June 8, 1937. F. L. CROCKETT 2,083,255

COMBER WEIGHTING SYSTEM

Filed March 6, 1934

Fig. 1

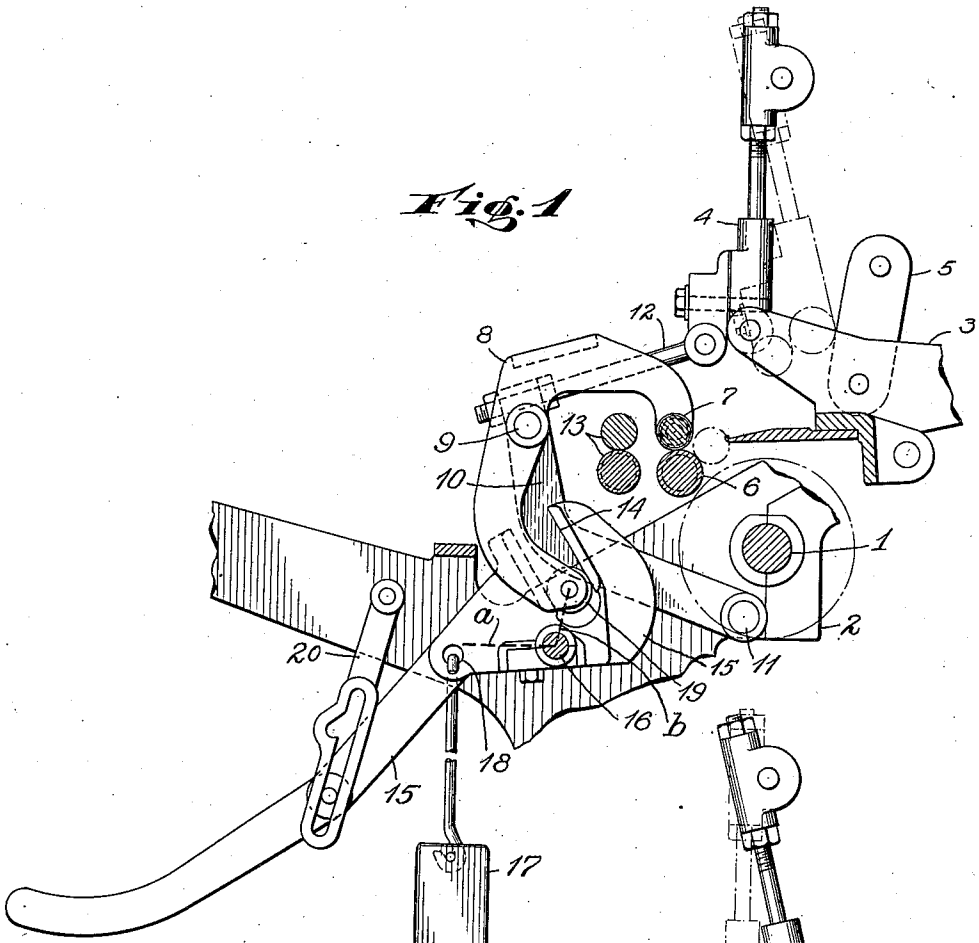
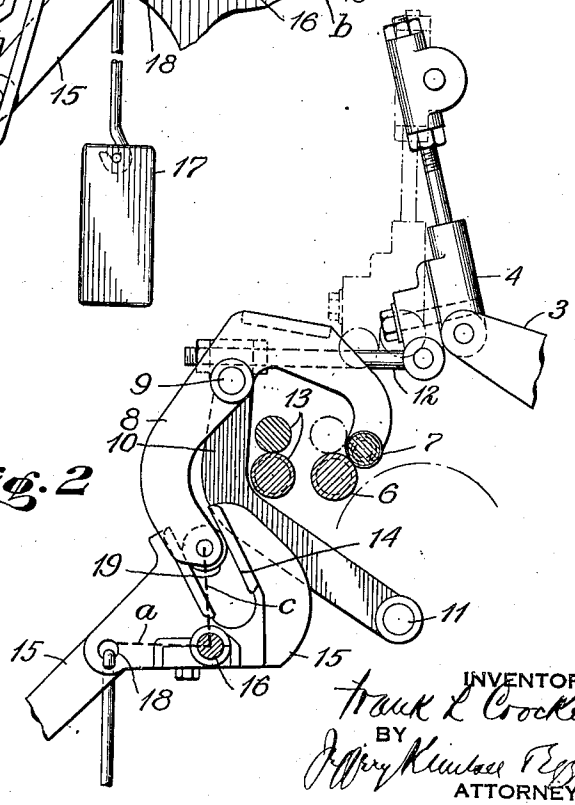


Fig. 2



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COMBER WEIGHTING SYSTEM

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7 Claims. (Cl. 19—121)

The object of the invention is the provision of a simple effective weighting means for the traversing detaching roll of Heilmann type combers adapted to apply maximum pressure to such roll while it is performing its detaching function and less pressure for the rest of the cycle. To this end the invention consists in the transmission of the pressure through two levers one of which has a shiftable point of engagement with the other, moved by or with the roll itself and varying the leverage ratio and hence the pressure accordingly. This principle of weight control has special advantages in cotton combers and can be embodied and applied in various ways within this invention but is preferably applied by utilizing the roll stirrup itself as one lever and the usual weight relief lever as the other, with the shiftable engagement point organized between these two members. Such arrangement is shown in the accompanying drawing by way of illustration.

Fig. 1 represents so much of a known comber as necessary to show the invention, the parts being in the detaching position and Fig. 2 represents the same parts in the combing position.

The comb cylinder, indicated by a dotted circle, is carried on the comb shaft 1 which is journalled in the row of frame uprights 2 as usual. The nipper frame 3 is hung on two links 4 and 5 on which it swings back and forth toward the detaching and piecing rolls, of which the lower back roll 6 is fixed and top roll 7 is rolled or traversed back and forth thereon, receiving this motion from the stirrups 8 which straddle its gudgeons. These stirrups are pivoted at 9 on the upper ends of carrier arms 10, rocking on studs 11 fixed on the machine frame, and receive their traverse motion from connecting links 12 attached to the swinging nipper frame. All of this construction is known. As the nipper frame advances to the rolls the latter take the position indicated in Fig. 1 and grasp the cylinder-combed tuft, detaching it from the body of the lap still held in the nippers and passing it forward to the front piecing rolls 13 at the same time lapping it onto the tail ends of the previously detached tuft, whereupon the nippers recede and the top detaching roll 7 is then rolled backwards on the lower roll to the position of Fig. 2, all as will be understood by those familiar with this art.

According to this invention and in the form selected for exemplification, the lower end of each stirrup lever 8 is engaged with a slideway 14 formed in the end of a weight-supporting lever 15 fulcrumed at 16 on a fixed part. The weights 17 are hung directly from the eyes 18 in these levers and within the term weight as herein used springs are included as the functional equivalent.

Preferably each stirrup lever 8 is furnished with an anti-friction roller 19 wherewith to engage the slideway 14 and in this case the roller represents the shiftable point of engagement above referred to. It occupies the lower part of the slideway, as in Fig. 1, when the top roll 7 is detaching and therefore receives the force of the weights according to ratio of the effective lever arms indicated as dotted lines *a* and *b*. As the stirrup lever takes its rearward position after detaching, shown in Fig. 2, the roller is carried to the opposite or upper end of the slideway and then receives the weight-force according to the lever arm ratio of *a* to *c*. Inasmuch as the value of *c* is greater, say 40% greater, than *b*, while *a* is constant, the effective pressure of the top roll upon the lower roll is diminished accordingly after detaching. The angularity of the slideway in the weight lever 15 is such that the shift of the roller therein effects no change in the angle of the lever or the height of the weights and thereby maintains for the levers 15 a constant relation to other parts, best suited for their manipulation when necessary.

These levers are also weight-relieving members for which purpose they are extended toward the front of the comber as handles, and associated with latches 20 adapted to hold them up, in positions where no force at all is transmitted through them to the stirrups. Such use of the weight levers may turn the weight levers on their fulcra 9, if desired, so as to free them from their normal straddling engagement with the gudgeons of the top roll 7, thereby facilitating the process of roll removal.

I claim:

1. In a weighting system for top detaching rolls the combination with the weight, of two levers one acting on the other and both transmitting the force of the weight to the roll, said levers having a shiftable point of engagement between them and means for shifting said point to increase the leverage ratio in phase with the detaching periods.

2. In a weighting system for top detaching rolls of combers the combination with a weight-actuated lever acting on a roll-connected lever and means acting in phase with the detaching mechanism for shifting the latter lever toward and from the fulcrum of the former lever.

3. In a weighting system for top detaching rolls of combers, the combination of a weight-supporting lever, a stirrup in the form of a lever having a shiftable point of engagement with said lever through which it imparts the force of the weight to the roll, and timed means for traversing said stirrup to shift said point of engagement and thereby change the leverage ratio by which the weight acts on said roll.

4. In a weighting system for top detaching rolls, the combination with a weight-actuated lever having a handle by which the pressure may be relieved, a roll-connected lever normally receiving the force of the weight from said weight-actuated lever and having a shiftable point of engagement therewith and means for shifting said point in phase with the detaching action.

5. In a weighting system for top detaching rolls, the combination with a weight-actuated lever, a roll-connected lever having a point of engagement with said weight actuated lever which is shiftable in phase with the detaching action toward and from the fulcrum thereof, the direction of shifting movement being without substantial effect on the angularity of said weight-actuated lever.

6. A weighting system for top detaching rolls comprising a top roll stirrup carried on a movable axis and a handled, weight-actuated lever having a point of engagement with said stirrup which is shifted in accordance with the movement of said movable axis to vary the detaching roll pressure.

7. A weighting system for top detaching rolls comprising a top roll stirrup lever carried on a movable fulcrum, a weight-actuated lever having an engagement therewith which varies in accordance with the movement of said fulcrum, the means of said engagement being adapted to disengage said stirrup lever from its detaching roll when the weight-actuated lever is lifted against the force of the weight.

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