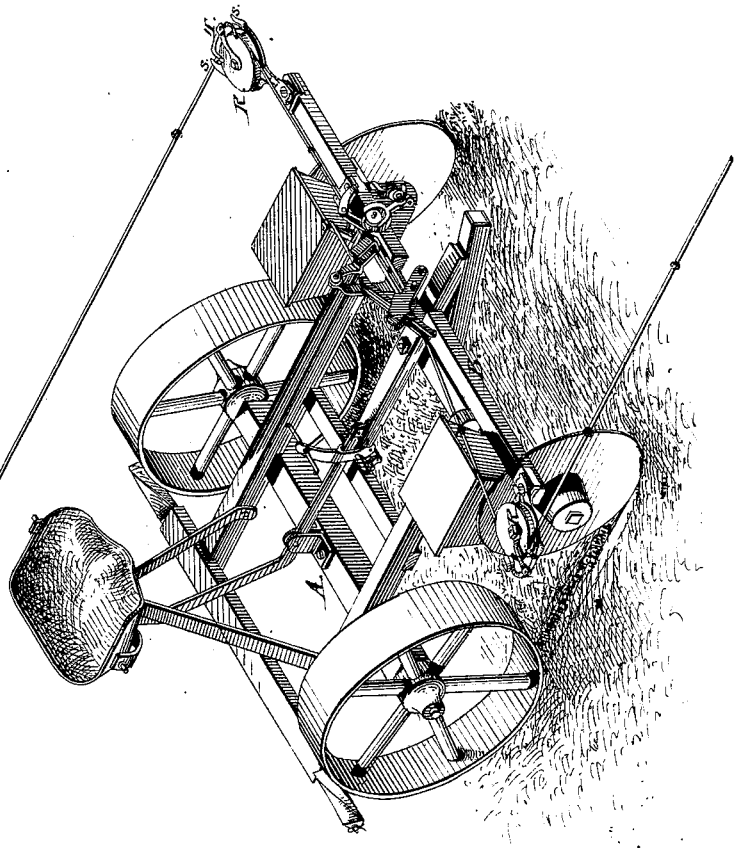
G. D. HAWORTH. 2 Sheets—Sheet 1.

Check-Row Attachment for Corn-Planters.

No. 196,012. Patented Oct. 9, 1877.

Fig. 1.



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G. D. HAWORTH.

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Fig. 2.

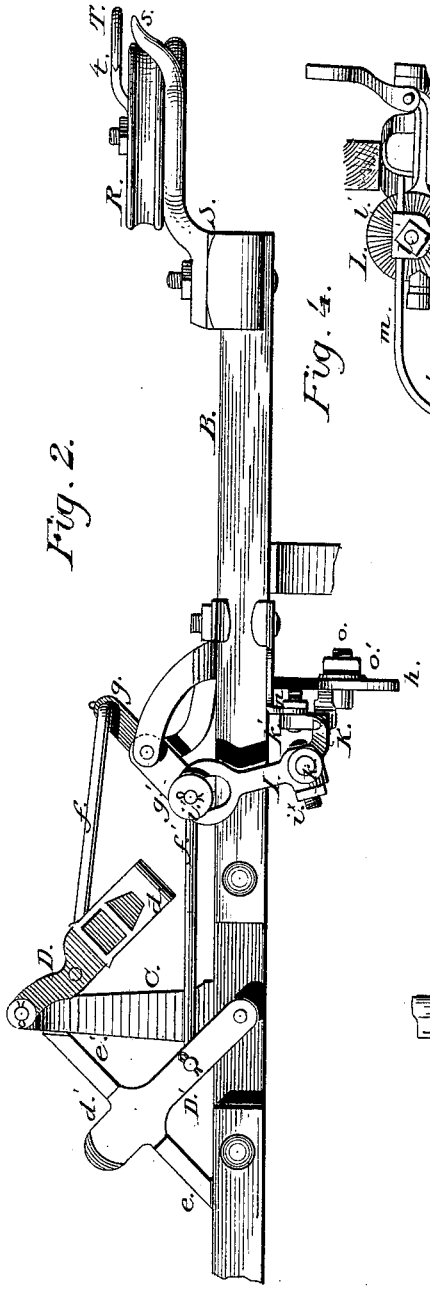

Fig. 4.

Fig. 3.

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UNITED STATES PATENT OFFICE.

GEORGE D. HAWORTH, OF DECATUR, ILLINOIS.

IMPROVEMENT IN CHECK-ROW ATTACHMENTS FOR CORN-PLANTERS.

Specification forming part of Letters Patent No. **196,012**, dated October 9, 1877; application filed August 6, 1877.

To all whom it may concern:

Be it known that I, GEORGE D. HAWORTH, of Decatur, county of Macon, State of Illinois, have invented certain new and useful Improvements in Check-Row Attachment to Corn-Planters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of a corn-planter with my improved check-rower attachment applied. Fig. 2 is a front elevation; Fig. 3, a plan view of so much of the check-rower attachment as is necessary to show my improvements; and Fig. 4 a side view of the adjustable rock-shaft and its attachments, through which motion is imparted to the seeding devices.

Similar letters of reference denote corresponding parts in all the figures.

My invention relates to the construction and arrangement of the arms and connecting-rods, through which a positive movement in both directions is imparted by the check-row cord or wire to the arm or device operating the seed-slide; secondly, to the means for varying the throw or length of stroke of the seed-slide for adapting the check-rower to the different planters in use; and, thirdly, to the guard for holding the check-row cord in proper relation to the transferring or guiding pulleys, adapting the machine to pass over rough or uneven ground.

In the accompanying drawings, A represents the planter, the particular organization shown being described in another application of even date herewith; but, so far as relates to the improvements in check-row attachments herein described, any usual or preferred construction and arrangement of planter may be used.

The device for guiding the check-row cord and for communicating motion therefrom to the seed-slides is applied to a bar or frame, B, constituting, in connection therewith, the check-row attachment.

The bar B in the present instance is shown arranged transversely of the planter-frame A, in advance of the seed-boxes; but it may, of course, be differently located or arranged, according to the organization of the machine or the option of the manufacturer.

The bar B at a point at or near midway of its length has a standard, C, attached to its rear face, as shown, and to the upper end of this standard is pivoted a pendent arm, D, having its lower end recurved or slotted at *d*, the check-row cord passing through the slot, and serving to vibrate said arm in one direction, in a manner similar to that described in Letters Patent granted to me June 5, 1877.

At the foot of standard C, and in front thereof, is a second arm or lever, D′, pivoted in bar or frame B by its lower end, and having its upper end recurved and slotted at *d′*, said recurved end being above and overhanging the recurved end of the pendent arm D, in such manner as to bring the slots in said arms into the same vertical transverse plane for permitting the passage of the check-row cord.

The arm D′ at the open end of the slot in the recurved end, and upon the sides thereof, is provided with parallel bars *e e′*, which project laterally on both sides of the arm or lever, and said arms vibrating over the recurved end of pendent arm or lever D serve not only to prevent the escape of the check-row cord from the open ends of the slots, but also, by coming in contact with the frame-bar B at each end of their throw, to limit the throw of the arms D D′.

The arms D D′ are connected, by links *f f′*, with arms *g g′* on opposite sides of a rock-shaft, G, pivoted in a suitable bearing-bracket on the frame-bar, and, being vibrated alternately in opposite directions by the action of the check-row cord or wire, they serve, by their relation to and connection with each other through said rock-shaft, to counterbalance each the weight of the other under all the different positions or angles of relation they assume, thereby adapting them to be vibrated with less power than would otherwise be required.

The lower arm *g′* of rock-shaft G (or it may be a separate arm applied to said shaft, if preferred) has at its lower end, upon its forward face, a stud or pin, *i*, with a friction-roller, *i′*, upon it, which engages with the forked upper end of an arm or lever, I, on a

rock-shaft, *k*, mounted in a bearing-bracket, K, pivoted underneath the frame-bar in a fixed bracket, K′, the vibration of the arm *g* imparting a corresponding vibration to the arm I and its shaft.

The shaft *k* extends in rear of the frame-bar, as shown in Fig. 3, and has near its rear end a rose-plate or disk, L, formed upon or rigidly secured to the side of and vibrating with the shaft. To the roughened or radially-corrugated face of this disk an angular or bent arm, *m*, is secured by means of a bolt, *l*, passing centrally through the disk L, and a clamp and nut at *l′*, which serve to clamp the arm snugly and tightly against the disk or rose-plate L at any desired angle to the shaft *k*. By adjusting the angle of relation between the arm *m* and the shaft *k* the outer end *m′* of said arm, with which the seeding devices of the planter are to be connected, may be brought nearer to or set farther away from the line of said shaft, and its throw diminished or increased, as required, to adapt it to the throw of the seeding-slides to which it is to be applied. To compensate for this adjustment of the arm *m*, and to adapt said arm, under its different adjustments, to assume the proper position to be connected with the devices for operating the seeding-slides, the bracket K is connected with the stationary bracket K′ by a transverse pivot at *n*, adapting the rear end of bracket K and shaft *k*, mounted therein to be raised or lowered, as required, a threaded spur at *o* passing through a slotted arc, and provided with a nut, *o′*, serving to hold the bracket K and shaft *k* at the desired angle of adjustment. To prevent displacement or cramping of the arm I under the various adjustments of its shaft *k*, said arm is connected with its shaft by a transverse pivot at $i^{\times}$, which, while it insures the vibration of the shaft with the arm, permits the angle of relation between them to be varied at will. The arm *m* is made capable of longitudinal adjustment relative to the rose-plate L, for further facilitating its adaptation to the planter to which it may be applied.

Any usual or preferred arrangement of connecting devices may be employed between the arm *m* and the seeding devices or slide of the planter. The frame-bar B at its outer ends is provided with pulleys R R for transferring or guiding the check-row cord, said pulleys being mounted upon supporting plates or brackets S, pivoted upon the frame-bar to permit a limited vibration to adapt the pulley to change its position to suit the direction in which the cord is moving, as explained in a former patent, and this plate or bracket S is provided with horns or spurs *s s*, over which the check-row cord passes, and which serve to uphold said cord in proper relation to the guiding sheave or pulley R. For preventing the check-row cord or wire from being thrown off the pulley on rough or hilly ground a guide or guard, T, is employed, of T shape, applied to the fixed stud or pin, *r*, on which the pulley R is mounted, and overhanging the outer face of said pulley between the horns or spurs *s s*, as shown, the recurved ends *t t* of said guard resting in close proximity with the periphery of the pulley at its upper face, as shown, and obviating all liability of accidental displacement of the check-row cord or wire.

In operation, the action of the check-row cord upon one of the vibrating arms D D′ moves the other arm into position, to be in turn acted upon by said cord, and thus, through the alternate action upon said arms, a positive movement in both directions is imparted to the lever *m* actuating the seeding devices.

The operation of the other parts will be understood without further description.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The vibrating arms D D′, pivoted one above and the other below the plane of the check-row cord acting thereon, whereby the weight of one is made to counterbalance, or partially counterbalance, the weight of the other, as described.

2. The recurved slotted arms D D′, arranged to overlap and vibrate past each other, with the slots therein for the check-row cord brought into the same plane, as described.

3. The combination of the bars *e e′* with the arm D′, operated upon by the check-row cord or wire, substantially as and for the purpose specified.

4. The arm *m* for actuating the seeding devices, applied to, and made adjustable upon, the rock-shaft *k* for varying the throw of said arm, as described.

5. The combination, with the rock-shaft *k*, of the rose-plate L, or its equivalent, and the adjustable crank-arm *m*, substantially as and for the purpose described.

6. The rock-shaft *k*, through which motion is communicated from the check-row cord to the seeding devices, mounted in an adjustable bearing-bracket, substantially as and for the purpose described.

7. The adjustable crank-arm *m*, in combination with the adjustable rock-shaft *k*, arranged and operating substantially as and for the purpose set forth.

8. The combination of the overhanging upper guard T with the pulley R, for preventing accidental displacement of the check-row cord, as described.

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Witnesses:
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F. P. LEWIS.