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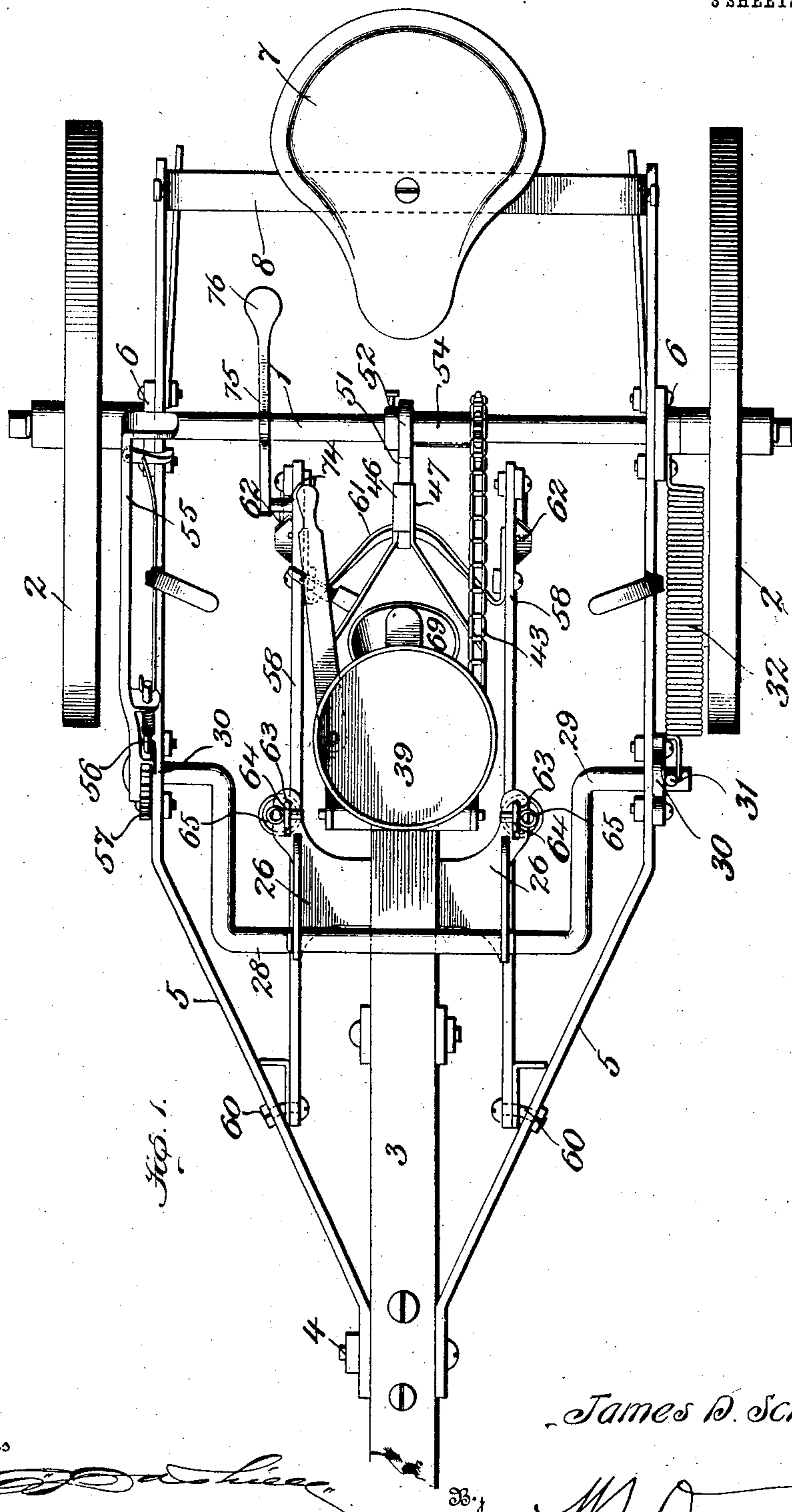
J. D. SCHOFIELD.

PLANTER.

APPLICATION FILED APR. 30, 1904.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses

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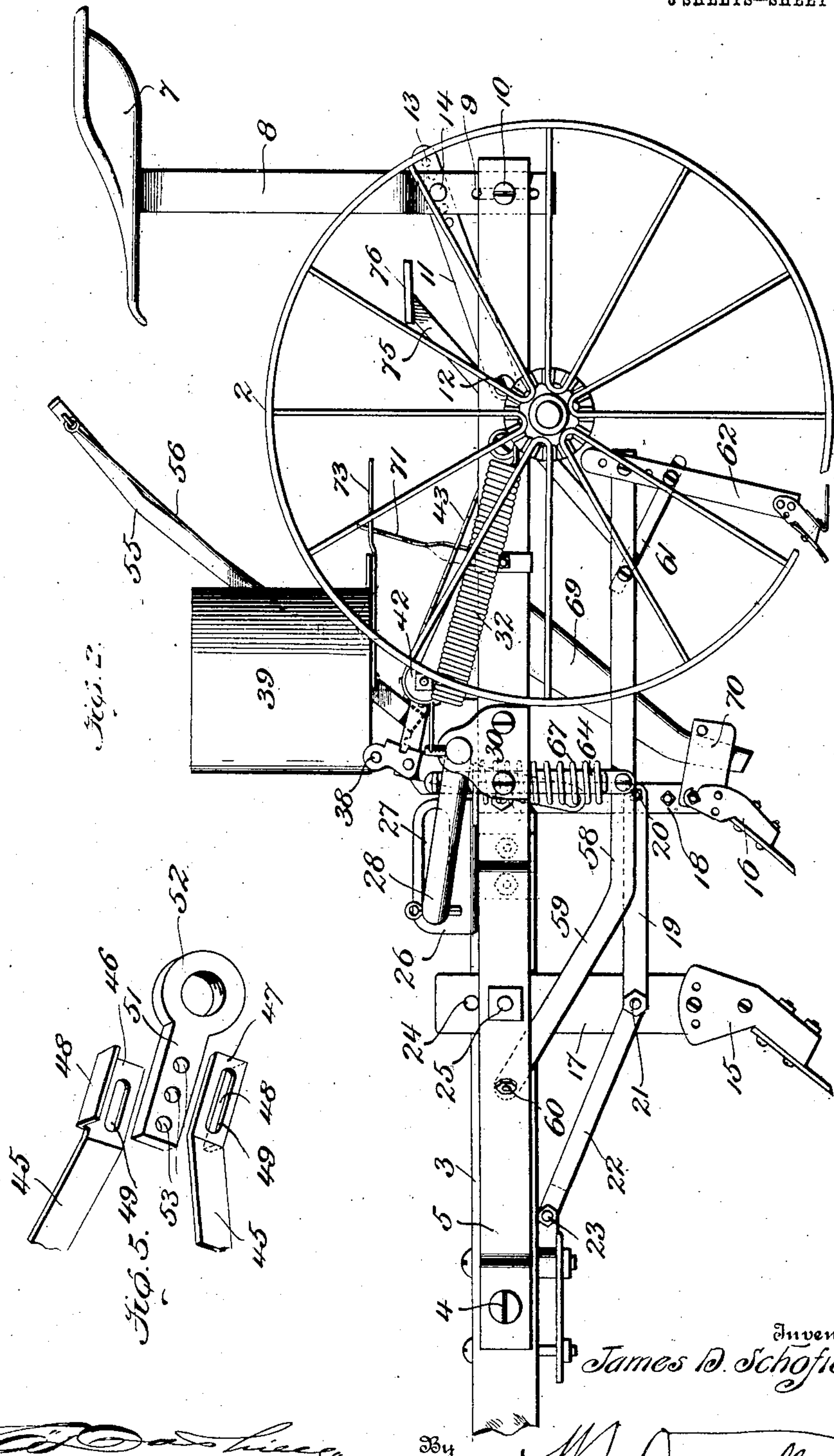
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3 SHEETS—SHEET 2.



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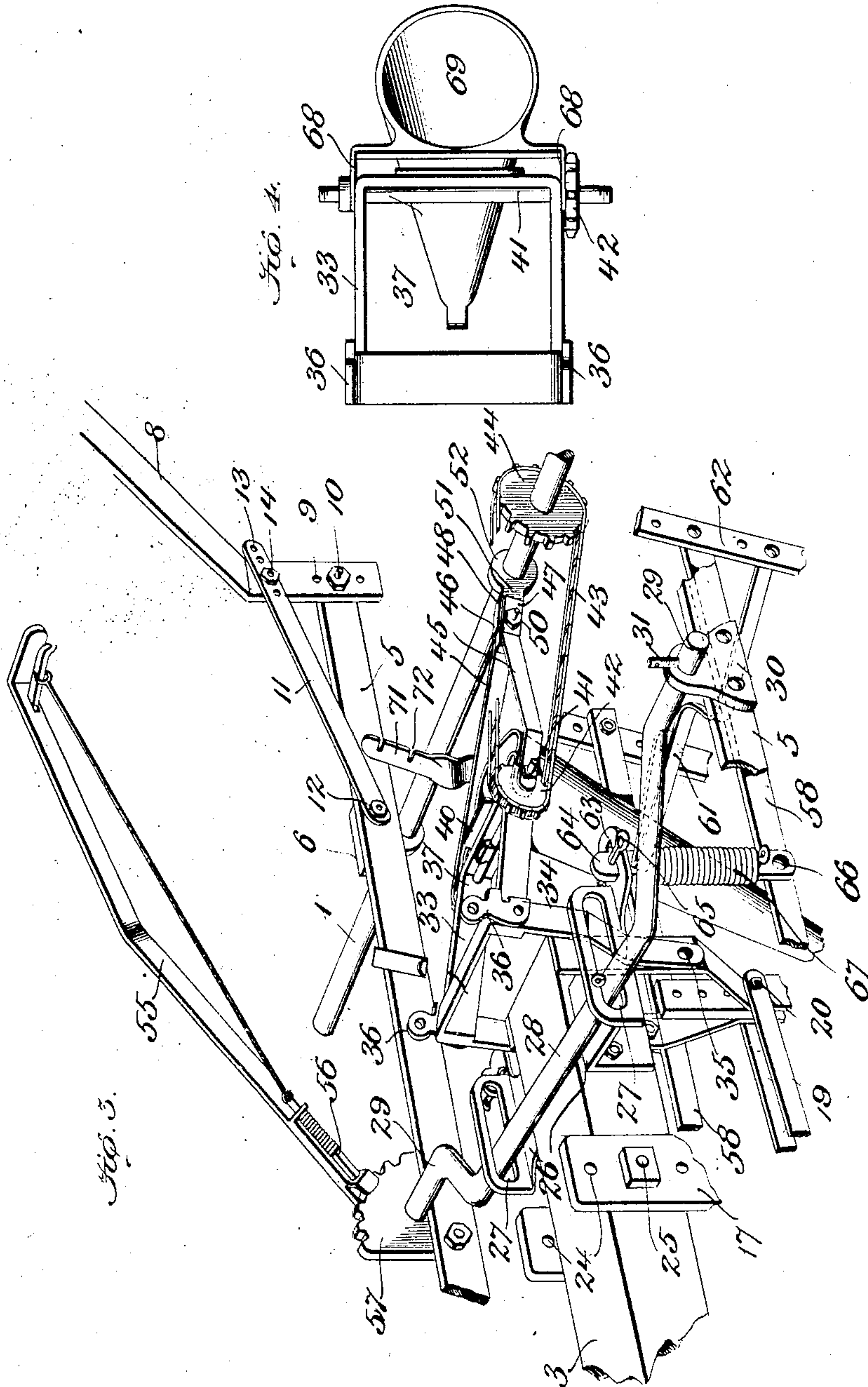
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

JAMES DROMMOND SCHOFIELD, OF DALLAS, TEXAS.

## PLANTER.

SPECIFICATION forming part of Letters Patent No. 777,754, dated December 20, 1904.

Application filed April 30, 1904. Serial No. 205,658.

*To all whom it may concern:*

Be it known that I, JAMES DROMMOND SCHOFIELD, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented certain Improvements in Planters, of which the following is a specification.

This invention relates to improvements in planters, particularly to that class commonly known as "riding-planters."

Various objects will be found to be embraced in my invention; but among the most important are to adapt the planter to cover any depth desired, yet at the same time have its covering-shovels flexibly supported or pressed to their work, thereby permitting the heavier furrow-opening shovel to be run at different depths in uneven ground and the covering-shovels to follow and cover at a uniform depth regardless of such unevenness; to provide an improved lifting mechanism and an improved connection between the furrow opening and covering shovels and framework; to provide a novel and convenient mechanism for adjustably and movably supporting the hopper and other portions of the planting mechanism, and for taking up or compensating for the slack of the chain connection between the driving means and the hopper-feed and maintaining these parts in the same relative positions.

Various other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a plan view of a planter embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a perspective view of the planter, the running-gear and frame broken away to avoid confusion. Fig. 4 is a detail in plan of the hopper-support, the hopper removed; and Fig. 5 shows details in perspective, disconnected, hereinafter referred to.

Similar numerals of reference indicate similar parts in all the figures of the drawings.

The machine is supported by the axle 1, at the ends of which are located the usual ground-wheels 2, secured upon and moving with the axle. To the tongue or center-beam 3, at a

point somewhat in advance of its rear end, are pivotally connected, by means of a transverse bolt 4, the front converging ends of the side beams 5, which comprise the main or draft frame. Bearings 6 are provided upon the two side beams, and within the same is journaled the axle 1. A seat 7 for the accommodation of the driver or operator is mounted upon an arched standard 8, the terminals of the arch preferably having a series of bolt-holes 9, in any two of which bolts 10 may be located for the purpose of adjustably securing the standard to the side beams 5. A pair of inclined brace-bars 11 may be bolted at their front ends, as at 12, to the side beams 5 and have their rear ends provided with series of bolt-holes 13 for the accommodation of bolts 14, whereby the standard and seat 7 may be given any adjustment necessary or desired to properly maintain it in relation to the planter.

15 and 16 designate, respectively, the front and rear furrow-opening shovels, the same being supported at the lower ends of the usual divided shovel-standards 17 and 18, respectively. A pair of braces 19 may be bolted at their rear ends to the rear standard 18, as at 20, and at their front ends, as at 21, to the front standard 17. A similar inclined brace 22 may be bolted by the bolt 21 to the front standard and at its front end bolted to the under side of the beam 3, as at 23. The front standard 17 is provided with the usual bolt-holes 24 for the accommodation of the bolt 25, by means of which said standard may be adjusted with relation to the rear shovel 16.

Securely bolted to the opposite faces or sides of the beam 3 are opposite angled fulcrum-plates 26, the vertical upper ends of which project above the beam 3, and each is formed with an elongated opening or slot 27. Fulcrumed in, and therefore passing through and beyond the two slots 27, is the center cranked portion 28 of a transverse crank-shaft 29, which beyond the crank portion has its ends oppositely disposed to form journals, the latter being loosely mounted in opposite bearings 30, located upon the side beams 5. A short arm 31 may be disposed at an angle to and form one end of the crank-shaft, and an expansion-spring 32 may have its front end



connected thereto and to the adjacent side beam 5, said spring, as will be obvious, exerting a tendency to elevate the cranked portion of the shaft 29, and hence the rear portion of the main beam 3 and the hereinafter-described planting mechanism carried by or connected therewith.

A hopper-supporting frame 37, comprising an upper horizontal rectangular frame 33 and a depending inverted-U-shaped branch 34, has the lower ends or terminals of the latter pivotally connected by a transverse bolt 35 to the opposite sides of the shovel-standard 18. Opposite bearing-ears 36 rise from the opposite angles or corners of the rocking frame 37, and within the same is mounted the trunnions 38 of a hopper 39, said trunnions being located at the front and upon the under side of said hopper. Of course the hopper itself may be of any construction, and for that reason it is not necessary to go into the details of the same. At the rear of the upper horizontal rectangular portion of the hopper-support I may locate a rest-lug 40, upon which said hopper is supported at its free rear end when in actual operation. For operating the feed devices or mechanism within the hopper I may journal within the rear part of the frame 37 a transverse counter-shaft 41, the same having a tappet or any other means for transmitting the necessary motion. A sprocket-wheel 42 may be carried by one end of the shaft, and a sprocket-chain 43 may connect the same to a sprocket-wheel 44, keyed upon or otherwise fastened upon the axle 1, and therefore moving therewith.

Loosely suspended from the shaft 41 and extending rearward and converging to a point between said shaft and the axle 1 is a pair of brace-rods 45, the same merging at their rear extremities into clamping-plates 46 and 47, respectively. The plates are provided with upper and lower flanges 48, and each plate is formed with an elongated slot 49, designed to receive an adjusting-bolt 50. An arm 51, having a bearing-eye 52 loosely journaled upon the axle 1, is engaged between the clamping-plates 46 and 47 and is provided at intervals with perforations 53, into any one of which the adjusting-bolt 50 may be located. Any suitable bearing may be provided for the eye 52; but preferably the hub 54 of the sprocket-wheel 44 is extended to one side for this purpose, as shown. It will be obvious that by means of the construction described a comparatively short drive-chain may be employed and that by a manipulation of the bolt 50 such chain, through the brace-bars 45 and their coupling, may be at a proper degree of tension.

Fast upon one end of the crank-shaft 29 an operating-lever 55 is secured and designed to operate the same for the purpose of raising and lowering the shovels. This lever extends to within easy grasp of the driver when

perched upon the seat 7. The lever is furthermore provided with a reciprocating spring-pressed pawl 56, operated by a handle at the upper end of the lever 55, the ratchet at the lower end being adapted for engagement with a convenient tooth of a toothed segment 57.

58 designates the opposite draft-beams for carrying the covering-shovels, and the same may have their front portions upwardly disposed or curved, as at 59, and pivotally connected, as at 60, to the opposite side frames 5. A curved brace 61 may connect the rear ends of the beams 58, and beyond the points where it is bolted to the beams said brace may be inclined and bolted to the covering-shovel standards 62.

Through slots 63, formed in horizontal extensions of the brackets 26, extend the upper ends of suspension-links 64, said links being provided above the slotted brackets with suitable stops—in this instance cotter-pins 65—whereby a loose connection is formed. The lower ends of the suspension-links are pivotally connected, as at 66, to the beams 58, and upon each link between its two points of connection is mounted a compression-spring 67, whereby when the covering-shovels are lowered they are held yieldingly to their work and will cover uniformly regardless of the irregularities of the field. Also loosely hung upon the shaft 38, (see Fig. 4,) by means of ears 68, is the usual spout 69, the lower end of which is immediately in rear of the opening-shovel standard 18 and is loosely coupled thereto, as at 70.

A standard 71 rises from one of the braces 45 in rear of the hopper and may have formed in its edge one or a series of notches 72. A swinging pivoted handle 73 may be secured to the under side of the hopper, and after raising the rear end of the hopper until out of operative position with relation to the shaft 41 the hopper may be thus maintained by inserting the handle into engagement with any one of the notches 72.

By raising the rear end of the lever 55 the cranked portion of the shaft 29 is thrown forward to a substantially horizontal position, as shown in the drawings, thus lowering the rear end of the main or draft beam 3, the furrow-opening shovels, and, in fact, all parts connected therewith and in rear of the bolt 4. A reverse movement of the lever 55 has a reverse effect—namely, the rear end of the beam 3, the shovels, and planting mechanism are elevated above the ground.

It will be observed that regardless of the position of the parts the hopper-supporting frame 37, being perfectly free to move upon the pivot-bolt 35 and being connected by the loose braces 45 to the axle 1, will always move or swing upon the arc of a circle of which the axle 1 is the center, and hence the sprocket-wheel 42 always remains equidistant from the companion wheel 44. This eliminates entirely



the necessity of employing a long chain and numerous compensating idlers or other forms of take-up devices.

Pivottally connected to either covering-beam 5 58, (preferably the right,) at or near the rear end thereof, as at 74, or at any other convenient point desired, is the front end of a foot-lever 75, the latter between its ends being fulcrumed on the axle 1 and in rear thereof terminating in a foot-plate 76. By pressing 10 down upon the rear end of this lever, the axle serving as a fulcrum, it will be obvious that the covering-beams and the shovels carried thereby may be elevated momentarily for the 15 purpose of becoming cleared of any accumulated trash.

Having described my invention, what I claim is—

1. The combination, in a planter, of a main 20 central draft-beam, opposite side draft-beams pivoted at their front ends to the central beam at an intermediate point of the latter, a supporting-axle and ground-wheels for said side beams, a pair of brackets arranged on the central beam in rear of the pivot-point thereof, 25 bearings on the side beams, a cranked rock-shaft mounted in the bearings and having its cranked portion movable in the slot of said bracket, a hand-lever mounted on the rock-shaft, means for locking the same, a hopper 30 loosely supported in rear of the draft-beam, a driving mechanism for the hopper comprising a sprocket-wheel, a sprocket-wheel arranged on the axle and a sprocket-chain connecting said sprocket-wheels. 35

2. The combination, in a planter, of a main central beam, outer side beams pivoted at their front ends to the latter beam at an intermediate point, opposite slotted brackets carried by 40 the main central beam, opposite bearings mounted on the side beams, a centrally-cranked rock-shaft having its cranked portion mounted in the slots, a hand-lever carried by the rock-shaft, means for locking the hand-lever, 45 slotted extensions formed on the brackets, covering-beams extending under the brackets and at their front ends secured to the side beams in a loose manner, links pivoted to said beams and extending upwardly through the 50 slots of said extensions, compression-springs mounted on said links between the extensions and beams, a hopper loosely supported in rear of the draft-beam, a driving mechanism for the hopper comprising a sprocket-wheel, a 55 sprocket-wheel arranged on the axle and a sprocket-chain connecting said sprocket-wheels.

3. The combination, in a planter, of a framework carrying the planting mechanism, opposite cultivator-beams carrying the covering- 60 shovel standards, and means for yieldingly forcing said beams downwardly to an operative position, means for elevating said beams out of an operative position, a hopper loosely 65 supported in rear of the draft-beam, a driv-

ing mechanism for the hopper comprising a sprocket-wheel, a sprocket-wheel arranged on the axle and a sprocket-chain connecting said sprocket-wheels.

4. The combination, in a planter, of a main 70 central beam, slotted brackets extending therefrom, a planting mechanism, covering-beams extending below said main beam and loosely supported at their front ends, links loosely connected to the cultivator-beams and to the 75 slotted brackets, compression-springs mounted on the links between the brackets and beams, a hopper loosely supported in rear of the draft-beam, a driving mechanism for the hopper comprising a sprocket-wheel, a 80 sprocket-wheel arranged on the axle and a sprocket-chain connecting said sprocket-wheels.

5. The combination in a planter, of a main beam, opposite side bars connected thereto, 85 covering-beams depending from and loosely connected to the side bars and extending below the same, means for yieldingly depressing said cultivator-beams, a rock-shaft mounted in journals on the side beams and having a 90 centrally-cranked portion, a sliding connection between the latter and the rear end of the main beam, an arm extending upwardly from the rock-shaft, a spring connected to the same and to one of the side beams, a hand- 95 lever for operating the rock-shaft, means for locking the hand-lever, a hopper loosely mounted in rear of the draft-beam, a driving mechanism for the hopper comprising a sprocket-wheel, a sprocket-wheel arranged on 100 the axle and a sprocket-chain connecting said sprocket-wheels.

6. The combination, in a planter, of a framework comprising a main central beam, an axle for supporting the framework and having 105 ground-wheels, a support pivottally mounted at the rear end of the main beam, a hopper mounted on the support, means for operating the devices in the hopper carried by the support and embodying a sprocket-wheel, a 110 sprocket carried by the axle, a chain connecting the two sprockets, and braces between the axle and hopper-support.

7. The combination, in a planter, of a frame comprising a central beam, means for raising 115 and lowering the latter, a hopper-support pivottally mounted upon the beam, a hopper arranged thereon, an operating-shaft for the hopper located in the support, a sprocket-wheel carried by the shaft, a sprocket-wheel 120 carried by the axle, a chain connecting the two wheels, and an adjustable brace connected to the hopper-support and loosely mounted on the axle.

8. The combination, in a planter, of a frame 125 embodying a central beam, means for raising and lowering the same, a hopper-supporting frame pivottally mounted on said beam, a hopper arranged upon the supporting-frame, operative means for the hopper also arranged 130



upon the frame and embodying a sprocket-wheel, a sprocket-wheel carried by the axle, a chain connecting the two sprocket-wheels and means between the hopper-supporting frame and the axle for maintaining the hopper-supporting frame equidistant therefrom regardless of the position of said central beam.

9. The combination, in a planter, of a frame comprising a central beam to which said frame is pivoted, of a hopper-supporting frame loosely mounted on the beam, a hopper arranged thereon, operative means for the hopper mounted in the supporting-frame and embodying a sprocket-wheel, a sprocket-wheel arranged upon the axle, a drive-chain connecting the two sprocket-wheels, an eye loosely mounted on the axle and having adjusting-holes in an arm radiating from the eye, opposite converging braces loosely connected to the hopper-supporting frame and terminating in slotted plates embracing the perforated arm, and an adjusting-bolt passing through the plates and arm.

10. The combination, in a planter, of a main frame embodying a central beam, means for moving the same, a hopper-supporting frame pivotally supported at the rear end of the main beam, a hopper pivotally mounted on the hopper-supporting frame, means for adjusting the hopper in operative relation with its supporting-frame, an operative means for the hopper located in the hopper-supporting frame and embodying a sprocket-wheel, a motion-transmitting shaft or axle, a sprocket-wheel carried thereby, a chain connecting the two sprocket-wheels, and a brace connecting the hopper-supporting frame and motion-transmitting shaft.

11. The combination, in a planter, of a main frame embodying a central beam, the angular frame comprising the inverted-U-shaped portion 34 and the horizontal portion 33, the former being pivoted to the central beam, the shaft 41 journaled in the horizontal portion and provided with means for transmitting motion to the hopper mechanism, a sprocket-wheel carried by the shaft, a companion sprocket carried by the axle, a sprocket-chain connecting the two wheels, a seed-spout connected loosely with the frame 33 below the hopper, and an adjustable connecting-brace between the frame 33 and the axle.

12. The combination, in a planter, of a central draft-beam, opposite side bars, a planting mechanism supported at the rear end of said beam, a pair of beams carrying covering-shovels, said beams being pivotally connected at their front ends to the side bars, a foot-lever pivotally connected at its front end to one of said covering-beams and fulcrumed at an intermediate point on said axle, a planter-

driving mechanism embodying a sprocket-wheel, an axle, a sprocket-wheel carried thereby, a drive-chain connecting the two sprocket-wheels, and a hopper mounted in rear of the draft-beam.

13. The combination, in a planter, of two independently-movable frames loosely connected the one to the other, a draft-beam connected to the main frame of the two, a lever for depressing the lower frame, an axle supporting the upper frame and having ground-wheels, a hopper carried by that frame which is independent of the axle, a driving mechanism for the hopper comprising a sprocket-wheel, a sprocket-wheel carried by the axle and a driving-chain connecting the two sprocket-wheels.

14. The combination, in a planter, of two independent loosely-connected frames one arranged within the other, an axle for supporting the rear end of the outer frame of the two, a draft-beam connected to the inner frame, means for locking said frames in their adjusted position, a hopper arranged above and within the inner frame and pivotally supported in rear of the draft-beam and adapted to be actuated thereby, a driving mechanism for the hopper comprising a sprocket-wheel, a sprocket-wheel carried by the axle and a chain connecting the two sprocket-wheels.

15. The combination, in a planter, of a main frame supported on carrying-wheels, a supplemental frame pivoted to the main frame and extending within the same rearward of such pivotal connection, a hopper, a furrow-opener supported by the main frame and located in rear of the pivotal connection between said frames, a sweep supported by the main frame in advance of the hopper, and covering-shovels carried by the supplemental frame.

16. The combination, in a planter, of a main frame supported on axles having ground-wheels, a tongue connected to the main frame, opposite side bars extending within the main frame and connected at their front ends thereto, brackets carried by the tongue, a hopper mounted in the brackets and provided with adjustments, a furrow-opener and a sweep supported by the tongue, covering devices carried by the side bars, and means for raising and lowering the main frame with relation to the tongue.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES DROMMOND SCHOFIELD.

Witnesses:

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