2 Sheets--Sheet 1.

J. A. McCLURE.

Corn-Planters.

No. 156,367. Patented Oct. 27, 1874.

FIG. I.

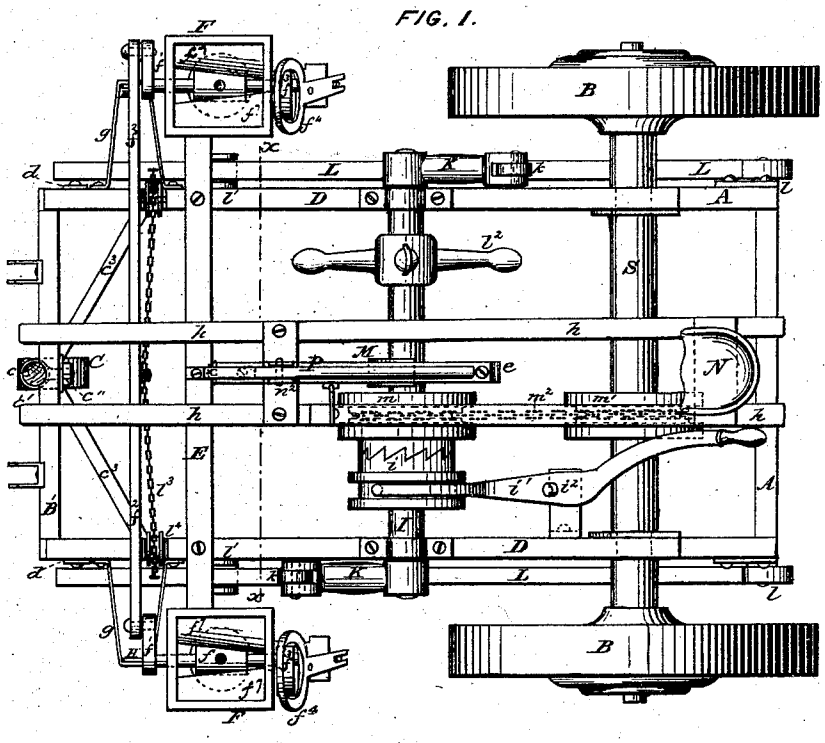
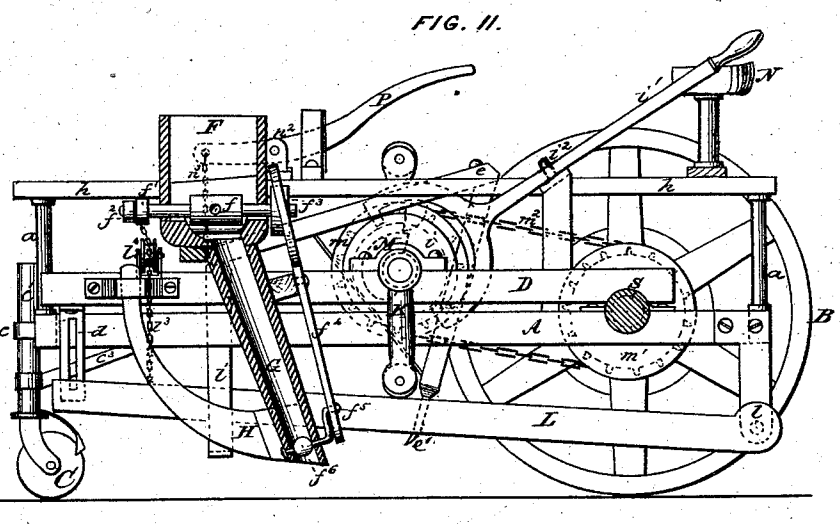


FIG. II.



WITNESSES:

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R M McKee

INVENTOR:

Joseph A. McClure
by his attorney
Geo. F. McLellan

2 Sheets--Sheet 2.

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FIG. III.

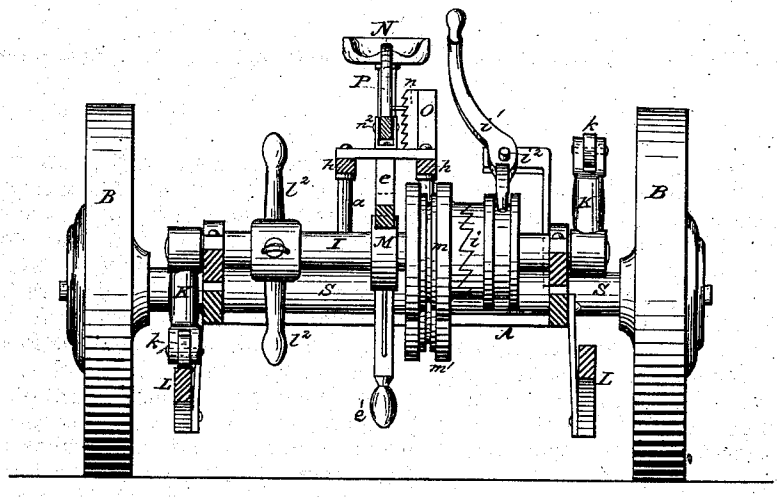


FIG. IV.

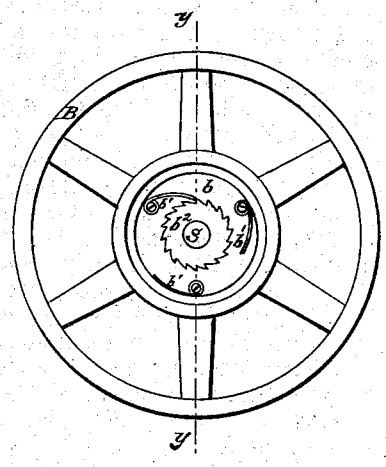
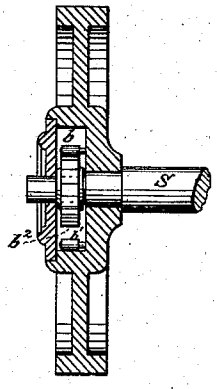


FIG. V.



WITNESSES:
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UNITED STATES PATENT OFFICE.

JOSEPH A. McCLURE, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN CORN-PLANTERS.

Specification forming part of Letters Patent No. **156,367**, dated October 27, 1874; application filed August 15, 1874.

To all whom it may concern:

Be it known that I, JOSEPH A. McCLURE, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Corn-Planters; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to a new and useful machine for planting corn and other seeds; and it consists of seed-hoppers provided with beveled and inclined guards, and mechanism for operating a valve for dropping seed. It also consists of mechanism for alternately raising and depressing, for equal distances, a spade for marking the rows, by means of a lever and cam, the latter rotated by a shaft on the frame carrying the seed-hopper; also, of apparatus for giving an oscillatory motion to the seed-rollers, and of other parts, constructed and arranged as herein described.

In the accompanying drawing, Figure 1 is a plan view of my machine. Fig. 2 is a side elevation of the same, partly in section. Fig. 3 is a cross-section on line *x x* of Fig. 1. Fig. 4 is a front view of one of the driving-wheels, with cap of hub removed. Fig. 5 is a cross-section on line *y y* of Fig. 4.

The main frame A A is supported on two driving-wheels, B B, on the axle S, which is secured on the rear part of the frame, and at the front by an adjustable caster-wheel, C. This wheel C is connected with the front cross-piece B′ by an eye-clamp bolt, *c*, by means of which it is made adjustable to any desired height by clamping the standard *c′*, and being secured by a nut, *c″*. The lower end of the standard is held to frame A by brace c^3. A scraper, c^4, is secured to the standard to clear the dirt from the wheel. To the main frame A is connected an auxiliary frame, D, adjustable by slotted standards *d d*. On this frame is secured a cross-bar, I, to the outer ends of which the hoppers F F are attached. The hoppers are provided with small rollers *f f*, which have cavities in their peripheries for receiving from the hoppers the corn to be dropped at regular intervals. These rollers are arranged on a small shaft, which is journaled in the sides of the hopper, and protrudes at both sides thereof, being provided at one end with cranks f^1 f^1, the pins of which are connected by a connecting-rod, f^2, across the machine. On the other end of the small shaft is secured an eccentric, f^3, which turns in an elliptical pivoted yoke, f^4, provided with, or made in, the upper part of a connecting-rod that connects at the lower end with a small crank, f^5, of the valve f^6, arranged in the lower end of the drill-teeth G, and which holds and retains the seed until opened at regular intervals by the eccentric f^3. Wings H are attached to the heels of the drill-teeth G, and have their upper ends guided and braced in a brace, *g*, secured to the frame D. About midway of frame D a shaft, I, is journaled, having secured to it at each end an arm, K, provided at its outer end with a friction-roller, *k*, which bears down upon and depresses the bar L, pivoted at *l*, and running in guides l^1 l^1. These arms are rotated with the shaft I, which is set in motion by a spider, l^2, secured to the shaft, and operated by the driver's feet or hands. It is also set in motion by the following mechanism, viz: On one end of the shaft I is arranged a clutch, *i*, which is operated by a forked hand-lever, i^1, fulcrumed at i^2, and extending close to the driver's seat. One side of the clutch is connected with the sprocket-wheel *m*, which is driven by chains m^2 and sprocket-wheel m^1, on the main shaft S. When the clutch is in gear the revolution of the shaft S sets in motion the arms K. As these arms revolve, they alternately raise and lower the bars L, the bar on one side rising as that on the other falls. As they rise and fall, they draw to each side alternately the chain l^3, which is connected at each end with one of these bars, and in the middle with the connecting-rod f^2, passing over the small sheaves l^4. By this means the connecting-rod f^2 is moved from side to side alternately, and thus through the crank f^1 rotates the small roller *f f*, and eccentric f^3 and valve f^6. On the center of shaft I is a cam, M, which raises and drops the hinged lever *e*, which is provided at its lower end with a shovel or spade, *e′*, which,

being alternately lowered and raised for equal distances, marks the ends of rows of corn on points at which the corn is dropped. Upon the front and rear cross-pieces B′, are arranged uprights *a a*, to which are attached longitudinal bars *h*, and on these at the rear end the driver's seat N is secured, which may be moved forward or backward, as desired. Near the center of the bars *h* is a short upright, O, with ratchet-teeth *n*, with which a pawl, n^1, on the pivoted lever P engages, and by this lever, fulcrumed at n^2, and connected at its outer end by a chain, n^3, with the cross-bar E, the whole auxiliary frame with its connections, may be raised and lowered. The hubs of the wheels B are provided with a recess, *b*, in which are pivoted, at equal distances, three weighted pawls, b^1, which alternately engage with a ratchet, b^2, on the end of the shaft S. As the wheels revolve, one of these pawls is always engaged with the ratchet-wheel, thus causing the shaft to revolve with the wheels actuating the wheel m^1, when the machine is moving forward, but releasing the shaft when backing. By connecting the dropping apparatus with the small wheel m^1 the irregularity in intervals of dropping the corn, caused by the wheels B passing over clods or other irregularities of the surface of the ground, is reduced to a minimum.

The operation of the machine is as follows: The seed being placed in the hoppers and the machine started, the driving-wheels rotate the sprocket-wheel m^1, which, by chain m^2, turns the sprocket *m* and shaft I with its arms K, which alternately force down the pivoted bars L, and these, by the chains l^3, move from side to side the bar f^2, which, by cranks on the small shaft, rotate the rollers *f f*, which drops the seed at regular intervals by the cavities, the beveled guards f^7 preventing any corn not in the cavities from being carried over and dropped. The guards are constructed with upper surface of each sloping toward the rollers to an edge, said edge forming an angle with the axis of the roller. By this means the corn is thrown upward upon the guards. The seed are then caught by the small valve f^6 in the lower ends of the tubular seed-teeth G, and dropped as the said valve is opened by the eccentric f^4, and are then covered by the bent hubs H. Any backlash is prevented by the ratchet and pawls in the recessed hubs. The hoppers and auxiliary frame are raised and lowered by the lever P, and held by the ratchet-teeth *n*.

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

1. The inclined and beveled guards f^7, constructed as described, in combination with rollers *f* and hoppers F.

2. The combination of the seed-hoppers F, rollers *f*, guards f^7, cranks f^1, and connecting-rods f^2, with chain l^3, pivoted bar L, arms K, and shaft I, substantially as and for the purpose specified.

3. The combination of seed-hoppers F, and rollers *f*, and crank f^1, with eccentric f^3, yoke f^4, valve f^6, and tubular teeth G, constructed and operated substantially as shown and described.

4. The combination of the shaft I, clutch *i*, lever i^1, spider i^2, with frame D.

5. The combination of frame A, shaft S, wheels B, sprocket-wheels *m* m^1, chains m^2, shaft I, and arms K, with the bars L, chain l^3, hoppers F, and rollers *f*, all constructed and arranged for operation substantially as and for the purpose herein set forth.

6. The marker, consisting of hinged lever *e*, and spade e^1, combined with frame E, and cam M, and shaft I, substantially as and for the purpose set forth and described.

7. The combination of main frame A, hinged at the main axle with auxiliary frame D, carrying hoppers F, shaft I, and cam M.

In testimony that I claim the foregoing as my own I have affixed my signature in presence of two witnesses.

JOSEPH A. McCLURE.

Witnesses:

W. E. BRAND,

WM. J. CROWELL.