2 Sheets—Sheet 1.

M. GREGG.

CORN-PLANTER.

No. 192,757. Patented July 3, 1877.

FIG. 1.

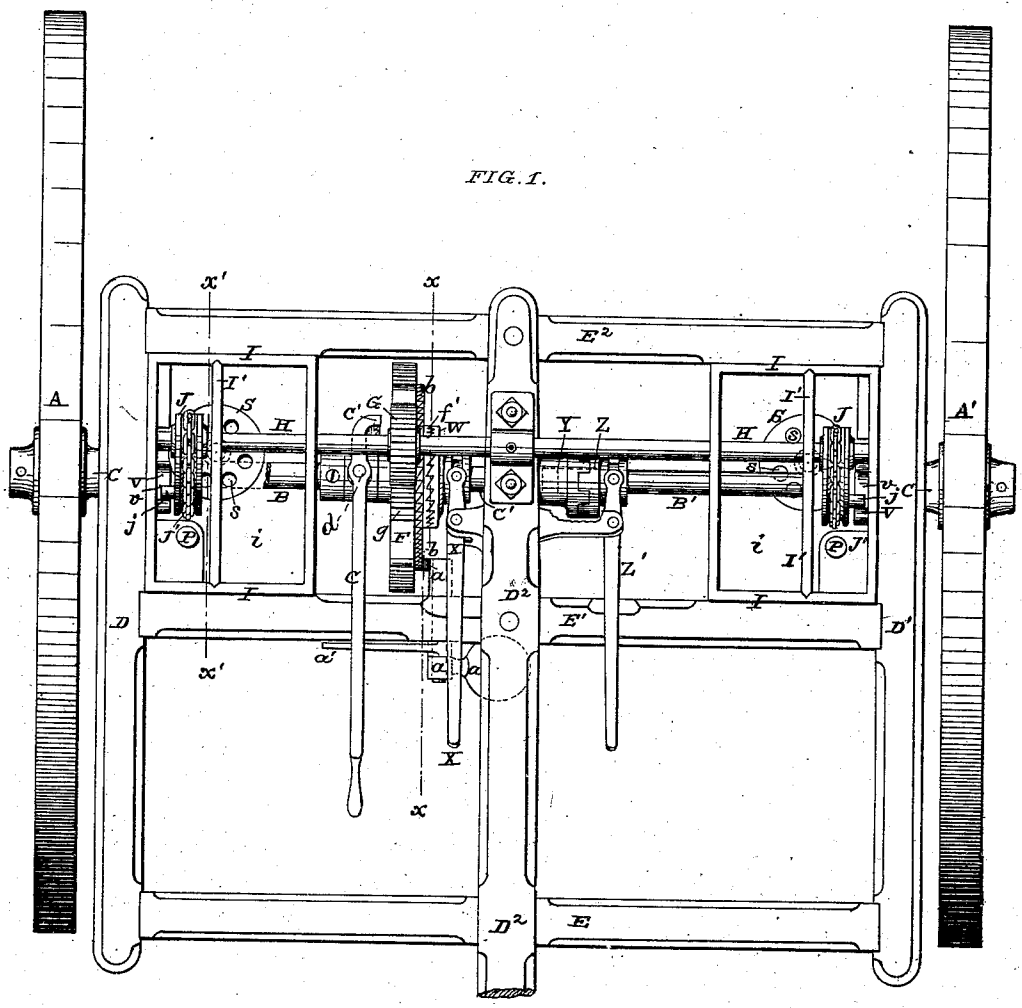
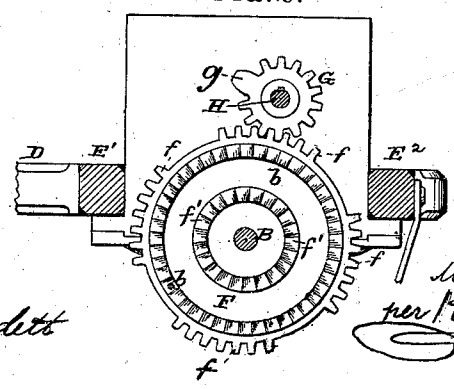


FIG. 2.



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2 Sheets—Sheet 2.

M. GREGG.

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FIG. 3.

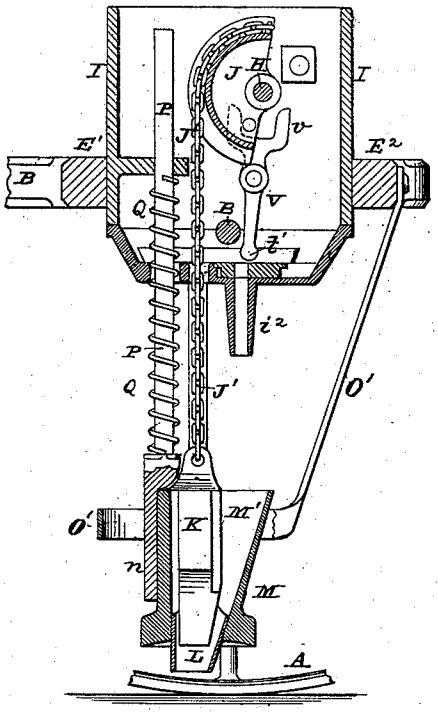


FIG. 4.

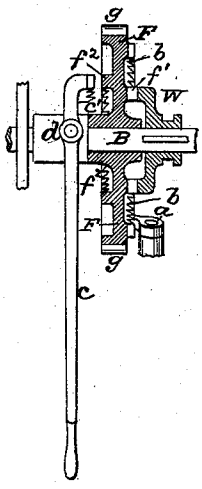


FIG. 5.

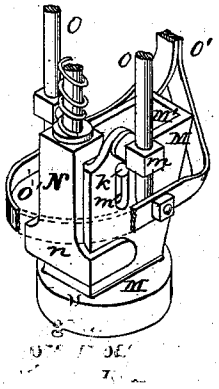


FIG. 6.

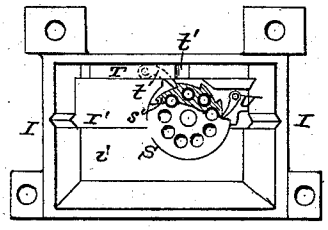


FIG. 7.

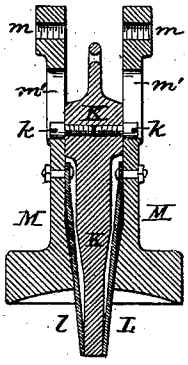
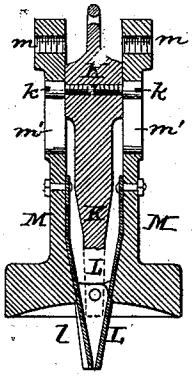


FIG. 8.



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UNITED STATES PATENT OFFICE.

MARSHALL GREGG, OF CHAMOIS, MISSOURI.

IMPROVEMENT IN CORN-PLANTERS.

Specification forming part of Letters Patent No. **192,757**, dated July 3, 1877; application filed January 19, 1877.

To all whom it may concern:

Be it known that I, MARSHALL GREGG, of Chamois, Osage county, in the State of Missouri, have invented a certain new and useful Check-Row Corn-Planter, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

The first part of my invention consists in the combination with the marker of the apparatus for lifting the same, and automatically operating the plunger within the marker.

The second part of my invention consists in so pivoting or hanging the marker on the vertically-moving supporting-frame that the marker may swing backward as it rests upon the ground, and will swing forward to its vertical position, by the force of gravity, as soon as it is raised from the ground.

The third part of my invention consists in the described devices for operating the seed-wheel or disk by which the seed is taken from the hopper.

The fourth part of my invention consists in the described sectional axle-shaft, with devices for coupling the sections together, and engaging the axle with the seed mechanism.

Figure 1 is a top view; Fig. 2, a detail longitudinal section at $x\,x$, Fig. 1; Fig. 3, a detail longitudinal section at $x'\,x'$, Fig. 1; Fig. 4, a detail horizontal section of clutches, &c.; Fig. 5, a detail perspective view of the stamps or markers; Fig. 6, a detail top view of feeding devices. Figs. 7 and 8 are detail transverse sections of the stamps or markers.

A A′ are the wheels, which are attached to separate sections B B′ of the axle-shaft. The axle-shaft passes through the seed-boxes, and has bearings in axle-boxes C C′, beneath the side bars, D D^1, and the central or tongue bar D^2. E E^1 E^2 are, respectively, the fore, central, and hind cross-bars, which, with the longitudinal bars D D^1 D^2, constitute the main frame of the machine.

Turning loosely on the axle shaft section B is a segment cog-wheel, F, whose cog-segments *f* engage a pinion, G, on the shaft H, which passes through both the seed-boxes or hoppers I, and carries within the outer compartment of each of said boxes a grooved segment, J, in whose groove lies a chain, J′, whose upper end is attached to the segment, and whose lower end is attached to the seed-plunger K, working in the seed-pocket or opener L, within the hollow marker M. This marker is suspended by side pivots at *m*, in the vertically sliding frame N. The frame N works on vertical guide-rods O. It has a lower portion, *n*, extending down the front side of the marker, and forked so as to loosely embrace the same. When the marker comes in contact with the ground the forward movement of the machine swings it backward upon its pivots *m*, and as the marker is raised from the ground it swings forward, owing to the preponderance of weight behind the pivots, and falls into the fork *n* in proper position for another descent.

The seed pocket or opener is secured within the central cavity of the hollow marker. Said pocket or opener is wedge-shaped when closed, so as to be easily forced into the ground, and has one side, *l*, hinged, and arranged to open outward to allow the "dropping" of corn to fall out. This opening of the pocket is accomplished by the descending plunger K. As the plunger is drawn upward the bottom of the pocket or opener closes, so as to retain the next dropping of corn, which drops into it from the seed-wheel S.

The frame N has a vertical rod, P, extending upward through the seed-box, and working vertically in the same. This rod is surrounded, between the seed-box and frame N, by a spiral spring, Q, which drives the frame downward with rapidity when the chain-segment J turns backward, so as to let out the chain J′ by which the frame is raised.

The opener L projects below the bottom of the marker, and the plunger has vertical movement in the pocket or opener, so as to descend by gravity to the bottom of the same after the descent of the marker and opener has been arrested by the impingement of the marker against the surface of the earth. In its descent aforesaid the plunger forces open the bottom of the pocket, and ejects the corn therefrom. The plunger K is guided by studs *k*, which work in slots *m′* in the sides of the marker M. O′ is a brace extending from the bottom of the guide-rods O to the main frame. Each seed-box or hopper is divided into two

compartments by a longitudinal division, I′, beneath which turns the horizontal seed-wheel S, having the vertical seed-holes *s*, into which drops the seed, a proper amount for each hill entering each hole as the said hole is carried by the rotation of the wheel beneath the corn-hopper *i*. The rotation of the wheel carries each seed-hole, which passes completely through the wheel or disk S, to the discharge-spout, i^2, at the bottom of the box I, and the corn drops through the spout into the hopper cavity M′ of the marker M, said marker being elevated at this time. The "dropping" of corn falls then into the pocket or opener L beneath the plunger, which at such time is in its upper position.

The bottom of the division I′ clears the top of the wheel S of corn as it turns beneath it. The seed-wheel has at the lower part of its periphery ratchet-cogs *s′*, which are engaged by a spring-pawl, *t*, on a slider or sliding bar, T. The ratchet is also engaged by a spring-dog, U, to prevent the retrograde movement of the seed-wheel. The pawl-slider is notched at *t′*, to receive the lower end of the lever V, whose upper end *v* is forked, and in the fork works a pin, *j*, projecting from the sides of the segment J, the oscillation of the segment J carrying the pin into engagement with the fork *v*, and moving the lever V in the same manner as the detached lever of a watch is moved. Upon the side of the wheel F is a circular ratchet, f^1, which forms one member of a ratchet-clutch, the other member W of which is a ratchet-faced collar sliding endwise on the axle-shaft section B, but forced to rotate with said shaft by a feather-key or equivalent device. This clutch-collar is moved by a lever, X, to engage or disengage the clutch. The clutch is engaged to cause the rotation of the wheel F with the axle-section B, and is disengaged to allow the wheel A and axle-section to rotate without moving the seeding devices.

Y Z is an ordinary clutch, one member, Y, of which is attached to the inner end of axle-section B, and gives journal-bearing to the end of the section B′, and the other member Z of the clutch slides endwise on, and turns with, the axle-section B′. The member Z is moved by a lever, Z′. When the clutch Y Z is engaged the axle-sections B and B′ turn together, and so both wheels may be made to drive the seed machinery. When turning the implement at the ends of rows or other places, it is preferable that at least one of the wheels should have free rotation independently of the seeding mechanism.

When the implement is working, each cog-section *f*, as it comes to the top, engages the cog-pinion G, and turns it the required distance to raise the markers from the ground a sufficient distance to give to them the necessary momentum in their descent to puncture the ground and compact it. As these parts reach their upper position the seed-wheel or disk S turns so as to drop the required amount of seed through the spout i^2 into the hopper M′ of the marker M. Then, as the segment *f* leaves the pinion G and the plain part f^1 of the wheel F is presented to the pinion, the spring Q and the weight of the marker give to the pinion G and segment J a retrograde movement, as said marker descends, to plant a hill of corn. The opener first reaches the ground and punctures it; then the marker reaches the ground and marks the position of the hill, and compacts the earth and pulverizes it; then the plunger descends in the opener L and forces out the hinged side and embeds the corn firmly in the ground. As the parts tilt over with the forward movement of the implement, and are drawn from the earth, they cover the seed.

Upon the pinion G is an enlarged rounded cog, *g*, which projects further from the center of the wheel than the other cogs, and which, as the pinion makes its retrograde movement, comes in contact with the first tooth of the next segment *f*, and brings the pinion to a rest in proper position for the engagement of its cogs with those of the segment *f* ready to receive its next partial rotation, as described.

a is a weighted pawl or dog, engaging a ratchet, *b*, to prevent the backward movement of the wheel F; and *a′* is a handle, by which the dog may be removed, so as to disengage it from the wheel.

c is a lever, having, at the lower end, a ratchet, *c′*, engaging, when desired, a ratchet, f^2, upon the wheel F, the lever being fulcrumed on a collar, *d*, turning loosely on the axle-section B, but restrained from endwise movement thereon. The arrangement is such that, by the lever, the wheel F may be turned forward by hand, so as to locate the hills in the proper position at the beginning of each row, and to rectify the time of dropping whenever required.

I claim—

1. The combination, with the hollow marker M of the plunger K, working vertically therein, and forming the connection between the marker and the lifting-chain J′, so that the chain operates first on the plunger, to allow the closing of the seed-pocket, and is retained in such relative position with the marker, substantially as and for the purpose set forth.

2. The combination of lifting-chain J′, hollow marker M, vertically-moving frame N, and depressing spring Q, operating substantially as set forth.

3. In combination with the hanging marker M and frame N, the forked projection *n*, forming a guide and stop for the swinging marker, as set forth.

4. The combination of seed-wheel S, sliding pawl *t*, forked lever V, and oscillating sector J, with roller-pin *j*, substantially as set forth.

5. The combination of the segment-wheel F and pinion G, with a suitable marker, M, for the purpose set forth.

6. The segment-wheel F and pinion G, having enlarged projecting tooth *g*, in combination

with a suitable marker, M, for the purpose set forth.

7. The combination of segment-wheel F, pinion G, rock-shaft H, sector J, chain J′, and marker M.

8. The combination of the axle-shaft section B, loose segment wheel F, clutch f^1 W, clutch-lever *c*, and weighted dog *a*, substantially as set forth.

MARSHALL GREGG.

Witnesses:
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ROBERT BURNS.