2 Sheets—Sheet 1.

P. KRANZ.

SEED-PLANTER.

No. 181,350. Patented Aug. 22, 1876.

Fig: 1.

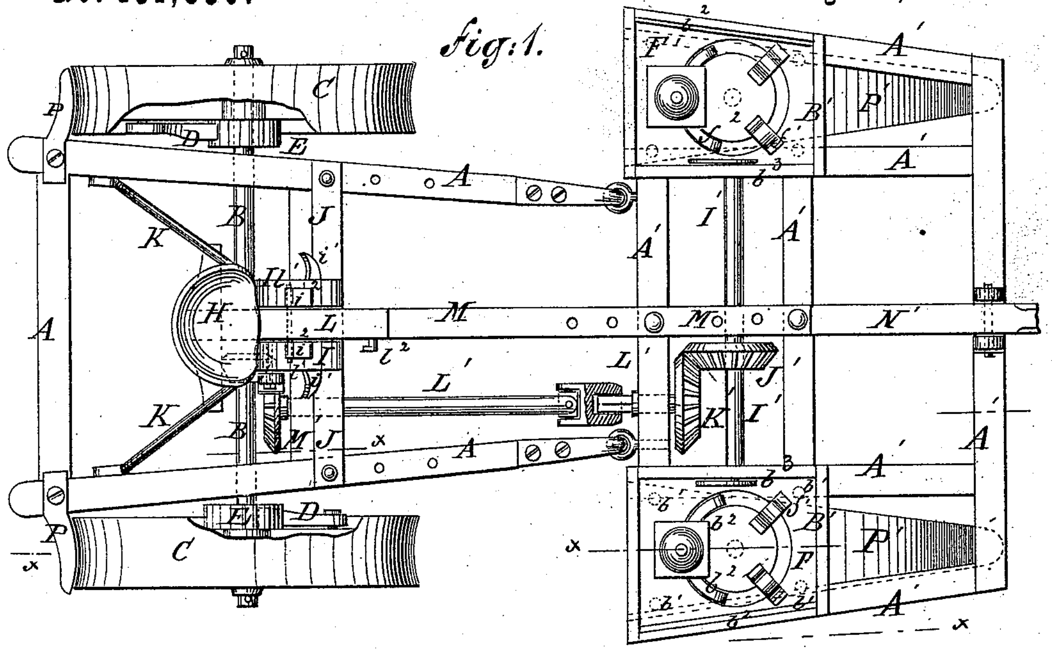
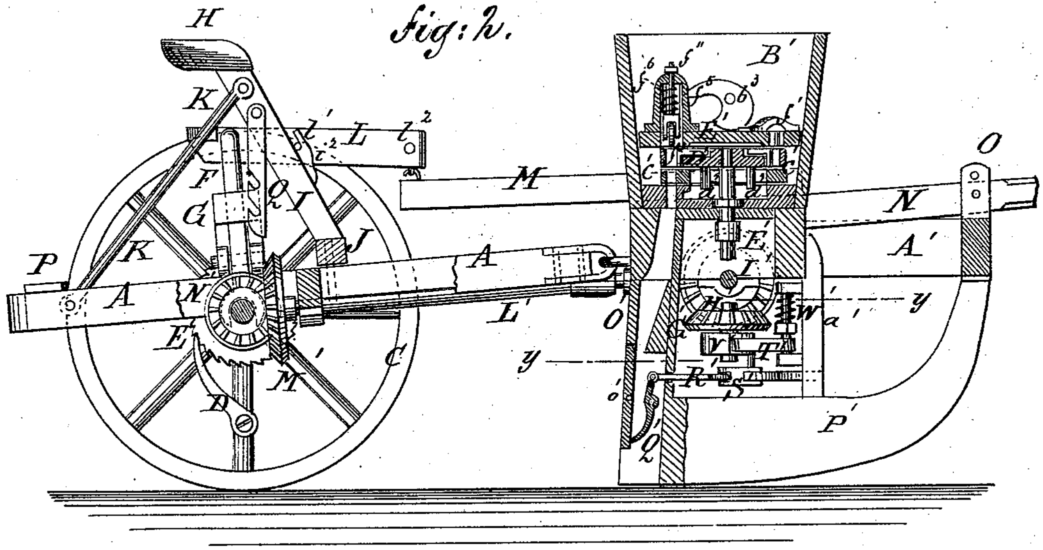


Fig: 2.



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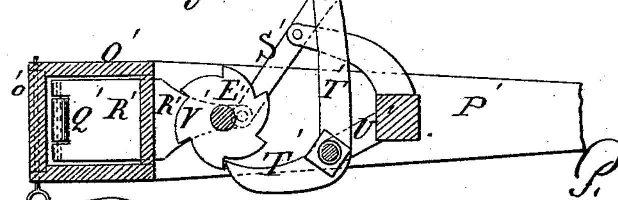

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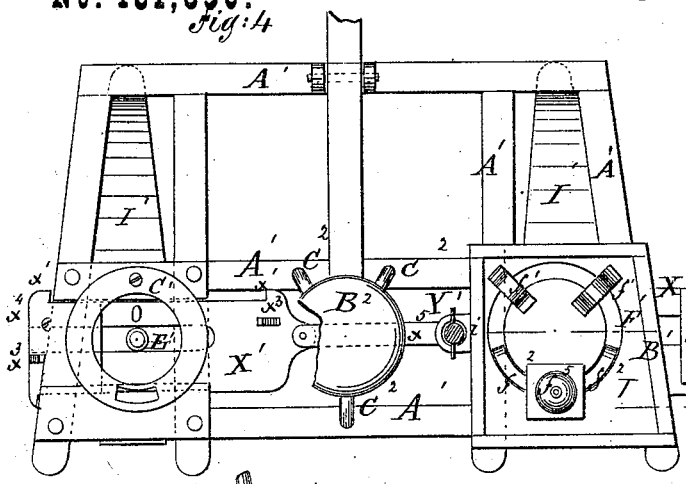
2 Sheets—Sheet 2.

P. KRANZ.

SEED-PLANTER.

No. 181,350. Patented Aug. 22, 1876.

Fig: 4



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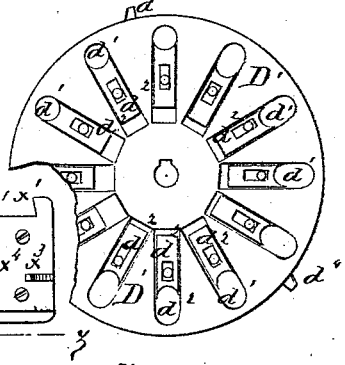

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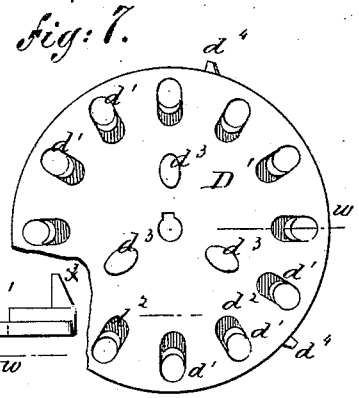


Fig: 5

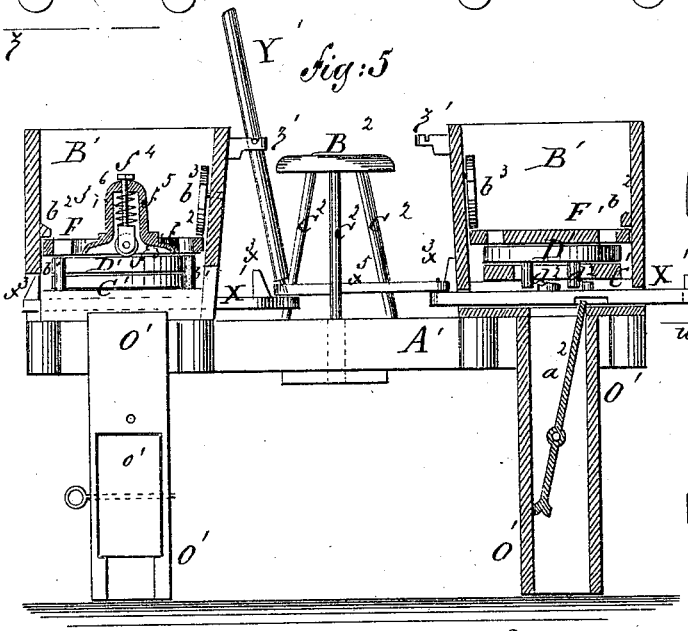


Fig: 8.

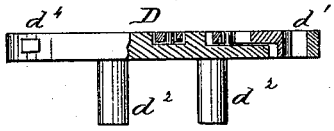


Fig: 9.

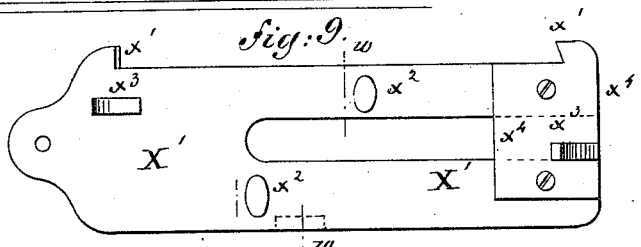


Fig: 10.

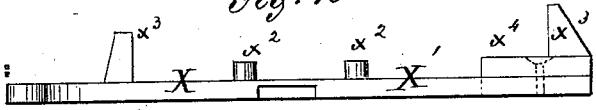
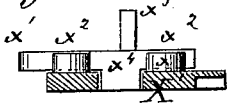


Fig: 11.



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UNITED STATES PATENT OFFICE.

PETER KRANZ, OF ARAGO, NEBRASKA.

IMPROVEMENT IN SEED-PLANTERS.

Specification forming part of Letters Patent No. **181,350**, dated August 22, 1876; application filed March 25, 1876.

To all whom it may concern:

Be it known that I, PETER KRANZ, of Arago, in the county of Richardson and State of Nebraska, have invented a new and useful Improvement in Seed-Planter, of which the following is a specification:

Figure 1, Sheet 1, is a top view of my improved seed-planter arranged as a self-dropper, parts being broken away to show the construction. Fig. 2, Sheet 1, is a vertical section taken through the irregular line *x x x x*, Fig. 1. Fig. 3, Sheet 1, is a detail section of the seed-dropping device, taken through the line *y y*, Fig. 2. Fig. 4, Sheet 2, is a top view of the same, part being removed, and parts being broken away to show the construction. Fig. 5, Sheet 2, is a detail section of the same, taken through the line *z z*, Fig. 4. Fig. 6, Sheet 2, is a detail top view of the dropping-wheel. Fig. 7, Sheet 2, is a detail bottom view of the dropping-wheel. Fig. 8, Sheet 2, is a detail cross-section of the same, taken through the line *w w*, Fig. 7. Fig. 9, Sheet 2, is a detail top view of the dropping-slide. Fig. 10, Sheet 2, is an edge view of the same. Fig. 11, Sheet 2, is a cross-section of the same, taken through the line *u u*, Fig. 9.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved seed-planter which shall be so constructed that it may be adjusted to operate as a self-dropper or as a hand-dropper, and may be adjusted to drop the hills at different distances apart, and to drop any desired amount in a hill.

The invention will first be described in connection with drawing, and then pointed out in the claims.

A represents the frame of the rear part or carriage, which rides upon the axle B. C are the wheels, which revolve upon the journals of the axle B, and the rims of which are made wide, and are concaved to adapt them for covering the seed. To the inner sides of the wheels C are attached pawls D, which engage with the teeth of the ratchet-wheels E, attached to the axle B, so that the wheels C may be made to carry the axle B with them when desired. The forward ends of the side bars of the frame A are connected with the rear cross-bar of the frame A^1 of the forward part of the machine by clevises and eyebolts or other suitable hinges. To the rear corners of the frame A^1 are attached the seed-hoppers B^1, to the bottoms of which are attached ring-plates C′, upon which the dropping-wheel D′ rests and rotates, and in the rear part of which is formed a slot for the passage of the seed from the dropping-wheel D′ to the conductor-spout. Through the center of the wheel D′ is formed a hole to receive the upper end of the spindle E′, which passes down through, and is swiveled to, the bottoms of the hoppers B^1. When the machine is adjusted as a self-dropper, the dropping-wheel D′ must be keyed, or otherwise rigidly secured, to said spindle; but when adjusted as a hand-planter, the said dropping-wheel may be allowed to revolve loosely upon the said spindle.

In the wheel D′, near its rim, is formed a circle of twelve holes, d^1, which are elongated radially. In the face of the wheel D′, and leading in radially from the holes d^1, are formed grooves, in which are placed blocks d^2. The blocks d^2 are slotted longitudinally, to receive the screws by which they are secured in place, so that by adjusting the blocks d^2 the dropping-holes d^1 may be made larger or smaller, to drop more or less seed at a time, as may be desired. To the bottoms of the hoppers B^1 are attached four pins, b^1, which project up at the edges of the ring-plates C′ and the dropping-wheels D′, and upon the upper ends of which rest the false bottoms F′. One edge of the false bottom F′ is slipped beneath a cleat, b^2, attached to one side of the hopper B^1, and its other edge is held down by a cam, b^3, pivoted to the other side of said hopper. In the false bottoms F′, directly over the row of holes d^1 in the dropping-wheels, is formed a ring-groove, to allow the seed to enter the holes of the dropping-wheel. The central part of the bottom F′ is connected with the outer part by arched bars f^1. In the rear part of the slot of the false bottom F′ are placed cut-offs f^2, to prevent any more seed than is contained in the dropping-holes d^1 from being carried out by the wheels D′. f^3 is a small wheel, pivoted to a stem, f^4, which passes up through a socket, f^5, attached to the rear part of the bottoms F′. The wheel f^3 rests and rolls along

the face of the dropping-wheel D′, and is held down by a spiral spring, f^6, placed upon the stem f^4, within the socket f^5, so as to push the seed out of each dropping-hole d^1 as it comes over the discharge-hole of the ring-plate C′.

To the lower parts of the spindles E′ are attached bevel-gear wheels G′, the teeth of which mesh into the teeth of bevel-gear wheels H, attached to the horizontal cross-shaft I′. The shaft I′ revolves in bearings attached to the side bars of the frame A^1, and to it is attached a bevel-gear wheel, J′, the teeth of which mesh into the teeth of the bevel-gear wheel K′, attached to the end of the longitudinal shaft L′. The shaft L′ revolves in bearings attached to the cross-bars of the frames A^1 A, is made in two parts, connected by a universal-joint coupling, about in line with the hinges that connect the frames A^1 A, so that it may continue to operate, whatever position the said frames may take with respect to each other.

To the rear end of the shaft L′ is attached a bevel-gear wheel, M′, the teeth of which mesh into the teeth of the bevel-gear wheel N′, attached to the axle B, so that the dropping-wheels D′ may be operated by the advance of the machine. The gear-wheel N′ is slid upon the axle B, to throw it into and out of gear with the gear-wheel M′, by a lever, F, pivoted in a slotted bracket, G, attached to the frame A, and which is locked in position by a wedge-key inserted in the said slot at the side of the said lever.

As the seed escapes from the dropping-wheels D′ it passes to the ground through the conductor-spouts O′, the upper ends of which are attached to the frame A^1, beneath the hoppers B^1. The lower ends of the conductor-spouts O′ are attached to the forked rear ends of the runners P′, by which the ground is opened to receive the seed, and the forward ends of which are attached to the front cross-bar of the frame A^1. As the seed drops through spouts O′ it is received upon the lower part of the valve Q, so that it may be all dropped together at the proper time. The rear side of the spouts O′ is made open, and is closed by a detachable panel, o', to enable the spouts to be conveniently cleared should they become clogged.

The valve Q′ is pivoted to the sides of the spouts O′, and to its upper end is pivoted the end of a plate, R′, that passes through the front of the spout O′, and its other end is pivoted to the end of the lever S′. The lever S′ is pivoted to an upright, a', attached to the frame A^1 and the runners P′, and to its other end is pivoted the end of the bent lever T′. The bent lever T′ is pivoted at its bend to the arm U′, attached to the post a' in such a position that its free end may rest against the face of the cam-wheel V′, attached to the lower end of the spindles E′, so that as the end of the lever T′ drops from the shoulders of the cam-wheels V′ the valve Q′ may be operated to drop the seed to the ground. The valve Q′ is again brought into position to receive the seed by the operation of the cams of the wheels V′ upon the bent levers T′. The ends of the bent levers T′ are held forward against the cam-wheels V′, so as to be operated by the revolution of said cam-wheels by the springs W′, connected with the said levers or with their pivots. The cam-wheels V′ are not used when all twelve of the holes d^1 of the dropping-wheels D are open, and the seed is dropped one foot apart. To drop the seed two feet apart, every other hole d^1 is closed, and the cam-wheels with six teeth or cams are used. To drop the seed three feet apart, every third hole is left open, and the cam-wheels with four cams are used. To drop the seed four feet apart, every fourth hole is left open, and the cam-wheels with three cams are used. Where the dropping is to be done by hand, the sliding plates X′ are inserted in the space between the bottom of the hoppers B^1 and the ring-plates C′, slots being formed in said plates X′ to receive the spindles E′.

The movements of the sliding plates X′ are limited by projections x^1, formed upon the side edges of said plates, and which strike against the sides of the hoppers B^1. Upon the upper side of the plate X′, upon the opposite sides of its slot and center, are formed projections x^2, which strike alternately against one or another of the projections d^2, formed upon the under side of the dropping-wheels D′. Upon the ends of the plate X′, and upon the opposite sides of its central line, are formed projections x^3, which, when the said slide reaches the ends of its movements, receive projections d^4, formed upon the edge of the dropping-wheel D′, and thus stop the said wheel in proper position to be again moved by the movement of the said plates. The open end of the slots in the plates X′ is closed by blocks x^4, attached to the end of the said plates detachably, to enable the plates to be put in and taken out as required.

Y′ is a lever, which is pivoted to a socket, Z′, attached to the upper part of the inner side of the hopper. The lower end of the lever Y′ is connected with the sliding plate X′. Each plate X′ may have its own lever, Y′, or the two plates X′ may be connected by a bar, x^5, and may both be operated by one lever, Y′, as shown in Fig. 5. In the lower side of the rear edge of the plates X′ are formed notches to receive the upper end of the valve A^2, which is pivoted in the conductor-spout O′, to receive the seed from the dropping-wheel D′, and drop it to the ground. By this arrangement the valves A^2 are operated by the movements of the slides X′. The person who operates the lever Y′ sits upon a seat, B^2, placed between the hoppers B^1, and the legs or standards c^2 of which are detachably attached to the cross-bars of the frame.

H is the driver's seat, which is attached to the upper end of the standard I. The lower end of the standard I is attached to a cross-bar, J, which rests upon the side bars of the

frame A, and is secured to them by pins or bolts. Several holes are formed in the side bars of the frame A, to receive the fastening-bolts of the cross-bar J, so that it may be moved forward and back, to adjust the seat H′ as desired. To the opposite sides of the upper end of the standards I are pivoted the upper ends of two braces, K, the lower ends of which are bolted to the rear parts of the side bars of the frame A, several holes being formed in the said side bars to receive the said bolts, to enable the said braces to be adjusted as desired.

To the sides of the standards I are attached rests i^1, for the driver's feet. The standard I is slotted longitudinally, to receive a bar, L, from the sides of which project pins l^1, to rest in half-keepers i^2, attached to the forward side of the said standard I.

To the rear end of the bar L is attached a cross-bar, to enable the said bar L to be operated by the driver with his feet. The forward end of the bar L is connected, by a hook and eye, or other suitable coupling, with the rear end of the bar M, the forward part of which is bolted to the cross-bars of the frame A^1.

The forward end of the bar M and the rear end of the tongue N may both be secured by the same bolt.

The tongue N passes through a slotted upright, O, attached to the front cross-bar of the frame A^1, where it is secured in place by a pin or bolt, several holes being formed in the said upright to receive the said pin or bolt, to enable the tongue N to be adjusted as desired. This construction enables the seat H and tongue N to be raised and lowered together, or separately, as may be desired.

To the rear corners of the frame A are attached bars P, the outer parts of which are so formed as to fit upon the concaved rims of the wheels C, and scrape off any soil that may adhere to them.

To the side of the seat-standard I is pivoted a bar, Q, in the lower edge of which is formed a number of hook-notches, to hook upon a pin, l^2, attached to the side of the forward end of the bar L, to hold the said bar securely in any position into which it may be adjusted.

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

1. The combination of the adjustable cross-bar J and the adjustable braces K with the seat H, seat-standard I, and frame A, substantially as herein shown and described.

2. The combination, with spout O′, of the valve Q′, plate R′, and lever S′, arranged substantially as and for the purpose set forth.

3. The combination of the exchangeable cam-wheels V′, the levers S′ T′, the sliding plate R′, and the spring W′ with the spindle E′, that carries the dropping-wheel D′, and with the valve Q′, pivoted in the conductor-spout O′, substantially as herein shown and described.

PETER KRANZ.

Witnesses:
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U. R. THORNDORF.