(Model.)

3 Sheets—Sheet 1.

J. H. JONES.

CORN PLANTING MACHINE.

No. 265,326. Patented Oct. 3, 1882.

Fig. 1.

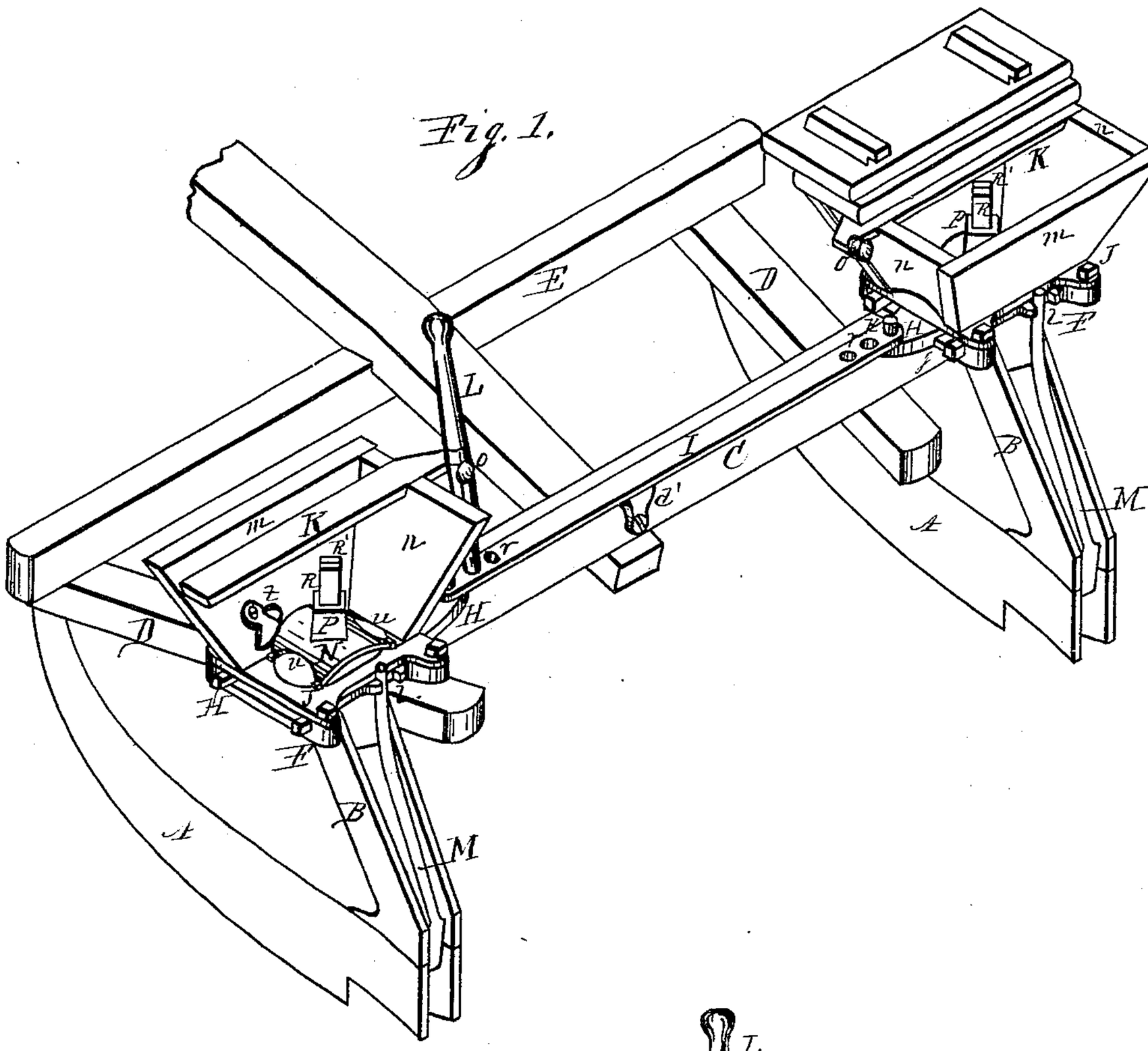
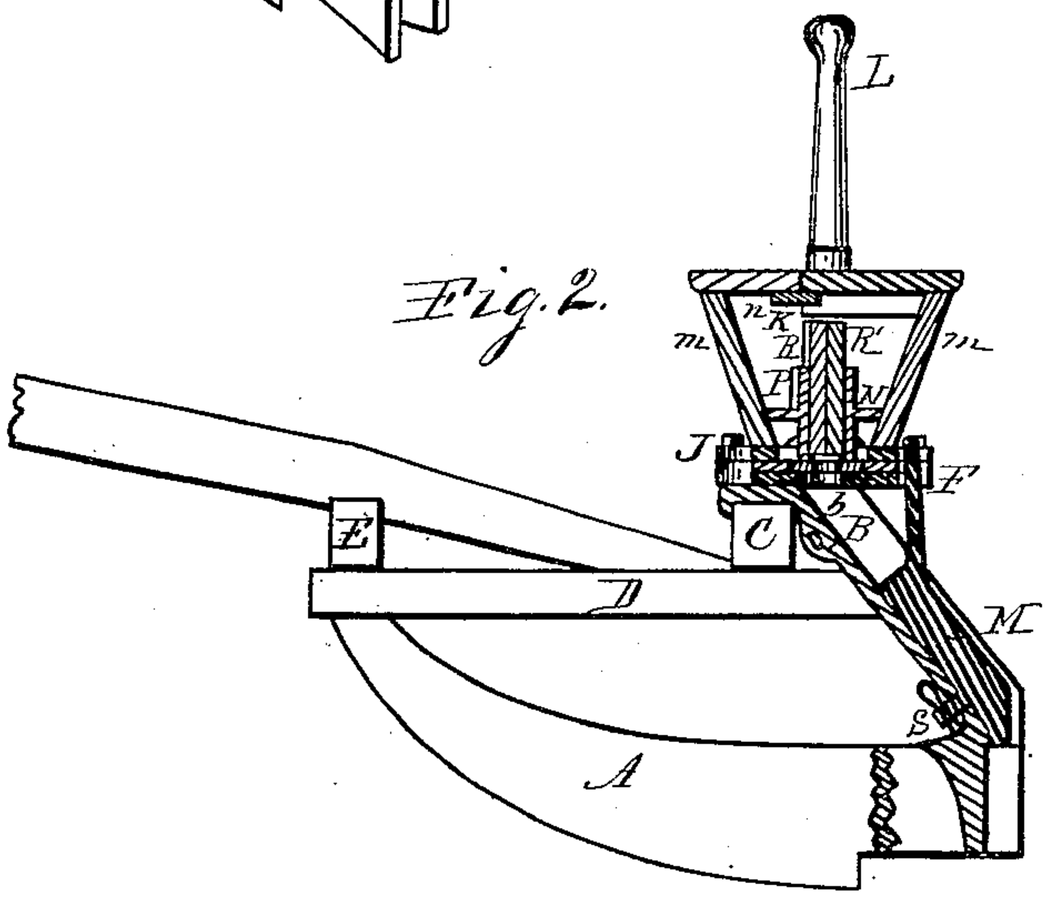


Fig. 2.



Witnesses,
A. O. Behel.
M. E. Haight

Inventor.
James Henry Jones.
Per. Jacob Behel.
Atty.

(Model.) 3 Sheets—Sheet 2.

J. H. JONES.

CORN PLANTING MACHINE.

No. 265,326. Patented Oct. 3, 1882.

Fig. 3.

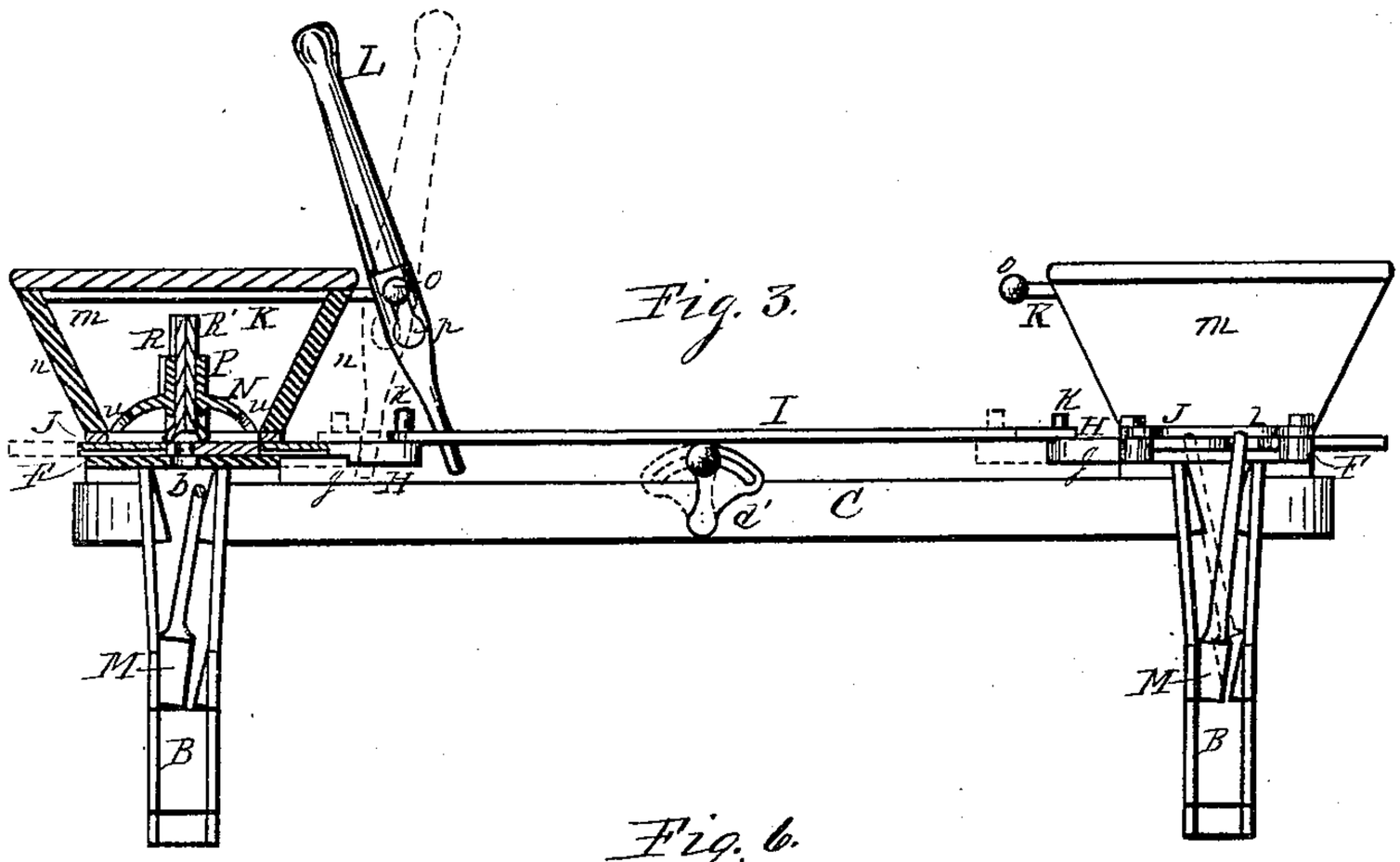


Fig. 6.

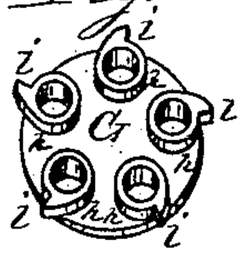


Fig. 5.

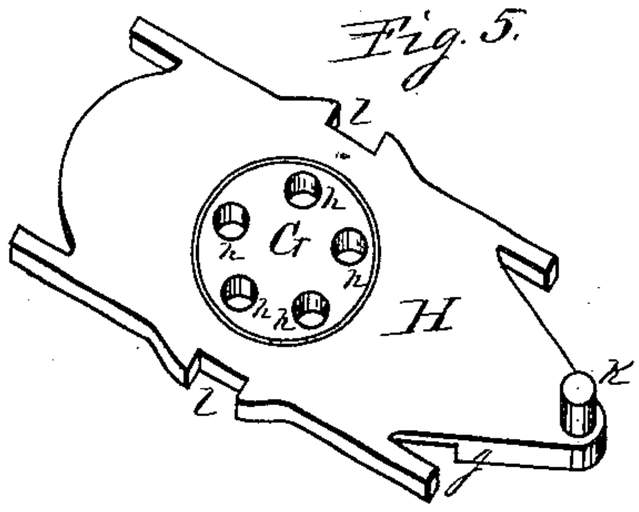
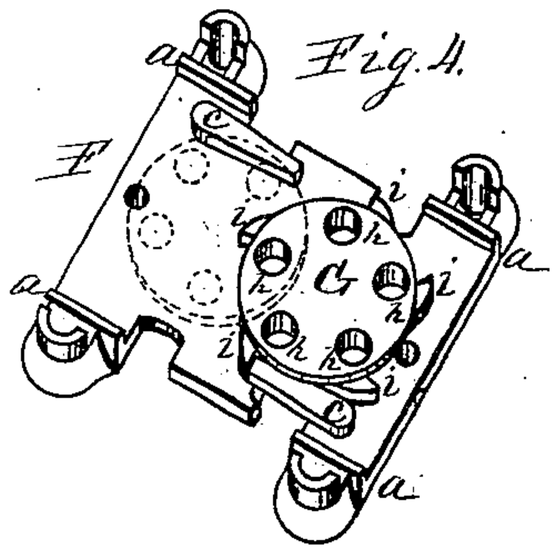


Fig. 4.



R Fig. 8.

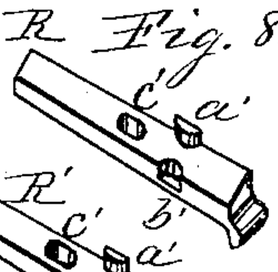


Fig. 9.

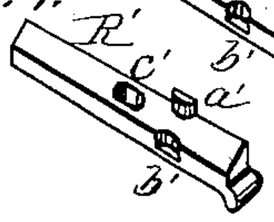
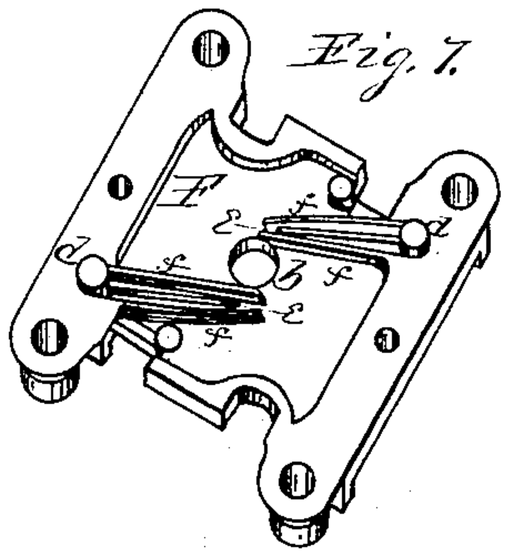


Fig. 7.



Witnesses.
A. O. Behel.
M. E. Haight

Inventor.
James Henry Jones.
Per Jacob Behel.
Atty.

(Model.)

3 Sheets—Sheet 3.

J. H. JONES.

CORN PLANTING MACHINE.

No. 265,326. Patented Oct. 3, 1882.

Fig. 10.

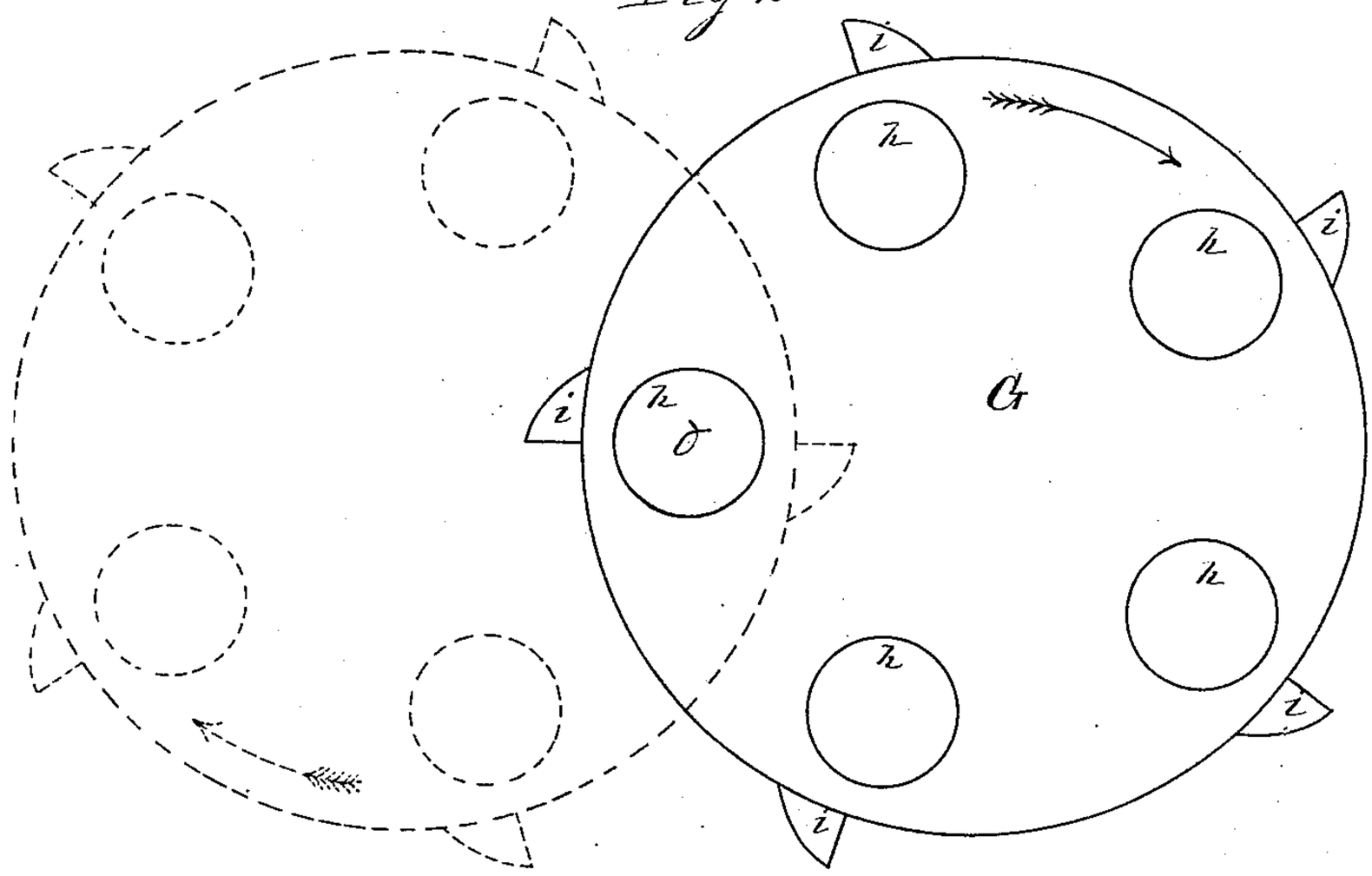
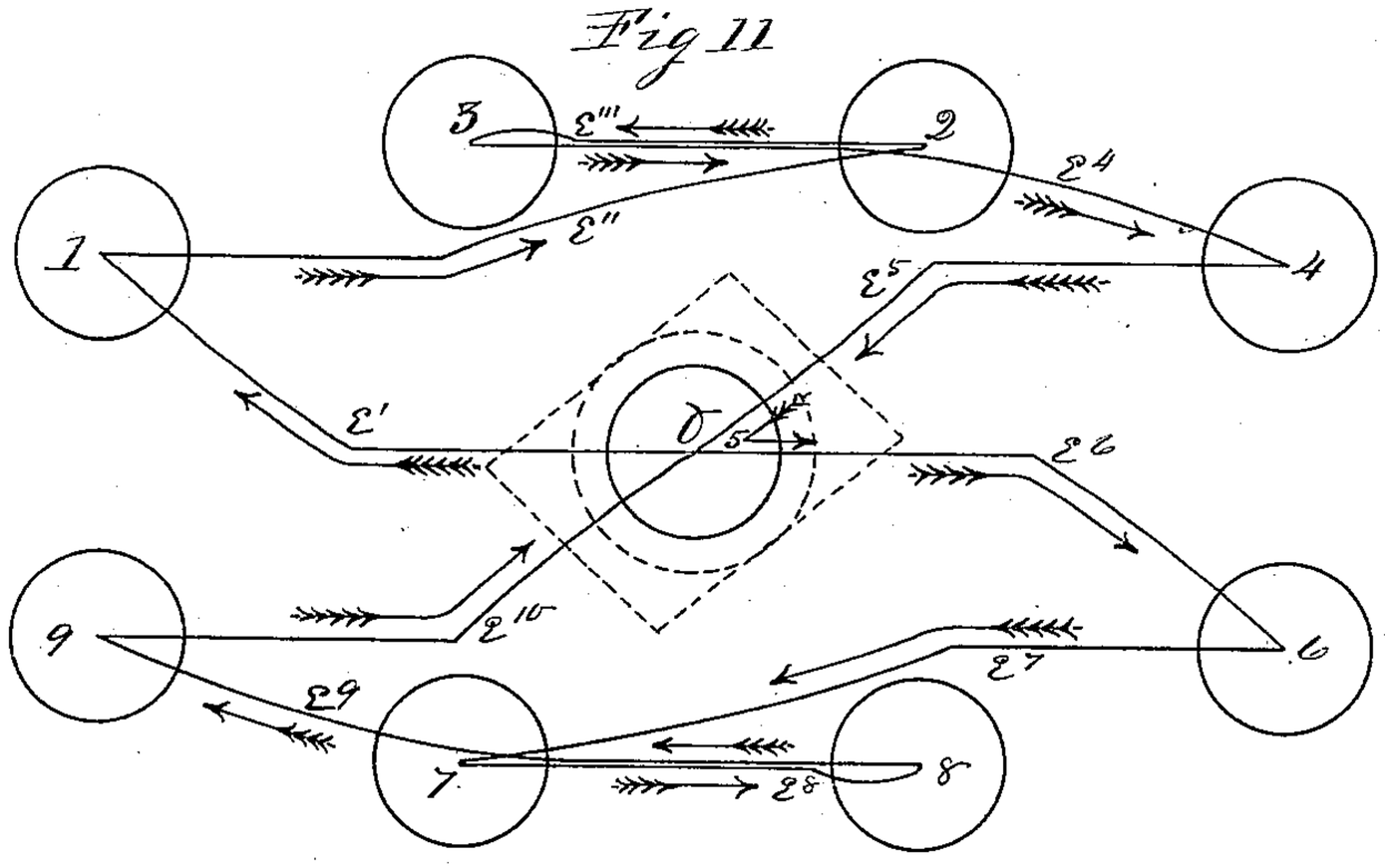


Fig 11



Witnesses.
A. O. Behel,
M. E. Haight

Inventor.
James Henry Jones,
Per. Jacob Behel
Atty.

UNITED STATES PATENT OFFICE.

JAMES HERVA JONES, OF ROCKFORD, ILLINOIS, ASSIGNOR TO EMERSON, TALCOTT & CO., OF SAME PLACE.

CORN-PLANTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 265,326, dated October 3, 1882.

Application filed March 17, 1881. (Model.)

To all whom it may concern:

Be it known that I, JAMES HERVA JONES, a citizen of the United States, residing in the city of Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful Improvement in Corn-Planting Machines, of which the following is a specification.

My invention relates to that class of planters known as "power" planters, in which a team is employed to draw the machine over the prepared ground.

The object of my invention is to insure greater certainty in the dropping of the seed, to more nearly deposit a uniform number of grains in the hills; and it consists mainly in the movements of the seed-cells in the seed-receptacle in contact with the seed. This and the means employed in accomplishing this object, with other improvements, which will be hereinafter more fully described, constitute the subject-matter of this application.

In the accompanying drawings, Figure 1 is an isometrical representation of the forward runner portion of a corn-planter embodying my invention, of which Fig. 2 is a side elevation with seed-box, seeding mechanism, seed-tube, and a portion of the runner in central lengthwise vertical section. Fig. 3 is a rear elevation, having one of the seed-boxes and seeding mechanism in central transverse vertical section. Fig. 4 is an isometrical upper face view of the bed and seed-wheel of the seeding mechanism. Fig. 5 is an isometrical representation of the slide carrying the seed-wheel, which is represented in place therein. Fig. 6 is an isometrical under face representation of the seed-wheel. Fig. 7 is an isometrical under face representation of the bed-plate of the feeding mechanism. Figs. 8 and 9 are isometrical representations of the like parts of the two-part gravity cut-off. Fig. 10 is a face representation of the seed-disk, of practicable size. Fig. 11 is a representation of the line of travel of the seed-cells moving in the direction indicated by the arrows.

In the figures, A represents the runners of a corn-planting machine, which are made from plate material, having an open heel, and their forward ends are fitted to receive a beam of the frame. These runners are of the usual form, having their under curved edge produced in cutter form.

At B is represented the seed-spout, having its lower end fixed in the open heel of the runner and its upper end fitted to receive the end portion of the transverse beam C, which is firmly secured in place by means of sufficient screw-bolts.

At D are represented suitable beams, having their forward ends resting on the forward end of the runner, from which point they incline inward, extending rearward under the transverse beam C, to which they are secured by bolting the parts to each other.

At E is represented a transverse beam, the end portions of which rest on the forward end portions of the oblique beams D. This transverse beam and the oblique beams are firmly fixed to each other and to the forward end of the runners by means of sufficient bolts.

At F is represented the bed-plate of the seeding apparatus, fitted on its upper face to receive a suitable slide having its end portions provided with uprising flanges *a*, to serve as guides to direct the endwise movements of the slide. These bed-plates are fixed in position on the frame centrally over the upper opening of the seed-spouts B, and are provided with a central opening, *b*, through which the seed drops into the seed-spout. These bed-plates at opposite sides are provided with spring-pawls *c*, pivoted at opposite ends of the plates, with their free ends extending lengthwise thereof toward its central portion. The pivot of these pawls consists of a stud, *d*, projecting from their lower face, which enter openings in the plate provided to receive them. The depending portion of these pivot-studs are provided with transverse holes, into which are placed the end portion of spring-wires *e*. These spring-wires, from their connection with the pivot-studs *d* of the pawls, extend in a plane parallel with the plate between the ribs *f*, rising from its under face, and at the point *e* are fixed to the plate in this instance by having their end portions bent to extend through a suitable hole or opening formed therein, and bent or clinched on the opposite side of the plate. These parts are ar-

ranged in such a manner that the action of the springs will operate to hold the free ends of the pawls toward the center of the plate.

At G are represented seed-disks, provided at proper intervals with seed-cells *h*. From the under side of these disks opposite each seed-cell project ratchet-teeth *i*, designed to engage the free end of the spring-pawls *c* when the disks are made to slide lengthwise centrally on the bed-plate, and, if the sliding movement of the disk be continued, will cause a partial rotation of the disk.

At H is represented a slide, fitted to enter within the guide-flanges of the bed-plate to move endwise therein freely. The center portion of this slide is of less thickness than its edge portions, being recessed on its under face. This slide is provided centrally with an opening fitted to receive the seed-disk flush on its upper face side with the upper face of the ratchet-teeth resting against its under face. The inner end portions of these slides are provided on their under sides with a downward-projecting portion, *j*, designed to engage the inner end portion of the bed-plate to limit the outward movement of the slides. From the upper face of the inner ends of these slides rises a stud, *k*, which enters a hole in the end portion of the transverse connecting-bar I, and a pin or cotter, passed through the stud above the slide, serves to fix it in place. The side edges of these slides are provided with notches, as at *l*, to receive the free end of the lever-arm of the flipper-valve.

At J is represented the metallic bottom of the seed-box, consisting of an outer rim fitted to receive the under edge portion of the sides *m* and ends *n* of the seed-box, which are fixed thereto. The corner portions of this metallic bottom are provided with outward-projecting ears, which are perforated to correspond with the perforations of the projecting ears of the bed-plate, and receive suitable screw-bolts employed to fix the seed-box in position thereon.

At K are represented metallic bars fixed in the upper edge portions of the seed-box ends in such position that their end portion projects inward beyond the box. The inward-projecting end portions of these metallic bars are provided with a pivot-bearing, *o*, which projects from their edge rearward in a horizontal plane, and have their end portions fitted with a collar of button-like form.

At L is represented a hand-lever provided with an opening at *p* of a size sufficient to receive the button-like collar of the pivot-bearing *o*, from which opening a slot extends upward, and is of sufficient size to receive the pivot-bearing. The lower end of this hand-lever is fitted to freely enter a hole or holes, *r*, in the end portions of the bar I, employed to connect the slides of the seeding mechanism. This hand-lever is put in position by placing its lower end portion in the hole in the bar I, then passing the enlarged opening at *p* over the button-formed collar, then permitting the lever to drop endwise into position. This lever is designed to be used on either end of the connecting-bar, in connection with the pivot-bearing on either seed-box, and is designed to impart an endwise movement to the slides of the seeding mechanism in either direction as its upper free end is moved in one or the other direction.

At M are represented flipper-valves, which in the main are of the usual construction; but in this instance they are pivoted in the seed-spouts B by means of a stud, *s*, projecting from their under edge, which enters a hole in the under wall of the spout prepared to receive them. By this construction of the flipper-valve I produce a reliable connection of the parts capable of being readily applied or removed, and in which I dispense with the separate pivot-bolts or other separate appliance usually employed to fix the valve in position. The upper free end of the flipper-valve arm engages the notches formed in the edge of the slides of the seeding mechanism.

At N is represented a bridge having its foot-supports in suitable bearings formed in the metallic bottom in the inner corners of the seed-boxes, from which points they rise, arching in the lengthwise direction of the seed-boxes to their centers. The sides of these bridges rest against the inner side walls of the seed-boxes, and are removably held in position by means of buttons *t*, pivoted to the inner side walls of the seed-boxes. The end portions of these bridges are arching crosswise of the seed-box, as at *u*, forming an opening through which to admit the seed from the seed-box under the bridge in contact with the seed-disk. From the crowning center of these bridges rises a pipe-bearing, P, rectangular in cross-section, and of suitable dimensions to receive the vertical shaft of a gravity cut-off.

At R and R′ are represented like parts produced from the same pattern, having studs *a′* and recesses *b′* on the opposite edges of their inner faces, adapted to engage each other when their inner faces are placed in contact, operating to prevent an independent endwise movement of the parts, and producing a shaft rectangular in cross-section and of proper dimensions to enter freely the pipe-bearing P. These separate parts are provided with like slotted openings, *c′*, which, when the cut-off is in place in the pipe-bearing, receive a pin passed transversely through the pipe-bearing, which operates to hold the cut-off in its bearing to permit of a limited vertical movement therein. The like parts of this cut-off are fitted with like feet, of suitable conformation to produce an effective cut-off and to rest upon the seed-disk immediately over the central discharge-opening in the bed-plate, and in such position relatively with the movement of the disk as to cross the path of the discharging-cell at about right angles to the central line of its movement, operating to sweep or strike the surplus grain from the surface of the cell in its passage under the cut-off; and in case grains are caught

between the cut-off and the vanishing edge of the cell the cut-off will rise to prevent cutting or breaking the grain.

At *d'* is represented a segment pivoted to the central portion of the rear transverse beam in position to produce a central support to the bar I, employed to connect the slides of the feeding mechanism. This connection of the pivoted segment with the connecting-bar serves to reduce the under friction of the slides of the feeding mechanism by means of the bar-connection therewith.

The arching bridges in the seed-boxes support the main portion of the seed contained therein, and consequently relieve the slides and lessen the friction thereof, and they further operate to insure a more nearly uniform pressure of the seed upon the seeding-disk, which operates to insure a more nearly uniform deposit of the seed.

In the enlarged view at Fig. 10 the solid lines represent the seed-disk of practical size, and in its extreme position in one direction, and the dotted lines of the same figure represent the same disk in its extreme position in the opposite direction, and in both positions the seed-cell from which the seed is delivered will be at its zero (0) position over the discharge-opening in the center of the fixed bed-plate.

The diagram as seen at Fig. 11 is a full-sized representation, showing in the solid-line circles the several positions of the several seed-cells in the seed-disk when in use, and the path of their movement is represented by the solid lines connecting their centers, and the arrows indicate the direction of their movement, which can be traced from the 0-point on the line e' to position 1; from thence on line e'' to position 2; thence on line e''' to position 3; thence on line e^4 to position 4; thence on line e^5 to position 5, being the central position and place of deposit; thence on the line e^6 to position 6; thence on line e^7 to position 7; thence on line e^8 to position 8; thence on line e^9 to position 9; thence on line e^{10} to the 0 or central position, being the position or place of deposit and place of beginning. In this movement it will be seen that the cells approach the position of deposit alternately in opposite directions and pass under the cut-off, which is represented in the parallelogram of dotted lines, alternately on opposite sides.

From the foregoing it will be seen that in my improved seeding mechanism the seed-disk is made to reciprocate with the movement of the slide, and relatively with the bed-plate moving in a line lengthwise thereof a distance equal to the diameter of a circle passing through the center of the seed-cells. In the reciprocating movement of the disks they are made to perform an intermittent rotary movement relatively with the reciprocating slide, which in this instance is equal to one-tenth of a complete rotation in each movement or throw thereof, requiring ten throws of the slide to make one complete rotation of the disk. In this movement the disk, relatively with the bed-plate, is made to perform a variety of opposite like curves in different directions in different parts of its reciprocating movement, which are clearly illustrated in the diagram at Fig. 11, and of which it is not deemed necessary to give a more full or minute description in this connection.

With my improved seeding mechanism I cause the seed-cells between deposits to move a greater distance and in more varied directions in contact with the seed than any seeding device known to me; and the movements of the cells, being of a sudden jerking character in the many varied directions, operates to pack the seed in all parts of the cells. By these means I am enabled to produce better results in uniform deposits than can be produced with any seeding mechanism with which I am familiar.

From the foregoing it will be seen that the several parts, consisting of the bed-plates, the slides carrying the seed-disks, the metallic bottoms of the seed-boxes, the metallic bars with pivotal supports for hand-lever, the arching bridge in seed-boxes, and the two-part gravity cut-off, are all made reversible and interchangeable, capable of use on either side of the machine, with either edge to the front or rear, except the bars which furnish the pivotal supports for the hand-lever, which are capable of use on either side, turning their upper sides down; and for the purpose of varying the quantity of seed deposited I employ a series of disks with cells of varying capacities.

In the foregoing I have only represented and described that portion of a planting-machine with which my improvements are immediately connected, and for the parts necessary to produce a complete planter (not herein shown or described) any of the known parts of machines capable of use in connection with the parts herein shown or described may be employed.

What I claim as my invention is—

1. In a seeding-machine, the combination, with a reciprocating slide provided with a rotary seed-distributing disk, of the bed-plate provided with pawls for actuating said disk, the pawls being provided with studs projecting through the bed-plate, and springs on the under side of the bed-plate adapted to actuate the pawls, substantially as set forth.

2. A gravity cut-off consisting of like parts adapted to engage each other to prevent independent endwise movement, substantially as hereinbefore set forth.

3. A gravity cut-off consisting of like parts adapted to engage each other to prevent independent endwise movement, in combination with a socket or pipe bearing, substantially as and for the purpose hereinbefore set forth.

4. In a seeding-machine, the combination, with a reciprocating slide and a rotary disk provided with a series of openings and furnished with a series of ratchet-teeth, the disk

being fitted in the slides and adapted to be reciprocated therewith, of a bed-plate provided with a seed-discharge opening and with two spring-pawls to impart rotary motion to the rotary disk as it is moved forward and backward, substantially as set forth.

5. The combination, with a reciprocating seed-disk, of a bridge arranged to span the discharge-opening in the bed-plate, said bridge having openings at its sides, and a gravity cut-off mounted in said bridge, substantially as set forth.

6. The combination of a bed-plate, a seed-distributing slide, a seed-box bottom, a bridge, and a cut-off, consisting of two parts, adapted to engage each other, all of said parts being made reversible and interchangeable, producing a seeding mechanism substantially as set forth.

7. In a seed-distributing mechanism, the combination, with a reciprocating slide, of a distributing-disk provided with a series of seed-cells and adapted to rotate against its peripheral bearings within the reciprocating slide, substantially as and for the purpose hereinbefore set forth.

8. The combination, with a seed-slide, of a rotary seed-distributing disk provided with a series of seed-cells, said disks adapted to receive a reciprocating movement by peripheral contact with the reciprocating slide, substantially as and for the purpose hereinbefore set forth.

9. A seed-distributing disk provided with a series of seed-cells, said disk adapted to receive a reciprocating movement produced by peripheral contact with a reciprocating slide, in combination with means, in connection with the reciprocating movement of the slide, to impart a rotary movement to the disk, substantially as and for the purpose hereinbefore set forth.

10. The combination of a seed distributing disk provided with a series of seed-cells and with ratchet-teeth, a reciprocating slide, provided with a bearing to receive the periphery of the seed-distributing disk, and spring-actuated pawls to engage the ratchet-teeth to impart a rotary movement to the disk within its peripheral bearings in the reciprocating slide, substantially as and for the purpose hereinbefore set forth.

JAMES HERVA JONES.

Witnesses:
S. G. BRONSON,
A. O. BEHEL.