

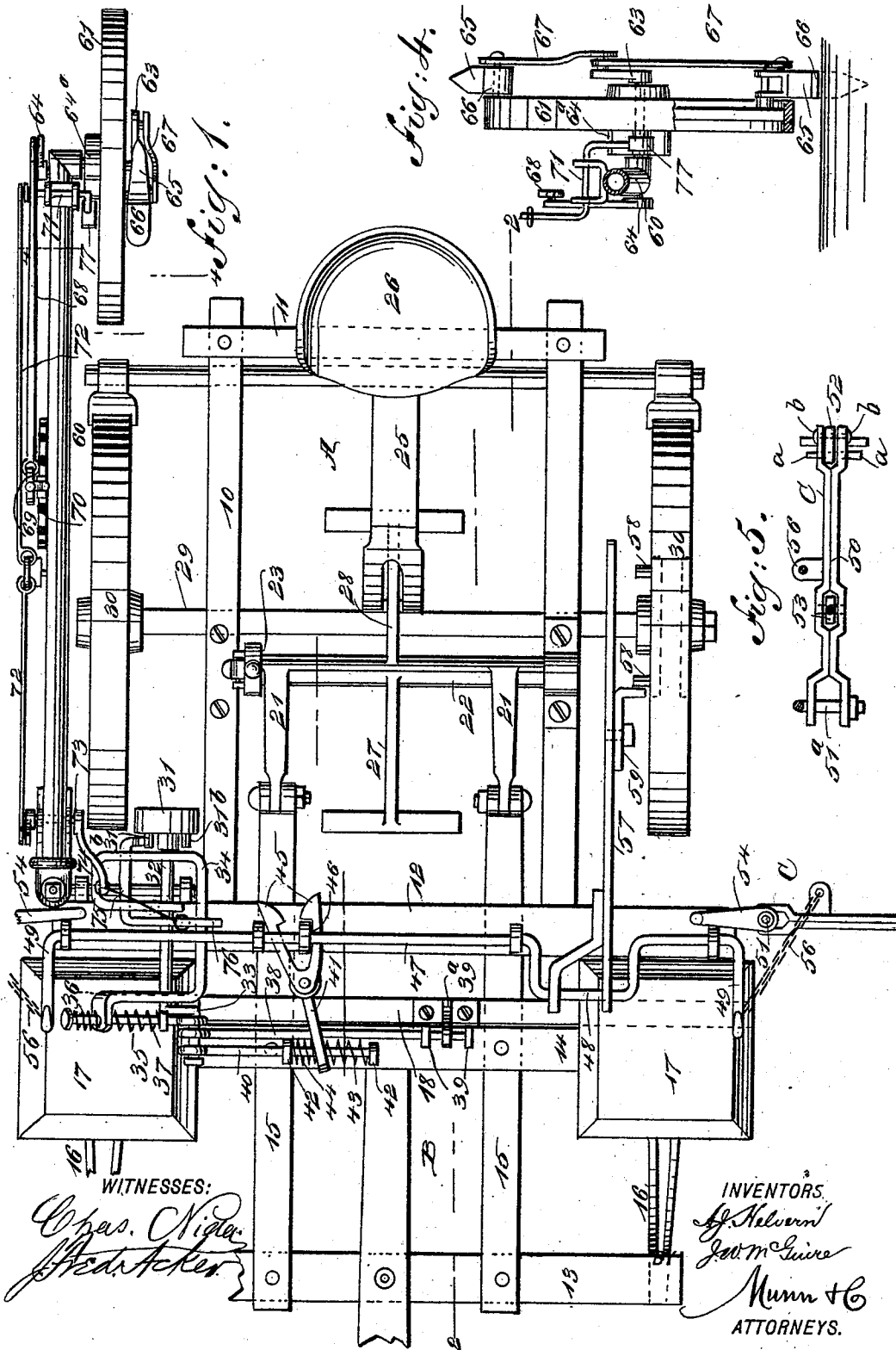
(No Model.)

3 Sheets—Sheet 1.

A. J. HELVERN & J. W. McGUIRE.
CORN PLANTER.

No. 539,267.

Patented May 14, 1895.



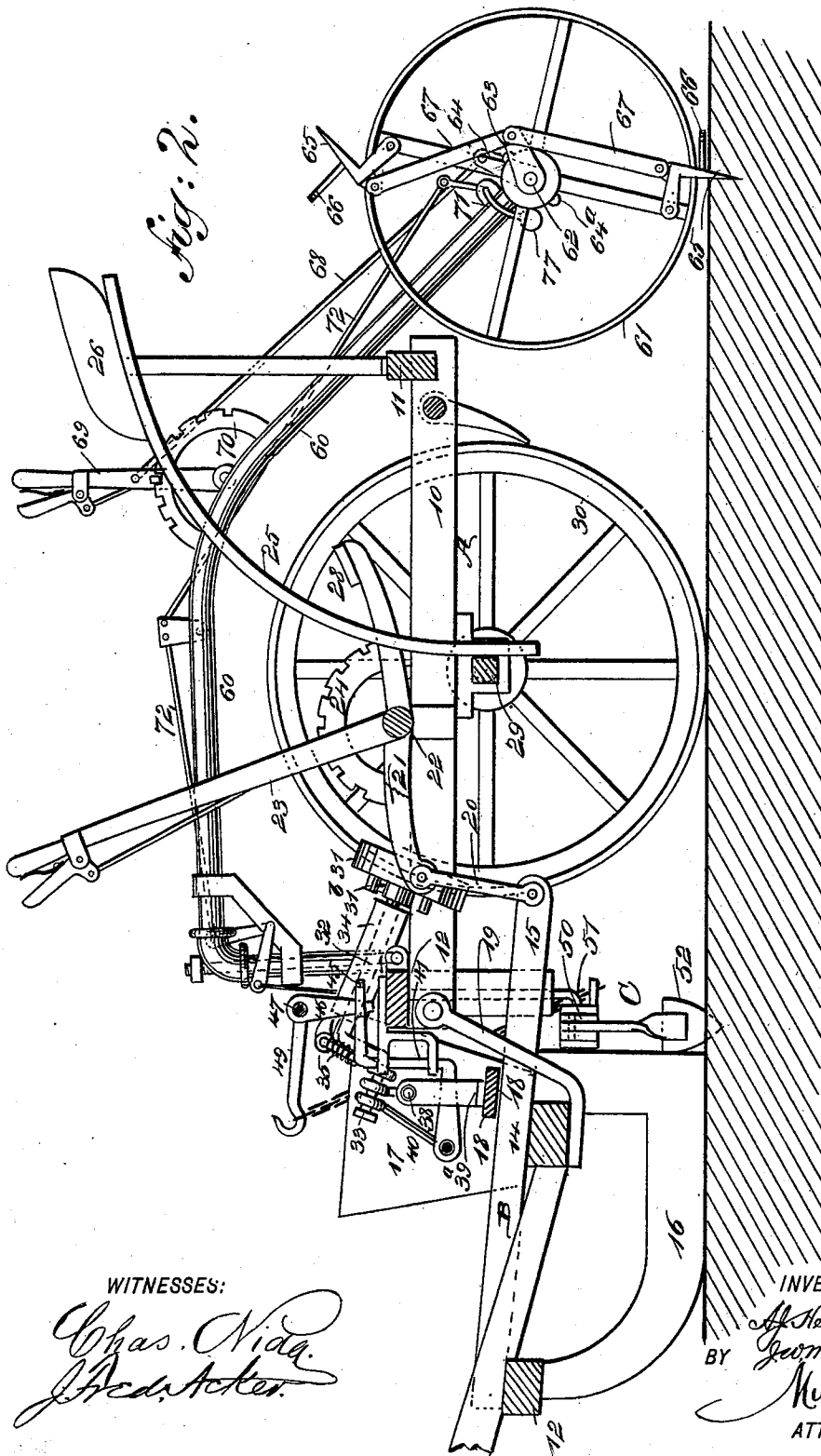
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Fig. 3.

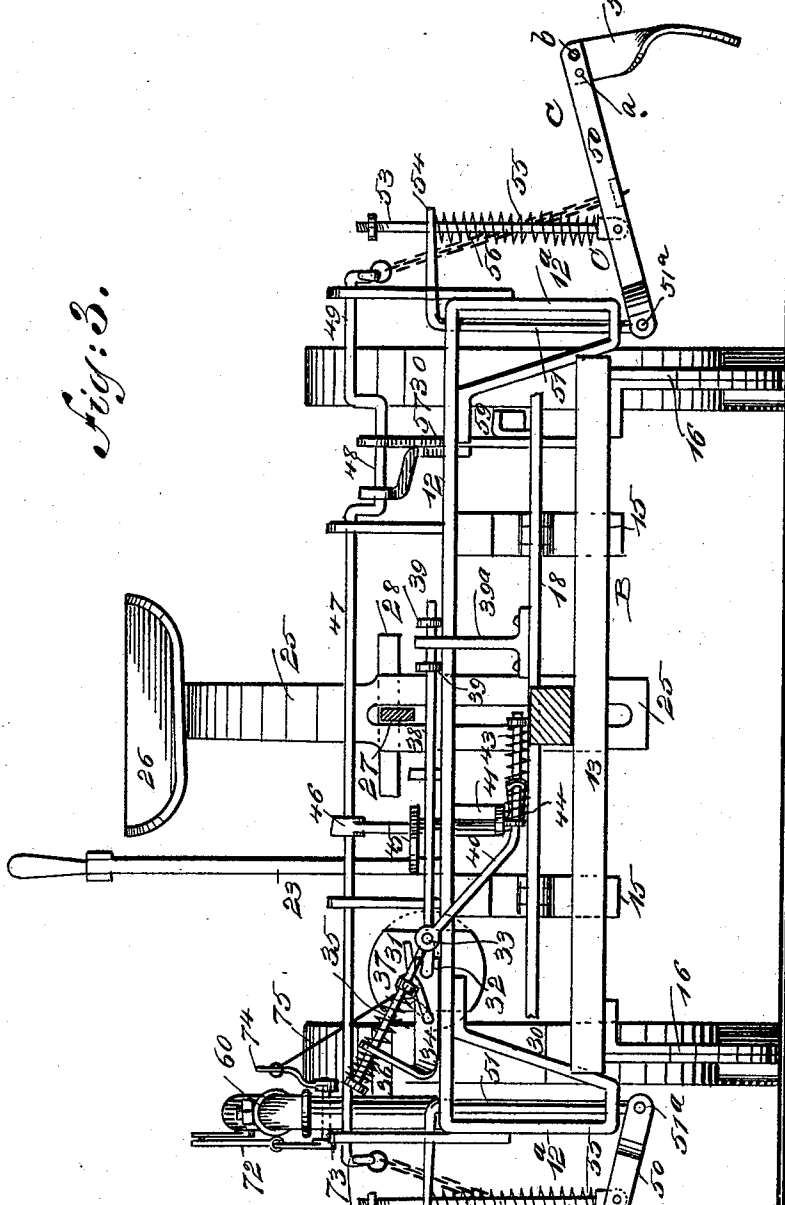
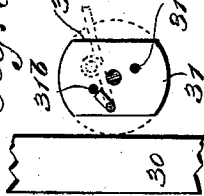


Fig. 6.



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UNITED STATES PATENT OFFICE.

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TO THEMSELVES, AND JOSEPH E. STERRETT, OF LOGANSPOET, INDIANA.

CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 539,267, dated May 14, 1895.

Application filed June 26, 1894. Serial No. 515,783. (No model.)

To all whom it may concern:

Be it known that we, ALBERT J. HELVERN and JOSEPH W. MCGUIRE, of Burrows, in the county of Carroll and State of Indiana, have invented a new and useful Improvement in Corn-Planters, of which the following is a full, clear, and exact description.

Our invention relates to an improvement in corn planters, and has for its object to provide a planter which will check-row in an accurate manner, and to so construct the machine that it will be exceedingly simple, durable and economic, and whereby the various parts will be automatically operated, being driven from one of the ground wheels of the machine.

Another object of the invention is to provide check markers which will drop in order to make a mark, and will move rearward while the mark is being made, the said check markers having a timed return movement.

Another object of the invention is to provide a trip device adapted to control the mechanism operating the drop slide, and operated by a wheel independent of the frame of the machine and located in a manner to track one of the ground wheels or supporting wheels of the machine, and to provide this following wheel with a mechanism through the medium of which it may be made to gain or to lose in revolution when required, to insure accuracy in planting.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the machine. Fig. 2 is a vertical longitudinal section taken substantially on the line 2 2 of Fig. 1. Fig. 3 is a front elevation of the machine, the pole being in section. Fig. 4 is a partial front elevation and partial sectional view of the regulating-wheel, its standard or support being in cross-section. Fig. 5 is a plan view of one of the marker-arms, and Fig. 6 is a detail view illustrating the driving-wheel and its relation

to the ground-wheel from which it is to receive motion.

The frame of the machine may be said to consist of two sections A and B. The section A usually comprises two side bars 10 connected by a rear bar 11, and this frame is secured upon an axle 29, the said axle being provided with ground wheels 30, loosely mounted thereon. The frame B, which is the forward section, usually consists of front and rear bars or beams 13 and 14, and intermediate longitudinal beams or sills 15, and the pole is secured to this portion of the frame. The runners 16, are secured to the forward frame section B, and above the runners the seed boxes 17, are placed, being provided with a reciprocating seed drop slide 18.

The forward frame section B is pivotally connected through the medium of links 19 with the forward portion of the rear section of the frame, preferably immediately under the front bar 12 located upon the rear section A and extending transversely across the same and beyond the sides of the frame, as shown in Fig. 1. The section B of the frame is lower than the rear section A, and the inner ends of the sills 15 of the front section B, are connected by links 20, with crank arms 21, projected forwardly from a rock shaft 22 mounted upon the frame section A, preferably forward of the axle. This rock shaft is provided with a hand lever 23, having the usual thumb latch for engagement with a rack 24. A standard 25, is usually secured to the axle and curved upwardly and rearwardly to support the driver's seat 26, and pedals 27 and 28, are projected forwardly and rearwardly from the rock shaft 22, whereby when the driver places his weight upon the pedals the rock shaft will be manipulated in a manner to either raise or lower the forward frame section, the hand lever 23 being in the meantime disconnected from the rack. In this manner the weight of the driver is utilized to adjust the frame.

The driving wheel 31 of the operative mechanism of the machine is adapted for frictional engagement with one of the ground wheels 30, and the said wheel is illustrated in Fig. 6, and is shown as provided with two opposite flat peripheral surfaces 31^a, and it is also provided with pins 31^b, projected from one face at each

side of the center. The flat sides are provided upon this wheel in order to allow free passage between the hills of corn. The driving wheel 31, is mounted upon a shaft 32 provided at its forward end with a crank arm 33, the shaft being mounted in a bracket 34, supported upon the cross bar 12 of the main section of the frame.

A rod 35, is pivoted upon the crank arm 33 of the driving shaft 32, and this rod is held to slide in an arm of the bracket 34, being given an upward and outward inclination. The rod 35, is surrounded by two springs 36 and 37, the spring 36 having bearing upon the bracket 34 and the head of the rod, and the spring 37 has bearing upon a collar located on the rod near its connection with the crank arm and against the under face of the bracket, whereby in a complete revolution of the crank arm 33 both of the springs 36 and 37 will have been compressed or placed under tension and again permitted to expand.

The seed drop slide 18 is driven by a link 38, pivotally connected with the said crank arm 33 and with a bracket arm 39^a, located upon the seed drop slide, the said link 38 being provided with stops 39 at each side of the bracket 39^a, whereby the said link will have a certain amount of play so as not to retard the movement of the driving friction wheel 31. A second link 40, is also pivoted upon the said crank arm 33 of the drive shaft, and the link 40 is carried through an opening made in the angular shank 41 of a latch 45, and this link 40, is provided with stops 42 at each side of the latch shank, and springs 43 and 44 engage with opposite sides of the shank and with the said stops, whereby when the link is moved in one direction one of the springs will be compressed and the other free to expand, and vice versa.

The latch 45 is bifurcated or forked, and receives between its members a finger 46, which is projected downward from a crank shaft 47, held to rock in suitable standards or boxes located upon the front cross bar 12 of the main section of the frame. This crank shaft is provided with a crank arm 48 near one of its ends, and with a crank arm 49 at each of its extremities.

The markers C are located one at each side of the forward portion of the main or rear section of the frame, and stirrups 12^a are preferably attached to the under face of the cross bar 12, as shown in Fig. 3, and in each of these stirrups a shaft 51, is mounted to turn, provided with a crank arm 51^a at its lower end, and upon this crank arm the body section or beam 50 of the marker is pivoted, the beam being capable of vertical movement upon the crank arm, and of a swinging movement in direction of the front or rear, by reason of the shaft supporting it turning in its bearings.

A plan view of the body section of a marker is shown in Fig. 5. The marking plate 52, is attached at the outer end of the beam 50, and

is secured to said beam through the medium of a metal pivot *b* and a wooden pin, *a*, in order that should the marker meet with an obstruction which would strain the marking plate, or strain the mechanism of the machine, the wooden pin *a* will break, and the marking plate or blade will turn upon its remaining fastening device and clear the obstruction.

Each of the shafts 51 is provided at its upper end with a crank arm 54, which will extend outward in direction of the sides of the machine when the lower crank arms 51^a extend in a forwardly direction, as illustrated in Fig. 3. A rod 53, is pivoted at its lower end in each of the marker beams 50, and the said rods are carried upward through a suitable opening made in the crank arms 54 of the shafts 51, and a spring 55, is coiled around each of these rods, having bearing against the beam and against the upper crank arm 54, the said springs acting to normally force the beams 50 downward to a horizontal position, and the marking plates or blades 52 into the ground.

Each of the marking beams 50 is connected by a chain 56 with an end crank arm 49 on the crank shaft 47, and when this shaft is revolved in a manner to elevate the said crank arms 49, the marker beams will be raised and the blades carried out of engagement with the ground, as shown in Fig. 3, the springs 55 being then placed under tension. In the operation of these markers, as soon as the seed is dropped the markers will be dropped into the ground by the springs 55, and the machine in going forward will cause the markers to travel rearward, or to a position substantially parallel with the sides of the machine, and when they reach a rear position the crank shaft 47 will have been operated and the beams will have been raised, whereupon they will automatically swing to their forward position at right angles to the sides of the machine, and upon reaching that position the crank shaft will have been actuated in a manner to permit the springs 55 to draw down their crank arms 49, and permit the marking blades to enter the ground.

As heretofore stated, the springs 55 connected with the marker beams, serve to throw said beams downward, but the shaft 47 is rocked in a direction to draw the beams upward through the medium of an arm 57, which is pivoted upon the crank arm 48 of said shaft. This arm is adapted to rest upon the axle of the ground wheel 30 at its free end, and is provided with a slide 59, which may be adjustable and spring-controlled, the said slide being adapted for contact with pins 58, located upon the hub of the left-hand ground wheel 30, and the operation of rocking the shaft 47 is accomplished by the pins 58 engaging with the slide 59 and pushing the crank arm 48 upward.

A beam 60, preferably tubular, has sliding and pivotal connection with the right-hand

side of the front bar 12 of the main section of the frame, whereby the said beam may have lateral movement and likewise a vertical movement. This beam is rearwardly arched, and is carried beyond the rear of the frame section A. At the lower rear end of this beam a regulating wheel 61 is located, adapted to travel upon the ground and track either of the ground wheels, preferably the right-hand ground wheel 30. The axle 62 upon which this wheel revolves, is carried through the beam 60, and is provided at one end with a crank arm 64. The hub of the wheel 61 at its right-hand side is provided with offsets 64^a, preferably two in number and equally spaced, as shown in Fig. 2.

An angle arm 65, is fulcrumed upon the wheel 61, just within its rim, and preferably upon its left-hand side. Two of these arms are employed, and they are placed diametrically opposite, and one of the members of each arm, the outer one, is sharpened or pointed, and is provided with a regulating blade 66, extending at right angles from said member. Each of the arms 65, is connected with the left-hand crank 63 through the medium of a link 67, and the right-hand crank 64, is connected with a link 68, which is carried to a connection with a hand lever 69, fulcrumed upon the beam 60, and provided with a hand latch for engagement with a rack 70.

The regulating arms 65, are adapted to be brought into operation in the event the machine should lose or gain in the matter of planting. In the event it should lose, the lever 69 is carried forward, for example, to the forward notch of its rack, 70 and the crank arm 63 operated from that lever will so operate upon the regulating arms 65 as to cause the pointed members thereof to extend well beyond the periphery of the wheel, and whenever one of these arms is brought down to an engagement with the ground, the pointed member, in entering the ground, will bring the blade 66 connected with it upon the surface, and at that time the wheel 61 will not engage with the ground, as shown in Fig. 2.

It is intended that in a complete revolution of the wheel 61, two hills shall have been planted. When the lever 69, is carried to about a central position upon the rack, the regulating arms 65 will be brought within the rim of the wheel, and the wheel will travel as though the regulating arms were not applied to it. In the event the machine should gain in planting, the gain will be compensated for by carrying the lever 69 well to the rear, thus changing the position of the regulating arms 65 with relation to the periphery of the regulating wheel.

An angle or elbow lever 71, is fulcrumed in the beam 60 supporting the regulating wheel, as shown in Figs. 1 and 4, and this lever is connected by links 72 with the crank arm of a shaft 73, journaled preferably in the forward portion of the beam 60, the said shaft being provided at its inner end with a second

crank arm 74, which is connected by a link 75 with a latch 76, adapted to be carried to and from the pins 31^b on the friction driving wheel 31. When the pins are engaged by this latch the wheel cannot turn, and the wheel is relieved from engagement with the latch only twice in a complete revolution of the regulating wheel 61, and this is accomplished by a head 77, formed upon the angled lever 71, located adjacent to said wheel, and when the projections 64 on the hub of the wheel engage with said head.

In the operation of the machine, when the regulating wheel acts to remove the latch 76 from engagement with the teeth 31^b of the driving wheel 31, the spring 36, or 37, of the rod 35, whichever of the springs is compressed, will at that time turn the wheel 31 a sufficient distance to bring the rounded section of its periphery in engagement with the supporting wheel 30. The shaft 32 will then be revolved during the contact between its cylindrical surface and the supporting wheel, the drop slide will be moved to drop seed, the crank arm 49 will be permitted to drop by the disengaging of the finger 46 from the latch 45, and the springs 55 of the markers will act to cause the marking blades to mark the hill, the latch 45 being moved in a direction to hold the rock shaft 47 stationary by engaging with its finger or arm 46. The markers will now be drawn rearward, and at that time the slide 59 will have been acted upon by the pins 58 to carry the rock shaft 47 in a position to elevate its crank arms 49 and thus elevate the marking beams, whereupon the beams will swing around to the front, being so drawn by the chains supporting them, together with the springs 55; and as soon as the cylindrical section of the friction driving wheels ceases to contact with the ground wheel, one of the pins 31^b will be engaged by the latch 76, since the latch will have been dropped in position to engage with these pins the moment that the angle lever 71 clears a projection 64^a on the hub of the regulating wheel.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a planter, the combination with a seed slide, and mechanism for operating the said slide, of a regulating wheel for controlling the said mechanism, and means for controlling the revolution of the said wheel, substantially as and for the purposes described.

2. In a planter, the combination with a seed slide, and mechanism for operating the seed slide, of a regulating wheel for controlling the said mechanism, said wheel being provided with adjustable blades adapted to enter the ground, and means for adjusting said blades, substantially as described.

3. In a planter, the combination with a seed slide, and mechanism for operating the said slide from one of the ground or supporting wheels, of a regulating wheel for controlling the operation of the said mechanism from the

said ground or supporting wheel, substantially as described.

4. In a planter, the combination with a seed slide, and mechanism for operating the said slide from one of the ground or supporting wheels, of a trip device for the said mechanism, and an independent wheel connected with and operating the said trip device, said wheel being provided with adjustable blades substantially as and for the purpose set forth.

5. In a planter, the combination with a seed slide, and mechanism for operating the seed slide from one of the ground or supporting wheels, of a trip device for said mechanism, an independent wheel, and mechanism between the wheel and the trip device for operating the latter from the former, substantially as described.

6. In a planter, the combination with the supporting wheels, and the seed slide, of mechanism for operating the slide from one of the said supporting wheels, a trip device for said mechanism, an independent wheel provided with projections, a crank shaft adapted to engage the said projections, and a connection between the said crank shaft and trip device, substantially as described.

7. In a planter, the combination with the seed slide operating mechanism, of a trip device therefor, an independent wheel provided with projections, a crank shaft adapted to engage the projections with one of its arms, a second crank shaft, a connection between the said crank shafts, and a connection between the second crank shaft and the trip device, substantially as described.

8. In a planter, the combination with a wheel supported frame, the seed slide operating mechanism, and a trip device for said mechanism, of a pivoted and rearwardly extending beam, a wheel mounted in the rear end of the said beam and provided with projections on its hub, a crank shaft mounted on the beam adjacent to the said wheel and adapted to engage the projections thereof with one of its arms, a second crank shaft at the pivoted end of the said beam, a link connecting the said crank shafts, and a link connected with the second crank shaft and with the trip device, substantially as described.

9. In a planter, the combination with a wheel supported frame, the seed slide operating mechanism, and a trip device for said mechanism, of a pivoted and rearwardly extending beam, a wheel mounted in the rear end of the beam, mechanism between the wheel and the trip device for operating the latter from the former, movable arms carried by the wheel, and means for operating the said arms, substantially as and for the purpose set forth.

10. In a planter, the combination with a wheel supported frame, the seed slide operating mechanism, and a trip device for said mechanism, of a pivoted and rearwardly extending beam, a wheel mounted in the said beam, mechanism between the wheel and the

trip device for operating the latter from the former, pivoted arms carried by the wheel and provided with blades adapted to enter the ground, and means for swinging the arms on their pivots, substantially as described.

11. In a planter, a regulating wheel adapted to travel at the rear of the planter, said wheel being provided with movable arms adapted to enter the ground, and a means for shifting the position of the arms, substantially as and for the purpose specified.

12. A regulating wheel for planters, independent of the supporting wheels, the said regulating wheel being adapted to travel upon the ground, and being provided with arms pivoted thereon, diametrically located and capable of extending over the periphery of the wheel, each arm being provided with a blade at an angle to its member, adapted to enter the ground, whereby the wheel may be prevented from contact with the ground, substantially as shown and described.

13. In a planter, a regulating wheel adapted to track a supporting wheel, the said regulating wheel being provided with arms pivoted near its rim, located at predetermined distances apart and capable of extending over the rim or of location within the rim, one of the members of each arm being adapted to enter the ground and being provided with a limiting plate, a crank arm, a link connection between the crank arm and the arms pivoted upon the wheel, a lever, and a connection between said lever and the crank arm, whereby the position of the arms pivoted upon the wheel may be changed substantially as shown and described.

14. In a planter, the combination, with a supporting wheel, a bracket located upon the frame of the machine adjacent to the supporting wheel, a shaft journaled in the said bracket and provided with a crank arm, and a friction wheel located upon the shaft and adapted for engagement with the supporting wheel, said friction wheel having two opposing flat peripheral faces, of a bar connected with the crank arm of the said shaft, carrying springs, one being expanded when the other is compressed, a drop slide, and a link connection between the crank arm of said shaft and the drop slide, as and for the purpose specified.

15. In a planter, the combination, with a supporting wheel, a bracket located upon the frame of the machine adjacent to the supporting wheel, a shaft journaled in the said bracket and provided with a crank arm, and a friction wheel located upon the shaft and adapted for engagement with the supporting wheel, said friction wheel having two opposing flat peripheral faces, of a bar connected with the crank arm of the said shaft, carrying springs, one being expanded when the other is compressed, a drop slide, a link connection between the crank arm of said shaft and the drop slide, a regulating wheel, a regulating lever operated from said wheel, pins lo-

cated upon the friction wheel, a latch adapted for engagement with the said pins, and a trip connection between the regulating lever and the said latch, as and for the purpose set forth.

5 16. In a planter, the combination, with a supporting wheel, a shaft journaled upon the frame of the machine adjacent to one of the supporting wheels, provided at one end with a crank arm and at the opposite end with a
10 friction wheel having opposing flat peripheral surfaces, the wheel being adapted for engagement with the supporting wheel, a rod pivotally connected with the crank arm, spring-controlled and operating as a throw for
15 the shaft, of a latch adapted for engagement with the friction wheel, a regulating wheel adapted to travel upon the ground, being independent of the ordinary ground wheel, said wheel operating said latch, a drop slide, a link
20 connection between the crank arm of the driving shaft and the drop slide, a rock shaft, a

latch controlling the movement of the rock shaft, said latch being spring-controlled, means for shifting the rock shaft from one of the supporting wheels, and markers carried 25 by the frame of the machine and connected with the said rock shaft, substantially as shown and described.

17. In a planter, markers pivoted at the sides of the frame of the machine, capable of 30 vertical and a lateral swinging movement, springs acting to hold the markers in engagement with the ground, and lifting devices connected with the markers and operating during the intervals of planting, substantially as 35 shown and described.

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Witnesses:

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