(No Model.) 3 Sheets—Sheet 1.

W. F. CUMMINGS & H. C. McDUFFEE.

SEED PLANTER.

No. 408,378. Patented Aug. 6, 1889.

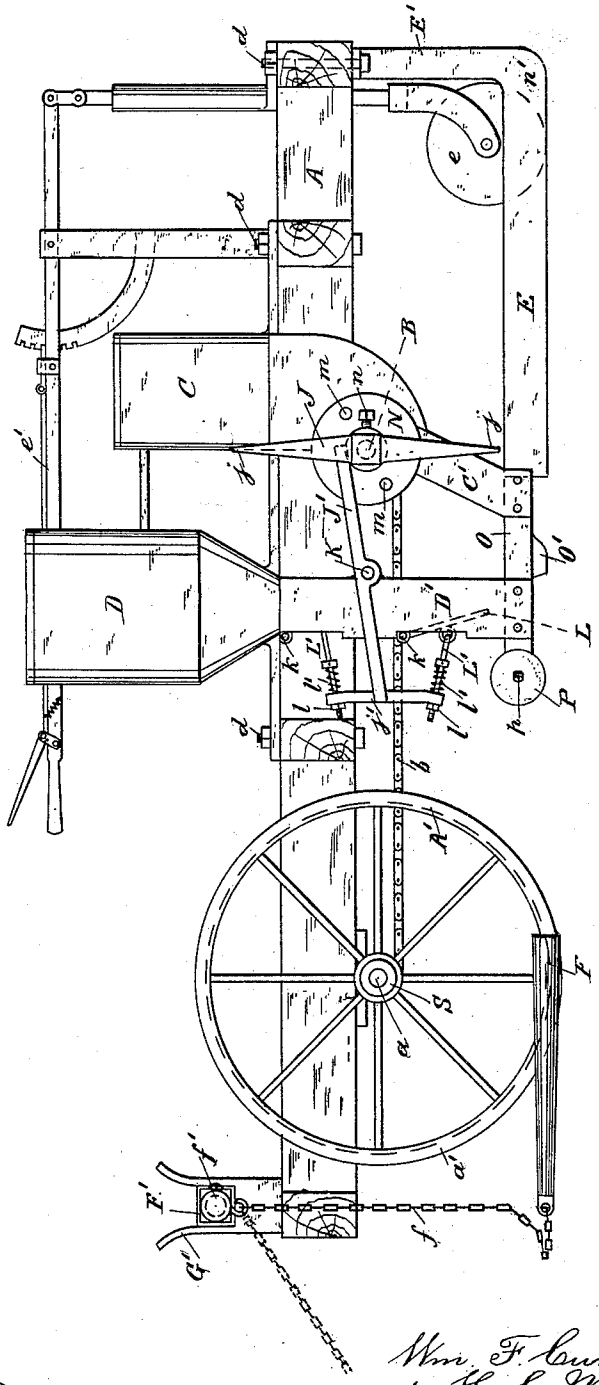


Fig. 1.

Witnesses

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(No Model.) 3 Sheets—Sheet 2.

W. F. CUMMINGS & H. C. McDUFFEE.

SEED PLANTER.

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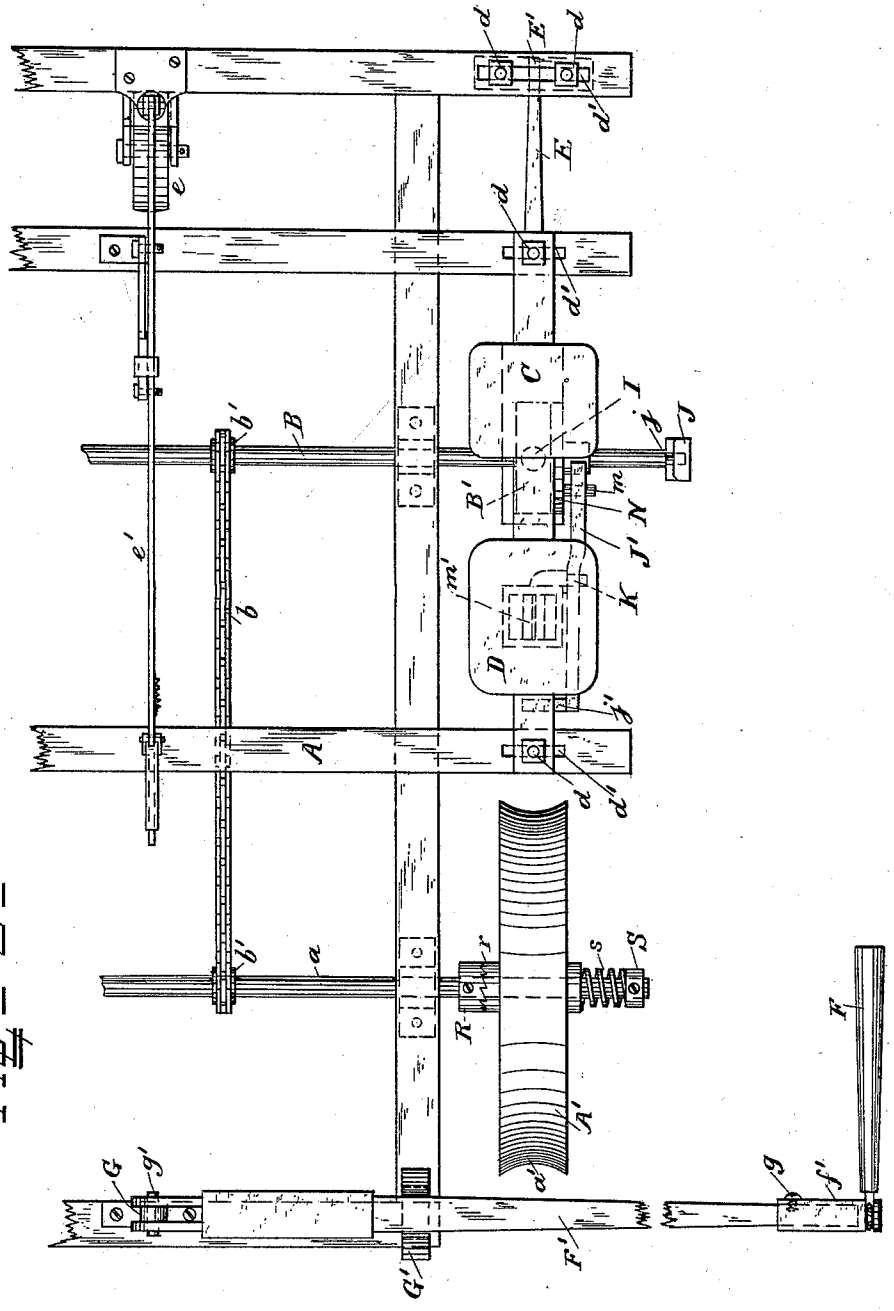


Fig. 2.

Witnesses

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(No Model.) 3 Sheets—Sheet 3.

W. F. CUMMINGS & H. C. McDUFFEE.

SEED PLANTER.

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Fig. 3.

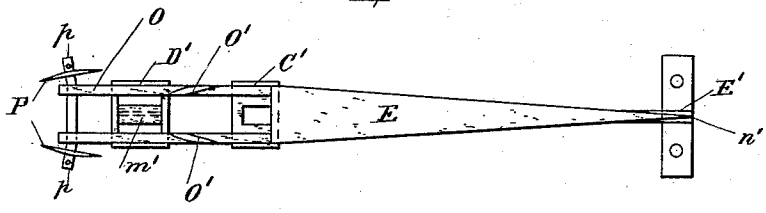
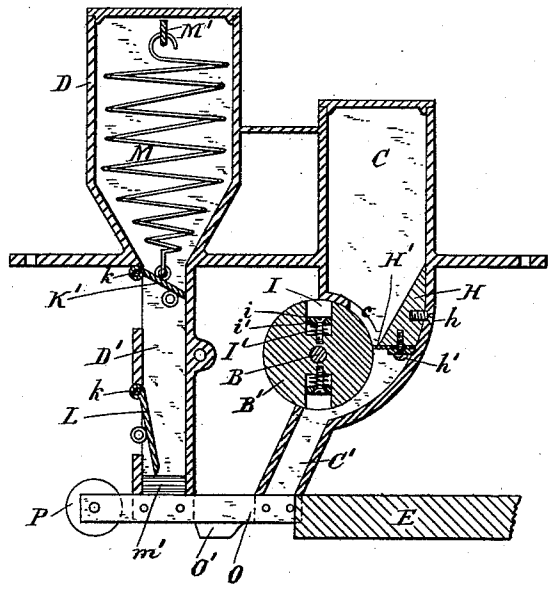


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM F. CUMMINGS AND HENRY C. McDUFFEE, OF BRADFORD, VERMONT.

SEED-PLANTER.

SPECIFICATION forming part of Letters Patent No. 408,378, dated August 6, 1889.

Application filed October 19, 1888. Serial No. 288,565. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM F. CUMMINGS and HENRY C. McDUFFEE, citizens of the United States, residing at Bradford, in the county of Orange and State of Vermont, have invented certain new and useful Improvements in Seed-Planters; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to seed-planters; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a side view of the machine. Fig. 2 is a plan view from above of one side of the machine. Fig. 3 is a plan view from below of the furrow-opener. Fig. 4 is a longitudinal vertical section through the seed-dropper and fertilizer-distributer.

A is the frame of the machine, and A′ are the wheels, mounted upon axle *a*, which revolves in bearings secured to the frame. The wheels A′ have concave faces *a′* and cover up the seed after it has been deposited. The said wheels may be adjusted upon the axle to suit rows of various widths.

B is the seed-drum shaft, and B′ is the seed-drum secured thereupon. The shaft B is connected with the axle *a* by the drive-chain *b* and chain-wheels *b′*.

C is the seed-hopper, having an opening *c* at its base, against which the face of the seed-drum works, and C′ is the seed-delivery spout, extending downward from the bottom of the hopper to the furrow-opener.

D is the box for the fertilizer, and D′ is a spout leading from the bottom of box D to the rear end of the furrow-opener.

E is the furrow-opener, having its front end secured to the frame by the upright E′, and having its rear end supported by the spouts of the grain-hopper and fertilizer-box.

In order that the machine may be turned around, the wheel A′ is not secured to the axle *a* direct, but is provided with the ratchet-teeth *r* upon one end of its hub, which teeth engage with the ratchet-teeth of the clutch-jaw R, which is secured to the axle.

S is a collar secured to the end of the axle, and *s* is a spiral spring interposed between the said collar and the end of the hub for holding the ratchet-teeth in gear when the machine is going forward, thereby causing the axle to revolve. When the wheel is revolved in the reverse direction, the spring allows the ratchet-teeth to be disengaged, and the axle is not turned.

Both sides of the machine are provided with similar wheels, furrow-openers, and devices for dropping seed and fertilizer. The furrow-opener and the dropping devices are secured to the frame by bolts *d*, which pass through slots *d′* in the frame, so that the parts on the opposite sides of the machine may be placed at different distances apart from each other, according to the desired width between the rows. A caster *e* is provided for taking the weight of the front of the machine and is supported in the middle between the rows, and *e′* is a lever connected to the caster-stem and provided with a notched quadrant and a spring-catch for varying the height of the front end of the machine above the ground.

F is the marker, which rests upon the ground and marks upon it the next center line for the machine to follow in planting the next adjacent rows. When the machine is being drawn forward, the marker trails along behind it. In the drawings the marker is merely shown resting on the ground, and not in the position it takes when in the act of marking. The marker F is secured by the chain *f* to the cap *f′* on the end of the marker-pole F′. The cap *f′* is made to be slid upon the end of the marker-pole, and is fastened by the screw *g*, so that rows of different widths apart may be marked. The marker-pole is pivoted to the bracket G, secured to the center of the frame, and G′ is a lock-bracket secured to the side of the frame for the pole to engage with. The marker-pole can be reversed and made to operate on the opposite side of the machine by merely turning it over upon its pivot-pin *g′*.

H is a slanting guide-piece, of wood or metal, secured in the base of the seed-hopper C by the screw *h*, which passes through the side of the hopper, and H′ is a plate of leather secured to the bottom of the slanting guide-piece H by means of a narrow metallic washer-plate and the screws *h′*. The leather plate bears against the face of the seed-drum and

prevents too much seed from passing down the spout. The seed-drum B′ is provided with seed-pockets I in its periphery. Any desired number may be used; but only two are shown in the drawings. The seed which falls into these pockets is carried around by the drum and discharged down the spout. The capacity of each seed-pocket is adjusted by means of a screw *i*, which is provided with a large washer *i′*, of the same diameter as the pocket, so that the actual depth of the pocket may be adjusted by turning the screw.

I′ is a spring which surrounds the screw and bears against the under side of the washer, thereby preventing it from falling to the bottom of the pocket.

J is the check-row mechanism, secured upon the end of shaft B and provided with pointers *j*, which are set to correspond with the pockets in the seed-drum, so that one of them points to the earth opposite to where the last seed was dropped.

J′ is a lever pivoted on the pin K, projecting from the side of the fertilizer-spout, and *j′* is a T-head formed upon the rear end of the said lever.

K′ is the upper fertilizer-valve, and L is the lower fertilizer-valve, both of which are pivoted by pins *k*, so that they work within the spout D′.

L′ are rods which are hinged to the valves K′ and L at one end, and have their other ends adjustably connected to the T-head *j′* by the screw-threaded nuts *l* and the springs *l′*, which permit the said rods to be lengthened or shortened at pleasure.

M is a spiral spring within the fertilizer-box D. The bottom of this spring is attached to the upper valve K′, and the top is secured to the cross-bar M′ at the top of the box.

N is a disk secured upon the shaft B by a set-screw *n*, and provided with pins *m*, which trip the front end of the lever J′ as the disk revolves and cause the upper and lower valves K′ and L to open and close alternately. The motion of the spiral spring inside the box also agitates the fertilizer and causes it to pass freely down the spout. The disk N may easily be removed from the shaft, and a similar disk having four or eight pins *m* may be secured in its place, when desired to plant in more closely adjacent holes, or for drilling. The disk N is adjusted on the shaft so that the fertilizer is dropped close to the seed, and the bottom of the spout D′ is provided with a partition or deflector *m′*, which divides the charge of fertilizer, and, being sharp at the top and broad at its base, it causes the fertilizer to fall on each side of the seed instead of dropping directly on top of it.

The furrow-opener E is made wedge-shaped and sharp at its front end *n′*, so that it cuts a seed-trench in the earth. The furrow-opener E increases in width until the point is reached where the seed-spout is attached, and the rear end O of the furrow-opener is bifurcated from that point.

O′ are blades secured to the bifurcated end of the furrow-opener behind the seed-spout, for the purpose of throwing the earth to the center of the trench over the seed.

P are converging circular blades journaled upon the pins *p* at the extreme end of the furrow-opener behind the fertilizer-spout. These blades cover up the fertilizer, and the concave-faced wheel A′, which follows the furrow-opener, completes the operation of covering the seed and the fertilizer after they have been dropped into the ground.

What we claim is—

1. In a seed-planter, the combination, with the fertilizer-box provided with a spout at the bottom, of the upper and lower valves pivoted to the spout, a spring secured to the upper part of said box for agitating its contents and normally holding the upper valve closed, and a pivoted trip-lever provided with a T-head and connected to the said valves by adjustable rods for operating them alternately, substantially as set forth.

2. In a seed-planter, the combination, with the delivery-spout of the fertilizer-hopper, of the upper and lower valves pivoted to said spout, the pivoted trip-lever provided with a T-head, and the adjustable rods hinging the valves to the said head, substantially as set forth.

3. In a seed-planter, the combination, with the fertilizer-box provided with a spout at the bottom, of the upper and lower valves pivoted to the spout, a spring normally holding the upper valve closed, a pivoted lever provided with a T-head, rods connecting said head with the valves, and a revolving disk provided with projecting pins for tripping the free end of the said lever and causing the valves to open and shut alternately, substantially as set forth.

4. In a seed-planter, the combination, with a seed-dropping device provided with a spout, of a fertilizer-distributer located behind the said seed-dropper and provided with a vertical spout divided by a central triangular bar or partition at its lower end, whereby the fertilizer is dropped on each side of the seed, and a wedge-shaped furrow-opener sharp in front and having its rear end bifurcated and secured to the said spouts, substantially as and for the purpose set forth.

5. In a seed-planter, the combination, with a seed-dropping device provided with a spout, of a fertilizer-distributer also provided with a spout having a triangular longitudinal dividing bar or partition across its lower end and located behind the seed-dropper, a wedge-shaped furrow-opener provided with a bifurcated rear end and having the bottoms of said spouts secured thereto, the blades secured to the under side of the bifurcated end of the furrow-opener in front of the fertilizer-spout for covering the seed, and the revolving blades journaled at the extreme end of said bifurcated portion of the furrow-opener for covering the fertilizer, substantially as set forth.

6. In a seed-planter, the combination, with the frame, of the concave-faced wheel journaled at the rear of the machine, the seed-dropping device provided with a revoluble seed-drum and a spout, the fertilizer-distributer provided with a spout and with delivery-valves and trip mechanism for operating them, and the wedge-shaped furrow-opener having its front end supported by the frame and its rear end bifurcated and secured to the said spouts in line with the concave-faced wheel, substantially as and for the purpose set forth.

7. The combination, with the revoluble axle, of the wheel provided with ratchet-teeth on one end of its hub and adapted to slide longitudinally upon the axle, a clutch-jaw secured to the axle and provided with ratchet-teeth engaging with the teeth on the wheel-hub, a collar secured to the axle, and a spring interposed between the said collar and the plain end of the wheel-hub, whereby the ratchet-teeth are held in gear during the forward motion of the wheel and adapted to disengage automatically during its rearward motion, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM F. CUMMINGS.
HENRY C. McDUFFEE.

Witnesses:
L. F. HALE,
C. C. BAGLY.