

(No Model.)

5 Sheets—Sheet 1.

J. M. SCOBEE & E. S. BUSH
PLANTER.

No. 594,037.

Patented Nov. 23, 1897.

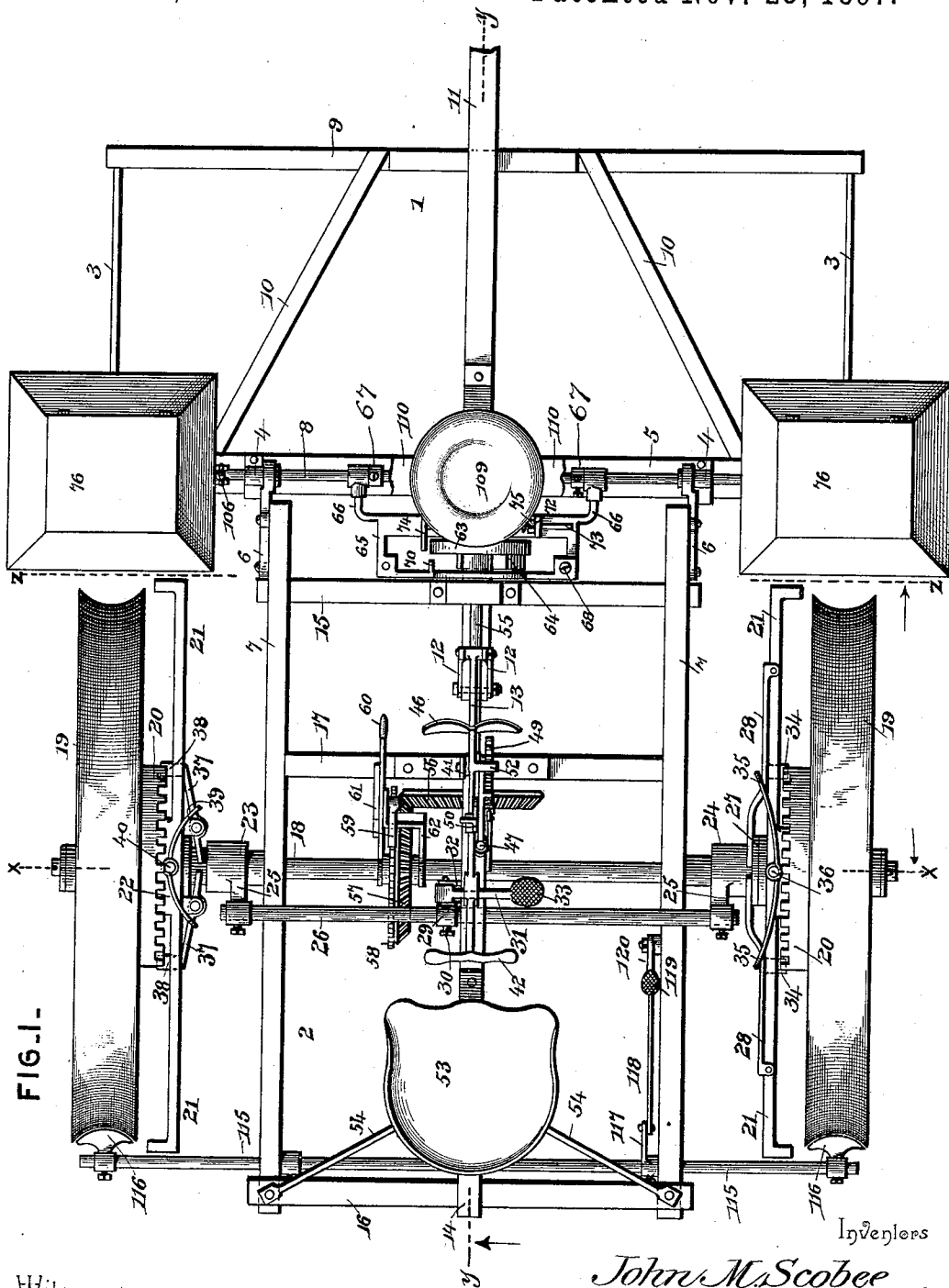


FIG. 1.

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(No Model.)

5 Sheets—Sheet 2.

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FIG. 2

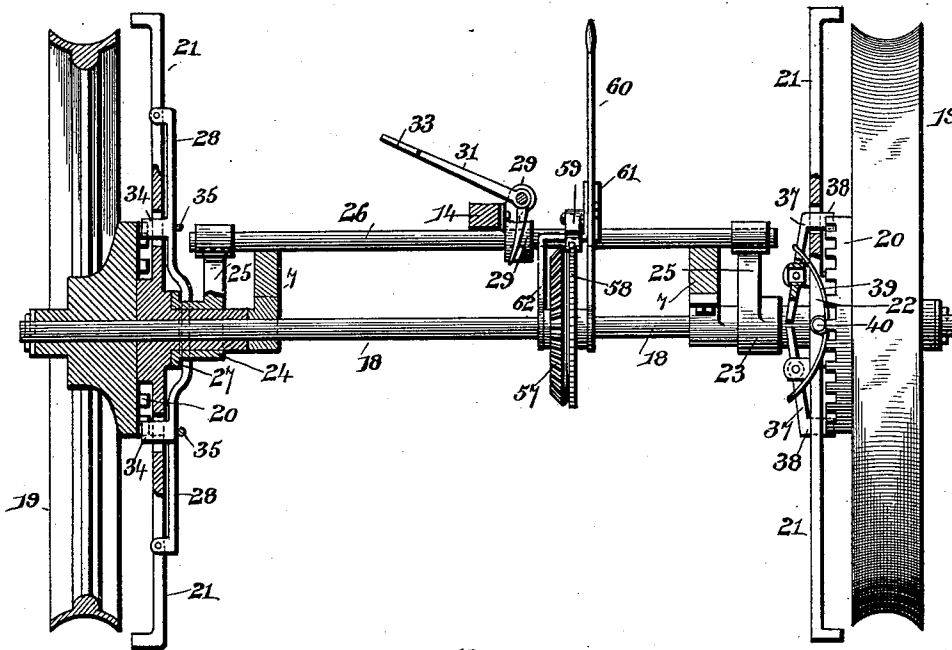


FIG. 13

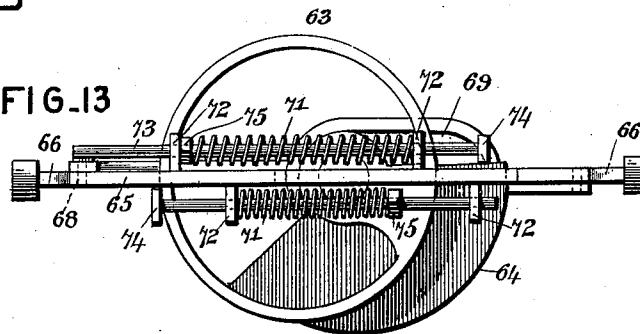
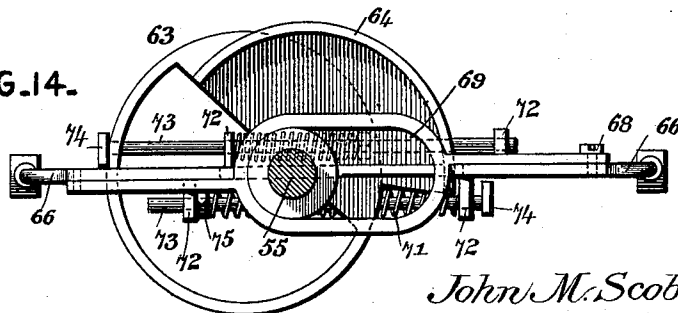


FIG. 14.



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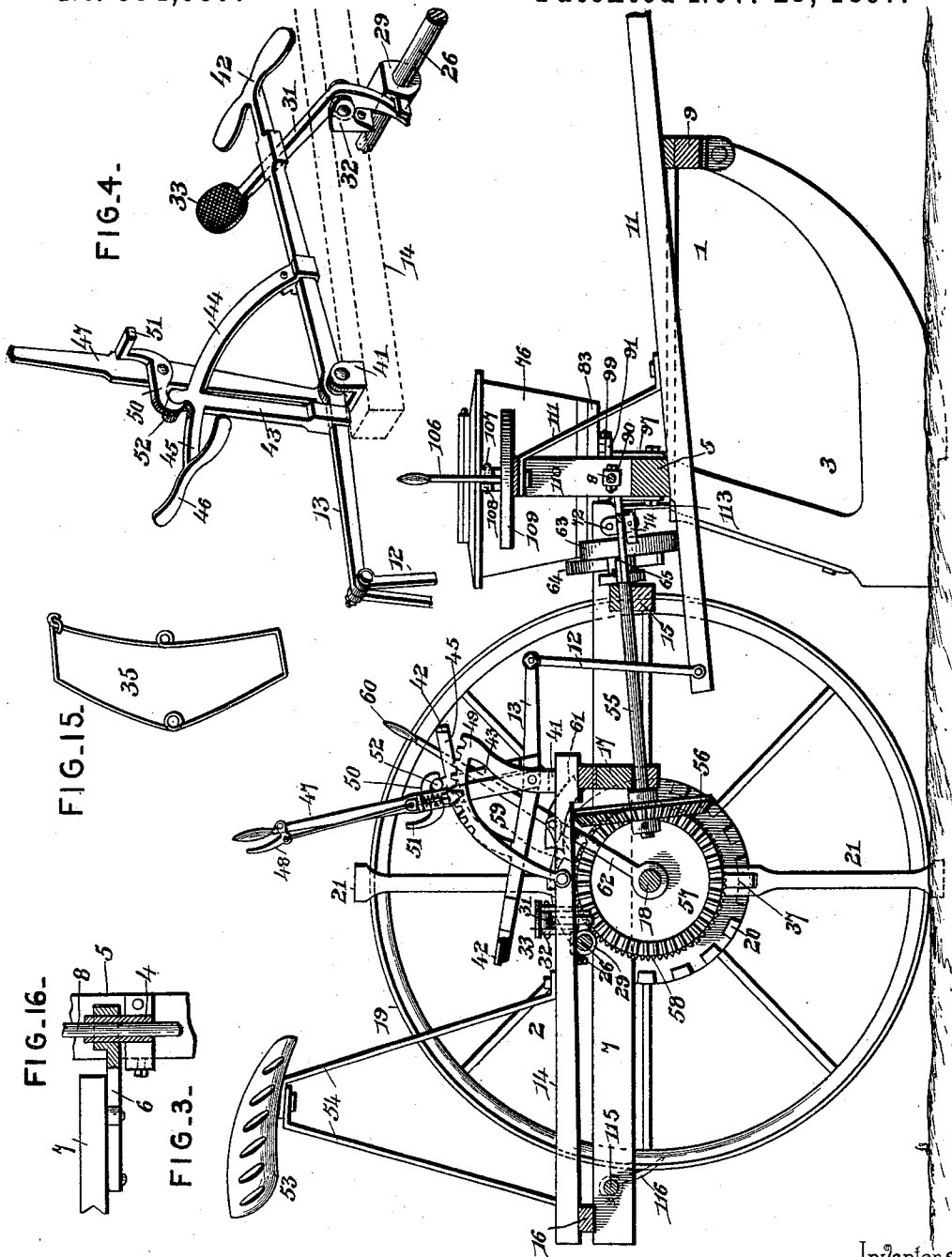
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5 Sheets—Sheet 3.

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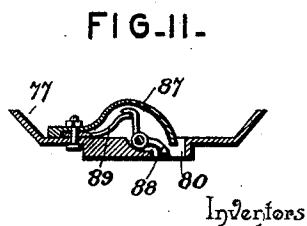
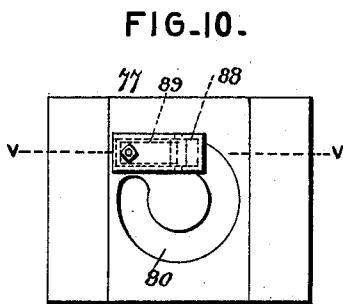
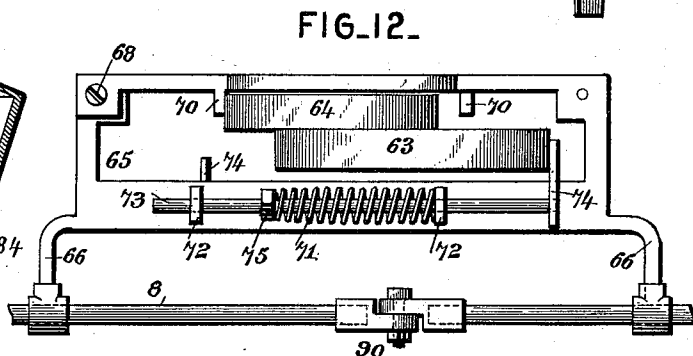
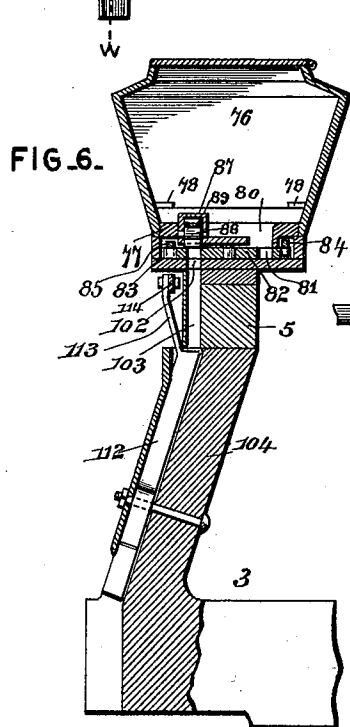
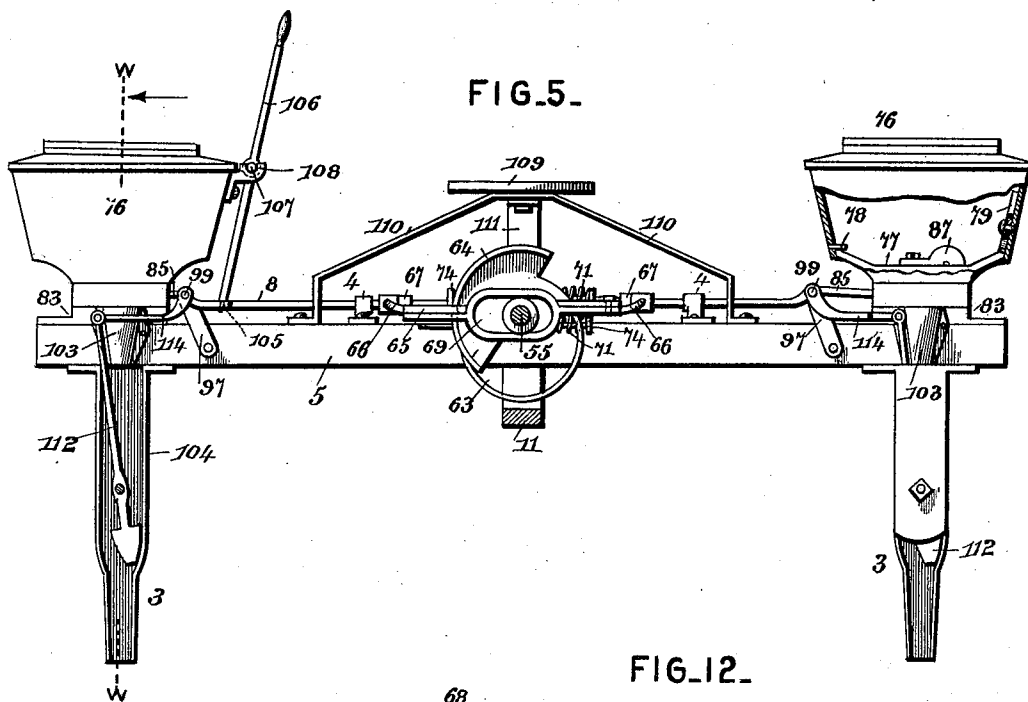
(No Model.)

5 Sheets—Sheet 4.

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5 Sheets—Sheet 5.

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PLANTER.

No. 594,037.

Patented Nov. 23, 1897.

FIG. 7.

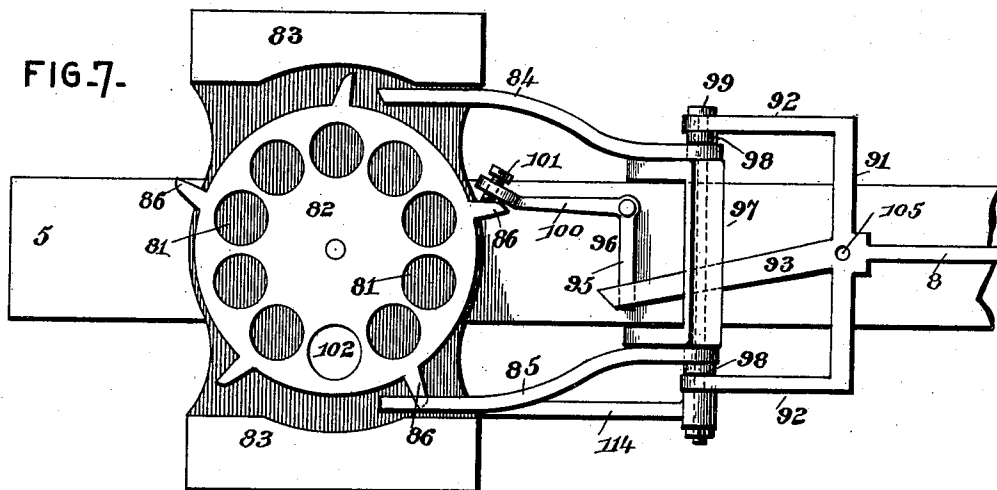


FIG. 8.

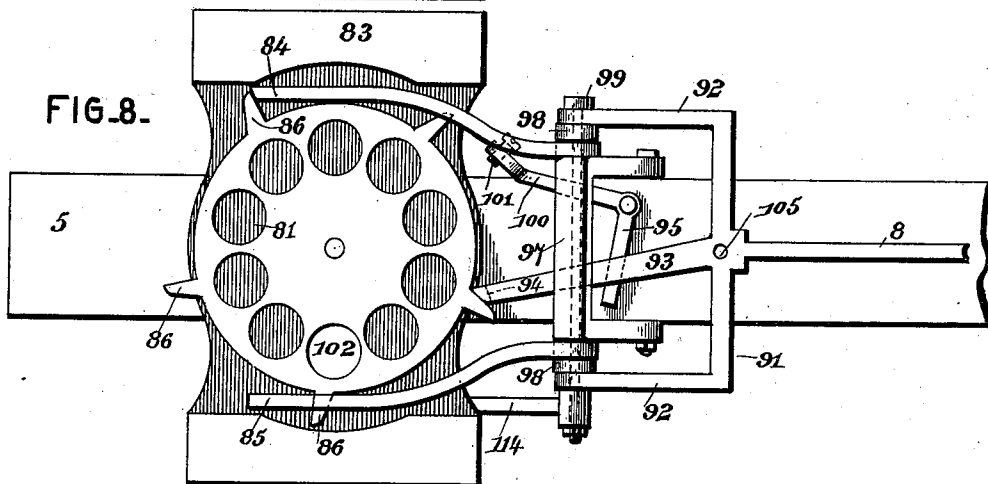
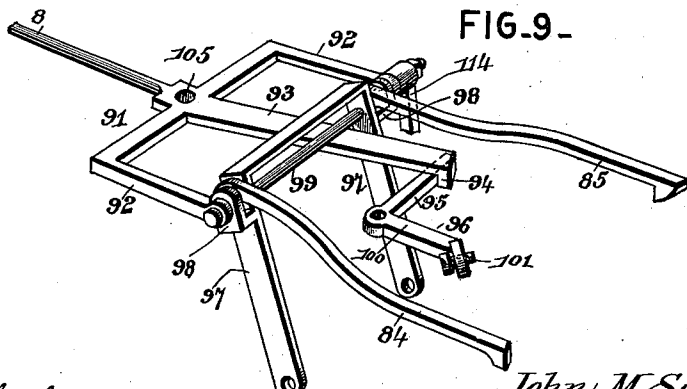


FIG. 9.



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UNITED STATES PATENT OFFICE.

JOHN M. SCOBEE AND EDMOND SILAS BUSH, OF SHELBYVILLE, KENTUCKY.

PLANTER.

SPECIFICATION forming part of Letters Patent No. 594,037, dated November 23, 1897.

Application filed March 28, 1896. Serial No. 585,271. (No model.)

To all whom it may concern.

Be it known that we, JOHN M. SCOBEE and EDMOND SILAS BUSH, citizens of the United States, residing at Shelbyville, in the county of Shelby and State of Kentucky, have invented a new and useful Planter, of which the following is a specification.

This invention relates to certain new and useful improvements in that class of planters designed for sowing seed in check-rows and which have combined therewith marking devices for indicating the hills, thereby enabling the planting to be effected in check-rows.

One of the principal objects in view is to provide for disconnecting the seed-dropping mechanism from the actuating mechanism of the planter, so that when required the planting may be effected by hand or the seed dropped by the intervention of the ordinary check-line provisions.

A further object of the improvement is to devise a novel combination of elements whereby the marking and the seed-dropping mechanisms can be thrown out of gear and the marker moved forward or backward to aline the machine, whereby the planting will be effected in parallel rows, which is of advantage in dropping corn and other seed usually planted in parallel longitudinal and transverse lines.

A still further object of the invention is to provide actuating mechanism for the seed-dropping plates which will be positive in its action, insure the registry of the openings in the dropping-plates with the openings in the beds leading to the grain-tubes, and which will prevent the dropping-plates moving too far forward when impelled by the reciprocating pawls.

Other objects and advantages are contemplated and will appear as the nature of the improvement is understood; and to this end the invention consists in certain details of construction and novel features and combinations of parts, which hereinafter will be more particularly set forth, illustrated, and finally embodied in the appended claims.

Referring to the drawings, Figure 1 is a top plan view of a planter constructed in accordance with the principles of this invention for attaining the object thereof. Fig. 2 is a transverse section about on the line X X of

Fig. 1, looking to the rear, the markers being turned into a vertical position. Fig. 3 is a central longitudinal section thereof about on the line Y Y of Fig. 1. Fig. 4 is a detail view of the hand and foot levers and their adjunctive parts for throwing the draft-frame and the runners more or less into the ground. Fig. 5 is a transverse section about on the line Z Z of Fig. 1, looking to the front, parts being broken away. Fig. 6 is a section of a hopper and a grain-spout on the line W W of Fig. 5. Fig. 7 is a top plan view of a dropping-plate, its support, and the actuating mechanism adjacent thereto, showing one of the pawls at the limit of its movement in one direction. Fig. 8 is a view similar to Fig. 7, showing the relative disposition of the parts when the other pawl is at the limit of its movement in an opposite direction. Fig. 9 is a detail view in perspective of an end of the reciprocating rod or bar and the parts connected therewith. Fig. 10 is a detail view of the plate forming a bottom of a hopper. Fig. 11 is a section thereof on the line V V of Fig. 10. Fig. 12 is a top plan view of the plate attached to the reciprocating bar or rod and the mechanism connected therewith for imparting thereto a reciprocating motion. Fig. 13 is a front view of the plate, showing the relative disposition of the parts when the lower spring is compressed. Fig. 14 is a rear view of the plate, showing the relative disposition of the parts when the upper spring is compressed. Fig. 15 is a detail view of a spring for actuating the clutch-levers. Fig. 16 is a detail view, partly in section, of a hinge connection between the draft and main frames.

Corresponding and like parts are referred to in the following description and indicated in the several views of the drawings by the same reference-characters.

The draft or runner frame 1 and the main or wheel frame 2 are pivotally connected together, so as to admit of the frames moving relatively to adapt themselves to the nature of the ground or to admit of the draft-frame being adjusted vertically to lift the runners 3 from the ground or cause them to penetrate the soil to a greater or less depth, according to the nature of the land and the character of the seed to be planted. Brackets 4 are secured to the rear bar 5 of the draft-frame and

have tubular bearings at their upper ends, and irons 6, fastened to the front ends of the longitudinal bars 7 of the main frame, have eyes at their front ends which receive the inwardly-extending ends of the tubular bearings of the brackets 4, and these parts 4 and 6 form the hinge or pivotal connections between the two frames. The actuating rod or bar 8 operates through the tubular bearings of the brackets 4 and is in line with the axis about which the main and draft frames tilt.

The draft or runner frame comprises a front bar 9, a rear bar 5, oppositely-inclined braces 10, grain-spouts 104, and runners 3. The pole or tongue 11 is secured to the bars 5 and 9, and its rear end projects a short distance beyond the bar 5 and is connected by links 12 with the front end of a lever 13, fulcrumed upon an intermediate bar of the main frame, and by means of which the draft-frame can be raised or lowered to bring the runners to the required elevation either to throw them out of the ground or to enter the latter to a greater or less depth.

The main or wheel frame comprises longitudinal side bars 7, an intermediate longitudinal bar 14, front and rear bars 15 and 16, and an intermediate cross-bar 17, the several bars being connected together in any substantial manner. The axle 18 is journaled in bearings intermediate the ends of the main frame, and the ground or drive wheels 19 are loosely mounted upon the spindles formed at the ends of the axle, and their rims are broad-faced and concaved and track in the path of the runners, so as to cover the seed and compress the soil thereon. Toothed rims or disks 20 are applied to or formed with the hub of the ground or drive wheels, so as to rotate with the latter and form parts of a clutch interposed between the marker and the drive-wheels.

The markers 21, located near the ends of the axle, consist of bars mounted midway of their ends upon the axle, so as to rotate therewith, the ends of these bars being expanded and bent at right angles to indent the ground to one side of the hill in which the grain is planted. Inwardly-extending sleeves 22 receive the axle and are formed with or applied to the markers and form guides for collars 23 and 24, connected by means of radius-arms 25 with the terminals of a rod or bar 26, extending transversely of the frame. The collar 24 has an annular flange 27 at the end adjacent to the contiguous marker to engage with the inner ends of the clutch-levers 28, so as to move them away from the adjacent marker when it is required to throw the latter out of gear. A stop 29 is adjustably mounted on the transverse rod 26, being held thereon by a binding-screw 30, and is adapted to be engaged by the vertical arm of a bell-crank lever 31 when it is required to move the rod 26 longitudinally to throw the marker and the seed-dropping mechanism out of gear. The bell-crank lever 31 is fulcrumed to a

bracket 32, secured to the side of the intermediate longitudinal bar 14, and its horizontal member is expanded, forming a foot-rest 33, upon which the foot obtains a purchase when it is required to actuate the said lever 31.

The clutch-levers 28 are similarly formed and have cross-bars at their outer ends, bent to form parallel ears, which have pivotal connection with the marker near its outer end, the inner ends of the levers being claw-shaped to embrace the sides of the collar 24 and engage with its outer flange 27. Lugs 34 are formed on the inner sides of the clutch-levers 28 and operate through openings in the marker and are adapted to engage with the teeth of the adjacent toothed rim or disk 20, so as to cause the drive-wheel and marker to rotate when the parts are in mesh. A spring 35, formed of wire of proper gage and bent into the form of an oblong frame, has its ends engaging with the clutch-levers 28 between their extremities and has its middle portion deflected and engaged by projections 36 at the edges of the marker. These projections 36 are preferably machine-screws, and the side members of the spring-frame have eyes midway of their ends, through which the projections 36 extend to secure the spring in place. The clutch-levers 37, near the opposite end of the axle, are fulcrumed between their ends to the marker, and their inner ends are claw-shaped to span the sides of the collar 23, and their outer ends have lugs 38, which operate through openings in the adjacent marker and engage with the teeth of the contiguous toothed rim or disk 20, so as to lock the proximate drive-wheel with the marker when the latter is in gear. A spring 39, similar in construction to the spring 35 and having connection with the marker by projections 40, substantially the same as the projections 36, has its ends engaging with the outer portions of the clutch-levers 37, so as to press the lugs 38 through the openings in the marker and into engagement with the adjacent toothed rim. When it is required to throw the marker, comprising the two bars 21, out of gear, the outer end of the horizontal portion of the bell-crank lever 31 is pressed upon, thereby imparting an endwise movement to the rod or bar 26, and the collar 23, bearing against the inner ends of the clutch-levers 37, and the flange 27 of the collar 24, pressing against the inner ends of the clutch-levers 28, cause the said clutch-levers to move, so as to throw the lugs carried thereby out of engagement with the toothed rims or disks 20, thereby attaining the desired end. Upon removing the pressure from the lever 31 the springs 35 and 39, previously compressed, will regain themselves and throw the marker into gear and return the operating parts to a normal position.

The lever 13 is fulcrumed to a bracket 41, and its rear end extends over the horizontal member of the bell-crank lever 31 and terminates in a cross-bar 42, which is curved upwardly at its ends to receive the feet of

the driver when it is required to elevate the draft-frame. If it be required to throw the planter out of gear simultaneously with the lifting of the draft-frame, the rear end of the lever 13 is depressed to its full limit, thereby bringing it in engagement with the horizontal portion of the said lever 31 and depressing it, thereby attaining the desired result. A bar 43 extends about at right angles from the lever 13 in a vertical direction and is strengthened by a curved brace 44, and an arm 45 projects forwardly from the upper end of the bar 43 and terminates in a cross-bar 46, whose end portions form a foot-rest upon opposite sides of the arm 45, corresponding to the end portions of the cross-bar 42, and which receive the feet of the driver when the latter desires to apply force to cause the runners to enter the ground to the required depth.

A hand-lever 47 is mounted upon the pivotal connection between the lever 13 and the bracket 41 and is supplied with the usual hand-latch 48 and locking-bolt to engage with the teeth of a notched segment 49, forming a part of the bracket 41 or applied thereto, and this hand-lever has a dog 50, pivoted to a side thereof and adapted to engage with the upper end of the bar 43, thereby locking the foot-lever 13 and the hand-lever 47 and causing them to operate practically as one part, whereby the hand-latch 48 and the notched segment 49 can be resorted to for holding the lever 13 and the draft-frame in the adjusted position. The dog 50 has its vertical extension bent at right angles, forming a projection 51, to be grasped by the hand or engaged by the foot when it is required to operate the dog to throw it into or out of operative relation. The upper end of the bar 43 is constructed to be engaged by the hooked end of the dog 50 and has a lateral extension 52 projecting over the notched segment 49, to be engaged by the hand-lever 47 when the latter is moved forward to lower the draft-frame. The seat 53 is located upon the rear portion of the main frame, and the various levers are within convenient reach thereof, and this seat is supported upon rods 54, extending upwardly from the main frame and converging at their top ends, where they are joined to the seat in any convenient way.

A longitudinal shaft 55 is journaled in bearings provided on the front bar 15 and the intermediate cross-bar 17, and a gear-wheel 56, secured to the rear end thereof, meshes with a companion gear-wheel 57, keyed upon the axle 18, and by this means motion is transmitted from the axle to the shaft 55. A ratchet-wheel 58 is formed with or secured to the gear-wheel 57, and its teeth, which have the edges oppositely inclined, are adapted to be engaged by a double-ended pawl 59, having pivotal connection with a hand-lever 60, fulcrumed upon the axle 18, said pawl being adapted to be reversed to cause either of its active ends to engage with the ratchet-wheel, so as to move the axle 18 either forwardly or

rearwardly to accelerate or retard the movement of the marker. In the event of the marker being behind it is thrown out of gear and moved forward to catch up and cause the planting to be effected in straight rows across the field, but should the marker be ahead it can be thrown out of gear by operating the foot-lever 31, as previously described, thereby admitting of the proper timing of the planting and the marking mechanisms. It will be understood that when the hand-lever 60 is required for service the marker must be thrown out of gear. Under normal conditions the hand-lever 60 is out of engagement with the ratchet-wheel 58, the pawl 59 engaging with either the cross-bar 17 or the rod 26, by means of which it is held away from the teeth of the ratchet-wheel. A short curved bar 61 is attached to the hand-lever 60 and extends in the front and in the rear thereof and engages at its ends with the parts 17 and 26 to support the lever when the latter is not required for immediate use. A lateral brace 62 is secured to the hand-lever 60 and extends over the ratchet and gear-wheels 58 and 57 and receives the axle 18 and serves to strengthen and brace the part 60, as will be readily understood. An eccentric 63 is attached to the front end of the shaft 55 and has a segmental flange 64 formed with or applied thereto, said segmental flange being concentric with the shaft 55 and acting in the capacity of a retainer to hold the reciprocating plate 65 during the time that the eccentric is compressing the springs employed for impelling the plate when the latter is released from the action of the segmental flange 64. The plate 65 has forwardly-extending arms 66, which receive the dropping rod or bar 8 and which are adapted to engage with adjustable stops 67 on the said rod 8. This plate is of open or skeleton form, and its rear bar is pivoted at one end and secured at its opposite end by a pin or machine-screw 68 and is formed with an elongated slot 69, through which the front portion of the shaft 55 passes. Stops 70 project forwardly from the rear portion of the frame and are adapted to be alternately engaged by the segmental flange 64, so as to retain the plate against movement during the interim of storing force by compressing the springs 71, by means of which the plate is moved when released from the part 64. A pair of lugs 72 are formed upon the top and the bottom sides of the plate 65 near its front end, and rods 73 are mounted in alining openings formed in the lugs. These rods 73 have cross-heads 74 at one end and are placed so that the cross-heads are oppositely disposed—that is, with the cross-head of one rod near one end of the plate and the cross-head of the other rod near the opposite end of the said plate. The rear ends of the cross-heads project across the path of the eccentric 63 and are alternately engaged thereby. A spring 71 is mounted upon each rod 73 and is confined between a lug 72 and a nut 75, mounted upon a threaded

portion of the rod, and by a proper adjustment of the nuts 75 the springs 71 can have their tension varied. The segmental flange 64 is less than a half-circle and is disposed with reference to the eccentric and the cross-heads 74, so as to retard the movement of the plate 65 until one or the other of the springs 71 is fully or nearly compressed before releasing the plate to enable it to be moved by means of the compressed spring regaining itself.

The hoppers or seedboxes 76 are mounted upon the end portions of the rear bar 5, and their lower ends are closed by metal plates 77, which are retained in position by having one end engaging with pins 78 and the opposite end pressed upon by a cam-fastener 79. A circumferential slot 80 is formed in the plate 77 and registers with the circular series of openings 81 in the seed-dropping plate 82, which is journaled upon a pin projecting vertically from the bed 83, secured to the bar 5. This bed 83 is recessed in its top side to receive the dropping-plate 82 and admit of the pawls 84 and 85 alternately engaging with spurs 86, projecting from the edge of the dropping-plate, which is circular in form. A housing 87 is secured to the plate 77 at one end of the circumferential slot 80 and incloses a pivoted clearer 88, which is disposed to travel upon the seed-dropping plate and remove the surplus grain therefrom. A spring 89, located within the housing 87, exerts a pressure upon the clearer 88 to hold its active end in engagement with the seed-dropping plate to effect the desired result. This spring 89 is sufficiently weak to yield and to prevent injurious contact of the grain with the clearer 88, thereby admitting of a projecting portion of a seed riding beneath the clearer in the event of the latter being incapable of disengaging or dislodging the projecting grain.

The dropping rod or bar 8 is formed in sections which are coupled together by means of a pivoted joint 90, and the outer end of each section has formed therewith a cross-head 91, having parallel arms 92 and an intermediate arm 93, the latter having a pendent lug 94 to engage with a short arm 95 of an elbow-detent 96, which is pivoted to the bar 5 adjacent to the bed 83. An arched frame 97, pivoted at its lower end to the bar 5, is formed with ears 98 near the upper ends of its side members and has pivotal connection with the arms 92 by means of a pin 99, which latter passes through transversely-aligning openings in the arms 92, ears 98, and side members of the arched frame 97. The pawls 84 and 85 have pivotal connection with the arched frame and arms 92, and are mounted upon the pin 99 and have their pivotal ends fitted in the space formed between the ears 98 and the adjacent sides of the arched frame. The pawl 84 is essentially a push-pawl and the pawl 85 is a pull-pawl, since the former rotates the seed-dropping plate by pushing against the spurs 86 and the latter effects the

same result by pulling upon the said spurs. The pawls are disposed to alternately engage with the spurs 86, so that when the one is returning to an operative position the other is moving forward and operating the seed-dropping plate, as will be readily understood. The elbow-detent 96 has its long arm 100 provided with an adjustable stop 101 in the form of a set-screw which operates in a threaded opening provided in the terminal portion of the said arm, and its short arm 95 projects across the path of and is adapted to be engaged by the pendent lug 94. When the rod or bar 8 moves forward, the pawl 84 will engage with a spur 86 and turn the seed-dropping plate a distance corresponding to the space between the openings 81, formed in the said plate, and when the pawl 84 reaches the limit of its forward movement the end of the intermediate or detent arm 93 will engage with a spur of the dropping-plate and hold the latter in position with an opening 81 in register with an opening 102 in the bed 83, so that the grain will drop through the latter opening into a tube 103 and from thence into the grain-spout 104 at the rear end of a runner. When the part 8 is withdrawn or moves in an opposite direction, the hooked end of the pawl 85 will engage with a spur 86 and rotate the seed-dropping plate, so as to bring the next opening of the series of openings 81 into position for dropping its charge, and when the pawl 85 reaches the limit of its active or forward stroke the pendent lug 94 will engage with the short arm 95 of the elbow-detent 96 and cause the terminal portion of the long arm 100 thereof to engage with a spur 86 and hold the seed-dropping plate in proper position.

By providing the adjustable stop 101 provision is had for taking up wear and for adjusting the parts to allow for any deficiencies in workmanship, so that the movement of the seed-dropping plate may be checked at the proper time to effect registry of the openings 81 and 102. The arched frame 97 serves to support the outer end of the rod or bar 8 and the parts attached thereto and obviates the friction incident to the sliding of one part upon another, thereby reducing the friction to a minimum and transferring the same to the pivotal connection between the said arched frame and the parts 5 and 8. An opening 105 is provided in the cross-head 91 and receives the lower end of a lever 106, which is adapted to be removably attached to the inner side of a hopper when it is required to operate the dropping rod or bar 8 by hand. This lever has lateral trunnions 107, which obtain bearings in notched lugs 108, secured to the said hopper. A seat 109 is fastened to a standard 110, attached to the bar 5, and the operator perches upon this seat when operating the lever 106. The rod or bar 8 obtains bearings in the side members of the seat-standard 110, and the latter is strengthened by a brace 111.

The grain-spout 104, formed at the rear end of a runner 3, is contracted at its lower end and is divided into vertical channels by a pivoted cut-off 112, which terminates at its upper end just below the tube 103 and is provided with an upwardly-extending arm 113, which is connected by means of a link 114 with the pin 99, whereby the cut-off is vibrated at each movement of the rod or bar 8.

The function of this cut-off is to prevent the escape of the grain from the channels formed on opposite sides thereof until the cut-off is actuated. By this means accuracy in the planting of the grain is attained. The grain dropped into one channel passes to the lower end thereof, and is retained in the said channel until the cut-off is operated, when the grain being in close proximity to the ground will instantly drop into the required position, thereby insuring correctness in the planting, provided the dropping mechanism is properly timed.

A rod or shaft 115 is journaled to the rear end of the main frame and is supplied with scraper-blades 116 to remove trash, earth, and foreign matter from the rims of the drive-wheels, and a radius-bar 117, secured to the rod 115, is connected by a rod 118 with a foot-lever 120, pivoted to a side of a bar 7 and having an expanded portion 119 to receive the foot when it is required to throw the scraper-blades into working position.

It will be understood that each hopper or seedbox will be provided with a bed, a bottom plate, and seed-dropping mechanism, the cooperating parts for each being constructed substantially as herein set forth.

The invention in its entirety or in part may be applied in the construction of seed-planting machinery. Hence it is obvious that in adapting the invention to a particular requirement various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention.

Having thus described the invention, what is claimed as new is—

1. In a planter, the combination with the main and draft frames pivotally connected, the draft-frame having a portion extending in the rear of the pivotal connection, of a foot-lever fulcrumed between its ends to the main frame and having connection with the rear extension of the draft-frame, a bar extending upwardly from the foot-lever, a brace between the foot-lever and the upper end of the bar, an arm extending forwardly from the upright bar and terminating in a foot-rest, a hand-lever arranged adjacent to the upright bar and foot lever and adapted to engage with the upright bar when moved forward, and a dog having pivotal connection with the hand-lever and adapted to engage with the upper end of the upright bar, substantially as shown for the purpose described.

2. In a planter, the combination with the

main and draft frames pivotally connected together, the draft-frame having a rear extension, of a foot-lever fulcrumed between its ends to the main frame and having connection with the rear extension of the draft-frame, a bar projecting upwardly from the foot-lever and having a lateral extension at its upper end, a hand-lever fulcrumed upon the same pivotal support with the foot-lever and adapted to engage with the lateral extension of the upright bar, and a dog having pivotal connection with the hand-lever and constructed to engage with the upper end of the said upright bar, having a lateral extension, substantially as and for the purpose set forth.

3. In a planter, the combination with the main and draft frames pivotally connected together, of a bracket secured to the main frame, a foot-lever fulcrumed between its ends to the bracket and having connection with a rear extension of the draft-frame, an upright bar connected with the foot-lever and having a lateral extension at its upper end, a brace between the upright bar and foot-lever, an arm projecting forwardly from the upright bar and terminating in a foot-rest, a hand-lever mounted upon the pivotal connection between the aforesaid bracket and foot-lever, means for securing the hand-lever in an adjusted position, and a dog pivoted to the hand-lever and adapted to engage with the upper end of the upright bar, substantially as set forth.

4. In a planter, the combination with the main and draft frames pivotally connected together, of a foot-lever fulcrumed upon the main frame and operatively connected with the draft-frame, and having a cross-bar at its rear or free end, forming a foot-rest, a bar projecting vertically from the foot-lever and having a lateral extension, an arm extending forwardly from the upper end of the vertical bar and terminating in a foot-rest, a notched segment, a hand-lever fulcrumed upon the same pivot with and located just beside the foot-lever and bearing a hand-latch to engage with the notched segment and adapted to come in contact with the aforesaid lateral extension of the vertical bar, and a dog pivoted to the hand-lever and having a lateral extension, and adapted to connect the hand-lever with the said vertical bar, whereby the foot-lever and the hand-lever can be operated together or independently, substantially as set forth for the purpose described.

5. In a planter, the combination of the main and draft frames pivotally connected together, a foot-lever fulcrumed upon the main frame and operatively connected with the draft-frame, a clutch mechanism for throwing the machine into and out of gear for timing or bringing the planting mechanism into register, a transverse rod having connection with the clutch mechanism, a stop adjustably mounted upon the transverse rod, and a lever having a portion in engagement with the said adjustable stop, and having a

portion extending across the path of the aforesaid foot-lever, and provided with a foot-rest, substantially as set forth for the purpose described.

- 5 6. In a planter, the combination of a drive-wheel having a toothed rim, a marker-bar mounted midway of its ends in line with the axis of the drive-wheel, clutch-levers pivoted directly to the end portions of the marker-bar and having lugs a distance from their pivots projecting across the path of the marker-bar and adapted to engage with the toothed rim, and means under the control of the driver for operating the clutch-levers to throw their lugs into and out of engagement with the toothed rim of the drive-wheel, substantially as and for the purpose set forth.

7. In a planter, the combination of a drive-wheel having a toothed rim, a marker-bar mounted midway of its ends in line with the axis of the drive-wheel, clutch-levers pivoted directly to the end portions of the marker-bar and having lugs extending across the path thereof and adapted to engage with the toothed rim, a spring secured directly to the marker-bar at a point midway of its length and having its end portions engaging with the oppositely-disposed clutch-levers, and means under the control of the driver for actuating the clutch-levers to cause their lugs to engage with or become disengaged from the said toothed rim, substantially as and for the purpose set forth.

8. In a planter, the combination of an axle, drive-wheels loosely mounted upon the spindle portions of the axle, marker-bars mounted intermediate of their ends upon the axle so as to turn therewith and having inwardly-extending sleeves, clutch-levers pivoted directly to the end portions of the marker-bars and having lugs projecting across the path thereof and adapted to engage with the toothed rims applied to the aforesaid drive-wheels, springs secured directly to the marker-bars and normally exerting a pressure against the clutch-levers, collars slidably mounted upon the sleeves of the marker-bars, and means for connecting and simultaneously operating the collars for throwing the lugs of the clutch-levers into and out of engagement with the toothed rims of the drive-wheels, substantially as and for the purpose set forth.

9. In a planter, the combination of an axle, drive-wheels loosely mounted upon the spindle portions of the axle, each having a toothed rim or disk, marker-bars mounted midway of their ends upon the axle to revolve therewith and having inwardly-extending sleeves, clutch-levers fulcrumed between their ends directly to the end portions of one of the marker-bars and having lugs at their outer ends to project across the path of the marker-bar and engage with the toothed rim of the adjacent drive-wheel, a second set of clutch-levers fulcrumed at their outer ends to the end portions of the other marker-bar and having lugs intermediate of their ends project-

ing across the path of the marker-bar to engage with the toothed rim of the contiguous drive-wheel, the two sets of clutch-levers having their inner ends claw-shaped and embracing the opposite sides of the sleeves of the marker-bars, springs attached directly to the marker-bars for holding the clutch-levers in operative relation, collars slidably mounted upon the said sleeves, one of the collars having a flange to engage with the inner ends of the set of clutch-levers fulcrumed at their outer ends, a rod or bar having radius-arms bearing the said collars, and means for imparting an endwise movement to the said rod or bar to simultaneously throw the two sets of clutch-levers out of engagement with their respective toothed rims, substantially as and for the purpose set forth.

10. In a planter, the combination with the dropping rod or bar, a plate having connection with the said rod and provided with stops, and projections yieldingly connected with the plate, of a shaft, an eccentric attached to the shaft and adapted to alternately actuate the said yielding projections, and a retarder operatively connected with the eccentric and shaft to engage with the stops of the said plate to hold the latter stationary during the operation of the eccentric in moving either one of the yielding projections, substantially as set forth for the purpose described.

11. In a planter, the combination with the rod or bar for transmitting motion to the seed-dropping plates, of a projection operatively connected with the said rod, a spring for normally holding the said projection in a predetermined position, an eccentric for moving the projection against the tension of the said spring to store power in the latter, and a stop mechanism to hold the said rod or bar against movement during the storing of power in the aforesaid spring and adapted to release the said rod when the spring has been subjected to the required tension, substantially as and for the purpose set forth.

12. In a planter, the combination with a rod or bar for transmitting motion to the seed-dropping mechanism, of oppositely-disposed projections yieldingly connected with the said rod, an eccentric to alternately engage with and move the said projections in opposition to a yieldingly-resistant force, oppositely-disposed stops, and a segmental retarder to alternately engage with the said stops to prevent movement of the aforesaid rod or bar during the movement of one of the projections against its resistant force, substantially as set forth for the purpose described.

13. In a planter, the combination with the seed-dropping rod or bar, a plate connected therewith and provided with stops, projections slidably mounted upon the plate, springs for maintaining the slidable projections in a normal position, and a shaft, of an eccentric attached to the shaft and adapted to alternately engage with the slidable projections and move them against the tension of their

springs, and a segmental retarder rotating with the eccentric and shaft to engage with the stops and hold the said plate against movement during the operation of the eccentric in moving a slidable projection against the action of its spring, and adapted to release the said plate when the spring has reached the required tension, substantially as set forth for the purpose described.

14. In a planter, the combination with a seed-dropping rod, a plate applied to the said rod, rods slidably mounted upon the plate and having cross-heads at their opposite ends, and springs mounted upon the slidable rods to return them to and maintain them in a normal position, of an eccentric disposed to alternately engage with the headed ends of the slidable rods to subject their springs to tension, and a stop mechanism to hold the plate against movement during the interim of subjecting the aforesaid springs to tension, substantially as and for the purpose set forth.

15. In a planter, the combination with a seed-dropping rod or bar, a plate connected therewith and having projecting stops, rods slidably connected with the plate and having projecting portions at their opposite ends, and springs for maintaining the rods in a normal position, of an eccentric to alternately engage with the projecting portions of the slidable rods to subject their actuating-springs to tension, and a segmental flange adapted to engage with the projections or stops of the plate to retard the movement of the latter during the interim of subjecting the springs of the slidable rods to tension, substantially as set forth for the purpose described.

16. In a planter, the combination with a rotatable seed-dropping plate having a series of spurs, of a reciprocating rod or bar, pawls connected to and movable with the said rod or bar and adapted to alternately actuate the seed-dropping plate, a pivoted detent located intermediate of the pawls, and a rigid arm movable with the said rod or bar and adapted to engage with a spur of the seed-dropping plate on the forward movement of the rod and to engage with and actuate the pivoted detent on the return stroke of the said rod, whereby the seed-dropping plate has its position fixed at each stroke of the rod or bar, substantially as set forth.

17. In a planter, the combination with a rotatable seed-dropping plate, an operating-rod, and an actuating-pawl, of a pivoted detent actuated by the operating-rod and brought into engagement with the seed-dropping plate to properly position the latter, and a stop adjustably connected with the pivoted detent to insure a correct positioning of the seed-dropping plate, substantially as and for the purpose set forth.

18. In a planter, the combination with a rotatable seed-dropping plate, an operating-rod, and actuating-pawls carried by and movable with the operating-rod and disposed to move

the plate at each stroke of the operating-rod, of a pivoted detent, and an arm movable with the operating-rod and having a pendent lug and adapted at the forward stroke of the operating-rod to engage with the seed-dropping plate and upon the return stroke of the operating-rod to actuate the detent and cause it to engage with the seed-dropping plate, substantially as and for the purpose set forth.

19. In a planter, the combination with a rotatable seed-dropping plate having spurs, of a reciprocating rod provided with a cross-head having parallel arms, an arched frame pivotally supported at one end and having its opposite end pivotally connected with the parallel arms, and actuating-pawls mounted upon the pivotal connection between the arched frame and parallel arms and extending in the same direction and disposed to alternately engage with the spurs of the seed-dropping plate, substantially as and for the purpose set forth.

20. In a planter, the combination with a rotatable seed-dropping plate having spurs, of an operating-arm having a cross-head provided with parallel arms, an arched frame pivotally supported at one end and having side ears at its opposite end, a pin passing through transversely-aligning openings in the side members of the arched frame and in the side ears and pivotally connecting the parallel arms therewith, and actuating-pawls for alternately operating the dropping-plate mounted upon the said pin in the spaces formed between the side ears and the side members of the aforesaid arched frame, substantially as set forth.

21. In a planter, the combination with a rotatable seed-dropping plate having spurs, of an operating-rod provided with a cross-head having an intermediate and side arms, the intermediate arm serving as a detent to properly position the dropping-plate, and actuating-pawls having pivotal connection with the side arms for operating the dropping-plate, substantially as set forth.

22. In a planter, the combination with a rotatable seed-dropping plate having spurs, of an operating-rod provided with an intermediate and side arms, the intermediate arm serving as a detent to engage with the spurs of the dropping-plate and properly position the latter, and formed with a lug, a pivoted detent having one end adapted to engage with the dropping-plate and having its other end projecting within the path of the lug to be engaged thereby, and actuating-pawls having pivotal connection with the side arms of the operating-rod, substantially as and for the purpose set forth.

23. In a planter, the combination of a rotatable dropping-plate provided with spurs, an operating-rod having an intermediate and side arms, the intermediate arm serving as a detent to properly position the dropping-plate and formed with a lug, an arched frame pivotally supported at one end and having piv-

otal connection at the other end with the said
side arms, actuating-pawls pivotally mounted
upon the connection between the arched
frame and side arms, and a pivoted detent
5 having a member projecting across the path
of the aforesaid lug and bearing an adjust-
able stop at its other end to engage with the
spurs of the dropping-plate, substantially as
set forth.

In testimony that we claim the foregoing as
our own we have hereto affixed our signatures
in the presence of two witnesses.

JOHN M. SCOBEE.
E. SILAS BUSH.

Witnesses:

MAURICE T. SMITH,
JOHN T. MIDDLETON.