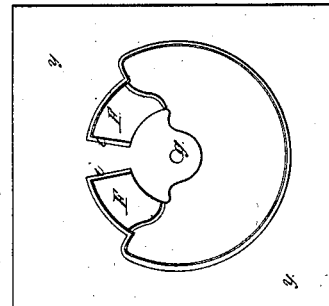
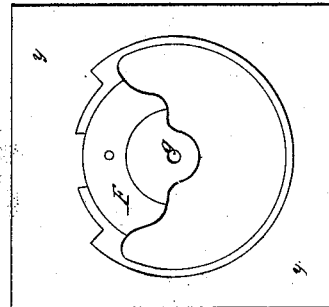
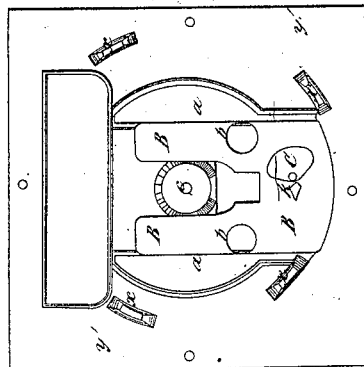
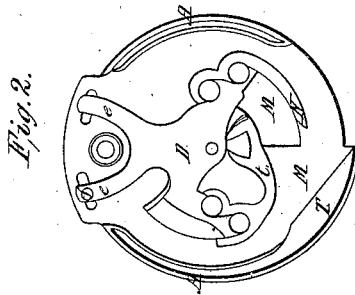
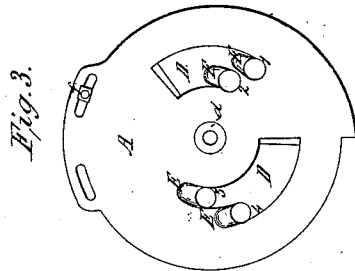


*J. H. Alexander.*

*Seed Dropper.*

*N<sup>o</sup> 52,635.*

*Patented Feb. 13, 1866.*



*Witnesses.*  
*Jno D Patton*  
*N. W. Hulbur.*

*Inventor:*  
*James H. Alexander, Adm*  
*By atty A. B. Loughton*

# UNITED STATES PATENT OFFICE.

JAMES H. ALEXANDER, OF DECATUR, ILLINOIS, ADMINISTRATOR OF THE  
ESTATE OF THOMAS K. ALEXANDER.

## IMPROVEMENT IN SEED-PLANTERS.

Specification forming part of Letters Patent No. 52,635, dated February 13, 1866.

*To all whom it may concern:*

Be it known that THOMAS K. ALEXANDER, formerly of Decatur, in the county of Macon State of Illinois, (now deceased,) did during his lifetime invent certain new and useful Improvements in a Dropping Apparatus for Seed-Planting Machines; and that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents the top side of the under plate. Fig. 2 represents the under side of the second or middle plate, and Fig. 3 represents the top side of the middle plate. Fig. 4 represents the top side of the upper or top, and Fig. 5 the under side of said top plate.

Similar letters of reference, where they occur in the several figures, denote like parts in all the drawings.

The invention of the said THOMAS K. ALEXANDER consisted, first, in the combination of an oscillating plate having four seed holes or cells, with an under reciprocating plate having two dropping-holes; through it, the four cells alternating with the two delivering or dropping holes.

The invention further consisted in combining with the upper and under plates a turning button and grooved or cam switches, for the purpose of alternately moving and resting the reciprocating under plate, while the upper one oscillates constantly.

The invention further consisted in combining with a four-cell oscillating plate, a double-spring cut-off, so that each cell shall be allowed to fill and be cleared of the excess or protruding grains twice for every single delivery therefrom.

The invention further consisted in combination with the spring cut-off and turned lip thereon, the beveling or gradual running out of the tops of the cells, so that the excess or protruding grains may be forced back into the hopper without breaking or injuring the grains for planting.

To enable others skilled in the art to make and use this invention. I will proceed to de-

scribe the same with reference to the drawings.

After much practical experience with seed-dropping machines, the said THOMAS K. ALEXANDER discovered that the great objection to the present seed-planting machines, and the cause of their irregular dropping, was due to the fact that so little time, owing to the rapidity of their motion, was given to the seed-cells to fill and deposit their charges in the delivery-holes or seed-ducts that they often passed half-charged from the hopper or the cells were bridged over by jammed grains, as to make their action very uncertain and very irregular, and he immediately conceived the necessity of giving the cells more time to fill, but at the same time keeping up the same speed of dropping and of progressive motion of the machine over the ground; and this was accomplished by making four seed-cells that would alternate with two dropping-holes, so that the cells had double the time to fill and be charged that they had before and the dropping would continue to be the same; and in addition to the cells having this increased time for filling, they were made to pass twice into the hopper and twice under the cut-off for each single dropping operation, so that they were certain to have a regular number of grains in them, and no more and no less. The basis of this general conception is developed in the patent granted to the said THOMAS K. ALEXANDER, as the assignee of John Gross, dated the 6th of June, 1865; but the said THOMAS K. ALEXANDER simplified and rendered practical this conception, and so improved the mechanical construction to render the machine practical as to make it a highly valuable and useful implement for farming purposes, its regularity and certainty of action making it a reliable machine seed-dropper.

The plate *y'* is set in the bottom of the hopper of the seed-planting machine. It is furnished with pillars or supports *x x*, &c., for supporting the upper plate, *y*, and allowing the middle plate to freely move between the two, and without having the weight of the grain in the hopper upon it. In or on suitable ways or guides *a a* upon the top of this

under plate, *y'*, is moved a sliding plate, B, upon which is pivoted a button or switch, C, which moves until checked by a stop, *k*, also upon said plate B. Two holes, *b b*, are made through this reciprocating plate B, for the grain from the cells to drop through when the cells come over said openings.

*c* is a stud or pin secured to the under plate, *y*, upon which the middle plate A is set and oscillated, said middle plate having a hole, *d*, to pass over said pin or stud.

Through the plate A is made concentric openings, which terminate at one of their ends in half-rounds, and into these concentric openings pass from the under side of the plate the two concentric arms, D D, which have also at one of their ends half-rounds to meet those in the slots or openings, the two sets of half-rounds in each forming a set of round or oval openings for the seed to pass through, which openings can be adjusted as follows: The arms D are connected to and are a part of a spider that sets over the stud or pin *c*, and can, by means of its arms or projections *e* and set-screws *f*, be moved so as to enlarge or diminish the size of said openings or cells. This adjustment of the holes or cells in the plate A is the same as that in the patent above referred to as granted to THOMAS K. ALEXANDER, and need not be further referred to here. On top of this middle oscillating plate A, as seen Fig. 3, the seed-cells terminate in a plane, E, which runs out on the plate A. The object of these planes E is to allow the cut-offs F, under and past which these cells move, to push or brush back the excess of grain without breaking or injuring them so as to prevent their germinating.

On the under side of the middle plate A there are cam-ledges T N *t*, which leave between them a cam groove or recess, M M, for the button C to work in as the said middle plate is oscillated.

The top plate, *y*, being adjusted with the stud or pin *c* passing up through the hole *g* and resting upon the supports *x x*, &c., the whole seeding apparatus is in working order.

The spring cut-offs F F on the top plate A have their ends *i i* slightly turned up or rounded off, so that they shall not, in pushing back the excess of grain from the cells, break or injure them. The spring cut-offs and the inclinations or planes E, extending from said cells, together with the turned-up edges of the cut-offs, all aid to allow the excess of grain to be swept back without breaking them or injuring their germinating properties. When these three plates are arranged in place and the middle one is oscillated by a lever, bar, rod, or any other suitable mechanical devices, the ledge N, coming against the button C, turns it around against the stop *k*, and then the ledge T or *t*, as the case may be, coming against the button and the button resting against the stop, causes the plate B to move. The next oscillation of the plate A brings the ledge N against the

button on the opposite of the stop, and swinging the button around fixes it in the path of the other ledge, T or *t*, as the case may be, so that every half-oscillation of the plate A merely fixes the button in place, so that the other half-oscillation will shift the plate B in one direction, forward or back, as the case may be, but not both. Thus it will be perceived that it requires four movements of the plate A to cause two movements of the plate B, because one-half of the movement of B is prevented by the button moving instead of the plate.

As before mentioned, there are four cells, 1 2 3 4, in the middle plate A, and but two dropping-openings, *b b*, in the plate B. The cells oscillate over and past the dropping-openings *b b*, and it would be obvious that if the holes *b b* remained in a fixed position the cells would fill and empty themselves as is universally done on machines prior to the one herein referred to; but by shifting the holes *b b* by moving the plate B, as stated, the dropping will alternate from the cells, as follows: Supposing that the cell 4 has just dropped its charge of grain, the next oscillation of the plate A would bring the cell 2 over an opening, and it would drop its charge. The next oscillation of the plate would bring the cell 3 over an opening, and it would drop its charge. The next oscillation of the plate would bring the cell 1 over an opening, and it would deliver its charge; and while one of the four holes or cells is dropping the others are being filled and passing into the hopper and past the cut-off, and being surely charged with a measured quantity of grain, that is (when its turn comes) again dropped, and so on. First cell 1 drops its charge, then cell 4 drops its charge, then cell 2, and then cell 3, and so they alternate, leaving abundant time for the cells to fill and be brushed off, so as to have the exact measured quantity, and no more and no less.

I have described a single hopper arranged with this improved seeding apparatus. Of course two or more may be used; and though runners are regarded as the best for mounting the seeding apparatus and the operator upon, yet wheels may be used, if so preferred.

Having thus fully described the construction and operation of the machine, what is claimed as the invention of THOMAS K. ALEXANDER is—

1. The combination of the oscillating plate A, having four seed-cells in it, with the reciprocating plate B, having two delivery-holes in it, for the purpose of alternating the cells with the delivery-holes, substantially as described.

2. In combination with an upper oscillating and an under reciprocating plate, the grooves and cam-projections on one and the button and stop on the other, so that four oscillations of the upper plate shall produce but two reciprocations of the under plate, substantially as and for the purpose described.

3. In combination with a four-cell oscillat-

ing plate, a double spring cut-off, so that each cell shall pass twice into the hopper and twice under the cut-off for each and every of its dropping operations, substantially as and for the purpose described.

4. In combination with the spring cut-off and turned lip thereon, the sloping out of the tops of the cells, as at E, so that the excess or protruding grains may be swept or brushed back

without breaking or injuring them, substantially as set forth.

JAMES H. ALEXANDER,  
*Administrator of the estate of Thomas K. Alexander, deceased.*

Witnesses:

A. J. GALLAGHER,  
JAMES C. LAKE.