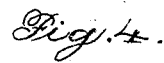


Grain-Drill.

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IMPROVEMENT IN GRAIN-DRILLS.

Specification forming part of Letters Patent No. 49,882, dated September 12, 1865.

To all whom it may concern:

Be it known that I, JAMES D. JONES, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Grain-Drills; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in the construction and arrangement of the several parts hereinafter described.

To enable others skilled in the art of making grain-drills to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawings, Figure 1 represents a top view of my improved grain-drill. Fig. 2 represents a sectional view of the same. Fig. 3 represents a section of the adjustable cut-off plate and gage-plates of the hopper. Fig. 4 represents a sectional view of the hopper, agitator, gage-plate, cut-off plate, &c., on an enlarged scale.

In the drawings, *a* represents the frame of the grain-drill. *r* and *c* represent the cross-bars of the frame. *d* represents the tongue. *b* represents the wheels, which are secured permanently to the axle *t*.

E represents the hopper or seed-box, which is secured to the frame *a* of the grain-drill, and in which is placed a shaft, *5*, which runs lengthwise of the hopper. On this shaft *5* is placed a number of agitators, *F*, which may be made in any desired form. On one end of the shaft *5*, used for the agitators *F*, is placed a small cog-wheel, marked *g*, which gears into a larger cog-wheel, *f*, placed permanently on the axle *t*, for which arrangement of cog-wheels and agitators see Figs. 1 and 4.

In the bottom of the hopper *E* are made the desired number of openings for the seed to pass through, and over each of these openings is placed an agitator, *F*. On the under side of the bottom of the hopper *E* are placed gage-plates *G*, furnished with an oval-shaped opening, marked 2, and over each of these plates *G* are placed plates, marked *H*, with an opening in them of the same form as those made in the gage-plates, but much larger.

Between the plates *G* and *H* is a space, in which is placed the cut-off plate *i*, on one side of which are a number of notches, which cor-

respond in number, form, and size to the number of gage-plates used or placed on the bottom of the hopper *E*. The plate *i* is so arranged between the plates *G* and *H* that it can slide forward or back. On the ends of the plate *i* are lugs, to which are attached connecting-rods *l*, which are attached to the lever-bar *k*, which is hung on the adjustable hangers or bearings *j*, furnished with a slot, *o*, and regulating-screw *n*. The journals or axis 6 of the lever-bar *k* and the pins 8, to which the connecting-rods *l* are attached, are arranged with relation to each other so that in turning the lever-bar *k* into the position indicated by the dotted lines marked 7 (see Figs. 2 and 4) the said turning of the lever-bar will cause the rods *l* to move the cut-off plate *i*.

On the lower side or edge of the lever-bar *k* is a handle, *w*, which is used for turning the lever-bar into the desired position.

y represents my improved adjustable drag-bar, which is secured to the cross-bar *r* of the drill-frame by means of staples or other device. To the back end of the drag-bar *y* is attached an ordinary drill-tooth, marked *n'*, which is connected to the lever-bar *k* by means of a cord or chain, *e*.

x represents the chute for conducting the seed into the drill-tooth *n*. This reversible chute is of ordinary construction, with the exception that the upper or hopper part of the chute is furnished with a loop or hinge, marked 9, which is used for the purpose of connecting the chute to the beveled bar *c*, which is directly under the hopper *E*. By thus hanging and arranging the chute *x* it can readily be reversed, so as to conduct the seed into the teeth, which may be placed forward of the cross-bar *c*, which thing is very desirable and often done for the purpose of "straggling" the teeth when working in stony ground, for by straggling the teeth the distance between them is made greater, and the machine is not so liable to clog. The dotted lines *x'* represent the position of the teeth when straggled, and also represent the chutes reversed.

m represents a circular gage-plate, which may be used in combination with the cut-off plate *i*, if so desired.

The manner of constructing and the form and size of the various parts herein described and represented I leave to the good judgment, skill, and taste of the mechanic.

It will be observed that I only represent one drag-bar, drill-tooth, reversible chute, and agitator; but these may be increased to any number desired.

As the construction and arrangement of the parts herein described will be readily understood, I will at once proceed to describe the operation of my improvement.

Having all things arranged as herein described, I place seed in the hopper E, and the revolving of the wheels *b* will revolve the axle *t*, which will revolve the cog-wheel *f*, which will revolve the small cog-wheel, *g*, which will revolve the shaft-agitators F, which will cause the seed to drop down through the opening 2 in the gage-plates G into the chutes *x*, and from them it will drop into the drill-teeth *n'*, and from them into the ground. When I desire to sow or drill in a larger quantity of seed I turn the screws *n* so as to move the hangers or bearings *j* back from the hopper E, which will move back the lever-bar *k*, connecting-rods *l*, and cut-off plate *i*, which will increase the size of the openings through which the seed passes, and when I desire to diminish the quantity in sowing or drilling in, I turn the screws *n* so as to move the hangers or bearings *j* forward toward the hopper E, which will move the lever-bar *k*, rods *l*, and cut-off plate *i*, which will diminish the size of the openings through which the seed has to pass.

It will be observed that the size of the openings will in all cases depend on the position of the hangers, lever-bar, rods, and cut-off plate *i*. When I desire to cut off entirely the seed and make the machine inoperative, I turn the lever-bar into the position indicated by the dotted lines 7. This will raise up the drill-teeth and drag-bars, and at the same time cause the cut-off plate *i* to cover the openings 2 in the gage-plates G. When I desire to straggle the drill-teeth *n'*—that is to say, place one-half of the whole number used forward of the cross-bar *c*—I remove the bolts in the drag-bar *y*, and move the part marked R forward so as to bring the tooth into the position represented by the dotted lines *x'*. I then replace the bolts

in the drag-bar *y* and secure the parts firmly together. I then reverse a number of the chutes *x* to correspond to the number of teeth brought forward; and when I desire to sow broadcast I remove the chutes *x*, and also remove the drag-bars and drill-teeth *n'*, or raise them up so that they will be inoperative.

The advantages of my improvement in grain-drills are as follows:

First. By the use of the agitators F, in combination with the gage-plates G, I force the seed down into the chute *x* without breaking it, for the agitators simply keep the seed in motion, and the motion of the seed forces it down through the openings into the chute *x*.

Second. I can increase or diminish the capacity of the machine, so as to sow any desired quantity of seed. This is accomplished by the arrangement and use of the adjustable hangers *j*, rods *l*, lever-bar *k*, and plates *i* and G.

Third. I can sow broadcast by simply removing the chutes *x* and raising the drag-bars *y* and their teeth *n'*.

Fourth. By means of the adjustable drag-bars *y* and reversible chutes *x*, I can straggle the drill-teeth for the purpose of making a greater space between them, thereby enabling me to work my machine in stony ground without clogging the teeth.

Having thus described the nature, construction, and operation of my improvement, what I claim as my invention is—

1. The arrangement of the hopper E, agitator F, gage-plates G and H, cut-off plate *i*, adjustable hangers *j*, lever-bar *k*, and connecting-rods *l*, constructed, arranged, and operating substantially as herein described, and for the purpose set forth.

2. The combination of the reversible chute *x* with the adjustable drag-bar *y* and tooth *n'*, as herein described, and for the purpose set forth.

JAMES D. JONES.

Witnesses:

JAMES J. JOHNSTON,
JOHN JOHNSTON.