

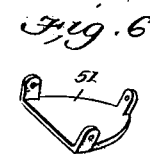
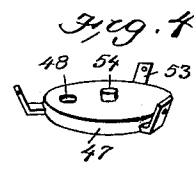
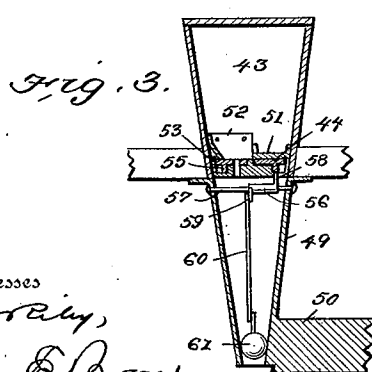
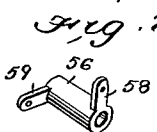
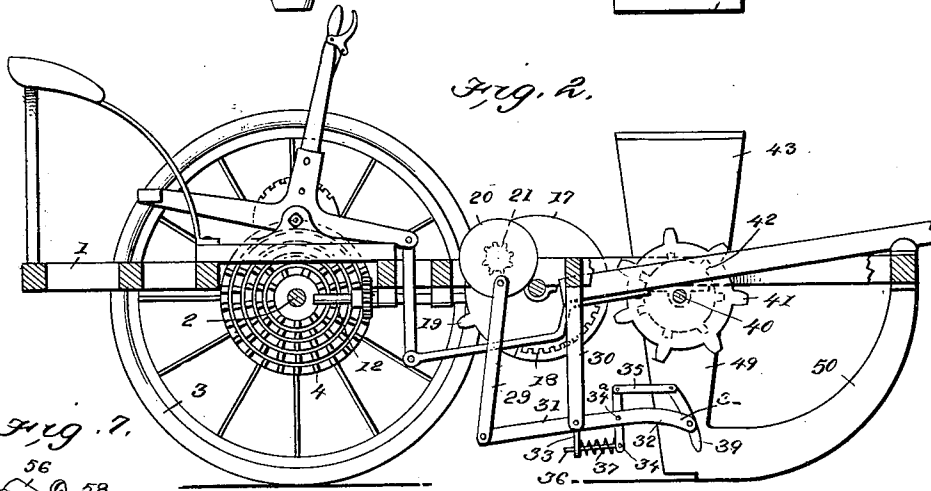
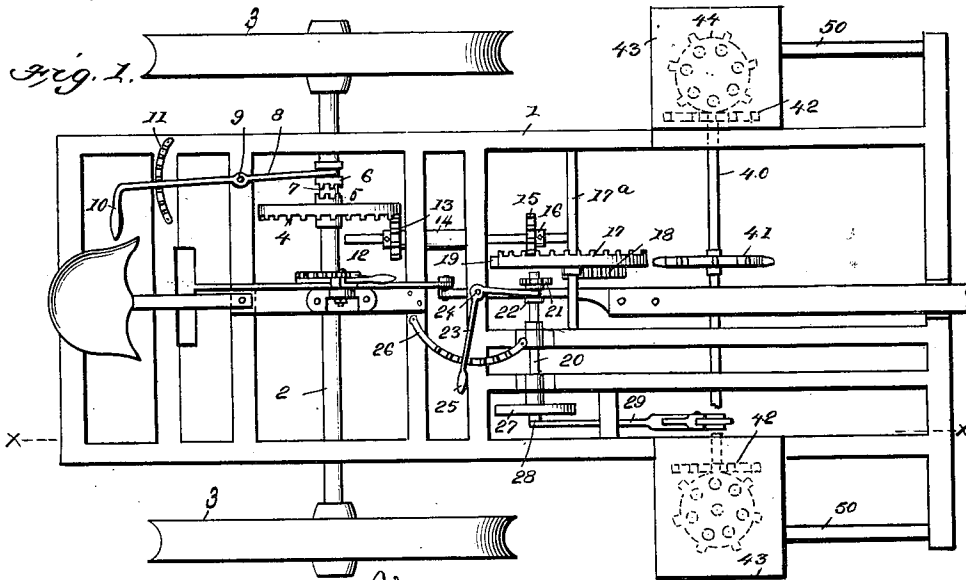
No. 659,201.

Patented Oct. 9, 1900.

J. W. BERLIEN.  
CORN-PLANTER.

(Application filed Feb. 20, 1900.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

JOHN W. BERLIEN, OF ARGO, MISSOURI.

## CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 659,201, dated October 9, 1900.

Application filed February 20, 1900. Serial No. 5,952. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN W. BERLIEN, a citizen of the United States, residing at Argo, in the county of Crawford and State of Missouri, have invented a new and useful Corn-Planter, of which the following is a specification.

My invention relates to corn and similar planters, the object of which is to produce a machine of this character in which the space between the rows may be regulated at will and the rows will intersect in both ways throughout the field; and with this and minor objects my invention consists of the parts and combination of parts, as will be more fully hereinafter pointed out.

In the drawings, Figure 1 is a top plan view of my machine. Fig. 2 is a section of the same on the line *x x*. Fig. 3 is a vertical section of the feed-box. Figs. 4, 5, 6, and 7 are detail views of the dropping mechanism at the bottom of the hopper.

1 represents the frame of the machine, of usual construction; 2, the axle thereof, and 3 wheels secured upon said axle.

4 is a crown-wheel loosely mounted upon the axle and provided upon one side with five (more or less) rows of cog-teeth, each row toward the center of the wheel having less number of teeth than the preceding row for a purpose to be hereinafter set forth. This wheel 4 is provided on the opposite side with a clutch, or rather one member 5 of a clutch.

6 is a member of a clutch adapted to mesh with the other member integral with the crown-wheel 4, said member having teeth 7, adapted to intermesh with the teeth on the first-named member of the clutch.

8 is an operating-lever having suitable connection with the clutch member 6 and pivoted at 9 to a part of the frame of the machine, said lever being provided with a handle 10.

11 is a ratchet-bar secured to frame of the machine in the position shown in the drawings. The lever 8 where it contacts with the rack-bar 11 is preferably provided with a depending tooth or sharpened portion which will readily engage the teeth of the ratchet-bar.

12 is a shaft which is journaled on the frame and secured against longitudinal movement by means of the enlarged portion 14, which fits between its bearings. Pinions 13 and 15

are secured upon the portions of the ends of the shaft which project beyond the bearings and are adapted to be adjusted thereon by any suitable means, as the ordinary set-screws.

17<sup>a</sup> is a shaft journaled in the frame of the machine, upon which is keyed a crown-wheel 17, having five rows of teeth on one of its faces similar to those on the crown-wheel 4, just fully explained. This crown-wheel 17 is provided on its other or opposite face with a segmental rack 18 and on its periphery with a cam or projection 19, as clearly shown in Fig. 2.

20 is a short shaft journaled in the frame of the machine in the position indicated and provided with a pinion 21 on one end adapted to engage the segmental rack 18 on the crown-wheel 17.

22 is a clutch-ring secured on the shaft 20, immediately back of the pinion 21.

23 is an operating-lever pivoted at 24, having a forked end adapted to engage the clutch-ring 22. The other end of the lever is provided with an operating-handle 25.

26 is a rack-bar secured on the frame of the machine, with which the lever 23 may be locked in any desired position, as shown, said lever being provided with a suitable tooth to engage the teeth on the ratchet-bar.

27 is a disk secured to one end of the shaft 20 and provided with a crank-pin 28, to which is pivoted a link 29.

30 is a hanger suspended from the machine, to the lower end of which is pivoted one of the levers of the marker, said lever being designated as 31. The lever 31 is bent downward at its forward end, as at 32. The rear end of the lever 31 is pivoted to the link 29, connected to the disk 27.

33 is a perforated lug depending from about the center of the lever 31.

34 is a lever pivoted to the lever 31 at 34<sup>a</sup> and provided with a right-angle extension at its upper end.

36 is a guide pin or rod suitably secured to the lower end of the lever 34 and adapted to work in the perforation in the depending lug 33.

37 is a coiled spring secured around said rod 36, between the lug 33 and the lower end of the lever 34, as clearly shown in Fig. 2.

39 is a marker pivoted at a point slightly

below its center to the lever 31, while its upper end is pivoted to the right-angle extension 35 of the lever 34.

40 is another shaft suitably journaled in the frame of the machine, near the front thereof, upon which is keyed a spur-wheel 41, with which the cam 19 on the crown-wheel 17 is adapted to engage.

42 indicates spur-wheels secured upon each end of the shaft 40, to be hereinafter referred to.

43 indicates grain boxes or hoppers of the usual construction, at the bottom of each of which is journaled a rotary seed-plate 44, provided with the usual seed receptacles or holes 45 and spurs 46, which are engaged by the spur-wheels 42. These plates are supported on plates 47 in the bottom of the hoppers, which are each provided with one perforation 48, through which the grain passes from the seed-plate to the boot 49 of the runner or furrow-opener 50. A semicircular plate or cover 51 is secured above the top of the seed-plate opposite the point of delivery, and a flange 52 covers the remaining portion of the periphery of the seed-plate. The plate 47 is provided with diverging arms 53, by means of which it is secured in the bottom of the box, and with a central projection 54, upon which the seed-plate is journaled. As each seed-plate is rotated and the openings therein are successively brought over the opening in the plate 47 at the bottom of the hopper a series of projections 55 on the bottom of the seed-plate engage with a tripper at the bottom of the boot and discharge the grain deposited therein by the preceding hole in the seed-plate. The tripping mechanism comprises a hollow sleeve 56, loosely mounted upon a rod 57 in the upper end of the boot in such proximity to the bottom plate 47 that a lug 58 at one end will project up into the path of the projections 55 on the seed-plate and be moved thereby when the plate is rotated to oscillate the sleeve on its rod. The opposite end of the sleeve is provided with an arm 59, which extends at right angles to the lug 58 and has a link 60 loosely secured to its outer end. A ball or plug 61 is secured to the lower end of the link in position to close the exit-orifice when the sleeve is in its normal position, but to be lifted from its seat sufficiently to permit of the escape of the grain when the sleeve is rocked upon its rod.

The operation of the machine is as follows: The machine being propelled and the clutch members 5 and 6 being coupled by means of the lever 8, the crown-wheel 4 is revolved. This in turn revolves the shaft 12 by means of the pinion 13 engaging said crown-wheel, while the pinion 15 engages and revolves the crown-wheel 17, thereby causing the cam or projection 19 to engage one of the spurs on the spur-wheel 41, thereby revolving the shaft 40 and its spur-wheels, which, by reason of their engagement with the spurs 46 on

the seed-plate in the bottom of the grain-hopper, revolve said wheels and bring the openings 45 therein over the discharge-opening in the plate 47, and thus permit the grain to pass from the hopper to the boot of the runner and from there to the ground. This is continued until the field is planted. When it is desired to bring the marking-lever 39 into operation, the lever 23 is operated to slide the pinion 21 along its shaft until it comes in the path of the segmental rack 18, whereupon the revolution of the crown-wheel causes the segmental rack to engage and at intervals revolve the pinion 21, thereby revolving the shaft 20, with its disk and crank-pin, thus reciprocating the link 29 and the rear end of the lever 31 and depressing the marking point or lever 39 to mark the rows, thus dispensing with the wires so commonly used. The spring 37 is provided to take up jars or shocks incident to stumpy and stony ground, thus obviating frequent breaking of said lever.

The object of providing the crown-wheels 4 and 17 with a series of rows of teeth and slidably mounting the pinions 13 and 15 is that in case it is desired to increase or diminish the distance between the rows the pinions are moved to engage any one of the rows of teeth in the face of said crown-wheels, thereby increasing or diminishing the movement of the various parts of the machine to attain the desired result.

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

1. In a corn-planter, the combination, with the wheel-supported frame provided with adjustable dropping mechanism, of a marking-lever on the frame, and means for detachably connecting said lever with the dropping mechanism independently of the adjusting mechanism, substantially as described.

2. In a corn-planter, the combination, with a wheel-supported frame provided with intermittent dropping mechanism, of an intermittently-movable marking-lever detachably connected with the dropping mechanism, and means for causing the lever to operate only at a predetermined time relatively to the operation of the seeding mechanism irrespective as to the time it is thrown into its operative position, substantially as described.

3. In a corn-planter, the combination, with a wheel-supported frame provided with seed-boxes and an operating-shaft for the boxes, of a toothed wheel on said shaft, a train of gearing, one wheel of which is provided with a projection for engaging with said toothed wheel, a marking-lever, and means for connecting said lever with the wheel provided with the projection in such manner as to cause it to operate only at a predetermined time-relatively to the operation of the shaft of the seedboxes, substantially as described.

4. In a corn-dropper, the combination, with

a wheel-supported frame provided with seed-boxes and an operating-shaft for the boxes, of a toothed wheel on said shaft, a train of gearing, one wheel of which is provided with a projection for engaging said toothed wheel and with a mutilated gear, a shaft, a movable pinion on one end of said shaft for engaging with the mutilated gear, and a marking-lever connected with the other end, substantially as described.

5. In a corn-planter, the combination, with a wheel-supported frame provided with seed-boxes and an operating-shaft for the boxes, of two crown-wheels, each of which is provided with concentric rows of teeth and one of them is on the axle of the machine and the other one is adapted to operate the shaft of the boxes, a shaft journaled on the frame, and a pinion adjustably secured on each end of said shaft in position to engage with its respective crown-wheel, substantially as described.

6. In a corn-planter, the combination, with a wheel-supported frame provided with seed-boxes and an operating-shaft, of a toothed wheel on said shaft, two crown-wheels, each of which is provided with concentric rows of teeth, and one of them is provided with a projection in position to engage with said toothed wheel, and the other one is mounted on the axle of the machine, a shaft journaled on the frame, a pinion adjustably secured on each end of said shaft in position to engage with its respective crown-wheel, a marking-lever, and means for detachably connecting said lever with the crown-wheel provided with the projection, substantially as described.

7. In a corn-planter the combination with the crown-wheel mounted on the axle of the machine having concentric rows of teeth on one of its faces, a shaft, pinions adjustably mounted thereon, another crown-wheel like the first named, a cam or projection integral with the periphery of the same a spur-wheel adapted to be engaged by said cam and seeding mechanism in position to be operated by said spur-wheel, substantially as described.

8. In a corn-planter, a marking-lever comprising a lever pivoted to a hanger from the machine, an inverted-L-shaped lever pivoted thereto, and a marking-point pivoted to the forward ends of both of said levers, and

means to operate the same, substantially as described.

9. In a corn-planter a marking-lever comprising a lever pivoted to a hanger from the machine, a perforated lug depending from said lever, an inverted-L-shaped lever pivoted to said lever, a rod extending from the lower end thereof through the said perforated lug, a coiled spring secured around said rod and a marking-point pivoted to the forward ends of the first-named levers, substantially as described.

10. In a corn-planter, the combination with a wheel mounted upon the axle thereof and provided with concentric rows of crown-teeth on one of its faces, a shaft, pinions adjustably mounted on said shaft, a second crown-wheel like the first named, a segmental rack secured on one of the faces thereof of a shaft suitably mounted, a pinion adjustably mounted on said shaft adapted to engage the said segmental rack and a disk having a crank mounted on the other end of said shaft, a link connected to said crank, and a marking-lever, substantially as described.

11. In a corn-planter, the combination with a wheel mounted upon the axle thereof and provided with concentric rows of crown-teeth on one of its faces, a shaft, pinions adjustably mounted thereon, a second crown-wheel like the first named, a segmental rack secured on one of the faces thereof, of a shaft suitably mounted, a pinion adjustably mounted on one end of the same and adapted to engage said rack, and a disk having a crank mounted on the other end of said shaft, a link pivoted to said crank and a marking-lever comprising a lever pivoted to said link, and pivoted near its center to a hanger, a depending perforated lug integral with said lever, an inverted-L-shaped lever pivoted to the forward end of the first-named lever and a rod secured to the lower end of the same and projecting through the perforated lug, a spring coiled around said rod, and a marking-point pivoted to the forward ends of both of the first-named levers, substantially as shown and described.

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Witnesses:

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