No. 652,190. Patented June 19, 1900.

J. E. LUCAS.

CORN PLANTER.

(Application filed Aug. 17, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. I.

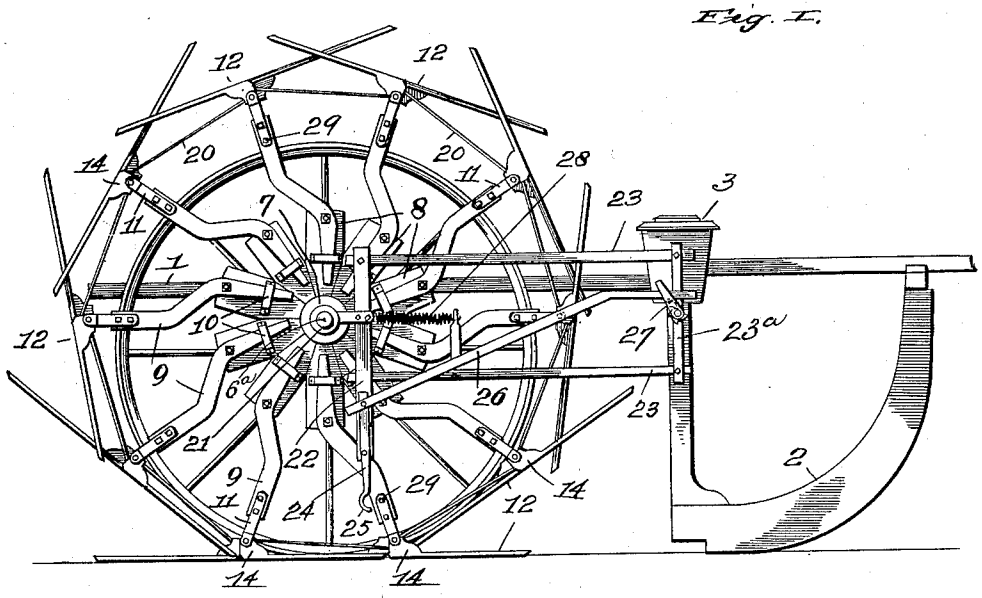

Fig. II.

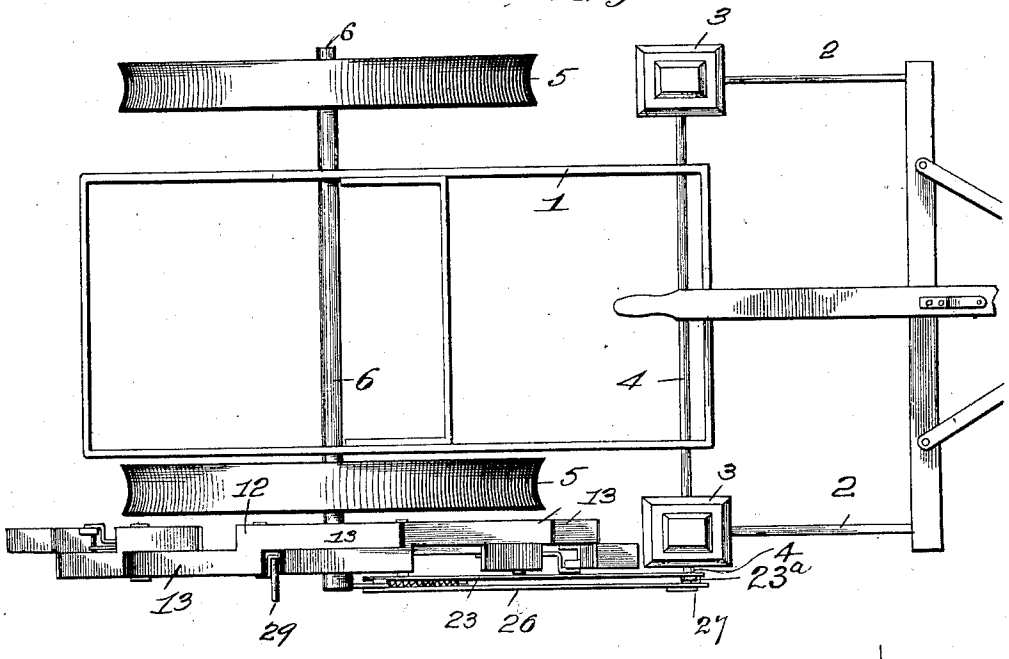

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FIG. III.

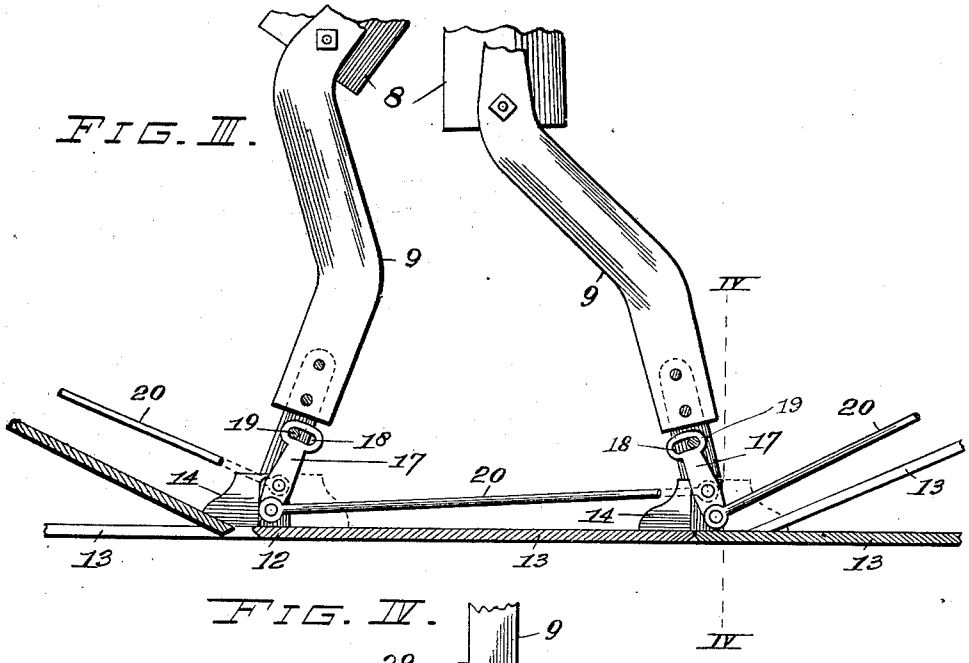


FIG. IV.

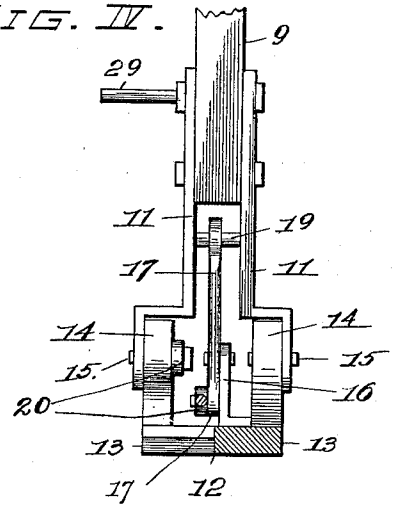
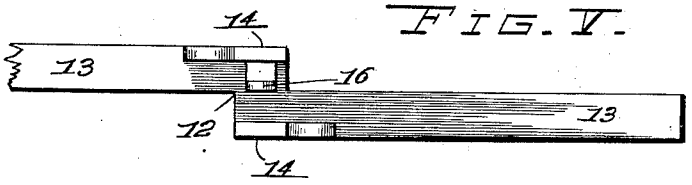


FIG. V.



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UNITED STATES PATENT OFFICE.

JAMES E. LUCAS, OF CLAYTON, ILLINOIS.

CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 652,190, dated June 19, 1900.

Application filed August 17, 1899. Serial No. 727,484. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. LUCAS, a citizen of the United States, and a resident of Clayton, in the county of Adams and State of Illinois, have invented certain new and useful Improvements in Corn-Planters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

The object of my invention is to provide a simple inexpensive mechanism whereby the corn will be dropped evenly and at proper intervals regardless of the unevenness of the ground over which the planter is passing.

To the above purposes my invention consists in certain novel features of construction and arrangement of parts that will hereinafter be fully set forth and claimed.

Figure I is a side elevation of a corn-planter, showing my invention applied thereto. Fig. II is a plan view thereof with my improvements associated therewith. Fig. III is a detail side elevation, partly in section, of a pair of the rocking arms of my attachment, together with the pivoted foot-plates carried by said arms. Fig. IV is an enlarged vertical sectional view taken approximately on the line IV IV of Fig. III. Fig. V is a plan view of one of a series of pivoted foot-plates that is made use of in carrying out my invention.

Referring by Arabic numerals to the accompanying drawings, 1 indicates the planter-frame, 2 the furrow-openers, 3 the seed-boxes, 4 the operating-shaft that actuates the seed-dropping mechanism in the seed-boxes, 5 the supporting-wheels, and 6 the axle carrying said wheels, all these parts being of common construction. A hub 7 of an auxiliary wheel is rotatably arranged eccentrically in any suitable manner on the right-hand side of the planter, which hub is in direct alinement with the furrow-opener on the right-hand side of said planter. A plurality of spokes 8 radiate from this hub 7. Upon the outside faces of the ends of these spokes are pivotally held the bent rocking arms 9. The inner ends of these rocking arms pass through and play in retaining clips or straps 10, fixed upon the outside faces of the spokes 8 and limit the movement of the rocking arms. Bolted to the inside and outside faces of the outer ends of these rocking arms 9 are pairs of outwardly-projecting shouldered radial plates 11.

12 indicates pivoted foot-plates, each of which comprises a pair of equal-sized offset members 13, and at the center of each foot-plate is a pair of integral upwardly-projecting ears 14, the same coinciding with the plates 11, and passing through each pair of said coinciding plates are the pivot pins or bolts 15. Fixed to and extending from the center toward the rocking arms of each foot-plate is a bracket 16, to the upper end of which is pivoted the center pivot-pin of a rocking link 17. The pivot-pin of this link is in direct alinement with the pivot-pins 15. The inner end of said rocking link is provided with a transversely-arranged slot 18, through which passes a pin 19, the ends thereof being seated in the plates 11. Pivotally held upon the outer end of each rocking link 17 is one end of a rod 20, the opposite end being secured to the inside face of one of the ears 14, this last-mentioned pivot-pin being also in direct alinement with the pivot-pins 15. Held in any suitable manner to a box 21 (in which the stub-axle 6^a, carrying the hub 7, rotates) is a vertically-arranged bar 22, the same being braced in position by the horizontally-arranged bars 23, the forward ends of which are secured in any suitable manner to a vertical bar 23^a, which is held in a suitable manner at the end of the furrow-opener 2 on the right-hand side of the machine. To the lower end of the bar 22 is pivoted a vertically-disposed pendent arm 24, the lower end of which is provided with a curved finger 25. To the upper end of this arm 24 is pivoted the rear end of a connecting-rod 26, the forward end of which is connected to and adapted to actuate a pawl mechanism that is carried by the operating-shaft 4. Fixed to the connecting-rod 26 is one end of a retractile coil-spring 28, the rear end thereof being secured to the bar 22. Carried by an oppositely-arranged pair of rocking arms 9 and adjacent to the ends thereof are the outwardly-projecting pins 29, the same being positioned so as to contact with the curved finger 25 of the pendent bar 24.

The operation is follows: As the planter moves forward the furrow-openers 2 plow the usual furrows in the ground, in which

furrows travel the left-hand one of the supporting-wheels 5 and the foot-plates 12, respectively. As the auxiliary wheel, comprising the hub 7, spokes 8, rocking arms 9, and the foot-plates 12, rotates the pins 29 are successively brought into contact with the finger 25, and following this contact the pendent arm 24 swings upon its pivot, so that its upper end is swung forward. The connecting-rod 26 is also moved forward and in so doing the ratchet and pawl are actuated and the operating-shaft 4 is partly rotated. This actuation operates the seed-dropping mechanism, and as soon as either of the pins 29 pass off from the finger 25 the power stored in the coil-spring 28 will act to return the arm 24, connecting-rod 26, and pawl to their normal positions. As the planter moves forward the auxiliary wheel, comprising the hub 7, the spokes 8, the rocking arms 9, and the foot-plates 12, rotates and the said foot-plates 12 are successively brought into contact with the ground in the furrow made by the right-hand furrow-opener, and as this action takes place the rocking arm 9 which carries the foot-plate 12 that is about to contact with the ground will swing slightly on its pivot, and as a result thereof the foot-plate 12 carried by the said descending rocking arm will assume a horizon position, and while in this position will travel farther downward and into contact with the ground. Should the descending foot-plate come into contact with a higher portion of the ground than that on which the contact foot-plate rests, the inner end of the rocking arm 9, carrying the descending foot-plate, will swing to the rear end of its retaining-clip 10, and when the auxiliary wheel, comprising the hub 7, the spokes 8, the rocking arms 9, and the foot-plates 12, passes beyond a perpendicular line through the pivot-pin of said rocking arm, which rocking arm now forms a lever, such auxiliary wheel will swing forward or "over the center," which action brings the upper end of the rocking arm 9 to the forward end of said clip 10. This action compensates for the unevenness of the ground, and the auxiliary wheel will not excessively rotate while the planter is traveling a determinate distance forward. During the time the foot-plate 12 is in contact with the ground the rocking link 17 changes its position slightly by swinging on its pivot, the slot in the upper end of the rocking link restricting its movement, and the movements of all of the links are made uniform and equalized by the connecting-rods 20. Owing to the number of rocking arms 9 and foot-plates 12 there will always be two of said plates in a horizontal position and in contact with the ground, and when in such position the offset members of the two foot-plates will lie side by side, thus forming practically a continuous bearing on the ground. There is always a pair of the foot-plates 12 in contact with the ground at a time, and as said foot-plates occupy the furrow made by the right-hand furrow-opener the entire auxiliary wheel, comprising the hub 7, the spokes 8, the rocking arms 9, and the foot-plates 12, will rotate in a very even manner, in consequence whereof the points at which the dropping mechanism is actuated will be of uniform distance apart regardless of the unevenness of the ground over which the planter is passing.

By my improved construction corn is planted in straight rows of equal distance apart without the use of a check-wire, and the attachment is simple, inexpensive, and can be readily applied to corn-planters of the present construction.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. An auxiliary wheel for corn-planters, comprising a hub having spokes, rocking arms pivoted to the end of the spokes, means secured to the spokes with which the inner ends of the rocking arms engage to limit their movement, and the foot-plates pivoted to the outer ends of the rocking arms; substantially as described.

2. An auxiliary wheel for corn-planters, comprising a hub having spokes, rocking arms pivoted to the ends of the spokes, means secured to the spokes with which the inner ends of the rocking arms engage to limit their movement, and the foot-plates having offset members and pivoted to the outer ends of the rocking arms; substantially as described.

3. An auxiliary wheel for corn-planters comprising a hub having spokes, clips secured to the spokes, rocking arms pivoted to the ends of the spokes, having their inner ends engaging with the clips whereby their movement is limited, the radial plates secured to the outer ends of the rocking arms, and the foot-plates having ears pivoted to the ends of the radial plates; substantially as described.

4. An auxiliary wheel for corn-planters comprising a hub having spokes, clips secured to the spokes, rocking arms pivoted to the ends of the spokes, having their inner ends engaging with the clips whereby their movement is limited, the radial plates secured to the outer ends of the rocking arms, the foot-plates having ears pivoted to the ends of the radial plates, and brackets located between the ears, the rocking links having transverse slots at their inner ends, and pivoted to the brackets, the pins extending through the slots whereby the links are connected with the radial plates, and the rods connected with the outer ends of the links; substantially as described.

5. The combination, with the stub-axle and operating-shaft of a corn-planter; of a box located on the stub-axle, a frame, a ratchet-wheel secured to the operating-shaft, a pendent arm supported by the frame, a connecting-rod pivoted to the upper end of the pendent arm, having a pawl engaging the ratchet-wheel, a spring for retracting the connecting-

rod, and an auxiliary wheel comprising a hub having spokes, clips secured to the spokes, and rocking arms pivoted to the ends of the spokes, having pins adapted to engage with the lower end of the pendent arm, and their inner ends engaging with the clips whereby their movement is limited; substantially as described.

6. The combination, with a corn-planter; of an auxiliary wheel, the rim of which comprises a plurality of foot-plates, the hub of the auxiliary wheel being eccentrically arranged relative to the traction-wheels of the planter, and the auxiliary wheel being in alinement with one of the furrow-openers of the planter, and means actuated by said auxiliary wheel for operating the dropping mechanism of the planter; substantially as specified.

7. In a corn-planter an auxiliary wheel comprising a plurality of radially-arranged rocking arms, foot-plates pivotally arranged on the ends of the said rocking arms, the plates being adapted to contact with the ground, and means actuated by the said auxiliary wheel for operating the dropping mechanism of the planter; substantially as specified.

8. In a corn-planter, an auxiliary wheel comprising a plurality of rocking arms, foot-plates pivoted upon the ends of said rocking arms, means whereby the swing of said foot-plates is restricted, means whereby the said dropping mechanism is actuated, and means carried by the auxiliary wheel for actuating the said last-mentioned means; substantially as specified.

9. In a corn-planter, an auxiliary wheel comprising a plurality of rocking arms, foot-plates pivotally arranged at the ends of said rocking arms, which foot-plates each comprise a pair of offset portions, the offset portions of the adjacent plates lying side by side, and means operated by said auxiliary wheel for actuating the corn-dropping mechanism of the planter; substantially as specified.

10. In a corn-planter, an auxiliary wheel comprising a plurality of rocking arms, foot-plates pivotally arranged at the ends of said rocking arms, means whereby the swing of said foot-plates is restricted and equalized, means whereby the corn-dropping mechanism of the planter is actuated, and means carried by the auxiliary wheel which engages with the first-mentioned means; substantially as specified.

11. In a corn-planter, an auxiliary wheel comprising a plurality of pivoted rocking arms, means for limiting the movement of the rocking arms, and foot-plates pivotally arranged at the ends of said rocking arms; substantially as specified.

12. In a corn-planter, an auxiliary wheel comprising a hub arranged to rotate at one side of the planter, a plurality of spokes integral with said hub, rocking arms pivotally secured to the outer ends of each of said spokes, foot-plates pivotally secured to the ends of said rocking arms, and means for limiting the movement of the rocking arms; substantially as specified.

13. In a corn-planter, an auxiliary wheel, the rim of which comprises a plurality of foot-plates, each foot-plate being composed of offset members, which offset members of the adjacent foot-plates lie side by side to form practically a continuous bearing when said auxiliary wheel rotates upon the ground; substantially as specified.

14. The combination with a corn-planter of an auxiliary wheel having a hub, a plurality of radially-arranged rocking pivoted arms oscillating on the hub and carrying pivoted foot-plates, and means whereby the movement of said rocking arms is restricted; substantially as specified.

JAMES E. LUCAS.

In presence of—
JOHN R. WALLACE,
J. R. MOFFETT.