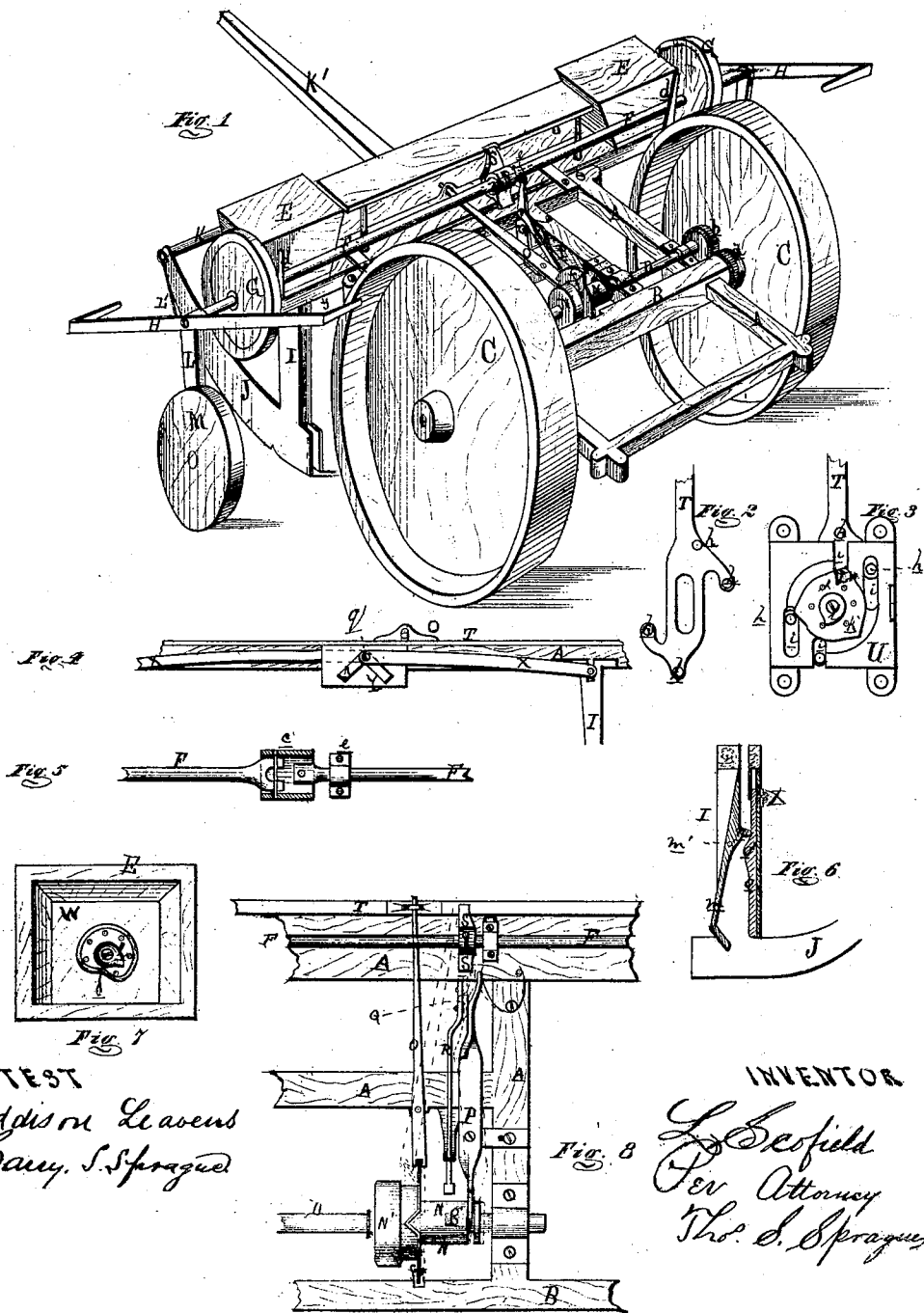


L. Scoville,
Corn Planter.

No. 111,087.

Patented Feb. 7, 1871.



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IMPROVEMENT IN CORN-PLANTERS.

Specification forming part of Letters Patent No. 111,687, dated February 7, 1871.

To 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 useful Improvement in Corn-Planters; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon, and being a part of this specification, in which—

Figure 1 is a perspective view of my device. Fig. 2 is a plan of one end of the reciprocating seed-bar. Fig. 3 is a plan of the escapement at the end of the seed-bar for rotating the seed-plate. Fig. 4 is an elevation of the front beam, showing the method of operating the lower cut-off levers by a zigzag cam-plate attached to the seed-bar. Fig. 5 is a section of the universal joint in the middle of the reel-shaft at *x x*, Fig. 1. Fig. 6 is a vertical section of the spout and lower cut-off on the line *y y* in the same figure. Fig. 7 is a plan of one of the seed-boxes, and Fig. 8 is a plan of the actuating mechanism.

Like letters indicate like parts in each figure.

The nature of this invention relates to an improvement in the construction of that class of corn-planters wherein two rows of corn are planted, and the places for planting other rows are marked by mechanism operated from the traction-wheels.

The invention consists in the peculiar construction of the seed-dropping devices and the mechanism for operating the same; also, in the novel construction and arrangement of a reel-shaft provided at the ends with markers and hand-wheels, by means of which the driver sets the seed-dropping mechanism at work, which automatically ceases its operation after planting a given number of rows, thereby enabling the driver to recommence planting at the points previously marked in the ground, thus insuring uniform width between the rows in each direction; also, in the general arrangement of the various parts, as more fully hereinafter set forth.

In the drawing, A represents a suitable frame, to which is secured an axle, B, on the arms of which rotate the traction-wheels C. D is a shaft, transversely journaled in the

frame in front of the axle, and is rotated by a spur-gear, *a*, on one of the traction-wheels engaging with its pinion *b*. E are the seed-boxes, placed at the ends of the front part of the frame.

F is a reel-shaft, in two sections, connected by a universal joint, *c*, and hung in the vertical standards *d* at the back of the seed-boxes, so as to rise and fall therein. One of the sections is journaled in a box, *e*, pivoted to a bracket rising from the frame near the universal coupling.

G are hand-wheels, secured to the shaft F near the seed-boxes, so that the driver sitting on either of them may rotate the shaft. H are markers, each consisting of a bar of metal bent at the ends and secured at its center to the end of the shaft, and of such length that it will reach the ground when the ends of the shaft are a little above a horizontal plane. I are hollow metallic spouts leading down from the seed-boxes. To their lower ends are secured the rear open ends of the curved metallic furrow-openers J, whose front ends are secured to the cross-bar K of the draft-pole K'.

L are pedestals, journaled near the extremities of the reel-shaft, and have journaled to their lower ends the supporting-wheels M. From the lower ends of the pedestals radius-rods L' extend to the ends of the cross-bar K, thus keeping at all times the pedestals in their proper vertical position.

N is the loose section of a friction-clutch on the shaft D, engaging with the fast part N', rigidly secured to said shaft. On the loose section is a zigzag cam, *f*, and a toe, *g*. With the zigzag cam a lever, O, pivoted in the frame engages, communicating in the rotation of the cam-shaft an alternating motion to said lever when the loose part is in gear with the fast part of the clutch. P is a clutch-lever, its jaw embracing a groove in the loose section of the clutch, is pivoted in the frame, and has its front end formed into a cam, as shown in Fig. 8. Q is a vibrating lever, pivoted at its lower end to a bracket under the front part of the frame. R is a rod, pivoted about the middle of the lever Q, and extends back through a slotted guide toward the toe *g* of the clutch. S is a cam, having two throws

opposite each other, secured to the reel-shaft, which in its rotation through one of these cams will carry the vibrating lever Q back, which in turn acting on the cam of the clutch-lever, moves the latter, so that the loose section of the clutch will be caused to slide on the shaft and engage with the fast section, whereby a reciprocatory motion is imparted to the lever O, which reciprocates a seed-bar, T, lying on the transverse beam of the frame and extending through the seed-boxes.

The ends of the seed-bar are provided with four studs or pins, *h*, projecting up through the slots *i* in the plate U under the seed-boxes, and engaging with the three cams or pallets of the seed-plate V, pivoted on the plate U, act as a modification of the well-known pin-escapement, converting the reciprocating motion of the bar T into intermitting circular motion in the seed-plate.

W is the bottom plate of the seed-box, and is provided with an opening circular in form, except at one point, *j*, Fig. 7, which acts as a cut-off to the fall of the seed through an opening in the plate U to the seed-spout below.

The seed-plate is perforated with six openings, *k*, each calculated to hold a charge of seed, and arranged in a circle, with the pivot for its center.

l is a strike, secured to the pivot, and rests on the seed-plate in such a manner that, as the plate rotates, each opening *k*, as it approaches the cut-off point *j*, its surplus grain is swept off by the strike *l* before passing under the cut-off, thereby preventing any tendency to choke at that point or to bruise the seed.

The strike is placed just in advance of the cut-off, and as the movement of the seed-plate is very quick the seed has no chance to choke while the opening under the strike is passing from that point to the cut-off. The remainder of the holes being so great a portion of the time under the seed insures their being filled.

From the seed-plates the charges of seed drop into the spouts I, the rear plate, *m*, of which is pivoted, as at *m'*, Fig. 6, and curved at the lower end, so as to close the spout when standing vertically.

The plate is provided above its pivot with a lug, *n*, which rests on the inner face of an internal sliding plate, *o*, provided with a cam projection, *o'*, at the front side of the spout, which plate, on being raised by the action of its cam, closes the spout by bringing the plate *m* to a vertical position when the seed is contained therein.

When the plate *o* is lowered the plate *m* is vibrated, and the charge of the seed is dropped into the furrow opened by the furrow-openers J.

The plate *m* is vibrated by the levers X, which are pivoted at *p* to the front beam of the frame A.

The outer ends of the levers are pivoted to the tops of the plates *o*, and their inner ends are pivoted to a single stud, *q*, which projects into an angular slot, *r*, in a plate, Y, project-

ing down from the vibrating seed-bar T, which in its reciprocation vibrates the levers X, which operates the lower cut-off plates, as described.

To operate the implement, I first mark off one side of the field to be planted at regular intervals of sixteen feet, (provided I wish to plant the rows four feet apart. If I wish to plant the rows any other distance apart, I keep the same relative proportions.) I then cause the planter to be drawn across the field in such a manner that the bent ends of the markers H will come directly over the marks made in the ground at the first passage of the machine over it, or which marks may be made by hand.

The operator should be seated on one of the seed-boxes conveniently near one of the hand-wheels G, which he grasps, and, on approaching the first mark, with it rotates the reel-shaft so as to bring the bent end of the marker H directly into said mark. This causes the cam S to press back the vibrating lever Q, communicating a lateral movement to the clutch-lever P, which throws the loose sleeve of the clutch into contact with the fast one. This sets the seed-dropping mechanism in motion, the zigzag cam on the clutch being arranged to vibrate the seed-bar and cut-off levers at each four feet the machine advances, dropping the seed at each vibration. When the fourth vibration is made and the seed dropped, it will be on the mark next following the one commenced on—that is, sixteen feet distant therefrom. When this fourth hill is planted the shaft D has made one rotation, which brings its toe *g* to the rod R, shoving it forward with the vibrating lever Q, when the spring Z, pressing on the outer end of the clutch-lever P, moves it to throw the seed-planting mechanism out of gear. The operator, as the machine approaches each subsequent mark, again rotates the reel-shaft, so as to bring the bent ends of the marker therein, which again causes the planting to be resumed. The bent ends of the markers pass under the wheels M as they are brought to the ground, the weight of the machine compelling the rotation of the reel-shaft while the wheels are passing over them, throwing the mechanism into gear without any expenditure of force on the part of the operator, as well as marking the spot to commence planting in the next passage of the machine.

The system above described insures the planting of the seed at each four feet of lineal distance traversed, regardless of the inequalities of the ground, while in corn-planters where the seed mechanism is constantly in gear with and operated by the traction-wheels the seed is dropped at each four feet of actual distance traversed, so that in following the undulations of the ground the hills or rows will be found at irregular distances apart, hindering and embarrassing the work of the cultivator or horse hoe. As in this system the alignment is corrected at

each fourth dropping, there is but little chance to vary the distance between the rows; whereas in other machines the difficulty is aggravated in proportion to the length of the field.

I do not intend to confine myself to the herein-described mechanism for reciprocating the seed-bar, nor to the particular form of clutch-box shown, as both are highly susceptible of variation and modification. A pin-clutch, for instance, may replace the friction-clutch, or the geared traction-wheel may rotate the axle, and by a different arrangement of the clutch dispense with the counter-shaft.

By substituting other cams of a greater or lesser number of throws the machine is adapted to the planting of other grains or seeds at various distances between the hills or rows.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a seed-planter, an independent reel-marker adapted for operation at the will of the operator, except while the markers are in contact with the ground, for the purpose of marking off the spaces between the hills or rows, and at the same time to throw the seeding mechanism into gear, substantially as described.

2. In a seed-planter, the reel-markers H and jointed shaft F, so arranged that the markers shall pass under the wheels M, or their equivalents, for the purpose of leaving a mark across the track of the wheels, substantially as described, for the purpose specified.

3. In a seed-planter, the reel-shaft provided with wheels and supports at its outer ends, for the purpose of supporting said end and form-

ing a track for the markers to cross, substantially as described, for the purpose specified.

4. In a seed-planter, the rotating reel-shaft, provided with a universal joint, for the purpose of allowing the outer ends of the shaft to rise and fall while in operation, so that the markers H upon the ends of the shaft shall conform to the inequalities of the ground, substantially as described, for the purpose specified.

5. In a seed-planter, the jointed rotating reel-shaft provided with the markers H and a pivoted box or bearing, *e*, at or near its center, substantially as described, for the purpose specified.

6. The arrangement of the vibrating lever Q, rod R, and clutch-lever, in relation to the shaft F and its attachments, whereby the seed-dropping mechanism is automatically operated, substantially as described.

7. The gears *a b*, shaft D, clutch-box N N', provided with a zigzag cam, *f*, and the lever O, for communicating an intermittent reciprocating motion to the seed-bar T, substantially as and for the purpose specified.

8. The arrangement of the seed-boxes E, the plates V, the seed-plates Y, and the seed-bar J, having pins *h*, constructed as described and shown, and operated as and for the purpose set forth.

9. The arrangement of the cut-off *j*, the strike *l*, and the plates Y and W, when constructed as described and shown, for the purpose specified.

LEVI SCOFIELD.

Witnesses:

HARRY S. SPRAGUE,
SAMUEL E. JONES.