(No Model.) 2 Sheets—Sheet 1.

D. J. BOWSER.

PLANTER.

No. 492,383. Patented Feb. 28, 1893.

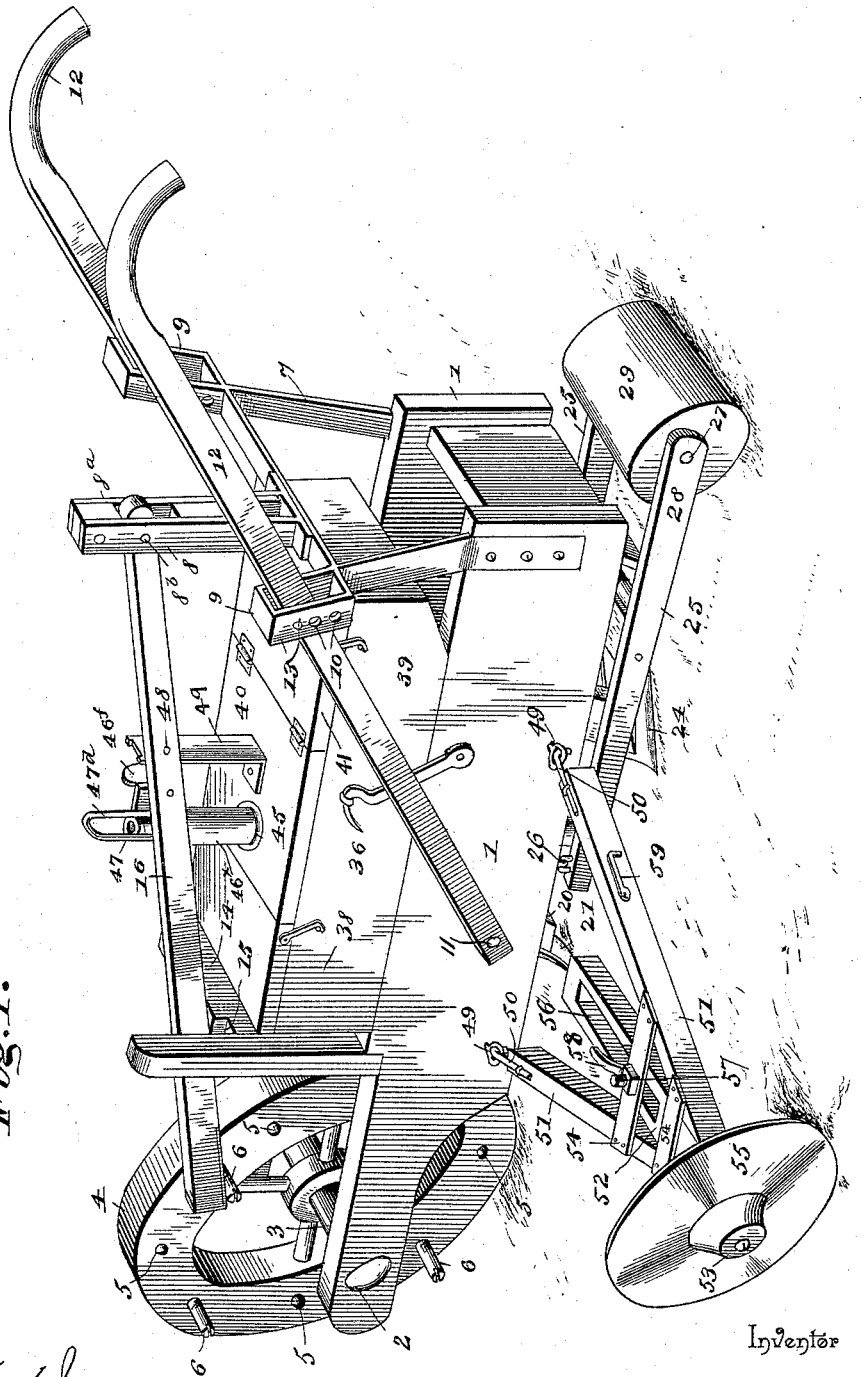


Fig. 1.

Witnesses

J. Ulke, Jr.

Abram Macauley

Inventor

David J. Bowser.

By his Attorneys,

C. A. Snow & Co.

(No Model.) 2 Sheets—Sheet 2.

D. J. BOWSER.

PLANTER.

No. 492,383. Patented Feb. 28, 1893.

Fig. 2.

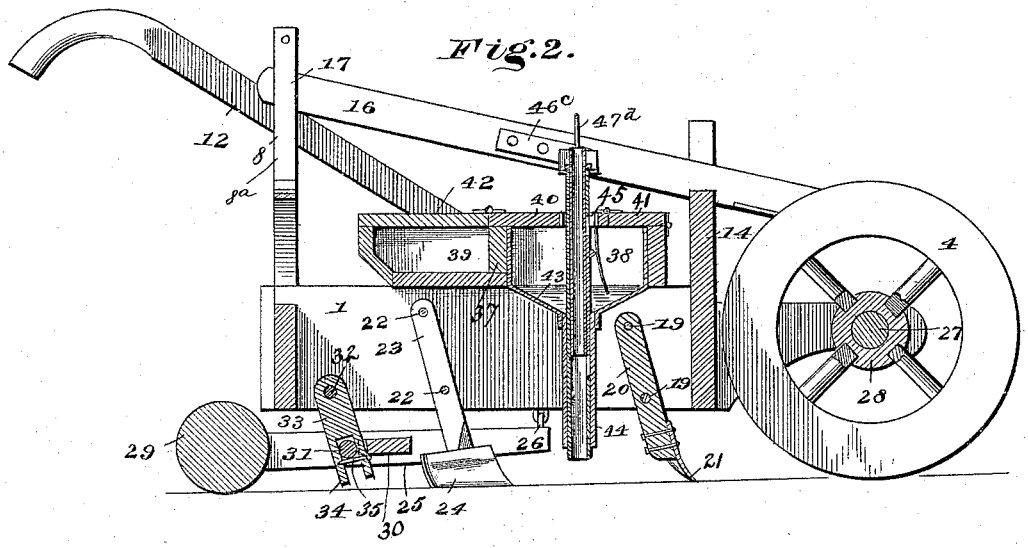


Fig. 3.

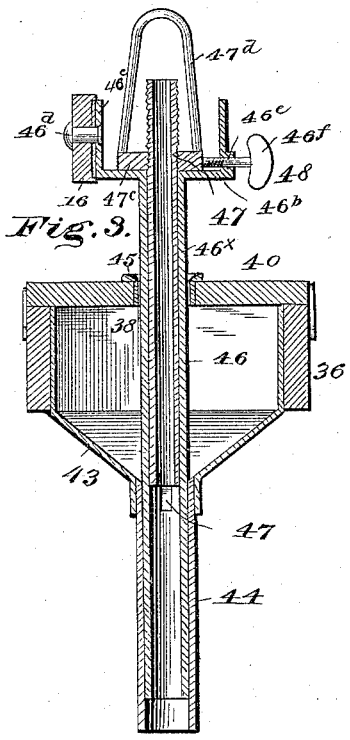
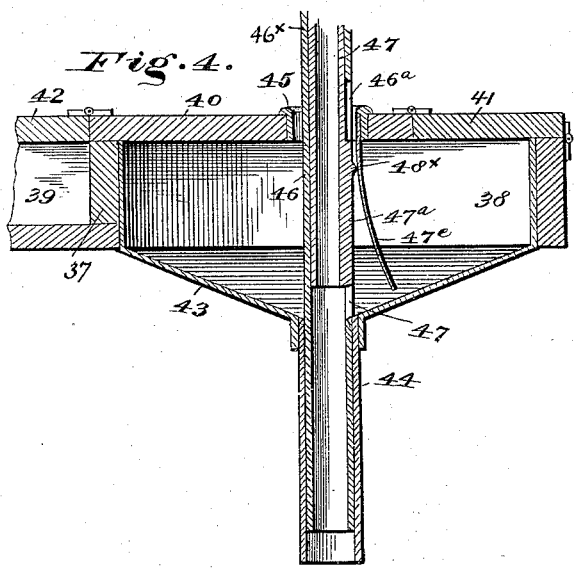


Fig. 4.



Witnesses

J. Ulke, Jr.

Alvan Macauley

Inventor

David J. Bowser.

By his Attorneys,

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

DAVID JOHNSTON BOWSER, OF CADILLAC, MICHIGAN.

PLANTER.

SPECIFICATION forming part of Letters Patent No. 492,383, dated February 28, 1893.

Application filed August 25, 1892. Serial No. 444,065. (No model.)

To all whom it may concern:

Be it known that I, DAVID JOHNSTON BOWSER, a citizen of the United States, residing at Cadillac, in the county of Wexford and State of Michigan, have invented a new and useful Planter, of which the following is a specification.

My invention relates to improvements in planters or seeders, and the objects in view are to provide a cheap and simple machine adapted to plant or drill various kinds of seed, to open the furrow for the reception thereof, and subsequently cover and pack the earth over the same.

A further object is to provide for a regulation of the distance apart of the drills.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings: Figure 1 is a perspective view of a seeder embodying my invention. Fig. 2 is a longitudinal vertical section. Fig. 3 is a transverse section through the hopper. Fig. 4 is a detail of the hopper bottom and discharge-tube.

Like numerals of reference indicate like parts in all the figures of the drawings.

1 designates a pair of opposite parallel frame-bars, which are provided at their front ends with transversely-opposite bearings 2, in which a transverse axle 3 is journaled. Upon the axle a ground-wheel 4 is mounted and adapted to rotate with the axle. This ground-wheel has its rim at one side provided with an annular series of perforations 5, which are threaded, and in the same are located a series of threaded trip-pins 6. These pins may be located in the various perforations, and by increasing or decreasing their number their distances apart may be regulated.

An inverted U-shaped open metal frame 7 connects the rear ends of the frame-bars 1, and besides being provided upon its upper side at one side of its center with a short vertical metal standard 8, has its opposite sides provided with keepers or loops 9, each having a series of perforations 10. The short vertical standard is really an open frame, having a pivoted side 8^a, and its stationary side provided with a stud or pin 8^b. The bars 1 have pivoted near their centers, at 11, a pair of rearwardly-disposed handles 12, that extend through the loops or keepers 9, are adjustable therein, and may be secured at any point of elevation within the limits of the loops by a pair of set-bolts 13.

A front board or standard 14 connects the frame-bars 1 immediately in rear of the wheel 4, and said board or standard is provided with a recess 15 in which is designed to reciprocate or vertically vibrate a lever 16, the rear end of which is pivotally mounted in a removable manner upon the stud 8^b. The front end of the lever lies in the path traversed by the pins 6, by each of which the lever is tripped successively.

Immediately in rear of the standard 14 the frame-bars are connected by a pair of transversely-disposed bars 19, upon which is secured a depending standard 20, carrying a furrow-opening shovel 21, centrally located with relation to the machine and adapted to follow in the path of the ground-wheel 4. A similar pair of bars 22 are located near the rear ends of the frame-bars, and these bars support a pair of depending standards 23, which have secured at their lower ends a pair of converging covering-shovels 24.

A pair of side-bars 25 are loosely connected at 26 at their front ends to the lower edges of the bars 1, and extend rearwardly to a point slightly in rear of said bars 1, at which point they are provided with transversely-opposite bearings 27, which receive the axle 28, of a packing-roller 29. The bars 25 are connected by a transverse notched bar 30, and immediately in rear of the same by a rung 31. A rung 32 connects the frame-bars 1, immediately above the rung 31, and a standard 33, having its lower end bifurcated, is mounted on the rung 32, and at its lower bifurcated end receives the rung 31 of the roller-frame, the front bifurcation 34 of said standard taking into the notch of the bar 30. Below the rung 31 the bifurcations of the standard are connected by a transverse pin 35.

Supported upon the frame-bars 1 is a removable box 36, the same being divided by a transverse partition into a front hopper 38, and a rear tool chest 39, the rear and bottom walls of the latter being inclined, whereby an operator following the machine may observe the planting of the seed. A fixed top or cover 40 extends from the partition 37 forward, so as to cover a portion of the hopper, the re-

maining or rear portion being covered by a hinged lid 41, as is also the tool-chest by a similar lid 42, the said lids being provided with suitable fastening devices. The hopper is further provided with a concaved or conical bottom 43, terminating at its center in a central opening from which depends a stationary seed-tube 44, the same terminating at its lower end immediately in rear of the furrow-opening shovel 21 and slightly in advance of the furrow-closing shovels 24. A corresponding opening 45 is formed in the cover 40, and through the same the upper end of a stationary tube $46^{\times}$ projects. The bottom of the hopper is provided with a tube $44^{\times}$ in which tube $46^{\times}$ slides. The tube $46^{\times}$ is provided between the openings with a slot 46^{a}, and above the upper opening with a U-shaped yoke 46^{b}. One side of the yoke is secured to a plate 46^{c}, which is pivotally connected thereto at 46^{d}, said plate being rigidly secured to the vibratory lever 16. The opposite end of the yoke is provided with a threaded perforation 46^{e}, and a thumb-screw 46^{f} is located therein.

Mounted for reciprocation within the tube 46 is a smaller reciprocatory tube 47, considerably shorter then the tube 46, and provided at one side with a slide 47^{a}, designed to cover the seed-opening in the tube 46. The upper end of the reciprocatory tube 47 is provided with screw-threads, upon which is mounted a ring or swivel 47^{c}, having a loop 47^{d}. By adjusting the ring upon the threads of this inner tube, the downward movement of the latter is limited, so that the opening through which the seed must pass into the tube 46 is adjusted to admit more or less seed, or adapted to various sizes of seed. In any of its adjustments the tube 47 is secured in position by the set-screw 46^{f}. It will be seen that the tube 46 will reciprocate in the tube 44, as the lever 16 is vibrated vertically. A lug $48^{\times}$ may, if desired, be formed on the slide 47^{a}, of the tube 47, and is designed to ride against the inner side of a spring-agitating finger 47^{e}, which is suspended from the top of the hopper. The rise and fall of the feed-tube and the lug serve to operate the finger, thus causing a sufficient agitation of the seed in the hopper to compel them to feed through the opening in the seed-tube, and thus obviate clogging.

From the foregoing description, in connection with the accompanying drawings, it will be seen that I have provided a seeder in which the distance between the drills may be regulated; which will first open the furrow, then deposit the seed, subsequently cover the same, and finally roll or pack the loose earth upon the seed, all in one continuous operation.

If desired, and it is preferred by me to do so, there may be employed in connection with the planter or seeder, a marker, the construction of which I will proceed to describe. Pairs of eyes 49 are secured to each of the bars 1, and the same are removably engaged by hooks 50, which are located at the inner ends of a pair of converging outward-extending bars 51. The bars 51 converge at their outer ends and embrace an intermediate inwardly-extending beam 52, the three being connected by metal straps 54. The beam is provided at its front extremity with a stub-axle 53, and a marking-wheel 55 is loosely mounted for free rotation upon the stub-axle. The beam 52 for the major portion of its length has a longitudinal slot 56 formed therein, and a clamping-bolt 57 passes through the slot and through opposite perforations formed in a pair of the straps 54. The upper end of the clamping-bolt has mounted thereon a clamping tail-nut 58. It will be seen that the beam may be moved in or out so that the wheel 55 may be located at any desired distance from the machine, and thus the distance between the rows may be predetermined by the operator.

It will be understood that the marker may be applied at both sides of the machine, and by means of hooks 59, with which the bars 51 are provided, the marker, when swung to a vertical position and inoperative, may be supported by means of one of its hooks engaging with one of the handle-bars 12.

A short standard 49 is mounted on the stationary portion 40 of the hopper, and is adapted to receive and support the rear end of the lever 16, when the said lever is disunited from the stud at the rear end of the machine, upon which it is fulcrumed. In order to accomplish this the disconnection must be made as indicated, and the seed-tube partially rotated, whereby the front end of said lever is removed from the path of the trip-pins of the wheel. This lowers the seed-tube so that the cutoff closes the slot, and no seed can escape.

Having described my invention, what I claim is—

1. In a seeder, the combination with the framework thereof, of a hopper having an opening in its bottom, a bottomless seed discharge-tube having a perforation in its side and mounted in the opening, and means for reciprocating the tube, so that its opening is elevated above and lowered below said bottom substantially as specified.

2. In a seeder, the combination with a hopper having a hole in its bottom, and a bottomless tube depending from the same, of an internal sliding bottomless tube having a seed-opening, in its side and means for reciprocating said sliding tube, so that its opening is elevated above and lowered into the depending tube substantially as specified.

3. In a seeder, the combination with a hopper having a hole in its bottom, and a stationary tube depending therefrom, of a cover for the hopper having a perforation in line with the hole, a reciprocating slotted tube mounted in the perforation of the cover and in the hole in the bottom, means for reciprocating the tube, a flat spring secured to the

cover, and a lug over the perforation of the tube and adapted to ride against the spring, substantially as specified.

4. In a seeder, the combination with the hopper having an opening in its bottom, of a slotted seed-tube mounted for sliding in the opening, means for operating the tube, an internal adjustable tube therein having a cutoff for the perforation, and means for operating cutoff-tube and seed-tube, substantially as specified.

5. In a seeder, the combination with the framework, the ground-wheel located at the front end of the same and provided with trip-pins, and the standard located in rear of the ground-wheel, of an intermediate hopper, the bottom of which is provided with a depending tube, a reciprocating seed-tube having an opening mounted in the depending tube, and a lever pivoted to the standard and at its front free end lying in the path of the trip-pins of the wheel and between its ends pivoted to the upper end of the reciprocating seed-tube, substantially as specified.

6. In a seeder, the combination with the opposite side-bars, the back standard frame having the upwardly-disposed standard-frame a stud, the front standard having the guide-slot, the perforated wheel, and the adjusting-pins, the wheel being journaled in front of the front standard, the lever removably pivoted upon the stud, mounted in the guide-slot, and at its front end extending into the path of the pins, of the intermediate box subdivided to form a hopper, having an opening in its bottom provided with a discharge-tube, a lever-supporting standard upon the hopper, a reciprocating tube mounted in the discharge-tube and extending through an opening in the cover of the hopper and terminating at its upper end in a head pivotally connected with the lever, a standard depending from the frame in line between the wheel and tube, a furrow-opening shovel secured to the standard, and furrow-closing shovels located at opposite sides and in rear of the tube, substantially as specified.

7. In a seeder, the combination with the frame, the hopper, the discharge mechanism, the furrow-opening shovel located in front of and below the hopper, and the covering shovels located in rear of and below the hopper, of the opposite side-bars 25 loosely connected at 26 to the side bars of the frame and provided at their rear ends with bearings 27, the roller 29 having the axle 28 taking into the bearings, the notched cross-bar 30, the rung 31 adjacent thereto, said bar and rung connecting the bars 25, the rung 32 connecting the frame-bars, and the standard 33 depending from the rung 32 and having its lower end bifurcated to embrace the rung 31, the front bifurcation of said standard resting in the notch of the bar 30, and the pin 35 connecting the bifurcations below the rung 31, substantially as specified.

8. The combination with a seeder frame provided at opposite sides with pairs of eyes, of a marker comprising opposite side-bars terminating at their rear or inner ends in hooks for removably engaging either pair of eyes, a beam mounted for sliding between the bars and provided with a longitudinal slot, straps embracing the bars and beam, a clamping-bolt passed through the slot of the beam and the straps and provided with a nut, and a marking-wheel journaled on the outer end of the beam, substantially as specified.

9. The combination with a seeder frame having the opposite pairs of eyes, of the marker frame comprising the opposite side-bars terminating in hooks for removably engaging the eyes, the wheel supported at the outer end of the bars, opposite handles secured to the frame, and loose hooks mounted on the bars and adapted, when the marker frame is elevated, to engage the adjacent handle, substantially as specified.

10. In a planter, the combination with the framework, the hopper having the upper and lower openings, of the slotted seed-tube mounted for reciprocation in the openings, means for reciprocating said tube, and a cutoff adjustably mounted in a slot of said tube, substantially as specified.

11. In a planter, the combination with the framework and hopper having the upper and lower openings, of the reciprocating slotted seed-tube mounted therein and provided at its upper end with a U-shaped yoke, means for reciprocating the tube, an inner threaded tube mounted in the seed-tube, a ring threaded thereon above the seed-tube, and a set-screw mounted in the yoke and bearing on the ring, substantially as specified.

12. In a planter, the combination with the framework, the wheel at the front end of the same having clip-pins, the standard at the rear end of the framework, the lever pivoted to the standard and extending into the path of the pins, of the hopper mounted on the framework below the lever and having upper and lower perforations, the lower one of which terminates in a discharge-tube, a reciprocating slotted seed-tube mounted in the hopper and discharge-tube and provided at its upper end above the hopper with a U-shaped yoke, a set-screw mounted in the yoke, a plate pivoted to the opposite side of the yoke and secured to the lever, an inner tube mounted in the seed-tube, a slide at the lower end of the same adapted to cover the slot therein, threads at the upper end thereof, a ring upon the threads and bearing on the yoke and adapted to be borne upon by the set-screw, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

DAVID JOHNSTON BOWSER.

Witnesses:
RICHARD M. BIELBY,
JAMES E. WRIGHT.