2. Sheets, Sheet 1.

A. Q. Withers,

Walking Planter.

No. 111,101. Patented Jan. 17, 1871.

Fig. 1.

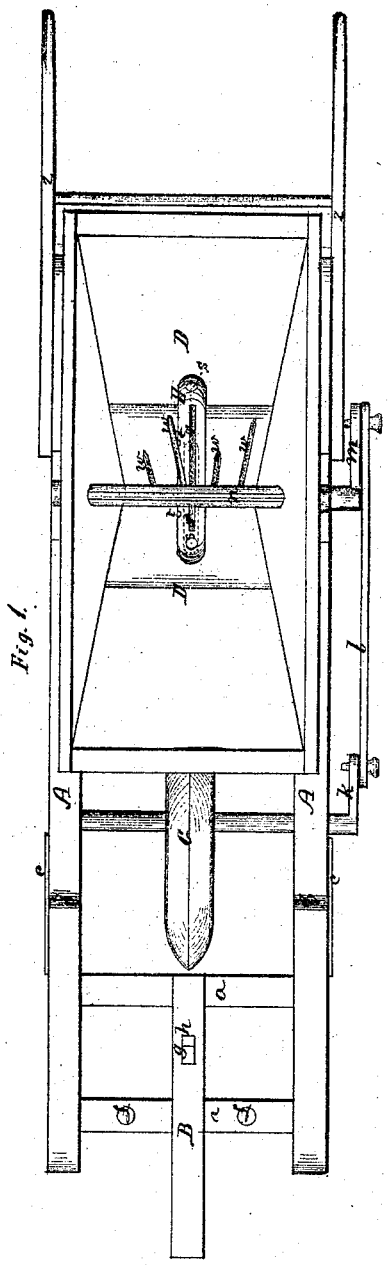
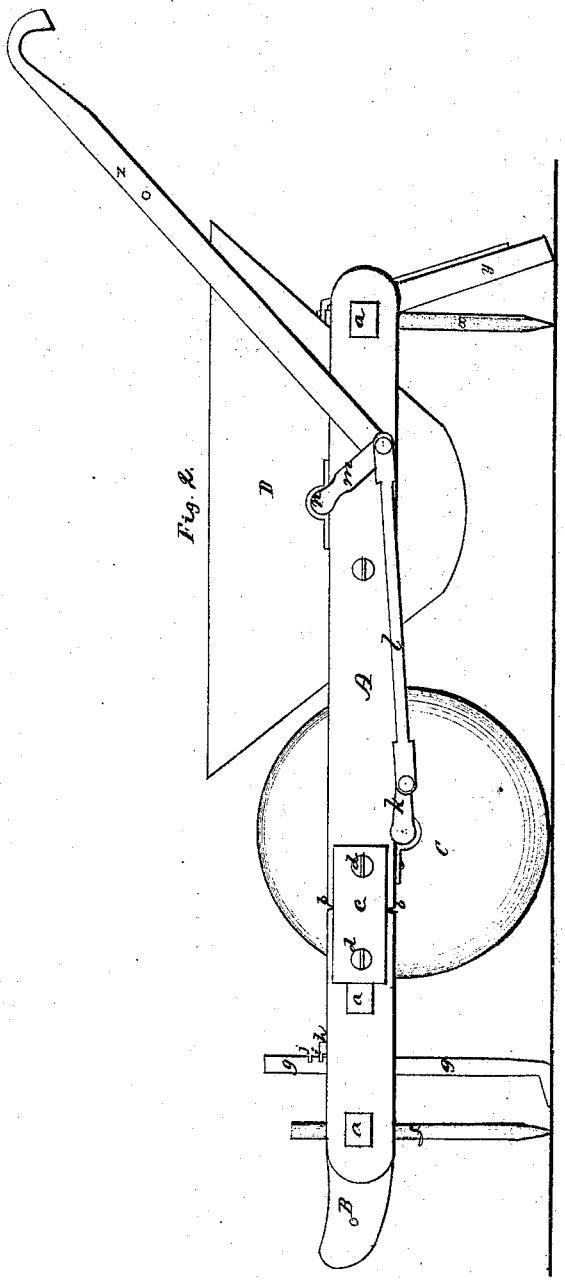


Fig. 2.



Witnesses,

R. D. O. Smith

D. J. Brown

A. Quarles Withers,

By his atty.,

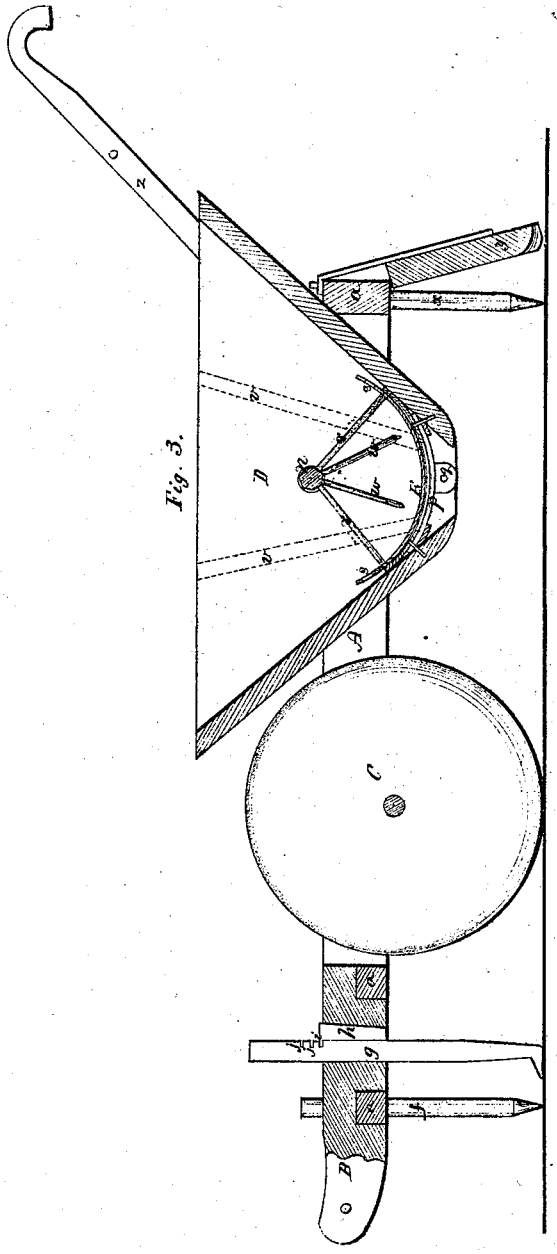
J. A. Brown

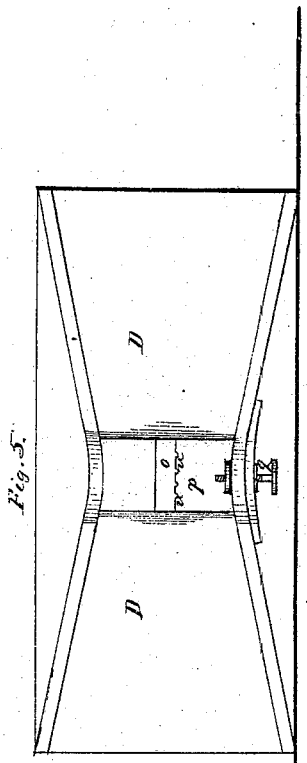
A. Q. Withers,

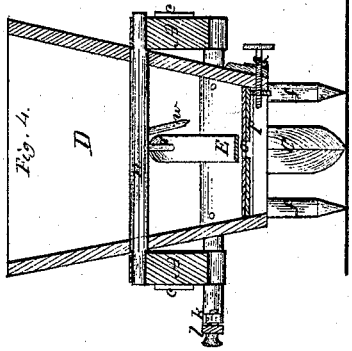
2 Sheets, Sheet 2.

Walking Planter.

No. 111,101. Patented Jan. 17, 1871.







Witnesses,

R. D. Smith

D. J. Brown

A. Quarles Withers,

By his atty.,

J. S. Brown.

United States Patent Office.

A. QUARLES WITHERS, OF HOLLY SPRINGS, MISSISSIPPI.

Letters Patent No. 111,101, dated January 17, 1871.

IMPROVEMENT IN PLANTERS AND CULTIVATORS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, A. QUARLES WITHERS, of Holly Springs, in the county of Marshall and State of Mississippi, have invented an Improved Combined Planter and Cultivator; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing making part of this specification—

Figure 1 being a top view of the combined planter and cultivator.

Figure 2, a side elevation of the same.

Figure 3, a longitudinal vertical section thereof.

Figure 4, a transverse vertical section of the same through the seed-box or hopper.

Figure 5, a view of the under side of the seed-box or hopper.

Like letters designate corresponding parts in all of the figures.

A frame, of suitable dimensions, is composed of the side-beams A A, connected by cross-pieces *a a a*.

The side-beams are jointed at *b b*, a little distance from their front ends, as shown; the joints being conveniently formed by metallic straps, *c c*, attached by single screws, or bolts, *d d*, to the respective parts of the divided beams, which abut together closely but with slightly-rounded ends, so that only a limited joint-movement is allowed, yet sufficient for the purpose, namely, to enable the frame of the machine to adapt itself to unevenness of ground so as not to interfere with the action of the cultivator-teeth and driving-wheel underneath, and to enable the driving-wheel to be thrown out of action by the attendant while the machine is moving.

To the forward joint-post of the frame the draft-bar or pole B is secured; and, also, two side cultivating-teeth, *f f*, substantially as shown; and a middle tooth, *g*, which has a share or point at the lower end for opening a furrow in planting. This opening-tooth is made adjustable up and down, to vary the depth of the furrow, by means of a key, *h*, driven into the socket of the tooth behind the same, and provided with a projection, *i*, which fits into any one of a set of notches, *j j*, in the rear edge of the tooth, all substantially as represented.

Near the front end of the main joint-section of the frame, and in a central position beneath it, is mounted, in proper bearings, a wheel, C, of peculiar shape, being sharpened and rounded at its edge or periphery, as shown most clearly in fig. 1, so that it may run in the seed-furrow previously opened by the tooth *g*, and crush the lumps of earth that may fall therein, thereby smoothing the furrow for the better reception of the seed to be deposited in it. This wheel also assists in supporting the machine at the proper height to gauge the depth to which the teeth penetrate the soil; and especially it produces the requisite movements of the seed-dropping device in planting.

For the latter purpose, there is upon one end of the shaft of the wheel a crank, *k*, which receives one end of a connecting-rod, *l*, the other end thereof being pivoted to an arm, *m*, attached to the end of a rock-shaft, *n*, which extends across the machine through the middle of the seed-box or hopper D.

The length of the arm *m* is greater than that of the crank *k*, so that it will not revolve, and is such, made adjustable if desired, as to produce as great an extent of vibratory motion of the rock-shaft as required for the seed-dropping device now to be described.

The bottom of the hopper D is formed in the arc of a circle concentric with the rock-shaft *n*, all the sides of the hopper sloping downward thereto, as shown, so as to direct all the seeds to the concave bottom, in which is a long narrow opening or slot, *o*, extending crosswise of the arc and lengthwise of the machine. The width of this opening is varied, and adjusted by means of a sliding plate, *p*, underneath the bottom of the hopper, and moved by a set-screw, *q*, as shown in fig. 5. This opening *o* is covered, on the inside of the hopper, by a curved plate, E, which is attached to the rock-shaft *n* by means of two radial arms, *r r*, projecting from said rock-shaft. The plate is conformed in shape to the arc of the circle in which it is moved, by the vibratory motion of the rock-shaft; and it is intended to reciprocate in close proximity to, though not quite in contact with, the concave bottom of the hopper, so that no seeds can escape beneath it. Its width is sufficient to cover the whole width of the seed-opening *o*; and it is long enough to cover the whole length of said opening at all times, however great its vibratory movement may be. Near its ends are respectively two seed-apertures, *s s*, extending through its thickness, which is sufficient to contain as many grains of corn or other seeds as it is required to drop each time into the furrow, the size or diameter of the apertures also being properly proportioned.

At the termination of each reciprocating movement of the seeding-plate E, one of the seed-apertures *s s* therein is brought over the end of the opening *o* in the bottom of the hopper, and the seeds drop therefrom through the opening into the furrow.

Thus two hills are planted at each revolution of the driving-wheel C, which is made of such a diameter as to locate the hills at the desired distance apart.

The seeeding-plate E may be made removable, and replaceable by others having seed-apertures *s s* of different capacities; or the apertures may be adjustable in size.

For distributing fertilizers with the machine, semicircular or equivalent notches, *t t*, fig. 1, of a size suited to the required amount of the fertilizer to be used, are formed in one edge of the seeding-plate, to be employed in connection with similar notches, *u u*, fig. 5, formed in the edge of the adjustable plate *p*, under the hopper; so that when the plate E moves forward and

backward, the two sets of opposite-notches *t t u u* will let the fertilizer drop through when they coincide in position. The adjustment of the plate *p* varies the size of the coinciding apertures.

This means may also be employed for planting seeds in drills, or at short intervals.

There may be also similar notches in the edge of the hopper-bottom, at one side of the seed-opening *o*, in addition to those in the edge of the adjusting-plate *p*, for a similar purpose.

In order to plant corn and other seeds, and to distribute a fertilizer at the same time, the hopper D is divided by partitions, *v v*, placed in the positions shown by dotted lines in fig. 3, notched, however, in their lower edges, so that the ends of the seeding-plate E can vibrate into the side-compartments formed thereby, as indicated. The seeds are placed in the side-compartments, and the fertilizer in the middle compartment. The seeds are dropped through the seed-apertures *s s*, and the fertilizer is distributed through the side-notches *t t* of the seeding-plate. Thus the two operations go on at the same time, without one interfering with the other.

For planting cotton-seeds, if the seeds have been previously rolled and prepared, the notches *t t* and *u u* in the seeding-plate E, and adjusting-plate *p*, are used. But if the seeds are not previously prepared, the seeding-plate E is removed, and the opening *o* in the bottom of the seed-hopper is adjusted to the proper width, by the plate *p*, to distribute the required amount of seed.

I employ a set of pins, or pointed pegs, *w w*, extending downward from the rock-shaft *n* in different directions, and along the length of the hopper, substantially as shown, generally two on each side of the seeding-plate E, for the purpose of stirring the seeds in the hopper so that they shall not become clogged therein, and so that they may supply the seed-dropper or distributer uniformly. When the seeding-plate E is removed, the arms *r r*, by which it is attached to the rock-shaft, remain, to act as stirrers in the same way.

Thus I produce a universal planter, suited for all kinds of seeds, and for distributing fertilizers at the same time.

Behind the seed-hopper are two teeth, *x x*, for covering the seed, and for cultivating; and behind them is a hinged drag-plate or block, *y*, for leveling and smoothing the ground.

There are handles, *z z*, attached to the frame to guide the machine by. With these, and the joint in the forward part of the frame, the attendant, by bearing down on the handles, can lift the driving-wheel C from the furrow, and stop the motion of the seeding apparatus, at any time when desired; or can retard the motion thereof so as not to distribute so much seed.

To use the machine for a cultivator, the opening drill-tooth *g*, and the drag-block *y*, may be removed; also the driving-wheel C. The seed-hopper may be removed, or not. A complete cultivator is thus formed, without the addition of any parts.

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

1. The curved vibratory seed-plate E, constructed, arranged, and operating in the hopper D, substantially as and for the purposes herein specified.

2. The partitions *v v* dividing the hopper D into compartments, in combination with the vibratory plate E, for the purpose of distributing fertilizers simultaneously with planting seeds, substantially as herein specified.

Specification signed by me this 28th day of July, 1870.

A. QUARLES WITHERS.

Witnesses:
D. J. BROWN,
J. S. BROWN.