 are given an oscillating movement around the pivot 11 in the planes of the plates. This movement of the abrasive blocks in their general longitudinal direction has been found to prevent the formation of grooves in the blocks.

When it is desired to render the action of the blocks 10 negative the operator simply pulls up on the rod 37 which rocks the cam 34 to separate the plates 32 and 33, thereby moving the ladders in opposite directions and squeezing together the pairs of spring arms 22—22 and 23—23 respectively. When the manual control is not being used the automatic mechanism for imparting intermittent action to the blocks 10 comes into play, the cam 39 rocking the lever 38 in a counterclockwise direction in Figure 5 at stated intervals.

Of course, either manual control or the automatic intermittent control devices may be separately employed or they both may be used on the same machine as may be desired by the purchaser.

While we have illustrated a practical preferred embodiment of our invention it is obvious that changes in the details of construction, combination and arrangement of parts may be made without departing from the spirit of the invention and the scope of the appended claims.

We claim:

1. In a cotton picking machine, a plurality of rows of smooth dull surfaced picking spindles, means for preventing a polished surface from developing on the picking portions of said spindles, said means including abrasive elements and means continuously tending to hold said elements in position to be engaged by the spindles, and means acting in opposition to said continuously tending means to render said preventing means inoperative at will.

2. In a cotton picking machine, a plurality of rows of smooth dull surfaced picking spindles, means for preventing a polished surface from developing on the picking portions of said spindles, said means including abrasive elements and means continuously tending to hold said elements in position to be engaged by the spindles, and means acting in opposition to said continuously tending means alternately to render said preventing means operative and inoperative.

3. In a cotton picking machine, a plurality of rows of picking spindles, means for roughening the surface of the picking portions of said spindles, said means comprising abrasive blocks, elastic means pressing said blocks in engagement with said spindles and means to render said elastic means ineffective at will.

4. In a cotton picking machine, a plurality of rows of picking spindles, means for roughening the surface of the picking portion of said spindles, said means comprising abrasive blocks, elastic means pressing said blocks in engagement with said spindles and means to render said elastic means alternately ineffective and effective at intervals.

5. In a cotton picking machine, a plurality of rows of picking spindles, means for roughing the surface of the picking portions of said spindles, said means comprising abrasive blocks, spring arms to press said blocks against the spindles, pivoted members, said spring arms of alternate sets of blocks being secured to one pivoted member while the others are secured to the other pivoted member, means to move said pivoted members and thereby cause said blocks to be moved back and forth in their own planes.

6. In a cotton picking machine, a plurality of rows of picking spindles, means for roughening the surface of the picking portions of said spindles, said means comprising abrasive blocks, spring arms to press said arms against the spindles, pivoted members, said spring arms to alternate sets of blocks being secured to one pivoted member while the others are secured to the other pivoted member, means to move said pivoted members and thereby cause said blocks to be moved back and forth in their own planes, and means to disengage said blocks from the spindles at will.

7. In a cotton picking machine, a plurality of rows of picking spindles, means for roughening

the surface of the picking portions of said spindles, said means comprising abrasive blocks, spring arms to press said arms against the spindles, pivoted members, said spring arms of alternate sets of blocks being secured to one pivoted member while the others are secured to the other pivoted member, means to move said pivoted members and thereby cause said blocks to be moved back and forth in their own planes, and means to disengage said blocks from the spindles at definite intervals.

8. In a cotton picking machine, a plurality of rows of picking spindles, means for roughening the surface of the picking portions of said spindles, said means comprising abrasive blocks, spring arms to press said arms against the spindles, pivoted members, said spring arms of alternate sets of blocks being secured to one pivoted member while the others are secured to the other pivoted member, means to move said pivoted members and thereby cause said blocks to be moved back and forth in their own planes, and means to disengage said blocks from the spindles at will, said last named means comprising means to counteract the spring tension of said arms.

9. In a cotton picking machine, a plurality of rows of picking spindles, means for roughening the surface of the picking portions of said spindles, said means comprising abrasive blocks, spring arms to press said blocks against the spindles, pivoted members, said spring arms of alternate sets of blocks being secured to one pivoted member while the others are secured to the other pivoted member, means to move said pivoted members and thereby cause said blocks to be moved back and forth in their own planes, and means to disengage said blocks from the spindles at definite intervals, said last named means comprising means to counteract the spring tension of said arms.

10. In a cotton picking machine, a plurality of rows of picking spindles, means for roughening the surface of the picking portions of said spindles, said means comprising abrasive blocks, spring arms to press said blocks against the spindles, pivoted members, said spring arms of alternate sets of blocks being secured to one pivoted member while the others are secured to the other pivoted member, means to move said pivoted members and thereby cause said blocks to be moved back and forth in their own planes, means to disengage said blocks from the spindles at definite intervals, said last named means comprising ladders cooperative with said arms to counteract the spring tension of said arms, and a rock shaft having a cam to move said ladders and means by which said rock shft may be rocked.

11. In a cotton picking machine, a plurality of rows of picking spindles, means for roughening the surface of the picking portions of said spindles, said means comprising abrasive blocks, spring arms to press said blocks against the spindles, pivoted members, said spring arms of alternate sets of blocks being secured to one pivoted member while the others are secured to the other pivoted member, means to move said pivoted members and thereby cause said blocks to be moved back and forth in their own planes, means to disengage said blocks from the spindles at definite intervals, said last named means comprising ladders cooperative with said arms to counteract the spring tension of said arms, a rock shaft having a cam to move said ladders, and power driven means for rocking said rock shaft at intervals.

12. In a cotton picking machine, a plurality of rows of picking spindles, means for roughening the picking portions of the spindles, said means including abrasive elements and means continuously tending to hold said elements in position to be engaged by the spindles, and means acting in opposition to said continuously tending means to render said roughening means inoperative at will.

13. In a cotton picking machine, a plurality of rows of picking spindles, means for roughening the picking portions of the spindles, said means including abrasive elements and means continuously tending to hold said elements in position to be engaged by the spindles, and means acting in opposition to said continuously tending means to render said roughening means operative and inoperative at the will of the operator.

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