2 Sheets—Sheet 1.

J. H. FARMER.

DROPPING-ATTACHMENT TO CORN-DRILLS OR PLANTERS.

No. 192,243. Patented June 19, 1877.

Fig. 1

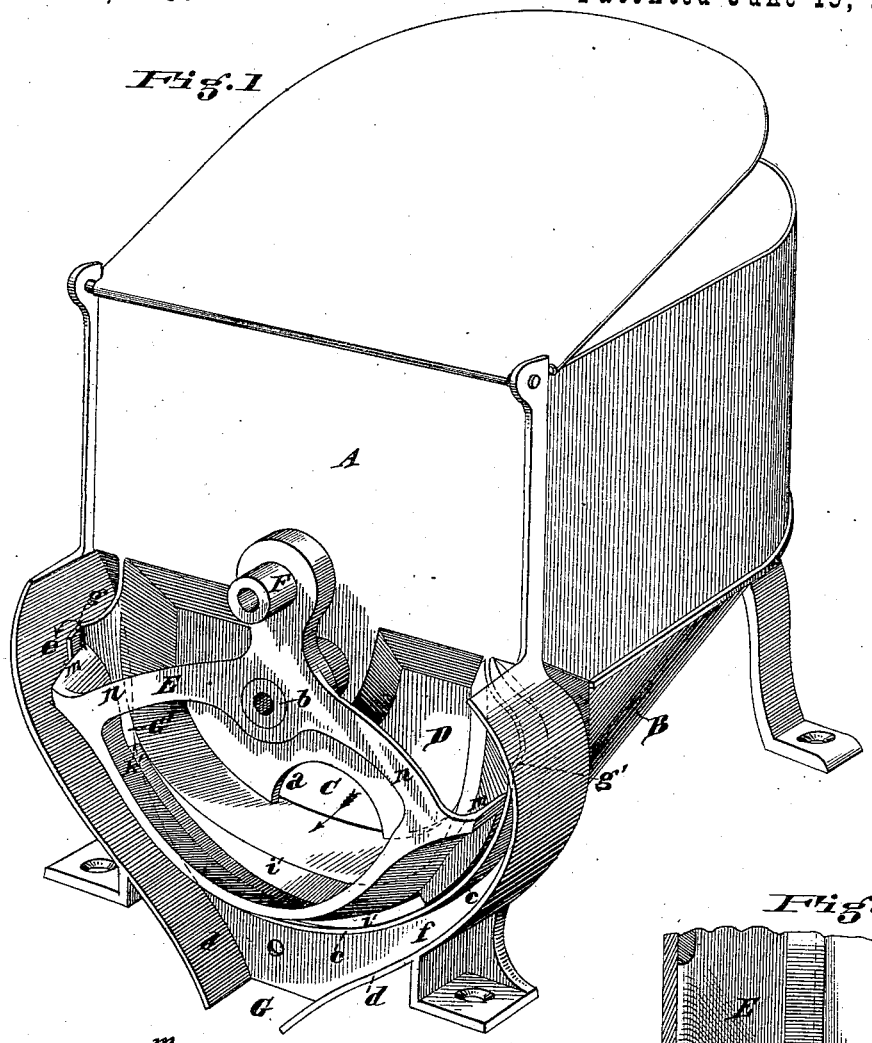


Fig. 2

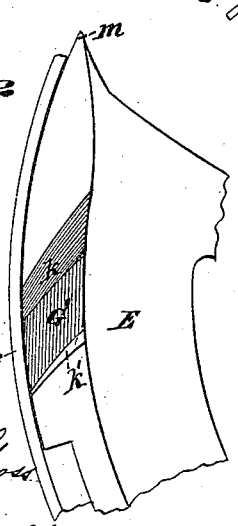


Fig. 3

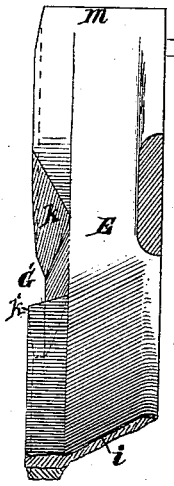
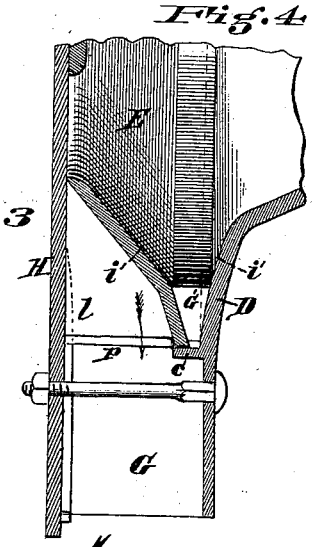


Fig. 4



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2 Sheets—Sheet 2.

J. H. FARMER.

DROPPING-ATTACHMENT TO CORN-DRILLS OR PLANTERS.

No. 192,243. Patented June 19, 1877.

Fig. 5

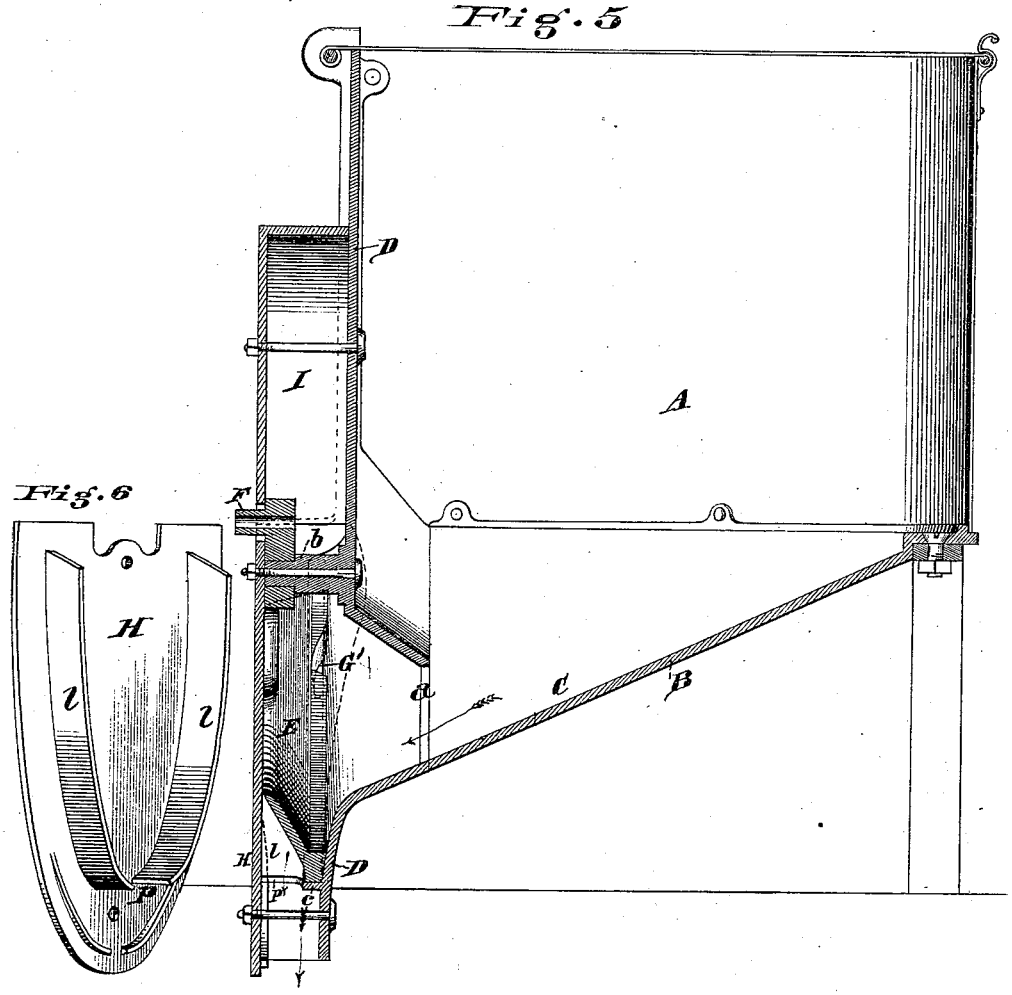

Fig. 6

Attest

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JOHN H. FARMER, OF RICHMOND, INDIANA.

IMPROVEMENT IN DROPPING ATTACHMENTS TO CORN DRILLS OR PLANTERS.

Specification forming part of Letters Patent No. **192,243**, dated June 19, 1877; application filed May 5, 1877.

To all whom it may concern:

Be it known that I, JOHN H. FARMER, of Richmond, in the county of Wayne and State of Indiana, have invented a new and useful Improvement in Dropping Attachment to Corn Drills or Planters, which improvement is fully set forth in the following specification and accompanying drawing, in which—

Figure 1 is a perspective view of a seed-hopper, feed-plate case, and feed-plate embodying my improvement. Fig. 2 is a face view of a portion of the feed-plate, showing the configuration of the seed-cell. Fig. 3 is a plan of a portion of the feed-plate, showing in a plane at right angles to Fig. 2 the configuration of the seed-cell. Fig. 4 is a vertical section of a portion of the feed-wheel case and feed-plate through the seed-cell. Fig. 5 is a vertical section of hopper, grain-chute, feed-plate case, and feed-plate embodying my invention. Fig. 6 is a perspective view of the outside plate or cap which forms a part of the case of the feed-plate and delivering-channel.

My invention relates to the class of corn-drills having vertical feed-wheels receiving grain at the side from a grain-chute fed from an elevated hopper; and it consists—

First, in a certain construction and arrangement of the shell and the feed-wheel or curved plate by which a vibratory movement, instead of a rotary movement, is given to the latter, and by it may be enabled to take up seed-corn in single grains from the grain-chute and deposit the same over the elevated edge of suitable openings in the case, at the termination of its movement in each direction.

Second, in a peculiar formation of the case and seed-plate by which a converging seed-throat is formed between the two, which is designed and adapted to gather the grains of corn of different sizes and convey them to the bottom of the seed-cells, so that a single grain of corn occupies each cell. This part of the invention is designed to avoid the necessity of a change of feed-wheels for changes in size of corn in machines adapted to deliver separate single grains of corn, and it is an improvement adapted alike to machines having rotary wheels and to the vibratory wheel or plate referred to in reference to the first part of my invention.

My improvement consists, in the third part, in a peculiar formation of the seed-cells, more particularly described hereinafter.

A is the hopper, B the bottom plate of the same, in which the grain chute or channel C is formed, and D the side plate, against which the seed plate or wheel runs in contact, and which forms one side of the case of the wheel. An opening, *a*, is formed in the plate D, through which the corn passes from the hopper to the feed wheel or plate. In Fig. 1 the feed-plate E is arranged to have a vibratory motion on the stud *b* which projects from the plate D, the upper edge of the plate having a crank-arm, F, adapted to receive a vibratory motion from the front or other ground wheel of the corn-planter. Upon the plate D two laterally-extending curved flanges, *c d*, are formed, the flange *c* being adapted to closely fit the curve of the edge of the feed-plate E. The spaces between these flanges are grain-discharging channels, *e f*, joining at the bottom, so as to carry the seed from each side to the grain-spout G for conveyance in the usual way to the ground. The corn is thrown into these channels *e f*, alternately, over the upper edges *g g'* of the flange *c*. The feed-plate E is circular, as shown on its working edge, and provided with an angular web or face, *i*, (whose angularity at the cells extends to the bottom of the wheel,) for conducting the seed to the seed-cells, and the plate D is formed on the lower edge with an angular face, *i'*. These faces *i i'* join in the formation of a converging throat for the collection of seed, which is adapted to gather seed for the seed-cells and carry them singly to the bottom of said cells, no matter whether the grains are of the same shape and size or varying considerably in these particulars, and thus a change of wheels for varying sizes of grain is avoided.

G' are the seed-cells formed in the edge of the plate E. They are cut so that on the side next the web *i* the face of the cell corresponds nearly with the angularity of the web *i*, so that in section through the cells the convergence of the throat extends to the bottom of the cells, as before indicated. Each cell on the edge *k*, which reaches the delivery edge *g* or *g'* first, is angular or sloping in two directions, as shown, both to flare toward the in-

ner edge of the wheel and to flare toward the axis of the wheel. This formation prevents the seed when it is received in the cell from lodging across the cells lengthwise and being supported in such a position. The edge *k*, by reason of its peculiar formation, tilts the grain on its edge in leading it into the cell, and causes it to drop edgewise and endwise properly. It also causes a separation of the other grains in the case from the one in the cell. The other edge, *k'*, is the one which carries up the seed to the edge *g* or *g'*, and it is sloped so as to flare toward the inner edge of the wheel to a less extent than the edge *k*, and to flare away from the axis of the wheel. The first angle causes the seed to have a more positive delivery, as it prevents any tendency to rest or hang on the edge of the cell when the delivery edge *g* or *g'* is reached; but this angle is comparatively unimportant, as this side may be cut straight, or, in other words, in line with the axis, and the other angularity gives the slope necessary for the descent of the grain by gravity out of the cell, when the cell reaches the edge *g* or *g'*. The flange *c* I do not extend out so as to complete one side of the discharge-channel *e f*, although it may be so extended, but in constructing the cap-plate H, which forms the outside of the wheel-case, I provide it with a flange, *l*, to form a continuation of the rim or inside curve of the discharging-channel which the flange *c* commences. The bottom of flange *l* is cut away at *p* to discharge dirt, chaff, &c., which may be collected around the edge of the feed-plate. The case of the feed-plate may be completed by the attachment of an upper cap-plate or bonnet, I. The plate H and bonnet I may be cast in one piece, but I rather prefer the separate bonnet, as it enables the farmer to inspect the operations of the wheel or feed-plate without taking off the plate H. The improvement in the formation of the seed-throat and seed-cells G' may be embodied in wheels which move continuously in one direction, delivering corn over a single edge, *g* or *g'*, and in this case the cells of the wheel are all alike—that is, cut in the same direction with relation to axis—while in a vibratory plate the direction of cut of the two cells is on opposing angles, as shown, so as to give the descending slope of side *k* for delivery of seed at the termination of the movement in each direction. The plate E at the edges *m* is very thin, so that it may not be capable of carrying up seed on these edges and throwing it over the edges *g g'*. By having them thus or sharp, as shown, the plate is enabled to enter under the grains and let them fall back into the bottom of the case, while the single grain in the cell is separated and carried up for discharge. A portion of the metal in the middle between the cells of plate E may be cut away, and the edges of this cut sharpened like the edges *m*, so that in that case the arms *n* of the plate will each have a curved piece of metal sharpened at both ends and containing a seed-cell, G', and many other changes in form may be made without departing from the essential features of my invention. In case of the cutting away of the center of plate E, the flange *l* must be continuous, to prevent the escape of the grain at the bottom, or, in other words, not have the notch or opening *p*. Furthermore, although I prefer, in the use of the vibratory plate, to deliver seed at the termination of the movement in each direction, it may, of course, be used to drop on one side only from one cell. In place of having a plate, E, with arms *n*, as shown, it may be a close circular wheel or close plate to form of itself a part of the grain-case, and in this case the cap H and bonnet I may be dispensed with, the crank-arm F, or wrist, being secured on the outside of the wheel or plate.

I claim—

1. A corn-planter having a side plate, D, delivering grain from a hopper through a suitable opening, *a*, and a feed plate or wheel, E, having a vibratory movement, and adapted to deliver seed from a seed-cell or cells formed on its edge over elevated edge or edges *g* or *g'* in the case of the wheel or plate, substantially as and for the purpose specified.

2. The curved plate D and seed wheel or plate E, forming, when united, a throat for collection of seed, gradually contracted, as shown, to guide the seed into the mouth of the cell G', substantially as and for the purpose specified.

3. The seed-cell G', having its side *k* formed so as to flare inwardly in both directions, substantially in the manner and for the purpose specified.

4. The curved plate D and seed wheel or curved plate E, forming, when united, a throat for collection of seed, gradually contracted to guide the seed into the mouth of the seed-cell G', and also forming the seed-cell G' contracted downward, substantially as shown, and for the purpose specified.

In testimony of which invention I hereunto set my hand.

JOHN H. FARMER.

Witnesses:
JOHN E. JONES,
J. L. WARTMANN.