W. HOLLAND-LETZ.

CORN PLANTER.

APPLICATION FILED AUG. 20, 1914. RENEWED DEC. 26, 1917.

1,274,062.

Patented July 30, 1918.

2 SHEETS—SHEET 1.

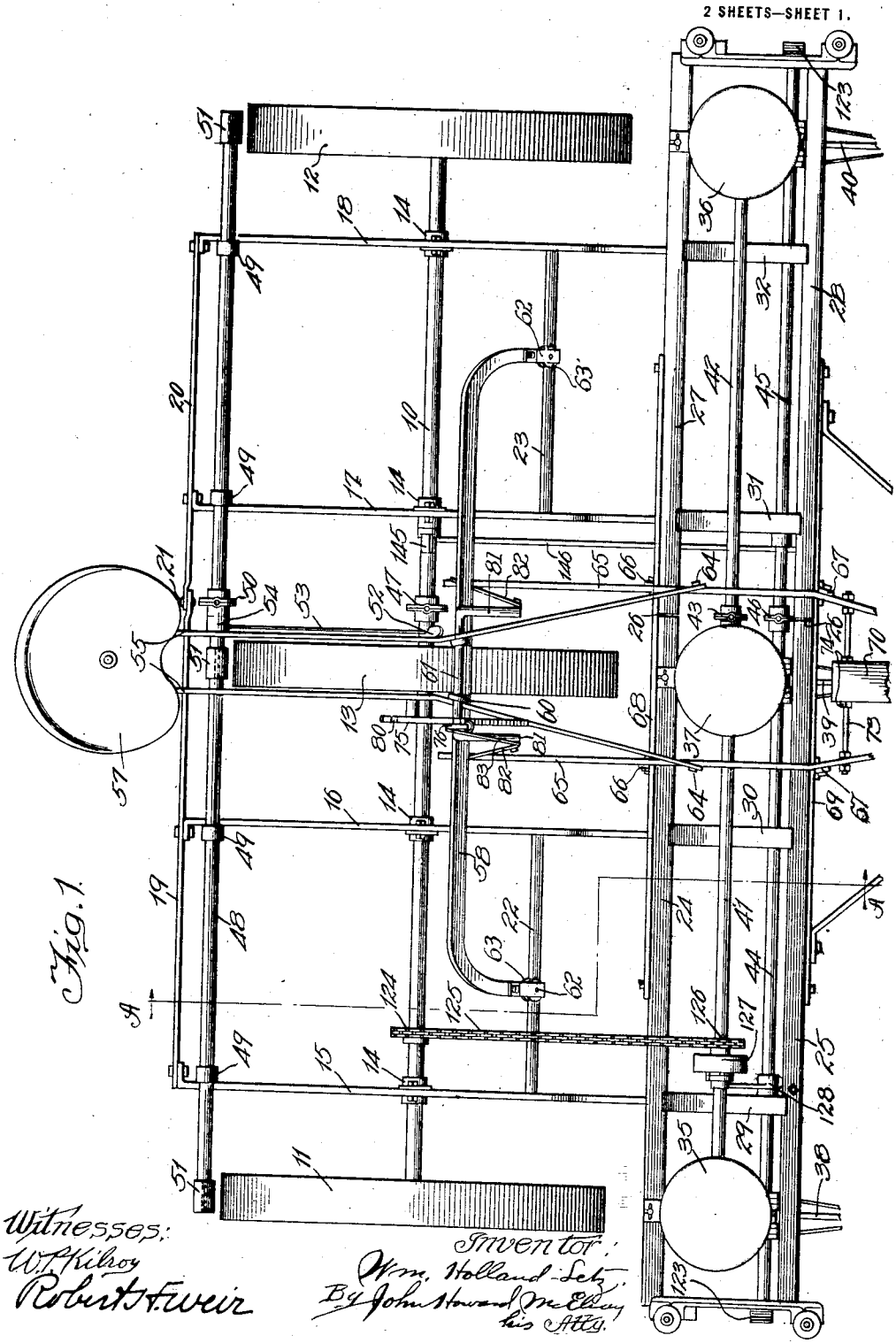


Fig. 1.

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Inventor:
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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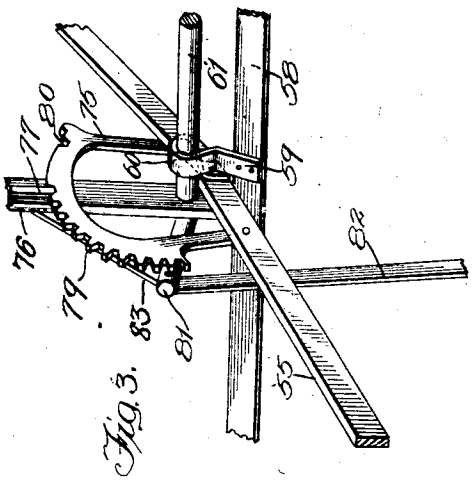


Fig. 3.

Fig. 2.

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UNITED STATES PATENT OFFICE.

WILLIAM HOLLAND-LETZ, OF CROWN POINT, INDIANA, ASSIGNOR TO THE LETZ MANUFACTURING COMPANY, OF CROWN POINT, INDIANA, A CORPORATION OF INDIANA.

CORN-PLANTER.

1,274,062. Specification of Letters Patent. Patented July 30, 1918.

Application filed August 20, 1914, Serial No. 857,624. Renewed December 26, 1917. Serial No. 208,980.

To all whom it may concern:

Be it known that I, WILLIAM HOLLAND-LETZ, a citizen of the United States, and a resident of Crown Point, in the county of Lake and State of Indiana, have invented certain new and useful Improvements in Corn-Planters, of which the following is a full, clear, and exact specification.

My invention is concerned especially with three-row planters, designed to plant three rows of corn at a time, instead of the customary two rows, and is designed to produce a planter of the class described in which the various parts of the preferably flexible runner-frame can be raised and lowered, and thus adjusted relative to the corresponding parts of the similar wheel-frame in order that the various runners may be set to penetrate the ground to the precise depth desired, and in order that the runner and wheel relatively movable to the relatively fixed pairs of runners and wheels may have the necessary flexibility.

To illustrate my invention, I annex hereto four sheets of drawings, in which the same reference characters are used to designate identical parts in all the figures, of which,—

Figure 1 is a top plan view of a corn-planter embodying my invention;

Fig. 2 is a horizontal section on the line A—A of Fig. 1; and

Fig. 3 is a perspective view of a portion of the frame.

My present invention herein claimed is concerned exclusively with the three-row type of corn-planters, such, for instance, as is shown in the patent to St. Aubin, No. 914,890, dated March 9, 1909. In order to understand the structure of the complete machine, I will first describe the general structure embodying the features necessitated by the three-row construction, after which I will take up certain features which are applicable to corn-planters generally.

Referring more especially to Figs. 1 and 2, it will be seen that I employ the axle 10 having three covering or supporting wheels 11, 12 and 13, secured thereon at the ends and center, respectively. Mounted on this axle 10, by means of suitable journal bearings 14 provided for that purpose, are four horizontal bars 15, 16, 17 and 18, which make up the longitudinal members of the main frame, the transverse member being formed by the bars 19 and 20, which are secured to the rear ends of the bars 15 and 16, and 17 and 18, respectively, the bars 19 and 20 being pivoted together at 21 by any desired form of joint which permits a relative swinging movement on a horizontal axis. The bars 15 and 16, and 17 and 18 are also connected by horizontal rods 22 and 23. The runner frame has as its basis the square tubes 24 and 25, which are pivotally connected by suitable joints at 26 with the similar bars 27 and 28, which make up the right-hand end of the runner frame, as seen from the position of Fig. 1, and these longitudinal bars 24 and 27, and 25 and 28, are connected at the four places in alinement with the horizontal bars 15, 16, 17 and 18 of the main frame by four three-armed cross pieces or castings 29, 30, 31 and 32, the forward ends of the bars 15, 16, 17 and 18 being pivotally connected to these castings 29, 30, 31 and 32, respectively, by the pivot bolts 33. In order to adjust the relative heights of the runner frame and the main frame at each point of connection, if necessary, the vertical arms of the three-armed castings are provided with a plurality of apertures 34, into any one of which the pivot bolt 33 may be inserted. The runner frame has secured thereon, opposite the cover wheels 11, 12 and 13, the seed boxes 35, 36 and 37, which boxes are of course located over the runners 38, 39 and 40, respectively, in the customary manner. A seed shaft, made up of two parts 41 and 42, connected at their inner ends by a universal joint 43, is journaled in suitable bearings supported from the seed boxes, and an operating or trip shaft, made up of the parts 44 and 45, connected by a universal joint 46, is journaled in suitable bearings supported from the tubes or beams 25 and 28. The two parts of the axle 10 are connected by a universal joint 47; and the scraper rock-shaft 48, journaled in bearings 49 secured on the horizontal bars 15, 16, 17 and 18, has its two parts connected by a universal joint 50, the scrapers 51 secured on said shaft adjacent the cover wheels 11, 12 and 13 being swung into engagement with the peripheries of said wheels when the shaft is rocked by pressing on the foot lever 52 pivoted on the axle 10 and connected by a link 53 with a downwardly extending arm 54 connected to the rock shaft 48. All of the joints 21 and 26 in the framework, and the

joints 50, 47, 43 and 46 in the four shafts are in alinement, as seen, and are located adjacent the center of the machine, so that the wheel 12 and that end of the frame, and the runner 40 and its end of the runner frame, are free to swing up or down as may be necessary to accommodate the planter to inequalities of the surface of the field being planted.

The framework and connections thus far described make up the lower level, so to speak, of the machine, and the upper level or superstructure is formed as follows:

A pair of horizontal seat-frame bars 55 are supported at their rear ends by brace bars 56 secured thereto at their upper ends, and secured at their lower ends to the transverse bar 19 of the main frame. The seat 57 is preferably secured at the rear end of these bars 55, so that the weight of the driver is efficient in counterbalancing the runner frame in the adjustments hereinafter described. These seat-frame bars 55 are supported near their center by a compensating yoke 58, which is tied to the bars 55 by a pair of straps 59 (see Fig. 3) riveted at their ends to said bars and to the yoke and formed with loops 60, which serve as bearings for the U-shaped rock-shaft 61 to be further described. The ends of the compensating yoke 58 are turned down as shown, and provided with the loops 62, which embrace the rods 22 and 23, respectively. Anti-friction rollers 63 are journaled in the loops and run on the rods 22 and 23, so that the compensating yoke may shift on the rods, as necessitated by their relative movements due to the swinging of one half of the frame relative to the other. The forward ends of the seat-frame bars 55 are turned down, as is clearly shown in Fig. 2, and are pivoted by bolts 64 to points near the centers of the pair of tongue-supporting bars 65, which are rigidly secured by connecting straps 66 and 67 to the yokes 68 and 69 which span the center of the runner-frame and are somewhat loosely bolted at their ends to the portions 24 and 27, and 25 and 28, respectively, of said frame. The tongue 70 is pivotally mounted between the forward ends of the supporting bars 65 by a bolt 71, and the rear end of the tongue preferably has a vertical slot 72 therein, so that a suitable adjusting bolt 73 passed therethrough may have the nuts 74 thereon tightened on the end of the tongue to adjust the height of the forward end thereof relative to the framework. A detent segment 75 is secured to one of the seat-supporting bars 55, so that the U-shaped rock-shaft 61 is at the center of the segment, and a lifting lever 76 is pivoted on said rock-shaft and provided with the customary spring-pressed plunger 77 controlled by a handle 78, to coöperate with a series of notches 79 in the forward portion of the segment, or with a single notch 80 in the rear portion thereof. The rock shaft 61 has arms 81 extending forwardly therefrom, and links 82 pivoted on said arms connect the rock shaft with the rear end of the tongue-supporting bars 65. In order to properly adjust the position of the handle 76 relative to the rock shaft 61, and thus regulate the height at which the runners are lifted, one of the arms 81 has pivoted thereto a bar or link 83, which has a plurality of apertures 84 therein, through any one of which a bolt 85 may be passed. This bolt 85 also passes through an aperture in the handle 76, so that the angle of the arms 81 to the handle 76 may be adjusted as desired.

With the construction described, it will be obvious that the position of the runners 38, 39 and 40 relative to the ground may be regulated. In the vertical position of the handle shown in Fig. 2, the runners rest just on the surface of the ground, and if it is desired to lift the runners entirely off of the ground, as is desirable for purposes of transportation, the handle 76 is swung back until the detent 77 engages the notch 80, to reach which position the links 82 must be lifted, and as they are lifted, the main frame rocks on the axle 10 so as to tilt the seat down, and the forward end of the main frame up. The runner frame is thus lifted, and also swings relative to the main frame about the pivots 33 and 64. When the runners are to be lowered into the ground, the lever is swung forward, and if it is swung past the central position shown, the main frame is rocked about the axle 10 in the opposite direction, so that the seat is raised and the forward end of the main frame is lowered, carrying down the pivotal points 33 and 64, about which the runner frame swings sufficiently to keep it in its substantially vertical position while said frame is at the same time lowered to force the runners into the ground.

It will of course be understood that the mechanism thus far described is designed purely for a three-row planter, and is not applicable to the two-row planter. An extension of the same idea would be a four-row planter, with a fourth cover wheel, seed box and runner located to the left of the wheel 11, and having its end of the frame similarly jointed, in which case, of course, the tongue would be moved to the center of the new construction and between the wheels 11 and 13.

The axle 10 is suitably connected with the seed shaft 41, as by the sprocket wheel 124 secured on the axle and connected by the sprocket chain 125 with the sprocket wheel 126 on the hub of the cup 127 of the customary clutch mechanism by which the shaft 41 is intermittently rotated, the engagement

of the clutch being effected by the check row wire buttons engaging the forks 123 on the end of the trip shaft 44, which has the customary trip pawl 128 coöperating with the clutch mechanism in the customary manner.

While I have shown and described my invention as embodied in the form which I at present consider best adapted to carry out its purposes, it will be understood that it is capable of modifications, and that I do not desire to be limited in the interpretation of the following claims except as may be necessitated by the state of the prior art.

What I claim as new, and desire to secure by Letters Patent of the United States, is:

1. In a three-row corn-planter, the combination with an axle, of three covering wheels secured thereto at its ends and center, a runner-frame having three seed-boxes in front of the covering wheels, a main frame journaled on the axle and pivotally connected to the runner-frame, a seed-shaft journaled in the runner-frame, connections for driving the seed-shaft from the axle, a parallel trip shaft also journaled in the frame, connections from the trip shaft to the seed-shaft for controlling the operation of the latter, universal joints in the axle and the two shafts in alinement with each other and near the middle thereof, and joints in the main frame and the runner frame in alinement with the universal joints.

2. In a three-row corn-planter, the combination with an axle, of three covering wheels secured thereon at its ends and center, a runner-frame having three seed-boxes in front of the covering wheels, a main frame journaled on the axle and pivotally connected to the runner-frame, a seed-shaft journaled in the runner-frame, connections for driving the seed-shaft from the axle, a parallel trip shaft also journaled in the frame, connections from the trip shaft to the seed-shaft for controlling the operation of the latter, a scraper shaft journaled in the main frame parallel to the axle and adjacent the peripheries of the wheels, scrapers adapted to coöperate with said wheels, universal joints in the axle and the three shafts in alinement with each other and near the middle thereof, and joints in the main frame and the runner-frame in alinement with the universal joints.

3. In a three-row corn-planter, the combination with an axle, of three covering wheels secured thereon at its ends and center, a runner-frame having three seed-boxes in front of the covering wheels, a main frame journaled on the axle and pivotally connected to the runner-frame, a seed-shaft journaled in the runner-frame, connections for driving the seed-shaft from the axle, a parallel trip shaft also journaled in the frame, connections from the trip shaft to the seed-shaft for controlling the operation of the latter, universal joints in the axles and the two shafts in alinement with each other and near the middle thereof, joints in the main frame and the runner-frame in alinement with the universal joints, runners carried by the runner-frame in alinement with and in advance of the covering wheels, and means for tilting the runner-frame relative to the main frame to control the position of the runners relative to the surface of the ground.

4. In a three-row corn-planter, the combination with an axle, of three covering wheels mounted on the ends and at the center thereof, a main frame pivoted on the axle, a runner-frame pivoted on the forward end of the main frame having three seed-boxes and three runners in alinement with the covering wheels, joints in the axles and frames in alinement with each other and near the center of the machine, a compensating yoke mounted on the main frame and spanning the joint, compensating yokes mounted on the runner-frame and spanning the joints, a tongue-frame secured to the runner-frame yokes, a seat-frame secured to the main-frame yoke and pivotally connected to the tongue-frame, and means for tilting the main frame on the axle and the runner-frame on its joint with the main frame to raise and lower the runners.

5. In a three-row corn-planter, the combination with an axle, of three covering wheels mounted on the ends and at the center thereof, a main frame pivoted on the axle, a runner-frame pivoted on the forward end of the main frame having three seed-boxes and three runners in alinement with the covering wheels, joints in the axle and frames in alinement with each other and near the center of the machine, a compensating yoke mounted on the main-frame and spanning the joint, compensating yokes mounted on the runner-frame and spanning the joints, a tongue-frame secured to the runner-frame yokes, a seat-frame secured to the main-frame yoke and pivotally connected to the tongue-frame, a hand lever pivoted on the seat-frame, a detent segment with which it coöperates, and a link connecting the tongue-frame with the hand lever so that as the latter is swung the runner-frame will tilt on its pivotal joint with the main frame, and the tongue-frame about its connection with the seat-frame.

6. In a three-row corn-planter, the combination with an axle, of three covering wheels mounted on the ends and at the center thereof, a main frame pivoted on the axle, a runner-frame pivoted on the forward end of the main frame having three seed-boxes and three runners in alinement with the covering wheels, joints in the axle and frames in alinement with each other and near the center of the machine, a com-

pensating yoke mounted on the main frame and spanning the joint, compensating yokes mounted on the runner-frame and spanning the joints, a tongue-frame secured to the runner-frame yokes, a seat-frame secured to the main-frame yoke and pivotally connected to the tongue-frame, a connection from the rear of the main frame to the seat-frame lying parallel to the plane of the compensating yoke, and means for tilting the main frame on the axle and the runner-frame on its joint with the main frame to raise and lower the runners.

7. In a three-row corn-planter, the combination with an axle, of three covering wheels mounted on the ends and at the center thereof, a main frame pivoted on the axle, a runner-frame pivoted on the forward end of the main frame having three seed-boxes and three runners in alinement with the covering wheels, joints in the axle and frames in alinement with each other and near the center of the machine, a compensating yoke mounted on the main frame and spanning the joint, compensating yokes mounted on the runner-frame and spanning the joints, a tongue-frame secured to the runner-frame yokes, a seat-frame secured to the main-frame yoke and pivotally connected to the tongue-frame, a connection from the rear of the main frame to the seat-frame lying parallel to the plane of the compensating yoke, a hand lever pivoted on the main frame, a detent segment with which it coöperates, and a link connecting the tongue-frame with the hand lever so that as the latter is swung the runner-frame will tilt on its pivotal joint with the main frame, and the tongue-frame about its connection with the seat-frame.

8. In a three-row corn-planter, the combination with an axle, of three covering wheels mounted on the ends and at the center thereof, a main frame pivoted on the axle, a runner-frame pivoted on the forward end of the main frame having three seed-boxes and three runners in alinement with the covering wheels, joints in the axle and frames in alinement and near the centers thereof, a compensating yoke mounted on the main frame and spanning the joint, compensating yokes mounted on the runner-frame and spanning its joints, a tongue-frame secured to the runner-frame yokes, a seat-frame secured to the main-frame yoke and pivotally connected to the tongue-frame, a hand lever pivoted on the seat-frame, a detent segment with which it coöperates, a rock shaft carried by the seat-frame and on which the hand lever is journaled, arms carried by the rock shaft, links connecting the said arms and the tongue-frame, and means for adjusting the position of the hand lever on the rock shaft.

9. In a three-row planter, the combination with an axle, of three covering wheels mounted at its ends and center, a main frame pivotally mounted on the axle, a runner-frame having three seed-boxes and runners in alinement with the covering wheels, pivotal connections at several points between the forward end of the main frame and the runner-frame, joints in the axle and the frames in alinement with each other and near the center of the machine, a compensating yoke movably mounted at its ends on the main frame on the opposite sides of the joints, and a seat-frame supported on the top of the yoke.

10. In a three-row planter, the combination with an axle, of three covering wheels mounted at its ends and center, a main frame pivotally mounted on the axle, a runner-frame having three seed-boxes and runners in alinement with the covering wheels, pivotal connections at several points between the forward end of the main frame and the runner-frame, joints in the axle and the frames in alinement with each other and near the center of the machine, horizontal rods in the two sides of the main frame, a compensating yoke movably mounted at its ends on said horizontal rods, anti-friction rollers in the ends of the compensating yoke which embrace the rods, and a seat-frame supported on the top of the yoke.

In witness whereof I have hereunto set my hand and affixed my seal, this first day of August, A. D. 1914.

WILLIAM HOLLAND LETZ. [L. S.]

Witnesses:
JOHN HOWARD MCELROY,
I. A. COON.

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