M. P. BROWN.

Corn-Planters.

No. 221,282. Patented Nov. 4, 1879.

FIG. 1.

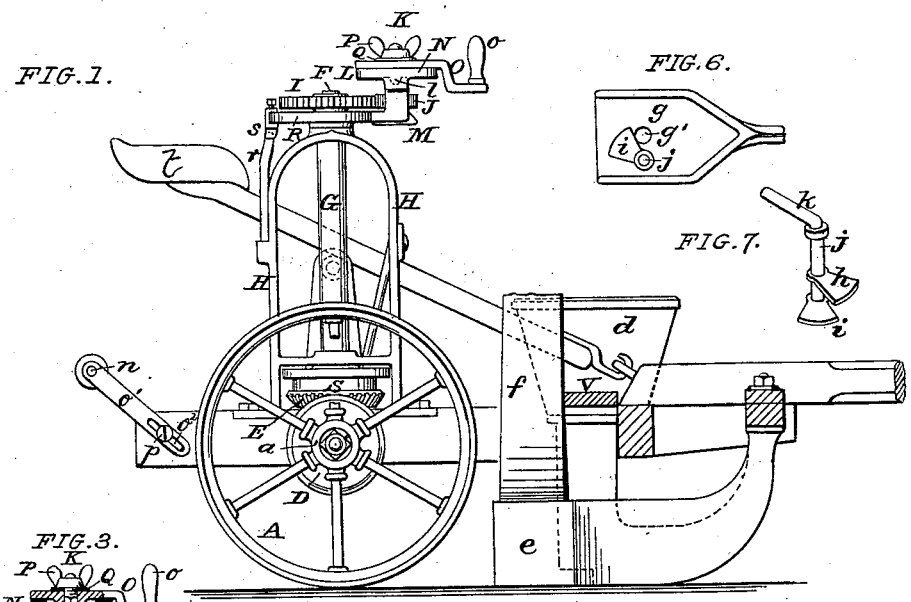


FIG. 6.

FIG. 7.

FIG. 3.

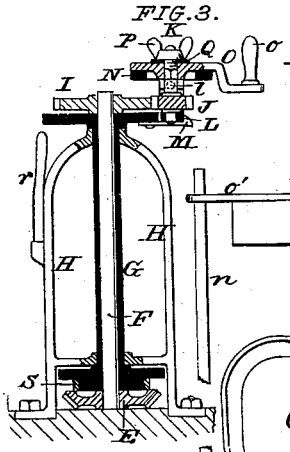


FIG. 2.

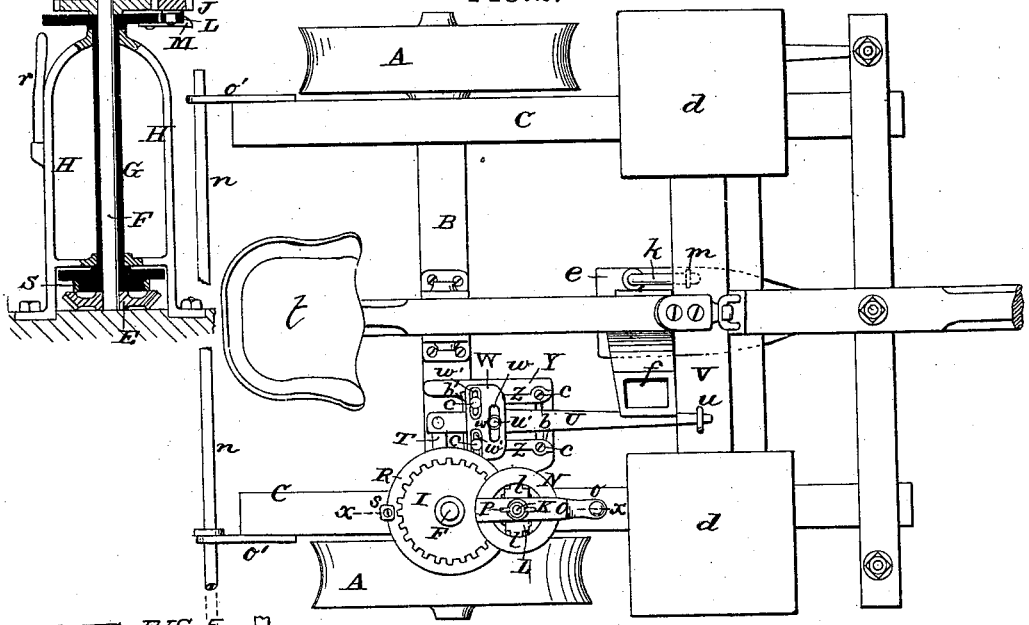


FIG. 5.

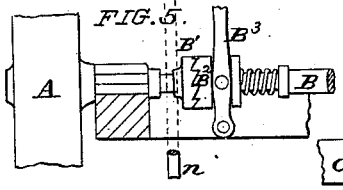
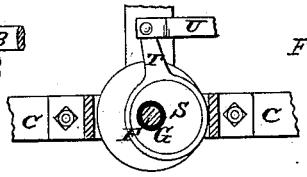


FIG. 4.



ATTEST:

Geo. H. Knight

Walter Allen

INVENTOR:

Merceleus P. Brown

Per Knight Bros.

Attys.

UNITED STATES PATENT OFFICE.

MERCILEUS P. BROWN, OF FAYETTEVILLE, MISSOURI.

IMPROVEMENT IN CORN-PLANTERS.

Specification forming part of Letters Patent No. **221,282**, dated November 4, 1879; application filed May 8, 1879.

To all whom it may concern:

Be it known that I, MERCILEUS P. BROWN, of Fayetteville, in the county of Johnson and State of Missouri, have invented a certain new and useful Improvement in Corn-Planters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This is an improved attachment to the class of machines having a seed-slide, by which the corn is dropped.

The attachment is interposed between the ground-wheel (from which movement is received) and the seed-slide, and its purpose is to enable the seed-slide to be advanced or set back during the running of the machine, so as to rectify any error in the position of the hills. The train of gearing includes two concentric shafts, which turn together by connecting cog-gearing. Said connecting-gearing is adjustable by a hand-crank (acting through a friction device) to check or advance the rotation of the driven shaft relatively to the driver-shaft, thus checking or advancing the movement of the seed-slide. This constitutes the first part of my invention.

The second part consists in the combination, with the lever which acts directly upon the seed-slide, of adjustable fulcrum-blocks, by which the movements of the lever may be regulated, as set forth hereinafter.

The third part of my improvement consists in a pointer-bar adjustably connected to the frame to enable the driver to definitely locate the position of the machine relatively to the rows of hills already planted.

The fourth part of my improvement consists in connecting the seed-slide, or other part having simultaneous movement with it, with dropping mechanism of a hopper containing some material (such as lime) different in color from the earth, so as to indicate by a small deposit of the material the line of the hills in a direction transverse to the course of the machine.

In the drawings, Figure 1 is a side elevation with part in longitudinal section. Fig. 2 is a top view of the machine. Fig. 3 is a detail section at *x x*, Fig. 2. Fig. 4 is a plan of the driving-eccentric of the seed-slide lever. Fig. 5 is a detail, showing a modification of the driving mechanism, as described. Fig. 6 is an under view of the furrow opener or leveler, which prepares for the deposit of the marking material. Fig. 7 is a perspective view of the valve-shaft and valves of the marking device.

The ground-wheels are shown at A. B is the axle. In the drawings, except in Fig. 5, the axle is represented as fixed to the frame C, and in my general description I shall so treat of it. The construction shown in Fig. 5 will be described separately.

Upon the hub *a* of one of the wheels A is a bevel-cog wheel, D, which engages with a similar wheel, E, upon a vertical shaft, F, having bearing in a tubular shaft, G, which in turn has bearing in an upright frame, H. The shaft F, at its upper end, carries a spur-wheel, I, which engages with a spur-pinion, J, upon a spindle, K. The spindle K has bearing in a tripping-frame, L, supported on trunnions *l*, so that its lower end may be swung outward from the spur-wheel I to disengage the pinion J from said wheel.

The lower end of the frame L is held so as to keep the pinion and wheel I and J in engagement by a spring-catch, M. Upon the frame L is a fixed ring, N, upon which lies a hand-crank, O, turned by a handle, *o*. This crank O fits an angular part of the spindle K, and is for the purpose of turning the spindle, and with it the pinion J. The hand-crank rests upon the ring N at both sides of the spindle, and is held down upon the ring by a thumb-nut, P, and a spring, Q, which is interposed between the nut and the hand-crank. The amount of friction between the hand-crank and the ring N is so adjusted, by means of nut P, that the crank will not move on the ring except when it is turned by hand.

The frame L is supported on standards of a disk or head, R, which is attached to the top of the tubular shaft G.

It will be understood that as the ring N is a fixture upon the tubular shaft G, and the spur-wheel I is upon the shaft F, the relative position of the shafts F and G may be changed by turning the connecting-pinion J by means of the hand-crank O, by which the tubular shaft G is either turned forward or backward, respectively, to the shaft F.

Attached to the lower end of the tubular

shaft G is an eccentric, S, whose rod T is connected to the rear end of the seed-slide lever U. The front end of the lever U is connected to the seed-slide V at *u*, so that the oscillation of the lever will impart to the seed-slide endwise reciprocation.

The lever U does not oscillate on a fixed fulcrum, but oscillates on a pin, *w'*, which plays in a slot, *w*, in a plate, W, that forms the top bearing of the lever. The bottom bearing of the lever is upon a plate, Y, upon which it lies. The side bearings of the lever U are against fulcrum-blocks Z Z, adjustable transversely upon the plate Y, so as to limit or modify the movements of the lever.

It will be seen that the lever has four points of fulcrum-bearing, *b b' b'*—viz., one at each end of each of the fulcrum-blocks Z Z—and consequently that a change in position of any one or more of these points of bearing will change the motion of the lever.

The chief reason for the adoption of this construction is to cause the lever, through a part of its movement, to be inoperative upon the seed-slide, so that the slide will remain at rest for a little time in each of its extreme positions, thus giving the corn time to enter and leave the seed-cavities in the seed-slide.

The fulcrum-blocks are held in place by screws *c* passing through them and slots in the plate Y, and two of them also passing through slots *w'* in the plate W.

To explain the movements of the lever U, suppose the seed-slide to be in one of its extreme positions. As the eccentric S turns the lever is first carried from one of the fulcrum-blocks to the other one of these blocks, which latter it touches at the forward bearing-point, *b*, and it commences to move the seed-slide slowly at first; but when the lever impinges against the part *b'* of the block the movement of the seed-slide will be much augmented, because the points *b'* are much nearer to the rear end of the lever than those *b*.

I claim no novelty in the construction of the seed-slide nor in the seed-boxes *d*.

I will now describe the apparatus for the deposit of the marking material.

The earth is smoothed by an open-heeled cutter or runner, *e*, for the reception of the marking material, which is dropped simultaneously with the grains of corn from the seed-boxes on each side when the depositor of the marking material is in line with the seed-depositor, as shown in this instance.

The marking-depositor has a hopper, *f*, preferably increasing in width downward, so as to prevent the packing of the material within it.

The bottom *g* of the hopper has an orifice, *g'*, to allow the escape of the material. The upper and under sides of the bottom form the seats of cut-off valves *h* and *i*, both attached to the same oscillating stem *j*, and so placed upon it that while one valve is open the other is closed. Thus the oscillation of the valve-stem causes the valves to alternately open the orifice *g'* at top and bottom. When the top is open the hole *g'* fills with marking material, and then when the bottom is opened the material drops out of it.

The hole *g'* increases in size downward to prevent the material packing fast in it. The valve-stem is actuated by means of an arm, *k*, which passes through an eye or staple, *m*, on the seed-slide, so that the movement of the valves is always simultaneous with that of the seed-slide.

As a material for the filling of the marker-hopper I prefer at this time a mixture of lime and sand, as this forms a clearly-distinguishable mark on most soils when deposited in small quantities, and it is not liable to become packed in the hopper; but any material flowing easily from the hopper and clearly distinguishable from the soil would answer the purpose.

n is a pointer-rod extending transversely to the frame and having endwise movement in its supporting-arms *o'*, so that either end can be drawn out sidewise beyond the side of the frame, to form a guide for the eye of the operator to determine whether the hills of corn are being deposited in the proper place.

The pointer-rod passes through the end of arms *o'*, which are attached to side bars of the frame C by screws *p*, passing through slots o^2 in the arms. The attachment is such that the arms can be adjusted, both as to length and inclination, so as to fix the pointer-rod in such position that it will be vertically over one hill when the corn is dropping to form another in the next row. The time of the dropping of the corn is indicated by a "click" upon the frame or housing H. This click consists of a spring, *r*, attached to the frame and a tappet-lug, *s*, upon the disk R. Just as the corn drops from the seed-box to the ground the spring escapes from the tappet and makes a noise by impingement against any suitable object to indicate the fact. If at this time the pointer is in line with the hill of the row previously planted, the droppings are in the proper place.

The operation is as follows: The driver sits upon the seat *t*, and on the forward movement of the machine all the parts go into operation. He watches the position of the pointer relatively to the hills of the row last planted when the click *r s* indicates that the dropping is taking place, and if the dropping is taking place too early he takes hold of the handle *o* and arrests the motion of the pinion J sufficiently to delay the dropping, as required. On the contrary, if the dropping takes place too late he turns the pinion a little forward on the spur-wheel I, and thus the dropping is advanced in time, as required. These adjustments can be made with ease while the machine is in full operation, and to the greatest nicety.

Where it is desired to enlist both wheels A as drivers for the dropping mechanism, they are both made fast to the shaft-axle B, (see Fig. 5,) and the driving-wheel A is upon a collar, B', of said shaft driven by a clutch, B^2,

which is thrown in or out of gear by a lever, B^3. I do not claim novelty in this modification *per se*, but describe it as a suitable manner for driving my novel mechanism.

I claim as my invention—

1. The combination, with the wheel I, turned by the ground-wheel A, and head R, in connection with the seed-slide V, of the connecting and adjusting pinion J and spring-catch M, as and for the purpose set forth.

2. The combination of wheel E, concentric shafts F and G, spur-wheels I J, crank O, head R, eccentric S, lever U, and seed-slide V, substantially as set forth.

3. The combination, with the wheels I and J, the head R, and the handle *o*, of the tilt-frame L, for the purpose set forth.

4. The combination, with the wheels I and J, the revolving head R, and the adjustable head-crank O, of the friction-ring N, adjusting-nut P, and spring Q, substantially as and for the purpose set forth.

5. The lever U, working between adjustable side bearings, Z, constructed and arranged substantially as and for the purpose set forth.

6. The combination, with a corn-planter, of a marking-depositor having inclined hopper *f*, orifice *g'* in said hopper-bottom, increasing in circumference downwardly, cut-off valves *h* and *i*, rock-shaft *j*, and arm *k*, engaging the seed-slide, substantially as set forth.

MERCILEUS P. BROWN.

Witnesses:
W. W. WOOD,
WILL. J. BOYLE.