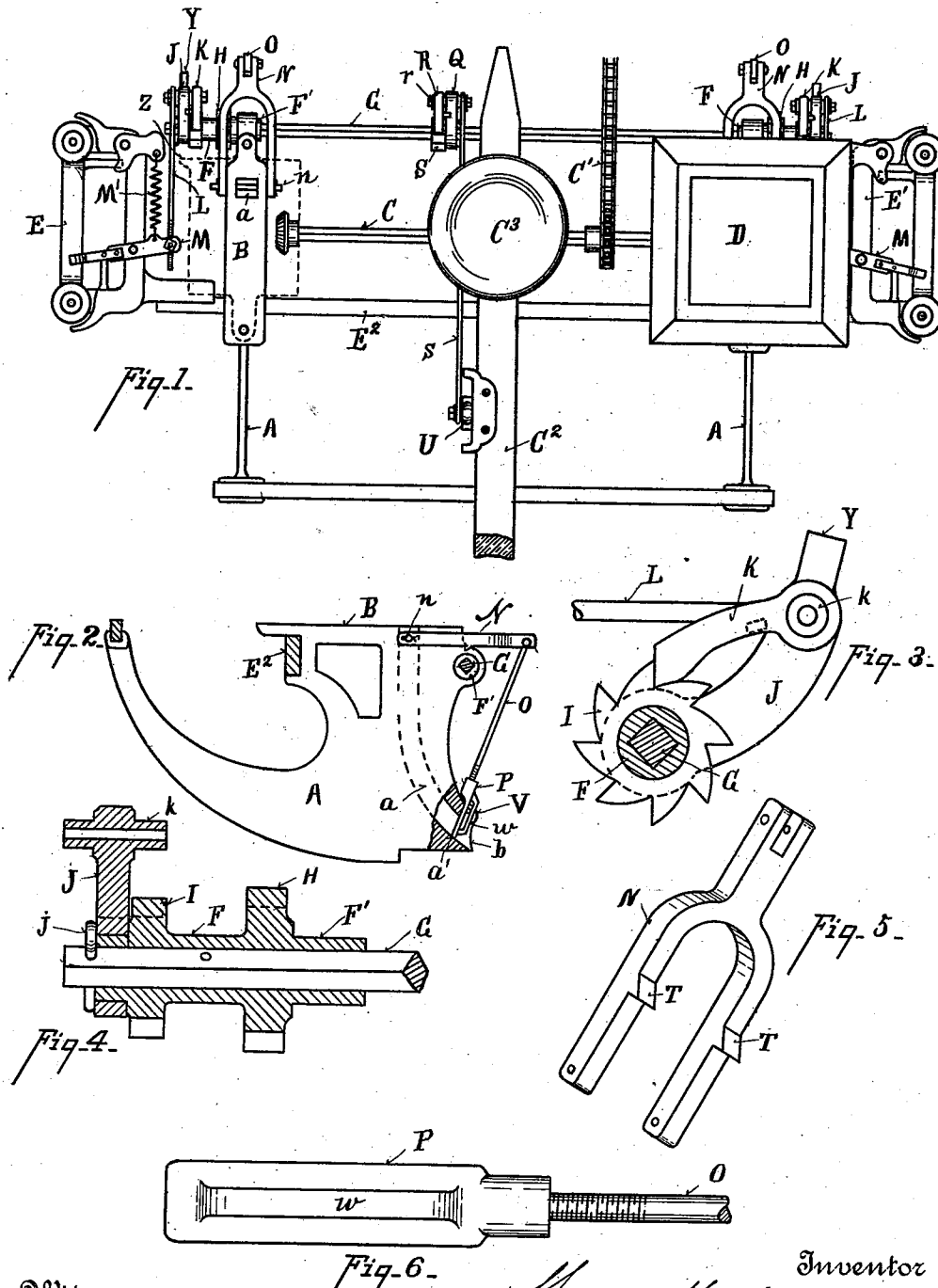


(No Model.)

W. W. SCHULTZ.
CORN PLANTER.

No. 548,141.

Patented Oct. 15, 1895.



Witnesses

C. W. Miles.
Oliver B. Kaiser.

Inventor

Inventor
Malcolm M. Schmitt
 By *Wood Bond*
 Attorneys

UNITED STATES PATENT OFFICE.

WALTER W. SCHULTZ, OF RICHMOND, INDIANA, ASSIGNOR TO THE WAYNE WORKS, OF SAME PLACE.

CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 548,141, dated October 15, 1895.

Application filed May 27, 1895. Serial No. 550,861. (No model.)

To all whom it may concern:

Be it known that I, WALTER W. SCHULTZ, residing at Richmond, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Corn-Planters, of which the following is a specification.

The object of my invention is to provide a rotating valve-shaft with suitable mechanism for rotating the same intermittingly to operate the valves and deposit the seed.

Another object of my invention is to provide suitable locking mechanism to secure a positive stop of the shaft at the end of the step movement.

Another object of my invention is to provide mechanism for accomplishing the intermittent rotation of the valve-shaft so constructed that the same may be operated automatically by a check-rower.

Another object of my invention is to provide novel mechanism for operating the valve-shaft, whereby it may be operated either by hand or by the check-rower attachment at the will of the driver.

Another object of my invention is to provide a reciprocating valve attached to the heel of the shoe, which is operated intermittingly by the rotation of the valve-shaft.

The features of my invention will be more fully set forth in the description of the accompanying drawings, making a part of this specification, in which—

Figure 1 is a top plan view of my improvement in position for use with one of the seed-boxes removed. Fig. 2 is a side elevation of one of the feed-shoes and its valve mechanism. Fig. 3 is a sectional elevation of the mechanism operated by the check-rower for rotating the shaft. Fig. 4 is a sectional elevation of the pawl-and-ratchet mechanism at one end of the shaft. Fig. 5 is a perspective plan view of one of the valve-levers. Fig. 6 is a plan view of the valve and valve-stem.

In the accompanying drawings I have shown only the front or runner frame of an ordinary corn-planter, to which my improvements are applied.

In the preferred form of construction only one valve is employed in the seed-shoe, which

form is adopted for convenience of illustration.

A represents one of the seed-shoes.

B represents the top face thereof, on which the seed-box is mounted.

a represents the seed-duct, which terminates at *b* in the heel of the shoe.

C represents a seeding-shaft, which is rotated to operate the seeding mechanism by the sprocket-chain C'.

C² represents a tongue.

C³ represents the dropper's seat.

D represents the seed-box.

E E' represent the check-rower device, which is mounted upon the cross-rail E². These parts are of ordinary construction and any check-rower may be employed with my improvements.

G represents a rotating valve-shaft, which is preferably affixed to the sleeve F. One end of the said sleeve is provided with a journal F', which is supported in a bearing formed in the shank of the seed-tube. Upon the sleeve F are mounted ratchet-wheels H I, preferably cast integral therewith.

J represents a pawl-lever journaled on the outer end of said sleeve F. *j* represents a pin for holding the same in position.

K represents a gravitating pawl pivoted upon the boss *k* of the lever J. Said pawl engages with the teeth of the ratchet-wheel I.

L represents a connecting-rod pivoted to the pawl-lever J at one end and to the reciprocating arm M of the check-rower. When said arm M comes into engagement with the knot of the check-wire, it is pulled backward and moves the pawl K, which is in engagement with the ratchet-wheel I forward one step, rotating the shaft G. In order to prevent the shaft G from moving too far, I provide a stop *z* on the bottom of the seed-box, against which the lug *y* of pawl K strikes and makes a positive stop to the forward movement thereof. The spring M' pulls said lever M back into position as soon as the knot has passed out of engagement with the fork thereof. This rotation of the shaft one step operates the valve mechanism, which is preferably constructed as follows:

N represents a valve-lever, which is preferably forked and pivoted to the seed-tubes at *n*; but the heel of said valve is pivoted to the stem O. P represents a valve preferably secured to said valve-stem by a screw-thread, so as to allow the valve to be adjusted thereon. The rotation of said shaft G one step lifts the valve and allows the deposit of one charge of seed. In order to lift the said valve-rod and at the same time to stop the rotation of the shaft at the desired point, I provide the following devices:

H represents a ratchet-wheel, upon which one fork of the valve-lever N rides. This fork is provided with a tooth T, which engages with the notches of the ratchet-wheel H, the engagement of which as the wheel is rotated lifts the valve-lever, and as the space between that tube and the next comes under the said tooth it engages therewith and arrests the movement of the said shaft G, thereby securing a positive and intermittent movement of said shaft in time movements with the operation of the valve P. The mechanism at each end of the planter operating said rotating shaft G is each the duplicate of the other. It is often desirable, as when coming to the end of a row, to operate the valve-shaft by hand. To accomplish this I provide the following devices: Q represents the pawl-lever, which journals on a suitable sleeve on the shaft G similar to the sleeve F, before described. R represents a pawl mounted upon the stud-shaft *r*, which is secured to said pawl-lever. S represents a ratchet-wheel affixed to the shaft G. The pawl-lever Q is constructed like the pawl-lever J (shown in detail in Fig. 4) and is operated by the connecting-rod *s* and hand-lever U, so that when said lever is operated by the attendant on seat C³ the shaft G is operated intermittently at each full stroke of the hand-lever. This construction allows the seed-shaft to be rotated either by the check-rower or by the attendant without changing the parts.

I have shown the valve-lever N bifurcated and each arm provided with a tooth T, so as to use this lever at each end of the machine, one being the duplicate of the other, avoiding the use of rights and lefts, so that said parts are interchangeable. I prefer the reciprocating form of valves, which travel in ways formed in the heel of the seed-shoe, as they are less likely to become clogged and filled up with dirt, and they keep clear better than the ordinary butterfly-valves; but the butterfly-valves might be used with the remaining features of my invention. The way for this valve P is formed by lugs V on the heel of the seed-shoe, through which a bolt is passed, which engages with the loop *w* of the valve and holds it in position and allows it to rise and fall when operated by the valve-lever.

Several important advantages are obtained by the use of my improvement herein. The

dropping mechanism is positive in its operation. By this form of construction I do away with any spring connections for closing the valves. The rotating form of mechanism employed is more durable as well as more positive than other mechanisms hitherto used. Either the check-rower or the hand-lever may be employed to operate the dropping mechanism without changing any of the parts. The seeder can be instantly converted into a drill by removing the valve and the check-rower devices may be allowed to remain on the planter without any change whatever. The valve P may be used by adjusting it to the valve-stem, so as to allow the end of the valve to engage in its lowest position with the lower wall of the seed-duct *a'*. The parts are cheaply made and interchangeable one with the other and require but little fitting. The parts can be made strong, and hence the mechanism is durable as well as positive and convenient.

I claim—

1. In a corn planter, the combination with the rotary shaft G and mechanism for operating the same intermittently, of a ratchet wheel mounted on said shaft, and a pawl lever N pivoted at one end and connected at its other end with a valve controlling the seed tube, and provided with a tooth which engages said ratchet wheel to operate said valve, substantially as described.

2. In a corn planter, the combination with a rotary shaft G, of a sleeve F secured thereto and journaled in seed tubes, the ratchet wheels H, I, arranged on said sleeve, and pawl mechanisms operated by said ratchets, one of said pawl mechanisms operating to intermittently actuate the said shaft, and the other pawl mechanism operating to actuate the seed dropping mechanism, substantially as described.

3. In combination with a rotary valve shaft G of a corn planter the sleeve F journaled in seed tubes and armed with ratchets H, I, and pawl lever J, and pawl K operated in engagement with the ratchet I, the valve lever N provided with the tooth T engaging with the teeth of said ratchet, substantially as specified.

4. In combination with the valve lever N and means for operating the same by the rotation of the valve shaft carrying the ratchet, of a valve rod pivoted to the rear end of said valve lever and operating the valve in the heel of the seed shoe, substantially as specified.

5. In a corn planter in combination with the rotary valve shaft G, the ratchet wheel H, the valve lever N, provided with tooth T engaging with the teeth of said ratchet, the valve stem O and valve P reciprocating in the said orifice at the heel of the planter, substantially as specified.

6. In a corn planter in combination with the seed tubes, and valves in said seed tubes,

of a rotating valve shaft, mechanism mounted upon and driven by said shaft, and connected to the valves and adapted to intermittently operate the same by the continuous rotating
5 of said shaft, substantially as described.

7. In a corn planter, the combination of the rotating valve shaft, driving mechanism for rotating the same intermittently, a rotating valve tripping device mounted on said shaft
10 engaging with an oscillating tripping lever

connected to and operating a valve in the seed tube by the step travel of said shaft, substantially as specified.

In testimony whereof I have hereunto set my hand.

WALTER W. SCHULTZ.

Witnesses:

HENRY HARTZLER,
E. B. CLEMENTS.