L. M. BUCHANAN.

CORN PLANTER.

APPLICATION FILED NOV. 25, 1910.

1,099,337.

Patented June 9, 1914.

3 SHEETS—SHEET 1.

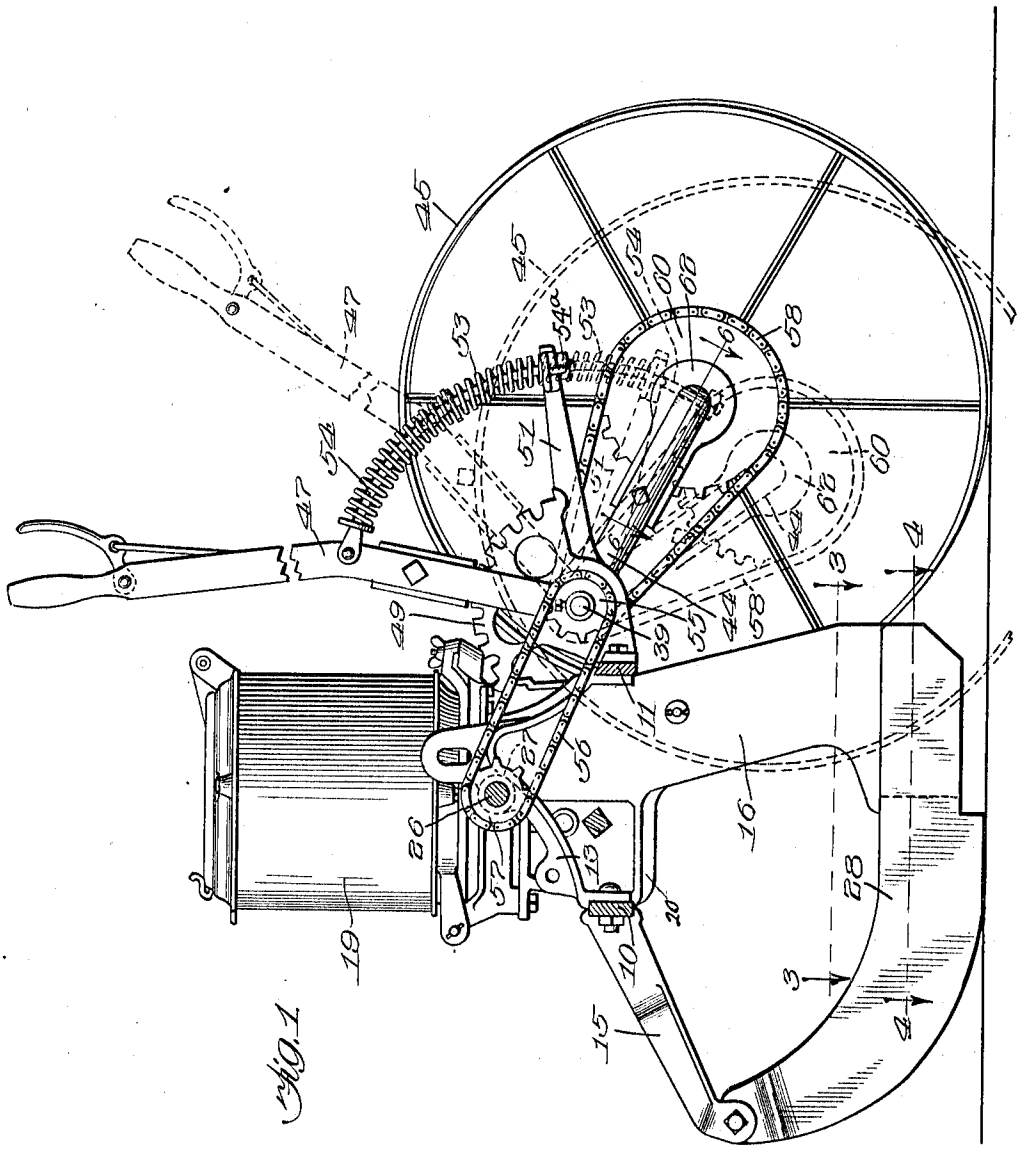


Fig. 1.

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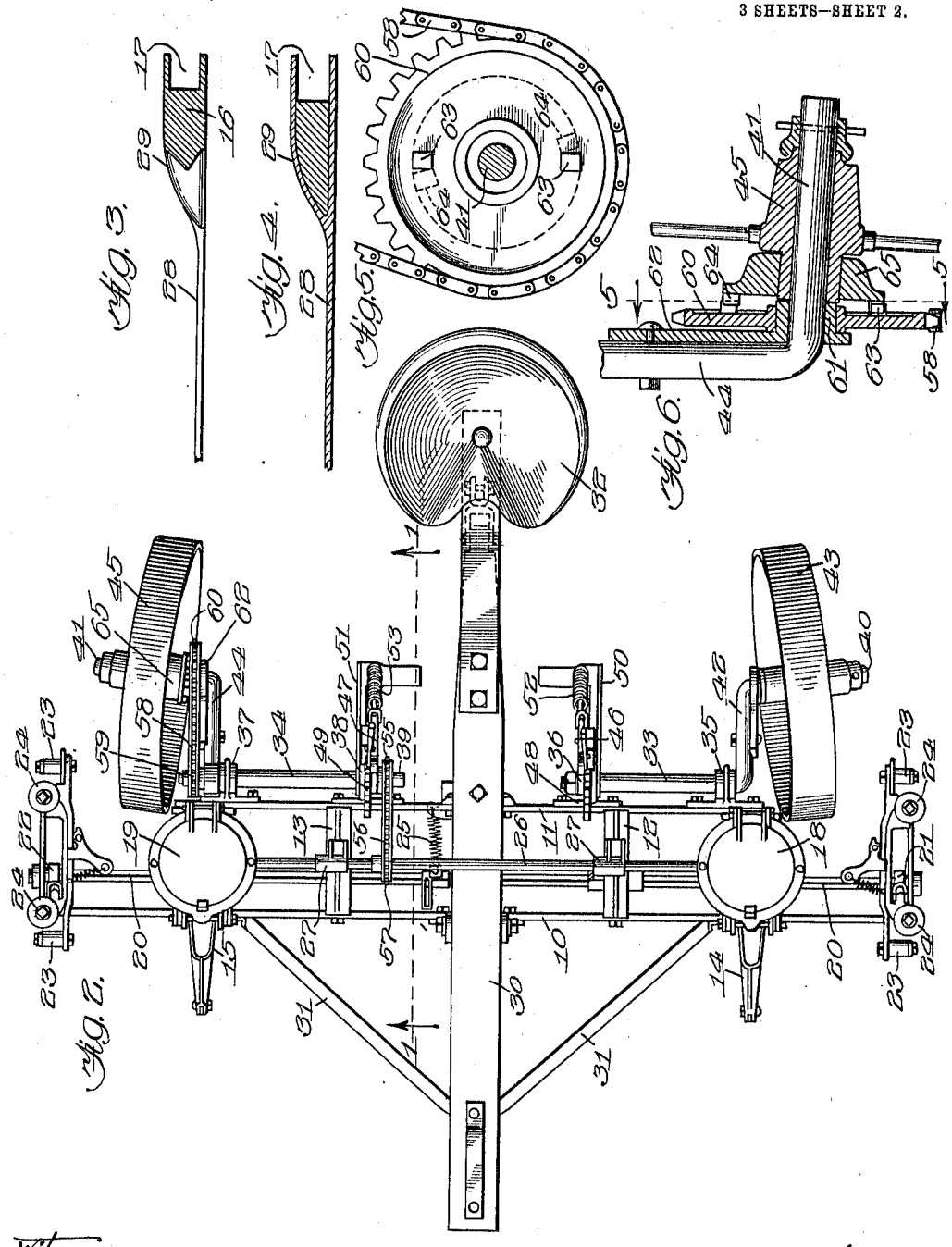


Fig. 2.

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3 SHEETS—SHEET 3.

Fig. 7.

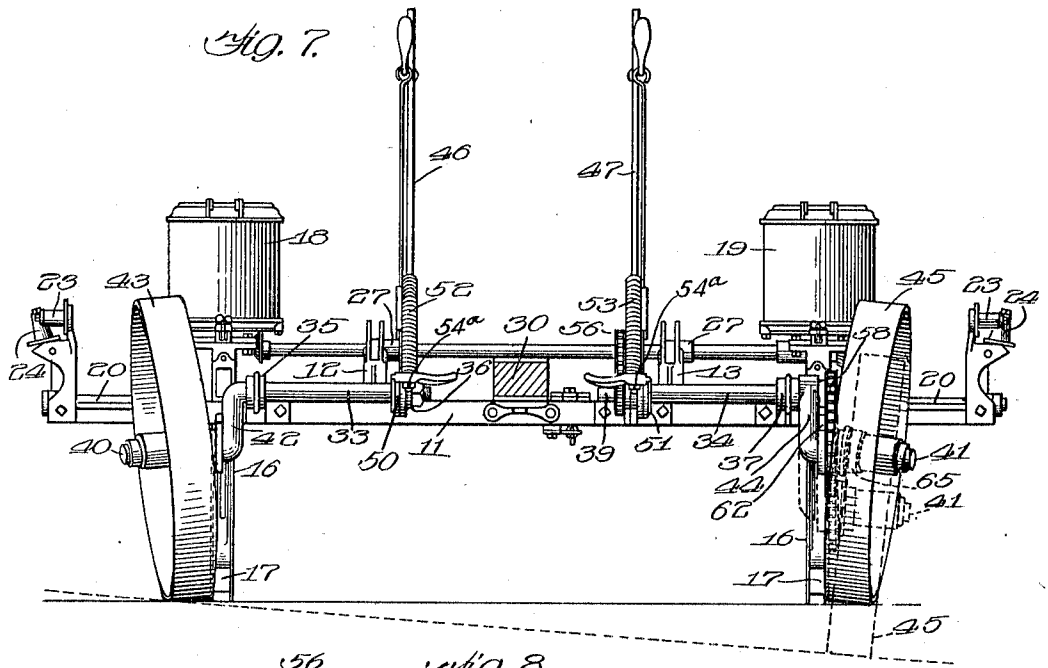


Fig. 8.

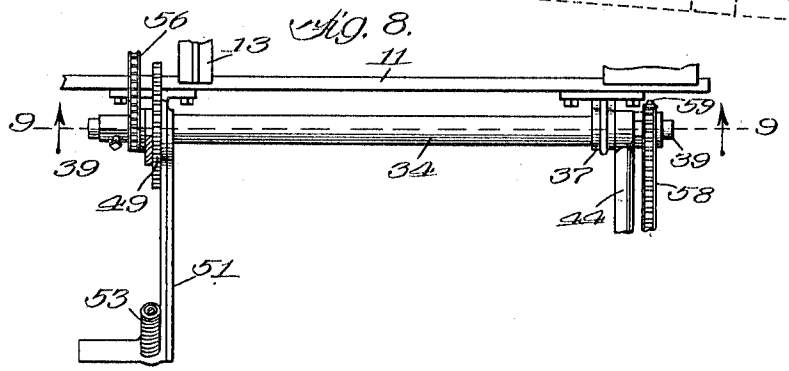
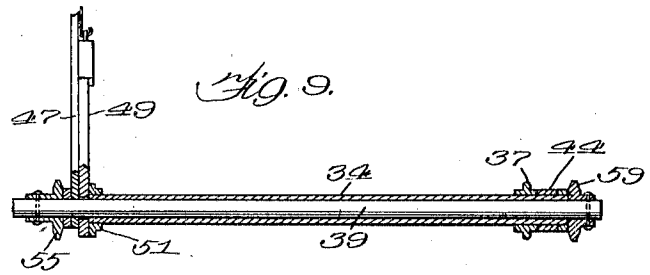


Fig. 9.



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UNITED STATES PATENT OFFICE.

LAUGHLIN M. BUCHANAN, OF KEWANEE, ILLINOIS.

CORN-PLANTER.

1,099,337. Specification of Letters Patent. Patented June 9, 1914.

Application filed November 25, 1910. Serial No. 594,187.

To all whom it may concern:

Be it known that I, LAUGHLIN M. BUCHANAN, a citizen of the United States, residing at Kewanee, in the county of Henry and State of Illinois, have invented certain new and useful Improvements in Corn-Planters, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to corn planters, and has for its object to provide a new and improved planter in which all the operating parts and the supporting wheels are carried by a single frame instead of by two frames hinged together as has heretofore been the general practice in corn planter construction. I accomplish this object as illustrated in the drawings and as hereinafter described.

What I regard as new is set forth in the claims.

In the drawings, Figure 1 is a longitudinal vertical section on line 1—1 of Fig. 2, illustrating the construction of my improved planter; Fig. 2 is a plan view; Fig. 3 is a horizontal section on line 3—3 of Fig. 1; Fig. 4 is a horizontal section on line 4—4 of Fig. 1; Fig. 5 is a vertical section on line 5—5 of Fig. 6, showing the construction of the driving sprocket; Fig. 6 is a section on line 6—6 of Fig. 1, showing the construction of the wheel spindles and the arrangement of the driving sprocket and clutch mechanism; Fig. 7 is a rear elevation, the tongue being in section; Fig. 8 is a detail, being a partial plan view illustrating the drive-shaft by which the seed-plates are operated and the connections thereof; and Fig. 9 is a section on line 9—9 of Fig. 8.

Referring to the drawings, 10—11 indicate parallel bars extending transversely of the machine. Said bars are connected by brackets 12—13, which together form what may be termed the "frame" of the machine.

14—15 indicate runners, which are rigidly secured to the bars 10—11, as best shown in Fig. 1, and are provided at the rear with the usual standard 16 provided with a seed-duct 17 equipped with valves adapted to be operated by check-row apparatus in the usual way.

18—19 indicate seed-boxes arranged in the usual way and over the standards 16, said seed-boxes being provided with the usual seed-plates.

20 indicates a check-row rock-shaft, which extends transversely of the machine and is connected with the valves in the seed-ducts 17 in the usual way. 21—22 indicate check-row forks mounted on the rock-shaft 20, and 23—24 the usual guide-rollers for guiding the check-row wire into engagement with the forks 21—22, as usual.

25 indicates a spring for restoring the rock-shaft 20 to its normal position after it has been actuated.

26 indicates the usual seed plate shaft, which is journaled in suitable bearings 27 carried by the brackets 12—13 and is geared to the seed-plates as usual.

28 indicates the shoes of the runners 14—15, which, as shown in Figs. 3 and 4, are flat on the inside so that their inside surfaces are in line with the line of movement of the machine, the rear portions of said runners being wider and being convex on their outer faces, as shown at 29 in said figures.

30 indicates the tongue, which is secured to the main frame and is braced by a brace 31, as shown in Fig. 2.

32 indicates the seat, which is mounted on the rear portion of the tongue back of the main frame.

33—34 indicate crank-axles, which are pivotally mounted in brackets 35—36—37—38, respectively, at opposite ends of the bar 11 of the main frame so that said axles may rock in their bearings.

39 indicates a shaft, which is fitted in the horizontal portion of the right-hand axle 34, as best shown in Fig. 9, said shaft being employed to transmit power from one of the supporting wheels to the seed-plate shaft 26, as hereinafter described.

40—41 indicate wheel-spindles. The crank-axle 33 is preferably formed of an integral rod or bar, the inner end portion of which is disposed horizontally and is fitted in bearings in the brackets 35—36, as hereinbefore described,—the intermediate portion 42 thereof being bent at right angles with the horizontal portion and the spindle 40 formed by the outer end portion which is bent so that it forms an angle slightly greater than a right-angle with the intermediate portion 42, as shown in Fig. 2.

43 indicates the left-hand wheel, mounted on the spindle 40. The right-hand crank axle 34 is tubular to receive the shaft 39 and near its outer end carries an arm 44 which is rigidly secured thereto and corresponds with the intermediate portion 42 of

the left-hand axle. Said arm 44 carries at its lower end the spindle 41 which, as above suggested is preferably formed integral therewith, said spindle being arranged at an obtuse angle with said arm 44 and carrying the right-hand wheel 45, as shown in Figs. 2 and 6. It will be noted that by the construction described the wheels 43—45, when in the position shown in Fig. 2, which is the normal position, are inclined to the line of draft so that they are farther apart at the front than at the rear, and as they are set back of and slightly outside the inner faces of the runners they act as covering wheels to throw the dirt back into the furrow after the seed has been dropped therein. The two wheels being inclined in opposite directions, the side-draft is equalized so that the machine may easily be guided in a straight line. The crank axles and wheels at the opposite sides of the machine are independently adjustable so that either wheel may be raised or lowered and at the same time be moved forward or backward independently of the other, and when the machine is transported from one field to another they may both be set so as to run substantially parallel with the line of draft by rocking the crank-axles so that the intermediate portions 42—44 thereof are substantially vertical. For the purpose of rocking said axles hand-levers 46—47 and foot-levers 50—51 are provided, the foot-levers being rigidly connected with the axles 33—34, respectively, and the hand-levers being pivotally connected therewith adjacent to the foot-levers. Locking segments 48—49 are secured to the bar 11 adjacent to the hand-levers 46—47, respectively, as shown in Figs. 1 and 2. The hand-levers operate through their respective foot-levers by means of rods 54 and springs 52—53 mounted on said rods, as shown in Fig. 1, the arrangement being such that when one of the levers, as 47, is drawn backward it will operate through its spring 53 to depress the foot-lever 51, and by locking the lever in any desired position of adjustment by means of its segmental rack 49 the corresponding axle may be locked in position. This locking, however, does not hold the axle rigid, as the spring 53 permits it to yield slightly. The lower ends of the rods 54 pass through suitable perforations in the levers 50—51 and nuts 54ª are screwed upon the lower ends of said rods 54 below the levers 50—51, as shown in Figs. 1 and 7, so that when the levers 46—47 are moved forward beyond a certain point they will act to positively lift the levers 50—51. It will be obvious that when the axles 33—34 are rocked to lower the wheels the effect is to raise both runners out of the ground. This construction also adapts the machine for operating in uneven ground, as either wheel may be raised or lowered independently of the other to adjust the corresponding runner vertically and maintain it in proper operative position.

As has been explained, the crank-axle 34 is tubular and incloses the shaft 39, which shaft carries at its inner end a sprocket-wheel 55 which is connected by a link 56 with a sprocket-wheel 57 mounted on the seed-plate shaft 26 so that by the rotation of the shaft 39 the seed-plate shaft 26 is rotated. The shaft 39 is itself driven from the right-hand wheel 45 by means of a link belt 58 which runs over a sprocket-wheel 59 mounted on the outer end of the shaft 39 and over a sprocket-wheel 60 which is journaled upon the inner portion of the spindle 41. Preferably the sprocket-wheel 60 is mounted upon a sleeve 61 carried by an arm 62 fixedly secured to the arm 44 of the crank-axle 34, as shown in Fig. 6. Said sprocket-wheel is provided on its outer face with lugs 63, preferably two in number, which are adapted to engage corresponding lugs 64 carried by a disk 65 which is mounted on and secured to the inner portion of the hub of the wheel 45, as best shown in Fig. 6. I thus provide clutch-members through which the shaft 39 is driven from the wheel 45 and at the same time the adjustment of the wheel incidental to the rocking of the crank-axle 34 is not interfered with. Furthermore, the wheel 45 may be partly rotated in a reverse direction, as is necessary in turning corners, without reversing the rotation of the seed-plate shaft.

If desired, it will be understood that instead of driving the seed-plate drive-shaft from one of the wheels only it may be driven from both wheels by duplicating at the left-hand side of the machine the construction shown at the right-hand side thereof and using a ratchet-wheel for connecting the driving mechanism operated by one of the wheels with the seed-plate drive-shaft, or using a divided seed-plate drive-shaft. The claims are therefore not to be construed as being limited to driving the seed-plate drive-shaft from a single wheel only. Furthermore, it should be understood that while I have described with considerable particularity the embodiment of my invention shown in the accompanying drawings, my invention is generic in character and is not limited to such specific embodiment, except in so far as it is particularly claimed, and the claims hereinafter made are therefore to be construed generically.

That which I claim as my invention, and desire to secure by Letters Patent, is,—

1. A corn-planter, comprising a unitary frame, furrow-openers secured to said frame, seed-depositing means carried by said frame, combined covering and carrying wheels arranged at an angle to the line of draft,

means separately connecting said wheels respectively with said frame, means for independently adjusting said wheels vertically and for varying the angular relation of said wheels to the line of draft.

2. A corn-planter, comprising a unitary frame, furrow-openers connected therewith, a seed-plate drive-shaft mounted on said frame, covering wheels arranged at an angle with the line of draft separate means connecting said wheels respectively with said frame, means actuated by one of said wheels for operating said drive-shaft, and means for vertically adjusting said covering wheels independently of each other.

3. A corn-planter, comprising a unitary frame, runners secured to said frame, crank-axles pivotally mounted on said frame, wheels mounted on said crank-axles, lever mechanism for rocking said crank-axles to raise and lower the wheels, one of said crank-axles being tubular, a shaft mounted in said tubular axle, seed-depositing means mounted on said frame, and means for driving said shaft from the adjacent wheel.

4. A corn-planter, comprising a unitary frame, runners secured to said frame, crank-axles separately mounted on said frame, combined covering and carrying wheels mounted on said axles and arranged normally at an angle to the line of draft, means for raising and lowering said wheels, and means for exerting yielding downward pressure on said wheels.

5. A corn-planter, comprising a unitary frame, runners secured to said frame, crank-axles mounted on said frame, wheels mounted on said axles and arranged normally at an angle to the line of draft, means for raising and lowering said wheels, means for exerting yielding downward pressure on said wheels, seed-depositing means, and means actuated by one of said wheels for operating said seed-depositing means.

6. A corn-planter, comprising a unitary frame, runners secured to said frame, crank-axles pivotally mounted on said frame, wheels mounted on said crank-axles, lever mechanism for rocking said crank-axles to raise and lower the wheels, one of said crank-axles being tubular, a shaft mounted in said tubular axle, seed-depositing means mounted on said frame, and means for driving said shaft from the adjacent wheel, said driving means comprising clutch mechanism between said wheel and said shaft.

7. A corn-planter, comprising a frame, furrow-openers connected therewith, seed-depositing means mounted on said frame, covering wheels arranged at an angle with the line of draft means separately connecting said wheels respectively with said frame, means actuated by one of said wheels for operating said seed-depositing mechanism, and means for varying the angular relation of said wheels with the line of draft.

8. A corn-planter, comprising a frame, furrow-openers connected therewith, crank-axles separately mounted on said frame, said axles comprising combined covering and carrying wheel spindles and arms pivotally connected with the frame, said spindles forming obtuse angles with said arms, wheels mounted on said spindles, and means for rocking said axles independently of each other.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."