(No Model.) 3 Sheets—Sheet 1.

J. M. JOHNSTON.

PLANTER AND SEEDER.

No. 347,614. Patented Aug. 17, 1886.

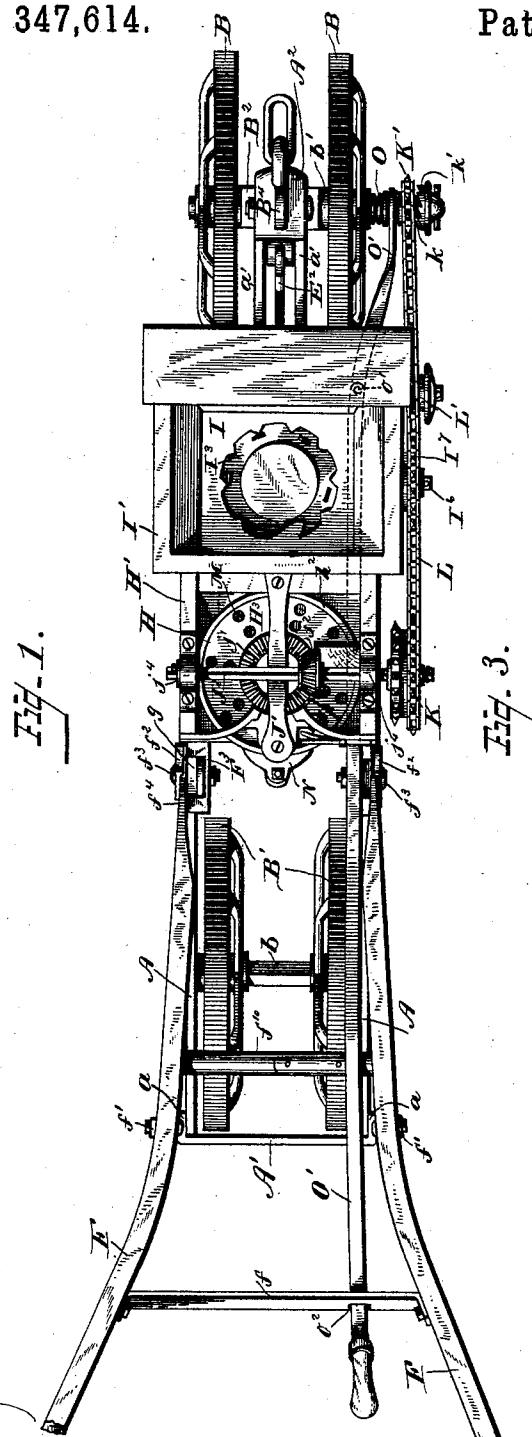


Fig. 1.

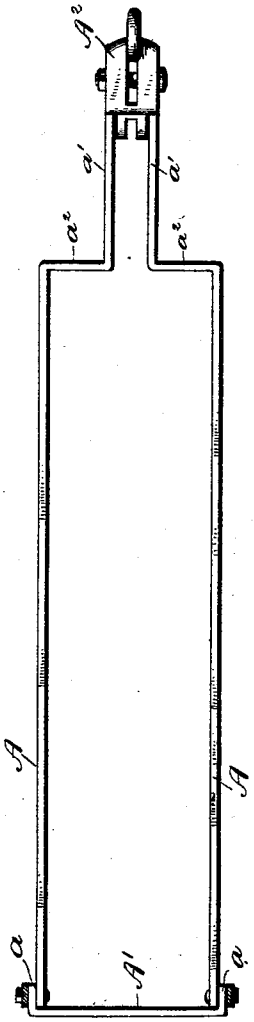


Fig. 3.

Witnesses
Wm. L. Speidel.
A. G. Blunt.

Inventor
James M. Johnston
By his Attorneys
Church & Church.

N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.) 3 Sheets—Sheet 2.

J. M. JOHNSTON.

PLANTER AND SEEDER.

No. 347,614. Patented Aug. 17, 1886.

Fig. 3.

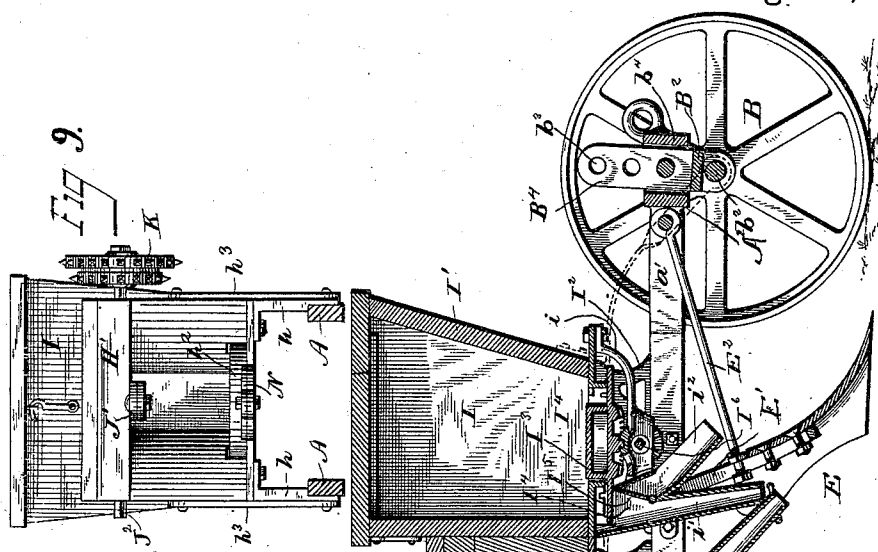


Fig. 4.

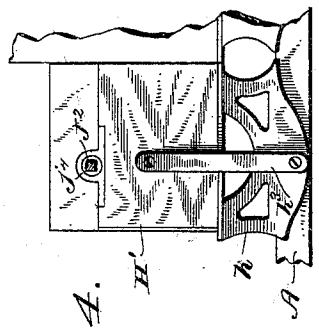


Fig. 2.

Witnesses
Wm. L. Spindler.
A. S. Stuart.

Inventor
James M. Johnston.
By his Attorneys
Church & Church

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 3 Sheets—Sheet 3.

J. M. JOHNSTON.

PLANTER AND SEEDER.

No. 347,614. Patented Aug. 17, 1886.

Fig. 5.

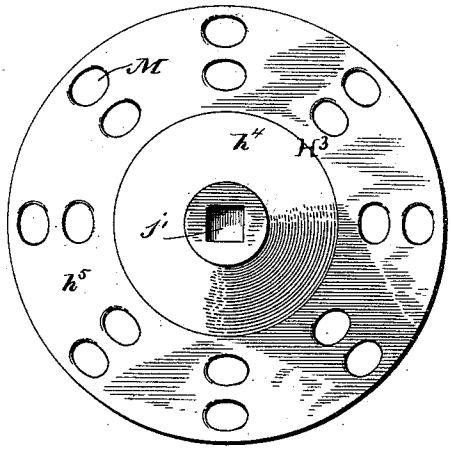
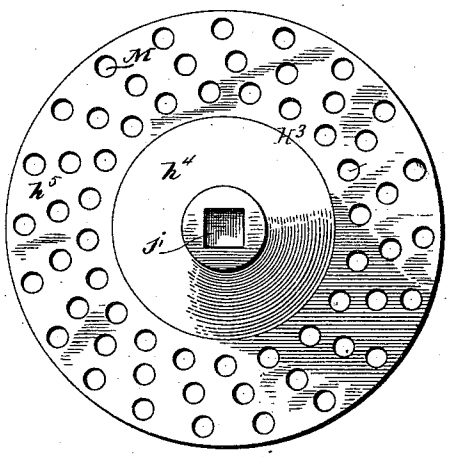


Fig. 6.



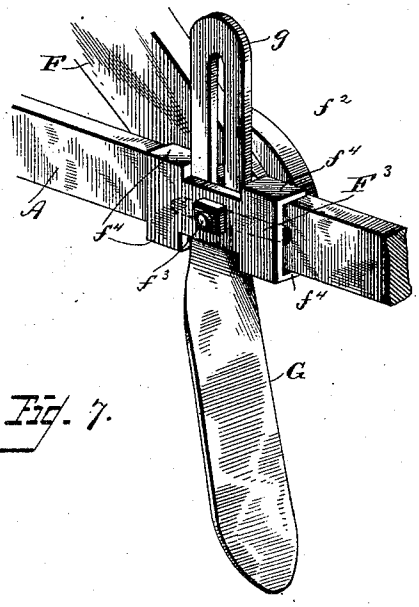


Fig. 7.

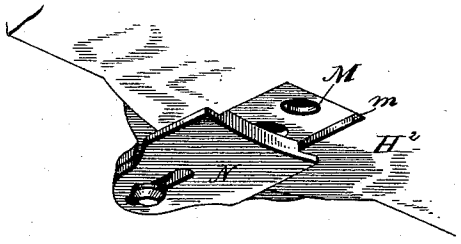


Fig. 8.

Witnesses
Wm. F. Gleudenning
A. J. S. Stuart.

Inventor
James M. Johnston
By his Attorneys
Church & Church

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JAMES M. JOHNSTON, OF YORK, PENNSYLVANIA, ASSIGNOR TO NELSON C. BAUGHMAN, OF SAME PLACE.

PLANTER AND SEEDER.

SPECIFICATION forming part of Letters Patent No. 347,614, dated August 17, 1886.

Application filed October 29, 1885. Serial No. 181,312. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. JOHNSTON, of York, in the county of York, State of Pennsylvania, have invented certain new and useful Improvements in Planters and Seeders; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters of reference marked thereon.

This invention appertains to certain improvements in "walking-planters," so called; and it consists in the several novel features of construction and combinations of parts, as hereinafter fully described, and pointed out pointed out in the claims.

In the accompanying drawings, Figure 1 is a top plan view of the machine with covers of hoppers removed, and Fig. 2 is a longitudinal section of the same. Fig. 3 is a top plan view of the main frame. Fig. 4 is an end view of the seed-hopper, showing the manner of detachably securing the same upon the frame. Figs. 5 and 6 represent different forms of seed-plates. Fig. 7 is a detail illustrating the mode of connecting the covering-blades and handles to the side bar of the main frame. Fig. 8 is a detail illustrating the cut-off or valve for regulating the feed. Fig. 9 is a rear view of the seed-hopper.

Similar letters of reference in the several figures indicate the same parts.

The main frame of the machine is composed, essentially, of the two side bars, A, the cross piece or bar A′, whose angle ends a embrace and are secured to the rear ends of the side bars, and the head or casting A^2, interposed between and bolted to the forward extension, a', of the side bars. The forward extension, a', and body or rear portion of each of said side bars are arranged in parallel planes and connected by the intermediate bent portion forming a transverse shoulder, a^2.

The side bars, A, constructed as described, and united by the cross-piece A′ at one end, and the head or casting A^2 at the other end, form a light and strong frame, as shown in Fig. 3, with the open rectangular body composed of the side bars, cross-piece, and transverse shoulders or bent portions of the side bars, and the narrower extension or neck consisting of the parallel ends of the side bars and the head or casting secured thereto. This frame, to which the various operating mechanisms and devices are attached, is mounted upon two sets or pairs of wheels, B B′, of which the rear pair, B′, are mounted upon an axle, b, supported in boxes or bearings attached to the side pieces, A, with the wheels located between the said side pieces and within the rectangular body of the frame, while the wheels of the front pair, B, located one on each side of the narrower extension or neck of the main frame, are mounted upon an axle, b', supported in bearings b^2 on a cross-head or bracket, B^2. This bracket or cross head B^2 is formed or provided with a vertical extension or bar, B^4, passing loosely through a slot or guideway in the head or casting A^2, and provided with a series of holes, b^3, for the reception of a pin or bolt, b^4, whereby the front pair of wheels may be adjusted vertically with respect to the main frame, to determine the depth of the furrow, as will presently be explained. The wheels of each pair on the same side of the machine are arranged in substantially the same plane, so that the frame will be equally supported at each end and can be vibrated upon either axle to raise or lower the front or rear end without the necessity of balancing it against lateral movement, as would be the case were a single wheel employed to support either end, unless such wheel should have a tread substantially equal to the tread of the two wheels combined.

The bearings of the rear pair of wheels are so arranged relative to the cross-piece A′ of the main frame as that the lower edge of the latter shall serve as a scraper or clearer to remove adhering dirt, &c., from the treads or faces of the wheels, and the same operation is performed upon the front pair of wheels by the bent portions or shoulders a^2 on the side bars, A.

The furrow-opener or plow E is secured to the ends of a furcated standard or bracket, E′, whose two ends are fastened to the side bars, A, while a brace-rod, E^2, pivotally secured to the head or casting A^3, and adjustably fastened to the said standard E′, serves to determine the angle of the latter and to maintain it in ad-

justed position. As will be observed, the draft on the furrow-opener or plow is thus transmitted directly from the head or casting A^3, to which the horse or other motor is attached, through the brace as well as the side bars, thereby diminishing the strain upon the latter.

The handle-bars F, united by cross-bars $f f^{10}$, are connected to the frame in the following manner: Rising from each of the rear corners of the main frame is a vertical post or bar, f', to whose upper extremity is bolted one of the handle-bars. The forward ends of the handle-bars rest against the side bars, A, and are held in position thereon by cap-plate f^2 and bolt f^3, the latter passing through the cap-plate, the end of handle-bar, and an elongated opening in the side bar, A, as shown in dotted lines in Fig. 7. Upon the inner end of this bolt f^3 is mounted a channel-plate or saddle, F^3, whose flanges f^4 rest upon the upper and lower edges, respectively, of the side bars. The flanges f^4 of the saddle F^3 are cut away at top and bottom to admit the slotted end g of the covering-blade G, all as shown more clearly in Fig. 7.

As thus constructed, arranged, and applied, the end of the handle-bar and the shank of the covering-blade are both attached and firmly secured to the side bar of the main frame and in such a manner that both may be adjusted longitudinally of the side bar, and the covering-blade vertically thereof, the covering-blade will be rigidly supported by the saddle, and the handle-bar can be readily vibrated about the bolt f^3, to change the angle of the former, for which purpose the length of the vertical bars f'' or their points of attachment to the side bars is to be changed, as by passing the bolts securing the said vertical bars to the main frame through any one of several holes, f^5, Fig. 2.

The seed and fertilizer distributing mechanisms H and I (one or both, as preferred) are located intermediate the two pairs of supporting-wheels and above the furrow-opener E. The fertilizer-distributer I, preferably such as described in the patent granted to Leander Becker, No. 303,973, August 26, 1884, consists, essentially, of a box or hopper, I', supported above the side rails, A, upon brackets I^2. Beneath an opening in the bottom of the hopper I, and pivotally supported upon a bracket, i, is a rotary distributing and feeding plate, I^3, upon which the fertilizer rests, and is carried through the feed opening or gate and deposited into the conveyer I^4. This conveyer is preferably formed with two spouts or delivery portions, $i' i^2$, the former, i', projecting in rear and the latter in front of the furrow-opener. An adjustable valve, I^5, located at the point of separation, serves to direct the material as it is delivered from the feeding mechanism into one or the other or simultaneously into both conveyers, whereby the fertilizer may be deposited upon the ground in advance of the furrow-opener, or in the furrow with the grain, or partly within and partly without the furrow, as desired. The plate I^3 is driven from a shaft, I^6, upon whose end is secured a sprocket-wheel, I^7.

The hopper H' of the seeder is preferably located upon brackets h, applied to the side bars, A, in rear of the fertilizer-distributer. The bottom plate, H^2, of this hopper, upon which is formed the central bearing, h', and flange h^2, for the seed-plate H^3, is bolted fast to the brackets h, while the sides and ends of the hopper, being made separate from the bottom plate, are detachably secured in position upon said plate by links h^3, or other suitable fastenings, applied to the brackets h on the frame of the machine.

The seed-plate H^3, provided with the conical center h^4 and laterally-projecting or horizontal flange h^5, fits within the bearing h^2, and is supported upon a pivot, h^6, in the bearing h' on the bottom plate, H^2, and said plate H^3 is driven by a shaft, J, whose angular end is received within a corresponding-shaped socket, j. The rear side of the hopper H' is bent or curved inward at or near the center, its lower edge overlapping the flange h^2 of the bottom plate and the horizontal flange h^5 of the seed-plate H^3.

To the sides of the hopper is secured a bridge-piece, J', provided with a bearing to receive the upper end of the shaft J, upon which latter is secured a bevel-pinion, j', meshing with a pinion, j^2, on a transverse shaft, J^2, mounted in bearings j^4 on the end pieces of hopper. Upon the end of the shaft J^2 are secured one or more sprocket-wheels, K, to facilitate the change in speed by shifting the driving-chain from one to the other.

Both the seeder and fertilizer-distributing mechanisms are driven from the axle of the forward pair of supporting-wheels in the following manner: Upon the front axle is loosely mounted a sprocket-wheel, K', carrying the half-clutch k, and to the said axle is secured the other section or half, k', of said clutch. An endless chain, L, passes around the sprocket-wheel K', under the sprocket-wheel I^7 of the fertilizer-distributer I, around the sprocket-wheel K of the seeder H, and over an idler, L', back to the wheel K', whereby both the seeder and fertilizer-distributing mechanisms are driven by a single chain and at a speed proportional to the size of the sprocket-wheels.

It will be observed that all the driving mechanism of the seeder is mounted and sustained upon the sides and ends of the hopper, and can be removed with the latter by simply detaching the links or other fastening device, and when so removed the seed-plate resting upon the bottom of the hopper is exposed, and can be inspected, removed, or replaced at pleasure, without disconnecting the other parts.

The seed-plates designed for use in this machine are interchangeable, and each preferably provided with two or more series of holes or pockets, M, (see Figs. 5 and 6,) of a size and

shape suited to the material to be fed, and as the plates are rotated within the hopper and the pockets are filled they pass under a cut-off of any approved construction, and, being carried under the rear wall of the hopper, the seeds drop through an opening, *m*, in the bottom plate into a tube or conveyer, M', and are deposited in the furrow.

Beneath the bottom plate of the hopper, and projecting within the opening *m* therein, is an adjustable plate, N, arranged to slide in said opening toward and from the center of the seed-plate. This plate N operates as a gate to regulate the discharge from the seed-plate, as by moving said plate so as to cover the discharge-opening beneath one or more of the concentric rows of pockets the rate or amount of material deposited at each revolution of the feed-plate can be varied. The movable member or section of the clutch is held normally in engagement with the section attached to the driving-axle by a spring, O, and in order that the operator may at any time and while the machine is in motion disconnect the clutch when occupying his usual position in rear of the machine a shifting-lever, O', pivoted, as at *o'*, and engaging the movable member of the clutch, is carried back beneath the two hoppers and provided on its rear end with a handle projected between the handle-bars, as shown in Figs. 1 and 2.

The shifting-lever O', preferably of metal, is carried above the cross-bar f^{10}, and beneath the cross-bar *f*, or vice versa, in order that it may be deflected or sprung sufficiently to cause it to engage and be held within a notch, o^2, in the bar *f*, and thus, by holding the lever, retain the clutch open. When it is desired to again start the feeding mechanisms, the hand-lever is forced out of the notch o^2, and the spring O at once closes the clutch.

I claim as my invention—

1. In combination with the open rectangular frame composed of the bent or shouldered side bars, the cross-piece, and head or casting, the two pair of supporting-wheels, of which the rear pair are located within the frame with their rims or tires in proximity to the cross-piece, and the front pair arranged outside the forward extension of the frame with their rims or tires in proximity to the shoulders or bent portions of the side bars, substantially as and for the purpose set forth.

2. In combination with the head or casting secured between the forward ends of the side bars, the cross-head provided with bearings for the front axle, and a vertical extension adjustably secured within a guide or socket in the said head or casting, substantially as described.

3. In combination with the head or casting secured between the forward ends of the bent side bars, the vertically-adjustable cross-head carrying the axle of the front wheels, the latter located on opposite sides of the front extension of the main frame, and the brace-rod attached to said head or casting between the side bars and extending back to the standard supporting the furrow-opener, substantially as described.

4. In a planter such as described, and as a means for adjustably securing the handle-bars to the main frame, the adjustable vertical bars or posts attached to the rear corners and the bolts passing through the forward ends of the handle-bars and the elongated openings in the side bars, substantially as described.

5. In combination with the side bar of the main frame and the forward end of the handle-bar, the saddle with slotted flanges engaging the edges to the side bar, the covering-blade, and the bolt for clamping said parts in position, substantially as described.

6. In combination with the hopper-bottom secured to the main frame and the rotary seed-plate mounted thereon, the driving mechanism supported upon the removable box and detachably applied to the seed-plate, substantially as described.

7. In combination with the fixed bottom plate and the perforated seed-plate mounted thereon, the driving mechanism supported upon the sides or walls of the hopper, and the links for detachably securing the hopper in position upon the bottom plate and to the main frame, substantially as described.

8. In combination with the fixed bottom plate having the central bearing and annular flange, the perforated seed-plate pivotally supported upon said bearing, the vertical shaft detachably applied to said seed-plate and supported at the top in the cross piece secured to the hopper, the driving-shaft mounted in bearings upon the hopper, and the detachable fastenings for securing the hopper in position upon the bottom plate, substantially as described.

9. In combination with the fixed bottom plate provided with the annular flange and central bearing, as described, the perforated seed-plate mounted upon said bearing, and the removable hopper carrying the driving mechanism and provided with the curved plate or side overlapping the seed-plate, substantially as described.

10. In combination with the rotary seed-plate provided with two or more openings or pockets arranged at different distances from the center, and adapted, when the plate is rotated, to move in concentric circles, as described, the bottom plate provided with the discharge-opening and the adjustable gate located in said opening.

11. The combination, with the rotary seed-plate provided with two or more sets of openings or pockets arranged at different distances from the center, and adapted, when the plate is rotated, to move in concentric circles, as described, of the bottom plate provided with the discharge-opening and the adjustable gate

located in said opening, substantially as described.

12. In a planter such as described, and in combination with the clutch located upon the axle of the front wheels, from which motion is communicated to the feeding mechanisms on the main frame, the shifting-lever extended back beneath the hoppers and passing over the cross-bar f^{10} and beneath the notched cross-bar f, as and for the purpose set forth.

JAMES M. JOHNSTON.

Witnesses:
M. H. HOLTZAPPLE,
J. L. MILLER.