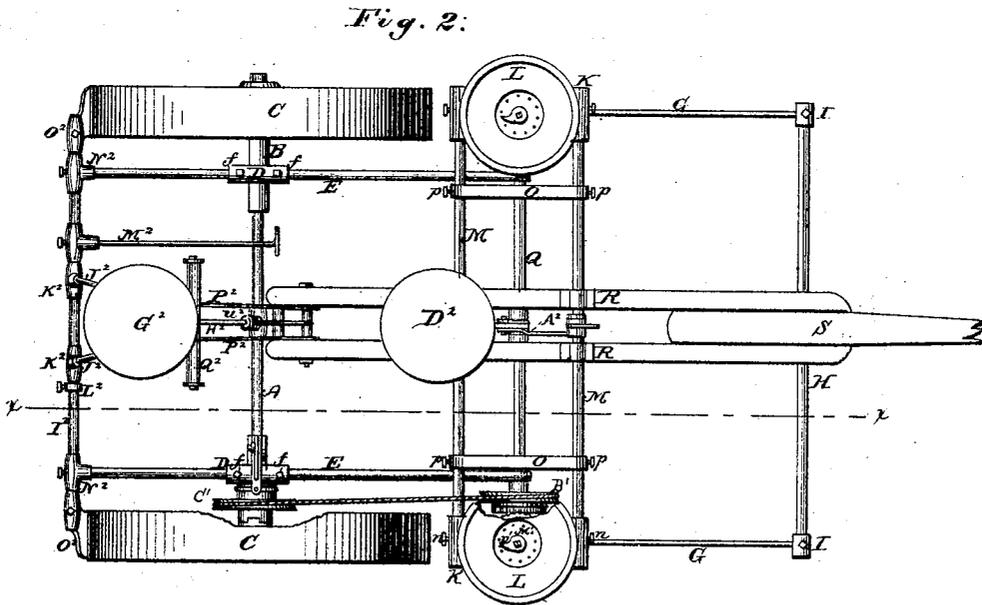
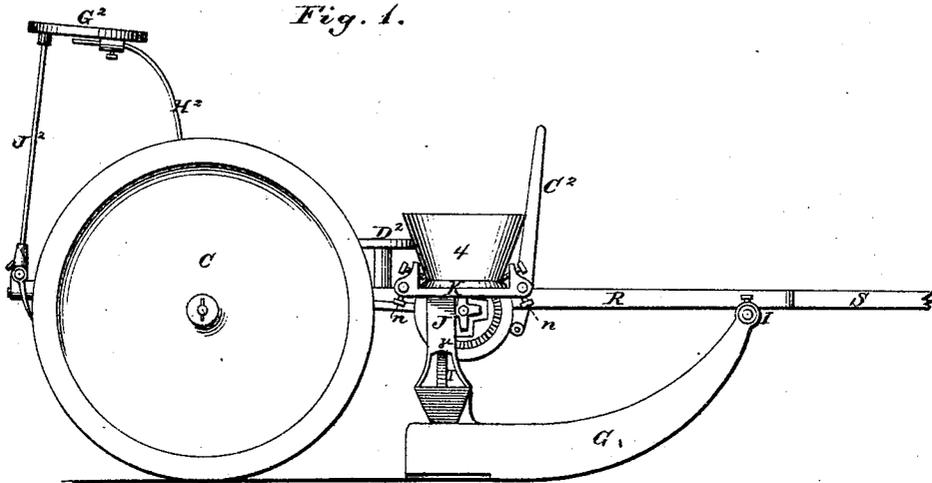


# LEVI SCOFIELD, Improvement in Corn Planter.

No. 121,204.

Patented Nov. 21, 1871.



Witnesses

C. F. Brown  
and Ellsworth.

Inventor.

Levi Scofield,  
By Hill & Ellsworth,  
his Attorneys.

# LEVI SCOFIELD.

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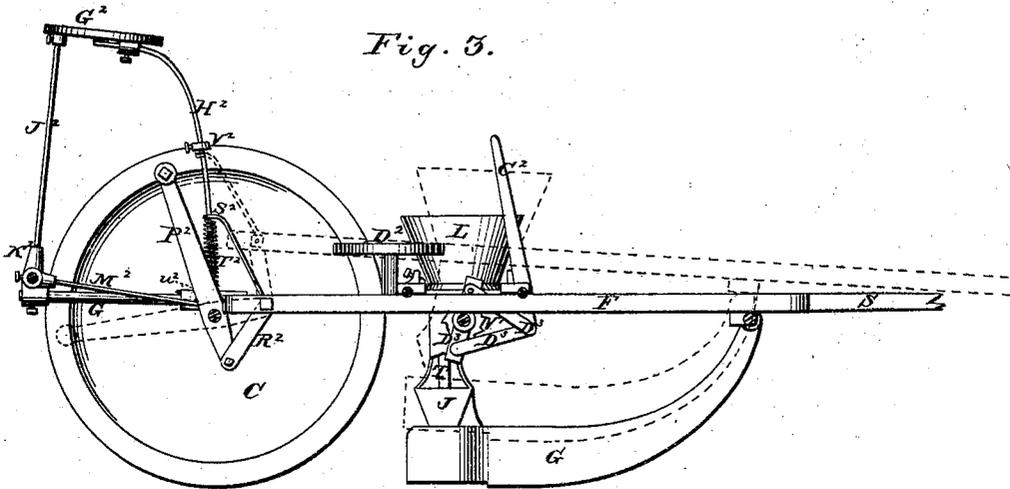


Fig. 3.

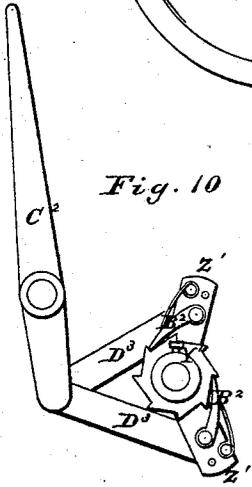


Fig. 10.

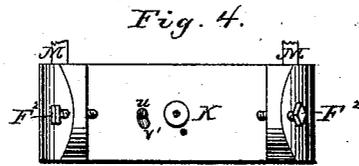


Fig. 4.

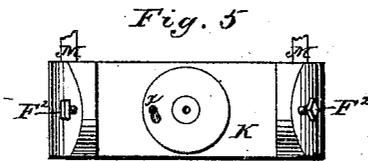


Fig. 5.

Fig. 7.



Fig. 8.

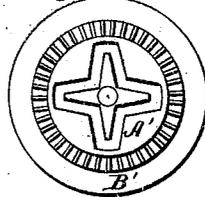


Fig. 6.

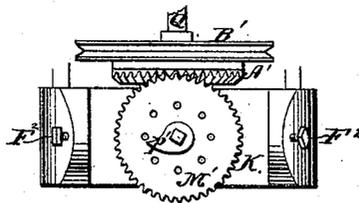


Fig. 9.

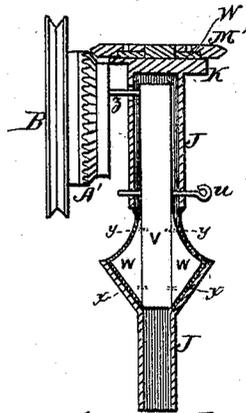


Fig. 11.

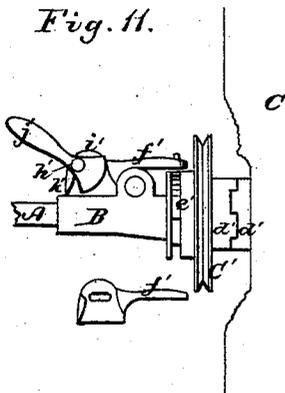
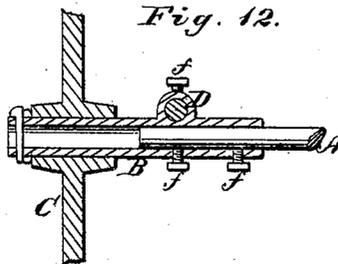


Fig. 12.



Witnesses.

C. F. Brown  
 & K. Ellsworth

Inventor.

Levi Scofield.  
 By Hill & Casworth.  
 His Attorneys.

# UNITED STATES PATENT OFFICE.

LEVI SCOFIELD, OF WATERTOWN, WISCONSIN, ASSIGNOR TO HIMSELF AND JUSTIN B. WAIT, OF FARMINGTON, ILLINOIS.

## IMPROVEMENT IN CORN-PLANTERS.

Specification forming part of Letters Patent No. 121,204, dated November 21, 1871.

*To all whom it may concern:*

Be it known that I, LEVI SCOFIELD, of Watertown, in the county of Jefferson and State of Wisconsin, have invented a new and Improved Corn-Planter; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1, Sheet 1, is a side elevation of my improved machine. Fig. 2, Sheet 1, is a top plan view of the same. Fig. 3, Sheet 2, is a longitudinal section taken in the plane of the line *x x*, Fig. 2. Figs. 4, 5, and 6, Sheet 2; are plan views of the seed-tubes detached from the frame of the machine, and with the hoppers removed. Fig. 7, Sheet 2, is a perspective view of a seed-plate to be affixed to the top of a seed-tube. Fig. 8, Sheet 2, is a front elevation of a grooved wheel, by which the dropping-valve is operated. Fig. 9, Sheet 2, is a vertical section of one of the seed-tubes, showing the grooved wheel arranged for operating the dropping-valve. Fig. 10, Sheet 2, is a side elevation of the devices for operating the dropping mechanism by hand. Fig. 11, Sheet 2, is a side view of the devices for throwing the seeding mechanism in and out of gear with the driving-wheel. Fig. 12, Sheet 2, is a sectional view of the parts by which the driving-wheels are connected to the frame of the machine.

Similar letters of reference in the accompanying drawing denote the same parts.

My invention has for its object to improve the construction of corn-planters, whereby the same are rendered more efficient in operation and economical in manufacture than those now in use. To this end the invention consists, first, in the construction of the frame of the machine in such a manner that all the parts can be adjusted thereon to regulate the width between the rows to be planted. It further consists in the means employed for raising and lowering the runners, regulating the depth at which the seed is planted, adapting the runners for operation upon uneven ground, and to bear with a yielding pressure upon both level and uneven surfaces, for the purpose of avoiding shocks or sudden jars upon the seeding mechanism. It further consists in the method of connecting the seeding mechanism and runners to the axle of the driving-wheels. It further consists in the method of attaching the

driver's seat and scraper to the frame of the machine. It further consists in the construction of the frame of the runners and seeding devices, and in the manner of adjusting the latter thereon. It further consists in the construction of the seed-tubes, the dropping-valve, and the feed mechanism, and in the means employed for operating the same. The invention consists, finally, in the combination and construction of the various parts, to be hereinafter more fully described.

In the accompanying drawing, A is the metallic axle of the machine, provided upon each end with a sleeve or skein, B, shouldered to support the driving-wheel C. D are shorter sleeves cast upon the sleeves B, at right angles thereto, to receive the side rods E of the frame. Both sleeves are held and adjusted upon the axle and side bars, respectively, by means of set-screws *f f*. G are the runners or colters, connected at their forward ends by a rod, H, and adapted for adjustment thereon by the sleeves and set-screws I. The rear ends of these runners support the seed-tubes J, whose upper ends are provided with flanged plates K, which support the hopper L and the seeding mechanism. The two seed-tubes, and through them the rear side of the runners, are connected by parallel rods M, which pass through the flanges of the plates K and are held thereon by set-screws *n*. O O are brackets mounted upon the parallel rods M between the seed-tubes, and adapted for adjustment thereon by set-screws *p*. The depressed centers of the brackets afford bearings for the shaft Q, whose outer ends are united to the ends of the side rods E of the main frame in such a manner as to turn therein. By this arrangement the runners and their attachments, which constitute the forward part of the machine, are united to the main frame so as to swing freely thereon. The brackets are also adjusted upon the shaft Q by means of set-screws. R are the hounds, consisting of two parallel bars, which unite the rod H of the runners with the parallel bars M, passing between the latter and the shaft Q. The forward ends of the bars R carry the draft-pole S of the machine, and their rear ends terminate immediately in front of the axle A for a purpose which I will presently describe. J are the seed-tubes affixed to or cast upon the under side of the flanged plates K, and united at their lower ends to the

divided rear ends of the runners. The lower end of each tube is made in the form of an inverted truncated pyramid, above the base of which the tube is cut out upon opposite sides to permit an unobstructed view of the seed-valve. *T* are the seed-valves, pivoted at *u* within the tubes, and having a lateral expansion conforming to the shape of the latter at the base. By this construction of the tubes and valves the latter oscillate in a direction longitudinally of the machine instead of transversely thereto. For this reason the side openings in the tubes permit an unobstructed view of the seed both sides of the valve as it is discharged into the ground. Owing to the shape of the valves they could not be introduced within or removed from the tubes if made in one piece. To obviate this difficulty I make each valve in three pieces, to wit: the main or central portion *v* and the angular wings *w*, which are applied thereto by dowels *x* at their lower and screws *y* at their upper ends, as shown by dotted lines in Fig. 9. To remove the valves from the tubes it is only necessary to take off the wings by loosening the screws, as will be readily understood. The upper end of each valve is provided upon its inner edge with a lateral pin, *z*, which passes through a slot in the side of the seed-tube and enters a star-shaped groove formed in the outer face of a beveled gear-wheel, *A*<sup>1</sup>, which is mounted upon the ends of the shaft *Q*. The gear-wheels are secured to the shaft by set-screws, so as to be adjustable thereon, and one is provided with a grooved pulley, *B*<sup>1</sup>. If preferred, the latter may be secured to the shaft independently of the gear-wheel. *C*<sup>1</sup> is a similar pulley mounted upon one of the sleeves *B* of the axle, and having its hub provided with a clutch, *d*<sup>1</sup>, to engage with a corresponding clutch upon the hub of the driving-wheel. The pulleys *B*<sup>1</sup> *C*<sup>1</sup> are connected by a suitable belt or chain, and as the driving-wheel is rotated its motion is communicated to the shaft *Q*, by means of the belt and pulleys, to rotate the cam gear-wheels, and through them to operate the seed-valves. The grooves in the gear-wheels are so arranged that the valves each make four oscillations to one revolution of said wheels. The pulley *C*<sup>1</sup> is thrown in and out of gear in the following manner, referring to Fig. 11 of the drawing: The inner end of the hub is formed with a groove to receive a yoke, *e*<sup>1</sup>, in the usual manner, which yoke is attached to the outer end of a connecting-bar *f*<sup>1</sup>. The inner end of the latter is fitted, by a longitudinal slot, *g*<sup>1</sup>, upon a pin, *h*<sup>1</sup>, projecting laterally from an upright, *i*<sup>1</sup>, of the sleeve *B*. *j*<sup>1</sup> is a cam-lever, also hung upon the pin *h*<sup>1</sup> in such a manner that its head shall work within a recess formed in the connecting-bar around the slot. By moving the long arm of the lever to the right the cam bears upon the shoulder *k*<sup>1</sup> of the connecting-bar, moving the latter to the left and disconnecting the pulley from the driving-wheel. The reverse movement of the lever causes the cam to bear against the shoulder *l*<sup>1</sup>, thereby moving the pulley in the opposite direction to engage with the driving-wheel. By means of the cam and shoulders *k*<sup>1</sup> *l*<sup>1</sup> the con-

necting-bar is securely held in either position. *M*<sup>1</sup> are the seed-plates, made in the form of beveled gears, to engage with the gear-wheels *A*<sup>1</sup>, and provided with a series of perforations, which, as said plates are rotated by the gears *A*<sup>1</sup>, register successively with a seed-opening, *w*<sup>1</sup>, formed in each of the flanged plates *K*, as shown in Fig. 4. The seed-plates are mounted upon the plates *K* by means of studs *o*<sup>1</sup> upon the latter, and are held in place by the cut-off *p*<sup>1</sup>. Upon one side of the discharge-openings *w*<sup>1</sup> each plate *K* is cut out so as to form an inclined recess, *v*<sup>1</sup>, communicating at its lower end with such opening, and extending along the plate to a point outside the end of the cut-off. These recesses permit the corn to settle down through the seed-plate, and thereby prevent it from being crushed or broken by the cut-off as the seed-plates are rotated. The seed-plates are each constructed with a recess in their under surfaces, in which is fitted a thin circular plate, *W*<sup>1</sup>, shown in Fig. 7, provided with a beveled seed-opening, *x*<sup>1</sup>, similar to those formed in the plates *K*, and attached to such plates by means of pins *y*<sup>1</sup>, so that the openings *v*<sup>1</sup> *x*<sup>1</sup> shall coincide with each other. By this construction the capacity of the seed-plates for feeding seed to the discharge tubes is regulated, because the thickness of such plates is increased or diminished to form a deep or shallow seed-receptacle—for example, when the plates *W*<sup>1</sup> are removed, the distance between the upper surfaces of the seed-plates and the fixed openings *w*<sup>1</sup> in the plates *K* is considerably greater than the distance between such surfaces and the opening *x*<sup>1</sup> when the circular plates are applied. The depth of the movable openings, or those which rotate with the seed-plates, is therefore adjusted, the circular plates forming only a continuation of the fixed openings. This arrangement is of much importance in adapting the plates to sowing seed of different sizes, such as maize, broom-corn, sugarcane, &c. For drilling corn the apertures in the seed-plates must be made shallow, to receive but one or two kernels, by the addition of one or more circular plates, *W*<sup>1</sup>. When the corn is to be planted in hills several kernels must be dropped at a time, and for this purpose the circular plates are all removed, or the seed-plates made in one piece, of a thickness equal to the combined plates of each set. As many different sets of seed-plates may accompany each machine as are required for sowing seeds of different sizes, and as many perforations may be made in each as desired. For ordinary check-row planting I prefer to employ but eight perforations, as shown in the drawing. This number corresponds with the throw of the hand-lever, which I sometimes employ to operate the seeding device for this kind of planting, as I will now proceed to describe. *Y*<sup>1</sup> is a ratchet-wheel, attached to the shaft *Q*, between the bars *R*, by means of a clamping-screw, *y*<sup>2</sup>; and *Z*<sup>1</sup> are two pawl-arms hung loosely upon said shaft, and held against one side of the ratchet by an adjustable collar, *A*<sup>2</sup>. The arms *Z*<sup>1</sup> project from the shaft in opposite directions, and are each provided with a spring-pawl, *B*<sup>2</sup>, engaging with the ratchet-wheel at opposite points. *C*<sup>2</sup> is a lever

hung upon the front bar M, within reach of the dropper upon the seat D<sup>2</sup>, and connected at its lower end to the outer ends of the pawl-arms Z' by means of the connecting-rods D<sup>3</sup>. When the lever is moved forward and backward the shaft Q is rotated intermittingly, as will be readily understood, each throw of the lever causing such a rotation as shall move the seed-plates one aperture to discharge the seed. When planting by hand in this manner the pulley C<sup>1</sup> is disconnected from the driving-wheel, but when it is desired to plant in drills or in hills without regard to check-rows, the pulley is clutched to the driving-wheel and the ratchet is allowed to turn freely upon the shaft Q by loosening the clamping-screw *q*<sup>2</sup>. L are the grain-hoppers, constructed with a base-flange, and held upon the plates K by means of set-screws F<sup>2</sup>, which pass through the flanges of said plates and bear upon the base-flanges of the hoppers, as clearly shown in Fig. 1. By this construction the hopper can be easily applied and removed when necessary. G<sup>2</sup> is the driver's seat, supported upon the axle by means of the front leg H<sup>2</sup>, and from the shaft I<sup>2</sup> of the scrapers by the legs j<sup>2</sup>. Each leg is attached to the seat by a collar and set-screw, so that they can be easily removed. The front leg is stepped in a socket affixed to the axle by a set-screw, and the rear legs in sleeves K<sup>2</sup> fitted loosely upon the scraper-shaft and held in place by the adjustable collar L<sup>2</sup> and the sleeve of the scraper-lever M<sup>2</sup>. The scraper-shaft itself is secured to the side rods E of the frame by the adjustable sockets N<sup>2</sup>, as shown in Fig. 2. O<sup>2</sup> are the scrapers, cast with sleeves for the reception of the shaft I<sup>2</sup>, to which they are secured by clamping-screws, as shown. The scrapers are moved against the periphery of the driving-wheels to clear the same of dirt by raising the lever M<sup>2</sup>, and are thrown out of contact with said wheels by their own gravity when the lever is released. By constructing the machine with adjustable joints in the manner described the runners, seeding devices, driving-wheels, and scrapers can be adjusted laterally upon their various supports to increase or decrease the distance between the rows of seed to be planted, the driving-wheels always following in the path of the runners, and the scrapers occupying the proper position with relation to the driving-wheels. P<sup>2</sup> are levers hung upon the axle A at each end of the socket, which supports the front seat-leg H<sup>2</sup>. Their upper ends are provided with a foot-bar, Q<sup>2</sup>, and their lower ends are connected to the hounds R by short pivoted bars R<sup>2</sup>. These devices are designed to raise and lower the runners and to hold hold them, if necessary, in contact with the ground, particularly when the latter is uneven. To raise the runners the driver depresses the upper end of the lever P<sup>2</sup> with his feet, lifting the rear ends of the hounds, and, with them, the runners, as shown by dotted lines, Fig. 2. When the lever is released the runners drop back in contact with the ground by their own gravity. By pressing the upper ends of the levers forward, or by pressing upon the rear ends of the hounds, the runners are further held in contact with the ground and forced

into any depressions or hollows therein. S<sup>2</sup> is a short rod pivoted at its lower end between the hounds, and adapted to slide upon the leg H<sup>2</sup> of the driver's seat by means of an eye formed upon its upper end. This rod forms the reach by which the runners are connected to the rear portion of the machine. T<sup>2</sup> is a spring supported by the leg H<sup>2</sup> of the driver's seat, or upon a suitable upright affixed to the frame or axle by an adjustable collar, *u*<sup>2</sup>, and upon this spring the reach-rod S<sup>2</sup> bears when the runners are in contact with the ground. The upward movement of the reach-rod is limited by an adjustable collar, *v*<sup>2</sup>. By this arrangement the reach-rod and spring support the hounds, and through them the runners, so that the latter, when in operation, bear upon the ground with a yielding pressure. In passing over uneven ground the sudden jars incident to the rising and falling movements of the runners is taken up by the spring, and the seeding mechanism is therefore protected from injurious shocks and jars. A sudden rise of the forward end of the tongue causes the rod S<sup>2</sup> to close the spring without lifting the runners out of contact with the ground. A further object of the spring and adjustable collars is to regulate the depth of planting. For example: when the spring is raised upon the rod H<sup>2</sup> by the adjustable collar *u*<sup>2</sup> the runners are raised, and consequently form a shallow opening in the ground, and the lower the spring is adjusted the greater will be the depth the runners will enter the ground. When the rear ends of the hounds are pressed down with the feet to hold the runners in contact with the ground the reach-rod and spring are also in contact, and the runners are therefore held down with a yielding pressure. By this connection of the runners with the rear portion of the machine the operator is enabled to deposit the seed at a much more uniform depth upon rough ground in particular, and with less liability of injury to the seeding mechanism from sudden shocks than would be the case if the connection was formed in the ordinary manner.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In combination with the adjustable side rods E, the adjustable scraper-shaft I<sup>2</sup> and the adjustable scrapers O<sup>2</sup>, substantially as described, for the purpose specified.

2. The seat G<sup>2</sup>, in combination with the scraper-rod I<sup>2</sup> and the axle A, substantially as described, for the purpose specified.

3. The adjustable sockets K<sup>2</sup> of the seat in combination with the scraper-shaft I<sup>2</sup>, stop L<sup>2</sup>, and the socket of the scraper-lever M<sup>2</sup>, substantially as described, for the purpose specified.

4. The runners and their attachments, jointed to the rear portion of the machine by means of the side rods E and the shaft Q, by which the seeding mechanism is driven, substantially as described, for the purpose specified.

5. The flanged plates K, constructed as described, for the reception of the adjustable hoppers L and the seed-tubes J, substantially as specified.

6. The driving-shaft Q suspended from the parallel bars M by means of the adjustable brackets O, constructed as described, for the purpose specified.

7. The seed-tubes J, constructed as described, with their lower ends enlarged in the form of an inverted truncated pyramid, and provided with openings upon opposite sides above said enlargement, in combination with the valves *v w*, substantially as described, for the purpose specified.

8. The dropping valves, constructed as described, with the central portion *v* and the detachable wings *w*, substantially as and for the purpose specified.

9. The compound interchangeable dropping plates W' M<sup>1</sup> in combination with the hoppers L, made adjustable on the plates K to receive the dropping-plates, substantially as and for the purpose specified.

10. In combination with the dropping-valves, the lateral pins *z* and the star-shaped grooves in the face of the wheel A<sup>1</sup>, substantially as described for the purpose specified.

11. The combination of the ratchet Y<sup>1</sup> and its operating mechanism with the shaft Q, cam gear-wheels A<sup>1</sup>, seed-plates M<sup>1</sup>, and the dropping-valves, substantially as described, for the purpose specified.

12. The recessed seed-plates M<sup>1</sup> and supplemental plates W' in combination with the flanged plates K, substantially as described, for the purpose specified.

13. The flanged plates K, constructed with recessed seed-openings *u v*<sup>1</sup>, substantially as described, for the purpose specified.

14. The supplemental plates W', constructed with the recessed seed-openings *x'* and the pins

*y*<sup>1</sup>, substantially as described, for the purpose specified.

15. The seed-plates and the dropping valves, adapted for simultaneous operation, either continuously from the driving-wheel or intermittently from a hand-lever, by the means substantially as herein shown and described.

16. The arrangement of the hounds R of the machine with relation to the rod H, parallel rods M, shaft Q, and the axle of the driving-wheels, as herein described, for the purpose specified.

17. The combination of the sliding reach S<sup>2</sup> and adjustable spring T<sup>2</sup> with the hounds R and a suitable support upon the rear portion of the machine, substantially as described, for the purpose specified.

18. The combination of the jointed foot-lever with the hounds R, sliding reach S<sup>2</sup>, and adjustable spring T<sup>2</sup>, substantially as described, for the purpose specified.

19. A seeding-machine in which the runners or colters which carry the seeding mechanism are held in contact with level or uneven ground by a pivoted foot-lever, P<sup>2</sup>, whose force is applied to the hounds R of said runners with a yielding pressure, substantially as described, for the purpose specified.

20. In combination with the clutch-pulley C<sup>1</sup> the slotted and shouldered rod *f'* and the cam-lever *j'*, both mounted upon the sleeve B D, substantially as described, for the purpose specified.

LEVI SCOFIELD.

Witnesses:

W. P. BROWN,  
H. C. SCOFIELD.

(133)